



A635-Bus Rapid Transfer Route

Factual Report on Ground Investigation



Report No: 765681 (02)

Client: Barnsley Metropolitan Bureau Council

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1 INTRODUCTION

Structural Soils Limited (SSL) have been instructed by WSP (the Engineer) on behalf of Barnsley Metropolitan Bureau Council (BMBC), (the Client) to undertake a ground investigation at a site in Barnsley. The purpose of the work was to obtain geotechnical and geo-environmental information in relation to the proposed development of the site.

The scope of the investigation comprised boreholes, window samples, in-situ testing, groundwater monitoring, geotechnical and geo-environmental laboratory testing and the preparation of this report.

The ground investigation has been carried out in accordance with the contract specification, and the general requirements of BS 5930:2015+A1:2020, BS 10175:2011+A2:2017, BS EN 1997-2:2007, BS EN ISO 22475-1:2021 and other relevant standards as identified in this report.

This report presents the factual information obtained by the ground investigation including records of all field and laboratory work carried out, together with an interpretation of the ground conditions and recommendations on foundation types where appropriate. All information given in this report is based on the ground conditions encountered during the site work, and on the results of the field and laboratory work performed during the investigation.

Whilst every attempt is made to record full details of the strata encountered in the exploratory holes, techniques of hole formation and sampling will inevitably lead to disturbance, mixing or loss of material in some soils and rocks. There may be conditions at the site that have not been taken into account, such as unpredictable soil strata, contaminant concentrations, and water conditions between or below exploratory holes.

This report was prepared by SSL for the sole and exclusive use of Barnsley Metropolitan Bureau Council in response to particular instructions. Any other parties using the information contained in this report do so at their own risk and any duty of care to those parties is excluded. No liability will be accepted after a period of 6 years from the date of the report.

2 SITE DESCRIPTION

2.1 Location and Topography

The site is located at Stairfoot Roundabout, which is a junction between A635 to the east and west, A633 to the north and south-east and B6100 to the south-west (NGR 437250, 405500, nearest postcode S71 5AH). The centre of the roundabout is occupied by soft landscaping with trees, with a bus lane running through the centre. Surrounding the roundabout are a mixture of commercial premises, including a supermarket and restaurants.

The Trans Pennine Trail (TPT) crosses to the north east of the roundabout, utilising disused railway lines as a cycling route.

The areas of investigation include the existing roundabout, approach roads, some adjoining properties, and the TPT. With exploratory hole locations carried out within the highway structure, on soft landscaped verges, on the TPT, and on private land adjacent to the scheme.

2.2 Geology

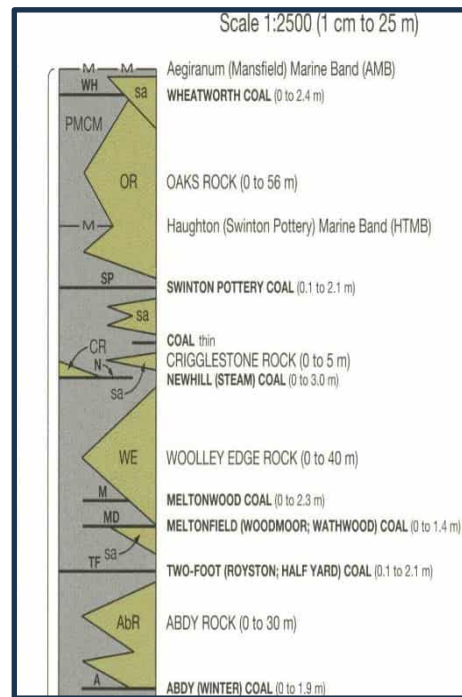
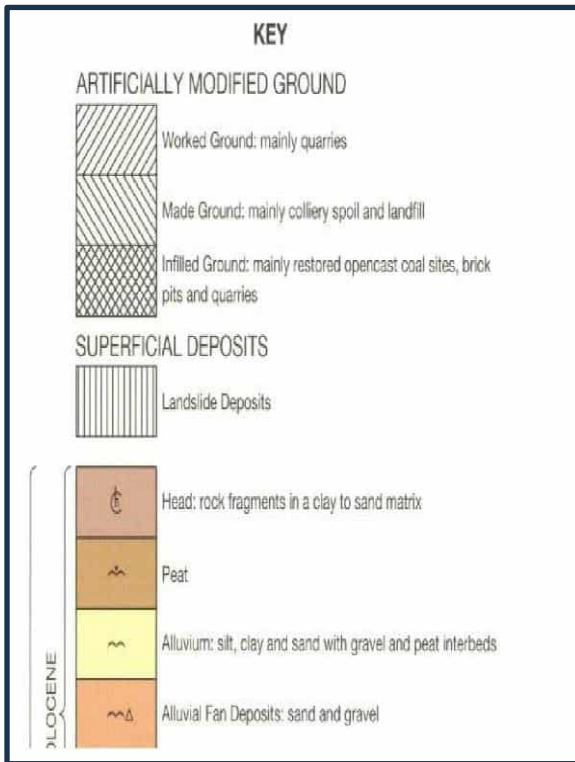
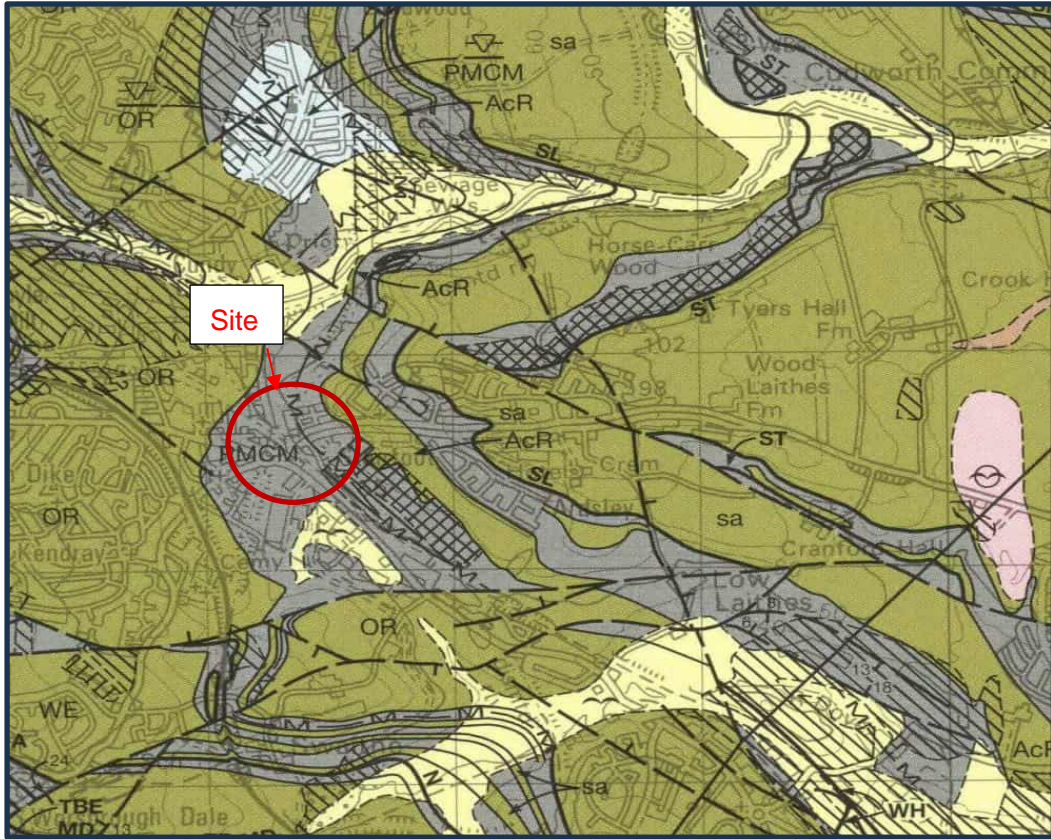
Information on the geology of the site was obtained from the following sources published by the British Geological Survey (BGS):

- BGS map (Sheet Number 87, Sheffield, scale 1:50.000 drift and bedrock published 2008).
- The BGS GeoIndex (onshore) digital geology map, which utilises the most up to date names for geological units. (<https://www.bgs.ac.uk/map-viewers/geoindex-onshore/>)
- The BGS Lexicon of Named Rock Units, which provides typical descriptions for most geological units (<https://webapps.bgs.ac.uk/lexicon/>).

The site is shown to be underlain by the following descending sequence of strata:

| TABLE 1 : SUMMARY OF EXPECTED SITE GEOLOGY | |
|---|---|
| Geological Unit | Description |
| ANTHROPOGENIC GROUND | |
| Artificial Ground | To the south of the site |
| SUPERFICIAL DEPOSITS | |
| Alluvium (adjacent to eastern edge of site) | Clay, silt, sand and gravel shown to the south of the site |
| SOLID GEOLOGY | |
| Pennine Middle Coal Measures Formation (PMCM) | Interbedded grey mudstone, siltstone, pale grey sandstone and commonly coal seams |
| Oaks Rock (named unit within the PMCM) | Sandstone, fine to medium grained thinly bedded |

Note: Information obtained from BGS digital records © NERC.



Above images contain British Geological Survey materials ©NERC [2018].

3 FIELDWORK

3.1 General

The ground investigation was carried out by SSL between 29/07/2024 and 21/08/2024. The investigation was supervised by an engineer from SSL. The scope of works and positions were specified by WSP, set out by SSL and adjusted where necessary to take account of buried or overhead services, or other restrictions. The exploratory hole and in-situ test locations are shown on the Exploratory Hole Location Plan presented in Appendix A.

3.2 Buried and Overhead Utility Clearance

Prior to the commencement of any exploratory hole or intrusive test, all positions were checked for buried services by a specialist utility surveyor using a cable avoidance tool (CAT), signal generator ('genny'), and ground penetrating radar (GPR).

Inspection pits were hand dug at exploratory locations where noted on the relevant exploratory hole logs or in-situ test results.

3.3 Exploratory Holes

The exploratory holes are listed in the following table.

| TABLE 2 : SCOPE OF INTRUSIVE WORKS | | | |
|------------------------------------|-----------------------|-------------------|--|
| Quantity | Exploratory Hole Type | Maximum depth (m) | Hole / Test Numbers |
| 14 | Boreholes | 30.00 | BH01, BH02, BH03, BH06, BH07, BH08, BH09, BH10, BH11, BH12, BH13, BH14, BH15, BH16 |
| 37 | Window Samples | 5.45 | WS01, WS02, WS03, WS04, WS04A, WS04B, WS05, WS06, WS07, WS08, WS09, WS10, WS11, WS11A, WS13, WS14, WS15, WS16, WS17, WS18, WS18A, WS19, WS20, WS21, WS22, WS23, WS24, WS26, WS27, WS28, WS29, WS29A, WS30, WS31, WS32, WS33, WS34. |
| 1 | Inspection Pit | 1.20 | BH14A |

The exploratory hole logs are presented in Appendix B.

The logs provide information including the equipment and methods used, samples taken, tests carried out, water observations and descriptions of the strata encountered. Explanation of the terms and abbreviations used on the logs is given in the Key to Exploratory Hole Records in Appendix B, together with other explanatory information.

The holes were logged by an engineer in general accordance with the recommendations of BS 5930:2015+A1:2020 (which incorporates the requirements of BS EN ISO 14688-1:2018, 14688-2:2018 and 14689:2018). Detailed descriptions, together with relevant comments, are given on the logs.

Due the proximity of buildings and other structures, a GPS survey of the exploratory hole locations was not undertaken. Boreholes and Trial Pits locations as shown in Appendix A are measured in from site features.

3.4 Boreholes

Fourteen boreholes were carried out at different locations using Dynamic Sampling (DS), Cable Percussion (CP), Sonic Drilling (SD) and Rotary Coring (RC). The breakdown of the locations, the final depth and the techniques used along with other information is shown in the table below:

| TABLE 3: BOREHOLE BREAKDOWN | | | | | |
|-----------------------------|---------|------------------|----------------------------|-----------------------|--------|
| Hole ID | Type | Max Depth (mBGL) | Rig | Location | Shift |
| BH01 | SD+RC | 20.50 | Comacchio GEO 305 Sonic | Former B&Q | Days |
| BH02 | SD+RC | 20.00 | Comacchio GEO 305 Sonic | Former B&Q | Days |
| BH03 | SD+RC | 8.50 | Comacchio GEO 305 Sonic | Former B&Q | Days |
| BH06 | CP + RC | 20.00 | Dando 2500+ Massenza M-I-3 | Trans Pennine Trail | Days |
| BH07 | DS + RC | 10.00 | Massenza M-I-3 | Verge | Nights |
| BH08 | CP + RC | 30.00 | Dando 2500+ Massenza M-I-3 | Trans Pennine Trail | Days |
| BH09 | CP + RC | 22.50 | Dando 2500+ Massenza M-I-3 | Trans Pennine Trail | Days |
| BH10 | CP + RC | 30.00 | Dando 2500+ Massenza M-I-3 | Trans Pennine Trail | Days |
| BH11 | CP + RC | 30.00 | Dando 2500+ Massenza M-I-3 | Trans Pennine Trail | Days |
| BH12 | DS + RC | 10.50 | Massenza M-I-3 | Black Bull / Compound | Days |
| BH13 | DS + RC | 10.20 | Massenza M-I-3 | Black Bull / Compound | Days |
| BH14 | DS + RC | 10.40 | Massenza M-I-3 | Front of Starbucks | Nights |
| BH15 | SD+RC | 20.20 | Comacchio GEO 305 Sonic | Aldi Car Park | Days |
| BH16 | DS + RC | 20.20 | Comacchio GEO 305 Sonic | Aldi Car Park | Days |

Details of the diameter used, and the depth achieved with each technique are shown in the Boreholes logs on Appendix B.

Standard Penetration Tests (SPT) were carried out at regular intervals as detailed in Section 3.9 below.

Representative small and bulk disturbed soil samples were recovered from the boreholes at regular intervals and placed in sealed containers for geotechnical description and subsequent laboratory testing.

Where appropriate and required, environmental samples were obtained for geo-chemical testing.

3.5 Window Sampling

Thirty-seven Window samples up to a maximum depth of 5.45m depth were carried out at different locations. Location, depth and other information is shown on table 4 next page.

TABLE 4: WINDOW SAMPLE BREAKDOWN

| Hole ID | Type | Max Depth (mBGL) | Location | Shift |
|---------|------|------------------|---|--------|
| WS01 | DS | 0.70 | Narrow footway, next to live carriageway. | Nights |
| WS02 | DS | 0.60 | Narrow footway, next to live carriageway. | Nights |
| WS03 | DS | 1.58 | Narrow footway, next to live carriageway. | Nights |
| WS04 | DS | 0.30 | Narrow footway, next to live carriageway. | Nights |
| WS04A | DS | 0.65 | Additional hole required after locating buried cable. | Days |
| WS04B | DS | 0.61 | Additional hole required after locating obstruction. | Days |
| WS05 | DS | 4.03 | Narrow footway, next to live carriageway. | Days |
| WS06 | DS | 4.69 | Grass verge next to live carriageway. | Days |
| WS07 | DS | 3.38 | MD Car Sales car park. | Days |
| WS08 | DS | 3.28 | Barnsley Valeting grounds. | Days |
| WS09 | DS | 4.13 | Carpark for The Keel Inn Public House. | Days |
| WS10 | DS | 3.30 | Grassed area between footways. | Days |
| WS11 | DS | 0.32 | Grass verge near footway. | Days |
| WS11A | DS | 0.35 | Additional hole required after locating obstruction. | Days |
| WS13 | DS | 3.33 | Temporarily closed area of carriageway lane. | Days |
| WS14 | DS | 0.55 | Narrow footway, next to live carriageway. | Nights |
| WS15 | DS | 1.91 | Narrow footway, next to live carriageway. | Nights |
| WS16 | DS | 2.10 | Narrow footway, next to live carriageway. | Nights |
| WS17 | DS | 3.96 | Grass verge near footway. | Days |
| WS18 | DS | 0.80 | Footway next to live carriageway. | Days |
| WS18A | DS | 1.00 | Footway next to live carriageway. | Days |
| WS19 | DS | 5.45 | Field above a small retaining wall. | Days |
| WS20 | DS | 2.23 | Narrow footway, next to live carriageway. | Nights |
| WS21 | DS | 0.35 | Footway next to live carriageway. | Days |
| WS22 | DS | 2.20 | Abandoned car park with concrete blocks. | Days |
| WS23 | DS | 2.90 | Grass verge near footway and trees. | Days |
| WS24 | DS | 1.50 | Vegetated area near Starbucks. | Days |
| WS26 | DS | 1.55 | Narrow footway, next to live carriageway. | Nights |
| WS27 | DS | 1.93 | Narrow footway, next to live carriageway. | Nights |
| WS28 | DS | 2.33 | Narrow footway, next to live carriageway. | Nights |
| WS29 | DS | 0.45 | Footway/ parking area close to trans pennines trail. | Days |
| WS29A | DS | 3.32 | Footway/ parking area. | Days |
| WS30 | DS | 3.45 | Narrow footway next to live carriageway. | Days |
| WS31 | DS | 3.34 | Narrow footway next to live carriageway. | Days |
| WS32 | DS | 4.40 | Grass verge next to footway and live carriageway. | Days |
| WS33 | DS | 4.30 | Field above a small retaining wall. | Days |
| WS34 | DS | 3.45 | Field above a small retaining wall. | Days |

3.6 Chemical Contamination Sampling

Samples for contamination testing were taken from the exploratory holes where indicated on the exploratory hole logs, recorded as sample types ES for soil.

The samples were dispatched in appropriate sample containers stored in cool boxes directly from the site to the testing laboratory by courier.

3.7 Backfill and Instrumentation

On completion 50 mm diameter groundwater monitoring wells were installed in selected boreholes, as detailed on the borehole logs. The design of each was determined on site by WSP. A flush cover was concreted into place, with a rubber bung and a gas valve fitted, onto each installation to facilitate long term gas monitoring.

A schematic of each installation is shown on the relevant borehole logs with full details presented on the Summary Table of Installations presented within Appendix B.

The boreholes below the installations were backfilled with bentonite cement grout.

The rest of the locations were backfilled and brought up to ground level with arisings in reverse order and reinstated as per the original set up.

3.8 In-situ Testing

3.8.1 Standard Penetration Testing

Standard Penetration Tests (SPT) were carried out in the boreholes in accordance with BS EN ISO 22476-3:2005+A1:2011 using a hammer which has been calibrated for efficiency. The calibration certificate is included in Appendix G. Seating drives have been recorded in increments of 75 mm in accordance with recommended UK practice.

The SPT N-values are reported on the borehole logs, on which the calibration number of the hammer used is recorded. The full results are presented in tabular format on the Standard Penetration Test Summary Sheet in Appendix C, on which the normalised N60 values are also reported, which are the equivalent N-value for a hammer delivering 60% of the theoretical drop energy. A plot showing SPT N values versus depth is also included.

3.9 Monitoring and Post Fieldwork Environmental Sampling

A twelve-visit programme of post fieldwork groundwater monitoring has been scheduled. At the time of writing monitoring is still ongoing.

It should be noted that groundwater levels, gas concentrations and gas flows usually vary due to seasonal, atmospheric and/or other effects and may at times differ to those measured during the investigation.

The results together with the temporal (weather) conditions are tabulated in Appendix F.

4 LABORATORY TESTING

Samples for potential geotechnical testing were returned to one of the company's UKAS accredited laboratories.

Samples for potential geo-environmental testing were sent to Envirolab Limited, a MCERTS and UKAS accredited testing laboratory. Laboratory tests were scheduled by Arup. Tests carried out in accordance with MCERTS/UKAS standards where noted on the results sheets.

4.1 Geotechnical Laboratory Testing

Geotechnical laboratory testing was generally carried out in accordance with the relevant parts of:

- BS EN ISO 17892:2014-2022 Parts 1-12, *Geotechnical investigation and testing – Laboratory testing of soil*,
- BS 1377:2016-2022 Parts 1-3, *Methods of test for soils for civil engineering purposes* (for test methods not covered in BS EN ISO 17892),
- BS 1377:1990 Parts 1-8, *Methods of test for soils for civil engineering purposes* (for tests carried out to older legacy methods),
- International Society for Rock Mechanics and Rock Engineering (ISRM) *Suggested Methods for Rock Characterization, Testing and Monitoring*, 1974-2006, 2007-2014 and 2015+
- BRE Special Digest 1:2005 (SD1) *Concrete in aggressive ground. Assessing the aggressive chemical environment*. Third edition.

The results are reported in tabular and/or graphical form and included as Appendix D of this report. The test methods used are detailed on the report sheets, and where non-standard procedures have been undertaken, this is recorded on the report sheet.

| TABLE5: SUMMARY OF GEOTECHNICAL TESTING | | |
|---|--|---------|
| Number of tests | Test | Remarks |
| Soil Tests | | |
| 100 | Water content/ Moisture content | |
| 86 | Liquid and plastic (Atterberg) limits. | |
| 44 | Particle size distribution by sieving. | |
| 16 | Particle size distribution by sedimentation. | |
| 10 | Particle density | |
| 9 | 2.5kg Compaction | |
| 1 | 4.5kg Compaction | |
| 7 | Vibrating hammer | |
| 6 | Quick triaxial | |

| TABLE5: SUMMARY OF GEOTECHNICAL TESTING | | |
|---|--|--|
| Number of tests | Test | Remarks |
| 1 | Consolidation | |
| Rock Tests | | |
| 13 | Uniaxial compressive strength tests. | |
| 192 | Point Load Index. | The natural ('as received') water content of the samples was determined. |
| Chemical Tests: Soil* | | |
| 5 | Water soluble sulphate content and pH value. | |

4.2 Geo-environmental Laboratory Testing

The geo-environmental testing carried out is summarised in the following table. The results are included as Appendix E of this report and include details of the test method.

Tests carried out are as follows

| TABLE 1 : SUMMARY OF GEOENVIRONMENTAL LABORATORY TESTING | | |
|--|----------------------------|---|
| Numbers of tests (complete) | Description | Notes |
| SOIL | | |
| 56 | E(a) Soil Samples General | Arsenic, Cadmium, Chromium (Total), Chromium (hexavalent), Copper, Lead, Mercury, Nickel, Selenium, Zinc. Cyanide (Total and Free), USEPA16. |
| 16 | E(c) Soil samples | Arsenic, Cadmium, Chromium (Total), Chromium (hexavalent), Copper, Lead, Mercury, Nickel, Selenium, Zinc. Cyanide (Total and Free), USEPA16, pH, Water soluble Sulphate, Organic Matter, (TPH). |
| 23 | E(a) Soil Samples Leachate | Arsenic, Cadmium, Chromium (Total), Chromium (hexavalent), Copper, Lead, Mercury, Nickel, Selenium, Zinc. Cyanide (Total and Free), USEPA16. |
| 64 | Asbestos Presence | |
| 3 | Asbestos Quantification | |

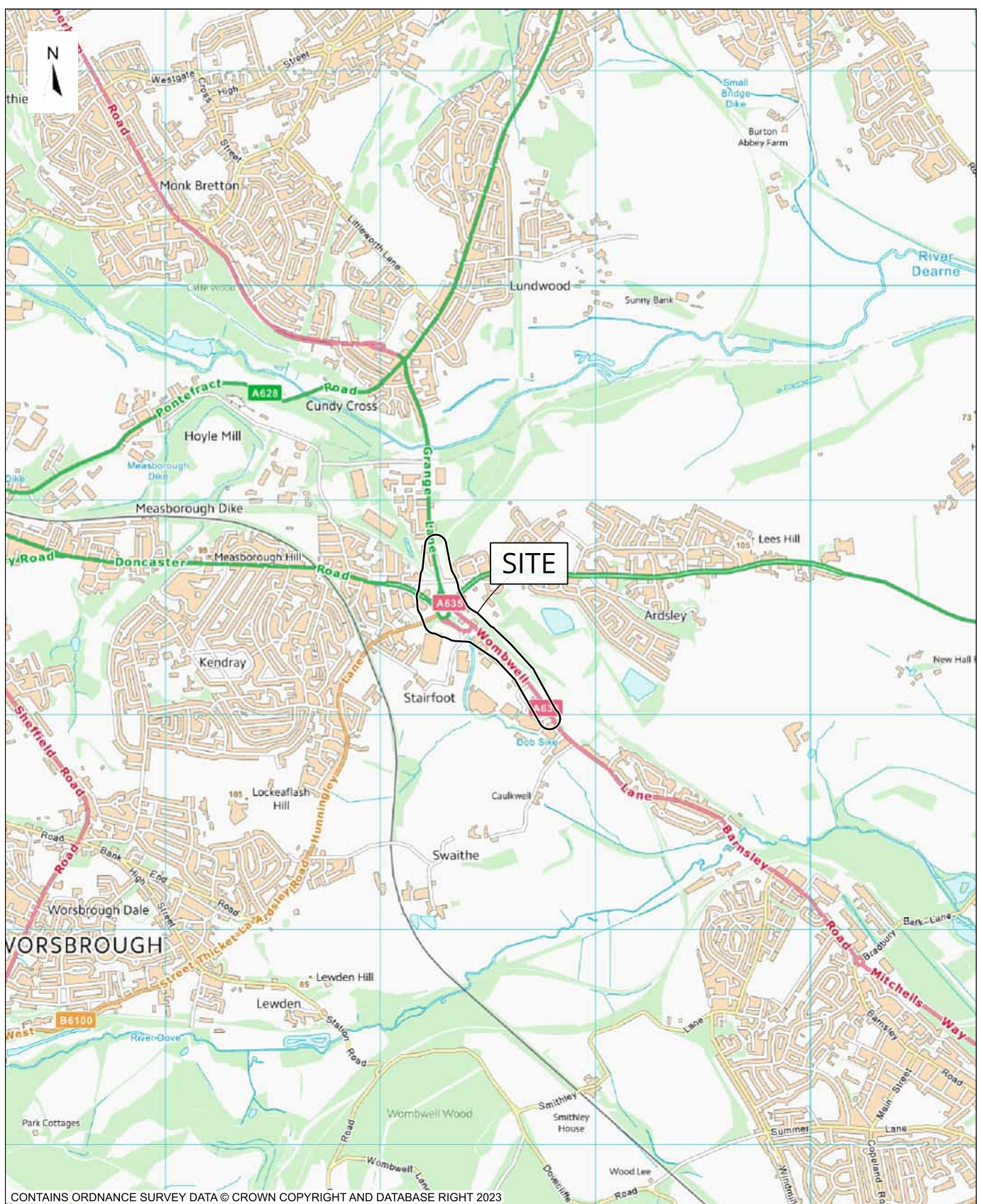
5 REFERENCES

- 5.1 BS 5930:2015+A1:2020 *Code of practice for ground investigations*
- 5.2 BS 10175:2011+A2:2017 *Investigation of potentially contaminated sites: Code of practice*
- 5.3 BS EN 1997-2:2007 *Eurocode 7 — Geotechnical design. Part 2: Ground investigation and testing*
- 5.4 BS EN ISO 22475-1:2021 *Geotechnical investigation and testing - Sampling methods and groundwater measurements. Part 1: Technical principles for the sampling of soil, rock and groundwater*
- 5.5 British Geological Survey map (Sheet Number 87, Sheffield, scale 1:50.000 superficial and bedrock published 2008).
- 5.6 British Geological Survey, Geindex (onshore) digital map viewer. Available online: <https://www.bgs.ac.uk/map-viewers/geoindex-onshore/>
- 5.7 British Geological Survey, Lexicon of Named Rock Units. Available online: <https://webapps.bgs.ac.uk/lexicon/>
- 5.8 BS EN ISO 14688-1:2018 *Geotechnical investigation and testing – Identification and classification of soil. Part 1: Identification and description*
- 5.9 BS EN ISO 14688-2:2018 *Geotechnical investigation and testing – Identification and classification of soil. Part 2: Principles for a classification*
- 5.10 BS EN ISO 14689:2018 *Geotechnical investigation and testing – Identification, description and classification of rock*
- 5.11 BS EN ISO 22476-3:2005+A1:2011 *Geotechnical investigation and testing – Field testing. Part 3: Standard penetration test*
- 5.12 BS EN ISO 17892:2014-2022 *Geotechnical investigation and testing – Laboratory testing of soil. Parts 1-12*
- 5.13 BS 1377:2016-2022 *Methods of test for soils for civil engineering purposes. Parts 1-3.* (for test methods not covered by BS EN ISO 17892 series of standards)


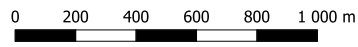
- 5.14** BS 1377:1990 *Methods of test for soils for civil engineering purposes. Parts 1-9.* (for tests carried out using legacy methods)
- 5.15** BRE Special Digest 1:2005 (SD1), *Concrete in aggressive ground. Assessing the aggressive chemical environment. Third Edition*
- 5.16** BS EN IS/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*
- 5.17** ISO 22476-1:2022 *Geotechnical investigation and testing:-Field testing Part 1: Electrical cone and piezocone penetration test*

APPENDIX A - PLANS AND DRAWINGS


- (i) Site Location Plan
- (ii) Exploratory Hole Location Plan

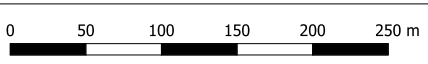


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| | | | | | | A635-BARNSELY BUS TRANSIT ROUTE | | | | | | | |
| | | | | | | TITLE | | | | | | | |
| | | | | | | SITE LOCATION MAP | | | | | | | |
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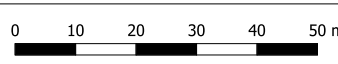
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

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| PROJECT | | |
| A635-BARNSELY BUS TRANSIT ROUTE | | |
| TITLE | | |
| EXPLORATORY HOLE LOCATION PLAN | | |
| JOB NO | SCALE BAR | FIGURE |
| 765865 |  | 2.0 |

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| NOTES |
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|---|------------|-------------|--------|------|------|
|  STRUCTURAL SOILS LTD <small>The Potteries Pottery Street Cardiford WF10 1NJ</small> | | | | | |
| 00 | 22.10.2024 | FIRST ISSUE | AA | MG | - |
| REV | DATE | DESCRIPTION | BY | CHD. | APR. |
| DIMENSION | | | SCALE | | |
| m | | | 1:1250 | | |
| ORIGIN SIZE | | | A3 | | |

| | | |
|---------|--|--------|
| CLIENT | BARNSELY METROPOLITAN BUREAU COUNCIL | |
| PROJECT | A635-BARNSELY BUS TRANSIT ROUTE | |
| TITLE | EXPLORATORY HOLE LOCATION PLAN | |
| JOB NO | SCALE BAR | FIGURE |
| 765865 |  | 2.1 |

| |
|---|
| LEGEND |
|  BOREHOLE  WINDOW SAMPLE |
| NOTES |
| - |



WS29

WS30

WS31

STRUCTURAL SOILS LTD

The Potteries
Pottery Street
Camford
WF10 1NJ
Tel: 01977 552255
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www.ssls.co.uk


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|---------|--------------------|--------------------------------------|--|
| CLIENT | | BARNSELY METROPOLITAN BUREAU COUNCIL | |
| PROJECT | | A635-BARNSELY BUS TRANSIT ROUTE | |
| TITLE | | EXPLORATORY HOLE LOCATION PLAN | |
| JOB NO | SCALE BAR | FIGURE | |
| 765865 | 0 10 20 30 40 50 m | 2.2 | |

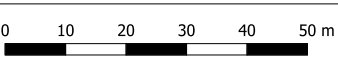
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| LEGEND |
| ● WINDOW SAMPLE |
| NOTES |
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| 00 | 22.10.2024 | FIRST ISSUE | AA | MG | - |
|-----------|------------|-------------|-------------|------|------|
| REV | DATE | DESCRIPTION | BY | CHD. | APR. |
| DIMENSION | | SCALE | ORIGIN SIZE | | |
| m | | 1:1250 | A3 | | |



WS32

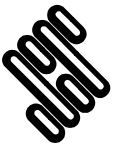
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|  STRUCTURAL SOILS LTD <small>The Potteries Pottery Street Cardiff WF10 1NJ</small> <small>Tel: 01977 552255 mah@ssls.co.uk www.ssls.co.uk</small> | | | | | |
| 00 | 22.10.2024 | FIRST ISSUE | AA | MG | - |
| REV | DATE | DESCRIPTION | BY | CHD. | APR. |
| DIMENSION | | SCALE | ORIGIN SIZE | | |
| m | | 1:1250 | A3 | | |

| | | |
|--------------------------------------|--|--------|
| CLIENT | | |
| BARNSELY METROPOLITAN BUREAU COUNCIL | | |
| PROJECT | | |
| A635-BARNSELY BUS TRANSIT ROUTE | | |
| TITLE | | |
| EXPLORATORY HOLE LOCATION PLAN | | |
| JOB NO | SCALE BAR | FIGURE |
| 765865 |  | 2.3 |

| |
|-----------------|
| LEGEND |
| ● WINDOW SAMPLE |
| NOTES |
| - |

APPENDIX B - EXPLORATORY HOLE RECORDS

- (i) Key to Exploratory Hole Logs
- (ii) Borehole Logs
- (iii) Window Sample Logs
- (iv) Summary Table of Installations



KEY TO EXPLORATORY HOLE LOGS - SUMMARY OF ABBREVIATIONS

SAMPLING

Sample type codes:

- B = Bulk disturbed sample.
- C = Core sample.
- D = Small disturbed sample.
- DSPT = Small disturbed sample originating from SPT test.
- ES = Soil sample for environmental testing.
- UT = Undisturbed thin wall sample.

Undisturbed sample detail codes:

- U_(UT100) = Undisturbed sample UT100.

IN-SITU TESTING

- SPT = Standard Penetration Test using split spoon sampler. _(NR) indicates 'No Sample Recovery'.
- PID = Photo Ionisation Detector Results, in ppm.

ROTARY DRILLING INFORMATION

- W = Water flush returns (%)
- TCR = Total core recovery (%)
- SCR = Solid core recovery (%)
- RQD = Rock quality designations (%)
- If = Fracture spacing (mm).

Where variable the minimum - mode - maximum spacing may be quoted.

In fracture column (i) denotes discontinuity is infilled (refer to Fracture Table for details). 'NI' denotes non-intact core. 'NA' denotes not applicable.

- All borehole log drill times are reported in hh:mm.
- All lengths used to determine rock core mechanical properties taken along the centre line of the core.
- Obvious induced fractures have been ignored.
- The assessment of solid core is based on lengths that show a full diameter and not necessarily a full circumference.

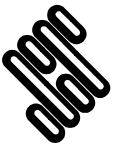
Where used Rotary flushing medium abbreviations:

- A+M = Air+Mist
- W = Water

- AZCL = Assessed zone of core loss.





ADDITIONAL NOTES

1. All soil and rock descriptions and legends in general accordance with BS EN ISO 14688-1:2018, 14688-2:2018, 14689:2018, and BS5930:2015+A1:2020.
2. Material types divided by a broken line (- - -) indicates an unclear boundary.
3. Fracture spacings (If) quoted in the Description of Strata for specific strata or specific fracture sets are also quoted in mm, e.g. (25/80/230) referring to (Min/Avg/Max).
4. The data on any sheet within the report showing the AGS icon is available in the AGS format.
5. Weathering descriptions in accordance with CIRIA Report C570 Engineering in Mercia Mudstone, CIRIA Report C574 Engineering in Chalk (2002), London Clay (King 1981), BS 5930:2015+A1:2020 Code of practice for ground investigations - Figure 9 - Approach 2, BS 5930:2015+A1:2020 Code of practice for ground investigations - Figure 9 - Approach 4, BS EN ISO 14689:2018 Geotechnical Investigation and testing - Identification, Description and Classification of Rock - Table 13.



















KEY TO EXPLORATORY HOLE LOGS - SUMMARY OF GRAPHIC SYMBOLS











WATER COLUMN SYMBOLS

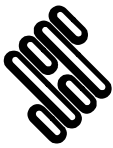
-  First water strike, second water strike etc.
-  Standing water level following first strike, standing water level following second strike etc.
-  Seepage.
-  Standing water level recorded at documented date.

MATERIAL GRAPHIC LEGENDS

| | | | | | | | |
|---|------------------|---|---------------|---|---------------------|---|---------------------|
|  | CLAY |  | Gravelly CLAY |  | Gravelly silty CLAY |  | Gravelly SAND |
|  | MADE GROUND |  | Mudstone |  | Sandstone |  | Sandy CLAY |
|  | Sandy silty CLAY |  | Sandy GRAVEL |  | Gravelly sandy CLAY |  | Sandy gravelly CLAY |
|  | Siltstone |  | Silty CLAY |  | Gravelly silty SAND |  | Zone of core loss |

INSTRUMENTATION SYMBOLS

| | | | | | | | |
|---|--------------------------|---|----------------|---|-----------------|---|------------------------|
|  | Asphalt |  | Backfill |  | Ballast (clean) |  | Bentonite cement grout |
|  | Bentonite cement pellets |  | Bentonite seal |  | Concrete |  | Gravel filter |
|  | Plain pipe |  | Slotted pipe | | | | |



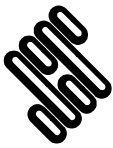
| | | | | | |
|--|--|--|----------------------------|---|-----------------------|
| Contract: A635 Barnsley Bus Rapid Transit Route | | Client: Barnsley Metropolitan Borough Council | | Borehole: BH01 | |
| Contract Ref: 765865 | | Start: 12.08.24 | Ground Level: 53.84 | National Grid Co-ordinate: E:437257.4 N:405427.2 | Sheet: 2 of 11 |
| End: 14.08.24 | | | | | |

| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details | Backfill & Instrumentation | Water | Description of Strata | Reduced Level | Depth (Thickness) | Material Graphic Legend |
|---------------------------|-------------------|------|---------|----------------|---------|---------|------------|--------------------------|----------------------------|-------|--|---------------|-------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | | |
| 4.90-5.05 | 9 | C | | 100 | 73 | 43 | NI 150 280 | | | | Extremely weak to very weak thinly laminated brownish grey MUDSTONE with extremely closely to very closely spaced thin laminae of greyish white sandstone and rare thin laminae of coal. Bedding Fractures are 5 to 10° extremely closely to closely spaced undulating rough open with brown discoloration on fractures and smears of brown clay up to 2mm. (PENNINE MIDDLE COAL MEASURES FORMATION) (stratum copied from 3.70m from previous sheet) | 49.24 | 4.60 | |
| 5.50-7.00 | | | | | | | | | | | | 48.04 | 5.80 | (1.20) |
| 6.30-6.45 | 10 | C | | 100 | 53 | 17 | | | | | Very weak thinly laminated grey MUDSTONE with extremely closely to very closely spaced thin laminae of greyish white sandstone and rare thin laminae of coal. Bedding Fractures are 5 to 10° extremely closely to medium spaced undulating rough open wide. (PENNINE MIDDLE COAL MEASURES FORMATION) . . . 5.10-5.50m, grey mudstone is non intact recovered as angular fine to coarse gravel of grey mudstone. . . . 5.65-5.80m, mudstone is non intact recovered as angular fine to coarse gravel. | | | |
| 7.00-7.75 (0:24) | | | | | | | NI 100 170 | 80% return Water (Brown) | | | Very weak thinly laminated dark grey MUDSTONE with extremely closely to very closely spaced thin laminae of grey fine to medium sandstone with rare thin laminae of coal and plant fossils. Bedding Fractures are 5 to 10° extremely closely spaced to closely spaced. (PENNINE MIDDLE COAL MEASURES FORMATION) . . . 8.00-8.15m, Joint is 60° planar rough open with light brown discoloration on fractures. . . . 8.25-8.50m, Joint is 65° undulating rough partly open clean. | | | (3.05) |
| 7.50-7.64 | 11 | C | | 100 | 77 | 17 | | | | | | | | |
| 7.75-8.50 (0:22) | | | | | | | | 80% return Water (Brown) | | | | | | |
| 8.50-10.00 (0:23) | | | | | | | | | | | | | | |
| 8.50-8.65 | 12 | C | | 100 | 61 | 21 | | | | | | 44.99 | 8.85 | |
| Description on next sheet | | | | | | | | | | | | | | |

GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PtVersion: v8_07_001 Log COMPOSITE LOG - A4P | 765865 A635 BARNSELEY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 14:59 | MG1 |

| Boring Progress and Water Observations | | | | | |
|--|------|----------------|--------------|------------------------|-------------|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth |
| | | | | | |

| General Remarks | |
|--|--|
| 8. SPT hammer AR3874-2024 (E _r = 65.00%) used. | |
| All dimensions in metres | Scale: 1:25 |
| Method Used: Inspection pit + Sonic Drilling + Rotary Cored | Plant Used: Comacchio GEO 305 Sonic |
| Drilled By: Peter Roberts | Logged By: BSaimen |
| Checked By: AGS | |

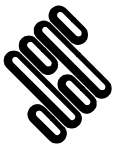


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|--|--|--|----------------------------|---|-----------------------|
| Contract: A635 Barnsley Bus Rapid Transit Route | | Client: Barnsley Metropolitan Borough Council | | Borehole: BH01 | |
| Contract Ref: 765865 | | Start: 12.08.24 | Ground Level: 53.84 | National Grid Co-ordinate: E:437257.4 N:405427.2 | Sheet: 3 of 11 |
| | | End: 14.08.24 | | | |

| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details | Backfill & Instrumentation | Water | Description of Strata | Reduced Level | Depth (Thickness) | Material Graphic Legend |
|--------------------------------------|-------------------|------|---------|----------------|---------|---------|---------------|------------------------------|----------------------------|-------|---|---------------|-------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | | |
| 9.85-10.00 | 13 | C | | 100 | 61 | 21 | NI 150 220 | 80% return Water (Brown) | | | Very weak to weak thinly laminated light grey MUDSTONE with extremely closely to closely spaced thin laminae of greyish white sandstone. Bedding Fractures are 5 to 10° very closely to medium spaced undulating rough open with brown discoloration. (PENNINE MIDDLE COAL MEASURES FORMATION) <i>(stratum copied from 8.85m from previous sheet)</i> | 43.84 | 10.00 | |
| 10.00-11.50 (0:20) 10.05-10.15 | 14 | C | | | | | | | | | 9.00-9.20m, Joint is 85° planar rough open with brown discoloration on fractures. 9.10-9.90m, Joint is 85° planar rough open with brown discoloration on fractures. | | | |
| 11.50-13.00 (0:26) | | | | 100 | 71 | 49 | NI 250 500 | 80% return Water (Brown) | | | Very weak to weak thinly laminated grey MUDSTONE with extremely closely spaced to very closely spaced thin to thick laminae of greyish white sandstone. Bedding Fractures are 5 to 10° very closely to medium spaced undulating rough partly open to open. (PENNINE MIDDLE COAL MEASURES FORMATION) 10.05-10.20m, possible slump structures | | | |
| 11.90-12.05 | 15 | C | | | | | | | | | | 41.64 | 12.20 | |
| 12.55-12.70 | 16 | C | | 100 | 80 | 63 | NI 100 200 | 80% return Water (Dark grey) | | | Weak thinly laminated grey fine to coarse SANDSTONE with extremely closely spaced thin laminae of grey mudstone. Bedding Fractures are 5 to 10° very closely to medium spaced undulating rough partly open clean. (PENNINE MIDDLE COAL MEASURES FORMATION) 12.45-12.53m, thinly laminated grey Mudstone is non intact. 12.72-12.87m, thinly laminated grey Mudstone. | | | |
| 13.00-14.50 (0:38) | | | | 100 | 57 | 43 | | | | | | 40.39 | 13.45 | |

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| Boring Progress and Water Observations | | | | | | General Remarks |
|--|--|----------------------------------|---------------------------|------------------------|-------------|--------------------|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | |
| | | | | | | |
| All dimensions in metres | | | | | | Scale: 1:25 |
| Method Used: Inspection pit + Sonic Drilling + Rotary Cored | Plant Used: Comacchio GEO 305 Sonic | Drilled By: Peter Roberts | Logged By: BSaimen | Checked By: AGS | | |

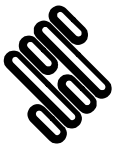


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|--|--|--|----------------------------|---|-----------------------|
| Contract: A635 Barnsley Bus Rapid Transit Route | | Client: Barnsley Metropolitan Borough Council | | Borehole: BH01 | |
| Contract Ref: 765865 | | Start: 12.08.24 | Ground Level: 53.84 | National Grid Co-ordinate: E:437257.4 N:405427.2 | Sheet: 4 of 11 |
| End: 14.08.24 | | | | | |

| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details | Backfill & Instrumentation | Water | Description of Strata | Reduced Level | Depth (Thickness) | Material Graphic Legend |
|--------------------|-------------------|------|---------|----------------|---------|---------|------------|------------------------------|----------------------------|-------|--|---------------|-------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | | |
| 14.50-16.00 (0:24) | | | | 100 | 57 | 43 | NI 150 280 | 80% return Water (Dark grey) | | | Very weak to weak thinly laminated MUDSTONE with extremely closely spaced to very closely spaced thin laminae of light grey fine to medium sandstone. Bedding Fractures are 5 to 10° very closely to medium spaced undulating rough partly open infill. (PENNINE MIDDLE COAL MEASURES FORMATION) (<i>stratum copied from 13.45m from previous sheet</i>) . . . 14.10-14.34m, Joint is 65° undulating rough tight. . . . 14.40-14.50m, Joint is 55° undulating rough open with brown discolouration on fracture. . . . 14.80-14.92m, very weak thinly laminated light grey fine to medium sandstone. | 38.64 | 15.20 | |
| 15.00-15.15 | 17 | C | | 100 | 83 | 73 | | 80% return Water (Dark grey) | | | Weak to moderately strong thinly laminated light grey fine to coarse SANDSTONE with occasional thin laminae of grey mudstone. Bedding Fractures are 5° closely to medium spaced undulating rough open infilled with grey clayey sand. (PENNINE MIDDLE COAL MEASURES FORMATION) | | | |
| 15.40-15.70 | 18 | C | | | | | | | | | | | | |
| 16.00-17.50 (0:29) | | | | | | | 90 500 750 | | | | . . . 16.50-16.65m, Joint is 55° planar rough open with thick brown stains up to 2mm. | | | |
| 16.90-17.13 | 19 | C | | 100 | 87 | 80 | | 80% return Water (Dark grey) | | | . . . 17.20-17.40m, thinly laminated grey mudstone with thin laminae of sandstone. . . . 17.25-17.50m, thinly laminated grey sandstone is interlaminated with grey mudstone. | 36.34 | 17.50 | |
| 17.50-19.00 (0:27) | | | | 100 | 95 | 79 | NI 200 440 | | | | <i>Description on next sheet</i> | | | |

GINT LIBRARY_V10_01.GLB LibVersion: v8 07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELEY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford, The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 14:59 | MG1 |

| Boring Progress and Water Observations | | | | | | General Remarks |
|--|--|----------------------------------|---------------------------|------------------------|-------------|--------------------|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | |
| | | | | | | |
| All dimensions in metres | | | | | | Scale: 1:25 |
| Method Used: Inspection pit + Sonic Drilling + Rotary Cored | Plant Used: Comacchio GEO 305 Sonic | Drilled By: Peter Roberts | Logged By: BSaimen | Checked By: AGS | | |



BOREHOLE LOG

| | | | | |
|--|--|--|---|-----------------------|
| Contract: A635 Barnsley Bus Rapid Transit Route | | Client: Barnsley Metropolitan Borough Council | | Borehole: BH01 |
| Contract Ref: 765865 | Start: 12.08.24 End: 14.08.24 | Ground Level: 53.84 | National Grid Co-ordinate: E:437257.4 N:405427.2 | Sheet: 5 of 11 |

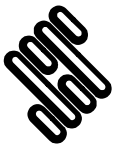
| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details | Backfill & Instrumentation | Water | Description of Strata | Reduced Level | Depth (Thickness) | Material Graphic Legend |
|---------------------------------------|-------------------|------|---------|----------------|---------|---------|------------|------------------------------|----------------------------|-------|---|---------------|-------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | | |
| 18.20-18.60 | 20 | C | | 100 | 95 | 79 | NI 200 440 | 80% return Water (Dark grey) | | | Weak to moderately strong brown and grey fine to coarse SANDSTONE with occasional thin laminae of coal and mudstone. Bedding Fractures are 5 to 45° very closely to medium spaced undulating rough open with brown discoloration on fractures or brown discoloration. (PENNINE MIDDLE COAL MEASURES FORMATION) (<i>stratum copied from 17.50m from previous sheet</i>) | 34.79 | 19.05 | |
| 19.00-20.50 (0:22) | | | | | | | | | | | | | | |
| 20.00-20.35 | 21 | C | | 100 | 77 | 57 | NI 180 380 | 70% return Water (Dark grey) | | | Weak to moderately strong, locally thinly laminated, greyish white fine to coarse SANDSTONE with occasional thin laminae of coal and grey mudstone. Bedding Fractures are 15 to 45° very closely to medium spaced undulating rough open clean or infilled with grey clay. (PENNINE MIDDLE COAL MEASURES FORMATION) 19.05-19.30m, occasional thin to thick laminae of coal up to 8mm dipping between 15 and 45°. 19.45-19.85m, occasional thin laminae of coal up to 5mm dipping between 15 and 45°. | 33.34 | 20.50 | |
| Borehole terminated at 20.50 m depth. | | | | | | | | | | | | | | |

GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford, The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 14:59 | MG1 |

| Boring Progress and Water Observations | | | | | | General Remarks |
|--|------|----------------|--------------|------------------------|-------------|-----------------|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | |
| | | | | | | |
| | | | | | | |

All dimensions in metres Scale: **1:25**

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|--|--|----------------------------------|---------------------------|------------------------|
| Method Used: Inspection pit + Sonic Drilling + Rotary Cored | Plant Used: Comacchio GEO 305 Sonic | Drilled By: Peter Roberts | Logged By: BSaimen | Checked By: AGS |
|--|--|----------------------------------|---------------------------|------------------------|



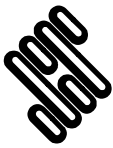
BOREHOLE LOG

| | | | | |
|--|--|---|--|--------------------------|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH01 |
| Contract Ref: 765865 | Start: 12.08.24 End: 14.08.24 | Ground Level: 53.84 | National Grid Co-ordinate: E:437257.4 N:405427.2 | Sheet: 6 of 11 |



GINT LIBRARY_V10_01.GLB LibVersion: v8 07 001 PtVersion: v8 07 001 Log COMPOSITE LOG - A4P | 765865 A635 BARNSELEY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01 | Structural Soils Ltd, Branch Office - Castleford, The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ, Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 14:59 | MG1 |

| | | | | |
|---|---|-------------------------------------|------------------------------|---------------------------|
| Method Used: Inspection pit + Sonic Drilling + Rotary Cored | Plant Used: Comacchio GEO 305 Sonic | Drilled By: Peter Roberts | Logged By: BSaimen | Checked By: AGS |
|---|---|-------------------------------------|------------------------------|---------------------------|



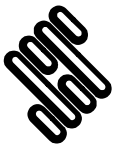
BOREHOLE LOG

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|--|--|---|--|--------------------------|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH01 |
| Contract Ref: 765865 | Start: 12.08.24 End: 14.08.24 | Ground Level: 53.84 | National Grid Co-ordinate: E:437257.4 N:405427.2 | Sheet: 7 of 11 |



GINT LIBRARY_V10_01.GLB LibVersion: v8.07.001 PrVersion: v8.07.001 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELEY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01.
 Structural Soils Ltd, Branch Office - Castleford, The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:00 | MG1 |

| | | | | |
|---|---|-------------------------------------|------------------------------|---------------------------|
| Method Used: Inspection pit + Sonic Drilling + Rotary Cored | Plant Used: Comacchio GEO 305 Sonic | Drilled By: Peter Roberts | Logged By: BSaimen | Checked By: AGS |
|---|---|-------------------------------------|------------------------------|---------------------------|



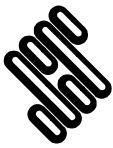
BOREHOLE LOG

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|--|--|---|--|--------------------------|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH01 |
| Contract Ref: 765865 | Start: 12.08.24 End: 14.08.24 | Ground Level: 53.84 | National Grid Co-ordinate: E:437257.4 N:405427.2 | Sheet: 8 of 11 |



GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrVersion: v8_07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford. The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:00 | MG1 |

| | | | | |
|---|---|-------------------------------------|------------------------------|---------------------------|
| Method Used: Inspection pit + Sonic Drilling + Rotary Cored | Plant Used: Comacchio GEO 305 Sonic | Drilled By: Peter Roberts | Logged By: BSaimen | Checked By: AGS |
|---|---|-------------------------------------|------------------------------|---------------------------|



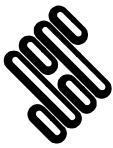
BOREHOLE LOG

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|--|--|---|--|--------------------------|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH01 |
| Contract Ref: 765865 | Start: 12.08.24 End: 14.08.24 | Ground Level: 53.84 | National Grid Co-ordinate: E:437257.4 N:405427.2 | Sheet: 9 of 11 |



GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PiVersion: v8_07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01 | Structural Soils Ltd, Branch Office - Castleford, The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:00 | MG1 |

| | | | | |
|---|---|-------------------------------------|------------------------------|---------------------------|
| Method Used: Inspection pit + Sonic Drilling + Rotary Cored | Plant Used: Comacchio GEO 305 Sonic | Drilled By: Peter Roberts | Logged By: BSaimen | Checked By: AGS |
|---|---|-------------------------------------|------------------------------|---------------------------|



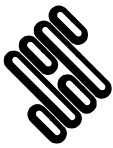
BOREHOLE LOG

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|--|--|---|--|---------------------------|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH01 |
| Contract Ref: 765865 | Start: 12.08.24 End: 14.08.24 | Ground Level: 53.84 | National Grid Co-ordinate: E:437257.4 N:405427.2 | Sheet: 10 of 11 |



GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PjVersion: v8_07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford. The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:01 | MG1 |

| | | | | |
|---|---|-------------------------------------|------------------------------|---------------------------|
| Method Used: Inspection pit + Sonic Drilling + Rotary Cored | Plant Used: Comacchio GEO 305 Sonic | Drilled By: Peter Roberts | Logged By: BSaimen | Checked By: AGS |
|---|---|-------------------------------------|------------------------------|---------------------------|



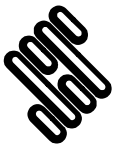
BOREHOLE LOG

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|--|--|---|--|---------------------------|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH01 |
| Contract Ref: 765865 | Start: 12.08.24 End: 14.08.24 | Ground Level: 53.84 | National Grid Co-ordinate: E:437257.4 N:405427.2 | Sheet: 11 of 11 |



GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PiVersion: v8_07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01 | Structural Soils Ltd, Branch Office - Castleford. The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:01 | MG1 |

| | | | | |
|---|---|-------------------------------------|------------------------------|---------------------------|
| Method Used: Inspection pit + Sonic Drilling + Rotary Cored | Plant Used: Comacchio GEO 305 Sonic | Drilled By: Peter Roberts | Logged By: BSaimen | Checked By: AGS |
|---|---|-------------------------------------|------------------------------|---------------------------|



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|---|--|--|----------------------------|---|-----------------------|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH02 | |
| Contract Ref: 765865 | | Start: 19.08.24 | Ground Level: 53.56 | National Grid Co-ordinate: E:437304.0 N:405410.0 | Sheet: 1 of 11 |
| | | End: 23.08.24 | | | |

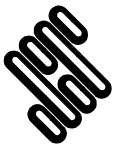
| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details | Backfill | Water | Description of Strata | Reduced Level | Depth (Thick ness) | Material Graphic Legend | |
|------------------|-------------------|------|---------------------------|----------------|---------|---------|---------|-------------------------|----------|-------|------------------------------------|---|--------------------|-------------------------|--|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | | | |
| 0.45 | 101 | ES | N=9 | | | | | | | | MADE GROUND: TARMAC. (MADE GROUND) | 53.41 | 0.15 | | |
| 0.50 | 1 | B | | | | | | | | | | MADE GROUND: Light brown sandy angular to subangular fine to coarse GRAVEL of aggregate. Sand is fine. (MADE GROUND) | 53.16 | 0.40 | |
| 0.50 | 2 | D | | | | | | | | | | MADE GROUND: Brownish grey sandy silty angular to subangular fine to coarse GRAVEL of sandstone, aggregates and brick fragments. (MADE GROUND) | 52.96 | 0.60 | |
| 1.00 | 3 | B | | | | | | | | | | Soft to firm orangish brown slightly gravelly very sandy CLAY. Sand is fine. Gravel is angular fine to coarse of mudstone, sandstone and siltstone. | | (0.90) | |
| 1.00 | 4 | D | | | | | | | | | | | | | |
| 1.10 | 103 | ES | | | | | | | | | | | | | |
| 1.20-1.50 | | | | | | | | | | | | | | | |
| 1.20-1.65 | 1 | SPT | | | | | | | | | | | | | |
| 1.20-1.65 | 2 | DSPT | | | | | | | | | | | | | |
| 1.50-3.00 | | | | | | | | | | | | | | | |
| 1.60 | 7 | ES | | | | | | | | | | | | | |
| 1.70-1.85 | 8 | D | | | | | | | | | | | | | |
| 2.10 | 9 | ES | | | | | | | | | | | | | |
| 2.20-2.50 | 10 | B | | | | | | | | | | | | | |
| 2.85-11.00 | 11 | D | | | | | | | | | | | | | |
| 3.00-4.00 (0:21) | | | | | | | | | | | | | | | |
| 3.00-3.34 | 5 | SPT | 5, 13/16, 20, 14 for 40mm | | | | | | | | | | | | |
| 3.00-3.34 | 6 | DSPT | | | | | | | | | | | | | |
| 4.00-5.50 (0:34) | | | | | | | | | | | | | | | |
| 4.00-4.18 | 12 | C | | | | | | | | | | | | | |

GINT LIBRARY V10_01.GLB LibVersion: v8_07_001 PtVersion: v8_07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELEY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:03 | MG1 |

| Boring Progress and Water Observations | | | | | | General Remarks |
|--|-------|----------------|--------------|------------------------|-------------|---|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | |
| 19/08/24 | 15:00 | 1.20 | None | N/R | - | 1. Location scanned with GPR and CAT and Genny prior to drilling. 2. Hand Dug Inspection Pit to 1.20m depth. 3. Rotary Sonic drilling to 20.00m depth. 4. No groundwater encountered during drilling. 5. Standing water level at the end of drilling 16.10m depth. 6. 50mm standpipe installed on completion. 7. SPT hammer AR3874-2024 (E _r = 65.00%) used. |
| 20/08/24 | 08:30 | 3.00 | 3.00 | 178 | 0.30 | |
| 20/08/24 | 15:00 | 10.00 | 3.00 | 146 | 7.70 | |
| 21/08/24 | 10:30 | 10.00 | 3.00 | 146 | 8.70 | |
| 21/08/24 | 16:15 | 19.00 | 3.00 | 146 | 15.50 | |
| 22/08/24 | 07:00 | 19.00 | 3.00 | 146 | 16.10 | |
| 22/08/24 | 17:30 | 20.00 | None | N/R | - | |

All dimensions in metres Scale: **1:25**

| | | | | |
|--|--|----------------------------------|---------------------------|------------------------|
| Method Used: Inspection pit + Sonic Drilling + Rotary Cored | Plant Used: Comacchio GEO 305 Sonic | Drilled By: Peter Roberts | Logged By: BSaimen | Checked By: AGS |
|--|--|----------------------------------|---------------------------|------------------------|



| | | | | | |
|---|--|--|----------------------------|---|-----------------------|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH02 | |
| Contract Ref: 765865 | | Start: 19.08.24 | Ground Level: 53.56 | National Grid Co-ordinate: E:437304.0 N:405410.0 | Sheet: 2 of 11 |
| | | End: 23.08.24 | | | |

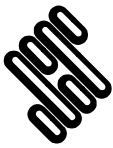
| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details | Backfill | Water | Description of Strata | Reduced Level | Depth (Thick ness) | Material Graphic Legend |
|-------------------|-------------------|------|---------|----------------|---------|---------|-------------------|---------------------------|----------|-------|--|---------------|--------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | | |
| 5.35-5.50 | 13 | C | | 100 | 97 | 97 | NI 350 700 | 100% return Water (Brown) | | | Extremely weak thinly and thickly laminated dipping 0-5° brownish dark grey with orange staining MUDSTONE. (PENNINE MIDDLE COAL MEASURES FORMATION) <i>(stratum copied from 3.00m from previous sheet)</i> | 48.56 | 5.00 | |
| 5.50-7.00 (0:40) | | | | | | | 500 | | | | Extremely weak light grey MUDSTONE with occasional thick laminae of grey mudstone and rare thin laminae of coal. Bedding Fractures are absent. (PENNINE MIDDLE COAL MEASURES FORMATION) ... 5.00m, thin laminae of coal. | 48.06 | 5.50 | (0.50) |
| 5.90-6.15 | 14 | C | | 100 | 100 | 100 | | 100% return Water (Brown) | | | Very weak thinly laminated grey MUDSTONE with extremely closely spaced thinly laminae of fine to medium sandstone. Bedding Fractures are 5° closely to medium spaced undulating rough partly open to open clean. (PENNINE MIDDLE COAL MEASURES FORMATION) | | | |
| 7.00-8.50 (0:46) | | | | | | | 130 400 600 | | | | | | | (3.95) |
| 7.90-8.05 | 15 | C | | 100 | 100 | 100 | | 100% return Water (Brown) | | | | | | |
| 8.50-10.00 (0:40) | | | | 100 | 69 | 55 | | | | | | | | |

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| Boring Progress and Water Observations | | | | | | General Remarks |
|--|------|----------------|--------------|------------------------|-------------|-----------------|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | |
| | | | | | | |
| | | | | | | |

All dimensions in metres Scale: **1:25**

| | | | | |
|--|--|----------------------------------|---------------------------|------------------------|
| Method Used: Inspection pit + Sonic Drilling + Rotary Cored | Plant Used: Comacchio GEO 305 Sonic | Drilled By: Peter Roberts | Logged By: BSaimen | Checked By: AGS |
|--|--|----------------------------------|---------------------------|------------------------|

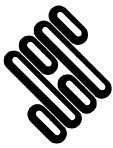


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|---|--|--|----------------------------|---|-----------------------|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH02 | |
| Contract Ref: 765865 | | Start: 19.08.24 | Ground Level: 53.56 | National Grid Co-ordinate: E:437304.0 N:405410.0 | Sheet: 3 of 11 |
| | | End: 23.08.24 | | | |

| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details | Backfill | Water | Description of Strata | Reduced Level | Depth (Thickness) | Material Graphic Legend |
|--------------------|-------------------|------|---------|----------------|---------|---------|-------------------|---------------------------|----------|-------|---|---------------|-------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | | |
| 9.15-9.30 | 16 | C | | | | | 130 400 600 | | | | | | | |
| 9.45-9.55 | 17 | C | | 100 | 69 | 55 | 550 | 100% return Water (Brown) | | | Weak thinly laminated grey fine to coarse SANDSTONE with extremely spaced thin laminae of grey mudstone. Bedding Fractures are 10 to 30° extremely closely to medium spaced undulating rough partly open to open clean. | 44.11 | 9.45 | |
| 10.00-11.50 (0:37) | | | | | | | | | | | (PENNINE MIDDLE COAL MEASURES FORMATION) ... 9.70-9.85m, Joint is 65° undulating rough with dark brown stains on fracture surface. | 43.56 | 10.00 | |
| 10.75-10.85 | 18 | C | | 100 | 56 | 36 | | 100% return Water (Grey) | | | Extremely weak to very weak thinly laminated grey MUDSTONE with extremely closely spaced thin laminae of fine to medium sandstone. Bedding Fractures are 10° closely to widely spaced undulating rough partly open to open with clean or brown discoloration on fractures. | | | |
| 11.50-13.00 (0:41) | | | | | | | NI 150 240 | | | | (PENNINE MIDDLE COAL MEASURES FORMATION) ... 10.00-10.60m, Joint is 85° undulating rough with dark brown stains on fracture surface. ... 10.50-10.73m, Joint is 80° undulating rough open with brown discoloration on fracture. ... 10.90-11.02m, Joint is 60° undulating rough open with open brown discoloration on fractures. ... 11.15-11.50m, Joint is 85° planar rough clean. ... 11.50-11.70m, becomes grey sandstone with occasional thin laminae of mudstone. ... 12.06-12.30m, Joint is 65° planar rough open dark brown discoloration on fracture. | | | (3.00) |
| 12.70-12.85 | 19 | C | | | | | | | | | | | | |
| 13.00-14.50 (0:41) | | | | | | | | | | | | 40.56 | 13.00 | |
| 13.30-13.52 | 20 | C | | 100 | 100 | 83 | 220 300 470 | 100% return Water (Grey) | | | Description on next sheet | | | (1.00) |

GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrVersion: v8_07_001 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELEY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford, The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:03 | MG1 |

| Boring Progress and Water Observations | | | | | | General Remarks |
|--|--|----------------------------------|---------------------------|------------------------|-------------|--------------------|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | |
| | | | | | | |
| All dimensions in metres | | | | | | Scale: 1:25 |
| Method Used: Inspection pit + Sonic Drilling + Rotary Cored | Plant Used: Comacchio GEO 305 Sonic | Drilled By: Peter Roberts | Logged By: BSaimen | Checked By: AGS | | |



BOREHOLE LOG

| | | | | |
|---|--|--|---|-----------------------|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH02 |
| Contract Ref: 765865 | Start: 19.08.24 End: 23.08.24 | Ground Level: 53.56 | National Grid Co-ordinate: E:437304.0 N:405410.0 | Sheet: 4 of 11 |

| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details | Backfill | Water | Description of Strata | Reduced Level | Depth (Thickness) | Material Graphic Legend |
|-----------------------------------|-------------------|------|---------|----------------|---------|---------|-------------------|--------------------------|----------|-------|--|---------------|-------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | | |
| 14.50-16.00 (0:37) 14.50-14.85 | 21 | C | | 100 | 100 | 83 | 220 300 470 | 100% return Water (Grey) | | | Very weak to weak thinly laminated grey MUDSTONE with extremely closely spaced thin laminae of light grey mudstone. Bedding Fractures are 5° medium spaced undulating rough open light brown discolouration on fractures. (PENNINE MIDDLE COAL MEASURES FORMATION) <i>(stratum copied from 13.00m from previous sheet)</i> | 39.56 | 14.00 | |
| 15.70-16.00 | 22 | C | | 100 | 97 | 90 | 50 250 350 | 100% return Water (Grey) | | | Weak to moderately weak thinly laminated light grey fine to coarse SANDSTONE with extremely to very closely spaced thin laminae of mudstone. Bedding Fractures are 5 to 10° very closely spaced to medium spaced undulating rough open with brown discolouration on fractures. (PENNINE MIDDLE COAL MEASURES FORMATION) | 38.11 | 15.45 | (1.45) |
| 16.00-17.50 (0:35) 16.15-16.30 | 23 | C | | 100 | 73 | 51 | 30 150 200 | 100% return Water (Grey) | | | Weak to Moderately weak thinly laminated light grey fine to coarse SANDSTONE with occasional thin laminae of mudstone. Fractures are not assessed. (PENNINE MIDDLE COAL MEASURES FORMATION) | 37.56 | 16.00 | (0.55) |
| 17.50-19.00 (0:19) | | | | 100 | 57 | 42 | NI 350 640 | | | | Extremely weak to very weak thinly laminated grey MUDSTONE with extremely closely spaced thin laminae of fine to medium sandstone. Bedding Fractures are 5° to 10° very closely to medium spaced undulating rough open with brown discolouration on fractures. (PENNINE MIDDLE COAL MEASURES FORMATION) 16.90-17.15m, Joint is 75° undulating rough with brown discolouration on fracture. <i>Description on next sheet</i> 17.55-17.85m, grey mudstone with thin laminae of light grey fine fine to medium sandstone. <i>Description on next sheet</i> | 36.36 | 17.20 | (1.20) |

| Boring Progress and Water Observations | | | | | | General Remarks | | | |
|--|------|----------------|--------------|------------------------|-------------|--|----------------------------------|---------------------------|------------------------|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| Method Used: Inspection pit + Sonic Drilling + Rotary Cored | | | | | | Plant Used: Comacchio GEO 305 Sonic | Drilled By: Peter Roberts | Logged By: BSaimen | Checked By: AGS |
| All dimensions in metres | | | | | | Scale: 1:25 | | | |

GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELEY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:03 | MG1 |



BOREHOLE LOG

| | | | | | |
|---|--|--|----------------------------|---|-----------------------|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH02 | |
| Contract Ref: 765865 | | Start: 19.08.24 | Ground Level: 53.56 | National Grid Co-ordinate: E:437304.0 N:405410.0 | Sheet: 5 of 11 |
| End: 23.08.24 | | | | | |

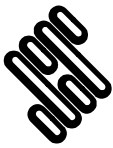
| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details | Backfill | Water | Description of Strata | Reduced Level | Depth (Thickness) | Material Graphic Legend |
|--------------------|-------------------|------|---------|----------------|---------|---------|------------|-------------------------|----------|-------|---|---|-------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | | |
| 18.40-18.50 | 24 | C | | 100 | 57 | 42 | | 10% return Water (Grey) | | | . . . 18.00-18.30m, Joint is 85° undulating rough partly open with brown discoloration. Very weak brown and brownish grey fine to coarse SANDSTONE with rare mudstone bands and inclusions up to 270mm. Bedding Fractures are 5 to 10° closely spaced to medium spaced undulating rough open with brown discoloration or infilled with fine fragments of sandstone. Joints are 65 to 85° medium to widely spaced undulating rough open with brown discoloration on it. (PENNINE MIDDLE COAL MEASURES FORMATION) | | (2.80) | |
| 19.00-20.00 (0:15) | 25 | C | | | | | NI 350 640 | | | | . . . 17.20-17.50m, Joint is 65° undulating rough open with brown discoloration on fracture. (stratum copied from 17.20m from previous sheet) | | | |
| 19.08-19.40 | | | | | | | | | Water | | | . . . 18.48-19.00m, Joint is 85° undulating rough. Sandstone is non intact in places along the joint. | 33.56 | 20.00 |
| | | | | | | | | | | | . . . 19.45-20.00m, Joint is 80° planar rough with brown discoloration on fracture. Borehole terminated at 20.00m depth. | | | |

GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrVersion: v8_07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford, The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:03 | MG1 |

| Boring Progress and Water Observations | | | | | | General Remarks |
|--|------|----------------|--------------|------------------------|-------------|-----------------|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | |
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All dimensions in metres Scale: **1:25**

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|--|--|----------------------------------|---------------------------|------------------------|
| Method Used: Inspection pit + Sonic Drilling + Rotary Cored | Plant Used: Comacchio GEO 305 Sonic | Drilled By: Peter Roberts | Logged By: BSaimen | Checked By: AGS |
|--|--|----------------------------------|---------------------------|------------------------|



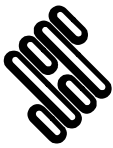
BOREHOLE LOG

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|---|--|---|--|--------------------------|
| Contract: A635 Barnsley Bus Rapid Transit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH02 |
| Contract Ref: 765865 | Start: 19.08.24 End: 23.08.24 | Ground Level: 53.56 | National Grid Co-ordinate: E:437304.0 N:405410.0 | Sheet: 6 of 11 |



GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PiVersion: v8_07_001 Log COMPOSITE LOG - A4P | 765865 A635 BARNSELY BUS RAPIDTRANSIT ROUTE GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford, The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:03 | MG1 |

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|---|---|-------------------------------------|------------------------------|---------------------------|
| Method Used: Inspection pit + Sonic Drilling + Rotary Cored | Plant Used: Comacchio GEO 305 Sonic | Drilled By: Peter Roberts | Logged By: BSaimen | Checked By: AGS |
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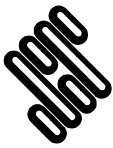
BOREHOLE LOG

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|---|--|---|--|--------------------------|
| Contract: A635 Barnsley Bus Rapid Transit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH02 |
| Contract Ref: 765865 | Start: 19.08.24 End: 23.08.24 | Ground Level: 53.56 | National Grid Co-ordinate: E:437304.0 N:405410.0 | Sheet: 7 of 11 |



GINT LIBRARY: V10_01.GLB LibVersion: v8_07_001 PiVersion: v8_07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01.
Structural Soils Ltd, Branch Office - Castleford: The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:03 | MG1 |

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|---|---|-------------------------------------|------------------------------|--------------------------|--|
| Method Used: Inspection pit + Sonic Drilling + Rotary Cored | Plant Used: Comacchio GEO 305 Sonic | Drilled By: Peter Roberts | Logged By: BSaimen | Checked By: AG | |
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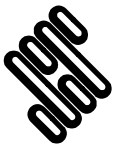
BOREHOLE LOG

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|--|--|---|--|--------------------------|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH02 |
| Contract Ref: 765865 | Start: 19.08.24 End: 23.08.24 | Ground Level: 53.56 | National Grid Co-ordinate: E:437304.0 N:405410.0 | Sheet: 8 of 11 |



GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PiVersion: v8_07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNESLEY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford. The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:04 | MG1 |

| | | | | |
|---|---|-------------------------------------|------------------------------|---------------------------|
| Method Used: Inspection pit + Sonic Drilling + Rotary Cored | Plant Used: Comacchio GEO 305 Sonic | Drilled By: Peter Roberts | Logged By: BSaimen | Checked By: AGS |
|---|---|-------------------------------------|------------------------------|---------------------------|



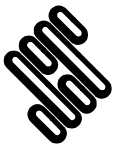
BOREHOLE LOG

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|--|--|---|--|--------------------------|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH02 |
| Contract Ref: 765865 | Start: 19.08.24 End: 23.08.24 | Ground Level: 53.56 | National Grid Co-ordinate: E:437304.0 N:405410.0 | Sheet: 9 of 11 |



GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrVersion: v8_07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELY BUS RAPIDTRANSIT ROUTE GPJ - V10_01 | Structural Soils Ltd, Branch Office - Castleford, The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:04 | MG1 |

| | | | | |
|---|---|-------------------------------------|------------------------------|---------------------------|
| Method Used: Inspection pit + Sonic Drilling + Rotary Cored | Plant Used: Comacchio GEO 305 Sonic | Drilled By: Peter Roberts | Logged By: BSaimen | Checked By: AGS |
|---|---|-------------------------------------|------------------------------|---------------------------|



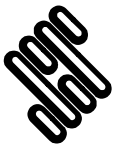
BOREHOLE LOG

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|--|--|---|--|---------------------------|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH02 |
| Contract Ref: 765865 | Start: 19.08.24 End: 23.08.24 | Ground Level: 53.56 | National Grid Co-ordinate: E:437304.0 N:405410.0 | Sheet: 10 of 11 |



GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrVersion: v8_07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELEY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford. The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:04 | MG1 |

| | | | | |
|---|---|-------------------------------------|------------------------------|---------------------------|
| Method Used: Inspection pit + Sonic Drilling + Rotary Cored | Plant Used: Comacchio GEO 305 Sonic | Drilled By: Peter Roberts | Logged By: BSaimen | Checked By: AGS |
|---|---|-------------------------------------|------------------------------|---------------------------|



BOREHOLE LOG

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|--|--|---|--|---------------------------|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH02 |
| Contract Ref: 765865 | Start: 19.08.24 End: 23.08.24 | Ground Level: 53.56 | National Grid Co-ordinate: E:437304.0 N:405410.0 | Sheet: 11 of 11 |



GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PiVersion: v8_07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELY BUS RAPIDTRANSIT ROUTE GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford, The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:05 | MG1 |

| | | | | |
|---|---|-------------------------------------|------------------------------|---------------------------|
| Method Used: Inspection pit + Sonic Drilling + Rotary Cored | Plant Used: Comacchio GEO 305 Sonic | Drilled By: Peter Roberts | Logged By: BSaimen | Checked By: AGS |
|---|---|-------------------------------------|------------------------------|---------------------------|



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|---|--|--|---|-----------------------|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH03 |
| Contract Ref: 765865 | Start: 23.08.24 End: 29.08.24 | Ground Level: 52.88 | National Grid Co-ordinate: E:437351.1 N:405393.0 | Sheet: 2 of 7 |

| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details | Backfill & Instrumentation | Water | Description of Strata | Reduced Level | Depth (Thickness) | Material Graphic Legend |
|------------------|-------------------|------|---------|----------------|---------|---------|------------|---------------------------|----------------------------|-------|---|---------------|-------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | | |
| 4.55-4.65 | 6 | C | | 100 | 69 | 67 | NI 150 250 | 100% return Water (Brown) | | | <p>3.00m- 3.40m, mudstone recovered non intact as angular fine to coarse gravel.</p> <p>3.90m- 4.00m, mudstone is recovered non intact as angular fine to coarse gravel.</p> <p>4.00m- 4.10m. Joint is 50° planar rough open brown discolouration on surface.</p> <p>Very weak thinly laminated greyish brown MUDSTONE with extremely closely to very closely spaced thin laminae of greyish white sandstone. Bedding Fractures are 5 to 10° closely spaced to medium spaced undulating rough partly open to open infilled with brown clay up to 2mm or brown discolouration on fractures. Joints are 50 to 70° medium spaced to widely spaced planar rough partly open to open brown discolouration or clean.</p> <p>(PENNINE MIDDLE COAL MEASURES FORMATION)</p> <p>at 3.00m brick fragment (<i>stratum copied from 3.00m from previous sheet</i>)</p> <p>4.70m- 4.80m. Joint is 50° planar rough open brown discolouration on surface.</p> <p>4.95m-5.28m. Joint is 50° planar rough open brown discolouration on surface.</p> <p>5.10m- 5.50m, mudstone is recovered non intact as angular fine to coarse gravel.</p> <p>5.20m- 5.25m. Joint is 70° planar rough open clean.</p> <p>5.70m- 5.75m. Joint is 50° planar rough open clean.</p> <p>6.05m- 6.10m, mudstone is recovered non intact as angular fine to coarse gravel.</p> <p>6.70m- 6.85m. Joint is 65° planar rough partly open clean.</p> <p>Very weak thinly laminated grey and brown MUDSTONE with extremely closely to very closely spaced thin laminae of sandstone. Bedding Fractures are 5 to 10° closely spaced to medium spaced undulating rough partly open to open brown discolouration on fractures.</p> <p>(PENNINE MIDDLE COAL MEASURES FORMATION)</p> | 45.88 | 7.00 | |
| 5.50-7.00 (1:46) | | | | | | | | | | | | | | |
| 5.95-6.05 | 7 | C | | 87 | 63 | 60 | NI 120 200 | Water | | | | | | |
| 7.00-8.50 (0:47) | | | | | | | | | | | | | | |
| 8.00-8.15 | 8 | C | | 100 | 67 | 67 | | 100% return Water (Brown) | | | | 44.38 | 8.50 | |

GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PtVersion: v8_07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELEY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford, The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:06 | MG1 |

| Boring Progress and Water Observations | | | | | | General Remarks | | | |
|--|------|----------------|--------------|------------------------|-------------|--|-------------------------------|---------------------------|------------------------|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| Method Used: Inspection pit + Sonic Drilling + Rotary Cored | | | | | | Plant Used: Comacchio GEO 305 Sonic | Drilled By: Sam Carter | Logged By: KDalton | Checked By: AGS |

All dimensions in metres Scale: **1:25**



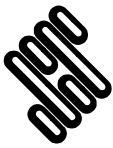
BOREHOLE LOG

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|---|--|--|---|-----------------------|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH03 |
| Contract Ref: 765865 | Start: 23.08.24 End: 29.08.24 | Ground Level: 52.88 | National Grid Co-ordinate: E:437351.1 N:405393.0 | Sheet: 3 of 7 |

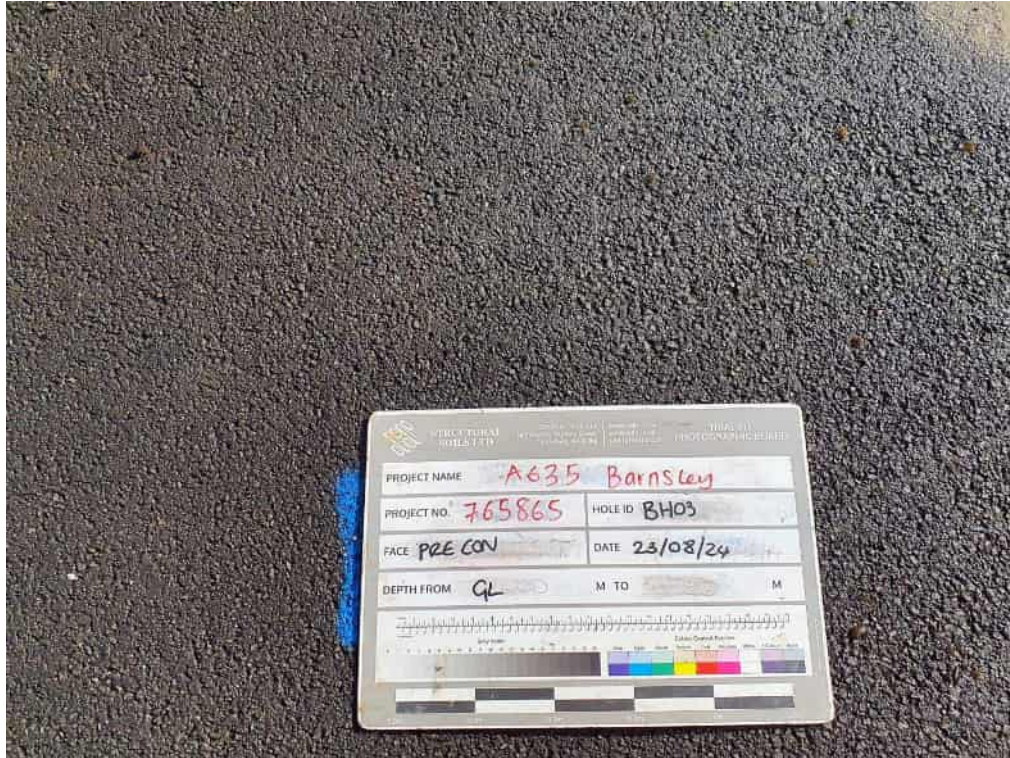
| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details | Backfill & Instrumentation | Water | Description of Strata | Reduced Level | Depth (Thickness) | Material Graphic Legend |
|-----------|-------------------|------|---------|----------------|---------|---------|---------|-------------------------|----------------------------|-------|--|---------------|-------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | | |
| | | | | | | | | | | | . . . 7.00m- 7.50m mudstone is recovered non intact as angular fine to coarse gravel. Borehole terminated at 8.50m depth. | | | |

GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrVersion: v8_07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford, The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:06 | MG1 |

| Boring Progress and Water Observations | | | | | | General Remarks | |
|--|---|----------------|--------------|--------------------------------|-------------|-----------------|-------------------|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | | |
| | | | | | | | |
| All dimensions in metres | | | | | | Scale: | 1:25 |
| Method Used: | Inspection pit + Sonic Drilling + Rotary Cored | | Plant Used: | Comacchio GEO 305 Sonic | | Drilled By: | Sam Carter |
| | | | | | | Logged By: | KDalton |
| | | | | | | Checked By: | AGS |

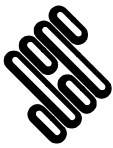


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| Contract: A635 Barnsley Bus Rapid Transit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH03 |
| Contract Ref: 765865 | Start: 23.08.24 End: 29.08.24 | Ground Level: 52.88 | National Grid Co-ordinate: E:437351.1 N:405393.0 | Sheet: 4 of 7 |



GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrVersion: v8_07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELEY BUS RAPIDTRANSIT ROUTE GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford. The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:06 | MG1 |

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|---|---|----------------------------------|------------------------------|--------------------------|--|
| Method Used: Inspection pit + Sonic Drilling + Rotary Cored | Plant Used: Comacchio GEO 305 Sonic | Drilled By: Sam Carter | Logged By: KDalton | Checked By: AG | |
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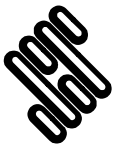


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|--|--|---|--|--------------------------|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH03 |
| Contract Ref: 765865 | Start: 23.08.24 End: 29.08.24 | Ground Level: 52.88 | National Grid Co-ordinate: E:437351.1 N:405393.0 | Sheet: 5 of 7 |



GINT LIBRARY_V10_01.GLB LibVersion: v8 07 001 PiVersion: v8 07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELEY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford. The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:06 | MG1 |

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|---|---|----------------------------------|------------------------------|--------------------------|--|
| Method Used: Inspection pit + Sonic Drilling + Rotary Cored | Plant Used: Comacchio GEO 305 Sonic | Drilled By: Sam Carter | Logged By: KDalton | Checked By: AG | |
|---|---|----------------------------------|------------------------------|--------------------------|--|



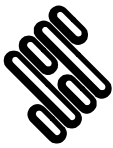
BOREHOLE LOG

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|--|--|---|--|--------------------------|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH03 |
| Contract Ref: 765865 | Start: 23.08.24 End: 29.08.24 | Ground Level: 52.88 | National Grid Co-ordinate: E:437351.1 N:405393.0 | Sheet: 6 of 7 |



GINT LIBRARY_V10_01.GLB LibVersion: v8 07 001 PiVersion: v8 07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNESLEY BUS RAPIDTRANSIT ROUTE GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford. The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:06 | MG1 |

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|---|---|----------------------------------|------------------------------|--------------------------|--|
| Method Used: Inspection pit + Sonic Drilling + Rotary Cored | Plant Used: Comacchio GEO 305 Sonic | Drilled By: Sam Carter | Logged By: KDalton | Checked By: AG | |
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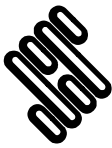
BOREHOLE LOG

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| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH03 |
| Contract Ref: 765865 | Start: 23.08.24 End: 29.08.24 | Ground Level: 52.88 | National Grid Co-ordinate: E:437351.1 N:405393.0 | Sheet: 7 of 7 |



GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrVersion: v8_07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNESLEY BUS RAPIDTRANSIT ROUTE GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford. The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:07 | MG1 |

| | | | | | |
|---|---|----------------------------------|------------------------------|--------------------------|--|
| Method Used: Inspection pit + Sonic Drilling + Rotary Cored | Plant Used: Comacchio GEO 305 Sonic | Drilled By: Sam Carter | Logged By: KDalton | Checked By: AG | |
|---|---|----------------------------------|------------------------------|--------------------------|--|



BOREHOLE LOG

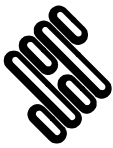
| | | | | | |
|---|--|--|----------------------------|---|----------------------|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH06 | |
| Contract Ref: 765865 | | Start: 29.07.24 | Ground Level: 52.47 | National Grid Co-ordinate: E:437316.4 N:405590.4 | Sheet: 1 of 8 |
| | | End: 19.08.24 | | | |

| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details | Backfill & Instrumentation | Water | Description of Strata | Reduced Level | Depth (Thick ness) | Material Graphic Legend |
|-----------|-------------------|-----------------------|---------------------------|----------------|---------|---------|---------|-------------------------|----------------------------|-------|--|---------------|--------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | | |
| 0.10-0.10 | 101 | ES | 1xT+1xJ+1xV | | | | | | | | MADE GROUND: Dark brown slightly gravelly silty fine-medium grained SAND. Gravel is angular-subangular fine-medium of sandstone. (MADE GROUND) | 52.32 | 0.15 | |
| 0.20-0.30 | 1 | D | | | | | | | | | | | (0.45) | |
| 0.20-0.50 | 2 | B | | | | | | | | | | | | |
| 0.30 | 102 | ES | 1xT+1xJ+1xV | | | | | | | | | | | |
| 0.60-0.70 | 3 | D | | | | | | | | | | | | |
| 0.60-0.90 | 4 | B | | | | | | | | | | | | |
| 0.70 | 103 | ES | 1xT+1xJ+1xV | | | | | | | | MADE GROUND: Black very sandy angular-subangular fine-medium GRAVEL of ash and tarmac fragments. Sand is fine-coarse. (MADE GROUND) | 51.87 | 0.60 | |
| 0.90-1.00 | 5 | D | | | | | | | | | | | | |
| 0.90-1.20 | 6 | B | | | | | | | | | | | | |
| 1.00 | 104 | ES | 1xT+1xJ+1xV | | | | | | | | MADE GROUND: Light brown gravelly fine-medium SAND. Gravel is angular to subangular fine-coarse of sandstone. (MADE GROUND) | 51.57 | 0.90 | |
| 1.50-1.95 | 7 | SPT | N=5 | | | | | | | | | | | |
| 1.50-1.95 | 8 | DSPT | | | | | | | | | | | | |
| 1.50-1.95 | 9 | B | | | | | | | | | | | | |
| 2.00-2.10 | 10 | D | | | | | | | | | | | | |
| 2.00 | 105 | ES | 1xT+1xJ+1xV | | | | | | | | | | | |
| 2.50-2.95 | 11 | UT _(UT100) | 40 blows 100% recovery | | | | | | | | | | | |
| 2.95-3.10 | 12 | D | | | | | | | | | | | | |
| 3.00 | 106 | ES | 1xT+1xJ+1xV | | | | | | | | | | | |
| 3.50-3.95 | 13 | SPT | N=12 | | | | | | | | | | | |
| 3.50-3.95 | 14 | DSPT | | | | | | | | | | | | |
| 3.50-3.95 | 15 | B | | | | | | | | | | | | |
| 4.00 | 107 | ES | 1xT+1xJ+1xV | | | | | | | | | 48.47 | 4.00 | |
| 4.00-4.10 | 16 | D | | | | | | | | | | | | |
| 4.10-4.50 | 17 | B | | | | | | | | | Stiff friable grey mottled light brown CLAY with <10% angular to subangular fine to medium size lithorelicts of extremely weak mudstone. | | | |

| Boring Progress and Water Observations | | | | | | Chiselling / Slow Progress | | | General Remarks |
|--|-------|----------------|--------------|------------------------|-------------|----------------------------|------|------------------|-----------------|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | From | To | Duration (hh:mm) | |
| 29/07/24 | 17:00 | 3.10 | 2.50 | 200 | Dry | 5.00 | 6.00 | 01:00 | |
| 30/07/24 | 07:45 | 3.10 | 2.50 | 200 | Dry | | | | |
| 30/07/24 | 11:13 | 6.41 | 4.20 | 200 | Dry | | | | |
| 31/07/24 | | 6.41 | None | N/R | - | | | | |
| 31/07/24 | 01:29 | 6.41 | None | N/R | - | | | | |
| 01/08/24 | 08:00 | 6.41 | 6.20 | 150 | 6.10 | | | | |
| 01/08/24 | 17:15 | 13.70 | 6.20 | 150 | 13.40 | | | | |
| 19/08/24 | 08:00 | 13.70 | None | N/R | - | | | | |

| | | |
|---|---|------------------------------|
| All dimensions in metres | | Scale: 1:25 |
| Method Used: Cable Percussion + Rotary Cored | Plant Used: Dando 2500 + Massenza M-13 | Drilled Robert Foster |
| Logged By: BSaimen + JHoughton | Checked By: AGS | |

GINT LIBRARY V10_01.GLB LibVersion: v8_07_001 P:\Version: v8_07_001 Log COMPOSITE LOG - A4P | 765865 A635 BARNSELEY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford, The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:08 | MG11

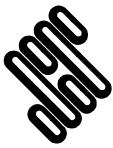


| | | | | | |
|--|--|--|----------------------------|---|----------------------|
| Contract: A635 Barnsley Bus Rapid Transit Route | | Client: Barnsley Metropolitan Borough Council | | Borehole: BH06 | |
| Contract Ref: 765865 | | Start: 29.07.24 | Ground Level: 52.47 | National Grid Co-ordinate: E:437316.4 N:405590.4 | Sheet: 3 of 8 |
| End: 19.08.24 | | | | | |

| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details | Backfill & Instrumentation | Water | Description of Strata | Reduced Level | Depth (Thickness) | Material Graphic Legend |
|--------------------|-------------------|------|---------|----------------|---------|---------|------------------------------|-------------------------|----------------------------|-------|-----------------------|---------------|-------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | | |
| 9.00-9.15 | 13 | C | | 100 | 59 | 25 | | | | | | | | |
| 9.20-10.70 (0:16) | | | | ↑ | ↑ | ↑ | NI 120 220 | | | | | 42.67 | 9.80 | |
| | | | | 100 | 48 | 13 | | | | | | | (1.45) | |
| 10.70-12.20 (0:15) | | | | ↓ | ↓ | ↓ | NI 100 140 | | | | | | | |
| 10.90-11.05 | 14 | C | | | | | | | | | | | | |
| | | | | 100 | 73 | 35 | NI 140 220 | | | | | | | |
| | | | | | | | | | | | | | (1.15) | |
| 12.20-13.70 (0:20) | | | | ↓ | ↓ | ↓ | NI 100 190 | | | | | | | |
| | | | | 100 | 47 | 23 | 100% return Air+Mist (Brown) | | | | | | | |
| 12.95-13.10 | 15 | C | | | | | | | | | | | | |
| | | | | | | | | | | | | | | (2.20) |

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| Boring Progress and Water Observations | | | | | | Chiselling / Slow Progress | | | General Remarks | |
|--|--|----------------|--------------|-----------------------------------|-------------|----------------------------|----------------------|------------------|---------------------------------------|------------------------|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | From | To | Duration (hh:mm) | | |
| | | | | | | | | | | |
| All dimensions in metres | | | | | | | | | Scale: 1:25 | |
| Method Used: | Cable Percussion + Rotary Cored | | Plant Used: | Dando 2500 + Massenza M-13 | | Drilled By: | Robert Foster | | Logged By: BSaimen + JHoughton | Checked By: AGS |



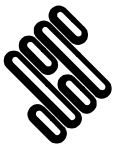
BOREHOLE LOG

| | | | | | |
|---|--|---|-------------------------------|--|-------------------------|
| Contract: A635 Barnsley Bus Rapid Transit Route | | Client: Barnsley Metropolitan Borough Council | | Borehole: BH06 | |
| Contract Ref: 765865 | | Start: 29.07.24 End: 19.08.24 | Ground Level: 52.47 | National Grid Co-ordinate: E:437316.4 N:405590.4 | Sheet: 4 of 8 |

| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details | Backfill & Instrumentation | Water | Description of Strata | Reduced Level | Depth (Thickness) | Material Graphic Legend |
|-----------------------|-------------------|------|---------|----------------|---------|---------|---------|------------------------------|----------------------------|-------|---|---------------|-------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | | |
| 13.70-15.20 (0:12) | | | | 100 | 47 | 23 | | | | | Very weak to weak thinly laminated dark grey MUDSTONE interlaminated with very weak thinly and thickly laminated brown siltstone. Occasional thin laminae of coal. Bedding Fractures are 5 to 10° very closely spaced to closely spaced undulating/planar rough partly open to open clean or infilled with fine fragments of mudstone up to 2.5mm. (PENNINE MIDDLE COAL MEASURES FORMATION) ... 12.40m, thin laminae of coal. (stratum copied from 12.40m from previous sheet) ... 14.26m, occasional thin laminae of coal. ... 14.35m, thin laminae of coal. ... 14.44-14.70m, occasional thin laminae of coal. | 37.87 | 14.60 | |
| 14.40-14.55 | 16 | C | | 100 | 70 | 55 | | 100% return Air+Mist (Brown) | | | | | | |
| 14.90-15.10 | 17 | C | | | | | | | | | Very weak to weak thinly laminated grey MUDSTONE with occasional thin laminae of greyish white fine to medium sandstone. Bedding Fractures are 5° closely spaced undulating rough partly open to open clean or in places light brown discolouration. (PENNINE MIDDLE COAL MEASURES FORMATION) ... 15.28-15.60m, Joint is 65° undulating rough open with brown discolouration. Weak to moderately weak thinly laminated greyish white fine to coarse SANDSTONE with occasional thin laminae of grey mudstone. Bedding Fractures are 5° medium to widely spaced partly open clean. (PENNINE MIDDLE COAL MEASURES FORMATION) | 36.82 | 15.65 | |
| 15.20-16.70 (0:22) | | | | 93 | 83 | 79 | | | | | | | | |
| 16.40-16.70 | 18 | C | | | | | | | | | Very weak to weak thinly laminated dark grey MUDSTONE interlaminated with very weak thinly laminated greyish white fine to medium sandstone. Bedding Fractures are 5° closely to medium spaced undulating rough partly open to open clean. (PENNINE MIDDLE COAL MEASURES FORMATION) | 35.72 | 16.75 | |
| 16.70-18.20 (0:12) | | | | 100 | 75 | 70 | | | | | | | | |
| | | | | | | | | | | | | | | |

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| Boring Progress and Water Observations | | | | | | Chiselling / Slow Progress | | | General Remarks |
|--|--|----------------|--------------|-----------------------------------|-------------|----------------------------|----------------------|------------------|---|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | From | To | Duration (hh:mm) | |
| | | | | | | | | | |
| All dimensions in metres | | | | | | | | | Scale: 1:25 |
| Method Used: | Cable Percussion + Rotary Cored | | Plant Used: | Dando 2500 + Massenza M-13 | | Drilled By: | Robert Foster | | Logged By: BSaimen + JHoughton Checked By: AGS |



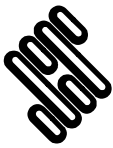
BOREHOLE LOG

| | | | | | |
|---|--|--|----------------------------|---|----------------------|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH06 | |
| Contract Ref: 765865 | | Start: 29.07.24 | Ground Level: 52.47 | National Grid Co-ordinate: E:437316.4 N:405590.4 | Sheet: 5 of 8 |
| | | End: 19.08.24 | | | |

| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details | Backfill & Instrumentation | Water | Description of Strata | Reduced Level | Depth (Thickness) | Material Graphic Legend |
|--|-------------------|------|---------|----------------|---------|---------|------------------|------------------------------|----------------------------|-------|-----------------------|---------------|-------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | | |
| 18.05-18.20 | 19 | C | | 100 | 75 | 70 | NI | | | | | | | |
| 18.20-19.70 (0:11) | | | | ↑ | ↑ | ↑ | 100 200 | ↑ | | | | 34.07 | 18.40 | |
| 18.62-18.72 | 20 | C | | 100 | 85 | 63 | 40 80 190 | 100% return Air+Mist (Brown) | | | | 33.42 | 19.05 | |
| 19.48-19.70 | 21 | C | | | | | 80 200 350 | | | | | 32.47 | 20.00 | |
| <p>Weak thinly laminated grey MUDSTONE with occasional thin laminae of greyish white fine to medium sandstone. Bedding Fractures are 5 to 10° very closely to closely spaced undulating rough open infilled with grey clay or clean or in places light brown discolouration on fractures. (PENNINE MIDDLE COAL MEASURES FORMATION)</p> <p>Weak to moderately weak thinly laminated greyish white fine to coarse SANDSTONE with occasional thin laminae of grey mudstone. Bedding Fractures are 5° closely to medium spaced undulating rough open clean or with light brown discolouration on fracture. (PENNINE MIDDLE COAL MEASURES FORMATION)</p> <p>19.25-19.40m, Joint is 70° undulating rough with dark discolouration on fracture.</p> <p>Borehole terminated at 20.00m depth.</p> | | | | | | | | | | | | | | |

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| Boring Progress and Water Observations | | | | | | Chiselling / Slow Progress | | | General Remarks |
|--|--|----------------|--------------|-----------------------------------|-------------|----------------------------|----------------------|------------------|---|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | From | To | Duration (hh:mm) | |
| | | | | | | | | | |
| All dimensions in metres | | | | | | | | | Scale: 1:25 |
| Method Used: | Cable Percussion + Rotary Cored | | Plant Used: | Dando 2500 + Massenza M-13 | | Drilled By: | Robert Foster | | Logged By: BSaimen + JHoughton Checked By: AGS |



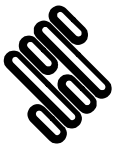
BOREHOLE LOG

| | | | | | |
|---|--|---|--|--------------------------|--|
| Contract: A635 Barnsley Bus Rapid Transit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH06 | |
| Contract Ref: 765865 | Start: 29.07.24 End: 19.08.24 | Ground Level: 52.47 | National Grid Co-ordinate: E:437316.4 N:405590.4 | Sheet: 6 of 8 | |



GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrVersion: v8_07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford, The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:08 | MG1 |

| | | | | | |
|--|--|-------------------------------------|--|--------------------------|--|
| Method Used: Cable Percussion + Rotary Cored | Plant Used: Dando 2500 + Massenza M-13 | Drilled By: Robert Foster | Logged By: BSaimen + JHoughton | Checked By: AG | |
|--|--|-------------------------------------|--|--------------------------|--|



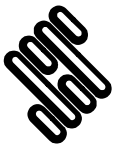
BOREHOLE LOG

| | | | | | |
|---|--|---|--|--------------------------|--|
| Contract: A635 Barnsley Bus Rapid Transit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH06 | |
| Contract Ref: 765865 | Start: 29.07.24 End: 19.08.24 | Ground Level: 52.47 | National Grid Co-ordinate: E:437316.4 N:405590.4 | Sheet: 7 of 8 | |



GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PIVersion: v8_07_001 Log COMPOSITE LOG - A4P | 765865 A635 BARNSELEY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford. The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:09 | MG1 |

| | | | | | |
|--|---|-------------------------------------|--|--------------------------|--|
| Method Used: Cable Percussion + Rotary Cored | Plant Used: Dando 2500 + Massenza M-3 | Drilled By: Robert Foster | Logged By: BSaimen + JHoughton | Checked By: AG | |
|--|---|-------------------------------------|--|--------------------------|--|



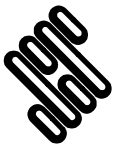
BOREHOLE LOG

| | | | | |
|---|--|---|--|--------------------------|
| Contract: A635 Barnsley Bus Rapid Transit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH06 |
| Contract Ref: 765865 | Start: 29.07.24 End: 19.08.24 | Ground Level: 52.47 | National Grid Co-ordinate: E:437316.4 N:405590.4 | Sheet: 8 of 8 |



GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PtiVersion: v8_07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELEY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford. The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:09 | MG1 |

| | | | | | |
|--|--|-------------------------------------|--|--------------------------|--|
| Method Used: Cable Percussion + Rotary Cored | Plant Used: Dando 2500 + Massenza M-13 | Drilled By: Robert Foster | Logged By: BSaimen + JHoughton | Checked By: AG | |
|--|--|-------------------------------------|--|--------------------------|--|

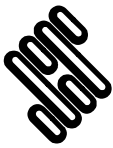


| | | | | | |
|--|--|--|----------------------------|---|--|
| Contract: A635 Barnsley Bus Rapid Transit Route | | Client: Barnsley Metropolitan Borough Council | | Borehole: BH07 | |
| Contract Ref: 765865 | | Start: 19.08.24 | Ground Level: 46.57 | National Grid Co-ordinate: E:437288.0 N:405592.2 | |
| End: 21.08.24 | | | | Sheet: 1 of 7 | |

| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details | Drill Time (hh:mm) | Backfill & Instrumentation | Water | Description of Strata | Reduced Level | Depth (Thick ness) | Material Graphic Legend |
|------------------|-------------------|------|-------------------------|----------------|---------|---------|---------|-------------------------|--------------------|----------------------------|-------|---|---------------|--------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | | | |
| 0.10-0.20 | 1 | D | 1xT+1xJ+1xV | | | | | | | | | MADE-GROUND: Friable brown slightly gravelly CLAY with low cobble content. Gravel is angular to subangular fine to coarse of sandstone, bricks and concrete fragments. Cobbles are angular of subangular of sandstone and bricks fragments. (MADE GROUND) | 45.67 | 0.90 | |
| 0.10 | 101 | ES | | | | | | | | | | | | | |
| 0.10-0.50 | 2 | B | | | | | | | | | | | | | |
| 1.00 | 102 | ES | 1xT+1xJ+1xV | | | | | | | | | Stiff brown mottled orangish brown and light grey CLAY. | 44.97 | 1.60 | |
| 1.00-1.10 | 3 | D | | | | | | | | | | | | | |
| 1.00-1.20 | 4 | B | | | | | | | | | | | | | |
| 1.20-1.65 | 5 | SPT | N=14 1xT+1xJ+1xV | | | | | | | | | Extremely weak thinly laminated orangish brown destructured MUDSTONE recovered as slightly gravelly clay. Gravel is angular and subangular fine and medium of mudstone. (PENNINE MIDDLE COAL MEASURES FORMATION) | 44.47 | 2.10 | |
| 1.20 | 102 | ES | | | | | | | | | | | | | |
| 1.20-1.65 | 6 | DSPT | | | | | | | | | | | | | |
| 1.40-1.50 | 11 | D | | | | | | | | | | | | | |
| 1.60-2.00 | 12 | B | 1xT+1xJ+1xV | | | | | | | | | Extremely weak thinly laminated orientated 0-10° dark brown with orange staining partially weathered MUDSTONE recovered as slightly gravelly clay. Gravel is angular and subangular fine and medium of mudstone. (PENNINE MIDDLE COAL MEASURES FORMATION) | 43.37 | 3.20 | |
| 1.70 | 103 | ES | | | | | | | | | | | | | |
| 2.20-2.65 | 7 | SPT | N=21 1xT+1xJ+1xV | | | | | | | | | Firm to stiff indistinctly thinly laminated dark grey locally mottled orangish brown CLAY with frequent (60%) lithorelicts of extremely weak mudstone. (PENNINE MIDDLE COAL MEASURES FORMATION) | 42.17 | 4.40 | |
| 2.20 | 104 | ES | | | | | | | | | | | | | |
| 2.20-2.65 | 8 | DSPT | | | | | | | | | | | | | |
| 2.30-2.45 | 13 | D | | | | | | | | | | | | | |
| 2.50-3.00 | 14 | B | | | | | | | | | | | | | |
| 3.20-4.50 (1:05) | | | | | | | | | | | | | | | |
| 3.20-3.65 | 9 | SPT | 4,7,9,11,16,14 for 70mm | | | | | | | | | Description on next sheet | | | |
| 3.20-3.60 | 10 | DSPT | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

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| Boring Progress and Water Observations | | | | | | General Remarks | |
|--|---|----------------|--------------|------------------------|-----------------------------|--|-------------------------------|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | | |
| 19/08/24 | 05:00 | 6.00 | 1.60 | 150 | 1.10 | 1. Location scanned with GPR and CAT and Genny prior to drilling. 2. Borehole comencing with dynamic sampling to 3.20m depth. 3. Rotary Coring between 3.20m and 10.00m depth. 4. No groundwater encountered during drilling. 5. Standing water level at the end of drilling 1.80m depth. 6. 50mm standpipe installed on completion. 7. SPT hammer AR1626-2024 (E _r = 65.00%) used. | |
| 20/08/24 | 04:29 | 6.00 | 1.70 | 150 | 1.80 | | |
| 20/08/24 | 05:00 | 10.00 | None | N/R | - | | |
| All dimensions in metres | | | | | | | Scale: 1:25 |
| Method Used: | Inspection pit + Dynamic sampling + Rotary Cored | | Plant Used: | Massenza M-I-3 | | | Drilled By: Gary Blake |
| | | | | | Logged By: JHoughton | | Checked By: AGS |



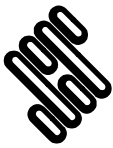
BOREHOLE LOG

| | | | | |
|---|--|--|---|-----------------------|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH07 |
| Contract Ref: 765865 | Start: 19.08.24 End: 21.08.24 | Ground Level: 46.57 | National Grid Co-ordinate: E:437288.0 N:405592.2 | Sheet: 2 of 7 |

| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details | Drill Time (hh:mm) | Backfill & Instrumentation | Water | Description of Strata | Reduced Level | Depth (Thickness) | Material Graphic Legend |
|-------------------------------|-------------------|------|---------|----------------|---------|---------|-----------------|-----------------------------------|--------------------|----------------------------|-------|---|---------------|-------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | | | |
| 4.50-6.00 (1:34) | | | | 100 | 80 | 0 | 20 40 60 | 90% return Water (Brown) | | | | Very weak thinly laminated dark grey MUDSTONE locally tending to clay with frequent mudstone lithorelicts. Fractures are subhorizontal (0°-10°) very closely spaced planar smooth. (PENNINE MIDDLE COAL MEASURES FORMATION) (<i>stratum copied from 4.40m from previous sheet</i>) | 40.67 | (1.50) 5.90 | |
| 6.00-7.50 (0:50) 6.10-6.22 | 11 | C | | 100 | 100 | 93 | | 90% return Water (Grey and brown) | | | | Very weak to Weak Interbedded thinly to thickly laminated grey and greyish brown MUDSTONE with extremely closely and very closely spaced thick laminae of siltstone. Siltstone is medium strong. Fractures are subvertical closely spaced planar smooth and rough. (PENNINE MIDDLE COAL MEASURES FORMATION) | | | |
| 6.49-6.64 | 12 | C | | | | | | | | | | | | | |
| 7.19-7.50 | 13 | C | | | | | 40 80 230 | | | | | | | | |
| 7.50-9.00 (0:47) | | | | | | | | | | | | | | | |
| 7.75-7.85 | 14 | C | | 100 | 100 | 100 | | 90% return Water (Grey and brown) | | | | | | (3.80) | |
| 7.85-8.05 | 15 | C | | | | | | | | | | | | | |

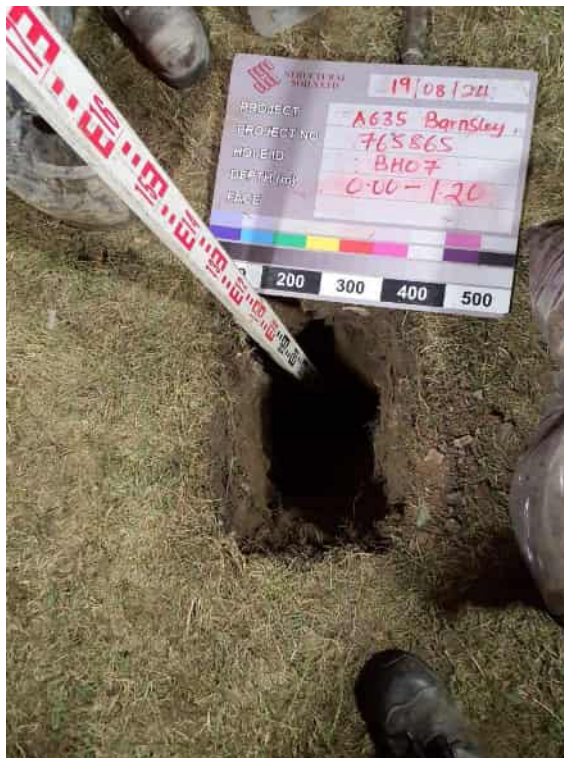
GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELEY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01 | Structural Soils Ltd, Branch Office - Castleford, The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:10 | MG1 |

| Boring Progress and Water Observations | | | | | | General Remarks |
|--|-----------------------------------|-------------------------------|-----------------------------|------------------------|-------------|--------------------|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | |
| | | | | | | |
| All dimensions in metres | | | | | | Scale: 1:25 |
| Method Used: Inspection pit + Dynamic sampling + Rotary Cored | Plant Used: Massenza M-I-3 | Drilled By: Gary Blake | Logged By: JHoughton | Checked By: AGS | | |



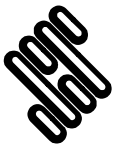
BOREHOLE LOG

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|--|--|---|--|--------------------------|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH07 |
| Contract Ref: 765865 | Start: 19.08.24 End: 21.08.24 | Ground Level: 46.57 | National Grid Co-ordinate: E:437288.0 N:405592.2 | Sheet: 4 of 7 |



GINT LIBRARY: V10_01.GLB LibVersion: v8_07_001 PiVersion: v8_07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELEY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01.
 Structural Soils Ltd, Branch Office - Castleford: The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:10 | MG1 |

| | | | | | |
|---|--------------------------------------|----------------------------------|--------------------------------|--------------------------|--|
| Method Used: Inspection pit + Dynamic sampling + Rotary Cored | Plant Used: Massenza M-I-3 | Drilled By: Gary Blake | Logged By: JHoughton | Checked By: AG | |
|---|--------------------------------------|----------------------------------|--------------------------------|--------------------------|--|

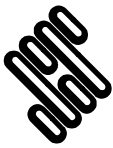


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|---|--|---|--|--------------------------|
| Contract: A635 Barnsley Bus Rapid Transit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH07 |
| Contract Ref: 765865 | Start: 19.08.24 End: 21.08.24 | Ground Level: 46.57 | National Grid Co-ordinate: E:437288.0 N:405592.2 | Sheet: 5 of 7 |



GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PiVersion: v8_07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01.
 Structural Soils Ltd, Branch Office - Castleford, The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:10 | MG1 |

| | | | | | |
|---|--------------------------------------|----------------------------------|--------------------------------|--------------------------|--|
| Method Used: Inspection pit + Dynamic sampling + Rotary Cored | Plant Used: Massenza M-I-3 | Drilled By: Gary Blake | Logged By: JHoughton | Checked By: AG | |
|---|--------------------------------------|----------------------------------|--------------------------------|--------------------------|--|



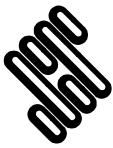
BOREHOLE LOG

| | | | | |
|--|--|---|--|--------------------------|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH07 |
| Contract Ref: 765865 | Start: 19.08.24 End: 21.08.24 | Ground Level: 46.57 | National Grid Co-ordinate: E:437288.0 N:405592.2 | Sheet: 6 of 7 |



GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PIVersion: v8_07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELY BUS RAPIDTRANSIT ROUTE GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford. The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:11 | MG1 |

| | | | | | | | | | | |
|--------------|---|-------------|-----------------------|-------------|-------------------|------------|------------------|-------------|-----------|--|
| Method Used: | Inspection pit + Dynamic sampling + Rotary Cored | Plant Used: | Massenza M-I-3 | Drilled By: | Gary Blake | Logged By: | JHoughton | Checked By: | AG | |
|--------------|---|-------------|-----------------------|-------------|-------------------|------------|------------------|-------------|-----------|--|



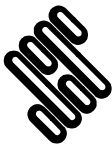
BOREHOLE LOG

| | | | | |
|--|--|---|--|--------------------------|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH07 |
| Contract Ref: 765865 | Start: 19.08.24 End: 21.08.24 | Ground Level: 46.57 | National Grid Co-ordinate: E:437288.0 N:405592.2 | Sheet: 7 of 7 |



GINT LIBRARY_V10_01.GLB LibVersion: v8 07 001 PtVersion: v8 07 001 Log COMPOSITE LOG - A4P | 765865 A635 BARNESLEY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford. The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:11 | MG1 |

| | | | | | |
|---|--------------------------------------|----------------------------------|--------------------------------|--------------------------|--|
| Method Used: Inspection pit + Dynamic sampling + Rotary Cored | Plant Used: Massenza M-I-3 | Drilled By: Gary Blake | Logged By: JHoughton | Checked By: AG | |
|---|--------------------------------------|----------------------------------|--------------------------------|--------------------------|--|



BOREHOLE LOG

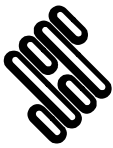
| | | | | | |
|--|--|--|----------------------------|---|-----------------------|
| Contract: A635 Barnsley Bus Rapid Transit Route | | Client: Barnsley Metropolitan Borough Council | | Borehole: BH08 | |
| Contract Ref: 765865 | | Start: 30.07.24 | Ground Level: 52.38 | National Grid Co-ordinate: E:437302.7 N:405606.1 | Sheet: 1 of 10 |
| | | End: 12.08.24 | | | |

| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details | Backfill & Instrumentation | Water | Description of Strata | Reduced Level | Depth (Thickness) | Material Graphic Legend |
|-----------|-------------------|-----------------------|---------------------------|----------------|---------|---------|---------|-------------------------|----------------------------|-------|---|---------------|-------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | | |
| 0.10-0.20 | 1 | D | 1xT+1xJ+1xV | | | | | | | | MADE GROUND: Dark brown slightly gravelly silty fine SAND (TOPSOIL). Gravel fragments are angular to subangular fine to coarse of brick and mortar. (MADE GROUND) | 52.18 | 0.20 | |
| 0.10 | 101 | ES | | | | | | | | | | | | |
| 0.10-0.20 | 2 | B | | | | | | | | | | | | |
| 0.50-0.60 | 3 | D | | | | | | | | | MADE GROUND: Red brick footing. Recovered as fine to coarse GRAVEL with medium cobble content. Gravel fragments are angular to subangular fine to coarse of bricks and mortar. Cobbles are angular of bricks. (MADE GROUND) | | (1.10) | |
| 0.50-1.00 | 4 | B | | | | | | | | | | | | |
| 1.40 | 102 | ES | 1xT+1xJ+1xV | | | | | | | | MADE-GROUND: Light brown slightly gravelly silty fine to medium SAND. Gravel is angular to subangular fine to coarse of sandstone. (MADE GROUND) | | (1.20) | |
| 1.50-1.95 | 5 | SPT | N=28 | | | | | | | | | | | |
| 1.50-1.95 | 6 | DSPT | | | | | | | | | | | | |
| 1.50-1.95 | 7 | B | | | | | | | | | | | | |
| 2.00-2.10 | 8 | D | | | | | | | | | | | | |
| 2.40 | 103 | ES | 1xT+1xJ+1xV | | | | | | | | MADE GROUND: Firm grey mottled light brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of sandstone with brick fragments. (MADE GROUND) | 49.88 | 2.50 | |
| 2.50-2.95 | 9 | SPT | N=5 | | | | | | | | | | | |
| 2.50-2.95 | 10 | DSPT | | | | | | | | | | | | |
| 2.50-2.95 | 11 | B | | | | | | | | | | | | |
| 3.00-3.10 | 12 | D | | | | | | | | | | | | |
| 3.40 | 104 | ES | 1xT+1xJ+1xV | | | | | | | | | | | |
| 3.50-3.95 | 13 | UT _(UT100) | 30 blows 100% recovery | | | | | | | | | | | |
| 3.95-4.10 | 14 | D | | | | | | | | | | | | |
| 4.40 | 105 | ES | 1xT+1xJ+1xV | | | | | | | | | | | |

GINT LIBRARY: V10_01.GLB LibVersion: v8_07_001 PVersion: v8_07 | Log COMPOSITE LOG - A4P | 765865 BARNSELEY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01 | Structural Soils Ltd, Branch Office - Castleford, The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ, Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:12 | MG1 |

| Boring Progress and Water Observations | | | | | | Chiselling / Slow Progress | | | General Remarks | |
|--|-------|----------------|--------------|------------------------|-------------|----------------------------|------|------------------|--|--|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | From | To | Duration (hh:mm) | | |
| 30/07/24 | 16:33 | 1.95 | 1.50 | 200 | Dry | 8.00 | 9.00 | 01:00 | 1. Position cleared with GPR and CAT and Genny. 2. Hand dug inspection pit to 1.20m. 3. Cable Percussion borehole drilled using 200mm diameter tools and casing to 9.00m depth. 4. No groundwater encountered in Cable All dimensions in metres Scale: 1:25 | |
| 31/07/24 | 09:00 | 1.95 | 1.50 | 200 | Dry | | | | | |
| 31/07/24 | 14:00 | 9.24 | None | 200 | - | | | | | |
| 07/08/24 | 08:00 | 9.00 | None | 200 | - | | | | | |
| 07/08/24 | 17:00 | 18.00 | None | 200 | - | | | | | |
| 08/08/24 | 08:00 | 18.00 | None | 200 | | | | | | |
| 08/08/24 | 15:12 | 30.00 | 10.50 | 150 | 15.80 | | | | | |
| 09/08/24 | 08:00 | 22.50 | None | 150 | - | | | | | |

| | | | | |
|---|--|---|-----------------------------|------------------------|
| Method Used: Cable Percussion + Rotary Cored | Plant Used: Dando 2500 + Massenza M-4-2 | Drilled By: Robert Foster + Gary Blake | Logged By: JHoughton | Checked By: AGS |
|---|--|---|-----------------------------|------------------------|



BOREHOLE LOG

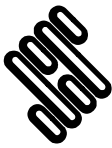
| | | | | | |
|---|--|--|----------------------------|---|-----------------------|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH08 | |
| Contract Ref: 765865 | | Start: 30.07.24 | Ground Level: 52.38 | National Grid Co-ordinate: E:437302.7 N:405606.1 | Sheet: 2 of 10 |
| | | End: 12.08.24 | | | |

| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details | Backfill & Instrumentation | Water | Description of Strata | Reduced Level | Depth (Thickness) | Material Graphic Legend |
|-----------|-------------------|-----------------------|---------------------------|----------------|---------|---------|---------|-------------------------|----------------------------|-------|---|---------------|-------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | | |
| 4.50-4.95 | 15 | SPT | N=16 | | | | | | | | MADE GROUND: Firm grey mottled light brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of sandstone with brick fragments. (MADE GROUND) (stratum copied from 2.50m from previous sheet) | 45.38 | (4.50) | |
| 4.50-4.95 | 16 | DSPT | | | | | | | | | | | | |
| 4.50-4.95 | 17 | B | | | | | | | | | | | | |
| 5.00-5.10 | 18 | D | | | | | | | | | | | | |
| 5.40 | 106 | ES | 1xT+1xJ+1xV | | | | | | | | | | | |
| 5.50-5.60 | 19 | D | | | | | | | | | | | | |
| 6.00-6.45 | 20 | UT _(UT100) | 50 blows 100% recovery | | | | | | | | | | | |
| 6.45-6.60 | 21 | D | | | | | | | | | | | | |
| 6.70 | 107 | ES | 1xT+1xJ+1xV | | | | | | | | | | | |
| 7.00-7.10 | 22 | D | | | | | | | | | | | | |
| 7.00-7.50 | 23 | B | | | | | | | | | | | | |
| 7.50-7.87 | 24 | SPT | 9,10/13,17,20 for 70mm | | | | | | | | Extremely weak grey and light brown MUDSTONE. (PENNINE MIDDLE COAL MEASURES FORMATION) | 43.38 | (2.00) | |
| 7.50-7.87 | 25 | DSPT | | | | | | | | | | | | |
| 7.50-7.87 | 26 | B | | | | | | | | | | | | |
| 7.90 | 108 | ES | 1xT+1xJ+1xV | | | | | | | | | | | |
| 8.00-8.10 | 27 | D | | | | | | | | | | | | |
| 8.50-8.60 | 28 | D | | | | | | | | | | | | |

| Boring Progress and Water Observations | | | | | | Chiselling / Slow Progress | | | General Remarks |
|--|-------|----------------|--------------|------------------------|-------------|----------------------------|----|------------------|-----------------|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | From | To | Duration (hh:mm) | |
| 09/08/24 | 15:00 | 22.50 | None | 150 | - | | | | |
| 12/08/24 | 08:00 | 10.50 | None | 150 | - | | | | |
| 12/08/24 | 16:28 | 22.50 | 10.50 | 150 | 15.80 | | | | |
| 20/08/24 | | 22.50 | None | N/R | - | | | | |
| 20/08/24 | 15:00 | 30.00 | None | N/R | - | | | | |

| | | | | |
|---|--|---|-----------------------------|------------------------|
| Method Used: Cable Percussion + Rotary Cored | Plant Used: Dando 2500 + Massenza M-1-2 | Drilled By: Robert Foster + Gary Blake | Logged By: JHoughton | Checked By: AGS |
|---|--|---|-----------------------------|------------------------|

GINT LIBRARY V10_01.GLB LibVersion: v8_07_001 PtVersion: v8_07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELEY BUS RAPIDTRANSIT ROUTE GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford, The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:12 | MG1 |



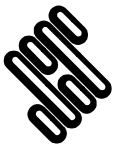
BOREHOLE LOG

| | | | | | |
|--|--|--|----------------------------|---|-----------------------|
| Contract: A635 Barnsley Bus Rapid Transit Route | | Client: Barnsley Metropolitan Borough Council | | Borehole: BH08 | |
| Contract Ref: 765865 | | Start: 30.07.24 | Ground Level: 52.38 | National Grid Co-ordinate: E:437302.7 N:405606.1 | Sheet: 3 of 10 |
| End: 12.08.24 | | | | | |

| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details | Backfill & Instrumentation | Water | Description of Strata | Reduced Level | Depth (Thickness) | Material Graphic Legend |
|--------------------|-------------------|------|------------------------|----------------|---------|---------|------------|---------------------------------------|----------------------------|-------|---|---------------|-------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | | |
| 9.00-10.50 (0:19) | 29 | SPT | 15, 10/25, 25 for 55mm | ↑ | ↑ | ↑ | ↑ | 100% return Air+Mist (Brown and grey) | | | Extremely weak to very weak thinly laminated brownish grey MUDSTONE with sandstone laminae recovered non intact as angular fine to coarse gravel of brownish grey mudstone. (PENNINE MIDDLE COAL MEASURES FORMATION) | 41.88 | 10.50 | |
| 9.00-9.24 | | DSPT | | 53 | 0 | 0 | NI | | | | | | | |
| 10.50-12.00 (0:14) | 31 | C | | ↑ | ↑ | ↑ | ↑ | 100% return Air+Mist | | | Extremely weak to very weak thinly laminated grey MUDSTONE with extremely closely spaced thin laminae of brown sandstone and siltstone. Bedding Fractures are 5° extremely closely spaced to closely spaced undulating rough open with light brown discolouration on fractures. (PENNINE MIDDLE COAL MEASURES FORMATION) | 40.28 | 12.10 | |
| 11.80-11.92 | | | | 100 | 79 | 36 | NI 80 130 | | | | | | | |
| 12.00-13.50 (0:19) | 31 | C | | ↑ | ↑ | ↑ | ↑ | Air+Mist | | | Very weak thinly laminated grey MUDSTONE with occasional thin laminae of brown siltstone and sandstone. Occasional thin laminae of coal. Bedding Fractures are 5° very closely spaced to medium spaced undulating rough open infilled with grey fragments of mudstone or light brown discolouration on fractures. (PENNINE MIDDLE COAL MEASURES FORMATION) ... 12.15 -12.60m, occasional thin laminae of coal. ... 12.94-12.98, very weak grey sandstone. | 38.88 | 13.50 | |
| 12.00-13.50 (0:19) | | | | 100 | 83 | 27 | NI 150 250 | | | | | | | |

| Boring Progress and Water Observations | | | | | | Chiselling / Slow Progress | | | General Remarks | | | |
|--|--|----------------|--------------|-----------------------------------|-------------|----------------------------|-----------------------------------|------------------|---|------------------|-------------|------------|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | From | To | Duration (hh:mm) | | | | |
| | | | | | | | | | 8. SPT hammer AR1862-2024 (E _r = 70.00%) used. | | | |
| All dimensions in metres | | | | | | | | | Scale: 1:25 | | | |
| Method Used: | Cable Percussion + Rotary Cored | | Plant Used: | Dando 2500 + Massenza M-12 | | Drilled By: | Robert Foster + Gary Blake | | Logged By: | JHoughton | Checked By: | AGS |

GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PtVersion: v8_07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELEY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01.
 Structural Soils Ltd, Branch Office - Castleford, The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:12 | MG1 |



BOREHOLE LOG

| | | | | |
|--|--|--|---|-----------------------|
| Contract: A635 Barnsley Bus Rapid Transit Route | | Client: Barnsley Metropolitan Borough Council | | Borehole: BH08 |
| Contract Ref: 765865 | Start: 30.07.24 End: 12.08.24 | Ground Level: 52.38 | National Grid Co-ordinate: E:437302.7 N:405606.1 | Sheet: 4 of 10 |

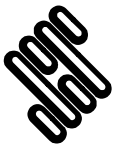
| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details | Backfill & Instrumentation | Water | Description of Strata | Reduced Level | Depth (Thickness) | Material Graphic Legend |
|--------------------|-------------------|------|---------|----------------|---------|---------|------------------|---------------------------------------|----------------------------|-------|--|---------------|-------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | | |
| 13.50-15.00 (0:19) | 32 | C | | 100 | 81 | 40 | 280 | | | | . . . 13.04-13.10m, very weak grey sandstone. . . . 13.10m-13.50m, occasional plant fossils. . . . 13.12m-13.32m, Joint is 80° undulating rough with brown discoloration on fractures. . . . 13.38m-13.45m, occasional thin laminae of coal. | 38.60 | 13.78 | |
| 13.50-13.78 | | | | | | | | | | | | | | |
| 13.82-14.00 | 33 | C | | | | | | | | | Weak thinly laminated greyish white fine to coarse SANDSTONE with occasional thin laminae of mudstone or coal. Fractures are absent. (PENNINE MIDDLE COAL MEASURES FORMATION) | | | |
| 15.00-16.50 (0:27) | 34 | C | | 100 | 78 | 68 | 900 | 100% return Air+Mist | | | Weak thinly laminated grey MUDSTONE with extremely closely spaced thin laminae of brown sandstone. Bedding Fractures are 5° extremely closely spaced to closely spaced undulating rough open clean and in places light brown discoloration on fractures. Joints are 15-35° closely to medium spaced undulating rough open with brown discoloration. (PENNINE MIDDLE COAL MEASURES FORMATION) | 37.38 | 15.00 | |
| 15.15-15.30 | | | | | | | | | | | | | | |
| 16.50-18.00 (0:23) | 35 | C | | 97 | 77 | 57 | 30 200 330 | 100% return Air+Mist (Grey and brown) | | | . . . 14.25m-14.29m, Joint is 35° planar rough clean. . . . 14.35m-14.55m, Joint is 85° undulating rough partly open with light brown discoloration. . . . 14.60m-15.00m, Joint is 85° planar rough open with dark brown discoloration on joint surface. | 36.48 | 15.90 | |
| 16.75-16.95 | | | | | | | | | | | | | | |
| 17.60-17.75 | 36 | C | | | | | | | | | . . . 15.75m-15.77m, Joint is 15° planar rough clean. . . . 15.84m-15.90m, Joint is 15° planar rough clean. | 34.78 | 17.60 | |
| | | | | | | | | | | | Very weak thinly laminated dark grey MUDSTONE interlaminated with very weak thinly laminated greyish white fine to medium | | (0.80) | |

GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PtVersion: v8_07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELEY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford, The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:12 | MG1 |

| Boring Progress and Water Observations | | | | | | Chiselling / Slow Progress | | | General Remarks |
|--|------|----------------|--------------|------------------------|-------------|----------------------------|----|------------------|-----------------|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | From | To | Duration (hh:mm) | |
| | | | | | | | | | |

All dimensions in metres Scale: **1:25**

Method Used: **Cable Percussion + Rotary Cored** Plant Used: **Dando 2500 + Massenza M-12** Drilled By: **Robert Foster + Gary Blake** Logged By: **JHoughton** Checked By: **AGS**



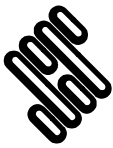
BOREHOLE LOG

| | | | | | |
|--|--|--|----------------------------|---|-----------------------|
| Contract: A635 Barnsley Bus Rapid Transit Route | | Client: Barnsley Metropolitan Borough Council | | Borehole: BH08 | |
| Contract Ref: 765865 | | Start: 30.07.24 | Ground Level: 52.38 | National Grid Co-ordinate: E:437302.7 N:405606.1 | Sheet: 5 of 10 |
| | | End: 12.08.24 | | | |

| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details Backfill & Instrumentation | Water | Description of Strata | Reduced Level | Depth (Thickness) | Material Graphic Legend |
|--------------------|-------------------|------|---------|----------------|---------|---------|------------|--|-------|---|---------------|-------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | |
| 18.00-19.50 (0:28) | | | | | | | | | | sandstone. Bedding Fractures are 5° very closely to medium spaced undulating rough open infilled with grey clayey fine fragments of mudstone or light brown discoloration on fractures. Joints are randomly oriented between 50 to 90° undulating rough open with brown discoloration on joint surfaces. (PENNINE MIDDLE COAL MEASURES FORMATION) ... 15.90m-16.50m, Joint is 85° planar rough open with dark brown discoloration on joint surface. ... 17.10m-17.18m, Joint is 50° undulating rough open with brown discoloration on joint. ... 17.20m-17.48m, Joint is 80° undulating rough open with brown discoloration on joint surfaces. ... 17.70m-17.90m, Joint is 65° undulating rough open with brown discoloration or stain on joint surface. Weak thinly laminated greyish white fine to coarse SANDSTONE with extremely closely spaced thin laminae of grey mudstone. Bedding Fractures are 5° very closely to medium spaced undulating rough open clean or brown discoloration on joint surface. (PENNINE MIDDLE COAL MEASURES FORMATION) <i>(stratum copied from 17.60m from previous sheet)</i> | 33.98 | 18.40 | |
| 18.40-18.75 | 37 | C | | 100 | 87 | 71 | NI 90 200 | 100% return Air+Mist (Grey and brown) | | | | (1.50) | |
| 19.50-21.00 (0:25) | | | | | | | | | | Weak thinly laminated greyish white fine to coarse SANDSTONE with extremely closely spaced thin laminae of grey mudstone. Bedding Fractures are 5° very closely to medium spaced undulating rough open clean or brown discoloration on joint surface. (PENNINE MIDDLE COAL MEASURES FORMATION) <i>(stratum copied from 17.60m from previous sheet)</i> | 32.48 | 19.90 | |
| 19.90-20.04 | 38 | C | | 100 | 72 | 60 | NI 200 500 | 100% return Air+Mist | | | | (2.80) | |
| 21.00-22.50 (0:20) | | | | | | | | | | Weak thinly laminated greyish white fine to coarse SANDSTONE with occasional thin laminae of mudstone. Bedding Fractures are 5° very closely to medium spaced undulating rough open clean. (PENNINE MIDDLE COAL MEASURES FORMATION) ... 19.80m-19.90m, sandstone is interlaminated with mudstone. <i>Description on next sheet</i> ... 20.10m-20.20m, thick laminae of mudstone with coal. ... 20.38m-21.00m, Joint is 85° undulating rough open with dark brown discoloration on joint surfaces. | | | |
| 22.40-22.50 | 39 | C | | 100 | 90 | 87 | | | | | | | |

| Boring Progress and Water Observations | | | | | | Chiselling / Slow Progress | | | General Remarks | |
|--|--|----------------|--------------|------------------------------------|-------------|----------------------------|-----------------------------------|------------------|-----------------------------|------------------------|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | From | To | Duration (hh:mm) | | |
| | | | | | | | | | | |
| All dimensions in metres | | | | | | | | | Scale: 1:25 | |
| Method Used: | Cable Percussion + Rotary Cored | | Plant Used: | Dando 2500 + Massenza M-1-2 | | Drilled By: | Robert Foster + Gary Blake | | Logged By: JHoughton | Checked By: AGS |

GINT LIBRARY_V10_01.GLB LibVersion: v8_07_01 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELEY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01 | Structural Soils Ltd, Branch Office - Castleford, The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ, Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:12 | MG1 |



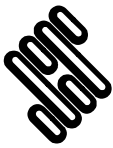
BOREHOLE LOG

| | | | | | |
|--|--|---|-------------------------------|--|--|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH08 | |
| Contract Ref: 765865 | | Start: 30.07.24 End: 12.08.24 | Ground Level: 52.38 | National Grid Co-ordinate: E:437302.7 N:405606.1 | |
| | | | | Sheet: 6 of 10 | |

| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details | Backfill & Instrumentation | Water | Description of Strata | Reduced Level | Depth (Thickness) | Material Graphic Legend |
|-----------------------------------|-------------------|------|---------|----------------|---------|---------|------------|-------------------------|----------------------------|-------|---|---------------|-------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | | |
| 22.50-24.00 (0:24) | | | | | | | | | | | . . . 20.40m-20.45m, very thin bed of grey mudstone with rare coal fragments in it. | 29.68 | 22.70 | |
| 23.10-23.25 | 40 | C | | 100 | 51 | 40 | NI 100 250 | | | | . . . 21.05m-21.15m, Joint is 60° undulating rough open with brown discolouration on joint surfaces. . . . 21.20m-21.65m, Joint is 80° planar. . . . 21.57m-21.60m, very thin bed of grey mudstone with rare coal fragments in it. . . . 21.60m-22.20m, Joint is 80° undulating rough open with dark brown discolouration on joint surfaces. . . . 21.64m-21.66m, thick laminae of mudstone with coal. Weak greyish white fine to coarse SANDSTONE with rare thick laminae to very thin beds grey mudstone with fragments of coal. Bedding Fractures are absent. Joints are 60 to 85° medium spaced to widely spaced undulating rough open with dark brown discolouration on fracture surface. (PENNINE MIDDLE COAL MEASURES FORMATION) (stratum copied from 19.90m from previous sheet) . . . 22.55m-22.70m, Joint is 75° undulating rough open with dark brown discolouration. | | (1.30) | |
| 24.00-25.50 (0:21) 24.05-24.45 | 41 | C | | 100 | 84 | 80 | NI 400 600 | Air+Mist | | | Very weak to weak greyish white fine to coarse SANDSTONE with rare thin beds of very weak grey mudstone and brown subrounded clasts of siltstone. Bedding Fractures are absent. Joints are 55° to 70° closely to medium spaced undulating rough open clean or light brown discolouration on joint surface. (PENNINE MIDDLE COAL MEASURES FORMATION) Weak greyish white fine to coarse SANDSTONE with occasional thin laminae of coal mudstone. Bedding Fractures are closely to widely spaced undulating rough partly open to open clean or infilled with fine fragments of mudstone and sandstone. (PENNINE MIDDLE COAL MEASURES FORMATION) | 28.38 | 24.00 | |
| 25.50-27.00 (0:20) | | | | 100 | 68 | 60 | | | | | | | | |
| 26.65-27.00 | 42 | C | | | | | | | | | | | (6.00) | |

| Boring Progress and Water Observations | | | | | | Chiselling / Slow Progress | | | General Remarks | |
|--|--|----------------|--------------|------------------------------------|-------------|----------------------------|-----------------------------------|------------------|-----------------------------|------------------------|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | From | To | Duration (hh:mm) | | |
| | | | | | | | | | | |
| All dimensions in metres | | | | | | | | | Scale: 1:25 | |
| Method Used: | Cable Percussion + Rotary Cored | | Plant Used: | Dando 2500 + Massenza M-1-2 | | Drilled By: | Robert Foster + Gary Blake | | Logged By: JHoughton | Checked By: AGS |

GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PIVersion: v8_07_001 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELEY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01 | Structural Soils Ltd, Branch Office - Castleford, West Yorkshire, WF10 1NJ, Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:12 | MG1 |



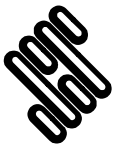
BOREHOLE LOG

| | | | | |
|--|--|--|---|-----------------------|
| Contract: A635 Barnsley Bus Rapid Transit Route | | Client: Barnsley Metropolitan Borough Council | | Borehole: BH08 |
| Contract Ref: 765865 | Start: 30.07.24 End: 12.08.24 | Ground Level: 52.38 | National Grid Co-ordinate: E:437302.7 N:405606.1 | Sheet: 7 of 10 |

| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details Backfill & Instrumentation | Water | Description of Strata | Reduced Level | Depth (Thickness) | Material Graphic Legend |
|--------------------------------------|-------------------|------|---------|----------------|---------|---------|------------|--|-------|---|---------------|-------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | |
| 27.00-28.50 (0:24) | | | | | | | | | | . . . 24.75m-28.10m, occasional thin laminae of coal up to 5mm. . . . 25.20m-25.50m, occasional thin laminae of coal up to 6mm. . . . 26.10m-26.25m, occasional thin laminae of coal up to 6mm. . . . 26.25m-26.60m, Joint is 70° undulating rough open clean. Weak greyish white fine to coarse SANDSTONE with occasional thin laminae of coal mudstone. Bedding Fractures are closely to widely spaced undulating rough partly open to open clean or infilled with fine fragments of mudstone and sandstone. (PENNINE MIDDLE COAL MEASURES FORMATION) (stratum copied from 24.00m from previous sheet) . . . 27.75m-27.80m, occasional thin laminae of coal up to 6mm . . . 27.80m -28.95m, two planar joints dipping at 90° and 80° dissecting each other. Joints are planar rough clean. . . . 29.00m-29.10m, occasional plant fossils and thin laminae of coal up to 6mm . . . 29.40m-29.55m, occasional thin to thick laminae of grey mudstone and coal up to 10mm. | | | |
| 27.60-27.75 | 43 | C | | 100 | 50 | 50 | | | | | | | |
| 28.50-30.00 (0:16) | | | | 100 | 43 | 43 | NI 400 600 | 100% return Air+Mist (Grey and brown) | | | | | |
| 29.50-30.00 | 44 | C | | | | | | | | | 22.38 | 30.00 | |
| Borehole terminated at 30.00m depth. | | | | | | | | | | | | | |

GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELEY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01.
 Structural Soils Ltd, Branch Office - Castleford, The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:12 | MG1 |

| Boring Progress and Water Observations | | | | | | Chiselling / Slow Progress | | | General Remarks | | |
|---|------|----------------|--------------|------------------------|-------------|----------------------------|----|---|-----------------|---|--|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | From | To | Duration (hh:mm) | | | |
| | | | | | | | | | | | |
| Method Used: Cable Percussion + Rotary Cored | | | | | | | | Plant Used: Dando 2500 + Massenza M-12 | | Drilled By: Robert Foster + Gary Blake | |
| Logged By: JHoughton | | | | | | | | Checked By: AGS | | Scale: 1:25 | |

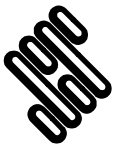


| | | | | |
|---|--|---|--|--------------------------|
| Contract: A635 Barnsley Bus Rapid Transit Route | | Client: Barnsley Metropolitan Borough Council | | Borehole: BH08 |
| Contract Ref: 765865 | Start: 30.07.24 End: 12.08.24 | Ground Level: 52.38 | National Grid Co-ordinate: E:437302.7 N:405606.1 | Sheet: 8 of 10 |



GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrVersion: v8_07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELY BUS RAPIDTRANSIT ROUTE GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford. The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:13 | MG1 |

| | | | | | |
|--|--|--|--------------------------------|--------------------------|--|
| Method Used: Cable Percussion + Rotary Cored | Plant Used: Dando 2500 + Massenza M-12 | Drilled By: Robert Foster + Gary Blake | Logged By: JHoughton | Checked By: AG | |
|--|--|--|--------------------------------|--------------------------|--|

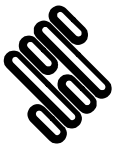


| | | | | |
|---|--|---|--|--------------------------|
| Contract: A635 Barnsley Bus Rapid Transit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH08 |
| Contract Ref: 765865 | Start: 30.07.24 End: 12.08.24 | Ground Level: 52.38 | National Grid Co-ordinate: E:437302.7 N:405606.1 | Sheet: 9 of 10 |



GINT LIBRARY_V10_01.GLB LibVersion: v8.07.001 PjVersion: v8.07.001 Log COMPOSITE LOG - A4P | 765865 A635 BARNESLEY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford. The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:13 | MG1 |

| | | | | | |
|--|--|--|--------------------------------|--------------------------|--|
| Method Used: Cable Percussion + Rotary Cored | Plant Used: Dando 2500 + Massenza M-12 | Drilled By: Robert Foster + Gary Blake | Logged By: JHoughton | Checked By: AG | |
|--|--|--|--------------------------------|--------------------------|--|



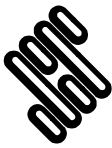
BOREHOLE LOG

| | | | | |
|---|--|---|--|---------------------------|
| Contract: A635 Barnsley Bus Rapid Transit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH08 |
| Contract Ref: 765865 | Start: 30.07.24 End: 12.08.24 | Ground Level: 52.38 | National Grid Co-ordinate: E:437302.7 N:405606.1 | Sheet: 10 of 10 |



GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrVersion: v8_07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford. The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:13 | MG1 |

| | | | | | |
|--|---|--|--------------------------------|--------------------------|--|
| Method Used: Cable Percussion + Rotary Cored | Plant Used: Dando 2500 + Massenza M-2 | Drilled By: Robert Foster + Gary Blake | Logged By: JHoughton | Checked By: AG | |
|--|---|--|--------------------------------|--------------------------|--|



BOREHOLE LOG

| | | | | | |
|---|--|--|----------------------------|---|-----------------------|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH09 | |
| Contract Ref: 765865 | | Start: 31.07.24 | Ground Level: 52.61 | National Grid Co-ordinate: E:437289.9 N:405609.3 | Sheet: 1 of 10 |
| | | End: 05.08.24 | | | |

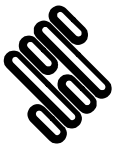
| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details | Backfill | Water | Description of Strata | Reduced Level | Depth (Thickness) | Material Graphic Legend |
|-----------|-------------------|-----------------------|--|----------------|---------|---------|---------|-------------------------|----------|-------|--|---------------|-------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | | |
| 0.10-0.20 | 1 | D | 1xT+1xJ+1xV | | | | | | | | MADE GROUND: Black very gravelly ASH. Gravel is angular to subangular fine to coarse of ash, tarmac, concrete and slag. (MADE GROUND) | 51.71 | 0.90 | |
| 0.10 | 101 | ES | | | | | | | | | | | | |
| 0.20-0.50 | 2 | B | | | | | | | | | | | | |
| 0.90-1.00 | 3 | D | 1xT+1xJ+1xV | | | | | | | | MADE GROUND: Light brown gravelly fine to coarse SAND. Gravel is angular to subangular fine to coarse of sandstone. (MADE GROUND) | 50.61 | 2.00 | |
| 0.90-1.20 | 4 | B | | | | | | | | | | | | |
| 1.00 | 102 | ES | | | | | | | | | | | | |
| 1.50-1.95 | 5 | SPT | N=14 | | | | | | | | | | | |
| 1.50-1.95 | 6 | DSPT | | | | | | | | | | | | |
| 1.50-1.95 | 7 | B | | | | | | | | | | | | |
| 2.00-2.10 | 8 | D | 1xT+1xJ+1xV | | | | | | | | MADE GROUND: Very soft light brown mottled grey sandy slightly gravelly CLAY. Sandstone is fine to coarse. Gravel are angular to subangular fine to coarse of sandstone. (MADE GROUND) | 50.21 | 2.40 | |
| 2.00-2.40 | 9 | B | | | | | | | | | | | | |
| 2.10 | 103 | ES | | | | | | | | | | | | |
| 2.40-2.50 | 10 | D | 1xT+1xJ+1xV 30 blows 100% recovery | | | | | | | | MADE GROUND: Firm grey mottled light brown slightly sandy slightly gravelly CLAY. Sands are fine to medium. Gravel are angular to subangular fine to coarse of sandstone and mudstone. (MADE GROUND) | | | |
| 2.40-2.50 | 11 | B | | | | | | | | | | | | |
| 2.45 | 104 | ES | | | | | | | | | | | | |
| 2.50-2.95 | 12 | UT _(UT100) | | | | | | | | | | | | |
| 2.95-3.10 | 13 | D | | | | | | | | | | | | |
| 3.40 | 105 | ES | 1xT+1xJ+1xV N=11 | | | | | | | | | | | |
| 3.50-3.95 | 14 | SPT | | | | | | | | | | | | |
| 3.50-3.95 | 15 | DSPT | | | | | | | | | | | | |
| 3.50-3.95 | 16 | B | | | | | | | | | | | | |
| 4.00-4.10 | 17 | D | | | | | | | | | | | | |
| 4.40 | 106 | ES | 1xT+1xJ+1xV | | | | | | | | | | | |

GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PiVersion: v8_07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELEY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford, The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:15 | MG1 |

| Boring Progress and Water Observations | | | | | | Chiselling / Slow Progress | | | General Remarks |
|--|-------|----------------|--------------|------------------------|-------------|----------------------------|-------|------------------|-----------------|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | From | To | Duration (hh:mm) | |
| 31/07/24 | 17:16 | 10.79 | None | N/R | - | 9.50 | 10.50 | 01:00 | |
| 01/08/24 | 07:45 | | None | N/R | - | | | | |
| 01/08/24 | 15:11 | 10.79 | 6.00 | 107 | Dry | | | | |
| 05/08/24 | 08:00 | 16.50 | 10.50 | 150 | - | | | | |
| 05/08/24 | 16:49 | 16.50 | 10.50 | 150 | 9.80 | | | | |
| 06/08/24 | 16:00 | 16.50 | 10.50 | 150 | 11.25 | | | | |
| 06/08/24 | 16:01 | 22.50 | 10.50 | 150 | 13.05 | | | | |
| 07/08/24 | 08:00 | 22.50 | None | N/R | - | | | | |

All dimensions in metres Scale: **1:25**

| | | | | |
|--|---|---|---------------------------|------------------------|
| Method Used: Inspection pit + Cable Percussion + Rotary Cored | Plant Used: Dando 2500 + Massenza M-13 | Drilled By: Robert Foster + Gary Blake | Logged By: BSaimen | Checked By: AGS |
|--|---|---|---------------------------|------------------------|



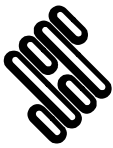
BOREHOLE LOG

| | | | | | |
|---|--|---|-------------------------------|--|--|
| Contract: A635 Barnsley Bus Rapid Transit Route | | Client: Barnsley Metropolitan Borough Council | | Borehole: BH09 | |
| Contract Ref: 765865 | | Start: 31.07.24 End: 05.08.24 | Ground Level: 52.61 | National Grid Co-ordinate: E:437289.9 N:405609.3 | |
| | | | | Sheet: 2 of 10 | |

| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details | Backfill | Water | Description of Strata | Reduced Level | Depth (Thickness) | Material Graphic Legend |
|-----------|-------------------|-----------------------|----------------------------|----------------|---------|---------|---------|-------------------------|----------|-------|--|---------------|-------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | | |
| 4.50-4.95 | 18 | UT _(UT100) | 40 blows 100% recovery | | | | | | | | MADE GROUND: Firm grey mottled light brown slightly sandy slightly gravelly CLAY. Sands are fine to medium. Gravel are angular to subangular fine to coarse of sandstone and mudstone. (MADE GROUND) (stratum copied from 2.40m from previous sheet) | 45.61 | (4.60) | |
| 4.95-5.10 | 19 | D | | | | | | | | | | | | |
| 5.40 | 107 | ES | 1xT+1xJ+1xV | | | | | | | | | | | |
| 5.50-5.60 | 20 | D | | | | | | | | | | | | |
| 6.00-6.45 | 21 | SPT | N=12 | | | | | | | | | | | |
| 6.00-6.45 | 22 | DSPT | | | | | | | | | | | | |
| 6.00-6.45 | 23 | B | | | | | | | | | | | | |
| 6.40 | 108 | ES | 1xT+1xJ+1xV | | | | | | | | | | | |
| 6.50-6.60 | 24 | D | | | | | | | | | | | | |
| 7.00-7.10 | 25 | D | 1xT+1xJ+1xV | | | | | | | | | 44.61 | (1.00) | |
| 7.00-7.40 | 26 | B | | | | | | | | | | | | |
| 7.10 | 109 | ES | | | | | | | | | | | | |
| 7.50-7.95 | 27 | UT _(UT100) | 100 blows 100% recovery | | | | | | | | | | | |
| 7.95-8.10 | 28 | D | | | | | | | | | | | | |
| 8.10 | 110 | ES | 1xT+1xJ+1xV | | | | | | | | Stiff friable light brown mottled grey CLAY with abundant lithorelicts of extremely weak mudstone. | 44.61 | 8.00 | |
| 8.10-8.50 | 29 | B | | | | | | | | | | | | |
| 8.50-8.60 | 30 | D | | | | | | | | | | | (1.45) | |

GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PtVersion: v8_07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELEY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford, The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:15 | MG1 |

| Boring Progress and Water Observations | | | | | | Chiselling / Slow Progress | | | General Remarks | |
|--|---|----------------|--------------|------------------------|------------------------------------|----------------------------|-------------|-----------------------------------|---|--|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | From | To | Duration (hh:mm) | | |
| 07/08/24 | 17:00 | 22.50 | None | N/R | - | | | | percussion borehole. 5. Cable percussion borehole extended using rotary coring methods from 10.50m to 22.50m depth. 6. Standing water level at the end of drilling 13.05m depth. 7. SPT hammer AR1862-2024 ($E_r = 70.00\%$) | |
| 07/08/24 | 17:00 | 22.50 | None | N/R | - | | | | | |
| All dimensions in metres | | | | | | | | Scale: | 1:25 | |
| Method Used: | Inspection pit + Cable Percussion + Rotary Cored | | | Plant Used: | Dando 2500 + Massenza M-1-3 | | Drilled By: | Robert Foster + Gary Blake | | |
| | | | | | | | Logged By: | BSaimen | | |
| | | | | | | | Checked By: | AGS | | |



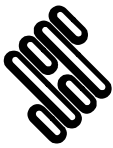
BOREHOLE LOG

| | | | | | |
|--|--|--|----------------------------|---|-----------------------|
| Contract: A635 Barnsley Bus Rapid Transit Route | | Client: Barnsley Metropolitan Borough Council | | Borehole: BH09 | |
| Contract Ref: 765865 | | Start: 31.07.24 | Ground Level: 52.61 | National Grid Co-ordinate: E:437289.9 N:405609.3 | Sheet: 3 of 10 |
| End: 05.08.24 | | | | | |

| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details | Backfill | Water | Description of Strata | Reduced Level | Depth (Thickness) | Material Graphic Legend | |
|--------------------|-------------------|------|-------------------------|----------------|---------|---------|---------|-------------------------|----------|-------|---|---------------|-------------------|-------------------------|--|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | | | |
| 9.00-9.43 | 31 | SPT | 7,8,9,11,15,15 for 55mm | | | | | | | | Stiff friable light brown mottled grey CLAY with abundant lithorelicts of extremely weak mudstone. <i>(stratum copied from 8.00m from previous sheet)</i> | 43.16 | 9.45 | | |
| 9.00-9.43 | 32 | DSPT | | | | | | | | | | | | | |
| 9.00-9.43 | 33 | B | | | | | | | | | | | | | |
| 9.50-9.60 | 34 | D | 1xT+1xJ+1xV | | | | | | | | Extremely weak grey MUDSTONE. Recovered as 2mm to 15mm fragments. (PENNINE MIDDLE COAL MEASURES FORMATION) | 42.11 | 10.50 | | |
| 9.60 | 111 | ES | | | | | | | | | | | | | |
| 10.00-10.10 | 35 | D | | | | | | | | | | | | | |
| 10.50-12.00 (0:11) | 36 | SPT | 12,12/20,30 for 65mm | | | | | | | | Extremely weak to very weak thinly laminated brownish grey MUDSTONE with extremely closely spaced thin laminae of brown siltstone. Rare thin laminae of coal. Bedding Fractures are 5° extremely closely to very closely spaced undulating rough open infilled with grey clayey fine gravel of mudstone or brown staining on fractures up to 2mm. (PENNINE MIDDLE COAL MEASURES FORMATION) ... 11.00-11.20m, Mudstone is non intact recovered as fine to coarse angular gravel. ... 11.05m, non intact mudstone contains thin laminae of coal. ... 11.22m, thin laminae of coal. ... 11.56m, thin laminae of coal. ... 11.70-11.80m, mudstone is non intact recovered as fine to coarse angular gravel. | 40.76 | 11.85 | | |
| 10.50-10.79 | 37 | DSPT | | | | | | | | | | | | | |
| 10.50-10.79 | 38 | C | | | | | | | | | | | | | |
| 10.85-10.95 | | | | | | | | | | | | | | | |
| 12.00-13.50 (0:10) | | | | | | | | | | | | | | | |
| 12.35-12.45 | 39 | C | | | | | | | | | Very weak thinly laminated grey MUDSTONE with extremely closely spaced thin laminae of greyish white fine to medium sandstone. Bedding Fractures are 5° very closely spaced to medium spaced undulating rough open to moderately wide infilled with grey clay up to 6mm or brown discolouration on fractures. (PENNINE MIDDLE COAL MEASURES FORMATION) <i>Description on next sheet</i> | 39.66 | 12.95 | | |
| | | | | | | | | | | | | | | | |

GINT LIBRARY_V10_01.GLB LibVersion: v8_07_07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELEY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:15 | MG1 |

| Boring Progress and Water Observations | | | | | | Chiselling / Slow Progress | | | General Remarks | |
|--|---|----------------|--------------|-----------------------------------|-------------|----------------------------|-----------------------------------|--------------------|---------------------------|------------------------|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | From | To | Duration (hh:mm) | | |
| | | | | | | | | | used. | |
| All dimensions in metres | | | | | | | | Scale: 1:25 | | |
| Method Used: | Inspection pit + Cable Percussion + Rotary Cored | | Plant Used: | Dando 2500 + Massenza M-13 | | Drilled By: | Robert Foster + Gary Blake | | Logged By: BSaimen | Checked By: AGS |



BOREHOLE LOG

| | | | | |
|--|--|--|---|-----------------------|
| Contract: A635 Barnsley Bus Rapid Transit Route | | Client: Barnsley Metropolitan Borough Council | | Borehole: BH09 |
| Contract Ref: 765865 | Start: 31.07.24 End: 05.08.24 | Ground Level: 52.61 | National Grid Co-ordinate: E:437289.9 N:405609.3 | Sheet: 5 of 10 |

| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details | Backfill | Water | Description of Strata | Reduced Level | Depth (Thickness) | Material Graphic Legend |
|--------------------|-------------------|------|---------|----------------|---------|---------|-------------|-------------------------|----------|-------|---|---------------|-------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | | |
| 18.00-19.50 (0:13) | | | | 100 | 80 | 53 | NI 100 250 | Air+Mist | | | 17.90-19.10m, subvertical (80°) joint in undulating rough moderately wide thick brown stains up to 5mm. Weak thinly laminated greyish white fine to coarse SANDSTONE with occasional thin laminae of grey mudstone. Bedding Fractures are 5 to 10° undulating rough open spaced discolouration on fractures. (PENNINE MIDDLE COAL MEASURES FORMATION) | 33.51 | 19.10 | |
| 19.50-21.00 (0:19) | 45 | C | | 100 | 80 | 53 | NI 20 60 90 | 100% return Air+Mist | | | Very weak thinly laminated greyish white and grey fine to medium SANDSTONE with extremely closely to very closely spaced thin laminae of grey mudstone. Bedding Fractures are 5° very closely to closely spaced undulating rough open light brown discolouration or clean. (PENNINE MIDDLE COAL MEASURES FORMATION) | 33.11 | 19.50 | |
| 19.50-19.65 | | | | | | | | | | | 19.10 -19.25m, Very weak thinly laminated dark grey mudstone interlaminated with very weak thinly laminated greyish white fine to medium sandstone. | | | |
| 21.00-22.50 (0:11) | | | | | | | NI 300 580 | | | | Weak greyish white and light brown fine to coarse SANDSTONE with rare fine to coarse subrounded clasts of light brown siltstone. Bedding Fractures are 5 to 10° very closely to medium spaced undulating rough open with brown discolouration on fractures. (PENNINE MIDDLE COAL MEASURES FORMATION) | | | |
| 21.60-22.00 | 46 | C | | 100 | 73 | 60 | | | | | 19.50-21.20m, subvertical (80°) joint is undulating rough open with thick brown stains up to 2.5mm. | | | |
| | | | | | | | | | | | | 30.11 | 22.50 | |

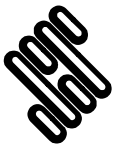
Borehole terminated at 22.50m

| Boring Progress and Water Observations | | | | | | Chiselling / Slow Progress | | | General Remarks |
|--|------|----------------|--------------|------------------------|-------------|----------------------------|----|------------------|-----------------|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | From | To | Duration (hh:mm) | |
| | | | | | | | | | |

All dimensions in metres Scale: **1:25**

| | | | | |
|--|--|---|---------------------------|------------------------|
| Method Used: Inspection pit + Cable Percussion + Rotary Cored | Plant Used: Dando 2500 + Massenza M-3 | Drilled By: Robert Foster + Gary Blake | Logged By: BSaimen | Checked By: AGS |
|--|--|---|---------------------------|------------------------|

GINT LIBRARY V10_01.GLB LibVersion: v8_07_001 PtVersion: v8_07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELEY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01 | Structural Soils Ltd, Branch Office - Castleford, The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:15 | MG1 |



BOREHOLE LOG

| | | | | |
|--|--|---|--|--------------------------|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH09 |
| Contract Ref: 765865 | Start: 31.07.24 End: 05.08.24 | Ground Level: 52.61 | National Grid Co-ordinate: E:437289.9 N:405609.3 | Sheet: 6 of 10 |

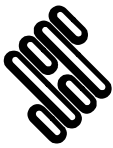
| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details | Backfill | Water | Description of Strata | Reduced Level | Depth (Thickness) | Material Graphic Legend |
|-----------|-------------------|------|---------|----------------|---------|---------|---------|-------------------------|----------|-------|-----------------------|---------------|-------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | | |
| | | | | | | | | | | | | | | |

| Boring Progress and Water Observations | | | | | | Chiselling / Slow Progress | | | General Remarks |
|--|------|----------------|--------------|------------------------|-------------|----------------------------|----|------------------|-----------------|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | From | To | Duration (hh:mm) | |
| | | | | | | | | | |

All dimensions in metres Scale: **1:25**

| | | | | |
|--|--|---|---------------------------|------------------------|
| Method Used: Inspection pit + Cable Percussion + Rotary Cored | Plant Used: Dando 2500 + Massenza M-I-3 | Drilled By: Robert Foster + Gary Blake | Logged By: BSaimen | Checked By: AGS |
|--|--|---|---------------------------|------------------------|

GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrVersion: v8_07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01.
 Structural Soils Ltd, Branch Office - Castleford, The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:15 | MG1 |

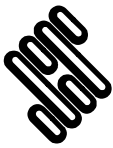


| | | | | |
|--|--|---|--|--------------------------|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH09 |
| Contract Ref: 765865 | Start: 31.07.24 End: 05.08.24 | Ground Level: 52.61 | National Grid Co-ordinate: E:437289.9 N:405609.3 | Sheet: 7 of 10 |



GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PiVersion: v8_07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELEY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01.
 Structural Soils Ltd, Branch Office - Castleford, The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:15 | MG1 |

| | | | | |
|---|--|--|------------------------------|---------------------------|
| Method Used: Inspection pit + Cable Percussion + Rotary Cored | Plant Used: Dando 2500 + Massenza M-13 | Drilled By: Robert Foster + Gary Blake | Logged By: BSaimen | Checked By: AGS |
|---|--|--|------------------------------|---------------------------|



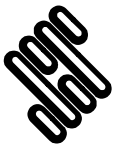
BOREHOLE LOG

| | | | | |
|---|--|---|--|--------------------------|
| Contract: A635 Barnsley Bus Rapid Transit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH09 |
| Contract Ref: 765865 | Start: 31.07.24 End: 05.08.24 | Ground Level: 52.61 | National Grid Co-ordinate: E:437289.9 N:405609.3 | Sheet: 8 of 10 |



GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PjVersion: v8_07_001 Log COMPOSITE LOG - A4P | 765865 A635 BARNSELEY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford, The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:15 | MG1 |

| | | | | |
|---|--|--|------------------------------|---------------------------|
| Method Used: Inspection pit + Cable Percussion + Rotary Cored | Plant Used: Dando 2500 + Massenza M-13 | Drilled By: Robert Foster + Gary Blake | Logged By: BSaimen | Checked By: AGS |
|---|--|--|------------------------------|---------------------------|

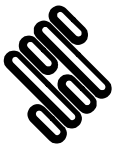


| | | | | |
|---|--|---|--|--------------------------|
| Contract: A635 Barnsley Bus Rapid Transit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH09 |
| Contract Ref: 765865 | Start: 31.07.24 End: 05.08.24 | Ground Level: 52.61 | National Grid Co-ordinate: E:437289.9 N:405609.3 | Sheet: 9 of 10 |



GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PjVersion: v8_07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford. The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:15 | MG1 |

| | | | | |
|---|--|--|------------------------------|---------------------------|
| Method Used: Inspection pit + Cable Percussion + Rotary Cored | Plant Used: Dando 2500 + Massenza M-13 | Drilled By: Robert Foster + Gary Blake | Logged By: BSaimen | Checked By: AGS |
|---|--|--|------------------------------|---------------------------|



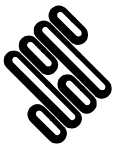
BOREHOLE LOG

| | | | | |
|---|--|---|--|---------------------------|
| Contract: A635 Barnsley Bus Rapid Transit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH09 |
| Contract Ref: 765865 | Start: 31.07.24 End: 05.08.24 | Ground Level: 52.61 | National Grid Co-ordinate: E:437289.9 N:405609.3 | Sheet: 10 of 10 |



GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrVersion: v8_07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNESLEY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford. The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552299, Fax: 01977-552255, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:16 | MG1 |

| | | | | | |
|---|---|--|------------------------------|--------------------------|--|
| Method Used: Inspection pit + Cable Percussion + Rotary Cored | Plant Used: Dando 2500 + Massenza M-1-3 | Drilled By: Robert Foster + Gary Blake | Logged By: BSaimen | Checked By: AG | |
|---|---|--|------------------------------|--------------------------|--|



| | | | | | |
|---|--|--|----------------------------|---|-----------------------|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH10 | |
| Contract Ref: 765865 | | Start: 02.08.24 | Ground Level: 52.80 | National Grid Co-ordinate: E:437256.9 N:405632.8 | Sheet: 1 of 13 |
| | | End: 03.09.24 | | | |

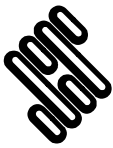
| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details | Backfill | Water | Description of Strata | Reduced Level | Depth (Thickness) | Material Graphic Legend |
|-----------|-------------------|-----------------------|--------------------------|----------------|---------|---------|---------|-------------------------|----------|-------|--|---------------|-------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | | |
| 0.10 | 101 | ES | | | | | | | | | MADE GROUND: Dark brown slightly gravelly silty fine SAND. Gravel is angular to subangular | 52.60 | 0.20 | [Cross-hatch pattern] |
| 0.20-0.30 | 1 | D | | | | | | | | | Gravel is angular to subangular fine to coarse of sandstone, tarmac and bricks fragments. (MADE GROUND) | | (0.50) | |
| 0.20-0.50 | 2 | B | | | | | | | | | | | | |
| 0.30 | 103 | ES | | | | | | | | | MADE GROUND: Black gravelly fine to coarse ASH. Gravel fragments are angular to subangular fine to coarse of tarmac, concrete and ash. (MADE GROUND) | 52.10 | 0.70 | [Cross-hatch pattern] |
| 0.70-0.80 | 3 | D | | | | | | | | | | | | |
| 0.80-1.20 | 4 | B | | | | | | | | | MADE GROUND: Light brown slightly gravelly silty fine to medium SAND. Gravel is angular to subangular fine to coarse of sandstone. (MADE GROUND) | | | |
| 1.50-1.95 | 5 | SPT | N=16 | | | | | | | | | | | [Cross-hatch pattern] |
| 1.50-1.95 | 6 | DSPT | | | | | | | | | | | | |
| 1.50-1.95 | 7 | B | | | | | | | | | | | | |
| 1.80 | 104 | ES | | | | | | | | | | | | [Cross-hatch pattern] |
| 2.00-2.10 | 8 | D | | | | | | | | | | | (2.70) | |
| | | | | | | | | | | | | | | |
| 2.50-2.95 | 9 | SPT | N=17 | | | | | | | | | | | [Cross-hatch pattern] |
| 2.50-2.95 | 10 | DSPT | | | | | | | | | | | | |
| 2.50-2.95 | 11 | B | | | | | | | | | | | | |
| 2.80 | 105 | ES | | | | | | | | | | | | [Cross-hatch pattern] |
| 3.00-3.10 | 12 | D | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 3.40-3.50 | 13 | D | | | | | | | | | | | | [Cross-hatch pattern] |
| 3.40-3.50 | 14 | B | | | | | | | | | MADE GROUND: Firm to stiff grey mottled light brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of mudstone, sandstone and bricks fragments. (MADE GROUND) | 49.40 | 3.40 | |
| 3.50 | 106 | ES | | | | | | | | | | | | |
| 3.50-3.95 | 15 | UT _(UT100) | 45 blows 96% recovery | | | | | | | | | | | [Cross-hatch pattern] |
| 3.95-4.10 | 16 | D | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 4.40 | 107 | ES | | | | | | | | | | | | [Cross-hatch pattern] |

| Boring Progress and Water Observations | | | | | | Chiselling / Slow Progress | | | General Remarks |
|--|-------|----------------|--------------|------------------------|-------------|----------------------------|-------|------------------|-----------------|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | From | To | Duration (hh:mm) | |
| 02/08/24 | 15:28 | 6.60 | 6.00 | 200 | Dry | 9.00 | 10.50 | 01:30 | |
| 05/08/24 | 09:00 | 6.60 | 6.00 | 200 | Dry | | | | |
| 05/08/24 | 12:30 | 10.68 | 10.50 | 200 | - | | | | |
| 15/08/24 | 08:00 | 10.68 | None | N/R | - | | | | |
| 15/08/24 | 17:26 | 27.00 | 10.50 | 150 | 19.90 | | | | |
| 16/08/24 | 08:00 | 27.00 | None | N/R | - | | | | |
| 16/08/24 | 15:32 | 30.00 | 10.50 | 150 | 15.80 | | | | |

All dimensions in metres Scale: **1:25**

| | | | | |
|--|--|--|---------------------------------------|------------------------|
| Method Used: Inspection pit + Cable Percussion + Rotary Cored | Plant Used: Dando 2500 + Massenza M-1-3 | Drilled By: Robert Foster + Barry Evans | Logged By: JHoughton + KDalton | Checked By: AGS |
|--|--|--|---------------------------------------|------------------------|

GINT LIBRARY V10_01.GLB LibVersion: v8_07_001 PIVersion: v8_07_001 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELEY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford, The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:17 | MG11



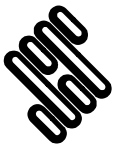
BOREHOLE LOG

| | | | | | |
|--|--|--|----------------------------|---|-----------------------|
| Contract: A635 Barnsley Bus Rapid Transit Route | | Client: Barnsley Metropolitan Borough Council | | Borehole: BH10 | |
| Contract Ref: 765865 | | Start: 02.08.24 | Ground Level: 52.80 | National Grid Co-ordinate: E:437256.9 N:405632.8 | Sheet: 2 of 13 |
| End: 03.09.24 | | | | | |

| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details | Backfill | Water | Description of Strata | Reduced Level | Depth (Thickness) | Material Graphic Legend |
|-----------|-------------------|-----------------------|---------------------------|----------------|---------|---------|---------|-------------------------|----------|-------|---|---------------|-------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | | |
| 4.50-4.95 | 17 | SPT | N=14 | | | | | | | | MADE GROUND: Firm to stiff grey mottled light brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is angular to subangular, sandstone and bricks fragments. (MADE GROUND) (stratum copied from 3.40m from previous sheet) | | (3.20) | |
| 4.50-4.95 | 18 | DSPT | | | | | | | | | | | | |
| 4.50-4.95 | 19 | B | | | | | | | | | | | | |
| 5.00-5.10 | 20 | D | | | | | | | | | | | | |
| 5.40 | 108 | ES | | | | | | | | | | | | |
| 5.50-5.60 | 21 | D | | | | | | | | | | | | |
| 6.00-6.45 | 22 | UT _(UT100) | 50 blows 100% recovery | | | | | | | | | | | |
| 6.40 | 109 | ES | | | | | | | | | | | | |
| 6.45-6.60 | 23 | D | | | | | | | | | | 46.20 | 6.60 | |
| 7.00-7.10 | 24 | D | | | | | | | | | | | (0.90) | |
| 7.30 | 110 | ES | 1xT+1xJ+1xV | | | | | | | | | | 45.30 | 7.50 |
| 7.50-7.95 | 25 | SPT | N=18 | | | | | | | | MADE GROUND: Dark greyish brown slightly gravelly sandy ashy CLAY. Sand is fine to coarse gravel is subrounded fine and medium of sandstone and brick fragments. (MADE GROUND) | | (1.50) | |
| 7.50-7.95 | 26 | DSPT | | | | | | | | | | | | |
| 7.50-7.95 | 27 | B | | | | | | | | | | | | |
| 7.60 | 111 | ES | | | | | | | | | | | | |
| 8.00-8.10 | 28 | D | | | | | | | | | | | | |
| 8.50-8.60 | 29 | D | | | | | | | | | | | | |
| 8.60 | 112 | ES | 1xT+1xJ+1xV | | | | | | | | | 43.80 | 9.00 | |

| Boring Progress and Water Observations | | | | | | Chiselling / Slow Progress | | | General Remarks | | | | | |
|--|---|----------------|--------------|------------------------|------------------------------------|----------------------------|-------------|------------------------------------|--|------------|----------------------------|--|-------------|------------|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | From | To | Duration (hh:mm) | | | | | | |
| | | | | | | | | | percussion borehole. 5. Cable Percussion borehole extended using rotary coring methods from 10.50m to 30.00m depth. 6. Standing water level at the end of drilling 15.80m depth. 7. Backfilled on completion. | | | | | |
| All dimensions in metres | | | | | | | | | Scale: 1:25 | | | | | |
| Method Used: | Inspection pit + Cable Percussion + Rotary Cored | | | Plant Used: | Dando 2500 + Massenza M-I-3 | | Drilled By: | Robert Foster + Barry Evans | | Logged By: | JHoughton + KDalton | | Checked By: | AGS |

GINT LIBRARY V10_01.GLB LibVersion: v8 07 001 PIVersion: v8 07 001 Log COMPOSITE LOG - A4P | 765865 A635 BARNSELEY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01.
 Structural Soils Ltd, Branch Office - Castleford, The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:17 | MG1 |



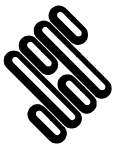
BOREHOLE LOG

| | | | | |
|---|--|--|---|-----------------------|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH10 |
| Contract Ref: 765865 | Start: 02.08.24 End: 03.09.24 | Ground Level: 52.80 | National Grid Co-ordinate: E:437256.9 N:405632.8 | Sheet: 4 of 13 |

| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details | Backfill | Water | Description of Strata | Reduced Level | Depth (Thickness) | Material Graphic Legend |
|--------------------|-------------------|------|---------|----------------|---------|---------|------------|-------------------------|----------|-------|---|---------------|-------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | | |
| 13.50-15.00 (0:13) | | | | 93 | 73 | 32 | NI 100 190 | | | | Very weak thinly laminated grey and brown MUDSTONE with extremely closely spaced thin laminae of greyish white sandstone. In places, sandstone and mudstone are interlaminated. Bedding Fractures are 5 to 15° extremely closely spaced to closely spaced planar/undulating rough brown discolouration penetrating downward along the fractures up to 30mm. (PENNINE MIDDLE COAL MEASURES FORMATION) (stratum copied from 10.50m from previous sheet) | | | |
| 14.75-14.85 | 39 | C | | | | | | | | | ... 14.00m-14.15m, mudstone is non intact and recovered as angular fine to coarse gravel of mudstone. | 37.45 | 15.35 | |
| 15.00-16.50 (0:15) | | | | | | | | | | | Very weak to weak to moderately weak thinly laminated grey fine to coarse SANDSTONE with occasional thin laminae of grey mudstone. Bedding Fractures are 5 to 10° medium spaced undulating rough open light brown discolouration on fracture surface up to 2mm. (PENNINE MIDDLE COAL MEASURES FORMATION) | | | |
| 15.80-16.10 | 40 | C | | 100 | 80 | 49 | NI 200 300 | | | | ... 15.95m-16.15m, sandstone and mudstone are interlaminated. | | (1.30) | |
| 16.50-18.00 (0:13) | | | | | | | | | | | Very weak to weak thinly laminated grey fine to coarse SANDSTONE with extremely closely spaced thin laminae of mudstone. In places, sandstone and mudstone are interlaminated. Bedding Fractures are 5 to 10° extremely closely spaced to medium spaced planar rough open brown discolouration on fractures up to 2mm. (PENNINE MIDDLE COAL MEASURES FORMATION) | | | |
| 16.85-16.95 | 41 | C | | 100 | 63 | 49 | NI 240 300 | | | | ... 16.80m-17.00m, sandstone and mudstone are interlaminated. | | (2.00) | |

| Boring Progress and Water Observations | | | | | | Chiselling / Slow Progress | | | General Remarks | | | |
|--|---|----------------|--------------|-----------------------------------|-------------|----------------------------|------------------------------------|------------------|--------------------|----------------------------|-------------|------------|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | From | To | Duration (hh:mm) | | | | |
| | | | | | | | | | | | | |
| All dimensions in metres | | | | | | | | | Scale: 1:25 | | | |
| Method Used: | Inspection pit + Cable Percussion + Rotary Cored | | Plant Used: | Dando 2500 + Massenza M-13 | | Drilled By: | Robert Foster + Barry Evans | | Logged By: | JHoughton + KDalton | Checked By: | AGS |

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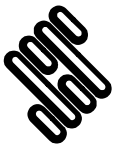
BOREHOLE LOG

| | | | | |
|--|--|--|---|-----------------------|
| Contract: A635 Barnsley Bus Rapid Transit Route | | Client: Barnsley Metropolitan Borough Council | | Borehole: BH10 |
| Contract Ref: 765865 | Start: 02.08.24 End: 03.09.24 | Ground Level: 52.80 | National Grid Co-ordinate: E:437256.9 N:405632.8 | Sheet: 5 of 13 |

| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details | Backfill | Water | Description of Strata | Reduced Level | Depth (Thickness) | Material Graphic Legend |
|-----------------------------------|-------------------|------|---------|----------------|---------|---------|------------------|-------------------------|----------|-------|---|---------------|-------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | | |
| 18.00-19.50 (0:19) 18.00-18.15 | 42 | C | | 100 | 80 | 49 | NI 240 300 | Air+Mist | | | . . . 18.00m-18.28m, Joint is 85° planar rough light brown discolouration on fracture surface. . . . Joint is 50° undulating rough open with brown discolouration. . . . 18.30m-18.45m, sandstone and mudstone are interlaminated. . . . 18.52m-18.58m, sandstone is non intact and recovered as angular fine to coarse gravel of sandstone. Very weak to weak thinly laminated grey fine to coarse SANDSTONE with occasional thin laminae of mudstone. Bedding Fractures are 10 to 20° medium to widely spaced undulating rough open with brown discolouration on fractures up to 2mm. (PENNINE MIDDLE COAL MEASURES FORMATION) | 34.15 | 18.65 | |
| 19.50-21.00 (0:17) 19.50-20.00 | 43 | C | | 100 | 77 | 77 | NI 230 750 | | | | . . . 20.22m-20.70m, Joint is 80° undulating rough moderately wide (along a coal laminae) with brown discolouration and infilling of grey clay up to 5mm. | 32.05 | 20.75 | (2.10) |
| 21.00-22.50 (0:07) 21.55-21.80 | 44 | C | | 100 | 100 | 83 | 90 250 500 | Air+Mist | | | Very weak to weak locally thinly laminated greyish white and brown fine to coarse SANDSTONE with occasional thin laminae of coal. Bedding Fractures are 5 to 15° closely to medium spaced undulating rough partly open to open clean. (PENNINE MIDDLE COAL MEASURES FORMATION) . . . 20.75m-21.30m, occasional coal laminae up to 5mm thick. . . . 21.80m-22.10m, occasional coal laminae up to 5mm thick. | 30.45 | 22.35 | (1.60) |
| <i>Description on next sheet</i> | | | | | | | | | | | | | | |

| Boring Progress and Water Observations | | | | | | Chiselling / Slow Progress | | | General Remarks |
|--|------|----------------|--|------------------------|-------------|---------------------------------------|----|------------------------|---|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | From | To | Duration (hh:mm) | |
| | | | | | | | | | |
| Method Used: Inspection pit + Cable Percussion + Rotary Cored | | | | | | | | | All dimensions in metres Scale: 1:25 |
| Plant Used: Dando 2500 + Massenza M-13 | | | Drilled By: Robert Foster + Barry Evans | | | Logged By: JHoughton + KDalton | | Checked By: AGS | |

GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PtVersion: v8_07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELEY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01.
 Structural Soils Ltd, Branch Office - Castleford, The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:17 | MG1 |



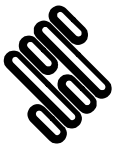
BOREHOLE LOG

| | | | | |
|---|--|--|---|-----------------------|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH10 |
| Contract Ref: 765865 | Start: 02.08.24 End: 03.09.24 | Ground Level: 52.80 | National Grid Co-ordinate: E:437256.9 N:405632.8 | Sheet: 6 of 13 |

| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details | Backfill | Water | Description of Strata | Reduced Level | Depth (Thickness) | Material Graphic Legend |
|---------------------------|-------------------|------|---------|----------------|---------|---------|----------------------|-------------------------|------------|-------|---|---------------|-------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | | |
| 22.50-24.00 (0:14) | 45 | D | | 100 | 53 | 47 | NI 200 350 | | | | Very weak greyish white locally thinly laminated greyish white fine to coarse SANDSTONE with occasional thin laminae of coal. Joint 85 degree cutting through sandstone. Bedding Fractures are 5 to 10 degree closely to medium spaced undulating rough open brown discolouration. (PENNINE MIDDLE COAL MEASURES FORMATION) ... 22.35m-23.90m, Joint is 85° undulating rough open with brown discolouration on fractures. (stratum copied from 22.35m from previous sheet) ... 22.70m-23.20m, occasional coal laminae up to 3mm thick. ... 23.50m-23.62m, occasional coal laminae up to 5mm thick. | 28.90 | 23.90 | |
| 24.00-25.50 (0:14) | | | | | | | NI 250 450 | | | | | | | |
| 24.70-25.10 | | | 46 | C | | 100 | 85 | 67 | NI 400 600 | | | | | |
| 25.50-27.00 (0:20) | | | | 100 | 78 | 63 | 100% return Air+Mist | | | | | | | |
| Description on next sheet | | | | | | | | | | | | | | |

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| Boring Progress and Water Observations | | | | | | Chiselling / Slow Progress | | | General Remarks |
|--|------|---|--------------|--|-------------|---------------------------------------|----|------------------------|---|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | From | To | Duration (hh:mm) | |
| | | | | | | | | | All dimensions in metres Scale: 1:25 |
| Method Used: Inspection pit + Cable Percussion + Rotary Cored | | Plant Used: Dando 2500 + Massenza M-13 | | Drilled By: Robert Foster + Barry Evans | | Logged By: JHoughton + KDalton | | Checked By: AGS | |



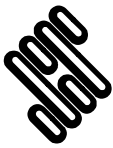
BOREHOLE LOG

| | | | | | |
|---|--|--|----------------------------|---|--|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH10 | |
| Contract Ref: 765865 | | Start: 02.08.24 | Ground Level: 52.80 | National Grid Co-ordinate: E:437256.9 N:405632.8 | |
| End: 03.09.24 | | | | Sheet: 7 of 13 | |

| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details | Backfill | Water | Description of Strata | Reduced Level | Depth (Thickness) | Material Graphic Legend |
|--------------------------------------|-------------------|------|---------|----------------|---------|---------|------------|---------------------------------------|----------|-------|--|---------------|-------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | | |
| 27.00-28.50 (0:17) | | | | | | | | | | | Weak to moderately weak thickly laminated to very thinly bedded greyish white fine to coarse SANDSTONE with rare brown siltstone clasts up to 30mm—15mm. Bedding Fractures are 5 to 10° medium spaced undulating rough clean. (PENNINE MIDDLE COAL MEASURES FORMATION) <i>(stratum copied from 26.50m from previous sheet)</i> | | | |
| 27.75-28.15 | 47 | C | | 100 | 80 | 77 | | 100% return Air+Mist (Grey and brown) | | | | (3.50) | | |
| 28.50-30.00 (0:18) | | | | | | | NI 400 600 | | | | | | | |
| 29.40-29.76 | 48 | C | | 97 | 97 | 97 | | 100% return Air+Mist | | | | | | |
| | | | | | | | | | | | | 22.80 | 30.00 | |
| Borehole terminated at 30.00m depth. | | | | | | | | | | | | | | |

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| Boring Progress and Water Observations | | | | | | Chiselling / Slow Progress | | | General Remarks | | | |
|--|---|----------------|--------------|-----------------------------------|-------------|----------------------------|------------------------------------|------------------|-----------------|----------------------------|-------------|------------|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | From | To | Duration (hh:mm) | | | | |
| | | | | | | | | | | | | |
| All dimensions in metres | | | | | | | | | | Scale: 1:25 | | |
| Method Used: | Inspection pit + Cable Percussion + Rotary Cored | | Plant Used: | Dando 2500 + Massenza M-13 | | Drilled By: | Robert Foster + Barry Evans | | Logged By: | JHoughton + KDalton | Checked By: | AGS |

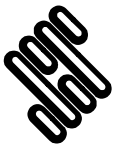


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|--|--|---|--|--------------------------|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH10 |
| Contract Ref: 765865 | Start: 02.08.24 End: 03.09.24 | Ground Level: 52.80 | National Grid Co-ordinate: E:437256.9 N:405632.8 | Sheet: 8 of 13 |



GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PiVersion: v8_07 | Log COMPOSITE LOG - A4P | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELEY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01.
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| | | | | | |
|---|--|---|--|--------------------------|--|
| Method Used: Inspection pit + Cable Percussion + Rotary Cored | Plant Used: Dando 2500 + Massenza M-13 | Drilled By: Robert Foster + Barry Evans | Logged By: JHoughton + KDalton | Checked By: AG | |
|---|--|---|--|--------------------------|--|

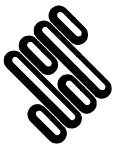


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|--|--|---|--|--------------------------|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH10 |
| Contract Ref: 765865 | Start: 02.08.24 End: 03.09.24 | Ground Level: 52.80 | National Grid Co-ordinate: E:437256.9 N:405632.8 | Sheet: 9 of 13 |



GINT LIBRARY: V10_01.GLB LibVersion: v8_07_001 PiVersion: v8_07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELEY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01 | Structural Soils Ltd, Branch Office - Castleford, The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:17 | MG1 |

| | | | | | |
|---|--|---|--|--------------------------|--|
| Method Used: Inspection pit + Cable Percussion + Rotary Cored | Plant Used: Dando 2500 + Massenza M-13 | Drilled By: Robert Foster + Barry Evans | Logged By: JHoughton + KDalton | Checked By: AG | |
|---|--|---|--|--------------------------|--|



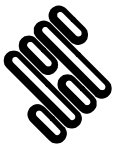
BOREHOLE LOG

| | | | | |
|--|--|---|--|---------------------------|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH10 |
| Contract Ref: 765865 | Start: 02.08.24 End: 03.09.24 | Ground Level: 52.80 | National Grid Co-ordinate: E:437256.9 N:405632.8 | Sheet: 10 of 13 |



GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PjVersion: v8_07_001 Log COMPOSITE LOG - A4P | 765865 A635 BARNESLEY BUS RAPIDTRANSIT ROUTE GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford. The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:17 | MG1 |

| | | | | | | | | | | |
|--------------|---|-------------|-----------------------------------|-------------|------------------------------------|------------|----------------------------|-------------|-----------|--|
| Method Used: | Inspection pit + Cable Percussion + Rotary Cored | Plant Used: | Dando 2500 + Massenza M-13 | Drilled By: | Robert Foster + Barry Evans | Logged By: | JHoughton + KDalton | Checked By: | AG | |
|--------------|---|-------------|-----------------------------------|-------------|------------------------------------|------------|----------------------------|-------------|-----------|--|



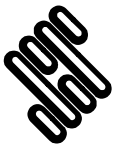
BOREHOLE LOG

| | | | | |
|--|--|---|--|---------------------------|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH10 |
| Contract Ref: 765865 | Start: 02.08.24 End: 03.09.24 | Ground Level: 52.80 | National Grid Co-ordinate: E:437256.9 N:405632.8 | Sheet: 11 of 13 |



GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PjVersion: v8_07_001 Log COMPOSITE LOG - A4P | 765865 A635 BARNSELY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford. The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:18 | MG1 |

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|--------------|---|-------------|-----------------------------------|-------------|------------------------------------|------------|----------------------------|-------------|-----------|--|
| Method Used: | Inspection pit + Cable Percussion + Rotary Cored | Plant Used: | Dando 2500 + Massenza M-13 | Drilled By: | Robert Foster + Barry Evans | Logged By: | JHoughton + KDalton | Checked By: | AG | |
|--------------|---|-------------|-----------------------------------|-------------|------------------------------------|------------|----------------------------|-------------|-----------|--|



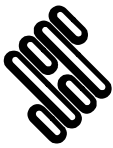
BOREHOLE LOG

| | | | | |
|---|--|---|--|---------------------------|
| Contract: A635 Barnsley Bus Rapid Transit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH10 |
| Contract Ref: 765865 | Start: 02.08.24 End: 03.09.24 | Ground Level: 52.80 | National Grid Co-ordinate: E:437256.9 N:405632.8 | Sheet: 12 of 13 |



GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PIVersion: v8_07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELEY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford. The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:18 | MG1 |

| | | | | | |
|---|--|---|--|--------------------------|--|
| Method Used: Inspection pit + Cable Percussion + Rotary Cored | Plant Used: Dando 2500 + Massenza M-13 | Drilled By: Robert Foster + Barry Evans | Logged By: JHoughton + KDalton | Checked By: AG | |
|---|--|---|--|--------------------------|--|



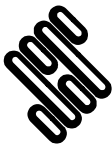
BOREHOLE LOG

| | | | | |
|--|--|---|--|---------------------------|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH10 |
| Contract Ref: 765865 | Start: 02.08.24 End: 03.09.24 | Ground Level: 52.80 | National Grid Co-ordinate: E:437256.9 N:405632.8 | Sheet: 13 of 13 |



GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrVersion: v8_07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01 | Structural Soils Ltd, Branch Office - Castleford. The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:18 | MG1 |

| | | | | | |
|---|--|---|--|--------------------------|--|
| Method Used: Inspection pit + Cable Percussion + Rotary Cored | Plant Used: Dando 2500 + Massenza M-13 | Drilled By: Robert Foster + Barry Evans | Logged By: JHoughton + KDalton | Checked By: AG | |
|---|--|---|--|--------------------------|--|



| | | | | | |
|--|--|--|----------------------------|---|-----------------------|
| Contract: A635 Barnsley Bus Rapid Transit Route | | Client: Barnsley Metropolitan Borough Council | | Borehole: BH11 | |
| Contract Ref: 765865 | | Start: 05.08.24 | Ground Level: 53.28 | National Grid Co-ordinate: E:437239.1 N:405646.7 | Sheet: 1 of 11 |
| | | End: 14.08.24 | | | |

| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details | Backfill & Instrumentation | Water | Description of Strata | Reduced Level | Depth (Thickness) | Material Graphic Legend | |
|-----------|-------------------|------|-------------|----------------|---------|---------|---------|-------------------------|----------------------------|-------|--|---------------|-------------------|-------------------------|--|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | | | |
| 0.10 | 1 | D | 1xT+1xJ+1xV | | | | | | | | MADE GROUND: Greyish brown gravelly slightly silty fine to coarse SAND with rootlets. Gravel is angular and subangular fine to coarse of sandstone mudstone and occasional brick fragments. (MADE GROUND) | 53.08 | 0.20 | | |
| 0.15 | 101 | ES | | | | | | | | | | | | | |
| 0.20-0.30 | 2 | D | | | | | | | | | | | | | |
| 0.20-0.30 | 3 | B | | | | | | | | | | | (0.40) | | |
| 0.60-0.70 | 4 | D | 1xT+1xJ+1xV | | | | | | | | MADE GROUND: Brownish dark grey very gravelly fine to coarse SAND. Gravel is angular and subangular fine to coarse of sandstone mudstone and coal. (MADE GROUND) | 52.68 | 0.60 | | |
| 0.65 | 102 | ES | | | | | | | | | | | | | |
| 0.70-1.00 | 5 | B | | | | | | | | | | | (0.60) | | |
| 1.15 | 103 | ES | 1xT+1xJ+1xV | | | | | | | | MADE GROUND: Yellowish brown very gravelly slightly clayey fine to coarse SAND with low cobble content. Gravel is subangular and subrounded fine to coarse of sandstone and brick fragments. Cobbles are subangular and subrounded of sandstone. (MADE GROUND) | 52.08 | 1.20 | | |
| 1.50-1.95 | 6 | SPT | N=7 | | | | | | | | | | | | |
| 1.50-1.95 | 7 | DSPT | | | | | | | | | | | | | |
| 1.50-1.95 | 8 | B | | | | | | | | | | | | | |
| 2.00 | 104 | ES | 1xT+1xJ+1xV | | | | | | | | MADE GROUND: Soft yellowish brown slightly gravelly sandy CLAY with low cobble content. Sand is fine to coarse gravel is subangular and subrounded fine to coarse of sandstone, cobbles are subangular of sandstone. (MADE GROUND) | | | | |
| 2.00-2.10 | 9 | D | | | | | | | | | | | | | |
| 2.50-2.95 | 10 | SPT | N=14 | | | | | | | | MADE GROUND: Soft yellowish brown slightly gravelly sandy CLAY with low cobble content. Sand is fine to coarse gravel is subangular and subrounded fine to coarse of sandstone, cobbles are subangular of sandstone. (MADE GROUND) | | | | |
| 2.50-2.95 | 11 | DSPT | | | | | | | | | | | | | |
| 2.50-2.95 | 12 | B | | | | | | | | | | | | | |
| 2.50-2.95 | 13 | B | | | | | | | | | | | | | |
| 2.60 | 105 | ES | 1xT+1xJ+1xV | | | | | | | | | | | | |
| 3.00-3.10 | 13 | D | | | | | | | | | | | | | |
| 3.50-3.95 | 14 | SPT | N=12 | | | | | | | | MADE GROUND: Soft yellowish brown slightly gravelly sandy CLAY with low cobble content. Sand is fine to coarse gravel is subangular and subrounded fine to coarse of sandstone, cobbles are subangular of sandstone. (MADE GROUND) | | | | |
| 3.50-3.95 | 15 | DSPT | | | | | | | | | | | | | |
| 3.50-3.95 | 16 | B | | | | | | | | | | | | | |
| 3.60 | 106 | ES | 1xT+1xJ+1xV | | | | | | | | | | | | |
| 4.00-4.10 | 17 | D | | | | | | | | | | | | | |

| Boring Progress and Water Observations | | | | | | Chiselling / Slow Progress | | | General Remarks |
|--|-------|----------------|--------------|------------------------|-------------|----------------------------|-------|------------------|-----------------|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | From | To | Duration (hh:mm) | |
| 05/08/24 | 16:21 | 1.20 | None | N/R | - | 9.50 | 10.50 | 01:15 | |
| 06/08/24 | 09:31 | 1.20 | None | 200 | Dry | | | | |
| 06/08/24 | 15:10 | 10.65 | 6.00 | 200 | Dry | | | | |
| 14/08/24 | 08:00 | 25.50 | None | N/R | - | | | | |
| 14/08/24 | 17:00 | 30.00 | None | N/R | - | | | | |

| | | | | | |
|--|--|---|----------------------------------|-----------------------------|------------------------|
| Method Used: Inspection pit + Cable Percussion + Rotary Cored | | Plant Used: Dando 2500 + Massenza M-13 | Drilled By: Robert Foster | Logged By: JHoughton | Checked By: AGS |
|--|--|---|----------------------------------|-----------------------------|------------------------|

GINT LIBRARY V10_01.GLB LibVersion: v8_07_001 PVersion: v8_07 | Log COMPOSITE LOG - A4P | 765865 BARNSELEY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford, The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:20 | MG1 |



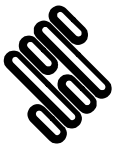
BOREHOLE LOG

| | | | | | |
|---|--|--|----------------------------|---|--|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH11 | |
| Contract Ref: 765865 | | Start: 05.08.24 End: 14.08.24 | Ground Level: 53.28 | National Grid Co-ordinate: E:437239.1 N:405646.7 | |
| | | | | Sheet: 2 of 11 | |

| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details | Backfill & Instrumentation | Water | Description of Strata | Reduced Level | Depth (Thickness) | Material Graphic Legend |
|-----------|-------------------|------|-------------|----------------|---------|---------|---------|-------------------------|----------------------------|-------|--|---------------|-------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | | |
| 4.50-4.95 | 18 | SPT | N=15 | | | | | | | | MADE GROUND: Soft yellowish brown slightly gravelly sandy CLAY with low cobble content. Sand is fine to coarse gravel is subangular and subrounded fine to coarse of sandstone, cobbles are subangular of sandstone. (MADE GROUND) (stratum copied from 1.20m from previous sheet) | (7.30) | | |
| 4.50-4.95 | 19 | DSPT | | | | | | | | | | | | |
| 4.50-4.95 | 20 | B | | | | | | | | | | | | |
| 4.60 | 107 | ES | 1xT+1xJ+1xV | | | | | | | | | | | |
| 5.00-5.10 | 21 | D | | | | | | | | | | | | |
| 5.50-5.60 | 22 | D | | | | | | | | | | | | |
| 5.60 | 108 | ES | 1xT+1xJ+1xV | | | | | | | | | | | |
| 6.00-6.45 | 23 | SPT | N=16 | | | | | | | | | | | |
| 6.00-6.45 | 24 | DSPT | | | | | | | | | | | | |
| 6.00-6.45 | 25 | B | | | | | | | | | | | | |
| 6.50-6.60 | 26 | D | | | | | | | | | | | | |
| 6.60 | 109 | ES | 1xT+1xJ+1xV | | | | | | | | | | | |
| 7.00-7.10 | 27 | D | | | | | | | | | | | | |
| 7.50-7.95 | 28 | SPT | N=17 | | | | | | | | | | | |
| 7.50-7.95 | 29 | DSPT | | | | | | | | | | | | |
| 7.50-7.95 | 30 | B | | | | | | | | | | | | |
| 7.60 | 110 | ES | 1xT+1xJ+1xV | | | | | | | | | | | |
| 8.00-8.10 | 31 | D | | | | | | | | | | | | |
| 8.50-8.60 | 32 | D | | | | | | | | | 44.78 | 8.50 | | |
| 8.50-8.90 | 33 | B | | | | | | | | | | | | |
| 8.60 | 111 | ES | 1xT+1xJ+1xV | | | | | | | | 44.28 | 9.00 | | |

| Boring Progress and Water Observations | | | | | | Chiselling / Slow Progress | | | General Remarks | | | |
|--|---|----------------|--------------|------------------------|-----------------------------------|----------------------------|-------------|----------------------|---|------------------|-------------|------------|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | From | To | Duration (hh:mm) | | | | |
| | | | | | | | | | percussion borehole. 5. Cable percussion borehole extended using rotary coring methods from 10.50m to 30.00m depth. 6. 50mm standpipe installed on completion. 7. SPT hammer AR1862-2024 (E _r = 70.00%) used. | | | |
| All dimensions in metres | | | | | | | | Scale: | 1:25 | | | |
| Method Used: | Inspection pit + Cable Percussion + Rotary Cored | | | Plant Used: | Dando 2500 + Massenza M-13 | | Drilled By: | Robert Foster | Logged By: | JHoughton | Checked By: | AGS |

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 Structural Soils Ltd, Branch Office - Castleford, The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:20 | MG1 |



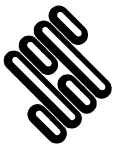
BOREHOLE LOG

| | | | | | |
|--|--|--|----------------------------|---|-----------------------|
| Contract: A635 Barnsley Bus Rapid Transit Route | | Client: Barnsley Metropolitan Borough Council | | Borehole: BH11 | |
| Contract Ref: 765865 | | Start: 05.08.24 | Ground Level: 53.28 | National Grid Co-ordinate: E:437239.1 N:405646.7 | Sheet: 4 of 11 |
| | | End: 14.08.24 | | | |

| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details | Backfill & Instrumentation | Water | Description of Strata | Reduced Level | Depth (Thickness) | Material Graphic Legend |
|--------------------|-------------------|------|---------|----------------|---------|---------|------------|-------------------------|----------------------------|-------|---|---------------|-------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | | |
| 13.50-15.00 (0:15) | | | | | | | | | | | Extremely weak to medium strong thinly to thickly laminated grey locally orangish brown MUDSTONE with extremely closely and very closely spaced thin, locally thick laminae of Sandstone. Sandstone is medium strong grey. Fractures are horizontal to subhorizontal, extremely closely to closely spaced planar smooth and rough. (PENNINE MIDDLE COAL MEASURES FORMATION) (<i>stratum copied from 10.50m from previous sheet</i>) | 38.58 | 14.70 | |
| 14.28-14.44 | 41 | C | | 100 | 93 | 75 | NI 60 220 | Air+Mist | | | | | | |
| 15.00-16.50 (0:16) | | | | | | | | | | | Weak and medium strong very thin and thinly bedded grey fine grained micaceous SANDSTONE with extremely closely and very closely spaced thin laminae of mudstone. Mudstone is very weak to medium strong and grey. Bedding fractures are 0° to 5° generally closely spaced planar smooth and open. (PENNINE MIDDLE COAL MEASURES FORMATION) | (1.20) | 15.90 | |
| 15.00-15.18 | 43 | C | | | | | | Air+Mist | | | | | | |
| 15.31-15.44 | 44 | C | | 100 | 93 | 60 | | | | | | | | |
| 15.62-15.92 | 45 | C | | | | | | | | | | | | |
| 16.50-18.00 (0:20) | | | | | | | | | | | Very weak to weak thinly to thickly laminated grey locally orangish brown MUDSTONE with extremely closely and very closely spaced thin laminae of sandstone. Sandstone is medium strong and grey. Bedding fractures are 0° to 5° generally closely spaced planar smooth and open. (PENNINE MIDDLE COAL MEASURES FORMATION) | 36.28 | 17.00 | |
| 16.50-17.00 | | | | | | | NI 70 200 | | | | | | | |
| 17.14-17.51 | 46 | C | | 100 | 100 | 81 | 20 360 480 | Air+Mist | | | Description on next sheet | | | |
| 17.72-17.94 | 42 | C | | | | | | | | | | | | |

| Boring Progress and Water Observations | | | | | | Chiselling / Slow Progress | | | General Remarks | |
|--|---|----------------|--------------|------------------------|-----------------------------------|----------------------------|-------------|----------------------|-----------------------------|------------------------|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | From | To | Duration (hh:mm) | | |
| | | | | | | | | | | |
| All dimensions in metres | | | | | | | | | Scale: 1:25 | |
| Method Used: | Inspection pit + Cable Percussion + Rotary Cored | | | Plant Used: | Dando 2500 + Massenza M-13 | | Drilled By: | Robert Foster | Logged By: JHoughton | Checked By: AGS |

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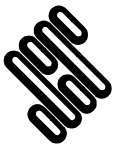
BOREHOLE LOG

| | | | | |
|--|--|--|---|-----------------------|
| Contract: A635 Barnsley Bus Rapid Transit Route | | Client: Barnsley Metropolitan Borough Council | | Borehole: BH11 |
| Contract Ref: 765865 | Start: 05.08.24 End: 14.08.24 | Ground Level: 53.28 | National Grid Co-ordinate: E:437239.1 N:405646.7 | Sheet: 5 of 11 |

| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details | Backfill & Instrumentation | Water | Description of Strata | Reduced Level | Depth (Thickness) | Material Graphic Legend |
|--------------------|-------------------|------|---------|----------------|---------|---------|--|-------------------------|----------------------------|-------|--|---------------|-------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | | |
| 18.00-19.50 (0:23) | | | | | | | | | | | Weak locally medium strong very thin and thinly bedded grey and orangish brown fine grained micaceous SANDSTONE with extremely closely spaced thin laminae of siltstone, mudstone and coal. Brown staining. Bedding fractures are 0° to 5° closely to medium spaced planar smooth with intense orange staining. (PENNINE MIDDLE COAL MEASURES FORMATION) (stratum copied from 17.00m from previous sheet) | 34.13 | 19.15 | |
| 18.60-19.05 | 47 | C | | 100 | 100 | 100 | 20 360 480 NI 80 300 NI 80 300 | | | | | | | |
| 19.50-21.00 (0:36) | | | | | | | | | | | Weak and medium strong very thin and thinly bedded grey and orangish brown fine and medium grained micaceous SANDSTONE with extremely closely spaced thin laminae of coal. Frequent brown staining and speckles and silt clast inclusions and rare vugs (up to 10mm). Bedding fractures are 0° to 5° very closely to closely spaced, planar smooth to rough and open. (PENNINE MIDDLE COAL MEASURES FORMATION) . . . 20.00m- 20.50m 70° planar smooth open joint with intense orange staining. | | | |
| 19.68-19.83 | 48 | C | | 100 | 100 | 87 | | Air+Mist | | | | | | |
| 20.80-21.00 | 49 | C | | | | | 20 180 360 | | | | | | | |
| 21.00-22.50 (0:18) | | | | | | | | | | | | | | |
| 21.48-21.76 | 50 | C | | 100 | 100 | 100 | | Air+Mist | | | | | | |

| Boring Progress and Water Observations | | | | | | Chiselling / Slow Progress | | | General Remarks | |
|--|---|----------------|--------------|------------------------|------------------------------------|----------------------------|-------------|----------------------|-----------------------------|------------------------|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | From | To | Duration (hh:mm) | | |
| | | | | | | | | | | |
| All dimensions in metres | | | | | | | | | Scale: 1:25 | |
| Method Used: | Inspection pit + Cable Percussion + Rotary Cored | | | Plant Used: | Dando 2500 + Massenza M-1-3 | | Drilled By: | Robert Foster | Logged By: JHoughton | Checked By: AGS |

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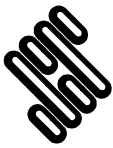
BOREHOLE LOG

| | | | | |
|--|--|--|---|-----------------------|
| Contract: A635 Barnsley Bus Rapid Transit Route | | Client: Barnsley Metropolitan Borough Council | | Borehole: BH11 |
| Contract Ref: 765865 | Start: 05.08.24 End: 14.08.24 | Ground Level: 53.28 | National Grid Co-ordinate: E:437239.1 N:405646.7 | Sheet: 6 of 11 |

| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details | Backfill & Instrumentation | Water | Description of Strata | Reduced Level | Depth (Thickness) | Material Graphic Legend |
|--------------------|-------------------|------|---------|----------------|---------|---------|------------------|---------------------------------------|----------------------------|-------|---|---------------|-------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | | |
| 22.50-24.00 (0:22) | 51 | C | | 100 | 100 | 100 | | 100% return Air+Mist (Brown and grey) | | | Weak and medium strong very thinly and thinly bedded grey and orangish brown fine and medium grained micaceous SANDSTONE with extremely closely spaced thin laminae of coal. Frequent brown staining and speckles and silt clast inclusions and rare vugs (up to 10mm). Bedding fractures are 0° to 5° very closely to closely spaced, planar smooth to rough and open. (PENNINE MIDDLE COAL MEASURES FORMATION) (stratum copied from 19.15m from previous sheet) | (8.35) | | |
| 22.77-23.08 | | | | | | | | | | | | | | |
| 24.00-25.50 (0:50) | 52 | C | | 100 | 100 | 100 | 20 180 360 | 100% return Air+Mist (Grey) | | | 25.70m-25.95m. Drilling disturbed recovered as medium to coarse sandstone gravel. one 90° open joint with intense orange staining. | | | |
| 24.36-24.50 | | | | | | | | | | | | | | |
| 25.24-25.34 | 53 | C | | 100 | 100 | 100 | | | | | | | | |
| 25.50-27.00 (0:26) | | | | | | | | | | | | | | |

| Boring Progress and Water Observations | | | | | | Chiselling / Slow Progress | | | General Remarks | | | |
|--|---|----------------|--------------|------------------------------------|-------------|----------------------------|----------------------|------------------|-----------------|--------------------|-------------|------------|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | From | To | Duration (hh:mm) | | | | |
| | | | | | | | | | | | | |
| All dimensions in metres | | | | | | | | | | Scale: 1:25 | | |
| Method Used: | Inspection pit + Cable Percussion + Rotary Cored | | Plant Used: | Dando 2500 + Massenza M-1-3 | | Drilled By: | Robert Foster | | Logged By: | JHoughton | Checked By: | AGS |

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 Structural Soils Ltd, Branch Office - Castleford, The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:20 | MG11



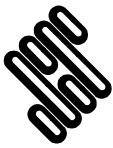
BOREHOLE LOG

| | | | | |
|--|--|--|---|-----------------------|
| Contract: A635 Barnsley Bus Rapid Transit Route | | Client: Barnsley Metropolitan Borough Council | | Borehole: BH11 |
| Contract Ref: 765865 | Start: 05.08.24 End: 14.08.24 | Ground Level: 53.28 | National Grid Co-ordinate: E:437239.1 N:405646.7 | Sheet: 7 of 11 |

| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details Backfill & Instrumentation | Water | Description of Strata | Reduced Level | Depth (Thickness) | Material Graphic Legend |
|--------------------------------------|-------------------|------|---------|----------------|---------|---------|------------------|--|-------|--|---------------|-------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | |
| 27.00-28.50 (0:20) | | | | | | | 20 180 360 | | | | | | |
| 27.43-27.73 | 54 | C | | 100 | 100 | 100 | | 100% return Air+Mist | | Weak and medium strong very thinly and thinly bedded grey fine grained micaceous SANDSTONE with extremely closely spaced thin laminae of coal and fine to coarse SANDSTONE. Bedding fractures 0° to 30° closely to medium spaced planar to undulating smooth and open. (PENNINE MIDDLE COAL MEASURES FORMATION) | 25.78 | 27.50 | |
| 28.50-30.00 (0:16) | | | | | | | 20 110 450 | | | | | (2.50) | |
| 29.11-29.31 | 55 | C | | 100 | 100 | 100 | | 100% return Air+Mist | | ... 28.90m- 29.50m weak to medium strong very thinly and thinly bedded grey and orangish brown fine and medium grained micaceous SANDSTONE, with extremely closely spaced thin laminae of coal. Frequent brown staining and speckling and silt clast inclusions and rare vugs (up to 10mm). | 23.28 | 30.00 | |
| Borehole terminated at 30.00m depth. | | | | | | | | | | | | | |

| Boring Progress and Water Observations | | | | | | Chiselling / Slow Progress | | | General Remarks | |
|--|---|----------------|--------------|----------------------------------|-------------|----------------------------|-----------------------------|------------------|------------------------|--------------------|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | From | To | Duration (hh:mm) | | |
| | | | | | | | | | | |
| All dimensions in metres | | | | | | | | | | Scale: 1:25 |
| Method Used: Inspection pit + Cable Percussion + Rotary Cored | Plant Used: Dando 2500 + Massenza M-13 | | | Drilled By: Robert Foster | | | Logged By: JHoughton | | Checked By: AGS | |

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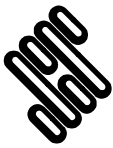
BOREHOLE LOG

| | | | | |
|--|--|---|--|--------------------------|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH11 |
| Contract Ref: 765865 | Start: 05.08.24 End: 14.08.24 | Ground Level: 53.28 | National Grid Co-ordinate: E:437239.1 N:405646.7 | Sheet: 8 of 11 |



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| | | | | | |
|---|---|-------------------------------------|--------------------------------|--------------------------|--|
| Method Used: Inspection pit + Cable Percussion + Rotary Cored | Plant Used: Dando 2500 + Massenza M-1-3 | Drilled By: Robert Foster | Logged By: JHoughton | Checked By: AG | |
|---|---|-------------------------------------|--------------------------------|--------------------------|--|



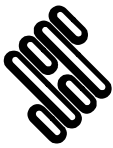
BOREHOLE LOG

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|---|--|---|--|--------------------------|
| Contract: A635 Barnsley Bus Rapid Transit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH11 |
| Contract Ref: 765865 | Start: 05.08.24 End: 14.08.24 | Ground Level: 53.28 | National Grid Co-ordinate: E:437239.1 N:405646.7 | Sheet: 9 of 11 |



GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PjVersion: v8_07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNSELY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford, The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:21 | MG1 |

| | | | | | |
|---|--|-------------------------------------|--------------------------------|--------------------------|--|
| Method Used: Inspection pit + Cable Percussion + Rotary Cored | Plant Used: Dando 2500 + Massenza M-13 | Drilled By: Robert Foster | Logged By: JHoughton | Checked By: AG | |
|---|--|-------------------------------------|--------------------------------|--------------------------|--|



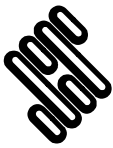
BOREHOLE LOG

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|--|--|---|--|---------------------------|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH11 |
| Contract Ref: 765865 | Start: 05.08.24 End: 14.08.24 | Ground Level: 53.28 | National Grid Co-ordinate: E:437239.1 N:405646.7 | Sheet: 10 of 11 |



GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PjVersion: v8_07_001 Log COMPOSITE LOG - A4P | 765865 A635 BARNSELY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01. Structural Soils Ltd, Branch Office - Castleford. The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:21 | MG1 |

| | | | | | |
|---|--|-------------------------------------|--------------------------------|--------------------------|--|
| Method Used: Inspection pit + Cable Percussion + Rotary Cored | Plant Used: Dando 2500 + Massenza M-13 | Drilled By: Robert Foster | Logged By: JHoughton | Checked By: AG | |
|---|--|-------------------------------------|--------------------------------|--------------------------|--|



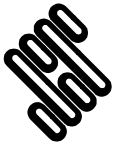
BOREHOLE LOG

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|--|--|---|--|---------------------------|
| Contract: A635 Barnsley Bus RapidTransit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH11 |
| Contract Ref: 765865 | Start: 05.08.24 End: 14.08.24 | Ground Level: 53.28 | National Grid Co-ordinate: E:437239.1 N:405646.7 | Sheet: 11 of 11 |



GINT LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrVersion: v8_07 | Log COMPOSITE LOG - A4P | 765865 A635 BARNESLEY BUS RAPIDTRANSIT ROUTE.GPJ - V10_01.
 Structural Soils Ltd, Branch Office - Castleford, The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 10/12/24 - 15:21 | MG1 |

| | | | | | |
|---|---|-------------------------------------|--------------------------------|--------------------------|--|
| Method Used: Inspection pit + Cable Percussion + Rotary Cored | Plant Used: Dando 2500 + Massenza M-3 | Drilled By: Robert Foster | Logged By: JHoughton | Checked By: AG | |
|---|---|-------------------------------------|--------------------------------|--------------------------|--|



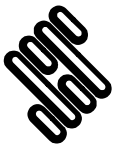
| | | | | | |
|--|--|--|----------------------------|---|--|
| Contract: A635 Barnsley Bus Rapid Transit Route | | Client: Barnsley Metropolitan Borough Council | | Borehole: BH12 | |
| Contract Ref: 765865 | | Start: 31.07.24 | Ground Level: 46.16 | National Grid Co-ordinate: E:437265.1 N:405610.9 | |
| End: 01.08.24 | | | | Sheet: 1 of 7 | |

| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details | Backfill & Instrumentation | Water | Description of Strata | Reduced Level | Depth (Thickness) | Material Graphic Legend |
|------------------|-------------------|------|--------------------|----------------|---------|---------|---------|-------------------------|----------------------------|-------|---|---------------|-------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | | |
| 0.10-0.30 | 1 | B | 1xT+1xJ+1xV | | | | | | | | MADE GROUND: Dark brown gravelly slightly clayey fine to coarse SAND with low cobble, rootlets, glass and food packets. Gravel is subangular and subrounded fine to coarse of sandstone and limestone. Cobbles are subrounded of sandstone and limestone. (MADE GROUND) | 45.56 | 0.60 | |
| 0.15-0.20 | 2 | ES D | | | | | | | | | | | | |
| 0.70 | 102 | ES B | 1xT+1xJ+1xV | | | | | | | | MADE GROUND: Soft brown mottled dark grey slightly gravelly sandy CLAY with low cobble. Sand is fine to coarse gravel is subangular and subrounded fine to coarse of sandstone, limestone and brick fragments. Cobbles are subrounded of sandstone. (MADE GROUND) | | | |
| 0.70-0.90 | 3 | ES B | | | | | | | | | | | | |
| 1.00-1.10 | 4 | D | | | | | | | | | | | | |
| 1.20 | 103 | ES | 1xT+1xJ+1xV N=4 | | | | | | | | . . . 2.00m SPT mudstone recovered. | | | |
| 1.20-1.65 | 200 | SPT | | | | | | | | | | | | |
| 1.20-1.65 | 201 | DSPT | | | | | | | | | | | | |
| 2.20 | 104 | ES | N=9 | | | | | | | | Very weak thinly laminated grey and brown fine to medium SANDSTONE with extremely closely spaced thin laminae of grey mudstone. Bedding Fractures are 5° extremely closely spaced to closely spaced undulating rough open with brown discolouration/stains on fracture surfaces. (PENNINE MIDDLE COAL MEASURES FORMATION) . . . 3.00m-3.15m, mudstone is recovered non intact as angular fine to coarse gravel of greyish brown mudstone. | 43.16 | 3.00 | |
| 2.20-2.65 | 202 | SPT | | | | | | | | | | | | |
| 3.00-4.50 (0:20) | | | | | | | | | | | | | | |
| 3.70-3.85 | 6 | C | | 100 | 73 | 10 | | | | | | | | |

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| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth |
|----------|-------|----------------|--------------|------------------------|-------------|
| 31/07/24 | 17:00 | 10.50 | None | N/R | - |
| 01/08/24 | 08:00 | 10.50 | None | N/R | - |
| 01/08/24 | 17:00 | 10.50 | None | N/R | - |
| 01/08/24 | | | None | N/R | - |

| | | | | | |
|---|--|-----------------------------------|-------------------------------|---------------------------|------------------------|
| Method Used: Dynamic sampling + Rotary Cored | | Plant Used: Massenza M-I-3 | Drilled By: Gary Blake | Logged By: BSaimen | Checked By: AGS |
| All dimensions in metres | | | Scale: 1:25 | | |



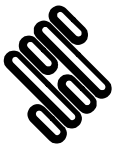
BOREHOLE LOG

| | | | | |
|--|--|--|---|-----------------------|
| Contract: A635 Barnsley Bus Rapid Transit Route | | Client: Barnsley Metropolitan Borough Council | | Borehole: BH12 |
| Contract Ref: 765865 | Start: 31.07.24 End: 01.08.24 | Ground Level: 46.16 | National Grid Co-ordinate: E:437265.1 N:405610.9 | Sheet: 2 of 7 |

| Depth (m) | Samples & Testing | | | Mechanical Log | | | | Flush Returns & Details | Backfill & Instrumentation | Water | Description of Strata | Reduced Level | Depth (Thickness) | Material Graphic Legend |
|------------------|-------------------|------|---------|----------------|---------|---------|------------|-------------------------|----------------------------|-------|---|---------------|-------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | | | | | | | |
| 4.50-6.00 (0:10) | | | | | | | NI 80 160 | | | | 4.50m-4.80m, very weak mudstone with extremely spaced thin laminae of greyish white fine to medium sandstone. | | | |
| 5.10-5.25 | 7 | C | | 100 | 71 | 23 | | | | | 5.25m-5.50m, Joint is 80° undulating rough open with brown discolouration on joint surface. | 40.86 | 5.30 | |
| 5.65-5.80 | 8 | C | | | | | | | | | Very weak to weak thinly laminated grey MUDSTONE with extremely closely spaced thin laminae of greyish white fine to medium sandstone. Bedding Fractures are 5° very closely to medium spaced undulating rough open with brown discolouration/staining on fracture surfaces. Joint set -1 is 40° extremely closely spaced undulating rough open with brown staining on joint surfaces. Joint set-2 is 65 to 85 degree closely to medium spaced undulating rough open dark brown stains on surfaces. | | | |
| 6.00-7.50 (0:13) | | | | | | | NI 120 250 | | | | (PENNINE MIDDLE COAL MEASURES FORMATION) | | | |
| 6.90-7.05 | 9 | C | | 100 | 57 | 25 | | | | | 5.50m-5.55m, Joint is 40° undulating rough open with brown discolouration on joint surface. | | | |
| 7.50-9.00 (0:14) | | | | | | | | | | | 5.55m-5.58m, Joint is 40° undulating rough open with brown discolouration on joint surface. | | | |
| 8.30-8.45 | 10 | C | | 100 | 95 | 83 | 40 200 330 | | | | 5.58m-5.62m, Joint is 40° undulating rough open with brown discolouration on joint surface. | 38.46 | 7.70 | |
| | | | | | | | | | | | 5.90m-5.95m, Joint is 50° undulating rough open with brown discolouration on joint surface. | | | |
| | | | | | | | | | | | 6.23m-6.45m, Joint is 65° undulating rough open with dark brown stains on joint surface. | | | |
| | | | | | | | | | | | 6.50m-6.90m, Joint is 85° undulating rough open with dark brown stains on joint surface. | | | (1.25) |
| | | | | | | | | | | | 7.20m-7.50m, Joint is 80° undulating rough open with dark brown stains on joint surface. | | | |
| | | | | | | | | | | | Very weak thinly laminated grey MUDSTONE interlaminated with weak thinly laminated greyish white fine to coarse | 37.21 | 8.95 | |

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| Boring Progress and Water Observations | | | | | | General Remarks |
|---|-----------------------------------|----------------|--------------|-------------------------------|---------------------------|------------------------|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | |
| | | | | | | |
| All dimensions in metres | | | | | | Scale: 1:25 |
| Method Used: Dynamic sampling + Rotary Cored | Plant Used: Massenza M-I-3 | | | Drilled By: Gary Blake | Logged By: BSaimen | Checked By: AGS |



BOREHOLE LOG

| | | | | | |
|--|--|--|----------------------------|---|----------------------|
| Contract: A635 Barnsley Bus Rapid Transit Route | | Client: Barnsley Metropolitan Borough council | | Borehole: BH12 | |
| Contract Ref: 765865 | | Start: 31.07.24 | Ground Level: 46.16 | National Grid Co-ordinate: E:437265.1 N:405610.9 | Sheet: 3 of 7 |
| End: 01.08.24 | | | | | |

| Depth (m) | Samples & Testing | | | Mechanical Log | | | | | | Water | Description of Strata | Reduced Level | Depth (Thickness) | Material Graphic Legend |
|-------------------|-------------------|------|---------|----------------|---------|---------|------------|---------------------------------------|----------------------------|-------|-----------------------|---------------|-------------------|-------------------------|
| | No | Type | Results | TCR (%) | SCR (%) | RQD (%) | If (mm) | Flush Returns & Details | Backfill & Instrumentation | | | | | |
| 9.00-10.50 (0:17) | | | | | | | | | | | | | | |
| 9.70-9.82 | 11 | C | | 100 | 84 | 63 | NI 100 220 | 100% return Air+Mist (Grey and brown) | | | | | (1.55) | |
| | | | | | | | | | | | | 35.66 | 10.50 | |

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| Boring Progress and Water Observations | | | | | | General Remarks |
|--|------|----------------|--------------|------------------------|-------------|-----------------|
| Date | Time | Borehole Depth | Casing Depth | Borehole Diameter (mm) | Water Depth | |
| | | | | | | |

All dimensions in metres Scale: **1:25**

| | | | | |
|---|-----------------------------------|-------------------------------|---------------------------|------------------------|
| Method Used: Dynamic sampling + Rotary Cored | Plant Used: Massenza M-I-3 | Drilled By: Gary Blake | Logged By: BSaimen | Checked By: AGS |
|---|-----------------------------------|-------------------------------|---------------------------|------------------------|