

# ROTARY BOREHOLE LOG



Borehole No.

BH01

Sheet 1 of 2

Telephone: 01452 739165, Fax: 01452 739220, Email: info@ccground.co.uk

|   |   |                            |                    |
|---|---|----------------------------|--------------------|
| Project Name: Penrhos 132 kV Substation | Project No:<br><b>C7957</b>                 | Co-ords: E 226860 N 380708 | Hole Type<br>DS+RC |
| Location: Anglesey                      | Level: 8.03mAOD                             | Scale<br>1 : 50.00         |                    |
| Client: WSP UK LTD                      | Dates: Start: 24/04/2023<br>End: 25/04/2023 | Logged By<br>SPM           |                    |

| (m) | Water Levels | Core Run, Samples & Testing |             |        | Core Run & Sample | TCR SCR RQD | Install | Description  | Depth (m) | Level (mAOD) | Legend |
|-----|--------------|-----------------------------|-------------|--------|-------------------|-------------|---------|--|-----------|--------------|--------|
|     |              | No/Type                     | Depth (m)   | Result |                   |             |         |  |           |              |        |
| 1   |              | B                           | 0.20 - 0.40 |        |                   |             |         | MADE GROUND: Grey sub-angular fine to coarse GRAVEL of igneous material.   | 0.20      | 7.83         |        |
|     |              | D                           | 0.20        |        |                   |             |         | MADE GROUND: Grey very sandy silty angular to sub-angular fine to coarse GRAVEL of igneous material and concrete.  | (0.40)    |              |        |
|     |              | B                           | 0.50 - 0.70 |        |                   |             |         |  | 0.60      | 7.43         |        |
|     |              | D                           | 0.50        |        |                   |             |         | Firm brown mottled grey sandy CLAY.  | (0.90)    |              |        |
| 2   |              | B                           | 1.00 - 1.20 |        |                   |             |         |  | (1.50)    |              |        |
|     |              | D                           | 1.00        |        |                   |             |         |  |           |              |        |
|     |              | SPT                         | 1.50 - 1.95 | S 24   |                   |             |         | Bluish grey gravelly SILT with low cobble content. Gravel is angular to sub-angular fine to medium lithorelicts of schist. Cobbles are sub-angular of schist.  | 1.50      | 6.53         |        |
|     |              | D                           | 2.00        |        |                   |             |         |  | (2.00)    |              |        |
| 3   |              | SPT                         | 2.50 - 2.95 | S 17   |                   |             |         |  |           |              |        |
|     |              | D                           | 3.00        |        |                   |             |         |  |           |              |        |
|     |              | B                           | 3.50 - 4.75 | S*58   |                   | 83%         |         | Very dense slightly sandy silty angular to sub-angular fine to coarse GRAVEL lithorelicts of schist.   | 3.50      | 4.53         |        |
|     |              | C                           | 3.50 - 4.40 |        |                   | 0%          |         |  | (0.50)    |              |        |
| 4   |              | SPT                         | 3.50 - 3.91 |        |                   | 0%          |         |  |           |              |        |
|     |              | C                           | 4.40 - 5.40 | C*500  |                   | 100%        |         | 4.00-4.40m: Non-intact. Recovered as angular to sub-angular fine to coarse gravel.   | 4.00      | 4.03         |        |
|     |              | SPT C                       | 4.40 - 4.55 |        |                   | 68%         |         | Moderately weak foliated greenish grey micaceous crystalline SCHIST. Discontinuities are sub-horizontal to sub-vertical (10-70°) very closely to closely spaced stepped rough with orangish brown staining and occasionally infilled with orangish brown slightly gravelly silt. |           |              |        |
|     |              | CS                          | 4.74 - 4.98 |        |                   | 19%         |         |  |           |              |        |
| 5   |              | CS                          | 5.31 - 5.40 | C*375  |                   | 100%        |         | 4.68m: Discontinuities are sub-horizontal (30°) clean.   |           |              |        |
|     |              | C                           | 5.40 - 6.90 |        |                   | 48%         |         | 4.80m: Discontinuities are sub-horizontal (10°) infilled.  |           |              |        |
|     |              | SPT C                       | 5.40 - 5.55 |        |                   | 9%          |         | 4.98m: Discontinuities are sub-horizontal (30°) clean.   |           |              |        |
|     |              |                             |             |        |                   |             |         | 5.06m: Discontinuities are sub-horizontal (10°) clean.   |           |              |        |
| 6   |              |                             |             |        |                   |             |         | 5.12m: Discontinuities are sub-horizontal (10°) clean.   |           |              |        |
|     |              |                             |             |        |                   |             |         | 5.14m: Insipient discontinuity.  |           |              |        |
|     |              |                             |             |        |                   |             |         | 5.15m: Discontinuities are sub-horizontal (10°) planar smooth with orangish brown staining.  |           |              |        |
|     |              |                             |             |        |                   |             |         | 5.23m: Discontinuities are sub-horizontal (10°) stepped rough with heavy orangish brown staining.  |           |              |        |
| 7   |              |                             |             |        |                   |             |         | 5.26m: Discontinuities are sub-horizontal (20°) planar smooth with orangish brown staining.  |           |              |        |
|     |              |                             |             |        |                   |             |         | 5.40-6.90m: Very closely spaced discontinuities.   |           |              |        |
|     |              |                             |             |        |                   |             |         | 5.60m: Tabular inclusion of quartz (50mm).   |           |              |        |
|     |              |                             |             |        |                   |             |         | 5.80m: Discontinuities are sub-horizontal (11°) planar smooth with light orangish brown staining.  |           |              |        |
| 8   |              |                             |             |        |                   |             |         | 6.54m: Discontinuities are sub-horizontal (15°) undulating rough with heavy orangish brown staining.   |           |              |        |
|     |              |                             |             |        |                   |             |         | 6.72m: Discontinuities are sub-horizontal (35°) planar smooth with orangish brown staining.  |           |              |        |
|     |              |                             |             |        |                   |             |         |  |           |              |        |
|     |              |                             |             |        |                   |             |         |  |           |              |        |

EQUIPMENT: Hand digging tools. Fraste Multi-drill PL(G) track mounted rig.

METHOD: Hand dug inspection pit: 0.00-1.50m. Dynamic sampling using a 113mm sample barrel: 1.50-3.50m. Waterflush rotary coring using T6-116 coring barrel: 3.50-8.40m.

CASING: PW to 3.50m.

GROUNDWATER: Groundwater encountered in run at 2.50m-3.50m, settled at 1.86m following 20 minutes monitoring.

INSTALLATION: Bentonite pellet seal: 4.50-8.40m. 50mm ID HDPE slotted pipe with washed gravel response zone: 1.50-4.50m. 50mm ID HDPE plain pipe with wash gravel response zone: 1.40-1.50m. 50mm ID HDPE plain pipe with bentonite pellet seal: 0.50-1.40m. 50mm ID HDPE plain pipe with wash gravel response zone: 0.30-0.50m. Flush 150mm steel cover set in concrete: 0.00-0.30m. Gas valve fitted.

REMARKS: 4.40m-8.40m 70% flush returns

## Groundwater:

| Date     | Strike Depth (m) | Casing Depth (m) | Depth After Observation (m) |
|----------|------------------|------------------|-----------------------------|
| 24/04/23 | 2.50             |                  | 1.86                        |

## Hole Progress:

| Date             | Hole Depth (m) | Casing Depth (m) | Water Depth (m) |
|------------------|----------------|------------------|-----------------|
| 24/04/2023 17:00 | 4.40           | 3.50             | 1.79            |
| 25/04/2023 08:00 | 4.40           | 3.50             | 1.76            |



## ROTARY BOREHOLE LOG

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|   |                             |   |                    |
|---|-----------------------------|---|--------------------|
| Project Name: Penrhos 132 kV Substation | Project No:<br><b>C7957</b> | Co-ords: E 226860 N 380708                  | Hole Type<br>DS+RC |
| Location: Anglesey                      |                             | Level: 8.03mAOD                             | Scale<br>1 : 50.00 |
| Client: WSP UK LTD                      |                             | Dates: Start: 24/04/2023<br>End: 25/04/2023 | Logged By<br>SPM   |

| (m) | Water Levels | Core Run, Samples & Testing |           |        | Core Run & Sample | TCR SCR RQD | Install | Description  | Depth (m) | Level (mAOD) | Legend |
|-----|--------------|-----------------------------|-----------|--------|-------------------|-------------|---------|--|-----------|--------------|--------|
|     |              | No/Type                     | Depth (m) | Result |                   |             |         |  |           |              |        |
| 9   |              |                             |           |        | ⌀                 |             |         | 6.82m: Quartz vein.<br>7.12m: Discontinuities are sub-horizontal (5°) planar smooth with orangish brown staining.<br>7.20m: Quartz vein (35mm).<br>7.24m: Discontinuities are sub-horizontal (30°) undulating smooth with orangish brown silty infill.<br>7.30m: Quartz vein.<br>7.36m: Discontinuities are sub-horizontal (5°) with silty orangish brown staining.<br>7.39m: Discontinuities are sub-horizontal (5°) undulating smooth with orangish brown staining.<br>7.53m: Discontinuities are sub-horizontal (20°) planar smooth.<br>7.58m: Discontinuities are horizontal with purplish brown silty infill.<br>7.69m: Discontinuities are horizontal planar smooth and clean.<br>7.70-7.76m: Incipient discontinuities are sub-horizontal (45°). Incipient fracture.<br>7.77-7.89m: Multicolour silty angular to sub-angular fine to coarse gravel of schist, quartz and mica.<br>8.00m: Discontinuities are sub-horizontal (45°) undulating smooth with orangish brown and clean.<br>8.28m: Discontinuities are sub-horizontal (45°) stepped rough and clean.<br>Borehole completed at 8.40m | 8.40      | -0.37        |        |
| 10  |              |                             |           |        |                   |             |         |  |           |              |        |
| 11  |              |                             |           |        |                   |             |         |  |           |              |        |
| 12  |              |                             |           |        |                   |             |         |  |           |              |        |
| 13  |              |                             |           |        |                   |             |         |  |           |              |        |
| 14  |              |                             |           |        |                   |             |         |  |           |              |        |
| 15  |              |                             |           |        |                   |             |         |  |           |              |        |
| 16  |              |                             |           |        |                   |             |         |  |           |              |        |
| 17  |              |                             |           |        |                   |             |         |  |           |              |        |

## Groundwater:

|      |                  |                  |                             |
|------|------------------|------------------|-----------------------------|
| Date | Strike Depth (m) | Casing Depth (m) | Depth After Observation (m) |
|------|------------------|------------------|-----------------------------|

## Hole Progress:

|                  |                |                  |                 |
|------------------|----------------|------------------|-----------------|
| Date             | Hole Depth (m) | Casing Depth (m) | Water Depth (m) |
| 25/04/2023 11:00 | 8.40           | 3.50             |                 |

# ROTARY BOREHOLE LOG



Borehole No.

BH02

Sheet 1 of 2

Telephone: 01452 739165, Fax: 01452 739220, Email: info@ccground.co.uk

|   |   |                            |                 |
|---|---|----------------------------|-----------------|
| Project Name: Penrhos 132 kV Substation | Project No:<br><b>C7957</b>                 | Co-ords: E 226863 N 380662 | Hole Type<br>RC |
| Location: Anglesey                      | Level: 8.01mAOD                             | Scale<br>1 : 50.00         |                 |
| Client: WSP UK LTD                      | Dates: Start: 26/04/2023<br>End: 27/04/2023 | Logged By<br>SPM           |                 |

| (m) | Water Levels | Core Run, Samples & Testing |                            |        | Core Run & Sample | TCR SCR RQD        | Install | Description  | Depth (m) | Level (mAOD) | Legend |
|-----|--------------|-----------------------------|----------------------------|--------|-------------------|--------------------|---------|--|-----------|--------------|--------|
|     |              | No/Type                     | Depth (m)                  | Result |                   |                    |         |  |           |              |        |
| 1   |              | B                           | 0.20 - 0.40                |        |                   |                    |         | MADE GROUND: Grey silty angular to coarse GRAVEL of igneous material.  | 0.20      | 7.81         |        |
|     |              | B                           | 0.30 - 0.50                |        |                   |                    |         | Greenish grey slightly clayey silty sandy angular to sub-angular fine to coarse GRAVEL lithorelicts of schist.   |           |              |        |
|     |              | B                           | 1.00 - 1.20                |        |                   |                    |         |  | (1.60)    |              |        |
|     |              | B SPT C                     | 1.40 - 1.80<br>1.40 - 1.73 | C*83   |                   |                    |         | 1.40m: Very dense.   |           |              |        |
| 2   |              | C                           | 1.80 - 3.30                |        |                   | 100%<br>65%<br>18% |         | Moderately weak to strong foliated fine grained greenish grey crystalline micaceous SCHIST. Discontinuities are sub-horizontal (5-10°) very close to closely spaced planar and undulating smooth with orangish brown staining. | 1.80      | 6.21         |        |
|     |              |                             |                            |        |                   |                    |         | 1.80-2.00m: Recovered as angular fine to coarse gravel.  |           |              |        |
|     |              |                             |                            |        |                   |                    |         | 2.00-2.10m: Non-intact.  |           |              |        |
|     |              |                             |                            |        |                   |                    |         | 2.27m: Discontinuities are sub-horizontal (45°) planar smooth with orangish brown staining. Clean.   |           |              |        |
| 3   |              |                             |                            |        |                   |                    |         | 2.52m: Discontinuities are sub-horizontal (5°) undulating smooth with orangish brown staining.   |           |              |        |
|     |              |                             |                            |        |                   |                    |         | 2.60-2.71m: Discontinuities are sub-horizontal (45°) undulating smooth with orangish brown staining.   |           |              |        |
|     |              | C                           | 3.30 - 4.80                |        |                   | 100%<br>78%<br>30% |         | 2.80-3.00m: 6No 0°-5° Discontinuities with orangish brown staining. Silty.   |           |              |        |
|     |              | CS                          | 3.70 - 3.82                |        |                   |                    |         | 3.10-3.30m: Non-intact.  |           |              |        |
| 4   |              |                             |                            |        |                   |                    |         | 3.50-3.66m: Non-intact.  |           |              |        |
|     |              | CS                          | 4.21 - 4.44                |        |                   |                    |         | 4.17m: Discontinuities are sub-horizontal (20°) planar smooth with orangish brown staining. Clean.   |           |              |        |
|     |              |                             |                            |        |                   |                    |         | 4.45m: Discontinuities are sub-horizontal (30°) orangish brown staining. Infilled with silty angular fine to medium gravel.  |           |              |        |
|     |              | C                           | 4.80 - 6.30                |        |                   | 100%<br>45%<br>21% |         | 4.80-5.46m: Non-intact, intersecting sub-horizontal to sub-vertical Discontinuities.   | (6.00)    |              |        |
| 5   |              | CS                          | 5.50 - 5.70                |        |                   |                    |         | 5.71-5.80m: Discontinuities are sub-horizontal (45°) undulating smooth with orangish brown staining. Silty.  |           |              |        |
|     |              |                             |                            |        |                   |                    |         | 6.33-6.46m: Discontinuities are sub-horizontal (45°) undulating smooth with orangish brown staining. Silty.  |           |              |        |
|     |              | C                           | 6.30 - 7.80                |        |                   | 100%<br>69%<br>54% |         | 6.71m: Discontinuities are sub-horizontal (25°) undulating smooth with orangish brown staining.  |           |              |        |
|     |              | CS                          | 6.72 - 7.13                |        |                   |                    |         | 6.81-7.06m: Discontinuities are sub-horizontal (45°). Insipient infilled with quartz.  |           |              |        |
| 6   |              |                             |                            |        |                   |                    |         | 7.13m: Discontinuities are sub-horizontal (25°) planar smooth with orangish brown staining.  |           |              |        |
|     |              |                             |                            |        |                   |                    |         | 7.15-7.21m: Discontinuities are sub-horizontal (60°) with orangish brown staining.   |           |              |        |
|     |              | CS                          | 7.57 - 7.80                |        |                   |                    |         | 7.35-7.44m: Discontinuities are sub-rounded 90° with   | 7.80      | 0.21         |        |
|     |              |                             |                            |        |                   |                    |         |  |           |              |        |

EQUIPMENT: Hand digging tools. Fraste Multi-drill PL(G) track mounted rig.

METHOD: Hand dug inspection pit: 0.00-1.20m. Waterflush rotary coring using T6-116 coring barrel: 1.20-7.80m.

CASING: PW to 1.80m.

GROUNDWATER: None encountered prior to using water flush.

INSTALLATION: Bentonite pellet seal: 5.00-7.80m. 50mm ID HDPE slotted pipe with washed gravel response zone: 2.00-5.00m. 50mm ID HDPE plain pipe with wash gravel response zone: 1.90-2.00m. 50mm ID HDPE plain pipe with bentonite pellet seal: 0.40-1.90m. 50mm ID HDPE plain pipe with wash gravel response zone: 0.25-0.40m. Flush 150mm steel cover set in concrete: 0.00-0.25m. Gas valve fitted.

REMARKS: 1.80m-7.80m. Borehole installed 27/04/2023. 80-100% flush returns.

## Groundwater:

| Date | Strike Depth (m) | Casing Depth (m) | Depth After Observation (m) |
|------|------------------|------------------|-----------------------------|
|------|------------------|------------------|-----------------------------|

## Hole Progress:

| Date             | Hole Depth (m) | Casing Depth (m) | Water Depth (m) |
|------------------|----------------|------------------|-----------------|
| 26/04/2023 17:45 | 7.80           | 1.80             |                 |
| 27/04/2023 08:00 | 7.80           | 1.80             | 1.24            |
| 27/04/2023 10:00 | 7.80           | 1.80             |                 |



## ROTARY BOREHOLE LOG

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|   |                             |   |                    |
|---|-----------------------------|---|--------------------|
| Project Name: Penrhos 132 kV Substation | Project No:<br><b>C7957</b> | Co-ords: E 226863 N 380662                  | Hole Type<br>RC    |
| Location: Anglesey                      |                             | Level: 8.01mAOD                             | Scale<br>1 : 50.00 |
| Client: WSP UK LTD                      |                             | Dates: Start: 26/04/2023<br>End: 27/04/2023 | Logged By<br>SPM   |

| (m) | Water Levels | Core Run, Samples & Testing |           |        | Core Run & Sample | TCR SCR RQD | Install | Description   | Depth (m) | Level (mAOD) | Legend |
|-----|--------------|-----------------------------|-----------|--------|-------------------|-------------|---------|---|-----------|--------------|--------|
|     |              | No/Type                     | Depth (m) | Result |                   |             |         |   |           |              |        |
|     |              |                             |           |        |                   |             |         | orangish brown staining.<br>Borehole completed at 7.80m |           |              |        |
| 9   |              |                             |           |        |                   |             |         |   |           |              |        |
| 10  |              |                             |           |        |                   |             |         |   |           |              |        |
| 11  |              |                             |           |        |                   |             |         |   |           |              |        |
| 12  |              |                             |           |        |                   |             |         |   |           |              |        |
| 13  |              |                             |           |        |                   |             |         |   |           |              |        |
| 14  |              |                             |           |        |                   |             |         |   |           |              |        |
| 15  |              |                             |           |        |                   |             |         |   |           |              |        |
| 16  |              |                             |           |        |                   |             |         |   |           |              |        |
| 17  |              |                             |           |        |                   |             |         |   |           |              |        |

## Groundwater:

|      |                  |                  |                             |
|------|------------------|------------------|-----------------------------|
| Date | Strike Depth (m) | Casing Depth (m) | Depth After Observation (m) |
|------|------------------|------------------|-----------------------------|

## Hole Progress:

|      |                |                  |                 |
|------|----------------|------------------|-----------------|
| Date | Hole Depth (m) | Casing Depth (m) | Water Depth (m) |
|------|----------------|------------------|-----------------|

# ROTARY BOREHOLE LOG



Borehole No.

BH03

Sheet 1 of 1

Telephone: 01452 739165, Fax: 01452 739220, Email: info@ccground.co.uk

|   |   |                            |                    |
|---|---|----------------------------|--------------------|
| Project Name: Penrhos 132 kV Substation | Project No:<br><b>C7957</b>                 | Co-ords: E 226881 N 380678 | Hole Type<br>DS+RC |
| Location: Anglesey                      | Level: 8.00mAOD                             | Scale<br>1 : 50.00         |                    |
| Client: WSP UK LTD                      | Dates: Start: 25/04/2023<br>End: 26/04/2023 | Logged By<br>SPM           |                    |

| (m) | Water Levels | Core Run, Samples & Testing |             |        | Core Run & Sample | TCR SCR RQD        | Install | Description  | Depth (m) | Level (mAOD) | Legend |
|-----|--------------|-----------------------------|-------------|--------|-------------------|--------------------|---------|--|-----------|--------------|--------|
|     |              | No/Type                     | Depth (m)   | Result |                   |                    |         |  |           |              |        |
| 1   |              | B                           | 0.00 - 0.30 |        |                   |                    |         | MADE GROUND: Grey silty angular to sub-angular medium to coarse GRAVEL of igneous material.  | 0.10      | 7.90         |        |
|     |              | D                           | 0.20        |        |                   |                    |         | MADE GROUND: Greyish brown gravelly silty SAND. Gravel is angular to sub-angular of igneous material.  | 0.40      | 7.60         |        |
|     |              | B                           | 0.50 - 0.70 |        |                   |                    |         | Brown slightly clayey silty sandy sub-angular to sub-rounded fine to medium GRAVEL lithorelicts of schist.   | (1.15)    |              |        |
|     |              | D                           | 0.50        |        |                   |                    |         |  |           |              |        |
| 2   |              | B                           | 1.00 - 1.20 |        |                   |                    |         |  |           |              |        |
|     |              | D                           | 1.00        |        |                   |                    |         |  |           |              |        |
|     |              | SPT                         | 1.50 - 1.95 | S 22   |                   |                    |         | Greenish grey gravelly SILT. Gravel is angular to sub-angular fine to medium of schist lithorelicts.   | 1.55      | 6.45         |        |
|     |              | D                           | 2.00        |        |                   |                    |         |  | (0.85)    |              |        |
| 3   |              | C                           | 2.40 - 3.40 | C*375  |                   | 100%<br>35%<br>0%  |         | Moderately weak foliated greenish grey micaceous SCHIST. Discontinuities are sub-horizontal very close to closely spaced planar and undulating smooth with occasional orangish brown staining. | 2.40      | 5.60         |        |
|     |              | SPT C                       | 2.40 - 2.48 |        |                   |                    |         | 2.40-2.50m: recovered as angular to sub-angular fine to coarse gravel.   |           |              |        |
|     |              | CS                          | 3.10 - 3.25 |        |                   |                    |         | 2.60m: Discontinuities are sub-horizontal (5°) stepped rough and clean.  |           |              |        |
|     |              | C                           | 3.40 - 4.50 |        |                   | 82%<br>27%<br>0%   |         | 2.85m: Discontinuities are sub-horizontal (25°) with orangish brown staining.  |           |              |        |
| 4   |              |                             |             |        |                   |                    |         | 3.13m: Discontinuities are sub-horizontal (45°) undulating smooth and clean.   |           |              |        |
|     |              |                             |             |        |                   |                    |         | 3.25-3.34m: 4No sub-horizontal (45°) discontinuity and 2no 75° discontinuity planar rough with quartz infill.  |           |              |        |
|     |              |                             |             |        |                   |                    |         | 3.40-4.50m: Recovered as silty sub-angular to sub-rounded cobbles and gravels.   |           |              |        |
|     |              | C                           | 4.50 - 6.00 |        |                   | 100%<br>37%<br>16% |         | 4.60m: Discontinuities are sub-horizontal (5°) planar smooth and clean with orangish brown staining.   |           |              |        |
| 5   |              | CS                          | 4.80 - 4.95 |        |                   |                    |         | 4.70m: Discontinuities are sub-horizontal (5°) planar smooth and clean with orangish brown staining.   | (5.10)    |              |        |
|     |              |                             |             |        |                   |                    |         | 4.80m: Discontinuities are sub-horizontal (25°) undulating smooth and clean with orangish brown staining.  |           |              |        |
|     |              |                             |             |        |                   |                    |         | 5.10-5.36m: Non-intact quartzite.  |           |              |        |
|     |              |                             |             |        |                   |                    |         | 5.36-5.48m: 2No 70° insipient discontinuity infilled with quartz.  |           |              |        |
| 6   |              | C                           | 6.00 - 7.50 |        |                   | 73%<br>61%<br>40%  |         | 5.55-5.70m: Discontinuities are sub-horizontal (45°) undulating smooth and silty with orangish brown staining.   |           |              |        |
|     |              |                             |             |        |                   |                    |         | 5.71-5.82m: Discontinuities are sub-horizontal (45°) planar smooth with orangish brown staining.   |           |              |        |
|     |              |                             |             |        |                   |                    |         | 5.85-5.94m: Discontinuities are sub-horizontal (45°) undulating smooth with orangish brown staining.   |           |              |        |
|     |              | CS                          | 6.55 - 6.94 |        |                   |                    |         | 6.10m: Discontinuities are sub-horizontal (20°) planar smooth with orangish brown staining.  |           |              |        |
| 7   |              |                             |             |        |                   |                    |         | 6.21m: Discontinuities are sub-horizontal (5°) planar smooth with orangish brown staining.   |           |              |        |
|     |              |                             |             |        |                   |                    |         | 6.50-6.56m: Quartz vein.   |           |              |        |
|     |              |                             |             |        |                   |                    |         | Borehole completed at 7.50m  | 7.50      | 0.50         |        |
|     |              |                             |             |        |                   |                    |         |  |           |              |        |
| 8   |              |                             |             |        |                   |                    |         |  |           |              |        |

EQUIPMENT: Hand digging tools. Fraste Multi-drill PL(G) track mounted rig.

METHOD: Hand dug inspection pit: 0.00-1.50m. Dynamic sampling using a 113mm sample barrel: 1.50-2.40m. Waterflush rotary coring using T6-116 coring barrel: 2.40-7.50m.

CASING: PW to 2.40m.

GROUNDWATER: None encountered prior to using water flush.

INSTALLATION: Bentonite pellet seal: 3.50-7.50m. 50mm ID HDPE slotted pipe with washed gravel response zone: 1.00-3.50m. 50mm ID HDPE plain pipe with wash gravel response zone: 0.90-1.00m. 50mm ID HDPE plain pipe with bentonite pellet seal: 0.35-0.90m. 50mm ID HDPE plain pipe with wash gravel response zone: 0.25-0.35m. Flush 150mm steel cover set in concrete: 0.00-0.25m. Gas valve fitted.

REMARKS: Dropped core in run 6.00-7.50m, 0.40m lost.

## Groundwater:

| Date | Strike Depth (m) | Casing Depth (m) | Depth After Observation (m) |
|------|------------------|------------------|-----------------------------|
|------|------------------|------------------|-----------------------------|

## Hole Progress:

| Date             | Hole Depth (m) | Casing Depth (m) | Water Depth (m) |
|------------------|----------------|------------------|-----------------|
| 25/04/2023 17:00 | 6.00           | 2.40             | 1.80            |
| 26/04/2023 08:00 | 6.00           | 2.40             | 1.74            |
| 26/04/2023 11:00 | 7.50           | 2.40             |                 |

# ROTARY BOREHOLE LOG



Borehole No.

BH04

Sheet 1 of 2

Telephone: 01452 739165, Fax: 01452 739220, Email: info@ccground.co.uk

|   |                             |   |                    |
|---|-----------------------------|---|--------------------|
| Project Name: Penrhos 132 kV Substation | Project No:<br><b>C7957</b> | Co-ords: E 226842 N 380647                  | Hole Type<br>RC    |
| Location: Anglesey                      |                             | Level: 7.98mAOD                             | Scale<br>1 : 50.00 |
| Client: WSP UK LTD                      |                             | Dates: Start: 27/04/2023<br>End: 27/04/2023 | Logged By<br>SPM   |

| (m) | Water Levels | Core Run, Samples & Testing |             |        | Core Run & Sample | TCR SCR RQD | Install | Description   | Depth (m) | Level (mAOD) | Legend |
|-----|--------------|-----------------------------|-------------|--------|-------------------|-------------|---------|---|-----------|--------------|--------|
|     |              | No/Type                     | Depth (m)   | Result |                   |             |         |   |           |              |        |
| 1   |              | B                           | 0.50 - 0.70 |        |                   |             |         | MADE GROUND: Grey silty angular to sub-angular coarse GRAVEL of igneous material.   | 0.20      | 7.78         |        |
|     |              | B                           | 0.70 - 1.30 |        |                   |             |         | Greenish grey silty sandy angular to sub-angular fine to coarse GRAVEL lithorelicts of schist.  |           |              |        |
|     |              | C                           | 1.30 - 2.20 | C 48   |                   | 100%        |         | 1.30m: Dense  | (2.00)    |              |        |
| 2   |              | SPT C                       | 1.30 - 1.75 |        |                   | 0%          |         | 1.70-1.90m: Greyish green gravelly silt. Gravel is angular to sub-angular fine of lithorelicts of schist.   |           |              |        |
|     |              | C                           | 2.20 - 3.20 | C*500  |                   | 100%        |         | Moderately weak foliated greenish grey foliated micaceous SCHIST. Discontinuities are sub-horizontal to sub-vertical (5-90°) very close to closely spaced planar and undulating smooth with silty micaceous infill and orangish brown staining. | 2.20      | 5.78         |        |
| 3   |              | SPT C                       | 2.20 - 2.33 |        |                   | 0%          |         | 2.20-2.90m: Non-intact intersecting fractures.  |           |              |        |
|     |              | C                           | 3.20 - 4.40 |        |                   | 100%        |         | 3.50-3.60m: 1No 45° discontinuity with orangish brown staining and infill with angular to sub-angular fine to medium gravel of schist and quartz.   |           |              |        |
| 4   |              | CS                          | 3.93 - 4.09 |        |                   | 46%         |         | 3.74m: Discontinuities are sub-horizontal (5°) undulating smooth with orangish brown staining.  |           |              |        |
|     |              | C                           | 4.40 - 5.90 |        |                   | 100%        |         | 3.83m: Discontinuities are sub-horizontal (5°) undulating smooth with orangish brown staining.  |           |              |        |
| 5   |              | CS                          | 4.98 - 5.26 |        |                   | 45%         |         | 3.97m: Discontinuities are sub-horizontal (5°) undulating smooth with orangish brown staining.  | (5.30)    |              |        |
|     |              | CS                          | 5.26 - 5.36 |        |                   | 21%         |         | 4.11m: Discontinuities are sub-horizontal (20°) planar smooth with orangish brown staining. Silty.  |           |              |        |
| 6   |              | C                           | 5.90 - 7.50 |        |                   | 62%         |         | 4.48-4.80m: 2No discontinuity undulating and planar rough with orangish brown staining.   |           |              |        |
|     |              | CS                          | 6.37 - 6.51 |        |                   | 16%         |         | 4.91m: Discontinuities are sub-horizontal (45°) with orangish brown staining.   |           |              |        |
| 7   |              |                             |             |        |                   | 5%          |         | 5.20m: Drilling induced discontinuity sub-horizontal (20°) planar rough.  |           |              |        |
|     |              |                             |             |        |                   |             |         | 5.30m: Drilling induced discontinuity sub-horizontal (20°) planar rough.  | 7.50      | 0.48         |        |
| 8   |              |                             |             |        |                   |             |         | 5.41-5.905.20m: Discontinuities are sub-horizontal (70°) undulating smooth with orangish brown staining.  |           |              |        |
|     |              |                             |             |        |                   |             |         | 5.90-6.23m: Non-intact randomly intersecting.   |           |              |        |
|     |              |                             |             |        |                   |             |         | 6.24m: Discontinuities are sub-horizontal (5°) planar smooth with orangish brown staining.  |           |              |        |
|     |              |                             |             |        |                   |             |         | 6.34m: Discontinuities are sub-horizontal (25°) planar rough (drilling induced).  |           |              |        |
|     |              |                             |             |        |                   |             |         | 6.50m: Discontinuities are sub-horizontal (10°) undulating rough with orangish brown staining.  |           |              |        |
|     |              |                             |             |        |                   |             |         | 6.57-6.76m: Discontinuities are vertical 90° undulating rough with orangish brown staining. Silty.  |           |              |        |
|     |              |                             |             |        |                   |             |         | 6.82-7.10m: Intersecting discontinuities 5°-70° non-intact.   |           |              |        |
|     |              |                             |             |        |                   |             |         | 7.10-7.50m: Undulating smooth with orangish brown   |           |              |        |

EQUIPMENT: Hand digging tools. Fraste Multi-drill PL(G) track mounted rig.

METHOD: Hand dug inspection pit: 0.00-1.30m. Waterflush rotary coring using T6-116 coring barrel: 1.30-7.50m.

CASING: PW to 1.75m.

GROUNDWATER: None encountered prior to using water flush.

INSTALLATION: Bentonite pellet seal: 3.00-7.50m. 50mm ID HDPE slotted pipe with washed gravel response zone: 1.00-3.00m. 50mm ID HDPE plain pipe with wash gravel response zone: 0.90-1.00m. 50mm ID HDPE plain pipe with bentonite pellet seal: 0.35-0.90m. 50mm ID HDPE plain pipe with wash gravel response zone: 0.25-0.35m. Flush 150mm steel cover set in concrete: 0.00-0.25m. Gas valve fitted.

## Groundwater:

| Date | Strike Depth (m) | Casing Depth (m) | Depth After Observation (m) |
|------|------------------|------------------|-----------------------------|
|------|------------------|------------------|-----------------------------|

## Hole Progress:

| Date             | Hole Depth (m) | Casing Depth (m) | Water Depth (m) |
|------------------|----------------|------------------|-----------------|
| 27/04/2023 17:45 | 7.50           | 1.75             |                 |



## ROTARY BOREHOLE LOG

Telephone: 01452 739165, Fax: 01452 739220, Email: info@ccground.co.uk

|   |                             |   |                    |
|---|-----------------------------|---|--------------------|
| Project Name: Penrhos 132 kV Substation | Project No:<br><b>C7957</b> | Co-ords: E 226842 N 380647                  | Hole Type<br>RC    |
| Location: Anglesey                      |                             | Level: 7.98mAOD                             | Scale<br>1 : 50.00 |
| Client: WSP UK LTD                      |                             | Dates: Start: 27/04/2023<br>End: 27/04/2023 | Logged By<br>SPM   |

| (m) | Water Levels | Core Run, Samples & Testing |           |        | Core Run & Sample | TCR SCR RQD | Install | Description                              | Depth (m) | Level (mAOD) | Legend |
|-----|--------------|-----------------------------|-----------|--------|-------------------|-------------|---------|--|-----------|--------------|--------|
|     |              | No/Type                     | Depth (m) | Result |                   |             |         |  |           |              |        |
| 9   |              |                             |           |        |                   |             |         | staining.<br>Borehole completed at 7.50m |           |              |        |
| 10  |              |                             |           |        |                   |             |         |  |           |              |        |
| 11  |              |                             |           |        |                   |             |         |  |           |              |        |
| 12  |              |                             |           |        |                   |             |         |  |           |              |        |
| 13  |              |                             |           |        |                   |             |         |  |           |              |        |
| 14  |              |                             |           |        |                   |             |         |  |           |              |        |
| 15  |              |                             |           |        |                   |             |         |  |           |              |        |
| 16  |              |                             |           |        |                   |             |         |  |           |              |        |
| 17  |              |                             |           |        |                   |             |         |  |           |              |        |

## Groundwater:

|      |                  |                  |                             |
|------|------------------|------------------|-----------------------------|
| Date | Strike Depth (m) | Casing Depth (m) | Depth After Observation (m) |
|------|------------------|------------------|-----------------------------|

## Hole Progress:

|      |                |                  |                 |
|------|----------------|------------------|-----------------|
| Date | Hole Depth (m) | Casing Depth (m) | Water Depth (m) |
|------|----------------|------------------|-----------------|