



**GeoEnvironmental**

**Rochdale Road Manchester  
Validation Report for Earthworks Activities**

**For  
Chartrange Ltd**

**Report Ref: 3345-26-R04v1  
Report Date: December 2023**

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## 1 Introduction

### 1.1 Scope of Services / Intended Purpose

Chartrange Ltd instructed GeoEnvironmental Consulting Ltd (GECL) to provide a Validation Report for Earthworks Activities undertaken at Rochdale Road Manchester.

The objective of this validation report is to document the earthworks activities carried out at the site during the enabling works phase of the project.

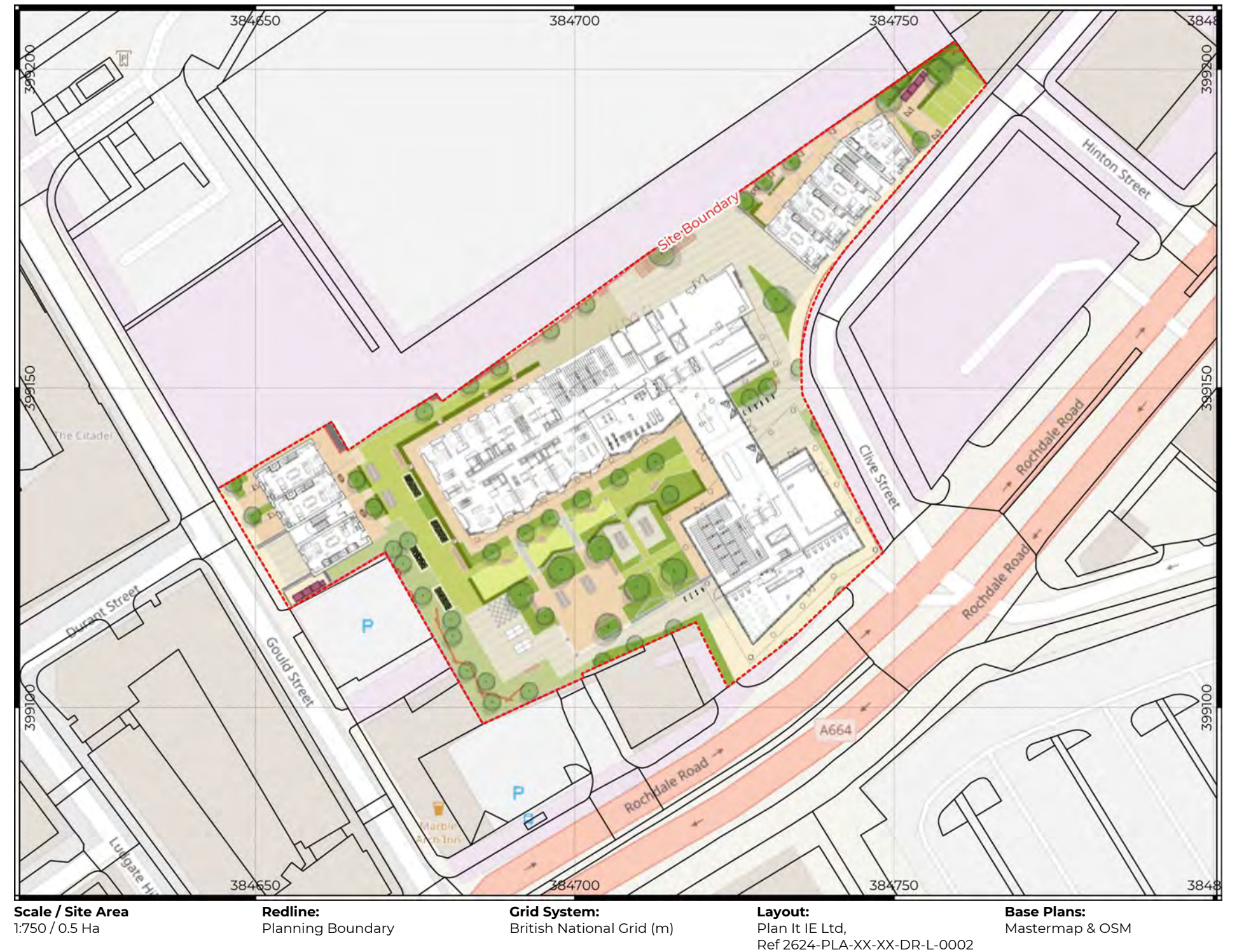
This report has been produced using information provided by Chartrange Ltd and information gained during visiting supervision undertaken between July and November 2023.

### 1.2 The Proposed Development (Ground Floor)

The proposed development is shown in Figure 1 and comprises: Erection of a part 11, part 13 storey building to form residential apartments together with the erection of two blocks of 3 storey duplexes to form 237 residential homes in total with associated commercial floor, basement car parking, landscaping and public realm, and associated engineering and infrastructure works following demolition of existing buildings and structures.

A copy of the design team's proposed ground floor layout drawing is included in Appendix A

Figure 1 – Proposed Development (Ground Floor)



### 1.3 The Proposed Development (Basement Level)

The proposed basement level layout is shown in Figure 2, and its extent is indicated by a blue dotted line. It comprises a single level basement beneath the northern apartment block, containing 29 car parking spaces, access ramps and utility areas. A reduced level dig will be required over the footprint of the basement level to reach proposed basement formation level.

A copy of the design team's proposed layout for the basement is included in Appendix A.

### 1.4 The Appointment

The scope of work is defined by and limited to "the Services" set out in the Appointment. A copy of the appointment including the agreed services and terms is included in Appendix B.

Figure 2 – Proposed Development – Basement Level



**Scale / Site Area**  
1:750 / 0.5 Ha

**Redline:**  
Planning Boundary

**Grid System:**  
British National Grid (m)

**Layout:**  
Jon Matthews Architects  
Ref 136-JMA-mp-LG-P-A-022199

**Base Plans:**  
Mastermap & OSM

## 2 The Site

### 2.1 Site Description

The site is located at OSGR 384700, 399150. The nearest postcode is M4 4 HY. An aerial photo of the site is shown in Figure 3.

The subject site is an irregular shaped parcel of land located to the east of Manchester City Centre. The site is currently occupied a carpark and Car Tyre depot repair garage and sales forecourt.

The site is predominantly hard standing. 3No. single and two-storey structures are located in the north east and south of the site.

The western site boundary is formed by what appears to be a brick retaining wall supporting the site with the adjacent land at a notably lower elevation.

### 2.2 Existing Information

The following reports and search information have been made available by the client team.

- GECL Report: Rochdale Road Manchester MMP date issued 11/8/23.
- Waterman Structures Ltd Rochdale Road, Manchester Specification For Earthworks, ref 23C002-WSL-SPC-S-0006
- SEP Geophysical Report 87 Rochdale Road, Manchester Geophysical Report ref G-22\_162-1(00)

The existing information has been used to inform the preliminary contaminated land and engineering assessments. Existing reports and information provided by others has been referred to in good faith as being accurate. GECL do not accept any liability for inaccuracies or deficiencies in third party information.

Figure 3 – The Site



**Scale / Site Area**  
1:750 / 0.5 Ha

**Redline:**  
Planning Boundary

**Grid System:**  
British National Grid (m)

**Base Plans:**  
Aerial photo

### 3 Validation

#### 3.1 Site Attendance / Watching Brief

The contractor supervised the works full time and invited a suitably qualified and experienced geo-environmental / remediation engineer to attend on a visiting basis.

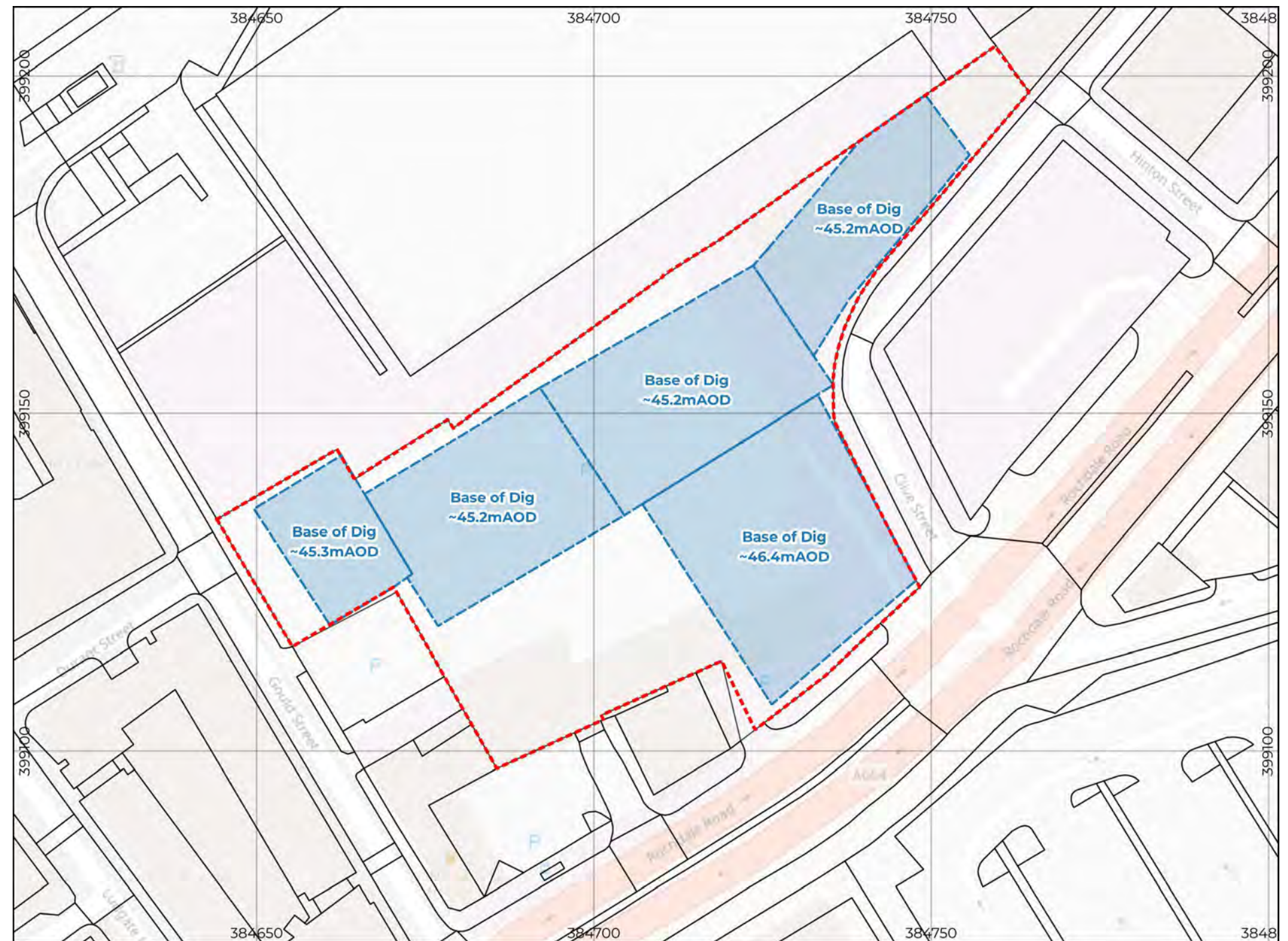
#### 3.2 Proof Dig / Obstruction Removal

Slabs and foundations associated with existing buildings and other structures were chased out and grubbed-up to the depths indicated schematically in Figure 4, to remove potential obstructions to new piled foundations and infrastructure.

The contractor's earthworks drawing, providing detailed levels on the base of dig and obstruction removal is included in Appendix C.

Suitable materials derived from grubbing-up were processed to generate recycled aggregate in line with the specifications for recycled aggregates and materials management plan.

Figure 4 - Proof Dig / Obstruction Removal



**Scale / Site Area**  
1:750 / 0.5 Ha

**Redline:**  
Planning Boundary

**Grid System:**  
British National Grid (m)

**Base Plans:**  
OSM / Mastermap

### 3.3 Earthworks Areas

The site was divided into earthworks areas for the purposes of locating and recording earthworks testing.

Earthworks areas Area 1 – Area 10 are shown in green in Figure 5. A copy of the Contractor's earthworks drawing indicating the same areas is included in Appendix C.

The piling platforms were set at 4 different levels between 47.5m and 51.1m as shown in red in Figure 5.

The in-situ density and CBR testing summarised in the following sections are located with reference to these areas.

Figure 5 – Piling Platforms and Earthworks Areas



**Scale / Site Area**  
1:750 / 0.5 Ha

**Redline:**  
Planning Boundary

**Grid System:**  
British National Grid (m)

**Base Plans:**  
OSM / Mastermap

### 3.4 Acceptability Testing

To confirm the acceptability of fill materials generated on site, the Contractor carried out the following testing:

- **6F2 Material**
  - ~ Particle Size Distribution BS EN ISO 17892-4:2016
  - ~ Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)
  - ~ Dry Density/Water Content Relationship Vibrating Hammer BS 1377-2:2022 Cl.11
  - ~ Determination Of Resistance To Fragmentation By The Los Angeles Test Method BS EN 1097-2:2020
  - ~ Effective Angle Of Internal Friction And Effective Cohesion Of Aggregate BS 1377-7:1990 & SHW Clause 636, 2016
- **Class 1A Material**
  - ~ Moisture Condition Value BS 1377-2:2022 Cl. 13
  - ~ Determination Of Water Content - BS EN ISO 17892-1:2014+A1:2022
  - ~ Particle Size Distribution BS EN ISO 17892-4:2016
  - ~ Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)
  - ~ Dry Density/Water Content Relationship Vibrating Hammer BS 1377-2:2022 Cl.11

The results of the acceptability testing are summarised in Table 1. Copies of lab certificates are provided in Appendix D.

Table 1 – Summary of Acceptability Testing.

| Cert No | Date       | Sample No     | PSD      | MCV  | MDD (Mg/m3) | OMC (%) | LA Coefficient | Internal angle of friction | Notes             |
|---------|------------|---------------|----------|------|-------------|---------|----------------|----------------------------|-------------------|
| 4579/57 | 01/08/2023 | SP1           | Class 1A | 13.1 | 1.84        | 10      | -              | -                          | Site Won Class 1A |
| 4579/57 | 01/08/2023 | SP2           | Class 1A | 15.1 | 1.84        | 10      | -              | -                          | Site Won Class 1A |
| 4579/58 | 07/08/2023 | 6F2-1         | 6F2      | -    | 1.86        | 12      | 41             | -                          | Site Won 6F2      |
| 4579/58 | 07/08/2023 | 6F2-2         | 6F2      | -    | 1.84        | 12      | 44             | -                          | Site Won 6F2      |
| 4579/66 | 22/08/2023 | 6F2-3         | 6F2      | -    | 1.8         | 13      | 40             | 34 degrees                 | Site Won 6F2      |
| 4579/71 | 22/08/2023 | SP3           | Class 1A | 12.9 | 1.6         | 13      | -              | -                          | Site Won Class 1A |
| 4579/71 | 22/08/2023 | SP4           | Class 1A | 12.1 | 1.57        | 13      | -              | -                          | Site Won Class 1A |
| 4579/72 | 05/09/2023 | Granular      | Class 1A | 10.6 | 1.82        | 12      | -              | -                          | Site Won Class 1A |
| 4579/75 | 08/09/2023 | A1 Granular 1 | Class 1A | -    | 1.83        | 14      | -              | -                          | Site Won Class 1A |
| 4579/75 | 08/09/2023 | A1 Granular 2 | Class 1A | -    | 1.84        | 14      | -              | -                          | Site Won Class 1A |
| 4579/82 | 27/09/2023 | A1 Granular   | Class 1A | -    | 1.85        | 14      | -              | -                          | Site Won Class 1A |

### 3.5 Earthworks Testing Areas 1 & 2

Nuclear density testing was carried out following placement of engineered fill in earthworks areas 1 & 2. Testing was carried out at levels between 46.0m and 48.0m at intervals of 500mm.

A summary of the results is provided in Table 2. Results achieving in excess of the specified 95% of maximum dry density (MDD) are highlighted in green. Five test locations did not achieve 95% of MDD but all achieved 94.5% of MDD, so these failures were not considered to be significant.

CBR values were also determined at 500mm intervals following placement from single stage plate load tests undertaken with a 600mm diameter plate. The results are summarised in Table 2.

Copies of the laboratory certificates are provided in Appendix E.

Figure 6 - Location of earthworks areas 1 & 2.



Table 2 – NDG Testing Earthworks Areas 1 & 2

| Earthworks Area | Date       | Test Number | Approx Level(m) | % of MDD | Test Certificate |
|-----------------|------------|-------------|-----------------|----------|------------------|
| A1              | 08/09/2023 | 1           | 46.0            | 95.6     | MRN/ 4579/65B    |
| A1              | 08/09/2023 | 2           | 46.0            | 96.0     | MRN/ 4579/65B    |
| A1              | 08/09/2023 | 3           | 46.0            | 95.1     | MRN/ 4579/65B    |
| A1              | 08/09/2023 | 10          | 46.5            | 94.9     | MRN/ 4579/65B    |
| A1              | 08/09/2023 | 14          | 47.0            | 96.5     | MRN/ 4579/65B    |
| A1              | 08/09/2023 | 15          | 47.0            | 94.6     | MRN/ 4579/65B    |
| A1              | 14/09/2023 | 1           | 47.0            | 97.3     | MRN/4579/69B     |
| A1              | 14/09/2023 | 2           | 47.0            | 99.4     | MRN/4579/69B     |
| A1              | 14/09/2023 | 3           | 47.0            | 99.8     | MRN/4579/69B     |
| A1              | 14/09/2023 | 16          | 47.5            | 97.5     | MRN/4579/69B     |
| A1              | 14/09/2023 | 17          | 47.5            | 95.1     | MRN/4579/69B     |
| A1              | 14/09/2023 | 18          | 47.5            | 94.5     | MRN/4579/69B     |
| A1              | 14/09/2023 | 19          | 47.5            | 95.5     | MRN/4579/69B     |
| A1              | 14/09/2023 | 20          | 48.0            | 94.5     | MRN/4579/69B     |
| A1              | 14/09/2023 | 21          | 48.0            | 95.0     | MRN/4579/69B     |
| A1              | 14/09/2023 | 22          | 48.0            | 95.9     | MRN/4579/69B     |
| A1              | 14/09/2023 | 23          | 48.0            | 95.4     | MRN/4579/69B     |
| A1              | 14/09/2023 | 24          | 48.0            | 97.4     | MRN/4579/69B     |
| A2              | 08/09/2023 | 4           | 46.0            | 96.3     | MRN/ 4579/65B    |
| A2              | 08/09/2023 | 5           | 46.0            | 96.0     | MRN/ 4579/65B    |
| A2              | 08/09/2023 | 11          | 46.5            | 95.2     | MRN/ 4579/65B    |
| A2              | 08/09/2023 | 16          | 47.0            | 97.6     | MRN/ 4579/65B    |
| A2              | 08/09/2023 | 17          | 47.0            | 94.9     | MRN/ 4579/65B    |
| A2              | 14/09/2023 | 4           | 47.0            | 98.9     | MRN/4579/69B     |
| A2              | 14/09/2023 | 5           | 47.0            | 102.1    | MRN/4579/69B     |
| A2              | 14/09/2023 | 6           | 47.0            | 100.5    | MRN/4579/69B     |

Table 3 – CBR Values Areas 1 & 2

| Area | Date       | Test Number | Level (Approx) | CBR % | Test Certificate |
|------|------------|-------------|----------------|-------|------------------|
| 1    | 29-Aug     | 4           | 46.5           | 8.4   | 4579/60          |
| 1    | 29-Aug     | 1           | 47             | 9.2   | 4579/60          |
| 1    | 01-Sep     | 3           | 47.5           | 6.5   | 4576/61          |
| 1    | 30/10/2023 | 1           | 48.45          | 19.1  | 4579/83          |
| 1    | 01-Sep     | 4           | 48.5           | 11    | 4576/61          |
| 2    | 01-Sep     | 1           | 46.5           | 3.5   | 4576/61          |
| 2    | 29-Aug     | 2           | 47.5           | 14.5  | 4579/60          |
| 2    | 01-Sep     | 1           | 47.5           | 4.1   | 4576/61          |
| 2    | 01-Sep     | 3           | 48.5           | 12.4  | 4576/61          |

3.6 Earthworks Testing Areas 3 & 4

Nuclear density testing was carried out following placement of engineered fill in earthworks areas 3 & 4. Testing was carried out at levels between 46.0m and 47.0m at intervals of 500mm.

A summary of the results is provided in Table 4. Results achieving in excess of the specified 95% of maximum dry density (MDD) are highlighted in green. All of the testing achieved in excess of the specified 95% of MDD.

CBR values were also determined at 500mm intervals following placement from single stage plate load tests undertaken with a 600mm diameter plate. The results are summarised in Table 5.

Copies of the laboratory certificates are provided in Appendix E.

Figure 7 - Location of earthworks areas 3 & 4.



Table 4 – NDC Testing Earthworks Areas 3 & 4

| Earthworks Area | Date       | Test Number | Approx Level | % of MDD | Test Certificate |
|-----------------|------------|-------------|--------------|----------|------------------|
| A3              | 08/09/2023 | 6           | 46.0         | 97.2     | MRN/ 4579/65B    |
| A3              | 08/09/2023 | 7           | 46.0         | 97.1     | MRN/ 4579/65B    |
| A3              | 08/09/2023 | 12          | 46.5         | 97.2     | MRN/ 4579/65B    |
| A3              | 08/09/2023 | 18          | 47.0         | 95.0     | MRN/ 4579/65B    |
| A3              | 14/09/2023 | 7           | 47.0         | 100.1    | MRN/4579/69B     |
| A3              | 14/09/2023 | 8           | 47.0         | 99.4     | MRN/4579/69B     |
| A3              | 14/09/2023 | 9           | 47.0         | 101.6    | MRN/4579/69B     |
| A3              | 14/09/2023 | 10          | 47.0         | 101.5    | MRN/4579/69B     |
| A3              | 14/09/2023 | 11          | 47.0         | 101.2    | MRN/4579/69B     |
| A4              | 08/09/2023 | 8           | 46.0         | 95.4     | MRN/ 4579/65B    |
| A4              | 08/09/2023 | 9           | 46.0         | 95.8     | MRN/ 4579/65B    |
| A4              | 08/09/2023 | 13          | 47.0         | 97.4     | MRN/ 4579/65B    |
| A4              | 08/09/2023 | 19          | 47.0         | 98.5     | MRN/ 4579/65B    |
| A4              | 14/09/2023 | 12          | 47.0         | 101.0    | MRN/4579/69B     |
| A4              | 14/09/2023 | 13          | 47.0         | 97.5     | MRN/4579/69B     |
| A4              | 14/09/2023 | 14          | 47.0         | 97.0     | MRN/4579/69B     |
| A4              | 14/09/2023 | 15          | 47.0         | 96.7     | MRN/4579/69B     |

Table 5 - CBR Values Areas 3 & 4

| Earthworks Area | Date       | Test Number | Approx Level | CBR Value (%) | Test Certificate |
|-----------------|------------|-------------|--------------|---------------|------------------|
| 3               | 29-Aug     | 3           | 46.5         | 8.6           | 4579/60          |
| 3               | 30/10/2023 | 2           | 47.55        | 11.7          | 4579/83          |
| 4               | 01-Sep     | 2           | 46.5         | 5.6           | 4576/61          |
| 4               | 01-Sep     | 2           | 47.5         | 4.5           | 4576/61          |
| 4               | 01-Sep     | 4           | 47.5         | 12.9          | 4576/61          |

3.7 Earthworks Testing Area 5

Nuclear density testing was carried out following placement of engineered fill in earthworks area 5. Testing was carried out at levels between 46.0m and 49.5m at intervals of 500mm.

A summary of the results is provided in Table 6. Results achieving in excess of the specified 95% of maximum dry density (MDD) are highlighted in green. All of the testing achieved in excess of the specified 95% of MDD.

Copies of the laboratory certificates are provided in Appendix E.

Figure 8 - Location of earthworks area 5.



Table 6 – NDC Testing Earthworks Area 5

| Earthworks Area | Date       | Test Number | Approx Level | % of MDD | Test Certificate |
|-----------------|------------|-------------|--------------|----------|------------------|
| A5              | 09/11/2023 | 1           | 46.0         | 103.9    | MRN/4579/88      |
| A5              | 09/11/2023 | 2           | 46.0         | 104.1    | MRN/4579/88      |
| A5              | 09/11/2023 | 3           | 46.0         | 103.4    | MRN/4579/88      |
| A5              | 09/11/2023 | 4           | 46.0         | 104.1    | MRN/4579/88      |
| A5              | 09/11/2023 | 5           | 46.5         | 104.6    | MRN/4579/88      |
| A5              | 09/11/2023 | 6           | 46.5         | 104.6    | MRN/4579/88      |
| A5              | 09/11/2023 | 7           | 46.5         | 104.0    | MRN/4579/88      |
| A5              | 09/11/2023 | 8           | 46.5         | 103.9    | MRN/4579/88      |
| A5              | 09/11/2023 | 9           | 47.0         | 103.2    | MRN/4579/88      |
| A5              | 09/11/2023 | 10          | 47.0         | 103.1    | MRN/4579/88      |
| A5              | 09/11/2023 | 11          | 47.0         | 102.8    | MRN/4579/88      |
| A5              | 09/11/2023 | 12          | 47.0         | 104.4    | MRN/4579/88      |
| A5              | 10/11/2023 | 1           | 47.5         | 99.0     | MRN/4579/90      |
| A5              | 10/11/2023 | 2           | 47.5         | 99.4     | MRN/4579/90      |
| A5              | 10/11/2023 | 3           | 47.5         | 98.3     | MRN/4579/90      |
| A5              | 10/11/2023 | 4           | 47.5         | 98.3     | MRN/4579/90      |
| A5              | 10/11/2023 | 5           | 47.5         | 98.7     | MRN/4579/90      |
| A5              | 10/11/2023 | 6           | 47.5         | 98.4     | MRN/4579/90      |
| A5              | 10/11/2023 | 7           | 47.5         | 95.9     | MRN/4579/90      |
| A5              | 10/11/2023 | 8           | 47.5         | 95.7     | MRN/4579/90      |
| A5              | 10/11/2023 | 9           | 47.5         | 97.8     | MRN/4579/90      |
| A5              | 10/11/2023 | 10          | 47.5         | 96.5     | MRN/4579/90      |
| A5              | 10/11/2023 | 11          | 47.5         | 97.7     | MRN/4579/90      |
| A5              | 10/11/2023 | 12          | 48.0         | 97.7     | MRN/4579/90      |
| A5              | 10/11/2023 | 13          | 48.0         | 96.9     | MRN/4579/90      |
| A5              | 10/11/2023 | 14          | 48.0         | 96.9     | MRN/4579/90      |
| A5              | 10/11/2023 | 15          | 48.0         | 97.0     | MRN/4579/90      |
| A5              | 10/11/2023 | 16          | 48.0         | 98.0     | MRN/4579/90      |
| A5              | 10/11/2023 | 17          | 48.0         | 98.3     | MRN/4579/90      |
| A5              | 10/11/2023 | 18          | 48.0         | 96.8     | MRN/4579/90      |
| A5              | 10/11/2023 | 19          | 48.5         | 98.4     | MRN/4579/90      |
| A5              | 10/11/2023 | 20          | 48.5         | 97.2     | MRN/4579/90      |
| A5              | 10/11/2023 | 21          | 48.5         | 97.8     | MRN/4579/90      |
| A5              | 10/11/2023 | 22          | 48.5         | 97.2     | MRN/4579/90      |
| A5              | 10/11/2023 | 23          | 48.5         | 96.7     | MRN/4579/90      |
| A5              | 10/11/2023 | 24          | 48.5         | 98.0     | MRN/4579/90      |
| A5              | 15/11/2023 | 1           | 49.0         | 97.0     | MRN/4579/93      |
| A5              | 15/11/2023 | 2           | 49.0         | 97.6     | MRN/4579/93      |
| A5              | 15/11/2023 | 3           | 49.0         | 96.1     | MRN/4579/93      |
| A5              | 15/11/2023 | 4           | 49.0         | 96.8     | MRN/4579/93      |
| A5              | 15/11/2023 | 5           | 49.0         | 97.9     | MRN/4579/93      |
| A5              | 15/11/2023 | 6           | 49.0         | 96.0     | MRN/4579/93      |
| A5              | 15/11/2023 | 7           | 49.0         | 95.1     | MRN/4579/93      |
| A5              | 15/11/2023 | 8           | 49.5         | 96.3     | MRN/4579/93      |
| A5              | 15/11/2023 | 9           | 49.5         | 97.5     | MRN/4579/93      |
| A5              | 15/11/2023 | 1           | 49.5         | 95.4     | MRN/4579/93      |
| A5              | 15/11/2023 | 11          | 49.5         | 95.0     | MRN/4579/93      |
| A5              | 17/11/2023 | 1           | 49.5         | 97.4     | MRN/4579/95      |
| A5              | 17/11/2023 | 2           | 49.6         | 99.1     | MRN/4579/95      |
| A5              | 17/11/2023 | 3           | 49.6         | 97.2     | MRN/4579/95      |
| A5              | 17/11/2023 | 4           | 49.6         | 99.1     | MRN/4579/95      |
| A5              | 17/11/2023 | 5           | 49.6         | 97.1     | MRN/4579/95      |

### 3.8 Earthworks Testing Areas 7 & 8

Nuclear density testing was carried out following placement of engineered fill in earthworks areas 7 & 8. Testing was carried out at levels between 47.0m and 50.5m at intervals of 500mm.

A summary of the results is provided in Table 7. Results achieving in excess of the specified 95% of maximum dry density (MDD) are highlighted in green. All of the testing achieved in excess of the specified 95% of MDD.

CBR values were also determined at 500mm intervals following placement from single stage plate load tests undertaken with a 600mm diameter plate. The results are summarised in Table 8.

Copies of the laboratory certificates are provided in Appendix E.

Figure 9 - Location of earthworks areas 7 & 8.



Table 7 – NDG Testing Earthworks Areas 7 & 8

| Earthworks Area | Date       | Test Number | Approx Level | % of MDD | Test Certificate |
|-----------------|------------|-------------|--------------|----------|------------------|
| A7              | 05/10/2023 | 1           | 47.0         | 97.0     | MRN/4579/74      |
| A7              | 05/10/2023 | 2           | 47.0         | 96.9     | MRN/4579/74      |
| A7              | 05/10/2023 | 9           | 47.5         | 97.6     | MRN/4579/74      |
| A7              | 05/10/2023 | 10          | 47.5         | 97.1     | MRN/4579/74      |
| A7              | 05/10/2023 | 15          | 48.0         | 97.2     | MRN/4579/74      |
| A7              | 05/10/2023 | 16          | 48.0         | 97.0     | MRN/4579/74      |
| A7              | 18/10/2023 | 1           | 48.5         | 97.2     | MRN/4579/79      |
| A7              | 01/11/2023 | 1           | 49.0         | 99.0     | MRN/4579/84      |
| A7              | 01/11/2023 | 2           | 49.0         | 100.2    | MRN/4579/84      |
| A7              | 01/11/2023 | 9           | 49.5         | 98.5     | MRN/4579/84      |
| A7              | 01/11/2023 | 10          | 49.5         | 97.9     | MRN/4579/84      |
| A7              | 01/11/2023 | 17          | 50.0         | 106.9    | MRN/4579/84      |
| A7              | 01/11/2023 | 21          | 50.5         | 102.3    | MRN/4579/84      |
| A8              | 05/10/2023 | 3           | 47.0         | 98.2     | MRN/4579/74      |
| A8              | 05/10/2023 | 4           | 47.0         | 96.1     | MRN/4579/74      |
| A8              | 05/10/2023 | 11          | 47.5         | 96.4     | MRN/4579/74      |
| A8              | 05/10/2023 | 12          | 47.5         | 95.8     | MRN/4579/74      |
| A8              | 05/10/2023 | 17          | 48.0         | 95.7     | MRN/4579/74      |
| A8              | 05/10/2023 | 18          | 48.0         | 102.1    | MRN/4579/74      |
| A8              | 18/10/2023 | 2           | 48.5         | 96.7     | MRN/4579/79      |
| A8              | 01/11/2023 | 3           | 49.0         | 98.2     | MRN/4579/84      |
| A8              | 01/11/2023 | 4           | 49.0         | 97.0     | MRN/4579/84      |
| A8              | 01/11/2023 | 11          | 49.5         | 100.7    | MRN/4579/84      |
| A8              | 01/11/2023 | 12          | 49.5         | 99.1     | MRN/4579/84      |
| A8              | 01/11/2023 | 18          | 50.0         | 104.4    | MRN/4579/84      |
| A8              | 01/11/2023 | 22          | 50.5         | 104.8    | MRN/4579/84      |

Table 8 -CBR Values Areas 7 & 8-

| Earthworks Area | Date   | Test Number | Approx Level | CBR Value (%) | Test Certificate |
|-----------------|--------|-------------|--------------|---------------|------------------|
| 7               | 06-Sep | 1           | 47.5         | 7.5           | 4579/64          |
| 7               | 06-Sep | 3           | 48.5         | 4.8           | 4579/64          |
| 7               | 08-Sep | 1           | 49.5         | 10.8          | 4576/65          |
| 7               | 08-Sep | 3           | 50.5         | 13.2          | 4576/65          |
| 7               | 14-Sep | 2           | 50.5         | 8.8           | 4579/69A         |
| 7               | 16-Oct | 1           | 51.15        | 6.2           | 4579/78          |
| 8               | 06-Sep | 2           | 47.5         | 6.9           | 4579/64          |
| 8               | 06-Sep | 4           | 48.5         | 5.9           | 4579/64          |
| 8               | 08-Sep | 2           | 49.5         | 8             | 4576/65          |
| 8               | 14-Sep | 1           | 50.5         | 8.9           | 4579/69A         |
| 8               | 16-Oct | 2           | 51.15        | 9.9           | 4579/78          |

3.9 Earthworks Testing Areas 9 & 10

Nuclear density testing was carried out following placement of engineered fill in earthworks areas 9 & 10. Testing was carried out at levels between 47.0m and 50.5m at intervals of 500mm.

A summary of the results is provided in Table 9. Results achieving in excess of the specified 95% of maximum dry density (MDD) are highlighted in green. All of the testing achieved in excess of the specified 95% of MDD.

CBR values were also determined at 500mm intervals following placement from single stage plate load tests undertaken with a 600mm diameter plate. The results are summarised in Table 10.

Copies of the laboratory certificates are provided in Appendix E.

Figure 10 - Location of earthworks areas 9 & 10.



Table 9 – NDC Testing Earthworks Areas 9 & 10

| Earthworks Area | Date       | Test Number | Approx Level | % of MDD | Test Certificate |
|-----------------|------------|-------------|--------------|----------|------------------|
| A9              | 05/10/2023 | 5           | 47.0         | 95.7     | MRN/4579/74      |
| A9              | 05/10/2023 | 6           | 47.0         | 96.6     | MRN/4579/74      |
| A9              | 05/10/2023 | 13          | 47.5         | 98.1     | MRN/4579/74      |
| A9              | 05/10/2023 | 19          | 48.0         | 98.7     | MRN/4579/74      |
| A9              | 18/10/2023 | 3           | 48.5         | 95.1     | MRN/4579/79      |
| A9              | 01/11/2023 | 5           | 49.0         | 98.3     | MRN/4579/84      |
| A9              | 01/11/2023 | 6           | 49.0         | 99.5     | MRN/4579/84      |
| A9              | 01/11/2023 | 13          | 49.5         | 102.8    | MRN/4579/84      |
| A9              | 01/11/2023 | 14          | 49.5         | 102.6    | MRN/4579/84      |
| A9              | 01/11/2023 | 19          | 50.0         | 103.4    | MRN/4579/84      |
| A9              | 01/11/2023 | 23          | 50.5         | 100.2    | MRN/4579/84      |
| A10             | 05/10/2023 | 7           | 47.0         | 98.0     | MRN/4579/74      |
| A10             | 05/10/2023 | 8           | 47.0         | 98.3     | MRN/4579/74      |
| A10             | 05/10/2023 | 14          | 47.5         | 96.8     | MRN/4579/74      |
| A10             | 05/10/2023 | 20          | 48.0         | 98.7     | MRN/4579/74      |
| A10             | 18/10/2023 | 4           | 48.5         | 96.1     | MRN/4579/79      |
| A10             | 01/11/2023 | 7           | 49.0         | 101.0    | MRN/4579/84      |
| A10             | 01/11/2023 | 8           | 49.0         | 99.1     | MRN/4579/84      |
| A10             | 01/11/2023 | 15          | 49.5         | 100.4    | MRN/4579/84      |
| A10             | 01/11/2023 | 16          | 49.5         | 104.7    | MRN/4579/84      |
| A10             | 01/11/2023 | 20          | 50.0         | 99.1     | MRN/4579/84      |
| A10             | 01/11/2023 | 24          | 50.5         | 98.4     | MRN/4579/84      |

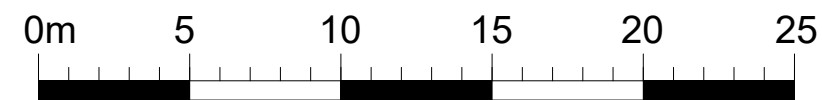
Table 10 -CBR Values Areas 9 & 10

| Earthworks Area | Date       | Test Number | Approx Level | CBR (%) | Test Certificate |
|-----------------|------------|-------------|--------------|---------|------------------|
| 9               | 19-Oct     | 1           | 47.5         | 3.6     | 4579/80          |
| 9               | 19-Oct     | 3           | 48.5         | 5       | 4579/80          |
| 9               | 30/10/2023 | 3           | 49.5         | 4.5     | 4579/83          |
| 9               | 06/11/2023 | 1           | 51.15        | 9.2     | 4579/85          |
| 10              | 19-Oct     | 2           | 47.5         | 5.8     | 4579/80          |
| 10              | 19-Oct     | 4           | 48.5         | 4.4     | 4579/80          |
| 10              | 30/10/2023 | 4           | 49.5         | 7.5     | 4579/83          |
| 10              | 06/11/2023 | 2           | 51.15        | 10.1    | 4579/85          |

## 4 Conclusions

The earthworks activities carried out by Chartrange Ltd at Rochdale Road have been carried out in general accordance with the earthworks specification referenced in Section 2.2.

## Appendix A – Design Team’s Proposed Layout Drawings



#### Key

- Mulbury Planning Application Boundary**
- HARDWORKS**
- Natural Stone Paving Mix 1**  
To public realm & shared community space  
Type: Portuguese granite  
Colour: TBC  
Finish: TBC  
Supplier: Hardscape or similar approved  
Note: allow for galvanised 3x150mm excel edge
- Clay Paving Mix 2**  
To match adjacent MCR site (H3 material) pedestrian areas throughout the site.  
Type: Clay Paving  
Colour: Various to complement architectural material palette  
Finish: TBC  
Supplier: Hardscape or similar approved  
Note: allow for galvanised 3x150mm excel edge
- Clay Paving Mix 3**  
To private garden space  
Type: Neland Clay Paving  
Colour: TBC  
Finish: TBC  
Supplier: Hardscape or similar approved  
Note: allow for galvanised 3x150mm excel edge
- Green gap concrete paving**  
To Residential spaces  
Type: Concrete  
Colour: TBC  
Finish: TBC  
Supplier: Hardscape or similar approved  
Note: allow for galvanised 3x150mm excel edge
- Granite Planks**  
To Residential spaces  
Type: Portuguese granite  
Colour: TBC  
Finish: TBC  
Supplier: Hardscape or similar approved
- Natural Stone Paving**  
Type: Yorkstone  
To match approved MCR site Gould street highway paving  
Size, colour finish, to MCC standard detail  
Note: allow for 125x255mm kerb edge

#### FURNITURE & STRUCTURES

- Seating Edge**  
To Courtyards  
Timber top corten frame
- Picnic Table**  
Timber top picnic table with powdercoated galvanised frame
- Tiered Seating Feature**  
Timber seating with integrated tree, details tbc
- 1.8m Rimini Galvanised Steel Fence**  
details tbc
- Retaining Structure**  
To Courtyards  
Existing To Gould street & 87 Rochdale Road
- 1.1m Rimini Galvanised Steel Balustrade**  
To private spaces, details tbc
- Timber play feature**  
To community shared spaces, details tbc
- Proposed 1.1m wall with 500mm railing**  
Brickwork finish to match building facade
- 1.5m Pillar Wall**  
To courtyard edge  
details tbc
- Chess Board - Play**  
To courtyard edge
- Table tennis**  
To courtyard edge
- Planting Screen**  
2.5m high Galvanised steel planting screen to courtyard  
finish: tbc
- Cycle Stands**  
10no. Sheffield cycle stands to external spaces
- Bin Store**  
Controlled accessed 3 No. 1100L & 1no.240L bins to town house & duplex's

THIS DRAWING IS COPYRIGHT PROTECTED AND MAY NOT BE REPRODUCED IN WHOLE OR PART WITHOUT WRITTEN AUTHORITY FROM THE OWNER.

- NOTES:
1. Do not scale from this drawing.
  2. Always work to noted dimensions.
  3. All dimensions are in millimetres unless otherwise stated.
  4. All setting out, levels and dimensions to be agreed on site.
  5. The dimensions of all materials must be checked on site before being laid out.
  6. This drawing must be read with the relevant specification clauses and detail drawings.
  7. Order of construction and setting out to be agreed on site.

NOTE:  
General Arrangement drawing to be read in conjunction with drawings:  
2624-PLA-XX-XX-DR-L-1001  
2624-PLA-XX-XX-DR-L-1002  
2624-PLA-XX-XX-DR-L-2000  
2624-PLA-XX-XX-DR-L-3000

#### SOFTWORKS

- Trees**  
A combination of single & multi-stem trees. Refer to drawing 2426-PLA-XX-XX-DR-L-2000 for specification.
- Clipped Instant Hedge**  
To private garden boundaries  
Size: 800mmW x 1200mmH approx.  
Refer to drawing 2426-PLA-XX-XX-DR-L-2000 for specification.
- Ornamental Shrub and Herbaceous Planting**  
Biodiversity rich planting. Refer to drawing 2426-PLA-XX-XX-DR-L-2000 for specification.
- Marginal Ornamental Planting**  
To swales / rain gardens Refer to drawing 2426-PLA-XX-XX-DR-L-2000 for specification.
- Lawn**  
Medallion turf  
Supplier: Rolawn or similar approved
- Planting Bed**  
450mm high timber planter, planting to residential community choice

|        |          |                                 |    |    |
|--------|----------|---------------------------------|----|----|
| S1-P06 | 06-12-21 | Bin storage and boundary update | AS | KR |
| S1-P05 | 11-11-21 | Updated boundary                | AS | KR |
| S1-P04 | 01-09-21 | Planning Issue                  | AS | KR |
| S1-P03 | 02-08-21 | Draft Planning                  | AS | KR |
| S1-P02 | 20-07-21 | For information                 | AS | KR |
| S1-P01 | 27-05-21 | For coordination                | AS | KR |

| Revision | Date | Description | Drawn | Apprvd. |
|----------|------|-------------|-------|---------|
|----------|------|-------------|-------|---------|

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STANDISH  
Standish Gatehouse, Stonehouse, Gloucestershire, GL10 3BZ  
T: 0145 360 7080

Client **Portwood Development Ltd**

Project **87 Rochdale Road**

Drg Title **General Arrangement**

Created on **02.08.21** Created by **AS** Approved by **KR**

Scale **1:250** Size **A1** Workstage **RIBA Stage 2**

Drg No. **2624-PLA-XX-XX-DR-L-0002** Suitability **S1** Revision **P06**



Notes:

PLAN KEY:

- 01

Car park (29 parking spaces)
- 04

Tank room
- 07

Vehicular entrance to basement
- 02

Life safety room
- 05

Duplex coach house garage
- 08

Automated roller shutter
- 03

Switch room
- 06

Duplex coach houses (ground floor footprint above)
- 09

Ramp down to basement

|                                          |                |                                                   |                                      |                      |           |
|------------------------------------------|----------------|---------------------------------------------------|--------------------------------------|----------------------|-----------|
| Project Name:<br>87 Rochdale Road        |                | Title:<br>Basement Level General Arrangement Plan |                                      | Scale:<br>1:125 @ A1 |           |
| Drawn:<br>JBe                            | Checked:<br>MH | Status:<br>Planning                               | Project:<br>136-JMA-MP-LG-P-A-022199 | Drawing No:<br>-     | Rev:<br>- |
| Details:<br>13/08/21 Issued for Planning |                |                                                   |                                      |                      |           |

# Jon Matthews Architects

4th Floor Centurion House, 129 Deansgate, Manchester, M3 3WR 0161 974 3690

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## Appendix B – The Appointment

Mr J Kennedy  
Chartrange Ltd  
Company Number: 01935855  
Wharf Street,  
Dukinfield,  
Cheshire, SK16 4NJ

Dear James

### **Rochdale Road Manchester**

Further to your recent request, please find outlined below our proposals for providing consultancy services in connection with the above site. The extent of the site is shown indicatively in Figure 1.



Figure 1: Indicative extent of site, boundary shown dotted red.

The “**Services**” will comprise: -

#### **1. Remediation & Validation**

- a. ~~Review existing reports and information~~
- b. ~~Provide a request for information to the client team~~
- c. ~~Provide a verification plan~~
- d. ~~Materials Management Plan & QP Sign-off~~
- e. ~~Asbestos Management Plan~~
- f. ~~Site Supervision (per visit)~~
- g. ~~Validation Report – Remediation Activities~~
- h. ~~Validation Report – Earthworks Activities~~

#### **2. Consultancy**

- a. ~~Attend meetings at Client's Invitation~~

#### **3. Legal**

- a. ~~Collateral Warranty (standard CIC)~~

The work will be overseen by an NQMS Suitably Qualified Person. The National Quality Mark Scheme (NQMS) for Land Contamination Management has been developed by the Land Forum to provide visible identification of documents that have been checked for quality by a Suitably Qualified and experienced Person (SQP). All reports intended for planning submission will carry the NQMS logo. More information on the NQMS Scheme can be found [here](#).

Please note, the scope may include commenting on asbestos in soils as a contaminant where appropriate but excludes commenting on asbestos in buildings, structures, ducts or similar.

### **Data and Information**

Please supply the following necessary / relevant data and information in good time to avoid delay to the programme:

- A copy of any available base mapping, such as the Mastermap or topographic survey (dxf format) for the site.
- Copies of any previous reports or information relevant to the services (e.g. previous investigation reports), including:-
  - Waterman Report - Generic Quantitative Risk Assessment, dated December 2022, reference WIE19453-100-R-2.2.1-GQRA
- The most up to date development layout.
- All available health and safety information relevant to the works. Please note, before any intrusive works are undertaken, we will require a comprehensive and up to date set of public and private utility plans for the site. If these are not available, please advise and we will obtain the publicly available information.

Thank you for providing the following information:

- SEP Geophysical Report 87 Rochdale Road, Manchester, Geophysical Report, ref: G-22\_162-1(00), dated 23/09/2022.
- Waterman Report Rochdale Road, Manchester Specification for Earthworks, ref: 23C002-WSL-SPC-S-0006, Dated 7/03/23
- Waterman Report Rochdale Road, Manchester, Remediation Strategy, December 2022, ref: WIE19453-100-R-3-2-1-Rem Strat

To facilitate our review of factual data, we will request a full copy of factual data (field and lab) in AGS4 format. If the data is not available in AGS4 format it will take longer to review and process, in which case we may need to allow more time and additional fee to provide the services - we will advise you if this is the case.

For the purposes of this quotation we have taken the above information to be comprehensive and assumed that the factual data can be provided in AGS4 format. If any further information is required to carry out the services, please supply it in good time to avoid delay to the programme.

### **Fees and Expenses:**

Our fees, expenses and travel costs for the Services shall be as set out in the attached quotation.

Please note the scope of our services does not include any third party work such as fieldwork, surveys, lab testing or in-situ testing.

Fees for items marked SPEC have been removed from the early / feasibility stage of the project and included in the later items to assist with your bid.

**Programme:**

We will commence SPEC work on receipt of the signed Appointment; however we will only commence fee paying work when you have been appointed on the project. Please provide as much notice as possible of your start date to enable us to plan ahead.

**Health and Safety / CDM 2015**

We are not appointed as a Designer, Principal Designer or Principal Contractor under CDM 2015.

We have assumed that we will be provided with safe access to working areas for survey and inspection purposes. Please confirm access and security arrangements for the site including liaison with security personnel, site caretakers etc. Any security requirements shall be made known to us prior to commencing on site and at a reasonable time to ensure site staff can comply with the requirements.

**Terms of Appointment**

Client Company Name Ltd is our client for this project. This letter and the attached terms of appointment are our offer to provide the services and form the **Appointment**. Please countersign below and return a copy of this letter to confirm your acceptance of the Appointment. If you instruct us to proceed without countersigning, then you acknowledge that you have accepted the terms of the Appointment.

We hope the above meets your requirements - if you have any queries regarding the content of our proposal, please do not hesitate to contact the undersigned.

Yours sincerely



Richard Meredith  
Director  
GeoEnvironmental Consulting Ltd

We confirm our acceptance of the  
Appointment

Signature.....

Date.....

For and on behalf of Client Company  
Name Ltd

Client Company Name Ltd appoints GeoEnvironmental Consulting Ltd to provide the Services and GeoEnvironmental Consulting Ltd accepts the appointment in accordance with these terms.

### 1 GeoEnvironmental Consulting Ltd's Obligations

- (i) GeoEnvironmental Consulting Ltd shall provide the Services and exercise reasonable skill and care in the performance of the Services.
- (ii) GeoEnvironmental Consulting Ltd shall use reasonable endeavours to perform the Services in accordance with any programme set out in the Proposal Letter.
- (iii) GeoEnvironmental Consulting Ltd shall inform Client Company Name Ltd if he considers any change or instruction from Client Company Name Ltd is outside the scope of the Services and will cause a change to the programme and/or change to the level of fees or expenses.

### 2 Client's Obligations

- (i) Client Company Name Ltd shall pay GeoEnvironmental Consulting Ltd for the performance of the Services the fees and expenses set out in the Proposal Letter.
- (ii) Client Company Name Ltd shall supply GeoEnvironmental Consulting Ltd with all relevant data and information necessary for GeoEnvironmental Consulting Ltd to perform the Services, and all instructions, decisions, consents or approvals in good time to avoid delay to the performance of the Services. Client Company Name Ltd acknowledge that any error, failure or delay in providing the same may result in additional cost being incurred by GeoEnvironmental Consulting Ltd.
- (iii) Client Company Name Ltd shall make an additional payment to GeoEnvironmental Consulting Ltd if GeoEnvironmental Consulting Ltd has to carry out additional work and/or suffers delay or disruption in the performance of the Services for reasons beyond GeoEnvironmental Consulting Ltd's control, including instructions or decisions by or on behalf of Client Company Name Ltd. The additional payment will be calculated on the basis of GeoEnvironmental Consulting Ltd's hourly rate (£85 per hour plus VAT) together with all reasonable fees, expenses and/or disbursements. GeoEnvironmental Consulting Ltd shall if requested by Client Company Name Ltd and where practicable give an initial estimate of the additional payment likely to be charged and how it is to be calculated, but no failure by GeoEnvironmental Consulting Ltd to provide an initial estimate shall prevent GeoEnvironmental Consulting Ltd being entitled to the additional payment.

### 3 Payment

Client Company Name Ltd shall pay GeoEnvironmental Consulting Ltd in the following manner:

- (i) GeoEnvironmental Consulting Ltd shall send an invoice to Client Company Name Ltd for each instalment of the fees and other sums payable under this Appointment (the **"Payment Application"**). Each Payment Application shall

specify the sum that GeoEnvironmental Consulting Ltd considers will become due on the payment due date under Clause 3(ii) and the basis on which that sum is calculated.

- (ii) Payment shall be due on the date GeoEnvironmental Consulting Ltd submits the Payment Application. The final date for payment shall be 28 days from the due date or such shorter period as specified in the Proposal Letter.

- (iii) GeoEnvironmental Consulting Ltd's Payment Application under Clause 3(i) shall be the payee's payment notice for the purposes of Section 110A of the Housing Grants, Construction and Regeneration Act 1996 (as amended).

- (iv) Not later than 5 days after the due date Client Company Name Ltd shall issue a payment notice specifying the sum that he considers to be or have been due at the due date, and the basis on which that sum is calculated (the **"Payment Notice"**).

- (v) On or before the final date for payment Client Company Name Ltd shall pay to GeoEnvironmental Consulting Ltd either the sum stated as due in the Payment Notice ("the Notified Sum"). In the absence of a Payment Notice, the Notified Sum shall be the amount stated in the Payment Application. If Client Company Name Ltd has served a Pay Less Notice, then on or before the final date for payment Client Company Name Ltd shall pay the sum stated as due in the Pay Less Notice.

- (vi) Not later than seven days before the final date for payment Client Company Name Ltd may give GeoEnvironmental Consulting Ltd a Notice that it intends to pay less than the Notified Sum (a "Pay Less Notice"). Any Pay Less Notice shall specify the sum that Client Company Name Ltd considers to be due on the date the Notice is served and the basis on which that sum is calculated.

- (vii) All sums due under this Appointment are exclusive of VAT which shall be paid in addition.

### 4 Liability and Insurance

- (i) Notwithstanding anything to the contrary contained in this Appointment but without prejudice to any of its provisions by which liability is excluded or limited to a lesser amount the total liability of GeoEnvironmental Consulting Ltd under or in connection with this Appointment whether in contract, tort, negligence, breach of statutory duty or otherwise (other than in respect of fraud, personal injury or death) shall not exceed in the aggregate:

- fifty times the fees; or
- £250,000 (two hundred and fifty thousand pounds);

whichever is the lower amount save for claims arising from, or in any way connected, to asbestos, pollution or contamination where the limit shall be £100,000.00 (one hundred thousand pounds).

- (ii) Save in respect of fraud, personal injury or death GeoEnvironmental Consulting Ltd's liability in respect of terrorism, and ionising radiations or contamination by radioactivity from any nuclear fuel or from any nuclear waste from the combustion of nuclear fuel, radioactive, toxic,

explosive or other hazardous properties of any explosive nuclear assembly or nuclear component thereof (the "Excluded Matters") whether in contract, tort, negligence, breach of statutory duty or otherwise is excluded.

If GeoEnvironmental Consulting Ltd's liability in respect of any of the Excluded Matters is excluded, the relevant Excluded Matters are outside the scope of this Appointment and GeoEnvironmental Consulting Ltd shall have no responsibility for advising or providing any Services in connection with the relevant Excluded Matters and shall not have any duty to consider the relevant Excluded Matters.

(iii) Without prejudice to clause 4(i) or 4(ii), GeoEnvironmental Consulting Ltd's liability under or in connection with this Appointment shall not exceed, the amount, if any, recoverable by GeoEnvironmental Consulting Ltd's against the claim or claims in question under the professional indemnity insurance maintained by it. The limitation on GeoEnvironmental Consulting Ltd's liability set out in this clause shall not apply in respect of fraud, death or personal injury.

(iv) No action or proceedings under or in respect of this Appointment shall be commenced against GeoEnvironmental Consulting Ltd after the expiry of six years from the date of this letter or the date that GeoEnvironmental Consulting Ltd first commenced its services (whichever is the earlier) which date shall not replace or override any earlier statutory limitation period.

(v) GeoEnvironmental Consulting Ltd shall maintain public liability insurance in the amount of £5,000,000.00 (five million pounds) and professional indemnity insurance in the amount of £2,000,000.00 (two million pounds) in the aggregate including defence costs (save for claims arising from pollution, contamination and asbestos which shall have an aggregate limit of £100,000 in the annual aggregate) and for the length of time sufficient to cover GeoEnvironmental Consulting Ltd's liabilities under this Appointment provided that in either case such insurance is available on reasonable terms and at reasonable commercial rates. If such insurance is not available on reasonable terms and/or at reasonable commercial rates, then GeoEnvironmental Consulting Ltd shall take out such lower amount of insurance as is available on reasonable terms and/or at reasonable commercial rates.

(vi) In relation to any claim brought by Client Company Name Ltd in connection with this Appointment, GeoEnvironmental Consulting Ltd shall not be liable for any loss of profit, loss of use, loss of production or any indirect loss or consequential loss.

(vii) Nothing in this Appointment shall constitute a fitness for purpose obligation on GeoEnvironmental Consulting Ltd, and no statement made or report produced by GeoEnvironmental Consulting Ltd shall in any way be construed as GeoEnvironmental Consulting Ltd confirming or warranting the fitness for purpose of any particular site, land, development, or project. All statements, opinions, advice and other communications made and/or given by GeoEnvironmental Consulting Ltd are subject to the exercise by GeoEnvironmental Consulting Ltd of no higher obligation than the obligation to exercise reasonable skill and care.

## **5 Copyright, Licences and Confidentiality**

(i) The copyright in all drawings and other documents (including material in electronic form) provided by GeoEnvironmental Consulting Ltd to Client Company Name Ltd remains vested in GeoEnvironmental Consulting Ltd. Subject to all sums payable under this Appointment being paid in full, Client Company Name Ltd shall have a licence to copy and use such material for the purposes for which they were provided and GeoEnvironmental Consulting Ltd shall not be liable for their use by any person for any purpose other than for which they were provided. If Client Company Name Ltd is in default of payment of any amount under this Appointment GeoEnvironmental Consulting Ltd may revoke any licence granted by giving seven days' notice.

(ii) Neither party shall disclose to any other person any private or confidential information concerning the business of the other party unless authorised by that party or if disclosed to either party's professional advisors or insurers or as required or permitted by law.

## **6 Termination**

(i) Client Company Name Ltd may terminate the appointment of GeoEnvironmental Consulting Ltd in the event of a breach of this Appointment or if GeoEnvironmental Consulting Ltd becomes insolvent by giving two weeks' notice and GeoEnvironmental Consulting Ltd may terminate this Appointment and in the same manner if the same circumstances arise in relation to Client Company Name Ltd. In the event of any such termination Client Company Name Ltd shall pay GeoEnvironmental Consulting Ltd a fair and reasonable amount on account of fees due under this Appointment commensurate with the services performed to the date of termination and any outstanding expenses.

(ii) If circumstances arise for which GeoEnvironmental Consulting Ltd is not responsible (including non payment of fees and expenses due under this Appointment) and which GeoEnvironmental Consulting Ltd considers make it irresponsible to continue to perform all or any of the Services GeoEnvironmental Consulting Ltd may terminate the appointment by giving two weeks' notice. In such event Client Company Name Ltd shall pay GeoEnvironmental Consulting Ltd a fair and reasonable amount on account of the fees due (under the Proposal Letter) and in respect of any Services to which GeoEnvironmental Consulting Ltd is irrevocably committed together with any outstanding expenses.

(iii) Termination of GeoEnvironmental Consulting Ltd's appointment under this Appointment shall not prejudice the accrued rights or claims of either party.

## **7 Disputes and Differences**

(i) Without prejudice to the parties' other rights and remedies, the parties shall attempt in good faith to settle any dispute by mediation.

(ii) Where this Appointment is a construction contract within the meaning of the Housing Grants Construction and Regeneration Act 1996 (as amended) any dispute arising shall be referred to adjudication in accordance with the procedure stated in the Proposal Letter or if none is so

stated the CIC Model Adjudication Procedure current at the time of the referral. If either party so requests the adjudicator shall be nominated by the ACE.

**8 General**

(i) Neither party may assign or transfer any benefit or obligation under this Appointment without the prior written consent of the other party.

(ii) Nothing in this Appointment confers or purports to confer on any third party any benefit or any right pursuant to the Contracts (Rights of Third Parties) Act 1999 or any other applicable law or statute to enforce any term of the Appointment.

(iii) This Appointment shall be governed by and construed in all respects in accordance with the laws of England and Wales.

(iv) In this Appointment a reference to a statute or statutory provision is a reference to it as amended, extended or re-enacted from time to time as at the date the Appointment.

**9 Notices**

Any notice under this Appointment shall be in writing, shall be sent to the address shown in the Proposal Letter and shall take effect when it has been received by Client Company Name Ltd or GeoEnvironmental Consulting Ltd as the case may be. It may be in any form, including electronic, provided that a permanent record exists. Any such notice shall be assumed to have been received within two days of issue.

**10 Building Information Modelling**

Client Company Name Ltd and GeoEnvironmental Consulting Ltd shall comply with their respective obligations set out in any BIM protocol referred to in the Proposal Letter. The parties shall have the benefit of any rights granted to them in the protocol and of any limitation or exclusion of liability contained within it.

**11 Entire Agreement**

This Appointment represents the entire agreement between Client Company Name Ltd and GeoEnvironmental Consulting Ltd and supersedes any previous agreement or discussions relating to the Services the subject of this Appointment.

## Appendix C – Earthworks Drawings



GENERAL NOTES

ROCHDALE ROAD,  
MANCHESTER

TEMPORARY WORKS

| Status                                                       | Date | Description | By          | Ck       |
|--------------------------------------------------------------|------|-------------|-------------|----------|
| Amendments                                                   |      |             |             |          |
| Project                                                      |      |             |             |          |
| Title                                                        |      |             |             |          |
| Client                                                       |      |             |             |          |
| FINAL PILING MAT LEVEL SURVEY                                |      |             |             |          |
|                                                              |      |             |             |          |
|                                                              |      |             |             |          |
| Designed By                                                  |      | Checked By  | 0           |          |
| Drawn By                                                     |      | Date        | Scales @ A1 |          |
| Project - Originator - Volume - Level - Type - Role - Number |      |             |             | Revision |
|                                                              |      |             |             |          |

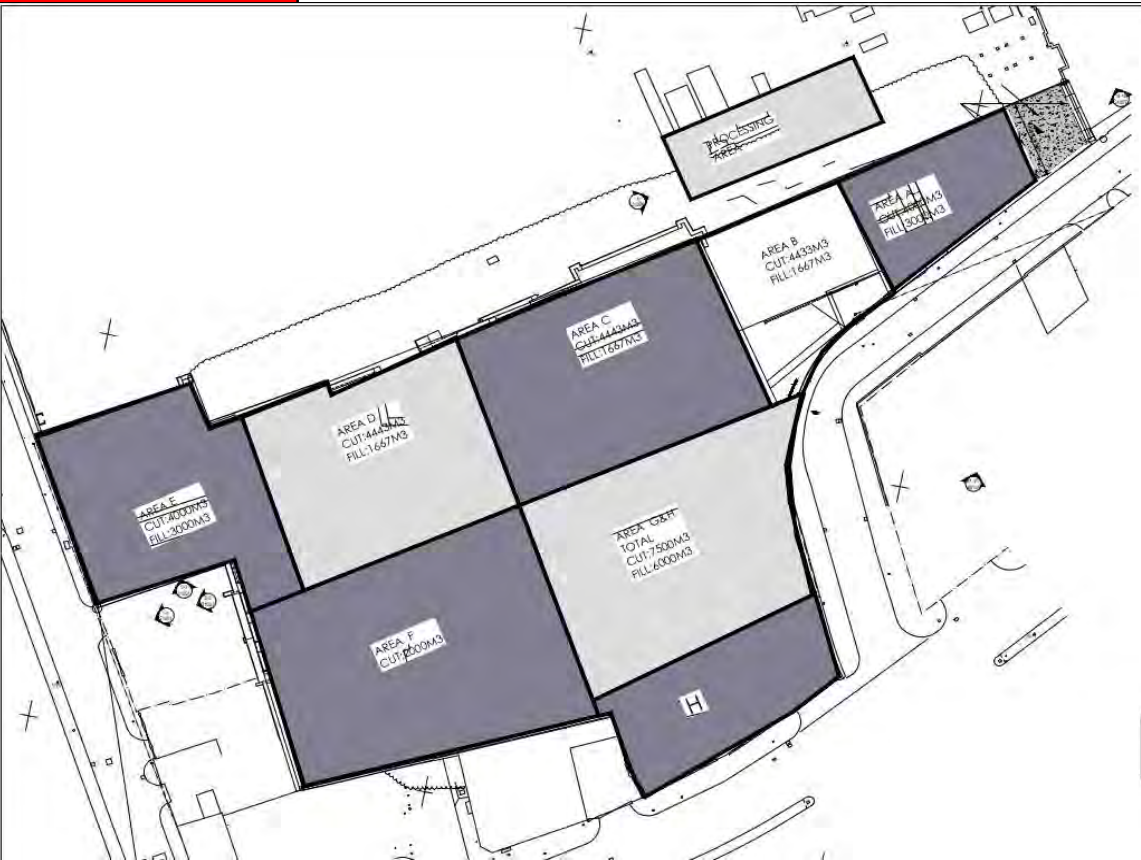


| GENERAL NOTES             |             |
|---------------------------|-------------|
| <div></div>               |             |
|                           |             |
| 12                        |             |
| P01                       |             |
| Date                      | Description |
| ROCHDALE ROAD, MANCHESTER |             |
| TEMPORARY WORKS           |             |
| CUT AND FILL AREA PLAN    |             |
| Drawn By                  | Checked By  |
| Date                      | Scale 1:50  |
| Project                   | Client      |
| Design                    | Drawn       |
| Issue                     | Revised     |
| Drawn                     | Checked     |

McGoff Construction, Rochdale Road Materials Management Plan



| WEEK<br>COMMENCEING | MATERIALS                                                                           | MOVED FROM          | MOVED TO               | VOLUME (M3) | COMMENTS                                                         |
|---------------------|-------------------------------------------------------------------------------------|---------------------|------------------------|-------------|------------------------------------------------------------------|
| 24-Jul              | Concrete Slabs &<br>Below Ground<br>Structures                                      | C & B               | F                      | 4433        | PROSSEED IN AREA F TO<br>MAKE 6F2 TO INSTALL<br>RAMP FROM G TO C |
| 23-Jul              | ACMs                                                                                | TP111 & TP113&TP109 | Whitemoss Land<br>fill | 16          | ROCHDA/01,02                                                     |
| 31-Jul              | SITE PROCESSED 6F5                                                                  | F                   | C & B                  | 2000        | INSTALL FROM FROM G<br>TO C                                      |
| 31-Jul              | TOP SOIL STRIP TO<br>WALFARE AREA<br>AND HAUL ROAD<br>NOTH OF BUILDING<br>FOOTPRINT | NORTH OF E,D &C     | OFF SITE               | 405         | WELFARE AREA                                                     |
| 31-Aug              | INSATLL SITE<br>PROCESSED 6F5                                                       | Processing area     | NORTH OF E,D &C        | 405         | TEMP HAUL ROAD                                                   |
| 31-Jul              | Concrete Slabs &<br>Below Ground<br>Structures                                      | C                   | Processing area        | 1672        |                                                                  |
| 07-Aug              | Concrete Slabs &<br>Below Ground<br>Structures                                      | C                   | Processing area        | 2761        |                                                                  |
| 07-Aug              | Concrete Slabs &<br>Below Ground<br>Structures                                      | D                   | Processing area        | 1896        |                                                                  |
| 14-Aug              | Concrete Slabs &<br>Below Ground<br>Structures                                      | D                   | Processing area        | 1381        |                                                                  |
| 21-Aug              | Concrete Slabs &<br>Below Ground<br>Structures                                      | D                   | Processing area        | 1156        |                                                                  |
| 21-Aug              | Concrete Slabs &<br>Below Ground<br>Structures                                      | E                   | Processing area        | 4000        |                                                                  |
| 28-Aug              | Concrete Slabs &<br>Below Ground<br>Structures                                      | G                   | Processing area        | 1350        |                                                                  |
| 28-Aug              | Concrete Slabs &<br>Below Ground<br>Structures                                      | G                   | Processing area        | 2400        |                                                                  |



CUT- 30079M3

FILL -17000M3

REMOVAL OFF SITE -  
APROX 8000M3

APROX VOIDS 4000M3

|        |                                                |                               |                        |                    |                                                    |
|--------|------------------------------------------------|-------------------------------|------------------------|--------------------|----------------------------------------------------|
| 04-Sep | Concrete Slabs &<br>Below Ground<br>Structures | H                             | Processing area        | 740                | SLOW WORKS DUE TO<br>ARCHIOLOGICAL TEAM ON<br>SITE |
| 04-Sep | Gas Works Waste                                | Contam Storage Area           | Whitemoss Land<br>fill | 19                 | ROCHDA/03,04,05                                    |
| 06-Sep | Hot spots                                      | TP114, TP115, BH104,<br>BH102 | Whitemoss Land<br>fill | 18                 | ROCHDA/06,07                                       |
| 11-Sep | Concrete Slabs &<br>Below Ground<br>Structures | H                             | Processing area        | 695                | SLOW WORKS DUE TO<br>ARCHIOLOGICAL TEAM ON<br>SITE |
| 11-Sep | Concrete Slabs &<br>Below Ground<br>Structures | H                             | Processing area        | 1175               | SLOW WORKS DUE TO<br>ARCHIOLOGICAL TEAM ON<br>SITE |
| 11-Sep | Concrete Slabs &<br>Below Ground<br>Structures | H                             | Processing area        | 1140               | SLOW WORKS DUE TO<br>ARCHIOLOGICAL TEAM ON<br>SITE |
| 18-Sep | Concrete Slabs &<br>Below Ground<br>Structures | B & A                         | Processing area        | 320                |                                                    |
| 18-Sep | Concrete Slabs &<br>Below Ground<br>Structures | A                             | Processing area        | 1050               |                                                    |
| 25-Sep | Concrete Slabs &<br>Below Ground<br>Structures | A                             | Processing area        | 1087               |                                                    |
| 02-Oct | Concrete Slabs &<br>Below Ground<br>Structures | A                             | Processing area        | 1103               |                                                    |
| 09-Oct | Concrete Slabs &<br>Below Ground<br>Structures | A                             | Processing area        | 440                |                                                    |
|        | <u>MATERIALS</u>                               | <u>MOVED FROM</u>             | <u>MOVED TO</u>        | <u>VOLUME (M3)</u> | <u>COMMENTS</u>                                    |
|        | CLASS A1 FILL                                  | C,D                           | E                      | 769                |                                                    |
|        | CLASS A1 FILL                                  | B                             | D                      | 1186               |                                                    |
|        | CLASS A1 FILL                                  | F                             | E                      | 1952               |                                                    |
|        | CLASS A1 FILL                                  | H                             | G                      | 987                |                                                    |
|        | CLASS A1 FILL                                  | G                             | H                      | 1355               |                                                    |
|        | CLASS A1 FILL                                  | A                             | B                      | 1478               |                                                    |
|        | CLASS A1 FILL                                  | B                             | A                      | 1548               |                                                    |
|        | CLASS A1 FILL                                  | A                             | B                      | 1725               |                                                    |
|        | SITE PROCESSED 6F2                             | Processing area               | C & D                  | 1349               |                                                    |
|        | SITE PROCESSED 6F2                             | Processing area               | E                      | 1315               |                                                    |
|        | SITE PROCESSED 6F2                             | Processing area               | G & H                  | 1097               |                                                    |
|        | SITE PROCESSED 6F2                             | Processing area               | B                      | 994                |                                                    |

|  |                    |                 |       |      |  |
|--|--------------------|-----------------|-------|------|--|
|  | SITE PROCESSED 6F2 | Processing area | F & A | 1245 |  |
|--|--------------------|-----------------|-------|------|--|



GENERAL NOTES

ROCHDALE ROAD,  
MANCHESTER

TEMPORARY WORKS

| Status | Date | Description | By | Chk |
|--------|------|-------------|----|-----|
|--------|------|-------------|----|-----|

Amendments

Project

Title

Client

PROOF DIG LEVEL  
SURVEY

Designed By

Checked By

Date

Project - Originator - Volume - Level - Type - Role - Number

Revision

## Appendix D – Acceptability Testing

## TEST REPORT

**Client** Chartrange Ltd

**Address** Wharf Street  
Dukinfield  
Cheshire  
SK16 4NJ

**Contract** Rochdale Road,  
Greater Manchester M4 4HY

**Job Number** MRN 4579/57  
**Date of Issue** 23 August 2023  
**Pages** 1 of 7

Approved Signatories

S J Hutchings, O P Davies

Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
- 3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.
- 4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted.
- 5 The results included within the report are representative of the samples submitted for analysis.
- 6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.



Andrew House, Hadfield Street, Dukinfield, Cheshire SK16 4QX Tel: 0161 475 0870  
Email: [enquiries@murrayrix.com](mailto:enquiries@murrayrix.com) Website: [www.murrayrix.com](http://www.murrayrix.com)

Also at: London: 020 8523 1999

Murray Rix is the trading name of Murray Rix (Northern) Limited. Registered in England 2878361

**TEST CERTIFICATE**  
**PARTICLE SIZE DISTRIBUTION**

BS EN ISO 17892-4:2016

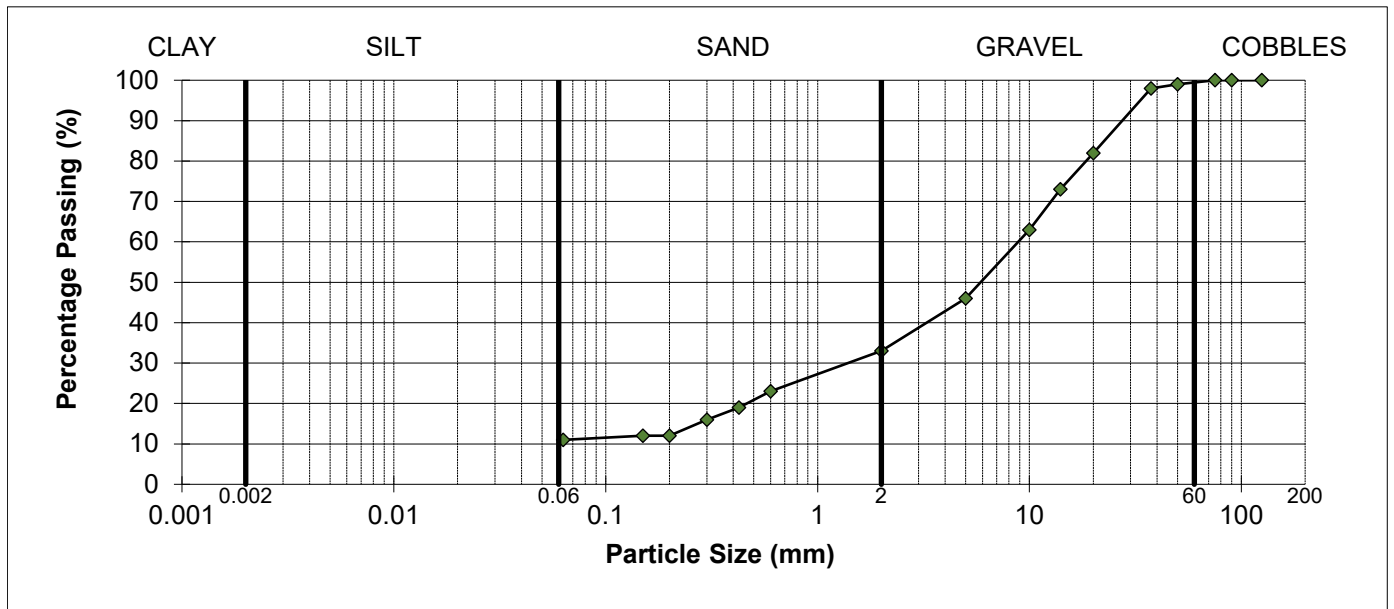
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

|            |                                          |
|------------|------------------------------------------|
| CLIENT     | Chartrange Ltd                           |
| SITE       | Rochdale Road, Greater Manchester M4 4HY |
| JOB NUMBER | MRN 4579/57                              |

|               |           |               |           |
|---------------|-----------|---------------|-----------|
| SAMPLE LABEL  | SP1       | DATE SAMPLED  | 01-Aug-23 |
| LAB SAMPLE No | 129324    | DATE RECEIVED | 01-Aug-23 |
| DATE TESTED   | 07-Aug-23 | SAMPLED BY    | Client    |

|                |               |
|----------------|---------------|
| MATERIAL       | Granular Fill |
| ADVISED SOURCE | Site Won      |

| Sieve Size (mm) | % Passing (%) | Specification (%) | Sieve Size (mm) | % Passing (%) | Specification (%) |
|-----------------|---------------|-------------------|-----------------|---------------|-------------------|
| 125             | 100           | 95-100            | 5               | 46            |                   |
| 90              | 100           |                   | 2               | 33            |                   |
| 75              | 100           |                   | 0.6             | 23            |                   |
| 50              | 99            |                   | 0.425           | 19            |                   |
| 37.5            | 98            |                   | 0.3             | 16            |                   |
| 20              | 82            |                   | 0.2             | 12            |                   |
| 14              | 73            |                   | 0.15            | 12            |                   |
| 10              | 63            |                   | 0.063           | 11            | <15               |



**REMARKS**

As received water content = 10.8%

Sample complies with the advised grading specification for a 1A material (SHW 2016), Uniformity coefficient = >10

SIGNED



NAME

O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE

23-Aug-23

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE MOISTURE CONDITION VALUE BS 1377-2:2022 Cl. 13

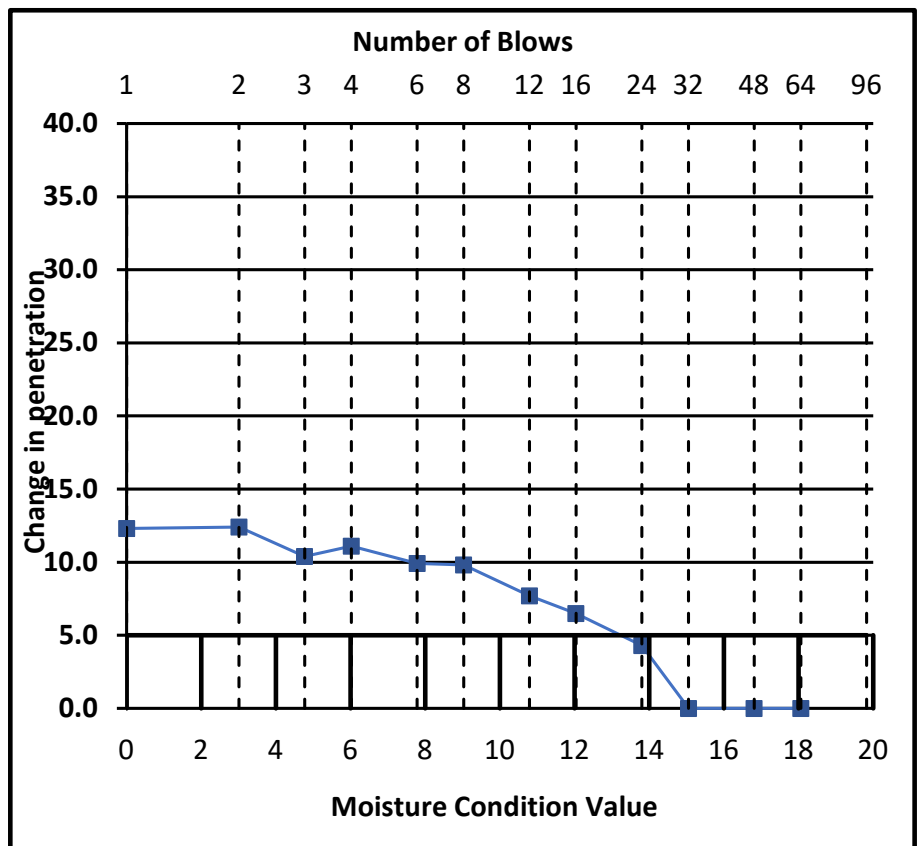
DETERMINATION OF WATER CONTENT - BS EN ISO 17892-1:2014+A1:2022

|            |                                          |
|------------|------------------------------------------|
| CLIENT     | Chartrange Ltd                           |
| SITE       | Rochdale Road, Greater Manchester M4 4HY |
| JOB NUMBER | MRN 4579/57                              |

|               |           |               |           |
|---------------|-----------|---------------|-----------|
| SAMPLE LABEL  | SP1       | DATE SAMPLED  | 01-Aug-23 |
| LAB SAMPLE No | 129324    | DATE RECEIVED | 01-Aug-23 |
| DATE TESTED   | 07-Aug-23 | SAMPLED BY    | Client    |

|                              |                                                 |
|------------------------------|-------------------------------------------------|
| MATERIAL                     | Granular Fill                                   |
| ADVISED SOURCE               | Site Won                                        |
| INTERPRETATION OF TEST CURVE | Straight line through 5mm change in penetration |
| PROPORTION LARGER THAN 20mm  | 18%                                             |

| Total number of blows n | Penetration or protusion mm | Change in penetration n to 4 n mm |
|-------------------------|-----------------------------|-----------------------------------|
| 1                       | 93.1                        | 12.3                              |
| 2                       | 87.4                        | 12.4                              |
| 3                       | 82.1                        | 10.4                              |
| 4                       | 80.8                        | 11.1                              |
| 6                       | 77.0                        | 9.9                               |
| 8                       | 75.0                        | 9.8                               |
| 12                      | 71.7                        | 7.7                               |
| 16                      | 69.7                        | 6.5                               |
| 24                      | 67.1                        | 4.3                               |
| 32                      | 65.2                        |                                   |
| 48                      | 64.0                        |                                   |
| 64                      | 63.2                        |                                   |
| 96                      | 62.8                        |                                   |
| 128                     |                             |                                   |
| 192                     |                             |                                   |
| 256                     |                             |                                   |



MOISTURE CONDITION VALUE

13.1

MOISTURE CONTENT

15.4

%

REMARKS

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

SIGNED

DATE

23-Aug-23

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

DRY DENSITY/WATER CONTENT RELATIONSHIP VIBRATING HAMMER

BS 1377-2:2022 Cl.11

PARTICLE DENSITY METHOD BS 1377-2:2022 Cl.9.2

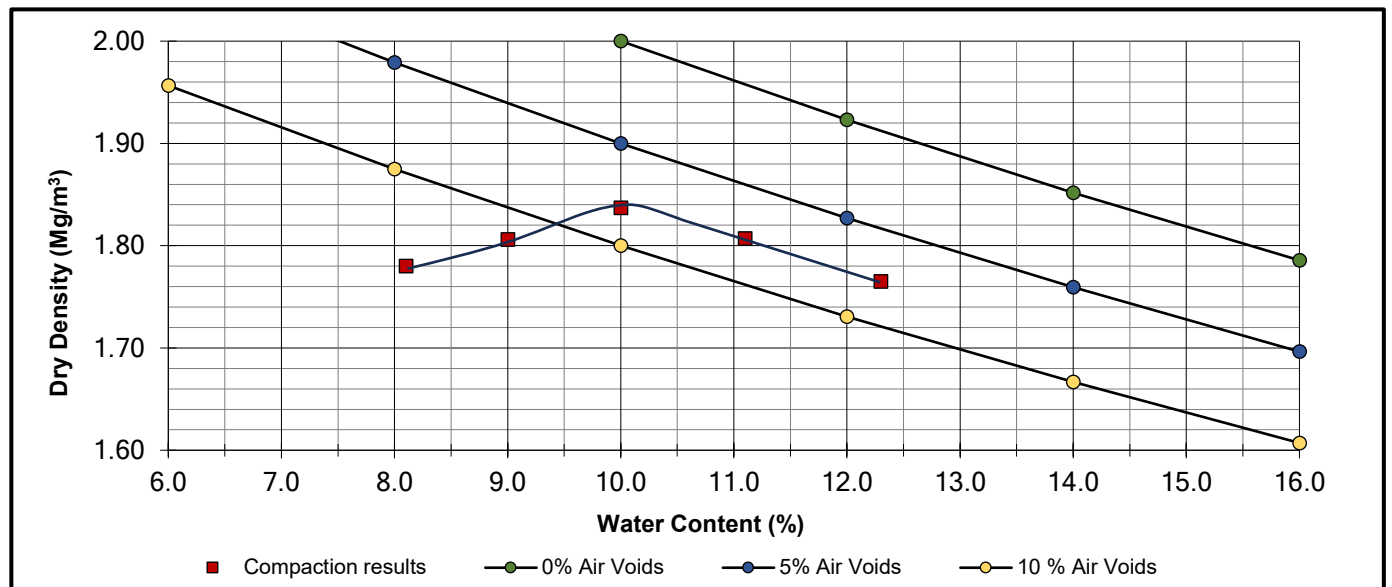
|            |                                          |  |  |
|------------|------------------------------------------|--|--|
| CLIENT     | Chartrange Ltd                           |  |  |
| SITE       | Rochdale Road, Greater Manchester M4 4HY |  |  |
| JOB NUMBER | MRN 4579/57                              |  |  |

|               |           |               |           |
|---------------|-----------|---------------|-----------|
| SAMPLE LABEL  | SP1       | DATE SAMPLED  | 01-Aug-23 |
| SAMPLE NUMBER | 129324    | DATE RECEIVED | 01-Aug-23 |
| DATE TESTED   | 07-Aug-23 | SAMPLED BY    | Client    |

|                |                              |  |  |
|----------------|------------------------------|--|--|
| MATERIAL       | Granular Fill                |  |  |
| ADVISED SOURCE | Site Won                     |  |  |
| PRE TREATMENT  | Air Dried / Separate Batches |  |  |

|                 |    |   |                  |        |                             |
|-----------------|----|---|------------------|--------|-----------------------------|
| RETAINED 37.5mm | 2  | % | GRADING ZONE     | Zone 4 |                             |
| RETAINED 20mm   | 18 | % | PARTICLE DENSITY | 2.5    | Mg/m <sup>3</sup> (Assumed) |

| POINT NUMBER | WATER CONTENT (%) | DRY DENSITY (Mg/m <sup>3</sup> ) |
|--------------|-------------------|----------------------------------|
| 1            | 8.1               | 1.780                            |
| 2            | 9.0               | 1.806                            |
| 3            | 10.0              | 1.837                            |
| 4            | 11.1              | 1.807                            |
| 5            | 12.3              | 1.765                            |



|                       |      |                      |
|-----------------------|------|----------------------|
| OPTIMUM WATER CONTENT | 10   | (%)                  |
| MAXIMUM DRY DENSITY   | 1.84 | (Mg/m <sup>3</sup> ) |

REMARKS

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

SIGNED

DATE 23-Aug-23

**TEST CERTIFICATE**  
**PARTICLE SIZE DISTRIBUTION**

BS EN ISO 17892-4:2016

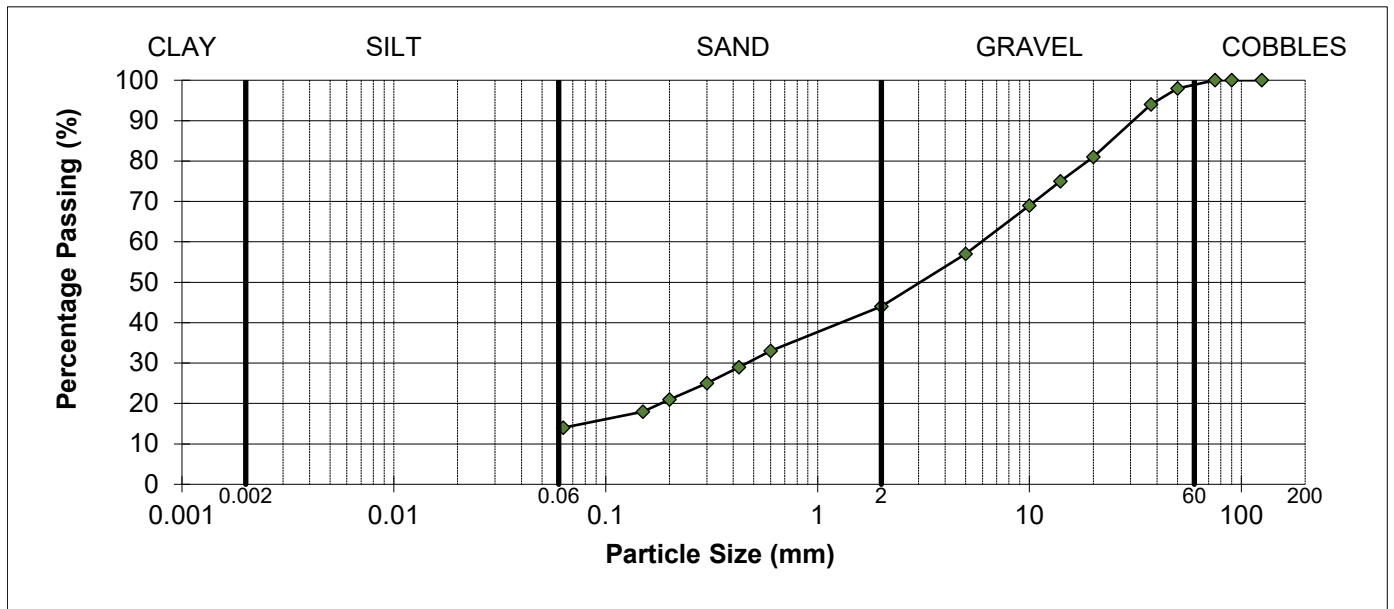
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

|            |                                          |
|------------|------------------------------------------|
| CLIENT     | Chartrange Ltd                           |
| SITE       | Rochdale Road, Greater Manchester M4 4HY |
| JOB NUMBER | MRN 4579/57                              |

|               |           |               |           |
|---------------|-----------|---------------|-----------|
| SAMPLE LABEL  | SP2       | DATE SAMPLED  | 01-Aug-23 |
| LAB SAMPLE No | 129325    | DATE RECEIVED | 01-Aug-23 |
| DATE TESTED   | 07-Aug-23 | SAMPLED BY    | Client    |

|                |               |
|----------------|---------------|
| MATERIAL       | Granular Fill |
| ADVISED SOURCE | Site Won      |

| Sieve Size (mm) | % Passing (%) | Specification (%) | Sieve Size (mm) | % Passing (%) | Specification (%) |
|-----------------|---------------|-------------------|-----------------|---------------|-------------------|
| 125             | 100           | 95-100            | 5               | 57            |                   |
| 90              | 100           |                   | 2               | 44            |                   |
| 75              | 100           |                   | 0.6             | 33            |                   |
| 50              | 98            |                   | 0.425           | 29            |                   |
| 37.5            | 94            |                   | 0.3             | 25            |                   |
| 20              | 81            |                   | 0.2             | 21            |                   |
| 14              | 75            |                   | 0.15            | 18            |                   |
| 10              | 69            |                   | 0.063           | 14            | <15               |



**REMARKS**

As received water content = 12.0%

Sample complies with the advised grading specification for a 1A material (SHW 2016), Uniformity coefficient = >10

**SIGNED**



**NAME**

O.P. Davies BA (Hons)  
(Laboratory Manager)

**DATE**

23-Aug-23

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE MOISTURE CONDITION VALUE BS 1377-2:2022 Cl. 13

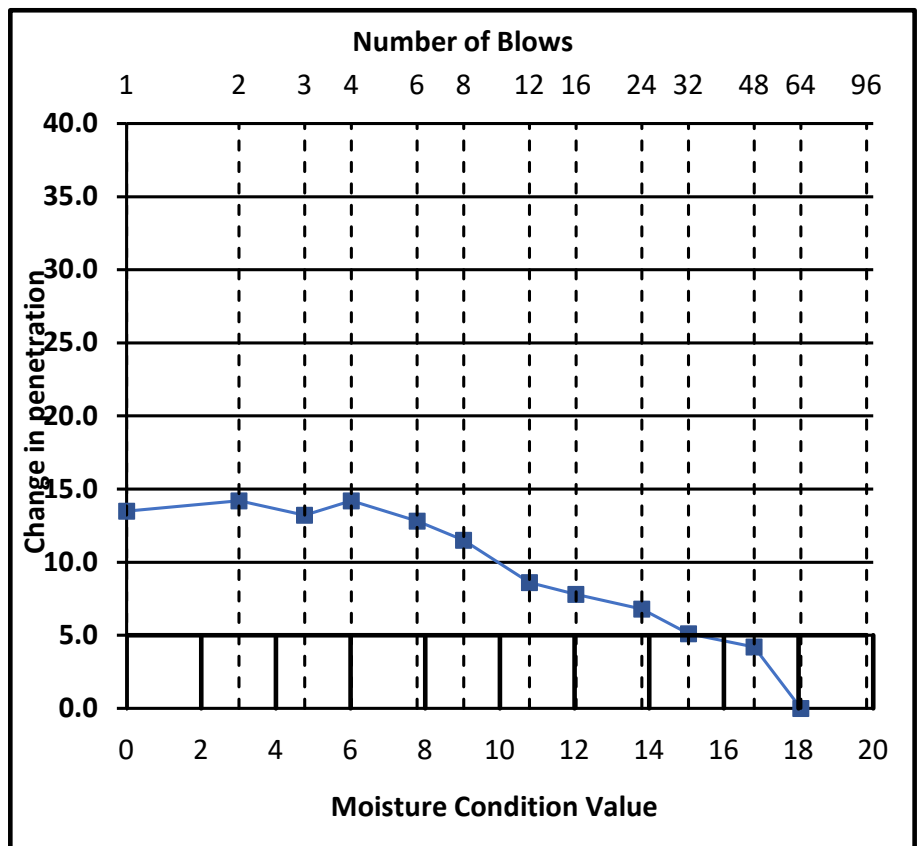
DETERMINATION OF WATER CONTENT - BS EN ISO 17892-1:2014+A1:2022

|            |                                          |
|------------|------------------------------------------|
| CLIENT     | Chartrange Ltd                           |
| SITE       | Rochdale Road, Greater Manchester M4 4HY |
| JOB NUMBER | MRN 4579/57                              |

|               |           |               |           |
|---------------|-----------|---------------|-----------|
| SAMPLE LABEL  | SP2       | DATE SAMPLED  | 01-Aug-23 |
| LAB SAMPLE No | 129325    | DATE RECEIVED | 01-Aug-23 |
| DATE TESTED   | 07-Aug-23 | SAMPLED BY    | Client    |

|                              |                                                 |
|------------------------------|-------------------------------------------------|
| MATERIAL                     | Granular Fill                                   |
| ADVISED SOURCE               | Site Won                                        |
| INTERPRETATION OF TEST CURVE | Straight line through 5mm change in penetration |
| PROPORTION LARGER THAN 20mm  | 19%                                             |

| Total number of blows n | Penetration or protusion mm | Change in penetration n to 4 n mm |
|-------------------------|-----------------------------|-----------------------------------|
| 1                       | 117.4                       | 13.5                              |
| 2                       | 110.2                       | 14.2                              |
| 3                       | 105.3                       | 13.2                              |
| 4                       | 103.9                       | 14.2                              |
| 6                       | 99.1                        | 12.8                              |
| 8                       | 96.0                        | 11.5                              |
| 12                      | 92.1                        | 8.6                               |
| 16                      | 89.7                        | 7.8                               |
| 24                      | 86.3                        | 6.8                               |
| 32                      | 84.5                        | 5.1                               |
| 48                      | 83.5                        | 4.2                               |
| 64                      | 81.9                        |                                   |
| 96                      | 79.5                        |                                   |
| 128                     | 79.4                        |                                   |
| 192                     | 79.3                        |                                   |
| 256                     |                             |                                   |



MOISTURE CONDITION VALUE

15.1

MOISTURE CONTENT

22.8

%

REMARKS

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

SIGNED

DATE

23-Aug-23

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

DRY DENSITY/WATER CONTENT RELATIONSHIP VIBRATING HAMMER

BS 1377-2:2022 Cl.11

PARTICLE DENSITY METHOD BS 1377-2:2022 Cl.9.2

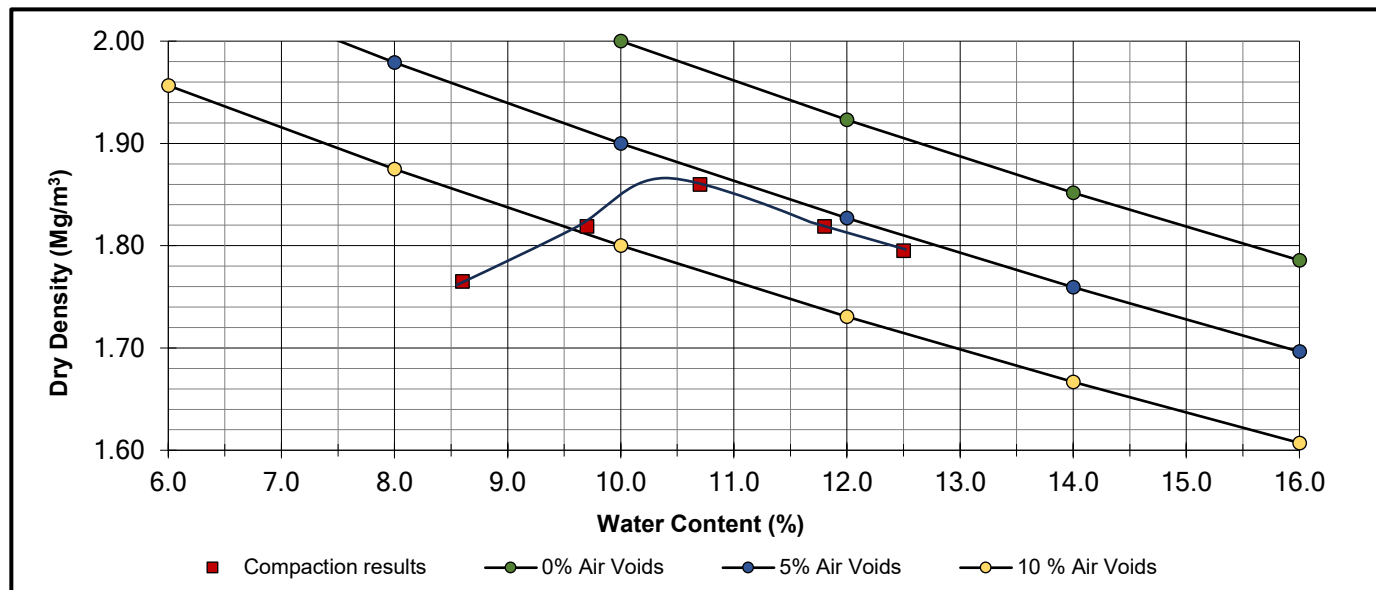
|            |                                          |  |  |
|------------|------------------------------------------|--|--|
| CLIENT     | Chartrange Ltd                           |  |  |
| SITE       | Rochdale Road, Greater Manchester M4 4HY |  |  |
| JOB NUMBER | MRN 4579/57                              |  |  |

|               |           |               |           |
|---------------|-----------|---------------|-----------|
| SAMPLE LABEL  | SP2       | DATE SAMPLED  | 01-Aug-23 |
| SAMPLE NUMBER | 129325    | DATE RECEIVED | 01-Aug-23 |
| DATE TESTED   | 07-Aug-23 | SAMPLED BY    | Client    |

|                |                              |  |  |
|----------------|------------------------------|--|--|
| MATERIAL       | Granular Fill                |  |  |
| ADVISED SOURCE | Site Won                     |  |  |
| PRE TREATMENT  | Air Dried / Separate Batches |  |  |

|                 |      |                  |                                 |
|-----------------|------|------------------|---------------------------------|
| RETAINED 37.5mm | 6 %  | GRADING ZONE     | Zone 4                          |
| RETAINED 20mm   | 19 % | PARTICLE DENSITY | 2.5 Mg/m <sup>3</sup> (Assumed) |

| POINT NUMBER | WATER CONTENT (%) | DRY DENSITY (Mg/m <sup>3</sup> ) |
|--------------|-------------------|----------------------------------|
| 1            | 8.6               | 1.765                            |
| 2            | 9.7               | 1.819                            |
| 3            | 10.7              | 1.860                            |
| 4            | 11.8              | 1.819                            |
| 5            | 12.5              | 1.795                            |



|                       |      |                      |
|-----------------------|------|----------------------|
| OPTIMUM WATER CONTENT | 10   | (%)                  |
| MAXIMUM DRY DENSITY   | 1.84 | (Mg/m <sup>3</sup> ) |

REMARKS

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

SIGNED

DATE 23-Aug-23

## TEST REPORT

**Client** Chartrange Ltd

**Address** Wharf Street  
Dukinfield  
Cheshire  
SK16 4NJ

**Contract** Rochdale Road,  
Greater Manchester M4 4HY

**Job Number** MRN 4579/58  
**Date of Issue** 23 August 2023  
**Pages** 1 of 7

Approved Signatories

S J Hutchings, O P Davies

Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
- 3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.
- 4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted.
- 5 The results included within the report are representative of the samples submitted for analysis.
- 6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.



Andrew House, Hadfield Street, Dukinfield, Cheshire SK16 4QX Tel: 0161 475 0870  
Email: [enquiries@murrayrix.com](mailto:enquiries@murrayrix.com) Website: [www.murrayrix.com](http://www.murrayrix.com)

Also at: London: 020 8523 1999

Murray Rix is the trading name of Murray Rix (Northern) Limited. Registered in England 2878361

**TEST CERTIFICATE**  
**PARTICLE SIZE DISTRIBUTION**

BS EN ISO 17892-4:2016

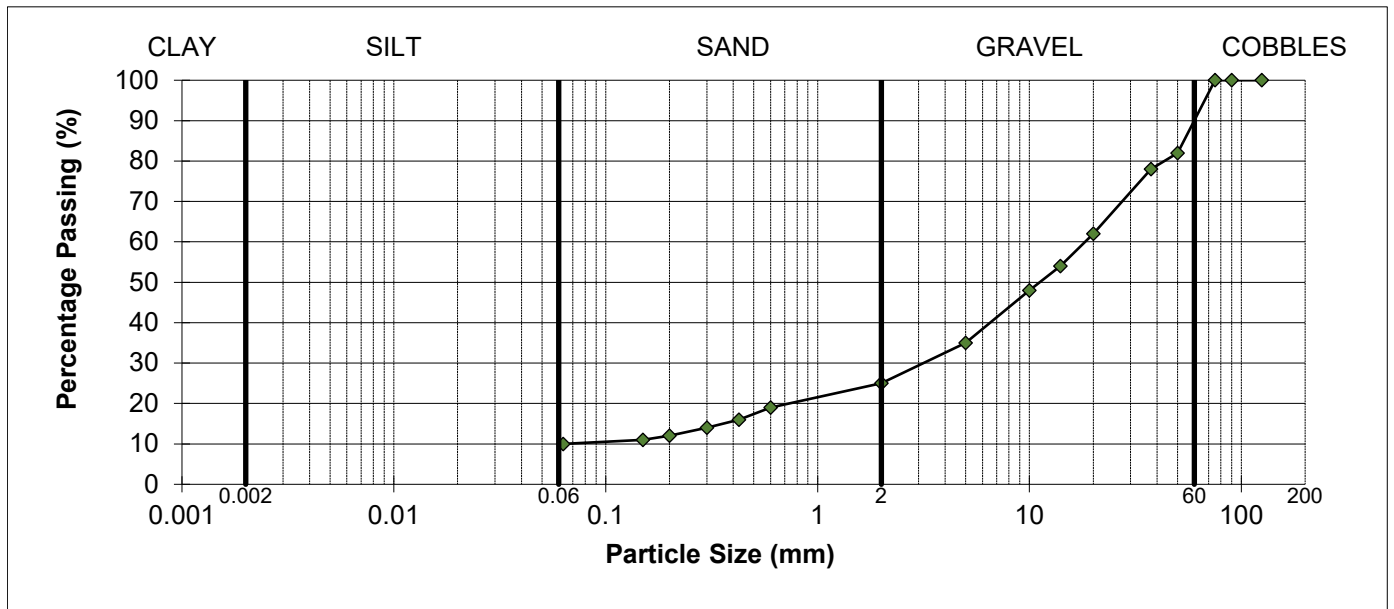
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

|            |                                          |
|------------|------------------------------------------|
| CLIENT     | Chartrange Ltd                           |
| SITE       | Rochdale Road, Greater Manchester M4 4HY |
| JOB NUMBER | MRN 4579/58                              |

|               |           |               |           |
|---------------|-----------|---------------|-----------|
| SAMPLE LABEL  | 6F2-1     | DATE SAMPLED  | 07-Aug-23 |
| LAB SAMPLE No | 129415    | DATE RECEIVED | 07-Aug-23 |
| DATE TESTED   | 10-Aug-23 | SAMPLED BY    | Client    |

|                |          |
|----------------|----------|
| MATERIAL       | Crush    |
| ADVISED SOURCE | Site Won |

| Sieve Size (mm) | % Passing (%) | Specification (%) | Sieve Size (mm) | % Passing (%) | Specification (%) |
|-----------------|---------------|-------------------|-----------------|---------------|-------------------|
| 125             | 100           | 100               | 5               | 35            | 10-45             |
| 90              | 100           | 80-100            | 2               | 25            |                   |
| 75              | 100           | 65-100            | 0.6             | 19            | 0-25              |
| 50              | 82            |                   | 0.425           | 16            |                   |
| 37.5            | 78            | 45-100            | 0.3             | 14            |                   |
| 20              | 62            |                   | 0.2             | 12            |                   |
| 14              | 54            |                   | 0.15            | 11            |                   |
| 10              | 48            | 15-60             | 0.063           | 10            | 0-12              |



**REMARKS**

As received water content = 10.1%

Sample complies with the advised grading specification for a 6F2 material (SHW 2016)

SIGNED



NAME

O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE

23-Aug-23

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

DRY DENSITY/WATER CONTENT RELATIONSHIP VIBRATING HAMMER

BS 1377-2:2022 Cl.11

PARTICLE DENSITY METHOD BS 1377-2:2022 Cl.9.2

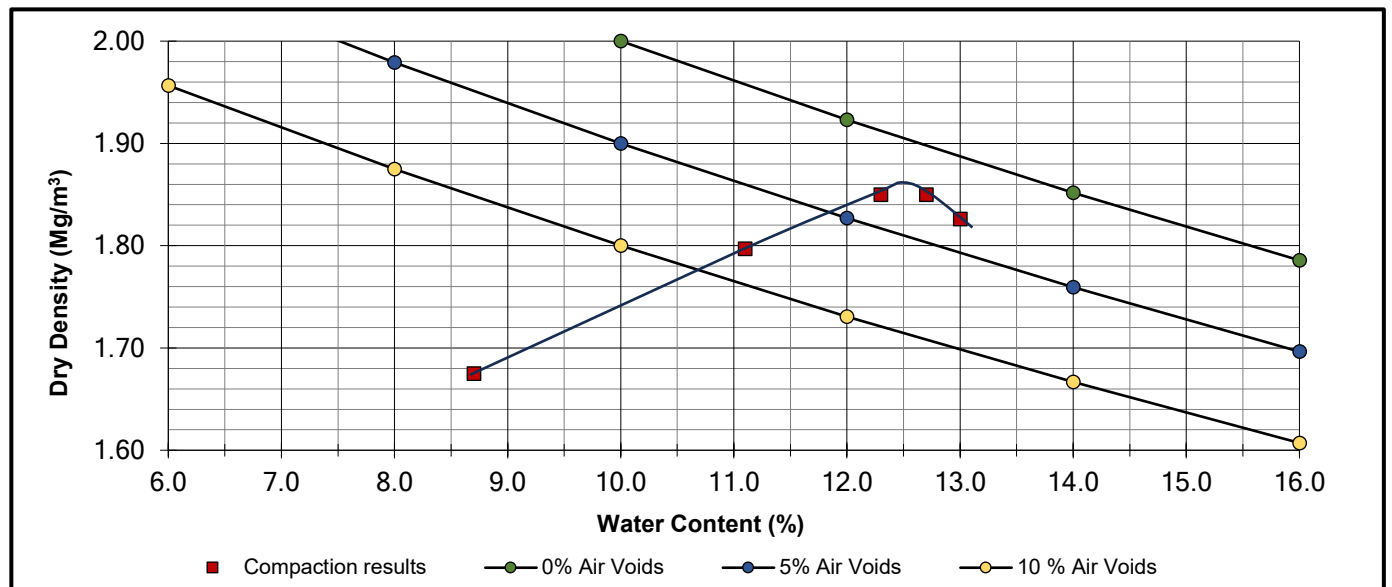
|            |                                          |  |  |
|------------|------------------------------------------|--|--|
| CLIENT     | Chartrange Ltd                           |  |  |
| SITE       | Rochdale Road, Greater Manchester M4 4HY |  |  |
| JOB NUMBER | MRN 4579/58                              |  |  |

|               |           |               |           |
|---------------|-----------|---------------|-----------|
| SAMPLE LABEL  | 6F2-1     | DATE SAMPLED  | 07-Aug-23 |
| SAMPLE NUMBER | 129415    | DATE RECEIVED | 07-Aug-23 |
| DATE TESTED   | 10-Aug-23 | SAMPLED BY    | Client    |

|                |                              |  |  |
|----------------|------------------------------|--|--|
| MATERIAL       | Crush                        |  |  |
| ADVISED SOURCE | Site Won                     |  |  |
| PRE TREATMENT  | Air Dried / Separate Batches |  |  |

|                 |      |                  |                                  |
|-----------------|------|------------------|----------------------------------|
| RETAINED 37.5mm | 22 % | GRADING ZONE     | Zone X                           |
| RETAINED 20mm   | 38 % | PARTICLE DENSITY | 2.50 Mg/m <sup>3</sup> (Assumed) |

| POINT NUMBER | WATER CONTENT (%) | DRY DENSITY (Mg/m <sup>3</sup> ) |
|--------------|-------------------|----------------------------------|
| 1            | 8.7               | 1.675                            |
| 2            | 11.1              | 1.797                            |
| 3            | 12.3              | 1.850                            |
| 4            | 12.7              | 1.850                            |
| 5            | 13.0              | 1.826                            |



|                       |      |                      |
|-----------------------|------|----------------------|
| OPTIMUM WATER CONTENT | 12   | (%)                  |
| MAXIMUM DRY DENSITY   | 1.86 | (Mg/m <sup>3</sup> ) |

REMARKS

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

SIGNED

DATE 23-Aug-23

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

DETERMINATION OF RESISTANCE TO FRAGMENTATION BY THE LOS ANGELES TEST METHOD

BS EN 1097-2:2020

|               |                                          |
|---------------|------------------------------------------|
| <b>CLIENT</b> | Chartrange Ltd                           |
| <b>SITE</b>   | Rochdale Road, Greater Manchester M4 4HY |

### SAMPLE DETAILS

Job Number : MRN 4579/58  
Laboratory sample number : 129415  
Material : Crush  
Advised source : Site won  
Site mark : 6F2-1  
Certificate of sampling received : No  
Date and time of sampling : 07-Aug-23  
Date received at Laboratory : 07-Aug-23  
Date of start of test : 10-Aug-23  
Sampling Location : Site  
Method of sampling : BS EN 932-1 : 1997  
Sampled by : Client  
Size Fraction : 35% passing 14mm retained 12.5mm  
65% passing 12.5mm retained 10mm  
Mass of dry sample tested : 5000g  
Target specification : <50

### RESULT

Los Angeles Coefficient : **41**

Comment

NAME O.P. Davies BA (Hons  
(Laboratory Manager)

SIGNED

DATE

23-Aug-23

**TEST CERTIFICATE**  
**PARTICLE SIZE DISTRIBUTION**

BS EN ISO 17892-4:2016

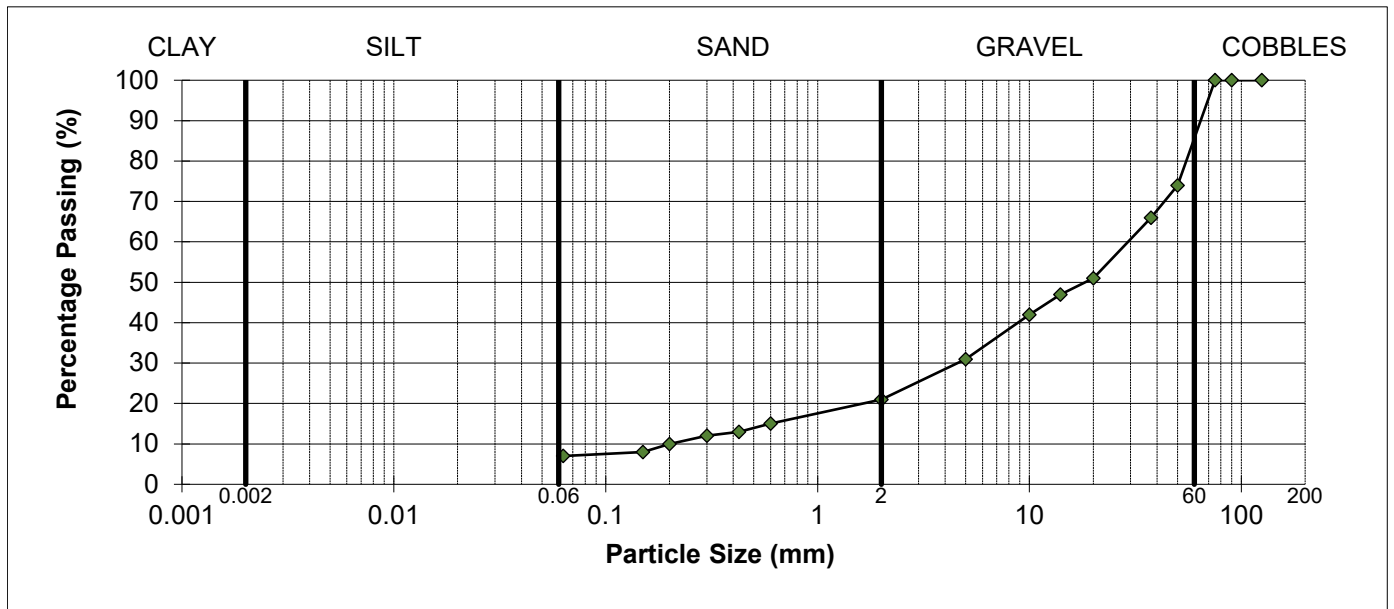
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

|            |                                          |
|------------|------------------------------------------|
| CLIENT     | Chartrange Ltd                           |
| SITE       | Rochdale Road, Greater Manchester M4 4HY |
| JOB NUMBER | MRN 4579/58                              |

|               |           |               |           |
|---------------|-----------|---------------|-----------|
| SAMPLE LABEL  | 6F2-2     | DATE SAMPLED  | 07-Aug-23 |
| LAB SAMPLE No | 129416    | DATE RECEIVED | 07-Aug-23 |
| DATE TESTED   | 10-Aug-23 | SAMPLED BY    | Client    |

|                |          |
|----------------|----------|
| MATERIAL       | Crush    |
| ADVISED SOURCE | Site Won |

| Sieve Size (mm) | % Passing (%) | Specification (%) | Sieve Size (mm) | % Passing (%) | Specification (%) |
|-----------------|---------------|-------------------|-----------------|---------------|-------------------|
| 125             | 100           | 100               | 5               | 31            | 10-45             |
| 90              | 100           | 80-100            | 2               | 21            |                   |
| 75              | 100           | 65-100            | 0.6             | 15            | 0-25              |
| 50              | 74            |                   | 0.425           | 13            |                   |
| 37.5            | 66            | 45-100            | 0.3             | 12            |                   |
| 20              | 51            |                   | 0.2             | 10            |                   |
| 14              | 47            |                   | 0.15            | 8             |                   |
| 10              | 42            | 15-60             | 0.063           | 7             | 0-12              |



**REMARKS**

As received water content = 12.8%

Sample complies with the advised grading specification for a 6F2 material (SHW 2016)

SIGNED



NAME

O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE

23-Aug-23

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

DRY DENSITY/WATER CONTENT RELATIONSHIP VIBRATING HAMMER

BS 1377-2:2022 Cl.11

PARTICLE DENSITY METHOD BS 1377-2:2022 Cl.9.2

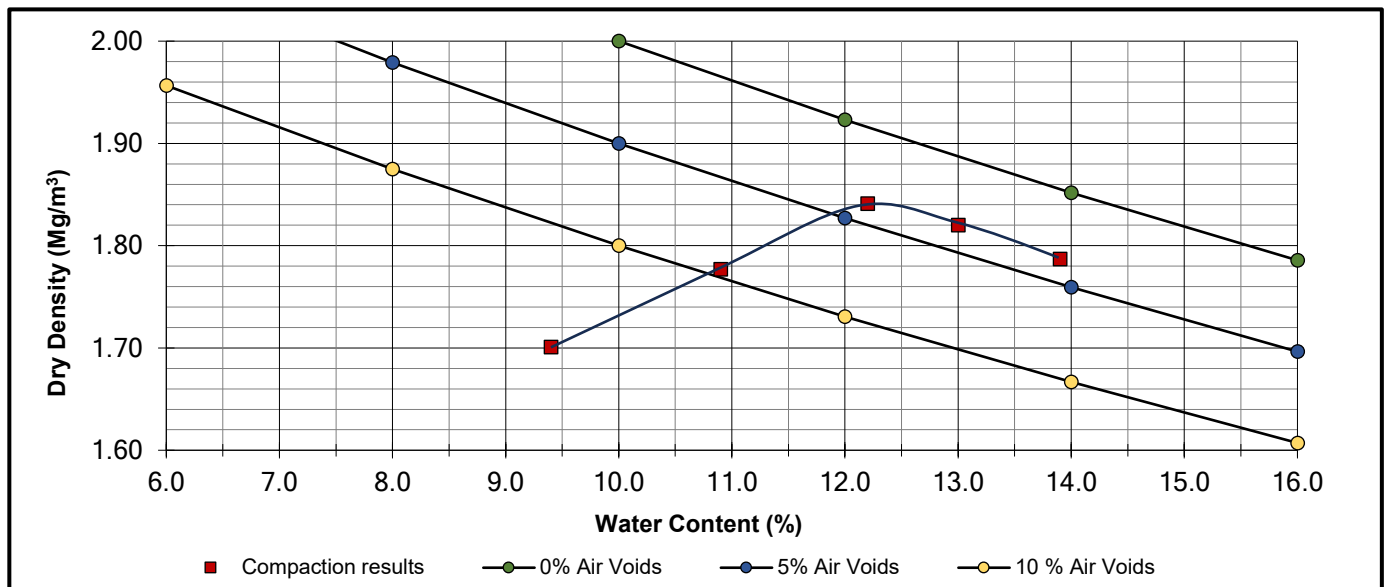
|            |                                          |  |  |
|------------|------------------------------------------|--|--|
| CLIENT     | Chartrange Ltd                           |  |  |
| SITE       | Rochdale Road, Greater Manchester M4 4HY |  |  |
| JOB NUMBER | MRN 4579/58                              |  |  |

|               |           |               |           |
|---------------|-----------|---------------|-----------|
| SAMPLE LABEL  | 6F2-2     | DATE SAMPLED  | 07-Aug-23 |
| SAMPLE NUMBER | 129416    | DATE RECEIVED | 07-Aug-23 |
| DATE TESTED   | 10-Aug-23 | SAMPLED BY    | Client    |

|                |                              |  |  |
|----------------|------------------------------|--|--|
| MATERIAL       | Crush                        |  |  |
| ADVISED SOURCE | Site Won                     |  |  |
| PRE TREATMENT  | Air Dried / Separate Batches |  |  |

|                 |      |                  |                                  |
|-----------------|------|------------------|----------------------------------|
| RETAINED 37.5mm | 34 % | GRADING ZONE     | Zone X                           |
| RETAINED 20mm   | 49 % | PARTICLE DENSITY | 2.50 Mg/m <sup>3</sup> (Assumed) |

| POINT NUMBER | WATER CONTENT (%) | DRY DENSITY (Mg/m <sup>3</sup> ) |
|--------------|-------------------|----------------------------------|
| 1            | 9.4               | 1.701                            |
| 2            | 10.9              | 1.777                            |
| 3            | 12.2              | 1.841                            |
| 4            | 13.0              | 1.820                            |
| 5            | 13.9              | 1.787                            |



|                       |      |                      |
|-----------------------|------|----------------------|
| OPTIMUM WATER CONTENT | 12   | (%)                  |
| MAXIMUM DRY DENSITY   | 1.84 | (Mg/m <sup>3</sup> ) |

REMARKS

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

SIGNED

DATE 23-Aug-23

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

DETERMINATION OF RESISTANCE TO FRAGMENTATION BY THE LOS ANGELES TEST METHOD

BS EN 1097-2:2020

|               |                                          |
|---------------|------------------------------------------|
| <b>CLIENT</b> | Chartrange Ltd                           |
| <b>SITE</b>   | Rochdale Road, Greater Manchester M4 4HY |

### SAMPLE DETAILS

Job Number : MRN 4579/58  
Laboratory sample number : 129416  
Material : Crush  
Advised source : Site won  
Site mark : 6F2-2  
Certificate of sampling received : No  
Date and time of sampling : 07-Aug-23  
Date received at Laboratory : 07-Aug-23  
Date of start of test : 10-Aug-23  
Sampling Location : Site  
Method of sampling : BS EN 932-1 : 1997  
Sampled by : Client  
Size Fraction : 34% passing 14mm retained 12.5mm  
66% passing 12.5mm retained 10mm  
Mass of dry sample tested : 5000g  
Target specification : <50

### RESULT

Los Angeles Coefficient : 44

Comment

NAME O.P. Davies BA (Hons  
(Laboratory Manager)

SIGNED

DATE

23-Aug-23

## TEST REPORT

**Client** Chartrange Ltd

**Address** Wharf Street  
Dukinfield  
Cheshire  
SK16 4NJ

**Contract** Rochdale Road,  
Greater Manchester M4 4HY

**Job Number** MRN 4579/66  
**Date of Issue** 13 September 2023  
**Pages** 1 of 5

Approved Signatories

S J Hutchings, O P Davies

### Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
- 3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.
- 4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted.
- 5 The results included within the report are representative of the samples submitted for analysis.
- 6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.



Andrew House, Hadfield Street, Dukinfield, Cheshire SK16 4QX Tel: 0161 475 0870  
Email: [enquiries@murrayrix.com](mailto:enquiries@murrayrix.com) Website: [www.murrayrix.com](http://www.murrayrix.com)

Also at: London: 020 8523 1999

Murray Rix is the trading name of Murray Rix (Northern) Limited. Registered in England 2878361

**TEST CERTIFICATE**  
**PARTICLE SIZE DISTRIBUTION**

BS EN ISO 17892-4:2016

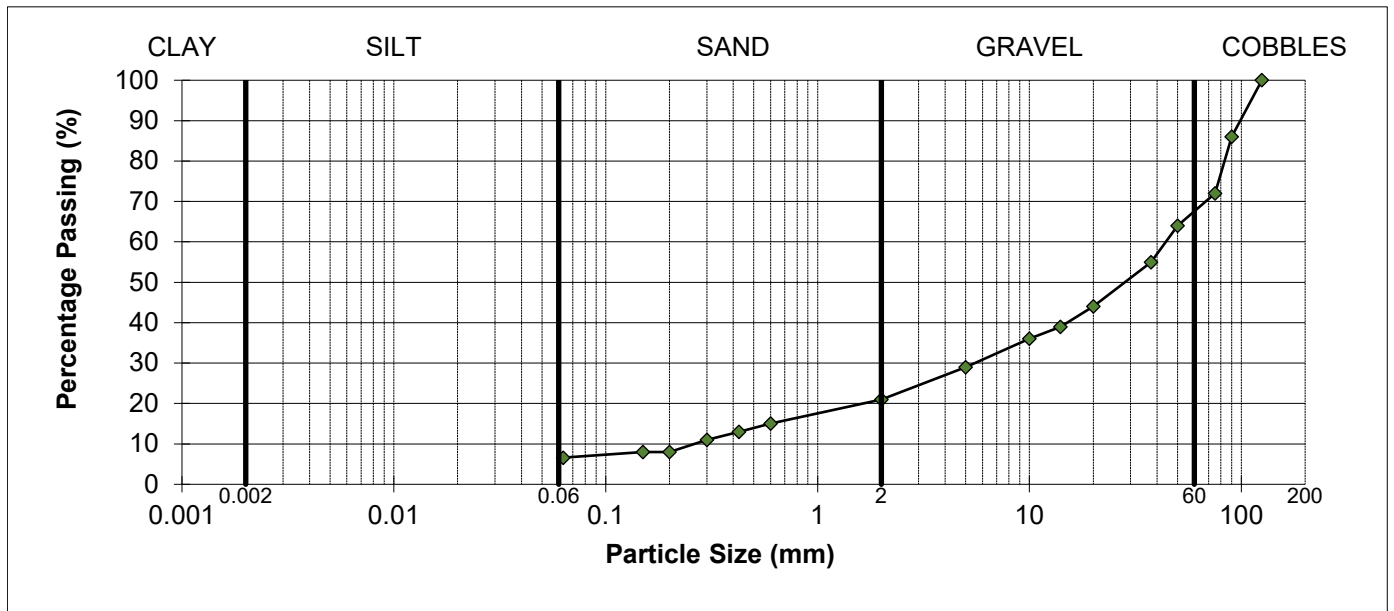
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

|            |                                          |
|------------|------------------------------------------|
| CLIENT     | Chartrange Ltd                           |
| SITE       | Rochdale Road, Greater Manchester M4 4HY |
| JOB NUMBER | MRN 4579/66                              |

|               |           |               |           |
|---------------|-----------|---------------|-----------|
| SAMPLE LABEL  | 6F2-3     | DATE SAMPLED  | 22-Aug-23 |
| LAB SAMPLE No | 129854    | DATE RECEIVED | 22-Aug-23 |
| DATE TESTED   | 23-Aug-23 | SAMPLED BY    | Client    |

|                |          |
|----------------|----------|
| MATERIAL       | Crush    |
| ADVISED SOURCE | Site Won |

| Sieve Size (mm) | % Passing (%) | Specification (%) | Sieve Size (mm) | % Passing (%) | Specification (%) |
|-----------------|---------------|-------------------|-----------------|---------------|-------------------|
| 125             | 100           | 100               | 5               | 29            | 10-45             |
| 90              | 86            | 80-100            | 2               | 21            |                   |
| 75              | 72            | 65-100            | 0.6             | 15            | 0-25              |
| 50              | 64            |                   | 0.425           | 13            |                   |
| 37.5            | 55            | 45-100            | 0.3             | 11            |                   |
| 20              | 44            |                   | 0.2             | 8             |                   |
| 14              | 39            |                   | 0.15            | 8             |                   |
| 10              | 36            | 15-60             | 0.063           | 7             | 0-12              |



**REMARKS**

As received water content = 8.8%

Sample complies with the advised grading specification for a 6F2 material (SHW 2016)

SIGNED



NAME

O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE

13-Sep-23

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

DETERMINATION OF RESISTANCE TO FRAGMENTATION BY THE LOS ANGELES TEST METHOD

BS EN 1097-2:2020

|               |                                          |
|---------------|------------------------------------------|
| <b>CLIENT</b> | Chartrange Ltd                           |
| <b>SITE</b>   | Rochdale Road, Greater Manchester M4 4HY |

### SAMPLE DETAILS

Job Number : MRN 4579/66  
Laboratory sample number : 129854  
Material : Crush  
Advised source : Site won  
Site mark : 6F2-3  
Certificate of sampling received : No  
Date and time of sampling : 22-Aug-23  
Date received at Laboratory : 22-Aug-23  
Date of start of test : 23-Aug-23  
Sampling Location : Site  
Method of sampling : BS EN 932-1 : 1997  
Sampled by : Client  
Size Fraction : 33% passing 14mm retained 12.5mm  
67% passing 12.5mm retained 10mm  
Mass of dry sample tested : 5000g  
Target specification : <50

### RESULT

Los Angeles Coefficient : 40

Comment

NAME O.P. Davies BA (Hons  
(Laboratory Manager)

SIGNED

DATE

13-Sep-23

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

DRY DENSITY/WATER CONTENT RELATIONSHIP VIBRATING HAMMER

BS 1377-2:2022 Cl.11

PARTICLE DENSITY METHOD BS 1377-2:2022 Cl.9.2

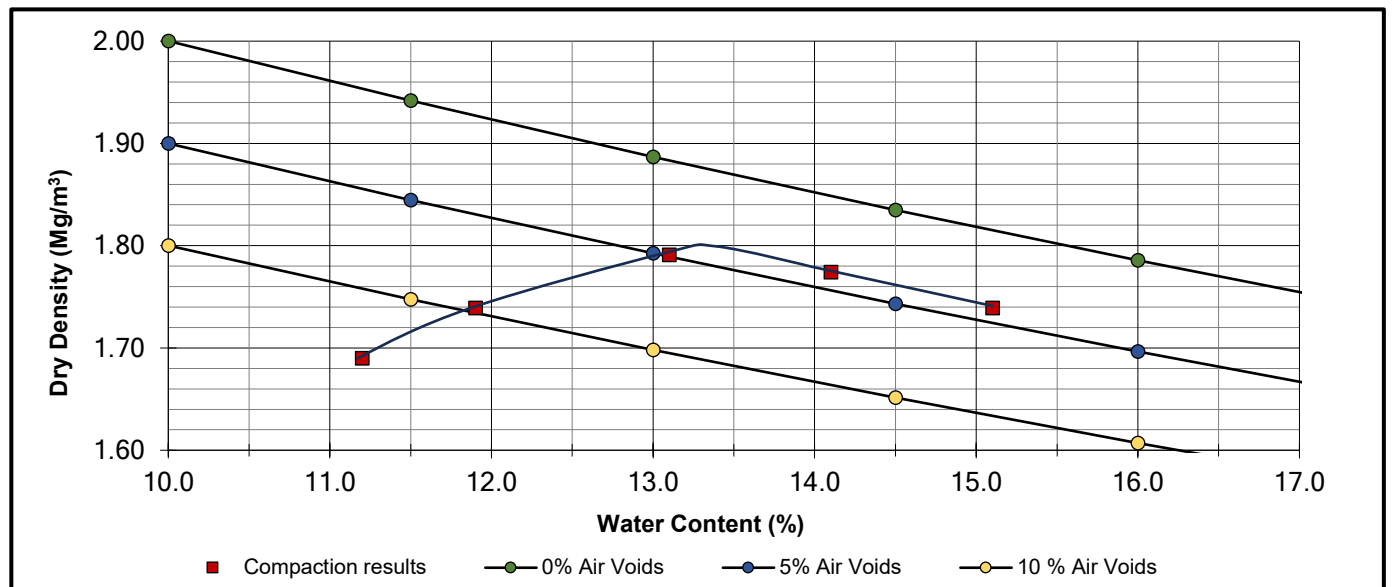
|            |                                          |  |  |
|------------|------------------------------------------|--|--|
| CLIENT     | Chartrange Ltd                           |  |  |
| SITE       | Rochdale Road, Greater Manchester M4 4HY |  |  |
| JOB NUMBER | MRN 4579/66                              |  |  |

|               |           |               |           |
|---------------|-----------|---------------|-----------|
| SAMPLE LABEL  | 6F2-3     | DATE SAMPLED  | 22-Aug-23 |
| SAMPLE NUMBER | 129854    | DATE RECEIVED | 22-Aug-23 |
| DATE TESTED   | 23-Aug-23 | SAMPLED BY    | Client    |

|                |                              |  |  |
|----------------|------------------------------|--|--|
| MATERIAL       | Crush                        |  |  |
| ADVISED SOURCE | Site Won                     |  |  |
| PRE TREATMENT  | Air Dried / Separate Batches |  |  |

|                 |      |                  |                                  |
|-----------------|------|------------------|----------------------------------|
| RETAINED 37.5mm | 45 % | GRADING ZONE     | Zone X                           |
| RETAINED 20mm   | 56 % | PARTICLE DENSITY | 2.50 Mg/m <sup>3</sup> (Assumed) |

| POINT NUMBER | WATER CONTENT (%) | DRY DENSITY (Mg/m <sup>3</sup> ) |
|--------------|-------------------|----------------------------------|
| 1            | 11.2              | 1.690                            |
| 2            | 11.9              | 1.739                            |
| 3            | 13.1              | 1.791                            |
| 4            | 14.1              | 1.774                            |
| 5            | 15.1              | 1.739                            |



|                       |      |                      |
|-----------------------|------|----------------------|
| OPTIMUM WATER CONTENT | 13   | (%)                  |
| MAXIMUM DRY DENSITY   | 1.80 | (Mg/m <sup>3</sup> ) |

REMARKS

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

SIGNED

DATE 13-Sep-23

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870

## TEST CERTIFICATE

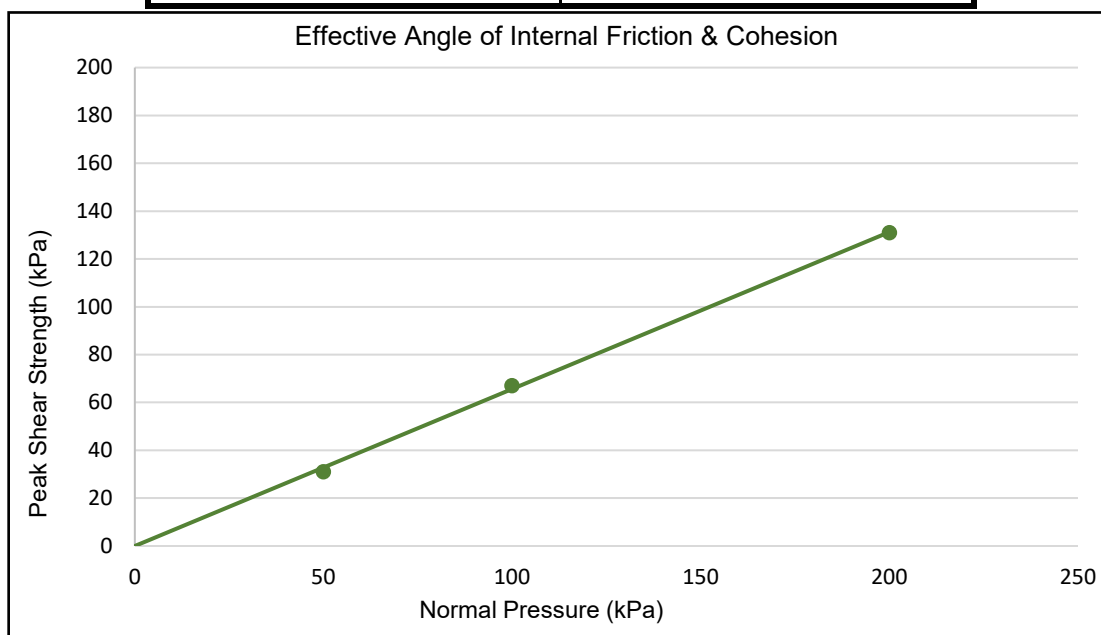
EFFECTIVE ANGLE OF INTERNAL FRICTION AND EFFECTIVE COHESION OF AGGREGATE  
BS 1377-7:1990 & SHW Clause 636, 2016

|            |                                          |  |  |
|------------|------------------------------------------|--|--|
| CLIENT     | Chartrange Ltd                           |  |  |
| SITE       | Rochdale Road, Greater Manchester M4 4HY |  |  |
| JOB NUMBER | MRN 4579/66                              |  |  |

|               |           |               |           |
|---------------|-----------|---------------|-----------|
| SAMPLE LABEL  | 6F2-3     | DATE SAMPLED  | 22-Aug-23 |
| SAMPLE NUMBER | 129854    | DATE RECEIVED | 22-Aug-23 |
| DATE TESTED   | 04-Sep-23 | SAMPLED BY    | Client    |

|                |                                                                           |  |  |
|----------------|---------------------------------------------------------------------------|--|--|
| MATERIAL       | Crush                                                                     |  |  |
| ADVISED SOURCE | Site won                                                                  |  |  |
| SAMPLE PREP.   | Re-compacted at O.M.C. to $92 \pm 2\%$ of M.D.D. using a vibrating hammer |  |  |

|                                       |                 |      |      |
|---------------------------------------|-----------------|------|------|
| Specimen Dimensions (mm)              | 300 x 300 x 150 |      |      |
| Height of Specimen (mm)               | 150             | 150  | 150  |
| Normal Pressure (kPa)                 | 50              | 100  | 200  |
| Peak Shear Strength (kPa)             | 31              | 67   | 131  |
| Effective Cohesion : $c'$             | 0 kPa           |      |      |
| Effective Angle of friction : $\phi'$ | 34 °            |      |      |
| Rate of Displacement (mm/min)         | 2.0             | 2.0  | 2.0  |
| Initial Bulk Density ( $Mg/m^3$ )     | 1.91            | 1.91 | 1.90 |
| Moisture Content (%)                  | 13              | 13   | 13   |
| Initial Dry Density ( $Mg/m^3$ )      | 1.68            | 1.69 | 1.68 |
| Maximum Dry Density ( $Mg/m^3$ )      | 1.80            |      |      |
| Optimum Moisture Content (%)          | 13              |      |      |



REMARKS

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

SIGNED

DATE 13-Sep-23

## TEST REPORT

**Client** Chartrange Ltd

**Address** Wharf Street  
Dukinfield  
Cheshire  
SK16 4NJ

**Contract** Rochdale Road,  
Greater Manchester M4 4HY

**Job Number** MRN 4579/71  
**Date of Issue** 25 September 2023  
**Pages** 1 of 7

Approved Signatories

S J Hutchings, O P Davies

Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
- 3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.
- 4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted.
- 5 The results included within the report are representative of the samples submitted for analysis.
- 6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.



Andrew House, Hadfield Street, Dukinfield, Cheshire SK16 4QX Tel: 0161 475 0870  
Email: [enquiries@murrayrix.com](mailto:enquiries@murrayrix.com) Website: [www.murrayrix.com](http://www.murrayrix.com)

Also at: London: 020 8523 1999

Murray Rix is the trading name of Murray Rix (Northern) Limited. Registered in England 2878361

**TEST CERTIFICATE**  
**PARTICLE SIZE DISTRIBUTION**

BS EN ISO 17892-4:2016

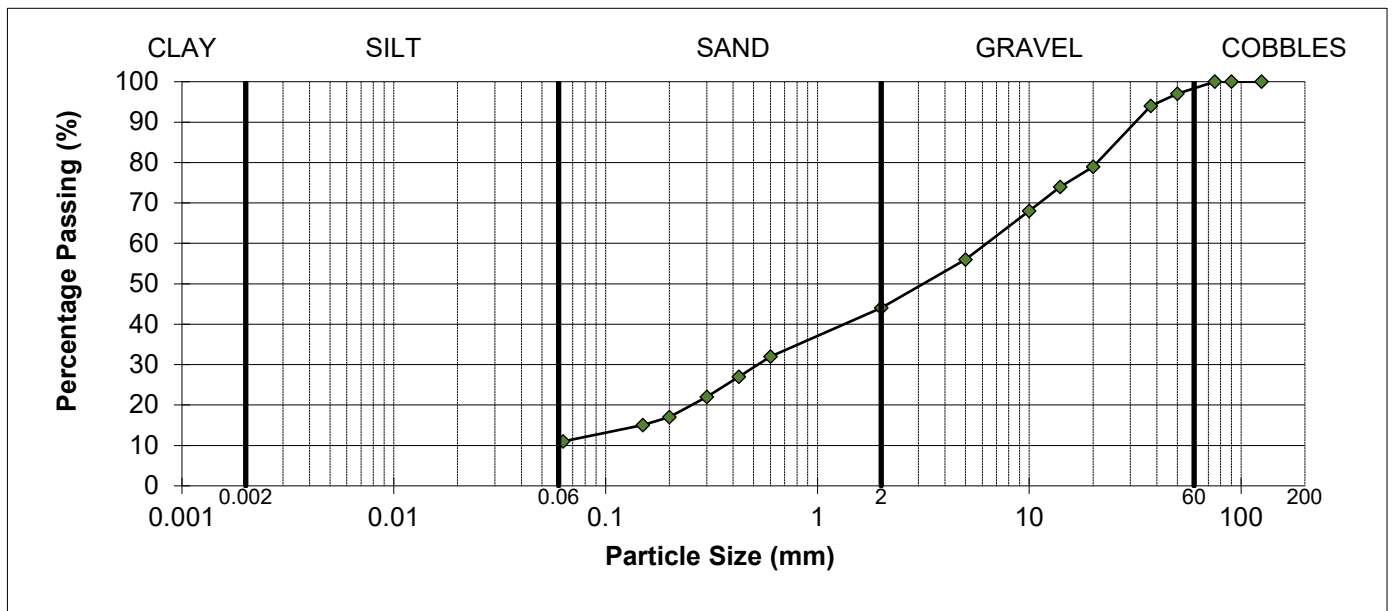
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

|            |                                          |
|------------|------------------------------------------|
| CLIENT     | Chartrange Ltd                           |
| SITE       | Rochdale Road, Greater Manchester M4 4HY |
| JOB NUMBER | MRN 4579/71                              |

|               |           |               |           |
|---------------|-----------|---------------|-----------|
| SAMPLE LABEL  | SP3       | DATE SAMPLED  | 22-Aug-23 |
| LAB SAMPLE No | 129855    | DATE RECEIVED | 22-Aug-23 |
| DATE TESTED   | 23-Aug-23 | SAMPLED BY    | Client    |

|                |              |
|----------------|--------------|
| MATERIAL       | General Fill |
| ADVISED SOURCE | Site Won     |

| Sieve Size (mm) | % Passing (%) | Specification (%) | Sieve Size (mm) | % Passing (%) | Specification (%) |
|-----------------|---------------|-------------------|-----------------|---------------|-------------------|
| 125             | 100           | 95-100            | 5               | 56            |                   |
| 90              | 100           |                   | 2               | 44            |                   |
| 75              | 100           |                   | 0.6             | 32            |                   |
| 50              | 97            |                   | 0.425           | 27            |                   |
| 37.5            | 94            |                   | 0.3             | 22            |                   |
| 20              | 79            |                   | 0.2             | 17            |                   |
| 14              | 74            |                   | 0.15            | 15            |                   |
| 10              | 68            |                   | 0.063           | 11            | 0-15              |



**REMARKS**

As received water content = 13.9%      Uniformity Coefficient >10  
Sample complies with the advised grading specification for a 1A material (SHW 2016)

SIGNED



NAME

O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE

25-Sep-23

**TEST CERTIFICATE**  
**PARTICLE SIZE DISTRIBUTION**

BS EN ISO 17892-4:2016

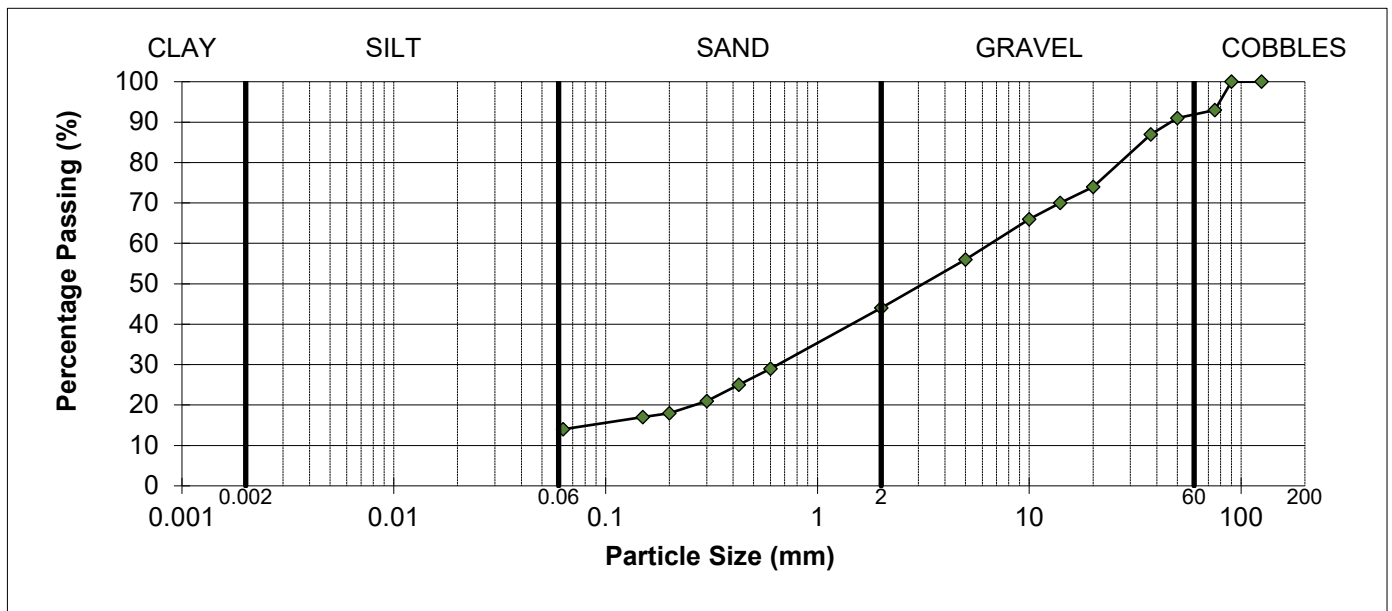
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

|            |                                          |
|------------|------------------------------------------|
| CLIENT     | Chartrange Ltd                           |
| SITE       | Rochdale Road, Greater Manchester M4 4HY |
| JOB NUMBER | MRN 4579/71                              |

|               |           |               |           |
|---------------|-----------|---------------|-----------|
| SAMPLE LABEL  | SP4       | DATE SAMPLED  | 22-Aug-23 |
| LAB SAMPLE No | 129856    | DATE RECEIVED | 22-Aug-23 |
| DATE TESTED   | 23-Aug-23 | SAMPLED BY    | Client    |

|                |              |
|----------------|--------------|
| MATERIAL       | General Fill |
| ADVISED SOURCE | Site Won     |

| Sieve Size (mm) | % Passing (%) | Specification (%) | Sieve Size (mm) | % Passing (%) | Specification (%) |
|-----------------|---------------|-------------------|-----------------|---------------|-------------------|
| 125             | 100           | 95-100            | 5               | 56            |                   |
| 90              | 100           |                   | 2               | 44            |                   |
| 75              | 93            |                   | 0.6             | 29            |                   |
| 50              | 91            |                   | 0.425           | 25            |                   |
| 37.5            | 87            |                   | 0.3             | 21            |                   |
| 20              | 74            |                   | 0.2             | 18            |                   |
| 14              | 70            |                   | 0.15            | 17            |                   |
| 10              | 66            |                   | 0.063           | 14            | 0-15              |



**REMARKS**

As received water content = 14.5%      Uniformity Coefficient >10  
Sample complies with the advised grading specification for a 1A material (SHW 2016)

SIGNED



NAME

O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE

25-Sep-23

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

DRY DENSITY/WATER CONTENT RELATIONSHIP VIBRATING HAMMER

BS 1377-2:2022 Cl.11

PARTICLE DENSITY METHOD BS 1377-2:2022 Cl.9.2

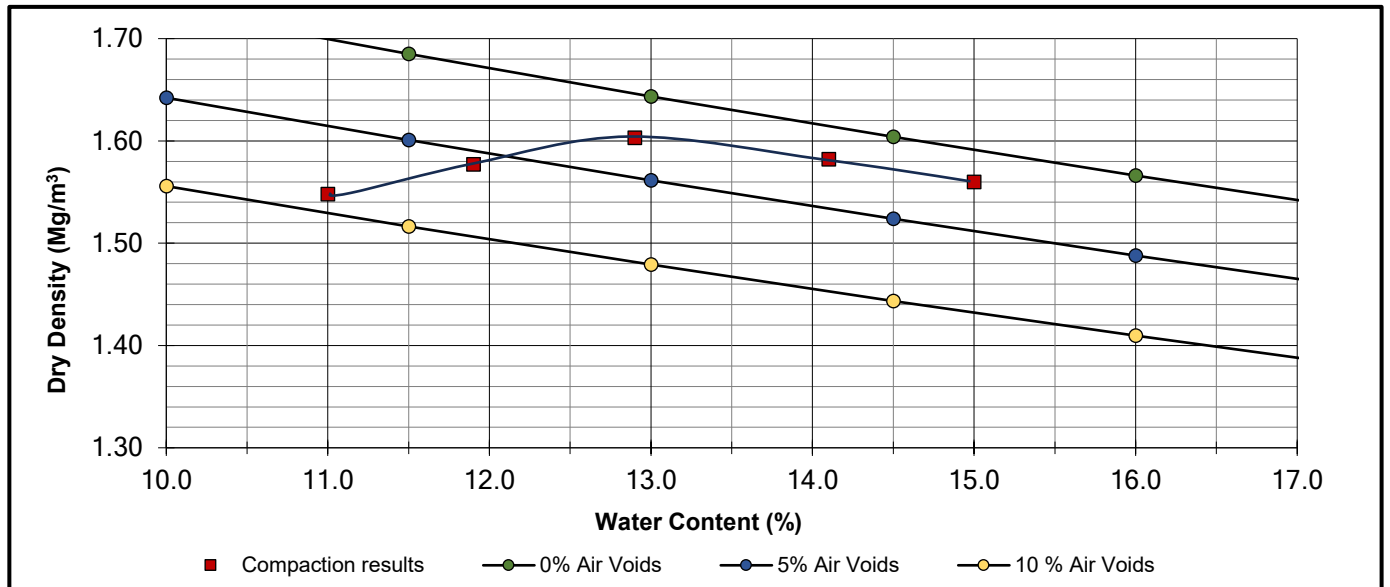
|            |                                          |
|------------|------------------------------------------|
| CLIENT     | Chartrange Ltd                           |
| SITE       | Rochdale Road, Greater Manchester M4 4HY |
| JOB NUMBER | MRN 4579/71                              |

|               |           |               |           |
|---------------|-----------|---------------|-----------|
| SAMPLE LABEL  | SP3       | DATE SAMPLED  | 22-Aug-23 |
| SAMPLE NUMBER | 129855    | DATE RECEIVED | 22-Aug-23 |
| DATE TESTED   | 23-Aug-23 | SAMPLED BY    | Client    |

|                |                              |
|----------------|------------------------------|
| MATERIAL       | General Fill                 |
| ADVISED SOURCE | Site Won                     |
| PRE TREATMENT  | Air Dried / Separate Batches |

|                 |      |                  |                                   |
|-----------------|------|------------------|-----------------------------------|
| RETAINED 37.5mm | 6 %  | GRADING ZONE     | Zone 5                            |
| RETAINED 20mm   | 21 % | PARTICLE DENSITY | 2.09 Mg/m <sup>3</sup> (Measured) |

| POINT NUMBER | WATER CONTENT (%) | DRY DENSITY (Mg/m <sup>3</sup> ) |
|--------------|-------------------|----------------------------------|
| 1            | 11.0              | 1.548                            |
| 2            | 11.9              | 1.577                            |
| 3            | 12.9              | 1.603                            |
| 4            | 14.1              | 1.582                            |
| 5            | 15.0              | 1.560                            |



|                       |      |                      |
|-----------------------|------|----------------------|
| OPTIMUM WATER CONTENT | 13   | (%)                  |
| MAXIMUM DRY DENSITY   | 1.60 | (Mg/m <sup>3</sup> ) |

### REMARKS

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

SIGNED

DATE 25-Sep-23

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

DRY DENSITY/WATER CONTENT RELATIONSHIP VIBRATING HAMMER

BS 1377-2:2022 Cl.11

PARTICLE DENSITY METHOD BS 1377-2:2022 Cl.9.2

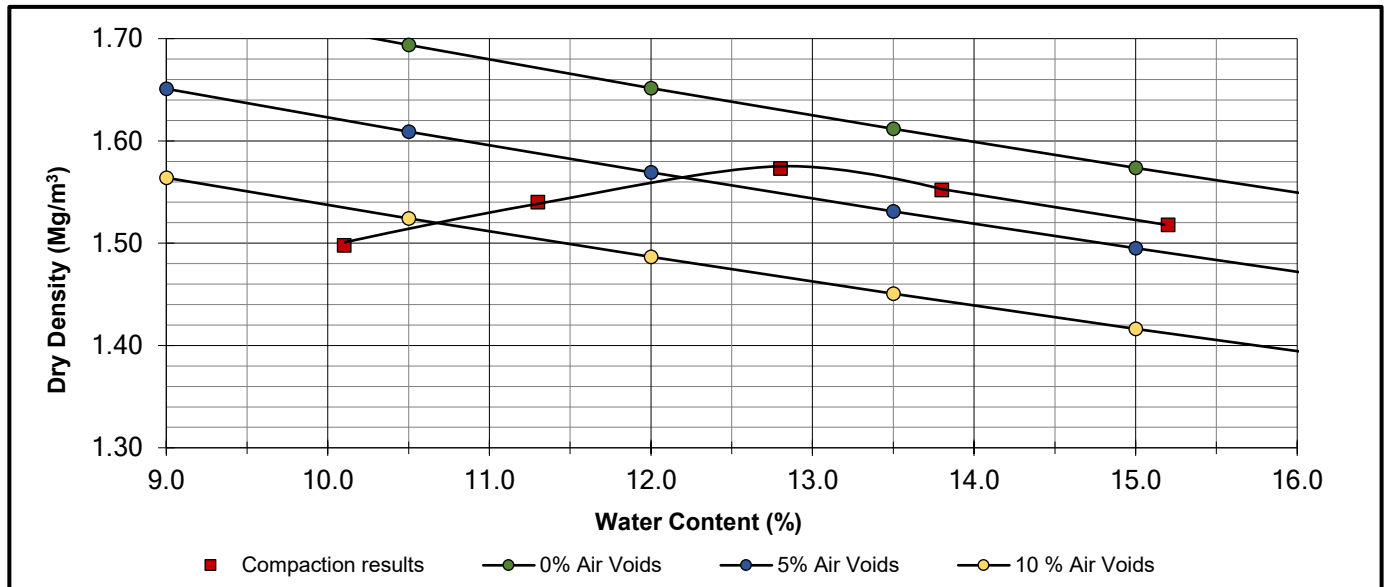
|            |                                          |  |  |
|------------|------------------------------------------|--|--|
| CLIENT     | Chartrange Ltd                           |  |  |
| SITE       | Rochdale Road, Greater Manchester M4 4HY |  |  |
| JOB NUMBER | MRN 4579/71                              |  |  |

|               |           |               |           |
|---------------|-----------|---------------|-----------|
| SAMPLE LABEL  | SP4       | DATE SAMPLED  | 22-Aug-23 |
| SAMPLE NUMBER | 129856    | DATE RECEIVED | 22-Aug-23 |
| DATE TESTED   | 23-Aug-23 | SAMPLED BY    | Client    |

|                |                              |  |  |
|----------------|------------------------------|--|--|
| MATERIAL       | General Fill                 |  |  |
| ADVISED SOURCE | Site Won                     |  |  |
| PRE TREATMENT  | Air Dried / Separate Batches |  |  |

|                 |    |   |                  |        |                              |
|-----------------|----|---|------------------|--------|------------------------------|
| RETAINED 37.5mm | 13 | % | GRADING ZONE     | Zone X |                              |
| RETAINED 20mm   | 26 | % | PARTICLE DENSITY | 2.06   | Mg/m <sup>3</sup> (Measured) |

| POINT NUMBER | WATER CONTENT (%) | DRY DENSITY (Mg/m <sup>3</sup> ) |
|--------------|-------------------|----------------------------------|
| 1            | 10.1              | 1.498                            |
| 2            | 11.3              | 1.540                            |
| 3            | 12.8              | 1.573                            |
| 4            | 13.8              | 1.552                            |
| 5            | 15.2              | 1.518                            |



|                       |      |                      |
|-----------------------|------|----------------------|
| OPTIMUM WATER CONTENT | 13   | (%)                  |
| MAXIMUM DRY DENSITY   | 1.57 | (Mg/m <sup>3</sup> ) |

REMARKS

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

SIGNED

DATE 25-Sep-23

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE MOISTURE CONDITION VALUE BS 1377-2:2022 Cl. 13

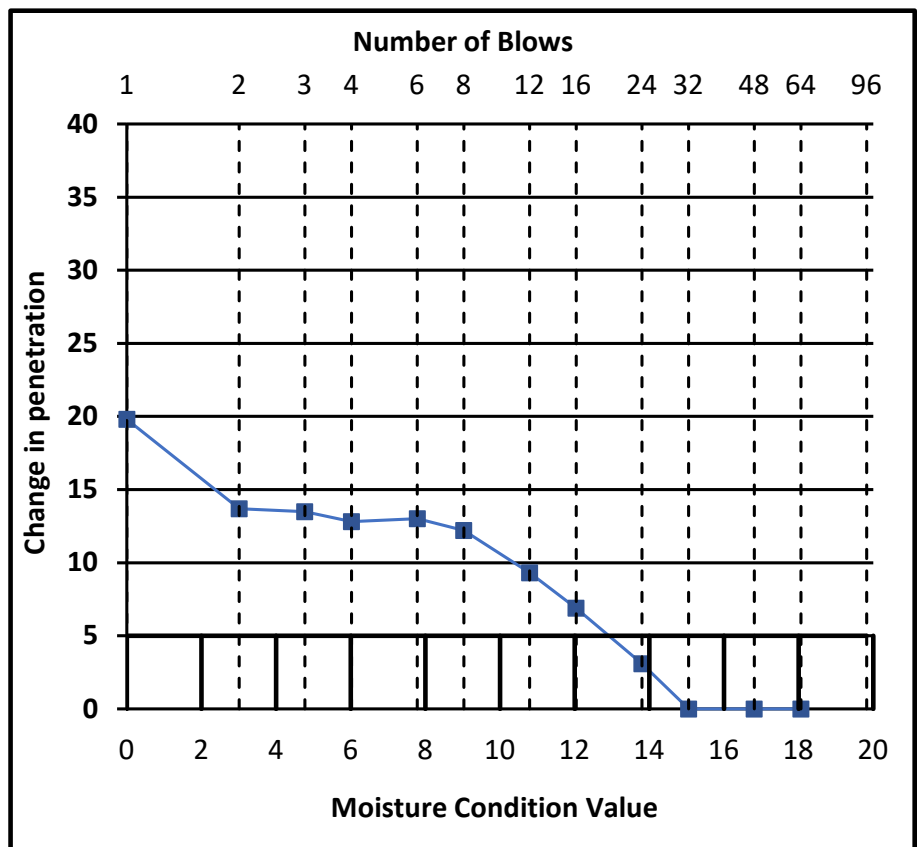
DETERMINATION OF WATER CONTENT - BS EN ISO 17892-1:2014+A1:2022

|            |                                          |
|------------|------------------------------------------|
| CLIENT     | Chartrange Ltd                           |
| SITE       | Rochdale Road, Greater Manchester M4 4HY |
| JOB NUMBER | MRN 4579/71                              |

|               |           |               |           |
|---------------|-----------|---------------|-----------|
| SAMPLE LABEL  | SP3       | DATE SAMPLED  | 22-Aug-23 |
| LAB SAMPLE No | 129855    | DATE RECEIVED | 22-Aug-23 |
| DATE TESTED   | 12-Sep-23 | SAMPLED BY    | Client    |

|                              |                                                 |
|------------------------------|-------------------------------------------------|
| MATERIAL                     | General Fill                                    |
| ADVISED SOURCE               | Site Won                                        |
| INTERPRETATION OF TEST CURVE | Straight line through 5mm change in penetration |
| PROPORTION LARGER THAN 20mm  | 13%                                             |

| Total number of blows n | Penetration or protusion mm | Change in penetration n to 4 n mm |
|-------------------------|-----------------------------|-----------------------------------|
| 1                       | 113.8                       | 19.8                              |
| 2                       | 101.3                       | 13.7                              |
| 3                       | 97.5                        | 13.5                              |
| 4                       | 94                          | 12.8                              |
| 6                       | 90.1                        | 13                                |
| 8                       | 87.6                        | 12.2                              |
| 12                      | 84                          | 9.3                               |
| 16                      | 81.2                        | 6.9                               |
| 24                      | 77.1                        | 3.1                               |
| 32                      | 75.4                        |                                   |
| 48                      | 74.7                        |                                   |
| 64                      | 74.3                        |                                   |
| 96                      | 74                          |                                   |
| 128                     |                             |                                   |
| 192                     |                             |                                   |
| 256                     |                             |                                   |



MOISTURE CONDITION VALUE

12.9

MOISTURE CONTENT

20.6

%

REMARKS

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

SIGNED

DATE

25-Sep-23

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE MOISTURE CONDITION VALUE BS 1377-2:2022 Cl. 13

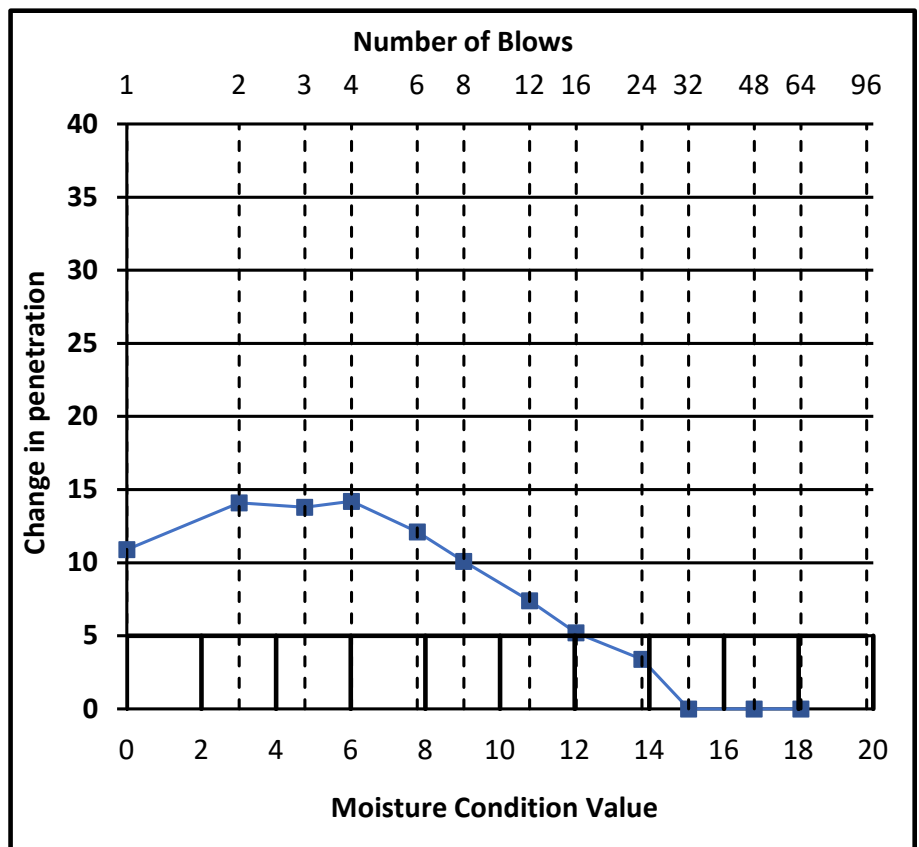
DETERMINATION OF WATER CONTENT - BS EN ISO 17892-1:2014+A1:2022

|            |                                          |
|------------|------------------------------------------|
| CLIENT     | Chartrange Ltd                           |
| SITE       | Rochdale Road, Greater Manchester M4 4HY |
| JOB NUMBER | MRN 4579/71                              |

|               |           |               |           |
|---------------|-----------|---------------|-----------|
| SAMPLE LABEL  | SP4       | DATE SAMPLED  | 22-Aug-23 |
| LAB SAMPLE No | 129856    | DATE RECEIVED | 22-Aug-23 |
| DATE TESTED   | 12-Sep-23 | SAMPLED BY    | Client    |

|                              |                                                 |
|------------------------------|-------------------------------------------------|
| MATERIAL                     | General Fill                                    |
| ADVISED SOURCE               | Site Won                                        |
| INTERPRETATION OF TEST CURVE | Straight line through 5mm change in penetration |
| PROPORTION LARGER THAN 20mm  | 13%                                             |

| Total number of blows n | Penetration or protusion mm | Change in penetration n to 4 n mm |
|-------------------------|-----------------------------|-----------------------------------|
| 1                       | 105                         | 10.9                              |
| 2                       | 100.3                       | 14.1                              |
| 3                       | 96.6                        | 13.8                              |
| 4                       | 94.1                        | 14.2                              |
| 6                       | 89.8                        | 12.1                              |
| 8                       | 86.2                        | 10.1                              |
| 12                      | 82.8                        | 7.4                               |
| 16                      | 79.9                        | 5.2                               |
| 24                      | 77.7                        | 3.4                               |
| 32                      | 76.1                        |                                   |
| 48                      | 75.4                        |                                   |
| 64                      | 74.7                        |                                   |
| 96                      | 74.3                        |                                   |
| 128                     |                             |                                   |
| 192                     |                             |                                   |
| 256                     |                             |                                   |



MOISTURE CONDITION VALUE

12.1

MOISTURE CONTENT

20.4

%

REMARKS

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

SIGNED

DATE

25-Sep-23

## TEST REPORT

**Client** Chartrange Ltd

**Address** Wharf Street  
Dukinfield  
Cheshire  
SK16 4NJ

**Contract** Rochdale Road,  
Greater Manchester M4 4HY

**Job Number** MRN 4579/72  
**Date of Issue** 27 September 2023  
**Pages** 1 of 4

Approved Signatories

S J Hutchings, O P Davies

### Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
- 3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.
- 4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted.
- 5 The results included within the report are representative of the samples submitted for analysis.
- 6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.



Andrew House, Hadfield Street, Dukinfield, Cheshire SK16 4QX Tel: 0161 475 0870  
Email: [enquiries@murrayrix.com](mailto:enquiries@murrayrix.com) Website: [www.murrayrix.com](http://www.murrayrix.com)

Also at: London: 020 8523 1999

Murray Rix is the trading name of Murray Rix (Northern) Limited. Registered in England 2878361

**TEST CERTIFICATE**  
**PARTICLE SIZE DISTRIBUTION**

BS EN ISO 17892-4:2016

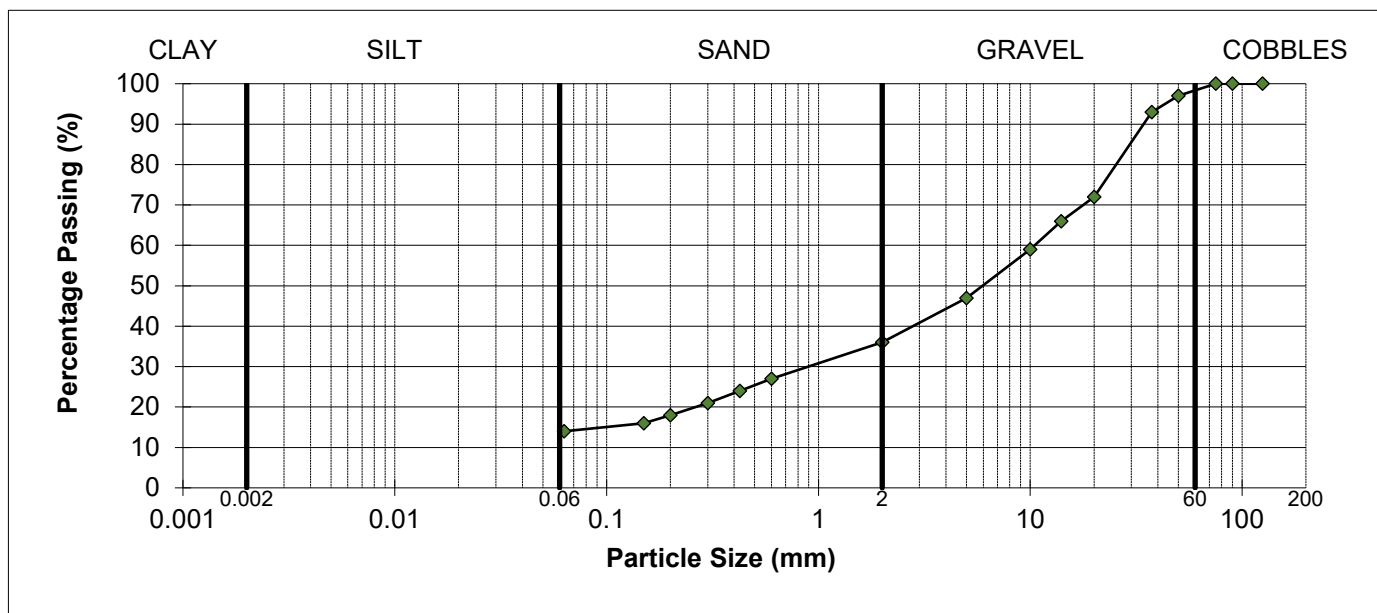
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

|            |                                          |
|------------|------------------------------------------|
| CLIENT     | Chartrange Ltd                           |
| SITE       | Rochdale Road, Greater Manchester M4 4HY |
| JOB NUMBER | MRN 4579/72                              |

|               |           |               |           |
|---------------|-----------|---------------|-----------|
| SAMPLE LABEL  | Granular  | DATE SAMPLED  | 05-Sep-23 |
| LAB SAMPLE No | 130793    | DATE RECEIVED | 05-Sep-23 |
| DATE TESTED   | 06-Sep-23 | SAMPLED BY    | Client    |

|                |               |
|----------------|---------------|
| MATERIAL       | Granular Fill |
| ADVISED SOURCE | Site Won      |

| Sieve Size (mm) | % Passing (%) | Specification (%) | Sieve Size (mm) | % Passing (%) | Specification (%) |
|-----------------|---------------|-------------------|-----------------|---------------|-------------------|
| 125             | 100           | 95-100            | 5               | 47            |                   |
| 90              | 100           |                   | 2               | 36            |                   |
| 75              | 100           |                   | 0.6             | 27            |                   |
| 50              | 97            |                   | 0.425           | 24            |                   |
| 37.5            | 93            |                   | 0.3             | 21            |                   |
| 20              | 72            |                   | 0.2             | 18            |                   |
| 14              | 66            |                   | 0.15            | 16            |                   |
| 10              | 59            |                   | 0.063           | 14            | <15               |



**REMARKS**

As received water content = 12.6%

Sample complies with the advised grading specification for a 1A material (SHW 2016), Uniformity coefficient = >10

SIGNED



NAME

O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE

27-Sep-23

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE MOISTURE CONDITION VALUE BS 1377-2:2022 Cl. 13

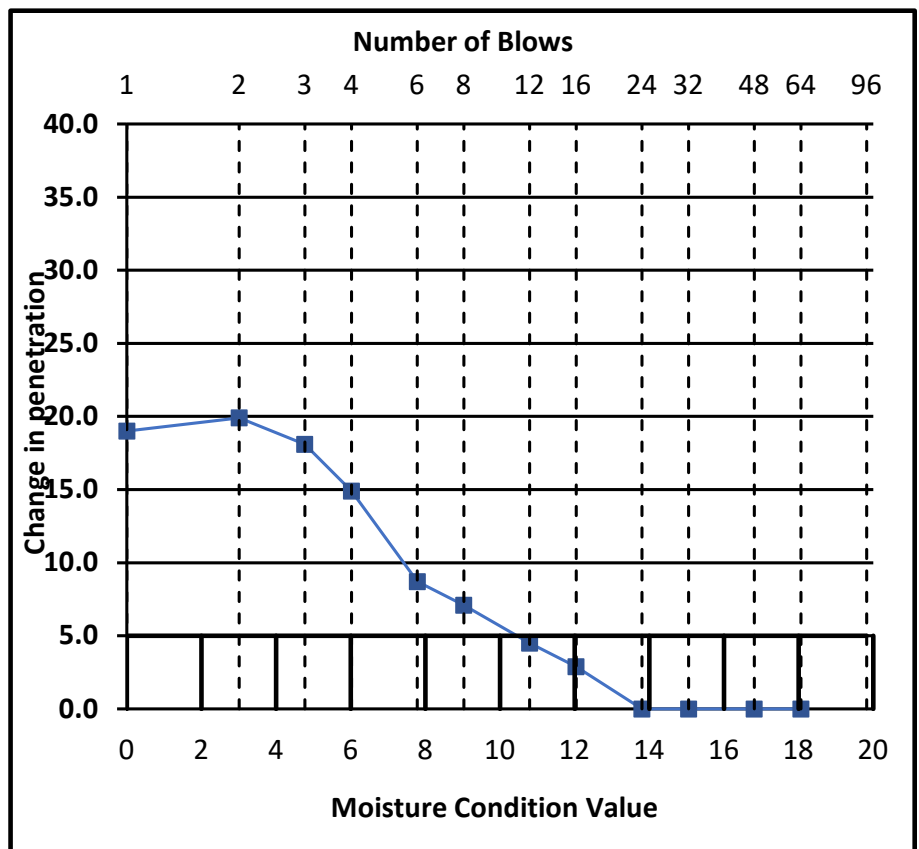
DETERMINATION OF WATER CONTENT - BS EN ISO 17892-1:2014+A1:2022

|            |                                          |
|------------|------------------------------------------|
| CLIENT     | Chartrange Ltd                           |
| SITE       | Rochdale Road, Greater Manchester M4 4HY |
| JOB NUMBER | MRN 4579/72                              |

|               |           |               |           |
|---------------|-----------|---------------|-----------|
| SAMPLE LABEL  | Granular  | DATE SAMPLED  | 05-Sep-23 |
| LAB SAMPLE No | 130793    | DATE RECEIVED | 05-Sep-23 |
| DATE TESTED   | 06-Sep-23 | SAMPLED BY    | Client    |

|                              |                                                 |
|------------------------------|-------------------------------------------------|
| MATERIAL                     | Granular Fill                                   |
| ADVISED SOURCE               | Site Won                                        |
| INTERPRETATION OF TEST CURVE | Straight line through 5mm change in penetration |
| PROPORTION LARGER THAN 20mm  | 28%                                             |

| Total number of blows n | Penetration or protusion mm | Change in penetration n to 4 n mm |
|-------------------------|-----------------------------|-----------------------------------|
| 1                       | 104.2                       | 19.0                              |
| 2                       | 95.2                        | 19.9                              |
| 3                       | 90.2                        | 18.1                              |
| 4                       | 85.2                        | 14.9                              |
| 6                       | 77.2                        | 8.7                               |
| 8                       | 75.3                        | 7.1                               |
| 12                      | 72.1                        | 4.5                               |
| 16                      | 70.3                        | 2.9                               |
| 24                      | 68.5                        |                                   |
| 32                      | 68.2                        |                                   |
| 48                      | 67.6                        |                                   |
| 64                      | 67.4                        |                                   |
| 96                      |                             |                                   |
| 128                     |                             |                                   |
| 192                     |                             |                                   |
| 256                     |                             |                                   |



MOISTURE CONDITION VALUE

10.6

MOISTURE CONTENT

18.4 %

REMARKS

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

SIGNED

DATE

27-Sep-23

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

DRY DENSITY/WATER CONTENT RELATIONSHIP VIBRATING HAMMER

BS 1377-2:2022 Cl.11

PARTICLE DENSITY METHOD BS 1377-2:2022 Cl.9.2

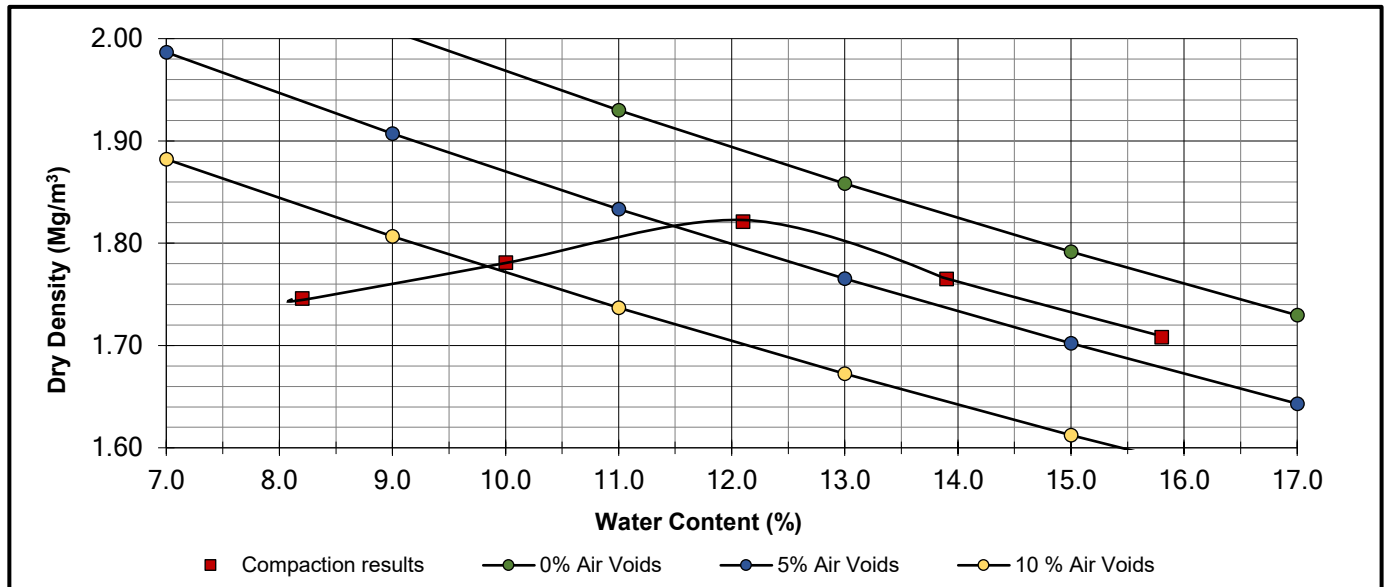
|            |                                          |  |  |
|------------|------------------------------------------|--|--|
| CLIENT     | Chartrange Ltd                           |  |  |
| SITE       | Rochdale Road, Greater Manchester M4 4HY |  |  |
| JOB NUMBER | MRN 4579/72                              |  |  |

|               |           |               |           |
|---------------|-----------|---------------|-----------|
| SAMPLE LABEL  | Granular  | DATE SAMPLED  | 05-Sep-23 |
| SAMPLE NUMBER | 130793    | DATE RECEIVED | 05-Sep-23 |
| DATE TESTED   | 06-Sep-23 | SAMPLED BY    | Client    |

|                |                              |  |  |
|----------------|------------------------------|--|--|
| MATERIAL       | Granular Fill                |  |  |
| ADVISED SOURCE | Site Won                     |  |  |
| PRE TREATMENT  | Air Dried / Separate Batches |  |  |

|                 |      |                  |                                   |
|-----------------|------|------------------|-----------------------------------|
| RETAINED 37.5mm | 7 %  | GRADING ZONE     | Zone 5                            |
| RETAINED 20mm   | 28 % | PARTICLE DENSITY | 2.45 Mg/m <sup>3</sup> (Measured) |

| POINT NUMBER | WATER CONTENT (%) | DRY DENSITY (Mg/m <sup>3</sup> ) |
|--------------|-------------------|----------------------------------|
| 1            | 8.2               | 1.746                            |
| 2            | 10.0              | 1.781                            |
| 3            | 12.1              | 1.821                            |
| 4            | 13.9              | 1.765                            |
| 5            | 15.8              | 1.708                            |



|                       |      |                      |
|-----------------------|------|----------------------|
| OPTIMUM WATER CONTENT | 12   | (%)                  |
| MAXIMUM DRY DENSITY   | 1.82 | (Mg/m <sup>3</sup> ) |

REMARKS

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

SIGNED

DATE 27-Sep-23

## TEST REPORT

**Client** Chartrange Ltd

**Address** Wharf Street  
Dukinfield  
Cheshire  
SK16 4NJ

**Contract** Rochdale Road,  
Greater Manchester M4 4HY

**Job Number** MRN 4579/75  
**Date of Issue** 06 October 2023  
**Pages** 1 of 5

Approved Signatories

S J Hutchings, O P Davies

### Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
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- 5 The results included within the report are representative of the samples submitted for analysis.
- 6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.



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Email: [enquiries@murrayrix.com](mailto:enquiries@murrayrix.com) Website: [www.murrayrix.com](http://www.murrayrix.com)

Also at: London: 020 8523 1999

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**TEST CERTIFICATE**  
**PARTICLE SIZE DISTRIBUTION**

BS EN ISO 17892-4:2016

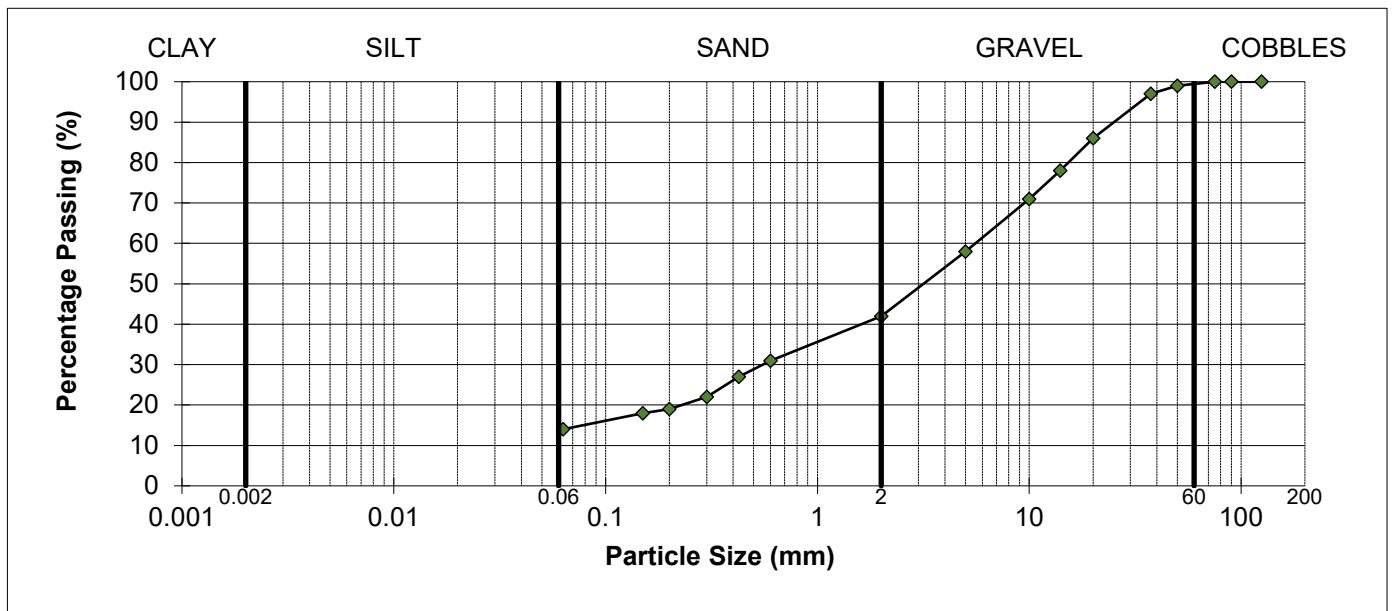
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

|            |                                          |
|------------|------------------------------------------|
| CLIENT     | Chartrange Ltd                           |
| SITE       | Rochdale Road, Greater Manchester M4 4HY |
| JOB NUMBER | MRN 4579/75                              |

|               |               |               |           |
|---------------|---------------|---------------|-----------|
| SAMPLE LABEL  | A1 Granular 1 | DATE SAMPLED  | 08-Sep-23 |
| LAB SAMPLE No | 131071        | DATE RECEIVED | 08-Sep-23 |
| DATE TESTED   | 12-Sep-23     | SAMPLED BY    | Client    |

|                |               |
|----------------|---------------|
| MATERIAL       | Granular Fill |
| ADVISED SOURCE | Site Won      |

| Sieve Size (mm) | % Passing (%) | Specification (%) | Sieve Size (mm) | % Passing (%) | Specification (%) |
|-----------------|---------------|-------------------|-----------------|---------------|-------------------|
| 125             | 100           | 95-100            | 5               | 58            |                   |
| 90              | 100           |                   | 2               | 42            |                   |
| 75              | 100           |                   | 0.6             | 31            |                   |
| 50              | 99            |                   | 0.425           | 27            |                   |
| 37.5            | 97            |                   | 0.3             | 22            |                   |
| 20              | 86            |                   | 0.2             | 19            |                   |
| 14              | 78            |                   | 0.15            | 18            |                   |
| 10              | 71            |                   | 0.063           | 14            | <15               |



**REMARKS**

As received water content = 14.6%

Sample complies with the advised grading specification for a 1A material (SHW 2016), Uniformity coefficient = >10

SIGNED



NAME

O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE

06-Oct-23

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

DRY DENSITY/WATER CONTENT RELATIONSHIP VIBRATING HAMMER

BS 1377-2:2022 Cl.11

PARTICLE DENSITY METHOD BS 1377-2:2022 Cl.9.2

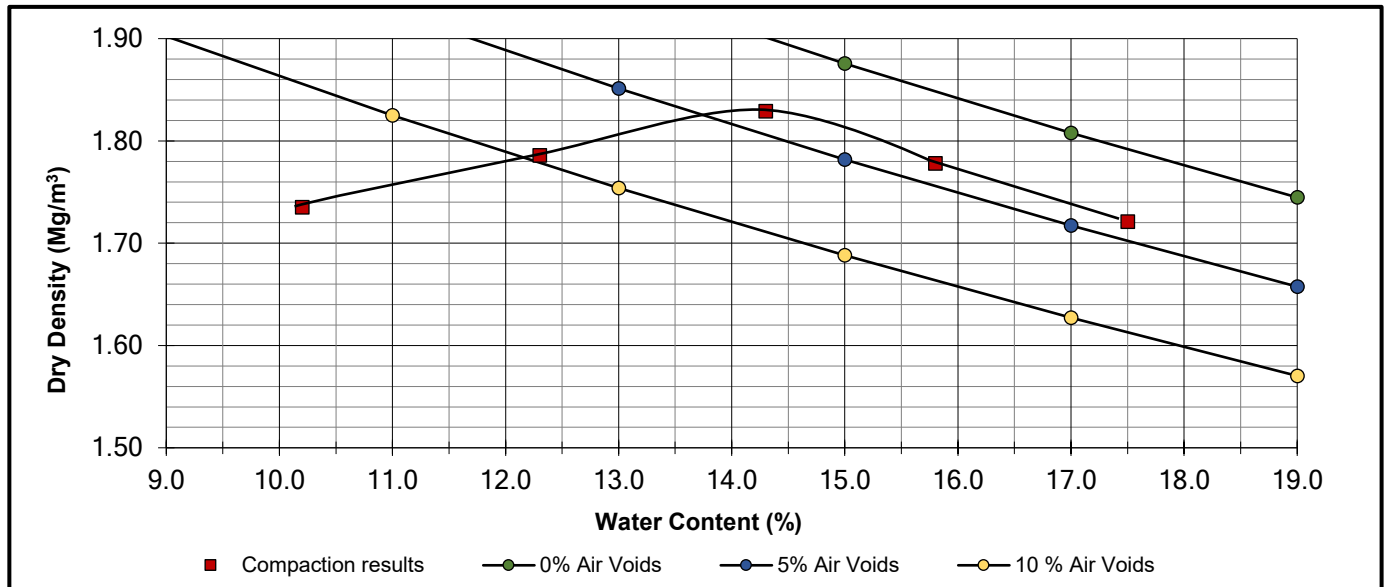
|            |                                          |  |  |
|------------|------------------------------------------|--|--|
| CLIENT     | Chartrange Ltd                           |  |  |
| SITE       | Rochdale Road, Greater Manchester M4 4HY |  |  |
| JOB NUMBER | MRN 4579/72                              |  |  |

|               |               |               |           |
|---------------|---------------|---------------|-----------|
| SAMPLE LABEL  | A1 Granular 1 | DATE SAMPLED  | 08-Sep-23 |
| SAMPLE NUMBER | 131071        | DATE RECEIVED | 08-Sep-23 |
| DATE TESTED   | 12-Sep-23     | SAMPLED BY    | Client    |

|                |                              |  |  |
|----------------|------------------------------|--|--|
| MATERIAL       | Granular Fill                |  |  |
| ADVISED SOURCE | Site Won                     |  |  |
| PRE TREATMENT  | Air Dried / Separate Batches |  |  |

|                 |    |   |                  |        |                              |
|-----------------|----|---|------------------|--------|------------------------------|
| RETAINED 37.5mm | 3  | % | GRADING ZONE     | Zone 4 |                              |
| RETAINED 20mm   | 14 | % | PARTICLE DENSITY | 2.61   | Mg/m <sup>3</sup> (Measured) |

| POINT NUMBER | WATER CONTENT (%) | DRY DENSITY (Mg/m <sup>3</sup> ) |
|--------------|-------------------|----------------------------------|
| 1            | 10.2              | 1.735                            |
| 2            | 12.3              | 1.786                            |
| 3            | 14.3              | 1.829                            |
| 4            | 15.8              | 1.778                            |
| 5            | 17.5              | 1.721                            |



|                       |      |                      |
|-----------------------|------|----------------------|
| OPTIMUM WATER CONTENT | 14   | (%)                  |
| MAXIMUM DRY DENSITY   | 1.83 | (Mg/m <sup>3</sup> ) |

REMARKS

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

SIGNED

DATE 06-Oct-23

**TEST CERTIFICATE**  
**PARTICLE SIZE DISTRIBUTION**

BS EN ISO 17892-4:2016

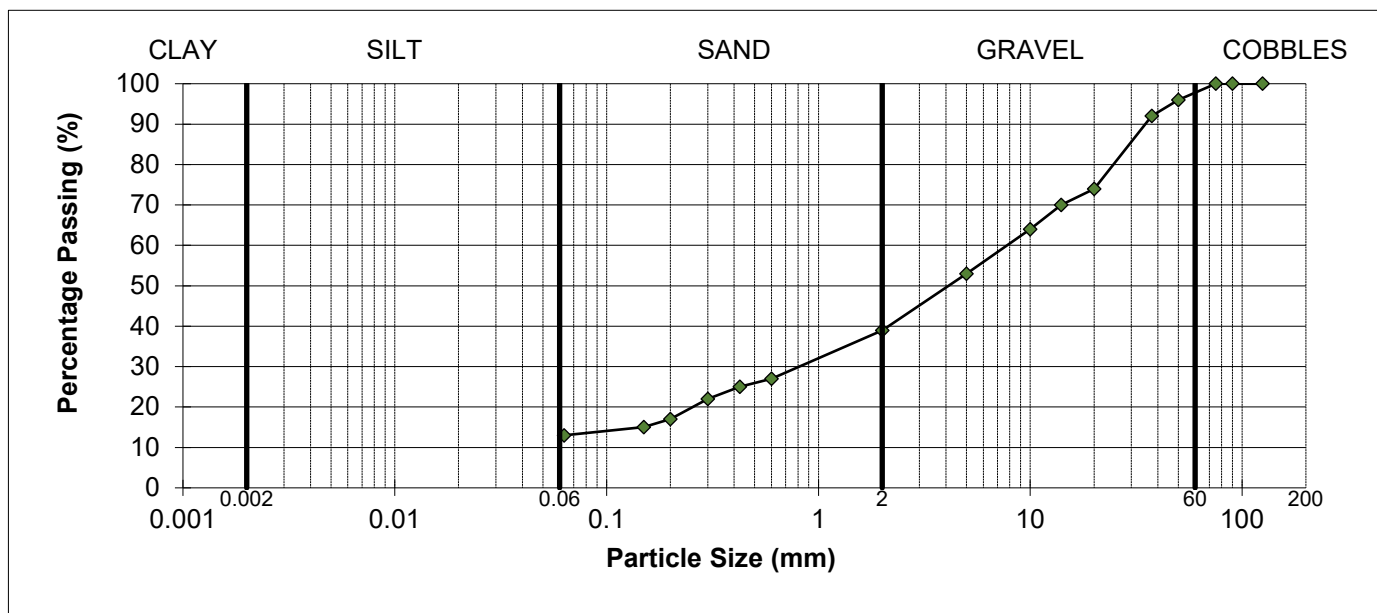
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

|            |                                          |
|------------|------------------------------------------|
| CLIENT     | Chartrange Ltd                           |
| SITE       | Rochdale Road, Greater Manchester M4 4HY |
| JOB NUMBER | MRN 4579/75                              |

|               |               |               |           |
|---------------|---------------|---------------|-----------|
| SAMPLE LABEL  | A1 Granular 2 | DATE SAMPLED  | 08-Sep-23 |
| LAB SAMPLE No | 131072        | DATE RECEIVED | 08-Sep-23 |
| DATE TESTED   | 12-Sep-23     | SAMPLED BY    | Client    |

|                |               |
|----------------|---------------|
| MATERIAL       | Granular Fill |
| ADVISED SOURCE | Site Won      |

| Sieve Size (mm) | % Passing (%) | Specification (%) | Sieve Size (mm) | % Passing (%) | Specification (%) |
|-----------------|---------------|-------------------|-----------------|---------------|-------------------|
| 125             | 100           | 95-100            | 5               | 53            |                   |
| 90              | 100           |                   | 2               | 39            |                   |
| 75              | 100           |                   | 0.6             | 27            |                   |
| 50              | 96            |                   | 0.425           | 25            |                   |
| 37.5            | 92            |                   | 0.3             | 22            |                   |
| 20              | 74            |                   | 0.2             | 17            |                   |
| 14              | 70            |                   | 0.15            | 15            |                   |
| 10              | 64            |                   | 0.063           | 13            | <15               |



**REMARKS**

As received water content = 15.2%

Sample complies with the advised grading specification for a 1A material (SHW 2016), Uniformity coefficient = >10

SIGNED



NAME

O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE

06-Oct-23

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

DRY DENSITY/WATER CONTENT RELATIONSHIP VIBRATING HAMMER

BS 1377-2:2022 Cl.11

PARTICLE DENSITY METHOD BS 1377-2:2022 Cl.9.2

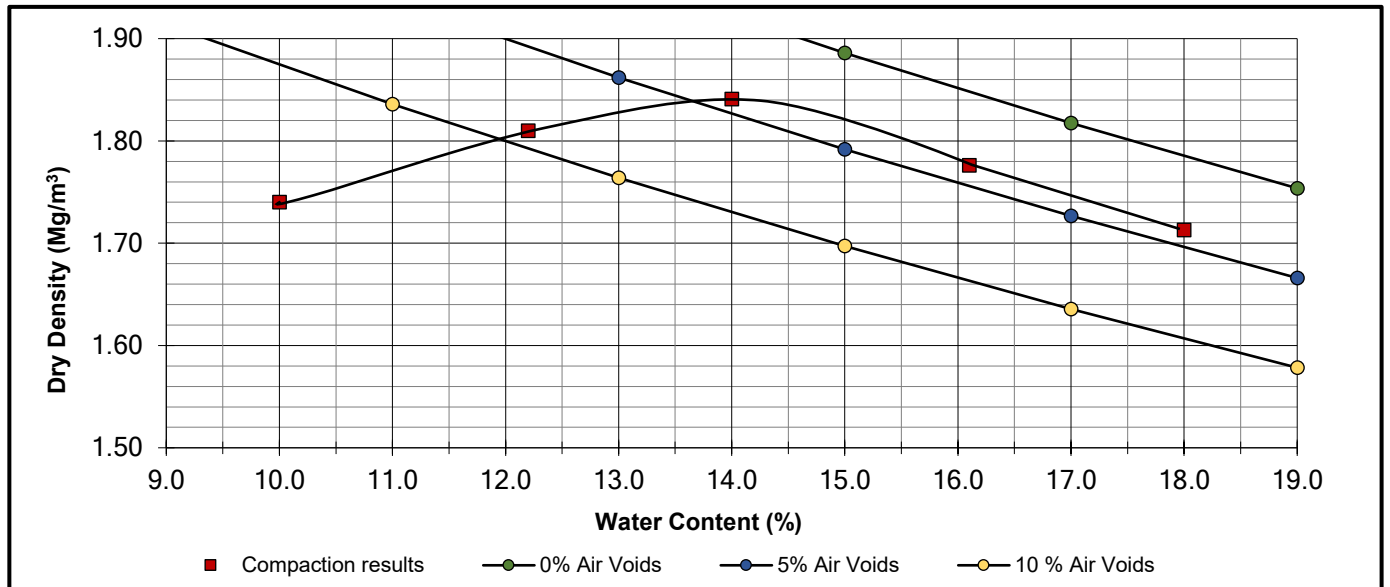
|            |                                          |  |  |
|------------|------------------------------------------|--|--|
| CLIENT     | Chartrange Ltd                           |  |  |
| SITE       | Rochdale Road, Greater Manchester M4 4HY |  |  |
| JOB NUMBER | MRN 4579/72                              |  |  |

|               |               |               |           |
|---------------|---------------|---------------|-----------|
| SAMPLE LABEL  | A1 Granular 2 | DATE SAMPLED  | 08-Sep-23 |
| SAMPLE NUMBER | 131072        | DATE RECEIVED | 08-Sep-23 |
| DATE TESTED   | 12-Sep-23     | SAMPLED BY    | Client    |

|                |                              |  |  |
|----------------|------------------------------|--|--|
| MATERIAL       | Granular Fill                |  |  |
| ADVISED SOURCE | Site Won                     |  |  |
| PRE TREATMENT  | Air Dried / Separate Batches |  |  |

|                 |      |                  |                                   |
|-----------------|------|------------------|-----------------------------------|
| RETAINED 37.5mm | 8 %  | GRADING ZONE     | Zone 5                            |
| RETAINED 20mm   | 26 % | PARTICLE DENSITY | 2.63 Mg/m <sup>3</sup> (Measured) |

| POINT NUMBER | WATER CONTENT (%) | DRY DENSITY (Mg/m <sup>3</sup> ) |
|--------------|-------------------|----------------------------------|
| 1            | 10.0              | 1.740                            |
| 2            | 12.2              | 1.810                            |
| 3            | 14.0              | 1.841                            |
| 4            | 16.1              | 1.776                            |
| 5            | 18.0              | 1.713                            |



|                       |      |                      |
|-----------------------|------|----------------------|
| OPTIMUM WATER CONTENT | 14   | (%)                  |
| MAXIMUM DRY DENSITY   | 1.84 | (Mg/m <sup>3</sup> ) |

REMARKS

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

SIGNED

DATE 06-Oct-23

## TEST REPORT

**Client** Chartrange Ltd

**Address** Wharf Street  
Dukinfield  
Cheshire  
SK16 4NJ

**Contract** Rochdale Road,  
Greater Manchester M4 4HY

**Job Number** MRN 4579/82  
**Date of Issue** 25 October 2023  
**Pages** 1 of 3

Approved Signatories

S J Hutchings, O P Davies

Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
- 3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.
- 4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted.
- 5 The results included within the report are representative of the samples submitted for analysis.
- 6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.



Andrew House, Hadfield Street, Dukinfield, Cheshire SK16 4QX Tel: 0161 475 0870  
Email: [enquiries@murrayrix.com](mailto:enquiries@murrayrix.com) Website: [www.murrayrix.com](http://www.murrayrix.com)

Also at: London: 020 8523 1999

Murray Rix is the trading name of Murray Rix (Northern) Limited. Registered in England 2878361

**TEST CERTIFICATE**  
**PARTICLE SIZE DISTRIBUTION**

BS EN ISO 17892-4:2016

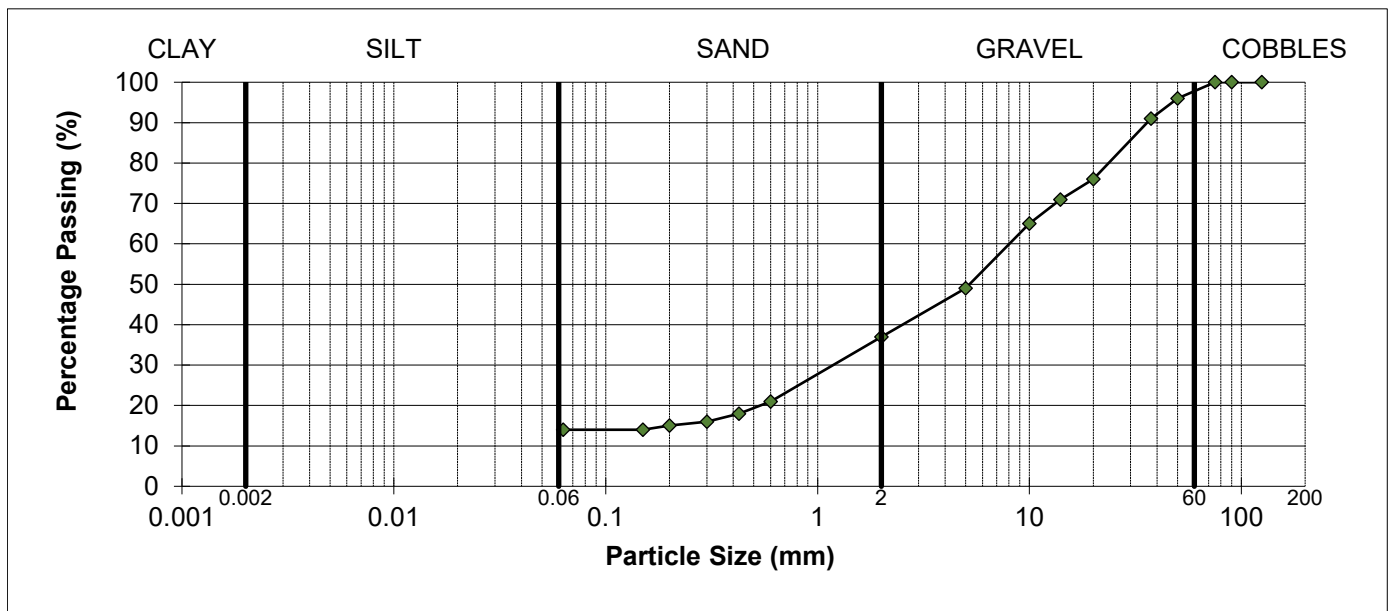
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

|            |                                          |
|------------|------------------------------------------|
| CLIENT     | Chartrange Ltd                           |
| SITE       | Rochdale Road, Greater Manchester M4 4HY |
| JOB NUMBER | MRN 4579/82                              |

|               |             |               |           |
|---------------|-------------|---------------|-----------|
| SAMPLE LABEL  | A1 Granular | DATE SAMPLED  | 27-Sep-23 |
| LAB SAMPLE No | 131730      | DATE RECEIVED | 27-Sep-23 |
| DATE TESTED   | 03-Oct-23   | SAMPLED BY    | Client    |

|                |               |
|----------------|---------------|
| MATERIAL       | Granular Fill |
| ADVISED SOURCE | Site Won      |

| Sieve Size (mm) | % Passing (%) | Specification (%) | Sieve Size (mm) | % Passing (%) | Specification (%) |
|-----------------|---------------|-------------------|-----------------|---------------|-------------------|
| 125             | 100           | 95-100            | 5               | 49            |                   |
| 90              | 100           |                   | 2               | 37            |                   |
| 75              | 100           |                   | 0.6             | 21            |                   |
| 50              | 96            |                   | 0.425           | 18            |                   |
| 37.5            | 91            |                   | 0.3             | 16            |                   |
| 20              | 76            |                   | 0.2             | 15            |                   |
| 14              | 71            |                   | 0.15            | 14            |                   |
| 10              | 65            |                   | 0.063           | 14            | <15               |



**REMARKS**

As received water content = 13.1%

Sample complies with the advised grading specification for a 1A material (SHW 2016), Uniformity coefficient = >10

**SIGNED**



**NAME**

O.P. Davies BA (Hons)  
(Laboratory Manager)

**DATE**

25-Oct-23

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

DRY DENSITY/WATER CONTENT RELATIONSHIP VIBRATING HAMMER

BS 1377-2:2022 Cl.11

PARTICLE DENSITY METHOD BS 1377-2:2022 Cl.9.2

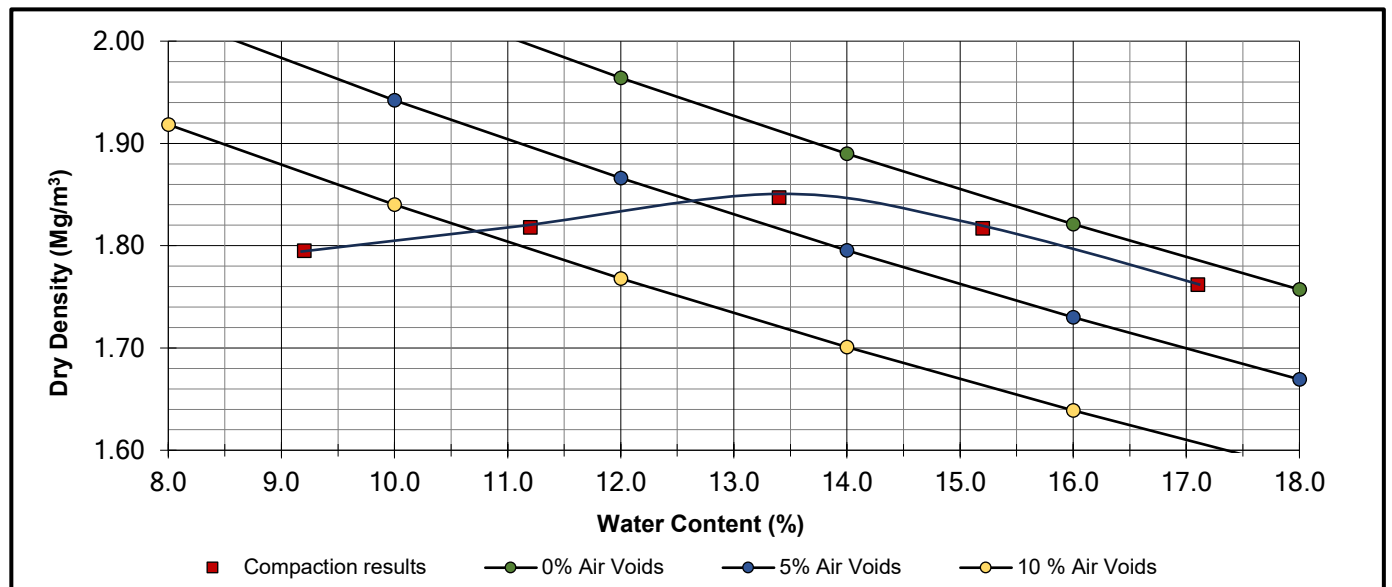
|            |                                          |  |  |
|------------|------------------------------------------|--|--|
| CLIENT     | Chartrange Ltd                           |  |  |
| SITE       | Rochdale Road, Greater Manchester M4 4HY |  |  |
| JOB NUMBER | MRN 4579/72                              |  |  |

|               |             |               |           |
|---------------|-------------|---------------|-----------|
| SAMPLE LABEL  | A1 Granular | DATE SAMPLED  | 27-Sep-23 |
| SAMPLE NUMBER | 131730      | DATE RECEIVED | 27-Sep-23 |
| DATE TESTED   | 03-Oct-23   | SAMPLED BY    | Client    |

|                |                              |  |  |
|----------------|------------------------------|--|--|
| MATERIAL       | Granular Fill                |  |  |
| ADVISED SOURCE | Site Won                     |  |  |
| PRE TREATMENT  | Air Dried / Separate Batches |  |  |

|                 |    |   |                  |        |                              |
|-----------------|----|---|------------------|--------|------------------------------|
| RETAINED 37.5mm | 9  | % | GRADING ZONE     | Zone 5 |                              |
| RETAINED 20mm   | 24 | % | PARTICLE DENSITY | 2.57   | Mg/m <sup>3</sup> (Measured) |

| POINT NUMBER | WATER CONTENT (%) | DRY DENSITY (Mg/m <sup>3</sup> ) |
|--------------|-------------------|----------------------------------|
| 1            | 9.2               | 1.795                            |
| 2            | 11.2              | 1.818                            |
| 3            | 13.4              | 1.847                            |
| 4            | 15.2              | 1.817                            |
| 5            | 17.1              | 1.762                            |



|                       |      |                      |
|-----------------------|------|----------------------|
| OPTIMUM WATER CONTENT | 14   | (%)                  |
| MAXIMUM DRY DENSITY   | 1.85 | (Mg/m <sup>3</sup> ) |

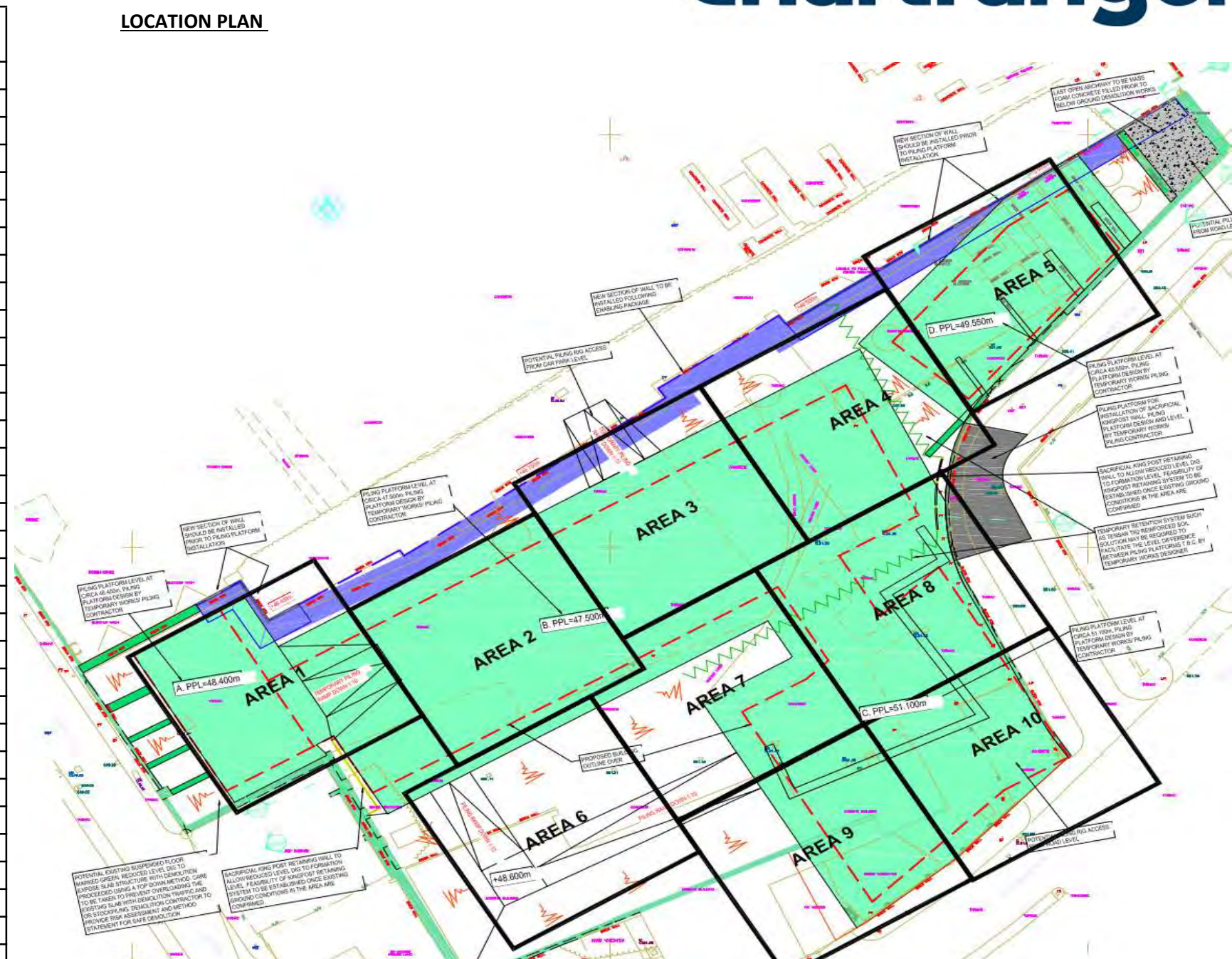
REMARKS

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

SIGNED

DATE 25-Oct-23

## Appendix E – In Situ Density Testing and CBR Testing

[illegible]

|               |    |     |       |       |             |
|---------------|----|-----|-------|-------|-------------|
|               | 3  | A8  | 47.00 | 98.2  | MRN/4579/74 |
|               | 4  | A8  | 47.00 | 96.1  | MRN/4579/74 |
|               | 5  | A9  | 47.00 | 95.7  | MRN/4579/74 |
|               | 6  | A9  | 47.00 | 96.6  | MRN/4579/74 |
|               | 7  | A10 | 47.00 | 98    | MRN/4579/74 |
|               | 8  | A10 | 47.00 | 98.3  | MRN/4579/74 |
|               | 9  | A7  | 47.50 | 97.6  | MRN/4579/74 |
|               | 10 | A7  | 47.50 | 97.1  | MRN/4579/74 |
|               | 11 | A8  | 47.50 | 96.4  | MRN/4579/74 |
|               | 12 | A8  | 47.50 | 95.8  | MRN/4579/74 |
|               | 13 | A9  | 47.50 | 98.1  | MRN/4579/74 |
|               | 14 | A10 | 47.50 | 96.8  | MRN/4579/74 |
|               | 15 | A7  | 48.00 | 97.2  | MRN/4579/74 |
|               | 16 | A7  | 48.00 | 97    | MRN/4579/74 |
|               | 17 | A8  | 48.00 | 95.7  | MRN/4579/74 |
|               | 18 | A8  | 48.00 | 102.1 | MRN/4579/74 |
|               | 19 | A9  | 48.00 | 98.7  | MRN/4579/74 |
|               | 20 | A10 | 48.00 | 98.7  | MRN/4579/74 |
| <b>18-Oct</b> | 1  | A7  | 48.50 | 97.2  | MRN/4579/79 |
|               | 2  | A8  | 48.50 | 96.7  | MRN/4579/79 |
|               | 3  | A9  | 48.50 | 95.1  | MRN/4579/79 |
|               | 4  | A10 | 48.50 | 96.1  | MRN/4579/79 |
| <b>01-Nov</b> | 1  | A7  | 49.00 | 99    | MRN/4579/84 |
|               | 2  | A7  | 49.00 | 100.2 | MRN/4579/84 |
|               | 3  | A8  | 49.00 | 98.2  | MRN/4579/84 |
|               | 4  | A8  | 49.00 | 97    | MRN/4579/84 |
|               | 5  | A9  | 49.00 | 98.3  | MRN/4579/84 |
|               | 6  | A9  | 49.00 | 99.5  | MRN/4579/84 |
|               | 7  | A10 | 49.00 | 101   | MRN/4579/84 |
|               | 8  | A10 | 49.00 | 99.1  | MRN/4579/84 |
|               | 9  | A7  | 49.50 | 98.5  | MRN/4579/84 |
|               | 10 | A7  | 49.50 | 97.9  | MRN/4579/84 |
|               | 11 | A8  | 49.50 | 100.7 | MRN/4579/84 |
|               | 12 | A8  | 49.50 | 99.1  | MRN/4579/84 |
|               | 13 | A9  | 49.50 | 102.8 | MRN/4579/84 |
|               | 14 | A9  | 49.50 | 102.6 | MRN/4579/84 |
|               | 15 | A10 | 49.50 | 100.4 | MRN/4579/84 |
|               | 16 | A10 | 49.50 | 104.7 | MRN/4579/84 |
|               | 17 | A7  | 50.00 | 106.9 | MRN/4579/84 |
|               | 18 | A8  | 50.00 | 104.4 | MRN/4579/84 |
|               | 19 | A9  | 50.00 | 103.4 | MRN/4579/84 |
|               | 20 | A10 | 50.00 | 99.1  | MRN/4579/84 |
|               | 21 | A7  | 50.50 | 102.3 | MRN/4579/84 |
|               | 22 | A8  | 50.50 | 104.8 | MRN/4579/84 |
|               | 23 | A9  | 50.50 | 100.2 | MRN/4579/84 |
|               | 24 | A10 | 50.50 | 98.4  | MRN/4579/84 |
| <b>09-Nov</b> | 1  | A5  | 46    | 103.9 | MRN/4579/88 |
|               | 2  | A5  | 46    | 104.1 | MRN/4579/88 |
|               | 3  | A5  | 46    | 103.4 | MRN/4579/88 |
|               | 4  | A5  | 46    | 104.1 | MRN/4579/88 |

|                      |    |    |      |       |             |
|----------------------|----|----|------|-------|-------------|
|                      | 5  | A5 | 46.5 | 104.6 | MRN/4579/88 |
|                      | 6  | A5 | 46.5 | 104.6 | MRN/4579/88 |
|                      | 7  | A5 | 46.5 | 104   | MRN/4579/88 |
|                      | 8  | A5 | 46.5 | 103.9 | MRN/4579/88 |
|                      | 9  | A5 | 47   | 103.2 | MRN/4579/88 |
|                      | 10 | A5 | 47   | 103.1 | MRN/4579/88 |
|                      | 11 | A5 | 47   | 102.8 | MRN/4579/88 |
|                      | 12 | A5 | 47   | 104.4 | MRN/4579/88 |
| <b><u>10-Nov</u></b> | 1  | A5 | 47.5 | 99    | MRN/4579/90 |
|                      | 2  | A5 | 47.5 | 99.4  | MRN/4579/90 |
|                      | 3  | A5 | 47.5 | 98.3  | MRN/4579/90 |
|                      | 4  | A5 | 47.5 | 98.3  | MRN/4579/90 |
|                      | 5  | A5 | 47.5 | 98.7  | MRN/4579/90 |
|                      | 6  | A5 | 47.5 | 98.4  | MRN/4579/90 |
|                      | 7  | A5 | 47.5 | 95.9  | MRN/4579/90 |
|                      | 8  | A5 | 47.5 | 95.7  | MRN/4579/90 |
|                      | 9  | A5 | 47.5 | 97.8  | MRN/4579/90 |
|                      | 10 | A5 | 47.5 | 96.5  | MRN/4579/90 |
|                      | 11 | A5 | 47.5 | 97.7  | MRN/4579/90 |
|                      | 12 | A5 | 48   | 97.7  | MRN/4579/90 |
|                      | 13 | A5 | 48   | 96.9  | MRN/4579/90 |
|                      | 14 | A5 | 48   | 96.9  | MRN/4579/90 |
|                      | 15 | A5 | 48   | 97    | MRN/4579/90 |
|                      | 16 | A5 | 48   | 98    | MRN/4579/90 |
|                      | 17 | A5 | 48   | 98.3  | MRN/4579/90 |
|                      | 18 | A5 | 48   | 96.8  | MRN/4579/90 |
|                      | 19 | A5 | 48.5 | 98.4  | MRN/4579/90 |
|                      | 20 | A5 | 48.5 | 97.2  | MRN/4579/90 |
|                      | 21 | A5 | 48.5 | 97.8  | MRN/4579/90 |
|                      | 22 | A5 | 48.5 | 97.2  | MRN/4579/90 |
|                      | 23 | A5 | 48.5 | 96.7  | MRN/4579/90 |
|                      | 24 | A5 | 48.5 | 98    | MRN/4579/90 |
| <b><u>15-Nov</u></b> | 1  | A5 | 49   | 97    | MRN/4579/93 |
|                      | 2  | A5 | 49   | 97.6  | MRN/4579/93 |
|                      | 3  | A5 | 49   | 96.1  | MRN/4579/93 |
|                      | 4  | A5 | 49   | 96.8  | MRN/4579/93 |
|                      | 5  | A5 | 49   | 97.9  | MRN/4579/93 |
|                      | 6  | A5 | 49   | 96    | MRN/4579/93 |
|                      | 7  | A5 | 49   | 95.1  | MRN/4579/93 |
|                      | 8  | A5 | 49.5 | 96.3  | MRN/4579/93 |
|                      | 9  | A5 | 49.5 | 97.5  | MRN/4579/93 |
|                      | 1  | A5 | 49.5 | 95.4  | MRN/4579/93 |
|                      | 11 | A5 | 49.5 | 95    | MRN/4579/93 |
| <b><u>17-Nov</u></b> | 1  | A5 | 49.5 | 97.4  | MRN/4579/95 |
|                      | 2  | A5 | 49.6 | 99.1  | MRN/4579/95 |
|                      | 3  | A5 | 49.6 | 97.2  | MRN/4579/95 |
|                      | 4  | A5 | 49.6 | 99.1  | MRN/4579/95 |
|                      | 5  | A5 | 49.6 | 97.1  | MRN/4579/95 |

## TEST REPORT

**Client** Chartrange Ltd

**Address** Wharf Street  
Dukinfield  
Cheshire  
SK16 4NJ

**Contract** Rochdale Road,  
Greater Manchester M4 4HY

**Job Number** MRN 4579/65B  
**Date of Issue** 11 September 2023  
**Page** 1 of 2

Approved Signatories

S J Hutchings, O P Davies

Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
- 3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.
- 4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted.
- 5 The results included within the report are representative of the samples submitted for analysis.
- 6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.



Andrew House, Hadfield Street, Dukinfield, Cheshire SK16 4QX Tel: 0161 475 0870  
Email: [enquiries@murrayrix.com](mailto:enquiries@murrayrix.com) Website: [www.murrayrix.com](http://www.murrayrix.com)

Also at: London: 020 8523 1999

Murray Rix is the trading name of Murray Rix (Northern) Limited. Registered in England 2878361

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

DETERMINATION OF IN-SITU BULK DENSITY AND IN-SITU MOISTURE DENSITY  
BY THE NUCLEAR METHOD  
BS 1377-9: Clause 2.5: 1990

|        |                                          |
|--------|------------------------------------------|
| CLIENT | Chartrange Ltd                           |
| SITE   | Rochdale Road, Greater Manchester M4 4HY |

|                   |                     |                         |                                         |
|-------------------|---------------------|-------------------------|-----------------------------------------|
| DATE              | 08-Sep-23           | JOB NUMBER              | MRN 4579/65B                            |
| MATERIAL          | Crush               |                         |                                         |
| NDG MODEL         | Troxler 3451        | SERIAL NUMBER           | 28                                      |
| MODE OF OPERATION | Direct Transmission | MEASUREMENT APPLICATION | Compliance tests for compacted material |

| Test No.                                                            | Test Chainage / Location | Test Depth (mm) | Wet Density (Mg/m3) | Dry Density (Mg/m3) | Moisture Content (%) | Percentage Compaction (%) | Air Voids (%) |
|---------------------------------------------------------------------|--------------------------|-----------------|---------------------|---------------------|----------------------|---------------------------|---------------|
| 1                                                                   | Test 01                  | 200             | 2.02                | 1.76                | 15                   | 95.6                      | N/A           |
| 2                                                                   | Test 02                  | 200             | 2.03                | 1.77                | 15                   | 96.0                      | N/A           |
| 3                                                                   | Test 03                  | 200             | 1.99                | 1.75                | 14                   | 95.1                      | N/A           |
| 4                                                                   | Test 04                  | 200             | 2.02                | 1.77                | 14                   | 96.3                      | N/A           |
| 5                                                                   | Test 05                  | 200             | 2.06                | 1.77                | 17                   | 96.0                      | N/A           |
| 6                                                                   | Test 06                  | 200             | 2.07                | 1.79                | 16                   | 97.2                      | N/A           |
| 7                                                                   | Test 07                  | 200             | 2.05                | 1.79                | 15                   | 97.1                      | N/A           |
| 8                                                                   | Test 08                  | 200             | 2.00                | 1.76                | 14                   | 95.4                      | N/A           |
| 9                                                                   | Test 09                  | 200             | 2.02                | 1.76                | 14                   | 95.8                      | N/A           |
| 10                                                                  | Test 10                  | 200             | 1.99                | 1.75                | 14                   | 94.9                      | N/A           |
| 11                                                                  | Test 11                  | 200             | 2.02                | 1.75                | 15                   | 95.2                      | N/A           |
| 12                                                                  | Test 12                  | 200             | 2.08                | 1.79                | 16                   | 97.2                      | N/A           |
| 13                                                                  | Test 13                  | 200             | 2.05                | 1.79                | 14                   | 97.4                      | N/A           |
| 14                                                                  | Test 14                  | 200             | 2.05                | 1.78                | 15                   | 96.5                      | N/A           |
| 15                                                                  | Test 15                  | 200             | 1.99                | 1.74                | 14                   | 94.6                      | N/A           |
| 16                                                                  | Test 16                  | 200             | 2.09                | 1.80                | 17                   | 97.6                      | N/A           |
| 17                                                                  | Test 17                  | 200             | 2.02                | 1.75                | 16                   | 94.9                      | N/A           |
| 18                                                                  | Test 18                  | 200             | 2.00                | 1.75                | 15                   | 95.0                      | N/A           |
| 19                                                                  | Test 19                  | 200             | 2.11                | 1.81                | 16                   | 98.5                      | N/A           |
| Maximum Dry Density (Mg/m3)                                         |                          |                 |                     |                     | 1.84                 | (Advised by client)       |               |
| Particle Density (Mg/m3)                                            |                          |                 |                     |                     | N/A                  | (Advised by client)       |               |
| Results corrected for NDG calibration/correlation to site materials |                          |                 |                     |                     | Yes                  |                           |               |

REMARKS/ABNORMALITIES

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

SIGNED

DATE 11-Sep-23

## TEST REPORT

**Client** Chartrange Ltd

**Address** Wharf Street  
Dukinfield  
Cheshire  
SK16 4NJ

**Contract** Rochdale Road,  
Greater Manchester M4 4HY

**Job Number** MRN 4579/69B

**Date of Issue** 15 September 2023

**Page** 1 of 3

Approved Signatories

S J Hutchings, O P Davies

Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
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- 3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.
- 4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted.
- 5 The results included within the report are representative of the samples submitted for analysis.
- 6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.



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Email: [enquiries@murrayrix.com](mailto:enquiries@murrayrix.com) Website: [www.murrayrix.com](http://www.murrayrix.com)

Also at: London: 020 8523 1999

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# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

DETERMINATION OF IN-SITU BULK DENSITY AND IN-SITU MOISTURE DENSITY  
BY THE NUCLEAR METHOD  
BS 1377-9: Clause 2.5: 1990

|        |                                          |
|--------|------------------------------------------|
| CLIENT | Chartrange Ltd                           |
| SITE   | Rochdale Road, Greater Manchester M4 4HY |

|                   |                     |                         |                                         |
|-------------------|---------------------|-------------------------|-----------------------------------------|
| DATE              | 14-Sep-23           | JOB NUMBER              | MRN 4579/69B                            |
| MATERIAL          | Crush               |                         |                                         |
| NDG MODEL         | Troxler 3451        | SERIAL NUMBER           | 28                                      |
| MODE OF OPERATION | Direct Transmission | MEASUREMENT APPLICATION | Compliance tests for compacted material |

| Test No.                                                            | Test Chainage / Location | Test Depth (mm) | Wet Density (Mg/m3) | Dry Density (Mg/m3) | Moisture Content (%) | Percentage Compaction (%) | Air Voids (%) |
|---------------------------------------------------------------------|--------------------------|-----------------|---------------------|---------------------|----------------------|---------------------------|---------------|
| 1                                                                   | Test 01                  | 250             | 1.99                | 1.79                | 11                   | 97.3                      | N/A           |
| 2                                                                   | Test 02                  | 250             | 2.03                | 1.83                | 11                   | 99.4                      | N/A           |
| 3                                                                   | Test 03                  | 250             | 2.03                | 1.84                | 11                   | 99.8                      | N/A           |
| 4                                                                   | Test 04                  | 250             | 2.03                | 1.82                | 12                   | 98.9                      | N/A           |
| 5                                                                   | Test 05                  | 250             | 2.07                | 1.88                | 10                   | 102.1                     | N/A           |
| 6                                                                   | Test 06                  | 250             | 2.07                | 1.85                | 12                   | 100.5                     | N/A           |
| 7                                                                   | Test 07                  | 250             | 2.07                | 1.84                | 12                   | 100.1                     | N/A           |
| 8                                                                   | Test 08                  | 250             | 2.06                | 1.83                | 13                   | 99.4                      | N/A           |
| 9                                                                   | Test 09                  | 250             | 2.07                | 1.87                | 11                   | 101.6                     | N/A           |
| 10                                                                  | Test 10                  | 250             | 2.05                | 1.87                | 10                   | 101.5                     | N/A           |
| 11                                                                  | Test 11                  | 250             | 2.05                | 1.86                | 10                   | 101.2                     | N/A           |
| 12                                                                  | Test 12                  | 250             | 2.04                | 1.86                | 10                   | 101.0                     | N/A           |
| 13                                                                  | Test 13                  | 250             | 2.04                | 1.79                | 14                   | 97.5                      | N/A           |
| 14                                                                  | Test 14                  | 250             | 2.02                | 1.78                | 13                   | 97.0                      | N/A           |
| 15                                                                  | Test 15                  | 250             | 2.01                | 1.78                | 13                   | 96.7                      | N/A           |
| 16                                                                  | Test 16                  | 250             | 2.02                | 1.79                | 13                   | 97.5                      | N/A           |
| 17                                                                  | Test 17                  | 250             | 1.97                | 1.75                | 13                   | 95.1                      | N/A           |
| 18                                                                  | Test 18                  | 250             | 1.98                | 1.74                | 14                   | 94.5                      | N/A           |
| 19                                                                  | Test 19                  | 250             | 2.00                | 1.76                | 14                   | 95.5                      | N/A           |
| 20                                                                  | Test 20                  | 250             | 1.96                | 1.74                | 13                   | 94.5                      | N/A           |
| Maximum Dry Density (Mg/m3)                                         |                          |                 |                     |                     | 1.84                 | (Advised by client)       |               |
| Particle Density (Mg/m3)                                            |                          |                 |                     |                     | N/A                  | (Advised by client)       |               |
| Results corrected for NDG calibration/correlation to site materials |                          |                 |                     |                     | Yes                  |                           |               |

REMARKS/ABNORMALITIES

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

SIGNED

DATE 15-Sep-23

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

DETERMINATION OF IN-SITU BULK DENSITY AND IN-SITU MOISTURE DENSITY  
BY THE NUCLEAR METHOD  
BS 1377-9: Clause 2.5: 1990

|        |                                          |
|--------|------------------------------------------|
| CLIENT | Chartrange Ltd                           |
| SITE   | Rochdale Road, Greater Manchester M4 4HY |

|                   |                     |                         |                                         |
|-------------------|---------------------|-------------------------|-----------------------------------------|
| DATE              | 14-Sep-23           | JOB NUMBER              | MRN 4579/69B                            |
| MATERIAL          | Crush               |                         |                                         |
| NDG MODEL         | Troxler 3451        | SERIAL NUMBER           | 28                                      |
| MODE OF OPERATION | Direct Transmission | MEASUREMENT APPLICATION | Compliance tests for compacted material |

| Test No.                                                            | Test Chainage / Location | Test Depth (mm) | Wet Density (Mg/m3) | Dry Density (Mg/m3) | Moisture Content (%) | Percentage Compaction (%) | Air Voids (%) |
|---------------------------------------------------------------------|--------------------------|-----------------|---------------------|---------------------|----------------------|---------------------------|---------------|
| 21                                                                  | Test 21                  | 250             | 1.98                | 1.75                | 13                   | 95.0                      | N/A           |
| 22                                                                  | Test 22                  | 200             | 2.01                | 1.76                | 14                   | 95.9                      | N/A           |
| 23                                                                  | Test 23                  | 200             | 2.00                | 1.75                | 14                   | 95.4                      | N/A           |
| 24                                                                  | Test 24                  | 200             | 2.04                | 1.79                | 14                   | 97.4                      | N/A           |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
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|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
| Maximum Dry Density (Mg/m3)                                         |                          |                 |                     |                     | 1.84                 | (Advised by client)       |               |
| Particle Density (Mg/m3)                                            |                          |                 |                     |                     | N/A                  | (Advised by client)       |               |
| Results corrected for NDG calibration/correlation to site materials |                          |                 |                     |                     | Yes                  |                           |               |

REMARKS/ABNORMALITIES

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

SIGNED

DATE 15-Sep-23

## TEST REPORT

**Client** Chartrange Ltd

**Address** Wharf Street  
Dukinfield  
Cheshire  
SK16 4NJ

**Contract** Rochdale Road,  
Greater Manchester M4 4HY

**Job Number** MRN 4579/74

**Date of Issue** 06 October 2023

**Page** 1 of 3

Approved Signatories

S J Hutchings, O P Davies

Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
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Andrew House, Hadfield Street, Dukinfield, Cheshire SK16 4QX Tel: 0161 475 0870  
Email: [enquiries@murrayrix.com](mailto:enquiries@murrayrix.com) Website: [www.murrayrix.com](http://www.murrayrix.com)

Also at: London: 020 8523 1999

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# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

DETERMINATION OF IN-SITU BULK DENSITY AND IN-SITU MOISTURE DENSITY  
BY THE NUCLEAR METHOD  
BS 1377-9: Clause 2.5: 1990

|        |                                          |
|--------|------------------------------------------|
| CLIENT | Chartrange Ltd                           |
| SITE   | Rochdale Road, Greater Manchester M4 4HY |

|                   |                     |                         |                                         |
|-------------------|---------------------|-------------------------|-----------------------------------------|
| DATE              | 05-Oct-23           | JOB NUMBER              | MRN 4579/74                             |
| MATERIAL          | Fill                |                         |                                         |
| NDG MODEL         | Troxler 3451        | SERIAL NUMBER           | 28                                      |
| MODE OF OPERATION | Direct Transmission | MEASUREMENT APPLICATION | Compliance tests for compacted material |

| Test No.                                                            | Test Chainage / Location | Test Depth (mm) | Wet Density (Mg/m3) | Dry Density (Mg/m3) | Moisture Content (%) | Percentage Compaction (%) | Air Voids (%) |
|---------------------------------------------------------------------|--------------------------|-----------------|---------------------|---------------------|----------------------|---------------------------|---------------|
| 1                                                                   | Test 01                  | 250             | 2.05                | 1.79                | 15                   | 97.0                      | N/A           |
| 2                                                                   | Test 02                  | 250             | 2.06                | 1.78                | 16                   | 96.9                      | N/A           |
| 3                                                                   | Test 03                  | 250             | 2.08                | 1.81                | 15                   | 98.2                      | N/A           |
| 4                                                                   | Test 04                  | 250             | 2.02                | 1.77                | 14                   | 96.1                      | N/A           |
| 5                                                                   | Test 05                  | 250             | 2.02                | 1.76                | 15                   | 95.7                      | N/A           |
| 6                                                                   | Test 06                  | 250             | 2.04                | 1.78                | 15                   | 96.6                      | N/A           |
| 7                                                                   | Test 07                  | 250             | 2.08                | 1.80                | 16                   | 98.0                      | N/A           |
| 8                                                                   | Test 08                  | 250             | 2.09                | 1.81                | 15                   | 98.3                      | N/A           |
| 9                                                                   | Test 09                  | 250             | 2.06                | 1.80                | 15                   | 97.6                      | N/A           |
| 10                                                                  | Test 10                  | 250             | 2.06                | 1.79                | 15                   | 97.1                      | N/A           |
| 11                                                                  | Test 11                  | 250             | 2.03                | 1.77                | 14                   | 96.4                      | N/A           |
| 12                                                                  | Test 12                  | 250             | 2.03                | 1.76                | 15                   | 95.8                      | N/A           |
| 13                                                                  | Test 13                  | 250             | 2.09                | 1.81                | 16                   | 98.1                      | N/A           |
| 14                                                                  | Test 14                  | 250             | 2.04                | 1.78                | 14                   | 96.8                      | N/A           |
| 15                                                                  | Test 15                  | 250             | 2.05                | 1.79                | 15                   | 97.2                      | N/A           |
| 16                                                                  | Test 16                  | 250             | 2.04                | 1.79                | 14                   | 97.0                      | N/A           |
| 17                                                                  | Test 17                  | 250             | 2.02                | 1.76                | 15                   | 95.7                      | N/A           |
| 18                                                                  | Test 18                  | 250             | 2.07                | 1.88                | 10                   | 102.1                     | N/A           |
| 19                                                                  | Test 19                  | 250             | 2.09                | 1.82                | 15                   | 98.7                      | N/A           |
| 20                                                                  | Test 20                  | 250             | 2.08                | 1.82                | 15                   | 98.7                      | N/A           |
| Maximum Dry Density (Mg/m3)                                         |                          |                 |                     |                     | 1.84                 | (Advised by client)       |               |
| Particle Density (Mg/m3)                                            |                          |                 |                     |                     | N/A                  | (Advised by client)       |               |
| Results corrected for NDG calibration/correlation to site materials |                          |                 |                     |                     | Yes                  |                           |               |

REMARKS/ABNORMALITIES

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

SIGNED

DATE 06-Oct-23

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

### DETERMINATION OF THE WATER CONTENT

(OVEN DRY)

BS EN 17892-1:2014+A1:2022

|            |                                          |
|------------|------------------------------------------|
| CLIENT     | Chartrange Ltd                           |
| SITE       | Rochdale Road, Greater Manchester M4 4HY |
| JOB NUMBER | MRN 4579/74                              |

|              |           |               |            |
|--------------|-----------|---------------|------------|
| DATE SAMPLED | 05-Oct-23 | DATE RECEIVED | 05-Oct-23  |
| DATE TESTED  | 06-Oct-23 | SAMPLED BY    | Murray Rix |

| Laboratory Sample Number | Site Reference | Material    | Sample Location | Water Content (%) |
|--------------------------|----------------|-------------|-----------------|-------------------|
| 132186                   | Sample 1       | A1 Granular | Sample 1        | 14.5              |
| 132187                   | Sample 2       | A1 Granular | Sample 2        | 14.9              |
|                          |                |             |                 |                   |
|                          |                |             |                 |                   |
|                          |                |             |                 |                   |
|                          |                |             |                 |                   |
|                          |                |             |                 |                   |
|                          |                |             |                 |                   |
|                          |                |             |                 |                   |
|                          |                |             |                 |                   |

COMMENT / ANOMALIES

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

SIGNED

DATE 06-Oct-23

## TEST REPORT

**Client** Chartrange Ltd

**Address** Wharf Street  
Dukinfield  
Cheshire  
SK16 4NJ

**Contract** Rochdale Road,  
Greater Manchester M4 4HY

**Job Number** MRN 4579/79

**Date of Issue** 19 October 2023

**Page** 1 of 2

Approved Signatories

S J Hutchings, O P Davies

Notes

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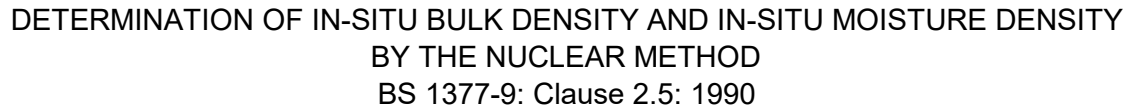


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Also at: London: 020 8523 1999

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ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST REPORT

**Client** Chartrange Ltd

**Address** Wharf Street  
Dukinfield  
Cheshire  
SK16 4NJ

**Contract** Rochdale Road,  
Greater Manchester M4 4HY

**Job Number** MRN 4579/84  
**Date of Issue** 02 November 2023  
**Page** 1 of 3

Approved Signatories

S J Hutchings, O P Davies

Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
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# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

DETERMINATION OF IN-SITU BULK DENSITY AND IN-SITU MOISTURE DENSITY  
BY THE NUCLEAR METHOD  
BS 1377-9: Clause 2.5: 1990

|        |                                          |
|--------|------------------------------------------|
| CLIENT | Chartrange Ltd                           |
| SITE   | Rochdale Road, Greater Manchester M4 4HY |

|                   |                     |                         |                                         |
|-------------------|---------------------|-------------------------|-----------------------------------------|
| DATE              | 01-Nov-23           | JOB NUMBER              | MRN 4579/84                             |
| MATERIAL          | Crush               |                         |                                         |
| NDG MODEL         | Troxler 3451        | SERIAL NUMBER           | 28                                      |
| MODE OF OPERATION | Direct Transmission | MEASUREMENT APPLICATION | Compliance tests for compacted material |

| Test No.                                                            | Test Chainage / Location | Test Depth (mm) | Wet Density (Mg/m3) | Dry Density (Mg/m3) | Moisture Content (%) | Percentage Compaction (%) | Air Voids (%) |
|---------------------------------------------------------------------|--------------------------|-----------------|---------------------|---------------------|----------------------|---------------------------|---------------|
| 1                                                                   | Test 01                  | 250             | 2.07                | 1.82                | 14                   | 99.0                      | N/A           |
| 2                                                                   | Test 02                  | 250             | 2.10                | 1.84                | 14                   | 100.2                     | N/A           |
| 3                                                                   | Test 03                  | 250             | 2.04                | 1.81                | 13                   | 98.2                      | N/A           |
| 4                                                                   | Test 04                  | 250             | 2.04                | 1.78                | 14                   | 97.0                      | N/A           |
| 5                                                                   | Test 05                  | 250             | 2.04                | 1.81                | 13                   | 98.3                      | N/A           |
| 6                                                                   | Test 06                  | 250             | 2.11                | 1.83                | 15                   | 99.5                      | N/A           |
| 7                                                                   | Test 07                  | 250             | 2.11                | 1.86                | 13                   | 101.0                     | N/A           |
| 8                                                                   | Test 08                  | 250             | 2.06                | 1.82                | 13                   | 99.1                      | N/A           |
| 9                                                                   | Test 09                  | 250             | 2.04                | 1.81                | 13                   | 98.5                      | N/A           |
| 10                                                                  | Test 10                  | 250             | 2.04                | 1.80                | 14                   | 97.9                      | N/A           |
| 11                                                                  | Test 11                  | 250             | 2.11                | 1.85                | 14                   | 100.7                     | N/A           |
| 12                                                                  | Test 12                  | 250             | 2.05                | 1.82                | 12                   | 99.1                      | N/A           |
| 13                                                                  | Test 13                  | 250             | 2.15                | 1.89                | 14                   | 102.8                     | N/A           |
| 14                                                                  | Test 14                  | 250             | 2.14                | 1.89                | 13                   | 102.6                     | N/A           |
| 15                                                                  | Test 15                  | 250             | 2.11                | 1.85                | 14                   | 100.4                     | N/A           |
| 16                                                                  | Test 16                  | 250             | 2.17                | 1.93                | 13                   | 104.7                     | N/A           |
| 17                                                                  | Test 17                  | 250             | 2.25                | 1.97                | 15                   | 106.9                     | N/A           |
| 18                                                                  | Test 18                  | 250             | 2.18                | 1.92                | 14                   | 104.4                     | N/A           |
| 19                                                                  | Test 19                  | 250             | 2.15                | 1.90                | 13                   | 103.4                     | N/A           |
| 20                                                                  | Test 20                  | 250             | 2.07                | 1.82                | 14                   | 99.1                      | N/A           |
| Maximum Dry Density (Mg/m3)                                         |                          |                 |                     |                     | 1.84                 | (Advised by client)       |               |
| Particle Density (Mg/m3)                                            |                          |                 |                     |                     | N/A                  | (Not Advised)             |               |
| Results corrected for NDG calibration/correlation to site materials |                          |                 |                     |                     | Yes                  |                           |               |

REMARKS/ABNORMALITIES

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

SIGNED

DATE 02-Nov-23



## TEST REPORT

**Client** Chartrange Ltd

**Address** Wharf Street  
Dukinfield  
Cheshire  
SK16 4NJ

**Contract** Rochdale Road,  
Greater Manchester M4 4HY

**Job Number** MRN 4579/88  
**Date of Issue** 10 November 2023  
**Page** 1 of 2

Approved Signatories

S J Hutchings, O P Davies

Notes

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# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

DETERMINATION OF IN-SITU BULK DENSITY AND IN-SITU MOISTURE DENSITY  
BY THE NUCLEAR METHOD  
BS 1377-9: Clause 2.5: 1990

|        |                                          |
|--------|------------------------------------------|
| CLIENT | Chartrange Ltd                           |
| SITE   | Rochdale Road, Greater Manchester M4 4HY |

|                   |                     |                         |                                         |
|-------------------|---------------------|-------------------------|-----------------------------------------|
| DATE              | 09-Nov-23           | JOB NUMBER              | MRN 4579/88                             |
| MATERIAL          | Crush               |                         |                                         |
| NDG MODEL         | Troxler 3451        | SERIAL NUMBER           | 28                                      |
| MODE OF OPERATION | Direct Transmission | MEASUREMENT APPLICATION | Compliance tests for compacted material |

| Test No.                                                            | Test Chainage / Location | Test Depth (mm) | Wet Density (Mg/m <sup>3</sup> ) | Dry Density (Mg/m <sup>3</sup> ) | Moisture Content (%) | Percentage Compaction (%) | Air Voids (%) |
|---------------------------------------------------------------------|--------------------------|-----------------|----------------------------------|----------------------------------|----------------------|---------------------------|---------------|
| 1                                                                   | Test 01                  | 200             | 2.14                             | 1.91                             | 12                   | 103.9                     | N/A           |
| 2                                                                   | Test 02                  | 200             | 2.14                             | 1.92                             | 12                   | 104.1                     | N/A           |
| 3                                                                   | Test 03                  | 200             | 2.14                             | 1.90                             | 13                   | 103.4                     | N/A           |
| 4                                                                   | Test 04                  | 200             | 2.14                             | 1.92                             | 12                   | 104.1                     | N/A           |
| 5                                                                   | Test 05                  | 200             | 2.14                             | 1.93                             | 11                   | 104.6                     | N/A           |
| 6                                                                   | Test 06                  | 200             | 2.14                             | 1.92                             | 11                   | 104.6                     | N/A           |
| 7                                                                   | Test 07                  | 200             | 2.13                             | 1.91                             | 11                   | 104.0                     | N/A           |
| 8                                                                   | Test 08                  | 200             | 2.14                             | 1.91                             | 12                   | 103.9                     | N/A           |
| 9                                                                   | Test 09                  | 200             | 2.13                             | 1.90                             | 12                   | 103.2                     | N/A           |
| 10                                                                  | Test 10                  | 200             | 2.13                             | 1.90                             | 12                   | 103.1                     | N/A           |
| 11                                                                  | Test 11                  | 200             | 2.13                             | 1.89                             | 13                   | 102.8                     | N/A           |
| 12                                                                  | Test 12                  | 200             | 2.14                             | 1.92                             | 12                   | 104.4                     | N/A           |
|                                                                     |                          |                 |                                  |                                  |                      |                           |               |
|                                                                     |                          |                 |                                  |                                  |                      |                           |               |
|                                                                     |                          |                 |                                  |                                  |                      |                           |               |
|                                                                     |                          |                 |                                  |                                  |                      |                           |               |
|                                                                     |                          |                 |                                  |                                  |                      |                           |               |
|                                                                     |                          |                 |                                  |                                  |                      |                           |               |
|                                                                     |                          |                 |                                  |                                  |                      |                           |               |
|                                                                     |                          |                 |                                  |                                  |                      |                           |               |
|                                                                     |                          |                 |                                  |                                  |                      |                           |               |
| Maximum Dry Density (Mg/m <sup>3</sup> )                            |                          |                 |                                  |                                  | 1.84                 | (Advised by client)       |               |
| Particle Density (Mg/m <sup>3</sup> )                               |                          |                 |                                  |                                  | N/A                  | (Not Advised)             |               |
| Results corrected for NDG calibration/correlation to site materials |                          |                 |                                  |                                  | Yes                  |                           |               |

REMARKS/ABNORMALITIES

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

SIGNED

DATE 10-Nov-23

## TEST REPORT

**Client** Chartrange Ltd

**Address** Wharf Street  
Dukinfield  
Cheshire  
SK16 4NJ

**Contract** Rochdale Road,  
Greater Manchester M4 4HY

**Job Number** MRN 4579/90  
**Date of Issue** 13 November 2023  
**Page** 1 of 3

Approved Signatories

S J Hutchings, O P Davies

Notes

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# MURRAY RIX

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DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

DETERMINATION OF IN-SITU BULK DENSITY AND IN-SITU MOISTURE DENSITY  
BY THE NUCLEAR METHOD  
BS 1377-9: Clause 2.5: 1990

|        |                                          |
|--------|------------------------------------------|
| CLIENT | Chartrange Ltd                           |
| SITE   | Rochdale Road, Greater Manchester M4 4HY |

|                   |                     |                         |                                         |
|-------------------|---------------------|-------------------------|-----------------------------------------|
| DATE              | 10-Nov-23           | JOB NUMBER              | MRN 4579/90                             |
| MATERIAL          | Crush               |                         |                                         |
| NDG MODEL         | Troxler 3451        | SERIAL NUMBER           | 28                                      |
| MODE OF OPERATION | Direct Transmission | MEASUREMENT APPLICATION | Compliance tests for compacted material |

| Test No.                                                            | Test Chainage / Location | Test Depth (mm) | Wet Density (Mg/m3) | Dry Density (Mg/m3) | Moisture Content (%) | Percentage Compaction (%) | Air Voids (%) |
|---------------------------------------------------------------------|--------------------------|-----------------|---------------------|---------------------|----------------------|---------------------------|---------------|
| 1                                                                   | Test 01                  | 200             | 2.06                | 1.82                | 13                   | 99.0                      | N/A           |
| 2                                                                   | Test 02                  | 200             | 2.07                | 1.83                | 13                   | 99.4                      | N/A           |
| 3                                                                   | Test 03                  | 200             | 2.06                | 1.81                | 14                   | 98.3                      | N/A           |
| 4                                                                   | Test 04                  | 200             | 2.06                | 1.81                | 14                   | 98.3                      | N/A           |
| 5                                                                   | Test 05                  | 200             | 2.06                | 1.82                | 13                   | 98.7                      | N/A           |
| 6                                                                   | Test 06                  | 200             | 2.06                | 1.81                | 13                   | 98.4                      | N/A           |
| 7                                                                   | Test 07                  | 200             | 2.06                | 1.76                | 17                   | 95.9                      | N/A           |
| 8                                                                   | Test 08                  | 200             | 2.06                | 1.76                | 17                   | 95.7                      | N/A           |
| 9                                                                   | Test 09                  | 200             | 2.08                | 1.80                | 16                   | 97.8                      | N/A           |
| 10                                                                  | Test 10                  | 200             | 2.07                | 1.78                | 16                   | 96.5                      | N/A           |
| 11                                                                  | Test 11                  | 200             | 2.07                | 1.80                | 15                   | 97.7                      | N/A           |
| 12                                                                  | Test 12                  | 200             | 2.08                | 1.80                | 16                   | 97.7                      | N/A           |
| 13                                                                  | Test 13                  | 200             | 2.07                | 1.78                | 16                   | 96.9                      | N/A           |
| 14                                                                  | Test 14                  | 200             | 2.06                | 1.78                | 16                   | 96.9                      | N/A           |
| 15                                                                  | Test 15                  | 200             | 2.06                | 1.78                | 16                   | 97.0                      | N/A           |
| 16                                                                  | Test 16                  | 200             | 2.08                | 1.80                | 15                   | 98.0                      | N/A           |
| 17                                                                  | Test 17                  | 200             | 2.08                | 1.81                | 15                   | 98.3                      | N/A           |
| 18                                                                  | Test 18                  | 200             | 2.06                | 1.78                | 16                   | 96.8                      | N/A           |
| 19                                                                  | Test 19                  | 200             | 2.08                | 1.81                | 15                   | 98.4                      | N/A           |
| 20                                                                  | Test 20                  | 200             | 2.06                | 1.79                | 15                   | 97.2                      | N/A           |
| Maximum Dry Density (Mg/m3)                                         |                          |                 |                     |                     | 1.84                 | (Advised by client)       |               |
| Particle Density (Mg/m3)                                            |                          |                 |                     |                     | N/A                  | (Not Advised)             |               |
| Results corrected for NDG calibration/correlation to site materials |                          |                 |                     |                     | Yes                  |                           |               |

REMARKS/ABNORMALITIES

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

SIGNED

DATE 13-Nov-23



## TEST REPORT

**Client** Chartrange Ltd

**Address** Wharf Street  
Dukinfield  
Cheshire  
SK16 4NJ

**Contract** Rochdale Road,  
Greater Manchester M4 4HY

**Job Number** MRN 4579/92  
**Date of Issue** 16 November 2023  
**Page** 1 of 2

Approved Signatories

S J Hutchings, O P Davies

Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
- 3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.
- 4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted.
- 5 The results included within the report are representative of the samples submitted for analysis.
- 6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.



Andrew House, Hadfield Street, Dukinfield, Cheshire SK16 4QX Tel: 0161 475 0870  
Email: [enquiries@murrayrix.com](mailto:enquiries@murrayrix.com) Website: [www.murrayrix.com](http://www.murrayrix.com)

Also at: London: 020 8523 1999

Murray Rix is the trading name of Murray Rix (Northern) Limited. Registered in England 2878361

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

DETERMINATION OF IN-SITU BULK DENSITY AND IN-SITU MOISTURE DENSITY  
BY THE NUCLEAR METHOD  
BS 1377-9: Clause 2.5: 1990

|        |                                          |
|--------|------------------------------------------|
| CLIENT | Chartrange Ltd                           |
| SITE   | Rochdale Road, Greater Manchester M4 4HY |

|                   |                     |                         |                                         |
|-------------------|---------------------|-------------------------|-----------------------------------------|
| DATE              | 15-Nov-23           | JOB NUMBER              | MRN 4579/92                             |
| MATERIAL          | Crush               |                         |                                         |
| NDG MODEL         | Troxler 3451        | SERIAL NUMBER           | 28                                      |
| MODE OF OPERATION | Direct Transmission | MEASUREMENT APPLICATION | Compliance tests for compacted material |

| Test No.                                                            | Test Chainage / Location | Test Depth (mm) | Wet Density (Mg/m3) | Dry Density (Mg/m3) | Moisture Content (%) | Percentage Compaction (%) | Air Voids (%) |
|---------------------------------------------------------------------|--------------------------|-----------------|---------------------|---------------------|----------------------|---------------------------|---------------|
| 1                                                                   | Test 01                  | 250             | 2.05                | 1.78                | 15                   | 97.0                      | N/A           |
| 2                                                                   | Test 02                  | 250             | 2.07                | 1.80                | 16                   | 97.6                      | N/A           |
| 3                                                                   | Test 03                  | 250             | 2.04                | 1.77                | 16                   | 96.1                      | N/A           |
| 4                                                                   | Test 04                  | 250             | 2.06                | 1.78                | 16                   | 96.8                      | N/A           |
| 5                                                                   | Test 05                  | 250             | 2.09                | 1.80                | 16                   | 97.9                      | N/A           |
| 6                                                                   | Test 06                  | 250             | 2.03                | 1.77                | 15                   | 96.0                      | N/A           |
| 7                                                                   | Test 07                  | 250             | 2.01                | 1.75                | 15                   | 95.1                      | N/A           |
| 8                                                                   | Test 08                  | 250             | 2.05                | 1.77                | 16                   | 96.3                      | N/A           |
| 9                                                                   | Test 09                  | 250             | 2.09                | 1.79                | 16                   | 97.5                      | N/A           |
| 10                                                                  | Test 10                  | 250             | 2.03                | 1.75                | 16                   | 95.4                      | N/A           |
| 11                                                                  | Test 11                  | 250             | 2.00                | 1.75                | 14                   | 95.0                      | N/A           |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
| Maximum Dry Density (Mg/m3)                                         |                          |                 |                     |                     | 1.84                 | (Advised by client)       |               |
| Particle Density (Mg/m3)                                            |                          |                 |                     |                     | N/A                  | (Not Advised)             |               |
| Results corrected for NDG calibration/correlation to site materials |                          |                 |                     |                     | Yes                  |                           |               |

REMARKS/ABNORMALITIES

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

SIGNED

DATE

16-Nov-23

## TEST REPORT

**Client** Chartrange Ltd

**Address** Wharf Street  
Dukinfield  
Cheshire  
SK16 4NJ

**Contract** Rochdale Road,  
Greater Manchester M4 4HY

**Job Number** MRN 4579/95  
**Date of Issue** 20 November 2023  
**Page** 1 of 2

Approved Signatories

S J Hutchings, O P Davies

Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
- 3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.
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ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



# TEST CERTIFICATE

DETERMINATION OF IN-SITU BULK DENSITY AND IN-SITU MOISTURE DENSITY  
BY THE NUCLEAR METHOD  
BS 1377-9: Clause 2.5: 1990

|               |                                          |
|---------------|------------------------------------------|
| <b>CLIENT</b> | Chartrange Ltd                           |
| <b>SITE</b>   | Rochdale Road, Greater Manchester M4 4HY |

|                   |                     |                         |                                         |
|-------------------|---------------------|-------------------------|-----------------------------------------|
| DATE              | 17-Nov-23           | JOB NUMBER              | MRN 4579/95                             |
| MATERIAL          | Crush               |                         |                                         |
| NDG MODEL         | Troxler 3451        | SERIAL NUMBER           | 028                                     |
| MODE OF OPERATION | Direct Transmission | MEASUREMENT APPLICATION | Compliance tests for compacted material |

| Test No.                                                                   | Test Chainage / Location | Test Depth<br>(mm) | Wet Density<br>(Mg/m <sup>3</sup> ) | Dry Density<br>(Mg/m <sup>3</sup> ) | Moisture Content (%) | Percentage Compaction (%) | Air Voids (%) |
|----------------------------------------------------------------------------|--------------------------|--------------------|-------------------------------------|-------------------------------------|----------------------|---------------------------|---------------|
| 1                                                                          | Test 01                  | 250                | 2.03                                | 1.79                                | 13                   | 97.4                      | N/A           |
| 2                                                                          | Test 02                  | 250                | 2.08                                | 1.82                                | 14                   | 99.1                      | N/A           |
| 3                                                                          | Test 03                  | 250                | 2.04                                | 1.79                                | 14                   | 97.2                      | N/A           |
| 4                                                                          | Test 04                  | 250                | 2.10                                | 1.82                                | 15                   | 99.1                      | N/A           |
| 5                                                                          | Test 05                  | 250                | 2.04                                | 1.79                                | 14                   | 97.1                      | N/A           |
|                                                                            |                          |                    |                                     |                                     |                      |                           |               |
|                                                                            |                          |                    |                                     |                                     |                      |                           |               |
|                                                                            |                          |                    |                                     |                                     |                      |                           |               |
|                                                                            |                          |                    |                                     |                                     |                      |                           |               |
|                                                                            |                          |                    |                                     |                                     |                      |                           |               |
|                                                                            |                          |                    |                                     |                                     |                      |                           |               |
|                                                                            |                          |                    |                                     |                                     |                      |                           |               |
|                                                                            |                          |                    |                                     |                                     |                      |                           |               |
|                                                                            |                          |                    |                                     |                                     |                      |                           |               |
|                                                                            |                          |                    |                                     |                                     |                      |                           |               |
|                                                                            |                          |                    |                                     |                                     |                      |                           |               |
|                                                                            |                          |                    |                                     |                                     |                      |                           |               |
|                                                                            |                          |                    |                                     |                                     |                      |                           |               |
|                                                                            |                          |                    |                                     |                                     |                      |                           |               |
|                                                                            |                          |                    |                                     |                                     |                      |                           |               |
|                                                                            |                          |                    |                                     |                                     |                      |                           |               |
|                                                                            |                          |                    |                                     |                                     |                      |                           |               |
|                                                                            |                          |                    |                                     |                                     |                      |                           |               |
| <b>Maximum Dry Density (Mg/m<sup>3</sup>)</b>                              |                          |                    |                                     |                                     | 1.84                 | (Advised by client)       |               |
| <b>Particle Density (Mg/m<sup>3</sup>)</b>                                 |                          |                    |                                     |                                     | N/A                  | (Not Advised)             |               |
| <b>Results corrected for NDG calibration/correlation to site materials</b> |                          |                    |                                     |                                     | Yes                  |                           |               |

REMARKS/ABNORMALITIES

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

SIGNED



DATE 20-Nov-23

# Rochdale Rd, CBR Chart **Chartrange.**

CBR plan

| DATE             | AREA | TEST NUMBER | LEVEL (approx) | CBR % | MNR      |
|------------------|------|-------------|----------------|-------|----------|
| 29-Aug           | 1    | 1           | 47.00          | 9.2   | 4579/60  |
|                  | 2    | 2           | 47.50          | 14.5  | 4579/60  |
|                  | 3    | 3           | 46.50          | 8.6   | 4579/60  |
|                  | 1    | 4           | 46.50          | 8.4   | 4579/60  |
| 01-Sep           | 2    | 1           | 46.50          | 3.5   | 4576/61  |
|                  | 4    | 2           | 46.50          | 5.6   | 4576/61  |
|                  | 1    | 3           | 47.50          | 6.5   | 4576/61  |
|                  | 1    | 4           | 48.50          | 11    | 4576/61  |
| 01-Sep           | 2    | 1           | 47.50          | 4.1   | 4576/61  |
|                  | 4    | 2           | 47.50          | 4.5   | 4576/61  |
|                  | 2    | 3           | 48.50          | 12.4  | 4576/61  |
|                  | 4    | 4           | 47.50          | 12.9  | 4576/61  |
| 06-Sep           | 7    | 1           | 47.50          | 7.5   | 4579/64  |
|                  | 8    | 2           | 47.50          | 6.9   | 4579/64  |
|                  | 7    | 3           | 48.50          | 4.8   | 4579/64  |
|                  | 8    | 4           | 48.50          | 5.9   | 4579/64  |
| Test Pad For MGC |      |             |                | 2.9   | 4579/64  |
| Test Pad For MGC |      |             |                | 6.7   | 4579/64  |
| Test Pad For MGC |      |             |                | 4.4   | 4579/64  |
| 08-Sep           | 7    | 1           | 49.50          | 10.8  | 4576/65  |
|                  | 8    | 2           | 49.50          | 8     | 4576/65  |
|                  | 7    | 3           | 50.50          | 13.2  | 4576/65  |
| 14-Sep           | 8    | 1           | 50.50          | 8.9   | 4579/69A |
|                  | 7    | 2           | 50.50          | 8.8   | 4579/69A |
| 16-Oct           | 7    | 1           | 51.15          | 6.2   | 4579/78  |
|                  | 8    | 2           | 51.15          | 9.9   | 4579/78  |
| 19-Oct           | 9    | 1           | 47.50          | 3.6   | 4579/80  |
|                  | 10   | 2           | 47.50          | 5.8   | 4579/80  |
|                  | 9    | 3           | 48.50          | 5     | 4579/80  |
|                  | 10   | 4           | 48.50          | 4.4   | 4579/80  |



|        |    |   |       |      |         |
|--------|----|---|-------|------|---------|
| 30-Oct | 1  | 1 | 48.45 | 19.1 | 4579/83 |
|        | 3  | 2 | 47.55 | 11.7 | 4579/83 |
|        | 9  | 3 | 49.50 | 4.5  | 4579/83 |
|        | 10 | 4 | 49.50 | 7.5  | 4579/83 |
| 06-Nov | 9  | 1 | 51.15 | 9.2  | 4579/85 |
|        | 10 | 2 | 51.15 | 10.1 | 4579/85 |
| 09-Nov | 7  | 1 | 51.15 | 26.6 | 4579/89 |
|        | 8  | 2 | 51    | 35.1 | 4579/89 |
|        | 9  | 3 | 51.15 | 24.1 | 4579/89 |
|        | 10 | 4 | 51.15 | 24.3 | 4579/89 |
|        | 5  | 5 | 46.5  | 28.2 | 4579/89 |
|        | 5  | 6 | 46.5  | 8.5  | 4579/89 |
|        | 5  | 7 | 47.5  | 23.3 | 4579/89 |
| 10-Nov | 5  | 1 | 47.5  | 14.6 | 4579/91 |
|        | 5  | 2 | 47.5  | 11.2 | 4579/91 |
|        | 5  | 3 | 48.5  | 20.5 | 4579/91 |
|        | 5  | 4 | 48.5  | 29.7 | 4579/91 |
|        | 5  | 5 | 48.5  | 20.2 | 4579/91 |
| 15-Nov | 5  | 1 | 49.5  | 13.8 | 4579/93 |
|        | 5  | 2 | 49.5  | 13   | 4579/93 |
|        | 5  | 3 | 49.5  | 21.9 | 4579/93 |
|        | 5  | 4 | 49.5  | 16.3 | 4579/93 |
|        | 5  | 5 | 49.6  | 14.5 | 4579/93 |
|        | 5  | 6 | 49.6  | 20.8 | 4579/93 |

## TEST REPORT

**Client** Chartrange Ltd

**Address** Wharf Street  
Dukinfield  
Cheshire  
SK16 4NJ

**Contract** Rochdale Road,  
Greater Manchester M4 4HY

**Job Number** MRN 4579/60A  
**Date of Issue** 30 August 2023  
**Pages** 1 of 5

Approved Signatories

S J Hutchings, O P Davies

Notes

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Also at: London: 020 8523 1999

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# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



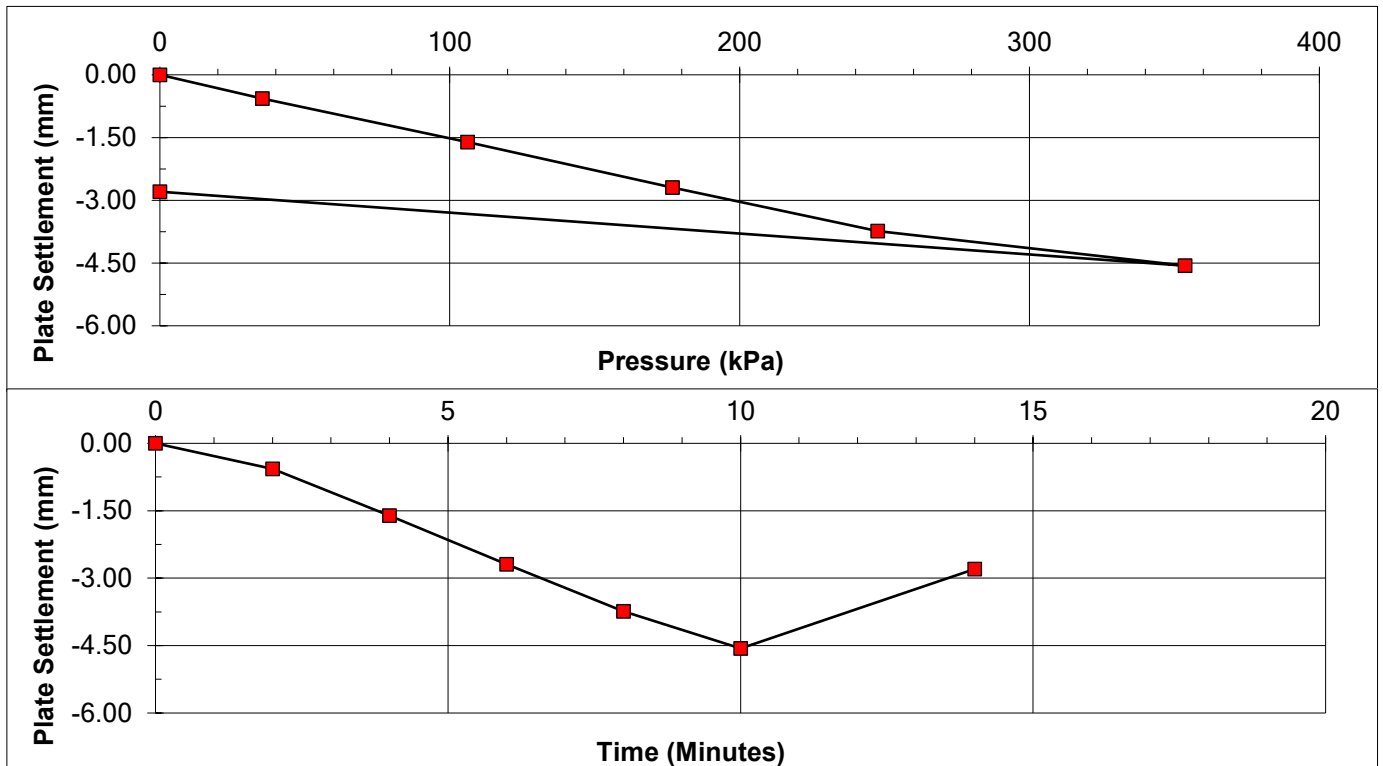
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |              |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |              |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |              |  |  |
| JOB NUMBER          | MRN 4579/60A                             |                    |                       |              |  |  |
| TEST LOCATION       | Area 3 (1)                               | LOADING DEVICE     | 10 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 29-Aug-23                                | PLATE SIZE (mm)    | 600 diameter          |              |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush                                    |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4611                     | 4681                     | 4537                     | 4610                   | 0.00                    | 0.00         | 0.0               |
| 4558                     | 4621                     | 4479                     | 4553                   | -0.57                   | 10.00        | 35.4              |
| 4432                     | 4449                     | 4465                     | 4449                   | -1.61                   | 30.00        | 106.1             |
| 4337                     | 4308                     | 4376                     | 4340                   | -2.69                   | 50.00        | 176.8             |
| 4246                     | 4173                     | 4289                     | 4236                   | -3.74                   | 70.00        | 247.6             |
| 4168                     | 4064                     | 4228                     | 4153                   | -4.56                   | 100.00       | 353.7             |
| 4382                     | 4229                     | 4379                     | 4330                   | -2.80                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflexion =    | 82 kPa   |
| Modulus of subgrade reaction (k) = | 65 MPa/m |
| Equivalent 762 mm plate reaction = | 53 MPa/m |
| Equivalent CBR =                   | 9.2 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 30-Aug-23

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



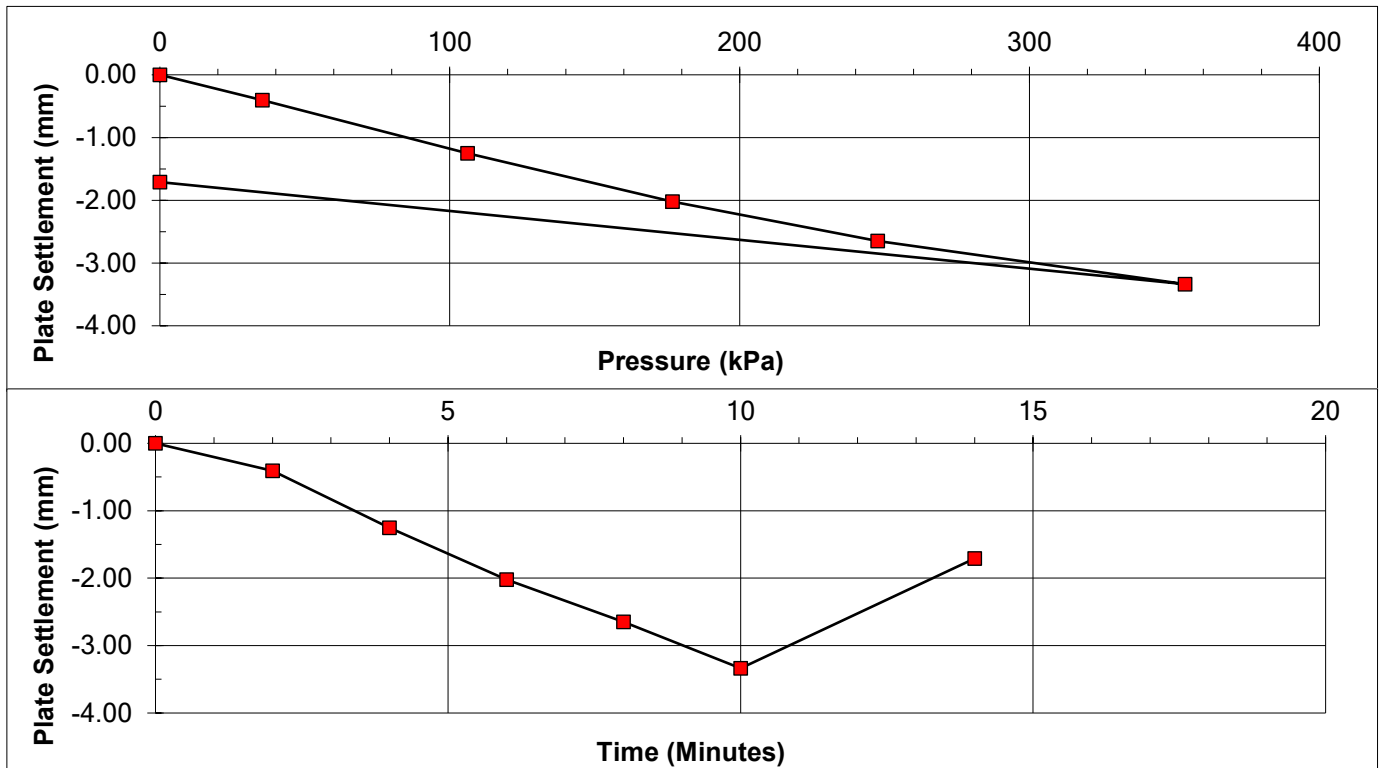
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |  |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |  |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |  |  |  |
| JOB NUMBER          | MRN 4579/60A                             |                    |                       |  |  |  |
| TEST LOCATION       | Area 3 (2)                               | LOADING DEVICE     | 10 Tonne Enerpac Jack |  |  |  |
| TEST DATE           | 29-Aug-23                                | PLATE SIZE (mm)    | 600 diameter          |  |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |  |  |  |
| MATERIAL UNDER TEST | Crush                                    | MOISTURE CONTENT   | Not Required          |  |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4581                     | 4696                     | 4760                     | 4679                   | 0.00                    | 0.00         | 0.0               |
| 4546                     | 4651                     | 4718                     | 4638                   | -0.41                   | 10.00        | 35.4              |
| 4448                     | 4551                     | 4662                     | 4554                   | -1.25                   | 30.00        | 106.1             |
| 4364                     | 4459                     | 4608                     | 4477                   | -2.02                   | 50.00        | 176.8             |
| 4304                     | 4381                     | 4558                     | 4414                   | -2.65                   | 70.00        | 247.6             |
| 4219                     | 4312                     | 4505                     | 4345                   | -3.34                   | 100.00       | 353.7             |
| 4362                     | 4487                     | 4675                     | 4508                   | -1.71                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflexion =    | 106 kPa  |
| Modulus of subgrade reaction (k) = | 85 MPa/m |
| Equivalent 762 mm plate reaction = | 68 MPa/m |
| Equivalent CBR =                   | 14.5 %   |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 30-Aug-23

# MURRAY RIX

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DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



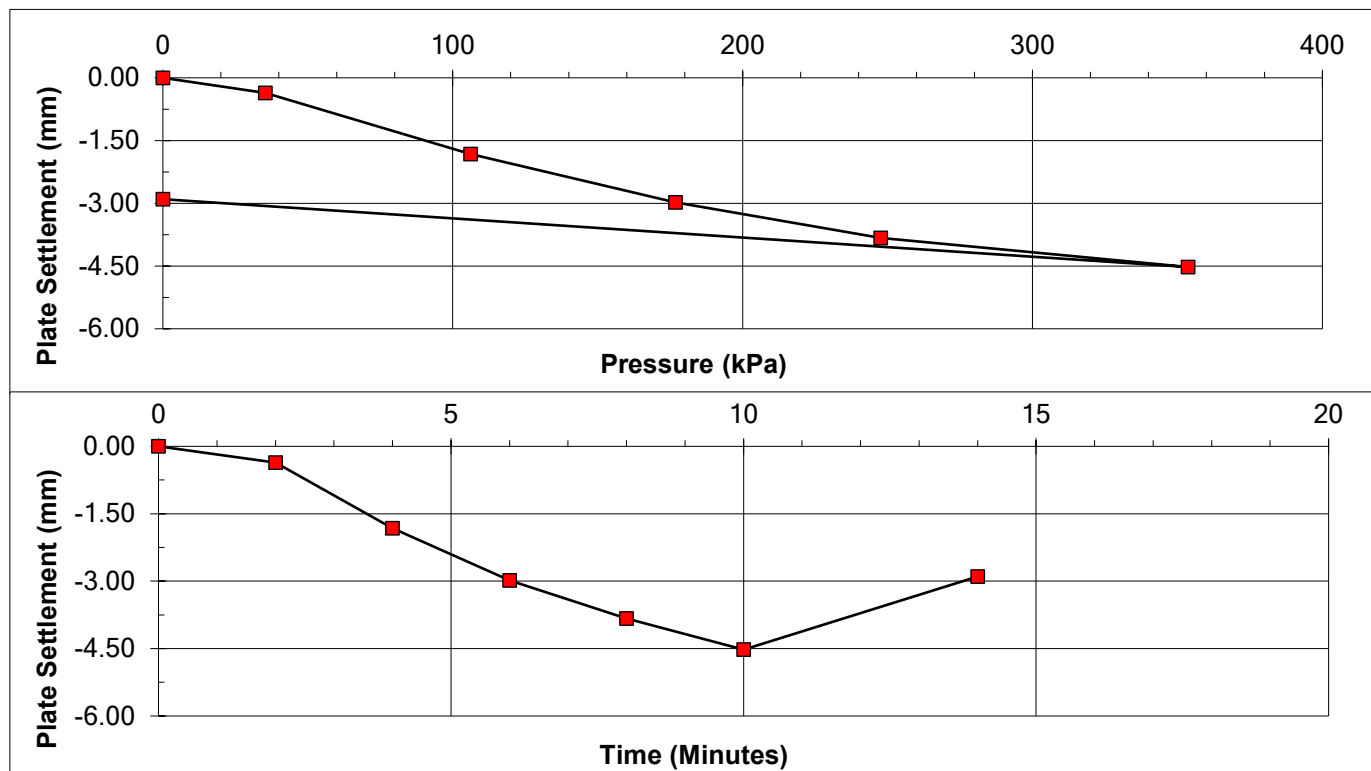
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |  |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |  |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |  |  |  |
| JOB NUMBER          | MRN 4579/60A                             |                    |                       |  |  |  |
| TEST LOCATION       | Area 3 (3)                               | LOADING DEVICE     | 10 Tonne Enerpac Jack |  |  |  |
| TEST DATE           | 29-Aug-23                                | PLATE SIZE (mm)    | 600 diameter          |  |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |  |  |  |
| MATERIAL UNDER TEST | Crush                                    | MOISTURE CONTENT   | Not Required          |  |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4364                     | 4190                     | 4507                     | 4354                   | 0.00                    | 0.00         | 0.0               |
| 4338                     | 4138                     | 4476                     | 4317                   | -0.36                   | 10.00        | 35.4              |
| 4120                     | 4013                     | 4382                     | 4172                   | -1.82                   | 30.00        | 106.1             |
| 4001                     | 3886                     | 4280                     | 4056                   | -2.98                   | 50.00        | 176.8             |
| 3909                     | 3795                     | 4208                     | 3971                   | -3.83                   | 70.00        | 247.6             |
| 3836                     | 3718                     | 4150                     | 3901                   | -4.52                   | 100.00       | 353.7             |
| 4067                     | 3835                     | 4289                     | 4064                   | -2.90                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflexion =    | 78 kPa   |
| Modulus of subgrade reaction (k) = | 63 MPa/m |
| Equivalent 762 mm plate reaction = | 50 MPa/m |
| Equivalent CBR =                   | 8.6 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 30-Aug-23

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



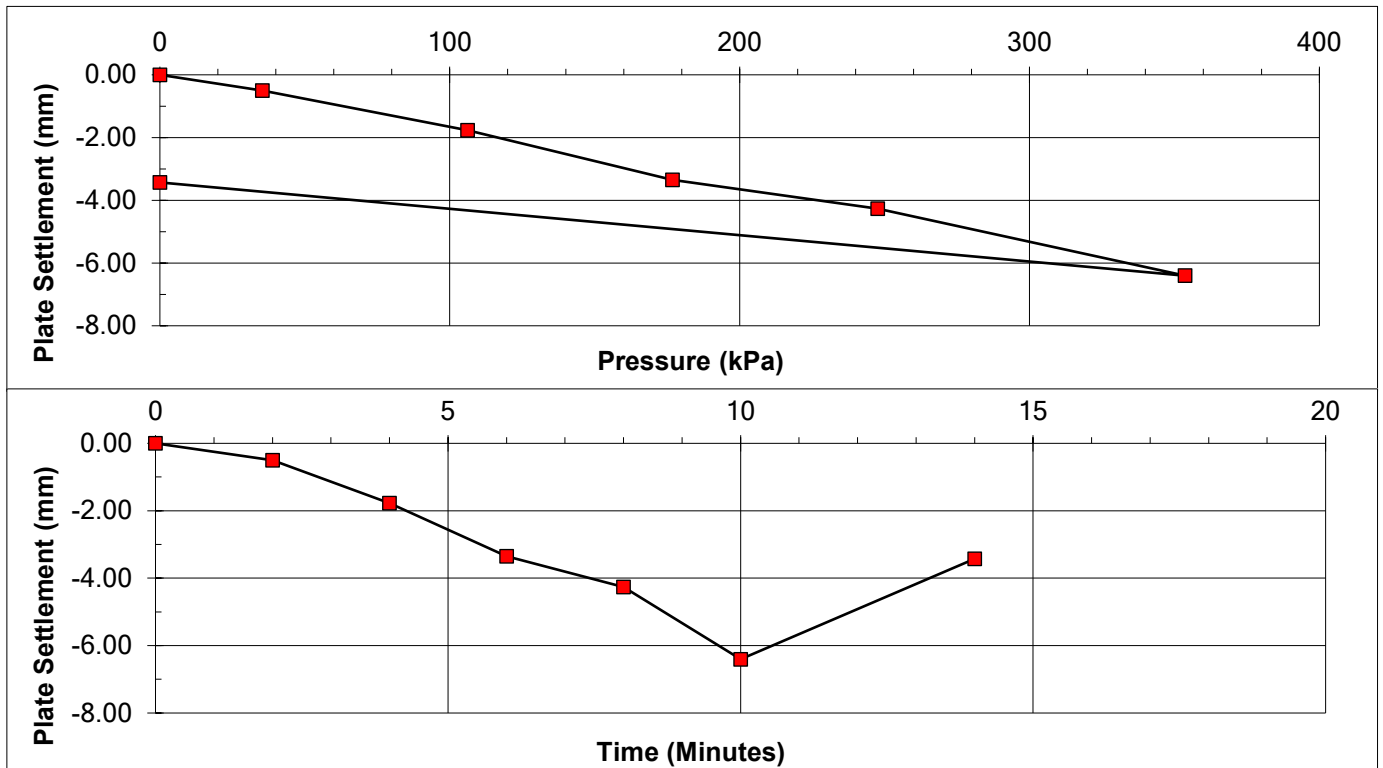
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |              |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |              |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |              |  |  |
| JOB NUMBER          | MRN 4579/60A                             |                    |                       |              |  |  |
| TEST LOCATION       | Area 3 (4)                               | LOADING DEVICE     | 10 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 29-Aug-23                                | PLATE SIZE (mm)    | 600 diameter          |              |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush                                    |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4620                     | 4451                     | 4669                     | 4580                   | 0.00                    | 0.00         | 0.0               |
| 4577                     | 4385                     | 4627                     | 4530                   | -0.50                   | 10.00        | 35.4              |
| 4530                     | 4214                     | 4465                     | 4403                   | -1.77                   | 30.00        | 106.1             |
| 4388                     | 4037                     | 4309                     | 4245                   | -3.35                   | 50.00        | 176.8             |
| 4277                     | 3994                     | 4189                     | 4153                   | -4.27                   | 70.00        | 247.6             |
| 4050                     | 3726                     | 4043                     | 3940                   | -6.40                   | 100.00       | 353.7             |
| 4360                     | 4063                     | 4289                     | 4237                   | -3.43                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflexion =    | 77 kPa   |
| Modulus of subgrade reaction (k) = | 62 MPa/m |
| Equivalent 762 mm plate reaction = | 50 MPa/m |
| Equivalent CBR =                   | 8.4 %    |

REMARKS

SIGNED   
NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 30-Aug-23

## TEST REPORT

**Client** Chartrange Ltd

**Address** Wharf Street  
Dukinfield  
Cheshire  
SK16 4NJ

**Contract** Rochdale Road,  
Greater Manchester M4 4HY

**Job Number** MRN 4579/61  
**Date of Issue** 04 September 2023  
**Pages** 1 of 9

Approved Signatories

S J Hutchings, O P Davies

Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
- 3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.
- 4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted.
- 5 The results included within the report are representative of the samples submitted for analysis.
- 6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.



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Email: [enquiries@murrayrix.com](mailto:enquiries@murrayrix.com) Website: [www.murrayrix.com](http://www.murrayrix.com)

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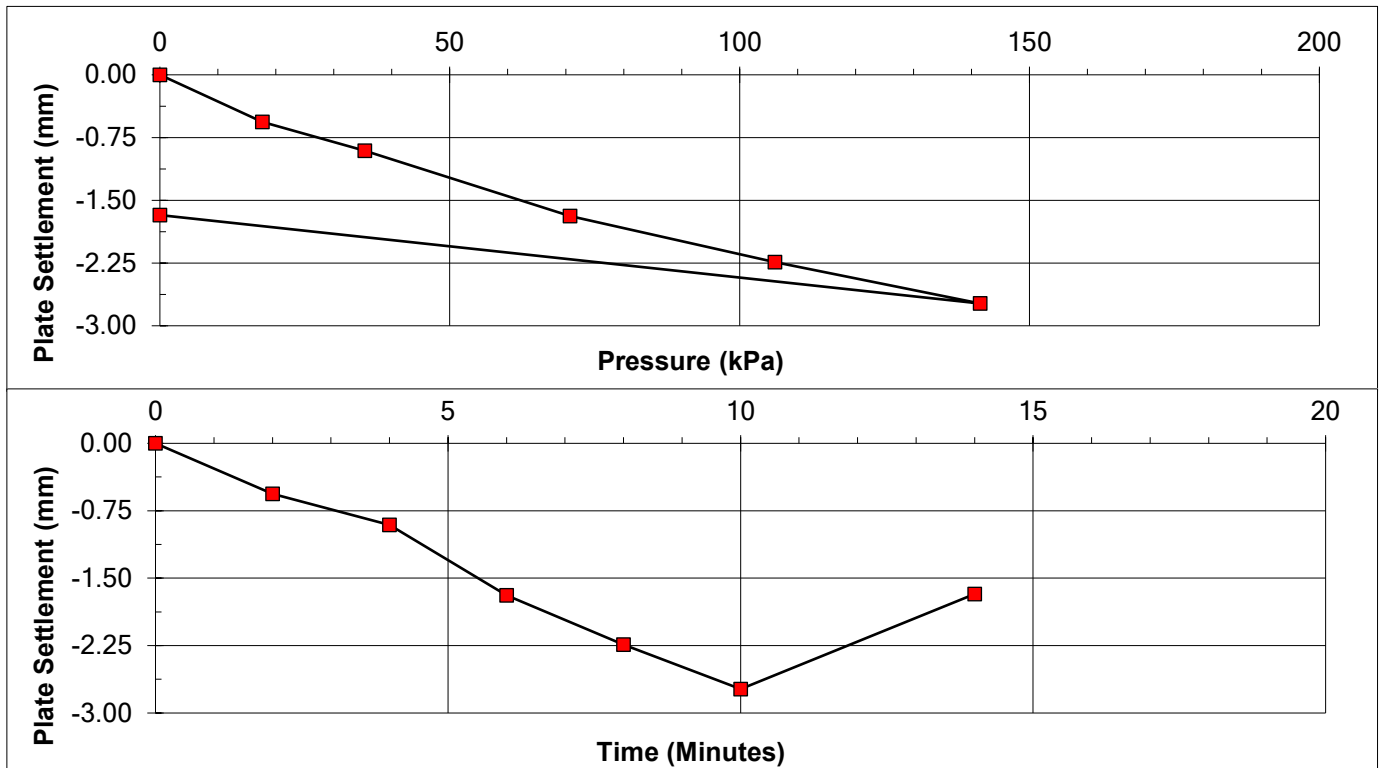
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |  |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |  |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |  |  |  |
| JOB NUMBER          | MRN 4579/61                              |                    |                       |  |  |  |
| TEST LOCATION       | Test 01                                  | LOADING DEVICE     | 10 Tonne Enerpac Jack |  |  |  |
| TEST DATE           | 01-Sep-23                                | PLATE SIZE (mm)    | 600 diameter          |  |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |  |  |  |
| MATERIAL UNDER TEST | Formation                                | MOISTURE CONTENT   | Not Required          |  |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4865                     | 4786                     | 4553                     | 4735                   | 0.00                    | 0.00         | 0.0               |
| 4859                     | 4767                     | 4409                     | 4678                   | -0.56                   | 5.00         | 17.7              |
| 4841                     | 4726                     | 4365                     | 4644                   | -0.91                   | 10.00        | 35.4              |
| 4779                     | 4645                     | 4273                     | 4566                   | -1.69                   | 20.00        | 70.7              |
| 4726                     | 4591                     | 4215                     | 4511                   | -2.24                   | 30.00        | 106.1             |
| 4684                     | 4535                     | 4165                     | 4461                   | -2.73                   | 40.00        | 141.5             |
| 4746                     | 4638                     | 4317                     | 4567                   | -1.68                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflexion =    | 51 kPa   |
| Modulus of subgrade reaction (k) = | 41 MPa/m |
| Equivalent 762 mm plate reaction = | 33 MPa/m |
| Equivalent CBR =                   | 4.1 %    |

REMARKS

SIGNED   
NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 04-Sep-23

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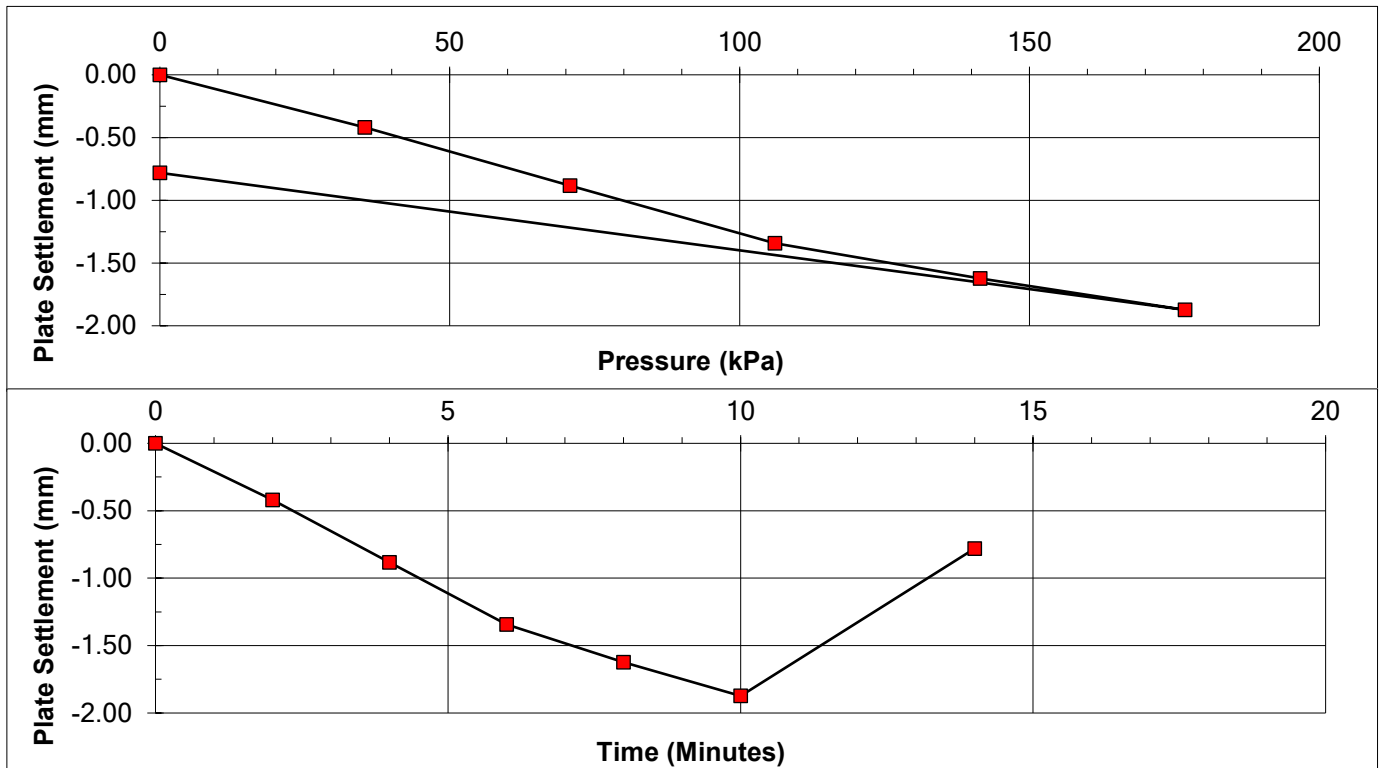
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |  |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |  |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |  |  |  |
| JOB NUMBER          | MRN 4579/61                              |                    |                       |  |  |  |
| TEST LOCATION       | Test 02                                  | LOADING DEVICE     | 10 Tonne Enerpac Jack |  |  |  |
| TEST DATE           | 01-Sep-23                                | PLATE SIZE (mm)    | 600 diameter          |  |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |  |  |  |
| MATERIAL UNDER TEST | Formation                                | MOISTURE CONTENT   | Not Required          |  |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4743                     | 4724                     | 4682                     | 4716                   | 0.00                    | 0.00         | 0.0               |
| 4695                     | 4670                     | 4658                     | 4674                   | -0.42                   | 10.00        | 35.4              |
| 4639                     | 4622                     | 4623                     | 4628                   | -0.88                   | 20.00        | 70.7              |
| 4595                     | 4577                     | 4574                     | 4582                   | -1.34                   | 30.00        | 106.1             |
| 4565                     | 4543                     | 4554                     | 4554                   | -1.62                   | 40.00        | 141.5             |
| 4538                     | 4515                     | 4534                     | 4529                   | -1.87                   | 50.00        | 176.8             |
| 4637                     | 4653                     | 4625                     | 4638                   | -0.78                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflexion =    | 99 kPa   |
| Modulus of subgrade reaction (k) = | 79 MPa/m |
| Equivalent 762 mm plate reaction = | 64 MPa/m |
| Equivalent CBR =                   | 12.9 %   |

REMARKS

SIGNED   
NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 04-Sep-23

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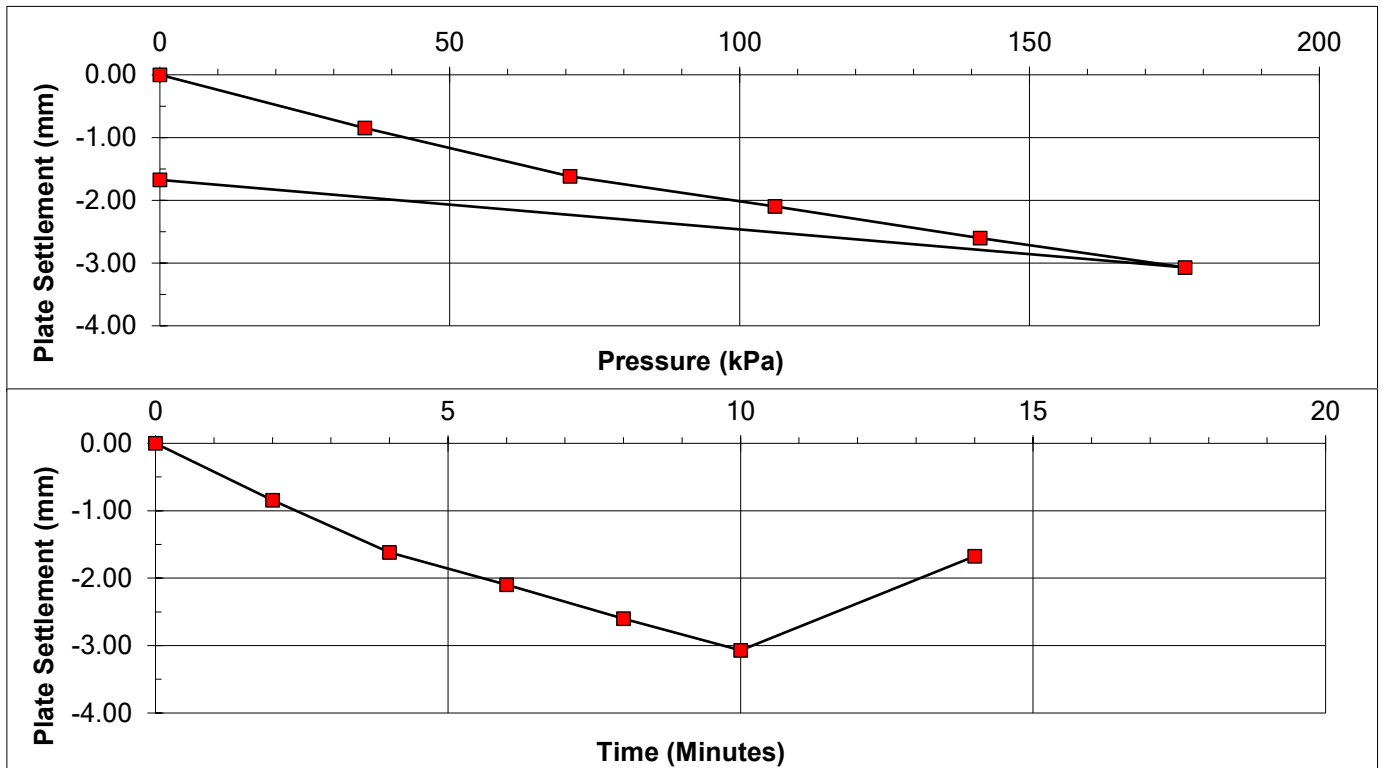
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |  |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |  |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |  |  |  |
| JOB NUMBER          | MRN 4579/61                              |                    |                       |  |  |  |
| TEST LOCATION       | Test 03                                  | LOADING DEVICE     | 10 Tonne Enerpac Jack |  |  |  |
| TEST DATE           | 01-Sep-23                                | PLATE SIZE (mm)    | 600 diameter          |  |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |  |  |  |
| MATERIAL UNDER TEST | Formation                                | MOISTURE CONTENT   | Not Required          |  |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4746                     | 4523                     | 4707                     | 4659                   | 0.00                    | 0.00         | 0.0               |
| 4690                     | 4457                     | 4575                     | 4574                   | -0.85                   | 10.00        | 35.4              |
| 4612                     | 4374                     | 4505                     | 4497                   | -1.62                   | 20.00        | 70.7              |
| 4559                     | 4314                     | 4473                     | 4449                   | -2.10                   | 30.00        | 106.1             |
| 4518                     | 4263                     | 4414                     | 4398                   | -2.60                   | 40.00        | 141.5             |
| 4482                     | 4221                     | 4352                     | 4352                   | -3.07                   | 50.00        | 176.8             |
| 4593                     | 4399                     | 4481                     | 4491                   | -1.68                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflexion =    | 54 kPa   |
| Modulus of subgrade reaction (k) = | 43 MPa/m |
| Equivalent 762 mm plate reaction = | 35 MPa/m |
| Equivalent CBR =                   | 4.5 %    |

REMARKS

SIGNED   
NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 04-Sep-23

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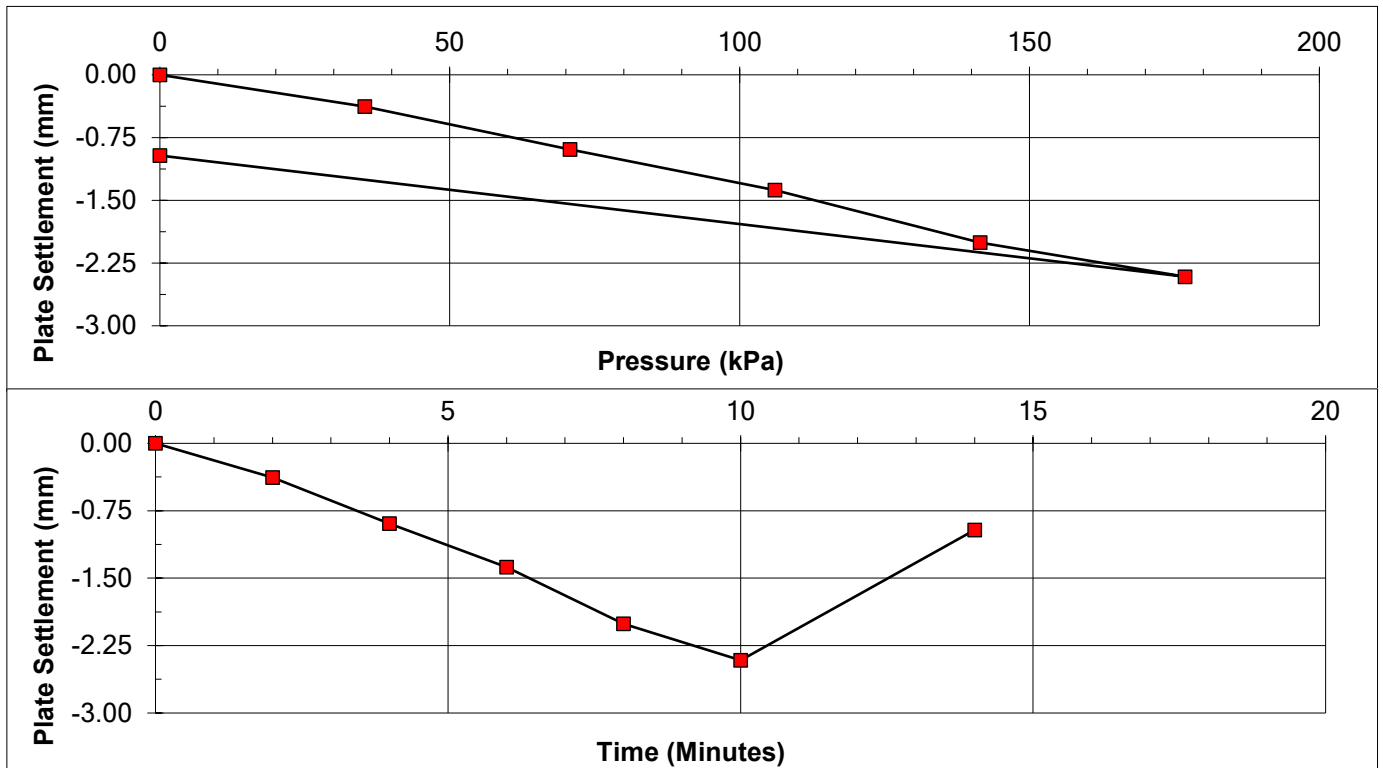
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### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |  |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |  |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |  |  |  |
| JOB NUMBER          | MRN 4579/61                              |                    |                       |  |  |  |
| TEST LOCATION       | Test 04                                  | LOADING DEVICE     | 10 Tonne Enerpac Jack |  |  |  |
| TEST DATE           | 01-Sep-23                                | PLATE SIZE (mm)    | 600 diameter          |  |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |  |  |  |
| MATERIAL UNDER TEST | Formation                                | MOISTURE CONTENT   | Not Required          |  |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4292                     | 4679                     | 4581                     | 4517                   | 0.00                    | 0.00         | 0.0               |
| 4258                     | 4630                     | 4550                     | 4479                   | -0.38                   | 10.00        | 35.4              |
| 4171                     | 4621                     | 4492                     | 4428                   | -0.89                   | 20.00        | 70.7              |
| 4101                     | 4565                     | 4473                     | 4380                   | -1.38                   | 30.00        | 106.1             |
| 4055                     | 4489                     | 4406                     | 4317                   | -2.01                   | 40.00        | 141.5             |
| 4013                     | 4454                     | 4361                     | 4276                   | -2.41                   | 50.00        | 176.8             |
| 4209                     | 4566                     | 4488                     | 4421                   | -0.96                   | 0.00         | 0.0               |



Pressure at 1.25 mm deflexion = 97 kPa  
Modulus of subgrade reaction (k) = 77 MPa/m  
Equivalent 762 mm plate reaction = 62 MPa/m  
Equivalent CBR = 12.4 %

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 04-Sep-23

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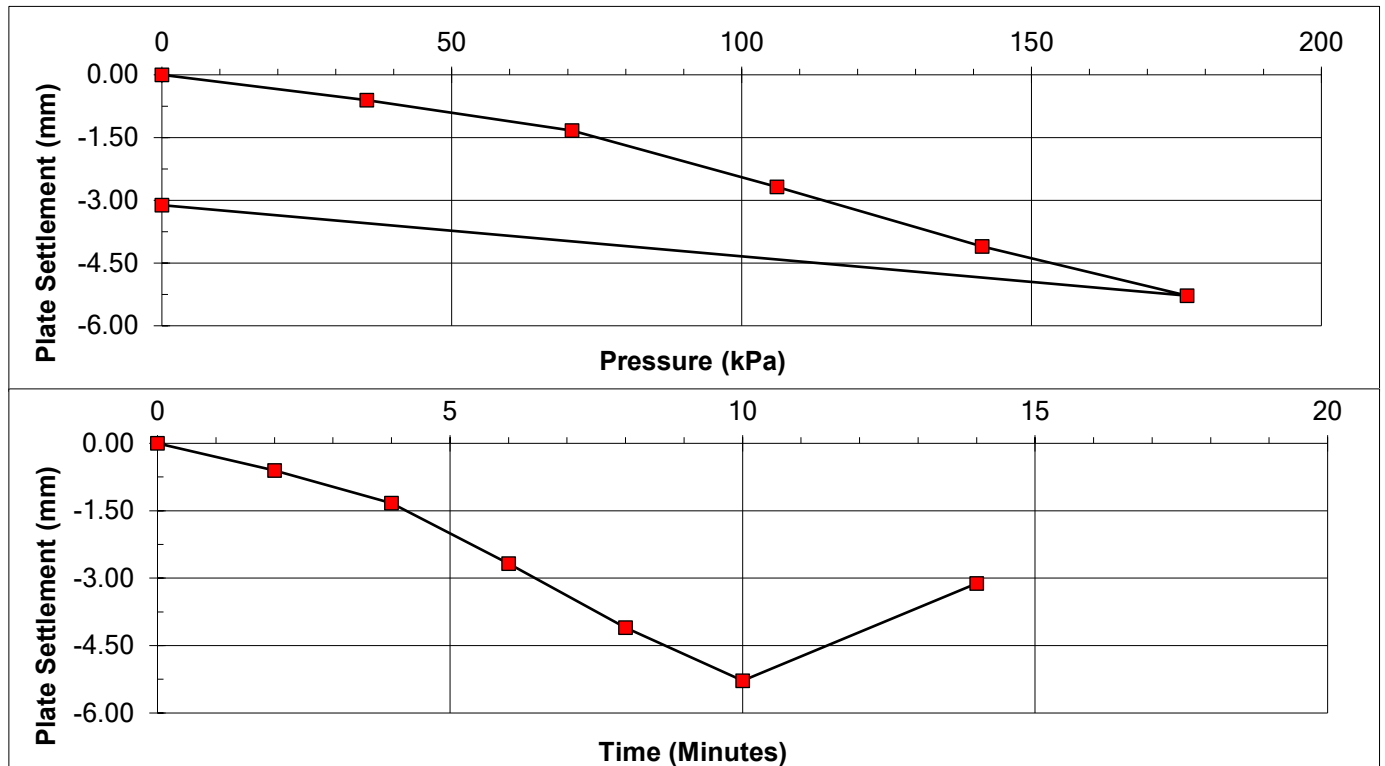
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### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |  |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |  |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |  |  |  |
| JOB NUMBER          | MRN 4579/61                              |                    |                       |  |  |  |
| TEST LOCATION       | Test 05                                  | LOADING DEVICE     | 10 Tonne Enerpac Jack |  |  |  |
| TEST DATE           | 01-Sep-23                                | PLATE SIZE (mm)    | 600 diameter          |  |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |  |  |  |
| MATERIAL UNDER TEST | Formation                                | MOISTURE CONTENT   | Not Required          |  |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4614                     | 4648                     | 4560                     | 4607                   | 0.00                    | 0.00         | 0.0               |
| 4521                     | 4579                     | 4540                     | 4547                   | -0.61                   | 10.00        | 35.4              |
| 4486                     | 4464                     | 4473                     | 4474                   | -1.33                   | 20.00        | 70.7              |
| 4332                     | 4324                     | 4363                     | 4340                   | -2.68                   | 30.00        | 106.1             |
| 4115                     | 4203                     | 4273                     | 4197                   | -4.10                   | 40.00        | 141.5             |
| 3989                     | 4086                     | 4163                     | 4079                   | -5.28                   | 50.00        | 176.8             |
| 4261                     | 4344                     | 4282                     | 4296                   | -3.12                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflexion =    | 67 kPa   |
| Modulus of subgrade reaction (k) = | 53 MPa/m |
| Equivalent 762 mm plate reaction = | 43 MPa/m |
| Equivalent CBR =                   | 6.5 %    |

REMARKS

SIGNED   
NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 04-Sep-23

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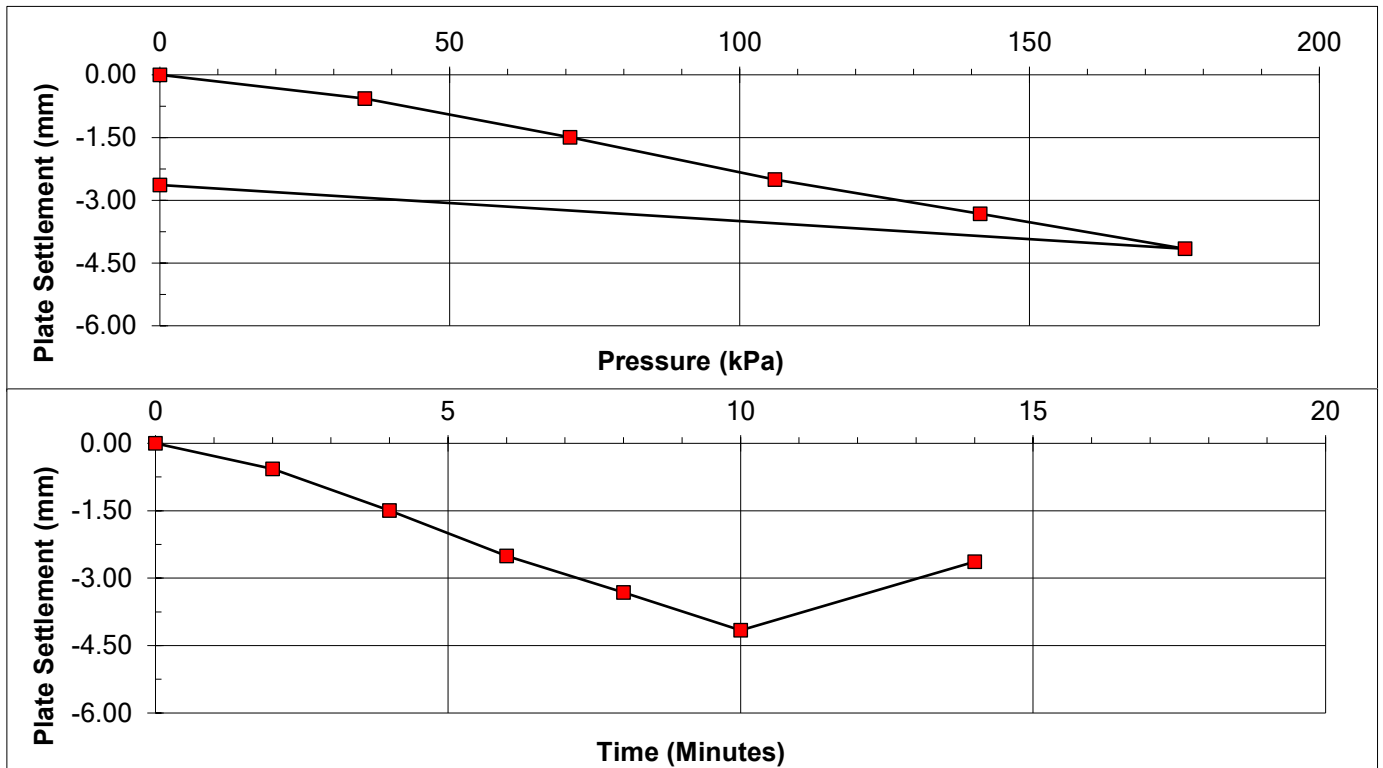
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |  |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |  |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |  |  |  |
| JOB NUMBER          | MRN 4579/61                              |                    |                       |  |  |  |
| TEST LOCATION       | Test 06                                  | LOADING DEVICE     | 10 Tonne Enerpac Jack |  |  |  |
| TEST DATE           | 01-Sep-23                                | PLATE SIZE (mm)    | 600 diameter          |  |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |  |  |  |
| MATERIAL UNDER TEST | Formation                                | MOISTURE CONTENT   | Not Required          |  |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4470                     | 4652                     | 4545                     | 4556                   | 0.00                    | 0.00         | 0.0               |
| 4393                     | 4569                     | 4534                     | 4499                   | -0.57                   | 10.00        | 35.4              |
| 4288                     | 4456                     | 4475                     | 4406                   | -1.49                   | 20.00        | 70.7              |
| 4174                     | 4354                     | 4387                     | 4305                   | -2.51                   | 30.00        | 106.1             |
| 4059                     | 4257                     | 4355                     | 4224                   | -3.32                   | 40.00        | 141.5             |
| 3969                     | 4174                     | 4276                     | 4140                   | -4.16                   | 50.00        | 176.8             |
| 4142                     | 4383                     | 4352                     | 4292                   | -2.63                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflexion =    | 61 kPa   |
| Modulus of subgrade reaction (k) = | 49 MPa/m |
| Equivalent 762 mm plate reaction = | 40 MPa/m |
| Equivalent CBR =                   | 5.6 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 04-Sep-23

# MURRAY RIX

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DUKINFIELD, CHESHIRE SK16 4QX  
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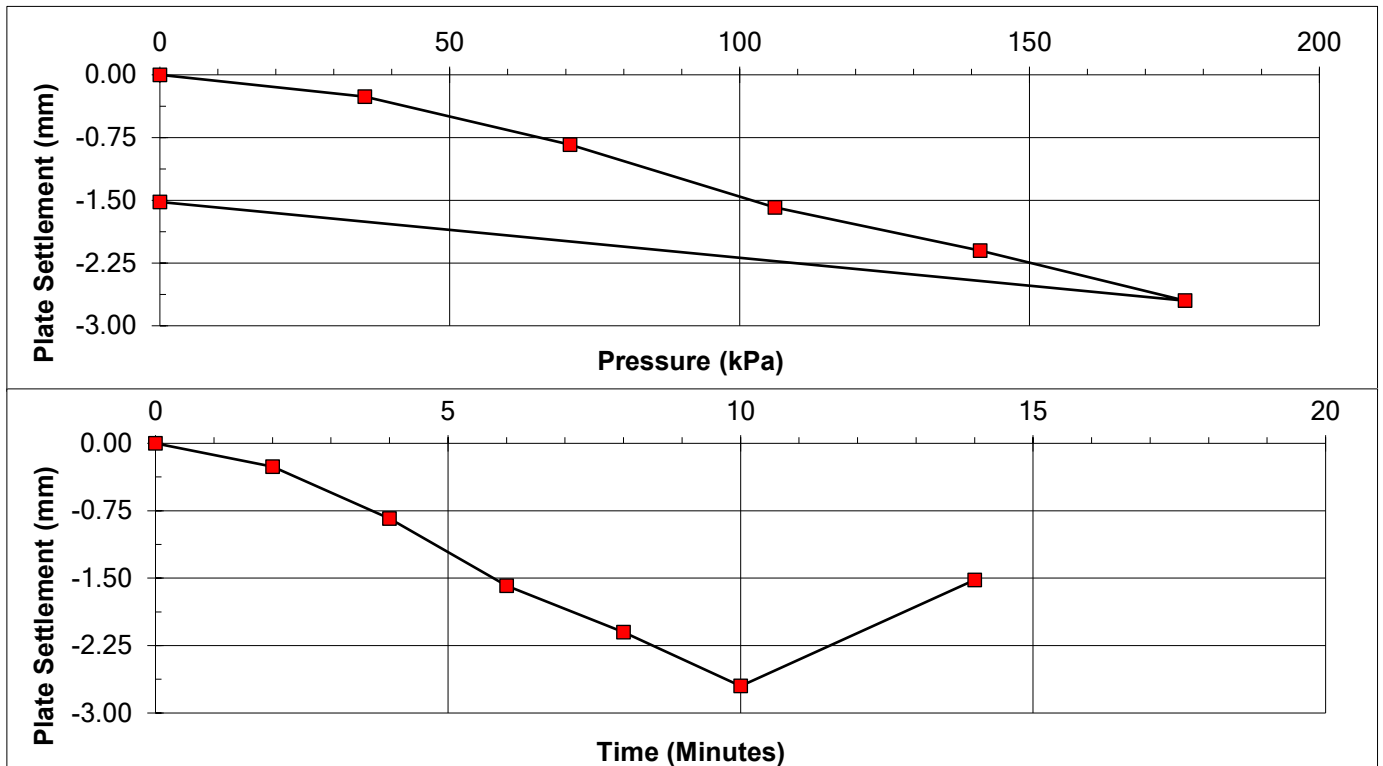
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |  |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |  |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |  |  |  |
| JOB NUMBER          | MRN 4579/61                              |                    |                       |  |  |  |
| TEST LOCATION       | Test 07                                  | LOADING DEVICE     | 10 Tonne Enerpac Jack |  |  |  |
| TEST DATE           | 01-Sep-23                                | PLATE SIZE (mm)    | 600 diameter          |  |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |  |  |  |
| MATERIAL UNDER TEST | Formation                                | MOISTURE CONTENT   | Not Required          |  |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4758                     | 4745                     | 4491                     | 4665                   | 0.00                    | 0.00         | 0.0               |
| 4730                     | 4712                     | 4474                     | 4639                   | -0.26                   | 10.00        | 35.4              |
| 4665                     | 4637                     | 4441                     | 4581                   | -0.84                   | 20.00        | 70.7              |
| 4599                     | 4557                     | 4363                     | 4506                   | -1.58                   | 30.00        | 106.1             |
| 4544                     | 4497                     | 4323                     | 4455                   | -2.10                   | 40.00        | 141.5             |
| 4487                     | 4430                     | 4267                     | 4395                   | -2.70                   | 50.00        | 176.8             |
| 4632                     | 4594                     | 4312                     | 4513                   | -1.52                   | 0.00         | 0.0               |



Pressure at 1.25 mm deflexion = 90 kPa  
Modulus of subgrade reaction (k) = 72 MPa/m  
Equivalent 762 mm plate reaction = 58 MPa/m  
Equivalent CBR = 11.0 %

REMARKS

SIGNED   
NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 04-Sep-23

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



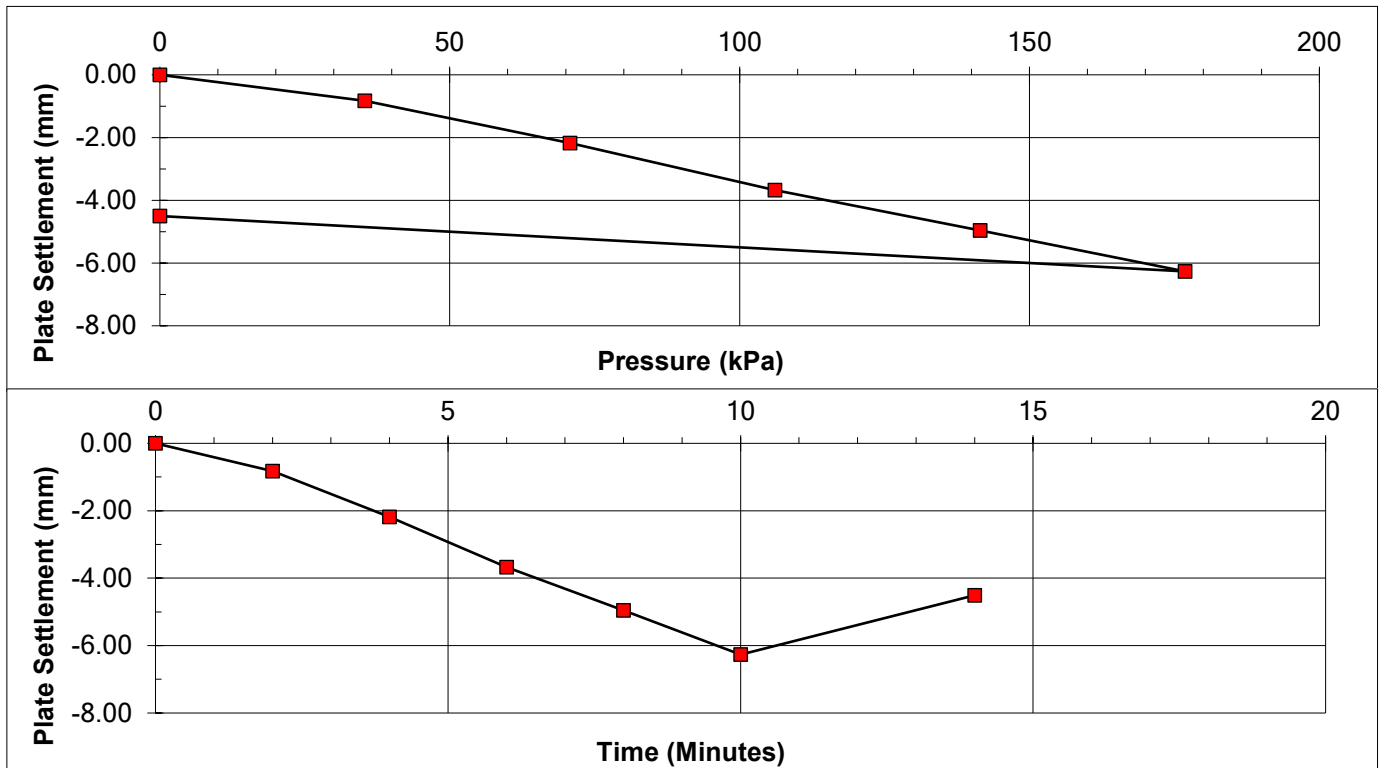
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |  |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |  |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |  |  |  |
| JOB NUMBER          | MRN 4579/61                              |                    |                       |  |  |  |
| TEST LOCATION       | Test 08                                  | LOADING DEVICE     | 10 Tonne Enerpac Jack |  |  |  |
| TEST DATE           | 01-Sep-23                                | PLATE SIZE (mm)    | 600 diameter          |  |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |  |  |  |
| MATERIAL UNDER TEST | Formation                                | MOISTURE CONTENT   | Not Required          |  |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4619                     | 4612                     | 4401                     | 4544                   | 0.00                    | 0.00         | 0.0               |
| 4502                     | 4494                     | 4388                     | 4461                   | -0.83                   | 10.00        | 35.4              |
| 4289                     | 4364                     | 4325                     | 4326                   | -2.18                   | 20.00        | 70.7              |
| 4109                     | 4181                     | 4240                     | 4177                   | -3.67                   | 30.00        | 106.1             |
| 3957                     | 4045                     | 4143                     | 4048                   | -4.96                   | 40.00        | 141.5             |
| 3825                     | 3912                     | 4015                     | 3917                   | -6.27                   | 50.00        | 176.8             |
| 4045                     | 4147                     | 4088                     | 4093                   | -4.51                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflexion =    | 46 kPa   |
| Modulus of subgrade reaction (k) = | 37 MPa/m |
| Equivalent 762 mm plate reaction = | 30 MPa/m |
| Equivalent CBR =                   | 3.5 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 04-Sep-23

## TEST REPORT

**Client** Chartrange Ltd

**Address** Wharf Street  
Dukinfield  
Cheshire  
SK16 4NJ

**Contract** Rochdale Road,  
Greater Manchester M4 4HY

**Job Number** MRN 4579/64  
**Date of Issue** 07 September 2023  
**Pages** 1 of 8

Approved Signatories

S J Hutchings, O P Davies

Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
- 3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.
- 4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted.
- 5 The results included within the report are representative of the samples submitted for analysis.
- 6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.



Andrew House, Hadfield Street, Dukinfield, Cheshire SK16 4QX Tel: 0161 475 0870  
Email: [enquiries@murrayrix.com](mailto:enquiries@murrayrix.com) Website: [www.murrayrix.com](http://www.murrayrix.com)

Also at: London: 020 8523 1999

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# MURRAY RIX

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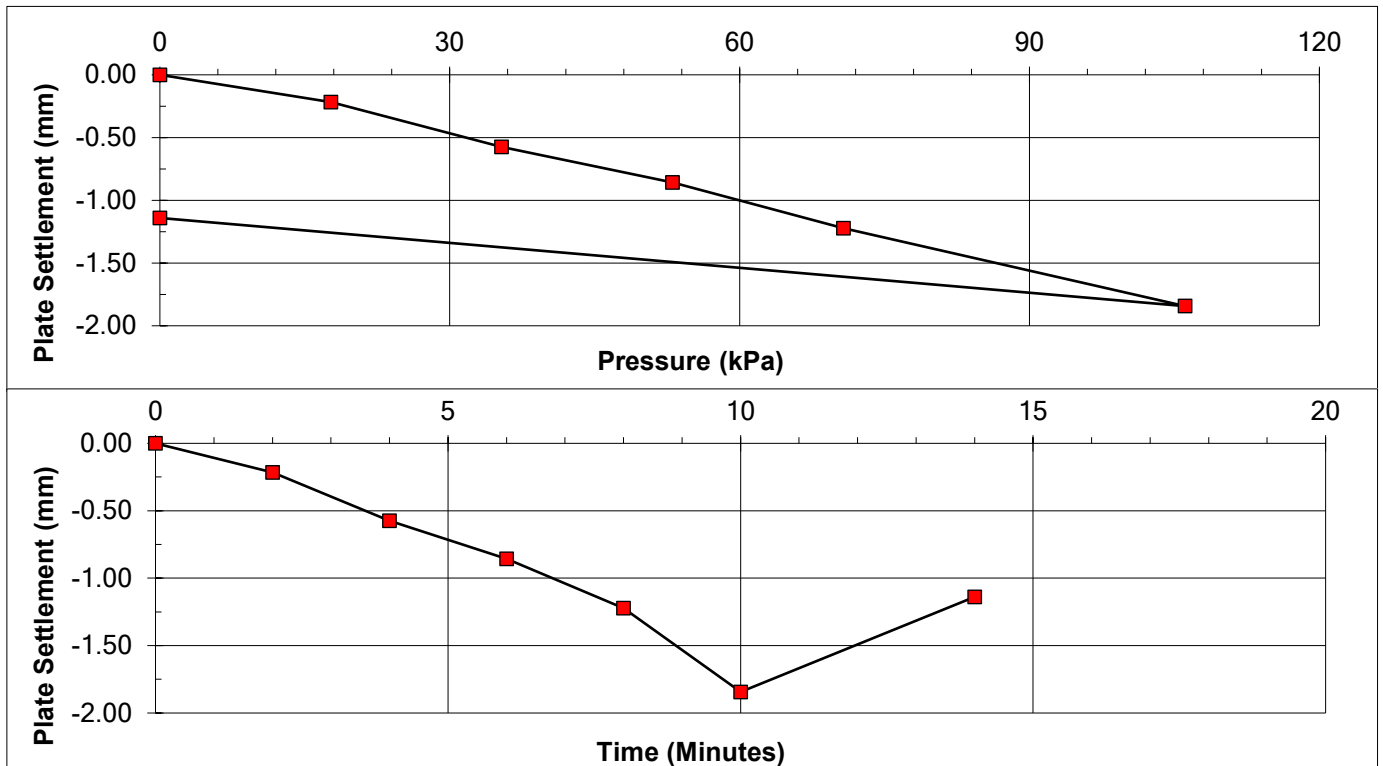
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |  |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |  |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |  |  |  |
| JOB NUMBER          | MRN 4579/64                              |                    |                       |  |  |  |
| TEST LOCATION       | Test 01                                  | LOADING DEVICE     | 10 Tonne Enerpac Jack |  |  |  |
| TEST DATE           | 06-Sep-23                                | PLATE SIZE (mm)    | 600 diameter          |  |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |  |  |  |
| MATERIAL UNDER TEST | Formation                                | MOISTURE CONTENT   | Not Required          |  |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4408                     | 4595                     | 4764                     | 4589                   | 0.00                    | 0.00         | 0.0               |
| 4382                     | 4568                     | 4752                     | 4567                   | -0.22                   | 5.00         | 17.7              |
| 4349                     | 4529                     | 4717                     | 4532                   | -0.57                   | 10.00        | 35.4              |
| 4333                     | 4496                     | 4681                     | 4503                   | -0.86                   | 15.00        | 53.1              |
| 4317                     | 4452                     | 4631                     | 4467                   | -1.22                   | 20.00        | 70.7              |
| 4274                     | 4385                     | 4555                     | 4405                   | -1.84                   | 30.00        | 106.1             |
| 4306                     | 4475                     | 4644                     | 4475                   | -1.14                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflexion =    | 72 kPa   |
| Modulus of subgrade reaction (k) = | 58 MPa/m |
| Equivalent 762 mm plate reaction = | 46 MPa/m |
| Equivalent CBR =                   | 7.5 %    |

REMARKS

SIGNED   
NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 07-Sep-23

# MURRAY RIX

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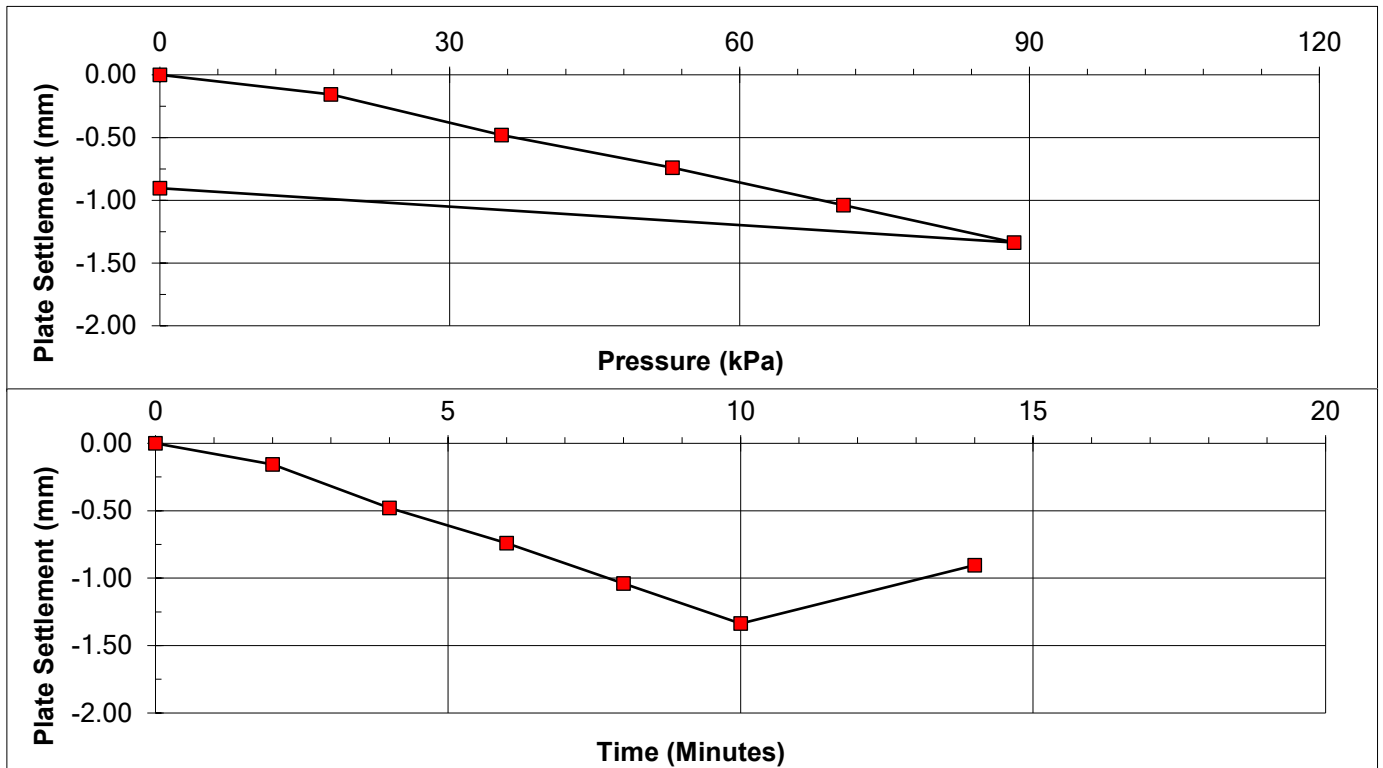
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### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |  |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |  |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |  |  |  |
| JOB NUMBER          | MRN 4579/64                              |                    |                       |  |  |  |
| TEST LOCATION       | Test 02                                  | LOADING DEVICE     | 10 Tonne Enerpac Jack |  |  |  |
| TEST DATE           | 06-Sep-23                                | PLATE SIZE (mm)    | 600 diameter          |  |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |  |  |  |
| MATERIAL UNDER TEST | Formation                                | MOISTURE CONTENT   | Not Required          |  |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4452                     | 4563                     | 4931                     | 4649                   | 0.00                    | 0.00         | 0.0               |
| 4441                     | 4545                     | 4913                     | 4633                   | -0.16                   | 5.00         | 17.7              |
| 4408                     | 4515                     | 4879                     | 4601                   | -0.48                   | 10.00        | 35.4              |
| 4375                     | 4499                     | 4850                     | 4575                   | -0.74                   | 15.00        | 53.1              |
| 4341                     | 4464                     | 4829                     | 4545                   | -1.04                   | 20.00        | 70.7              |
| 4308                     | 4430                     | 4807                     | 4515                   | -1.34                   | 25.00        | 88.4              |
| 4321                     | 4494                     | 4860                     | 4558                   | -0.90                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflexion =    | 83 kPa   |
| Modulus of subgrade reaction (k) = | 67 MPa/m |
| Equivalent 762 mm plate reaction = | 54 MPa/m |
| Equivalent CBR =                   | 9.6 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 07-Sep-23

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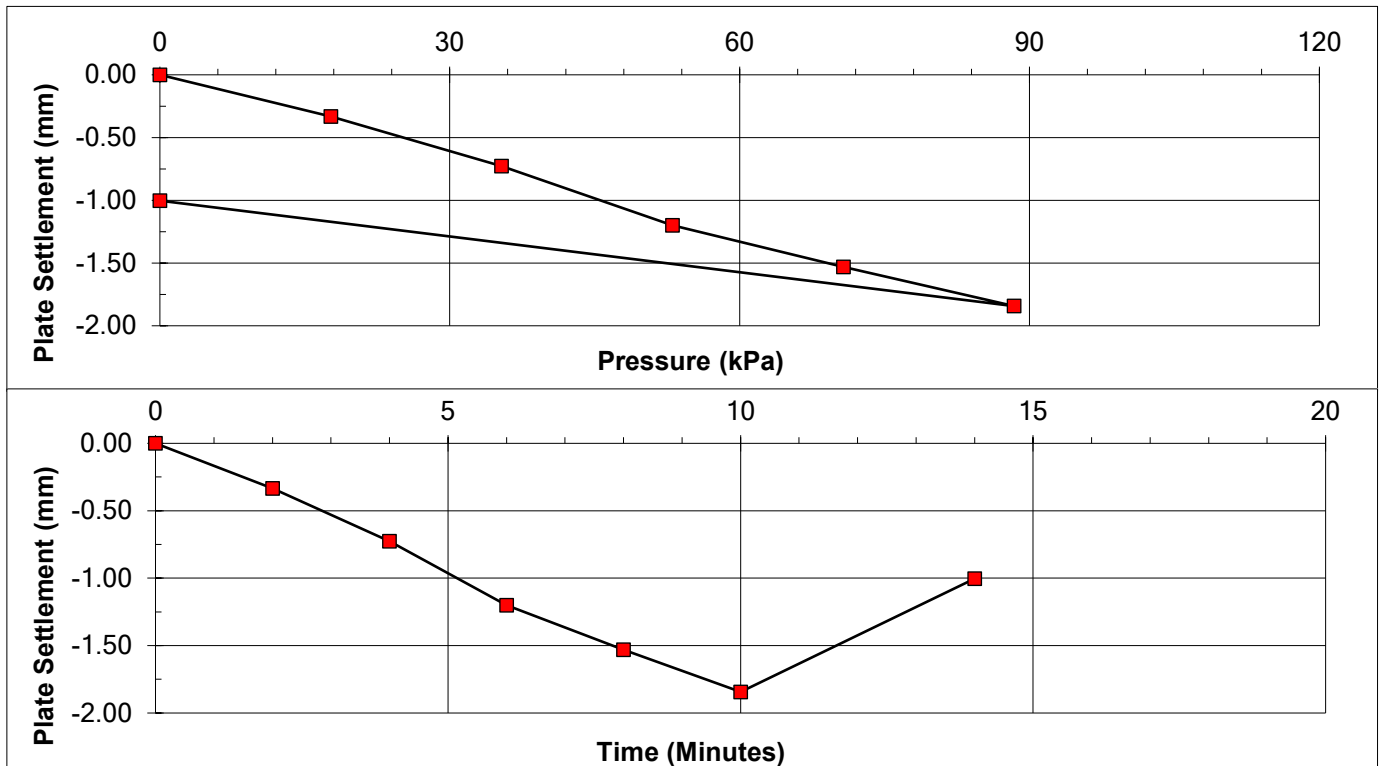
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### PLATE INCREMENTAL LOAD TEST

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|                     |                                          |                    |                       |  |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |  |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |  |  |  |
| JOB NUMBER          | MRN 4579/64                              |                    |                       |  |  |  |
| TEST LOCATION       | Test 03                                  | LOADING DEVICE     | 10 Tonne Enerpac Jack |  |  |  |
| TEST DATE           | 06-Sep-23                                | PLATE SIZE (mm)    | 600 diameter          |  |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |  |  |  |
| MATERIAL UNDER TEST | Formation                                | MOISTURE CONTENT   | Not Required          |  |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4382                     | 4592                     | 4475                     | 4483                   | 0.00                    | 0.00         | 0.0               |
| 4365                     | 4552                     | 4432                     | 4450                   | -0.33                   | 5.00         | 17.7              |
| 4347                     | 4501                     | 4383                     | 4410                   | -0.73                   | 10.00        | 35.4              |
| 4296                     | 4454                     | 4339                     | 4363                   | -1.20                   | 15.00        | 53.1              |
| 4274                     | 4412                     | 4304                     | 4330                   | -1.53                   | 20.00        | 70.7              |
| 4250                     | 4376                     | 4270                     | 4299                   | -1.84                   | 25.00        | 88.4              |
| 4276                     | 4489                     | 4383                     | 4383                   | -1.00                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflexion =    | 56 kPa   |
| Modulus of subgrade reaction (k) = | 45 MPa/m |
| Equivalent 762 mm plate reaction = | 36 MPa/m |
| Equivalent CBR =                   | 4.8 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 07-Sep-23

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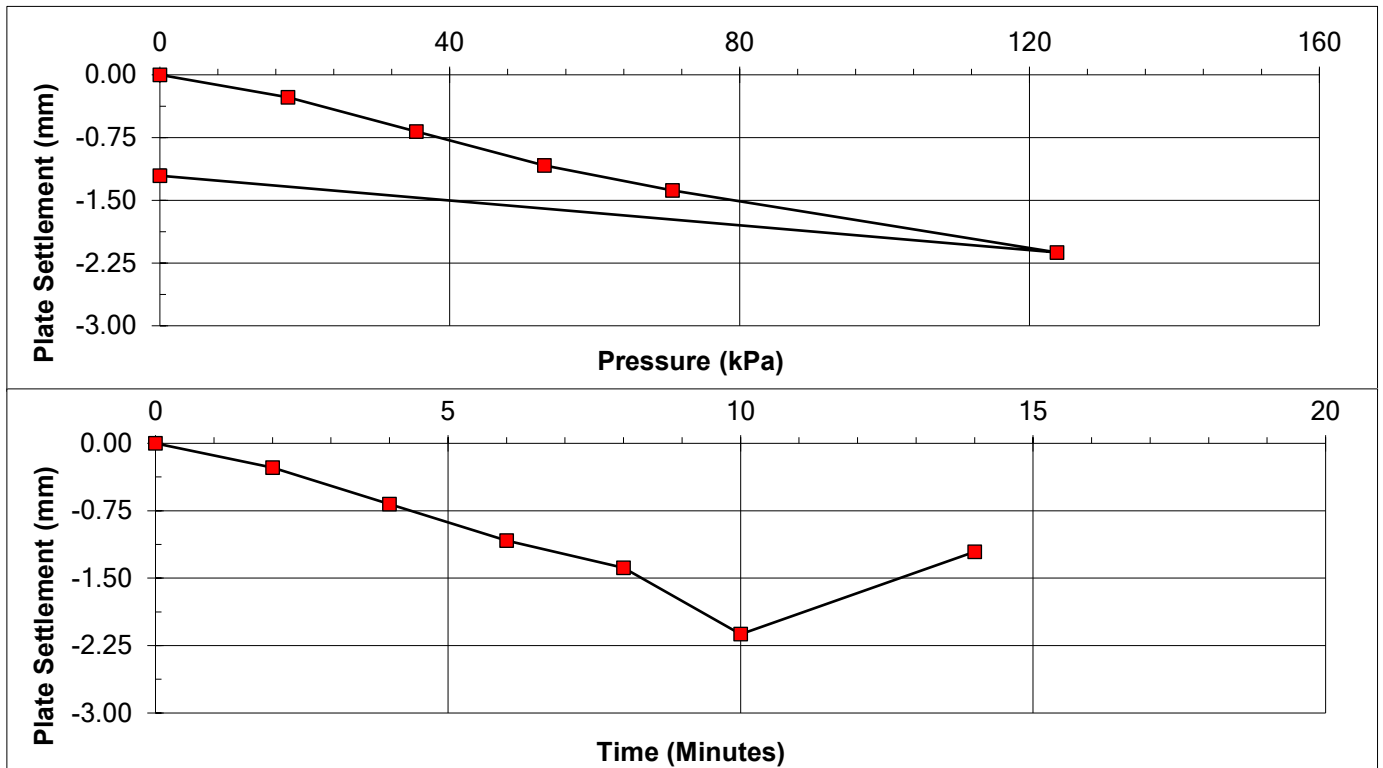
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|                     |                                          |                    |                       |  |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |  |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |  |  |  |
| JOB NUMBER          | MRN 4579/64                              |                    |                       |  |  |  |
| TEST LOCATION       | Test 04                                  | LOADING DEVICE     | 10 Tonne Enerpac Jack |  |  |  |
| TEST DATE           | 06-Sep-23                                | PLATE SIZE (mm)    | 600 diameter          |  |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |  |  |  |
| MATERIAL UNDER TEST | Formation                                | MOISTURE CONTENT   | Not Required          |  |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4712                     | 4839                     | 4252                     | 4601                   | 0.00                    | 0.00         | 0.0               |
| 4698                     | 4801                     | 4223                     | 4574                   | -0.27                   | 5.00         | 17.7              |
| 4681                     | 4757                     | 4162                     | 4533                   | -0.68                   | 10.00        | 35.4              |
| 4647                     | 4721                     | 4110                     | 4493                   | -1.08                   | 15.00        | 53.1              |
| 4624                     | 4694                     | 4070                     | 4463                   | -1.38                   | 20.00        | 70.7              |
| 4585                     | 4622                     | 3959                     | 4389                   | -2.12                   | 35.00        | 123.8             |
| 4621                     | 4736                     | 4084                     | 4480                   | -1.21                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflexion =    | 63 kPa   |
| Modulus of subgrade reaction (k) = | 50 MPa/m |
| Equivalent 762 mm plate reaction = | 40 MPa/m |
| Equivalent CBR =                   | 5.9 %    |

REMARKS

SIGNED   
NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 07-Sep-23

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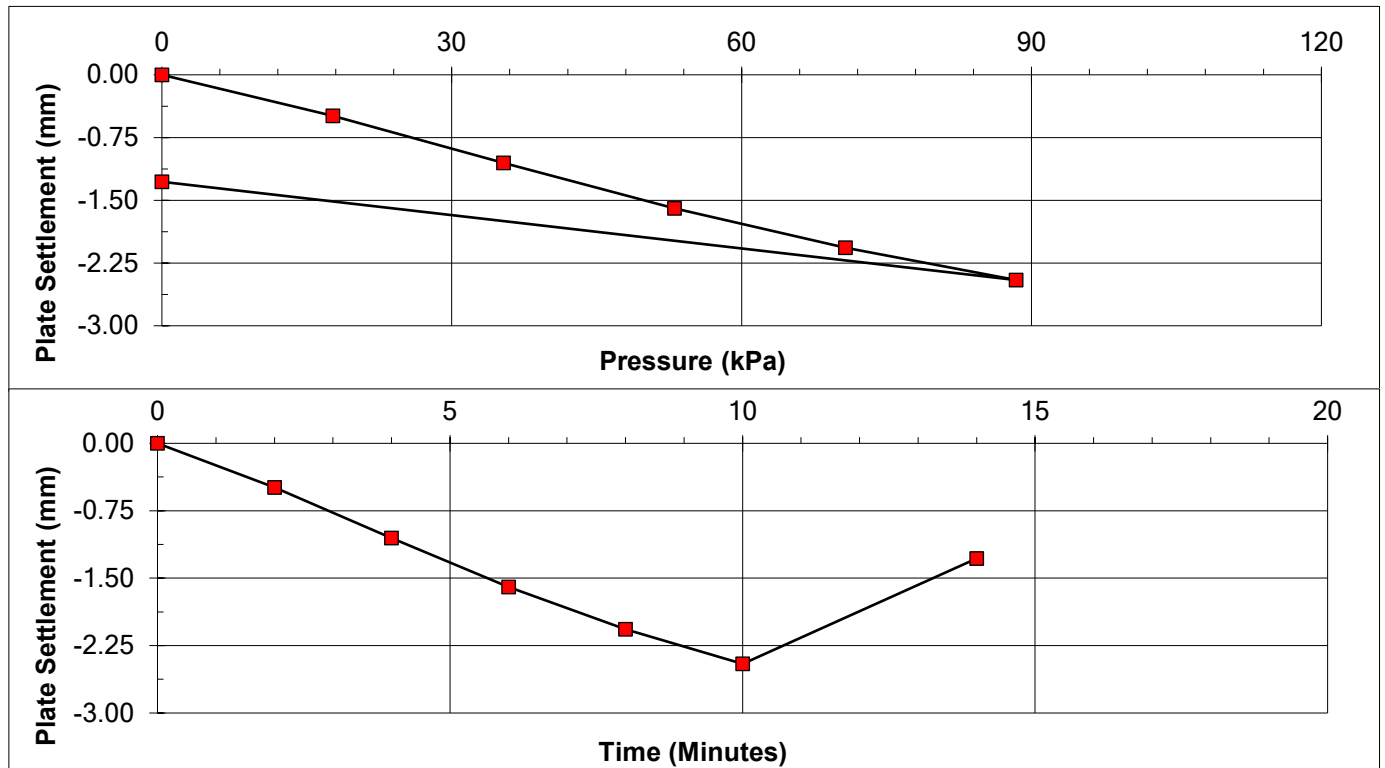
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### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |  |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |  |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |  |  |  |
| JOB NUMBER          | MRN 4579/64                              |                    |                       |  |  |  |
| TEST LOCATION       | Test 05                                  | LOADING DEVICE     | 10 Tonne Enerpac Jack |  |  |  |
| TEST DATE           | 06-Sep-23                                | PLATE SIZE (mm)    | 600 diameter          |  |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |  |  |  |
| MATERIAL UNDER TEST | Formation                                | MOISTURE CONTENT   | Not Required          |  |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4320                     | 4459                     | 4456                     | 4412                   | 0.00                    | 0.00         | 0.0               |
| 4307                     | 4391                     | 4390                     | 4363                   | -0.49                   | 5.00         | 17.7              |
| 4275                     | 4322                     | 4322                     | 4306                   | -1.05                   | 10.00        | 35.4              |
| 4246                     | 4253                     | 4257                     | 4252                   | -1.60                   | 15.00        | 53.1              |
| 4217                     | 4194                     | 4204                     | 4205                   | -2.07                   | 20.00        | 70.7              |
| 4191                     | 4146                     | 4162                     | 4166                   | -2.45                   | 25.00        | 88.4              |
| 4219                     | 4333                     | 4299                     | 4284                   | -1.28                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflexion =    | 42 kPa   |
| Modulus of subgrade reaction (k) = | 33 MPa/m |
| Equivalent 762 mm plate reaction = | 27 MPa/m |
| Equivalent CBR =                   | 2.9 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 07-Sep-23

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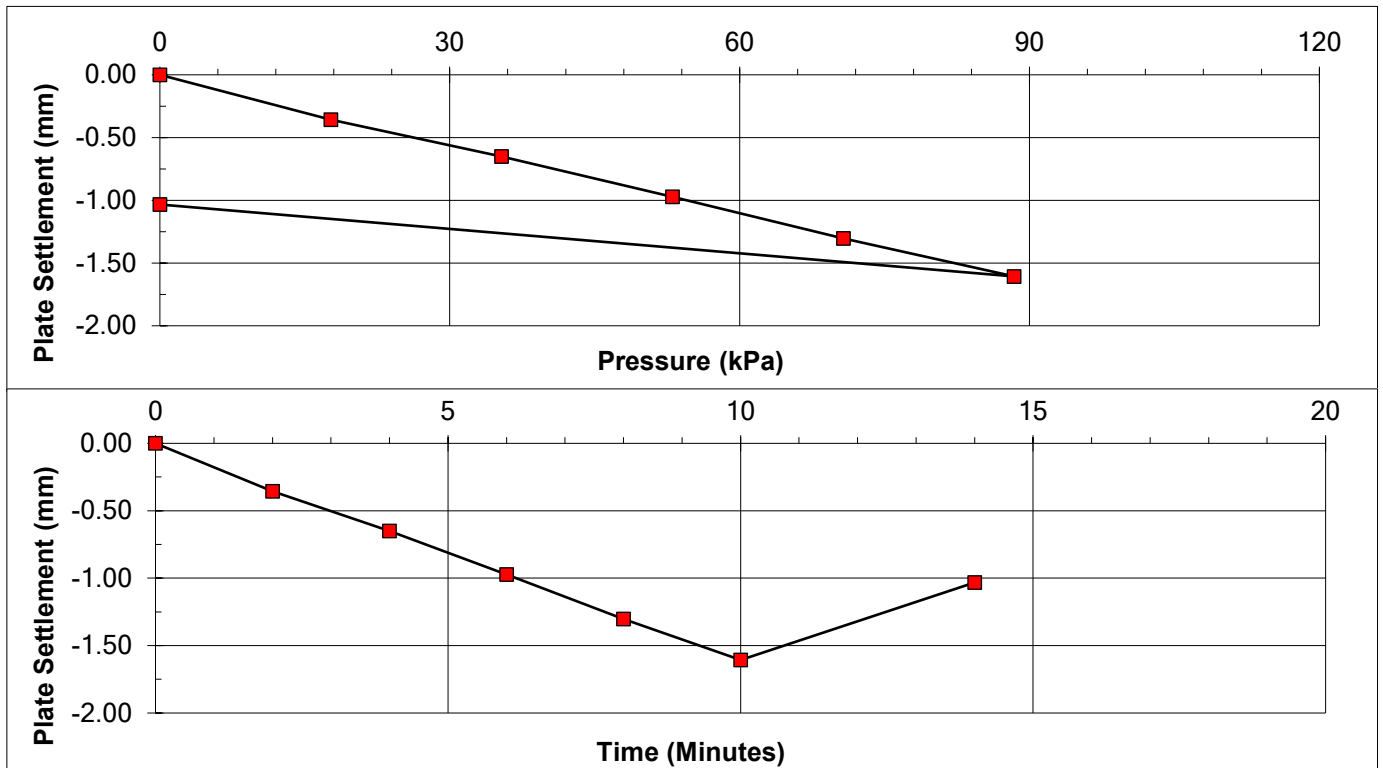
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### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |  |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |  |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |  |  |  |
| JOB NUMBER          | MRN 4579/64                              |                    |                       |  |  |  |
| TEST LOCATION       | Test 06                                  | LOADING DEVICE     | 10 Tonne Enerpac Jack |  |  |  |
| TEST DATE           | 06-Sep-23                                | PLATE SIZE (mm)    | 600 diameter          |  |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |  |  |  |
| MATERIAL UNDER TEST | Formation                                | MOISTURE CONTENT   | Not Required          |  |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4561                     | 4638                     | 4624                     | 4608                   | 0.00                    | 0.00         | 0.0               |
| 4530                     | 4601                     | 4585                     | 4572                   | -0.36                   | 5.00         | 17.7              |
| 4493                     | 4577                     | 4558                     | 4543                   | -0.65                   | 10.00        | 35.4              |
| 4456                     | 4545                     | 4530                     | 4510                   | -0.97                   | 15.00        | 53.1              |
| 4425                     | 4510                     | 4497                     | 4477                   | -1.30                   | 20.00        | 70.7              |
| 4396                     | 4483                     | 4462                     | 4447                   | -1.61                   | 25.00        | 88.4              |
| 4436                     | 4532                     | 4545                     | 4504                   | -1.03                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflexion =    | 68 kPa   |
| Modulus of subgrade reaction (k) = | 54 MPa/m |
| Equivalent 762 mm plate reaction = | 44 MPa/m |
| Equivalent CBR =                   | 6.7 %    |

REMARKS

SIGNED   
NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 07-Sep-23

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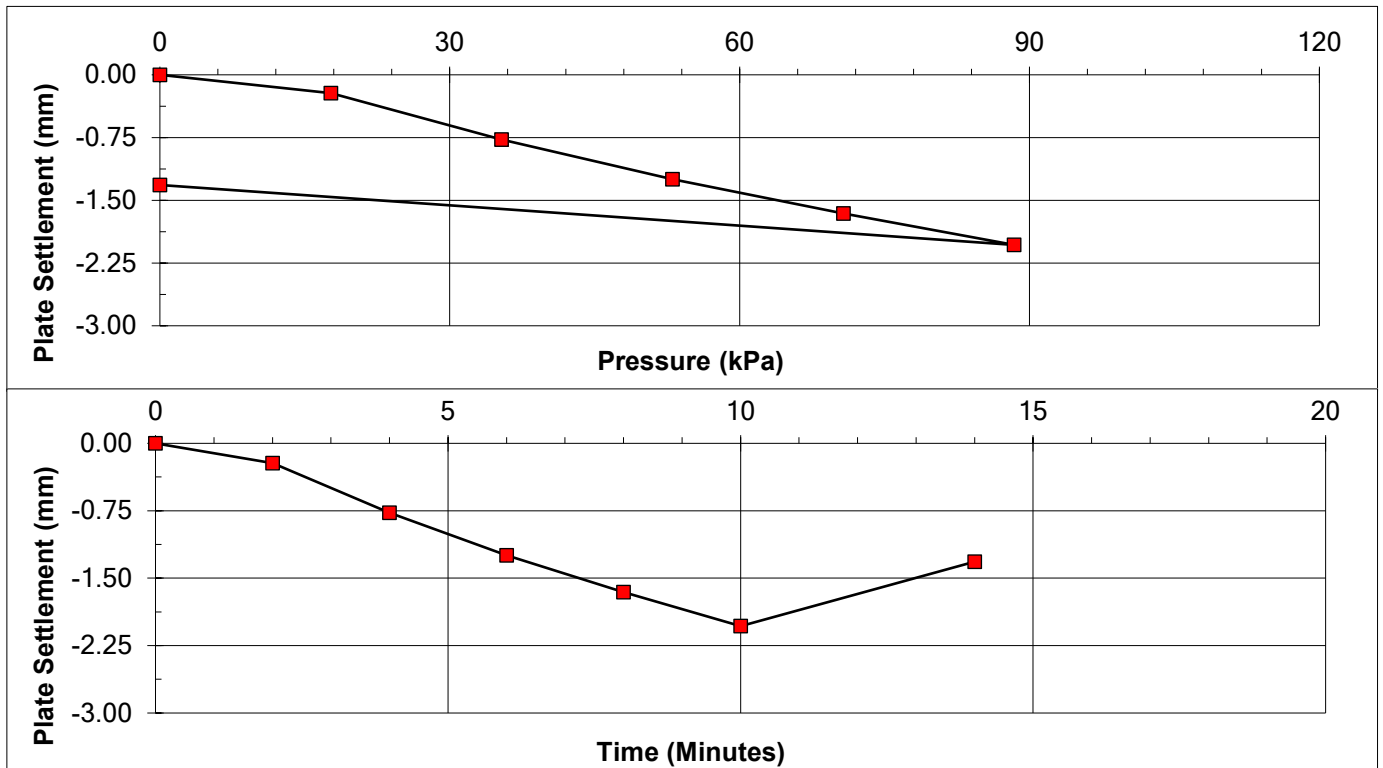
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BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |  |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |  |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |  |  |  |
| JOB NUMBER          | MRN 4579/64                              |                    |                       |  |  |  |
| TEST LOCATION       | Test 07                                  | LOADING DEVICE     | 10 Tonne Enerpac Jack |  |  |  |
| TEST DATE           | 06-Sep-23                                | PLATE SIZE (mm)    | 600 diameter          |  |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |  |  |  |
| MATERIAL UNDER TEST | Formation                                | MOISTURE CONTENT   | Not Required          |  |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4450                     | 4605                     | 4721                     | 4592                   | 0.00                    | 0.00         | 0.0               |
| 4443                     | 4583                     | 4684                     | 4570                   | -0.22                   | 5.00         | 17.7              |
| 4394                     | 4530                     | 4620                     | 4515                   | -0.77                   | 10.00        | 35.4              |
| 4364                     | 4479                     | 4559                     | 4467                   | -1.25                   | 15.00        | 53.1              |
| 4322                     | 4442                     | 4515                     | 4426                   | -1.66                   | 20.00        | 70.7              |
| 4297                     | 4402                     | 4467                     | 4389                   | -2.03                   | 25.00        | 88.4              |
| 4311                     | 4498                     | 4572                     | 4460                   | -1.32                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflexion =    | 53 kPa   |
| Modulus of subgrade reaction (k) = | 43 MPa/m |
| Equivalent 762 mm plate reaction = | 34 MPa/m |
| Equivalent CBR =                   | 4.4 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 07-Sep-23

## TEST REPORT

**Client** Chartrange Ltd

**Address** Wharf Street  
Dukinfield  
Cheshire  
SK16 4NJ

**Contract** Rochdale Road,  
Greater Manchester M4 4HY

**Job Number** MRN 4579/65A

**Date of Issue** 11 September 2023

**Page** 1 of 4

Approved Signatories

S J Hutchings, O P Davies

Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
- 3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.
- 4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted.
- 5 The results included within the report are representative of the samples submitted for analysis.
- 6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.



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Email: [enquiries@murrayrix.com](mailto:enquiries@murrayrix.com) Website: [www.murrayrix.com](http://www.murrayrix.com)

Also at: London: 020 8523 1999

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# MURRAY RIX

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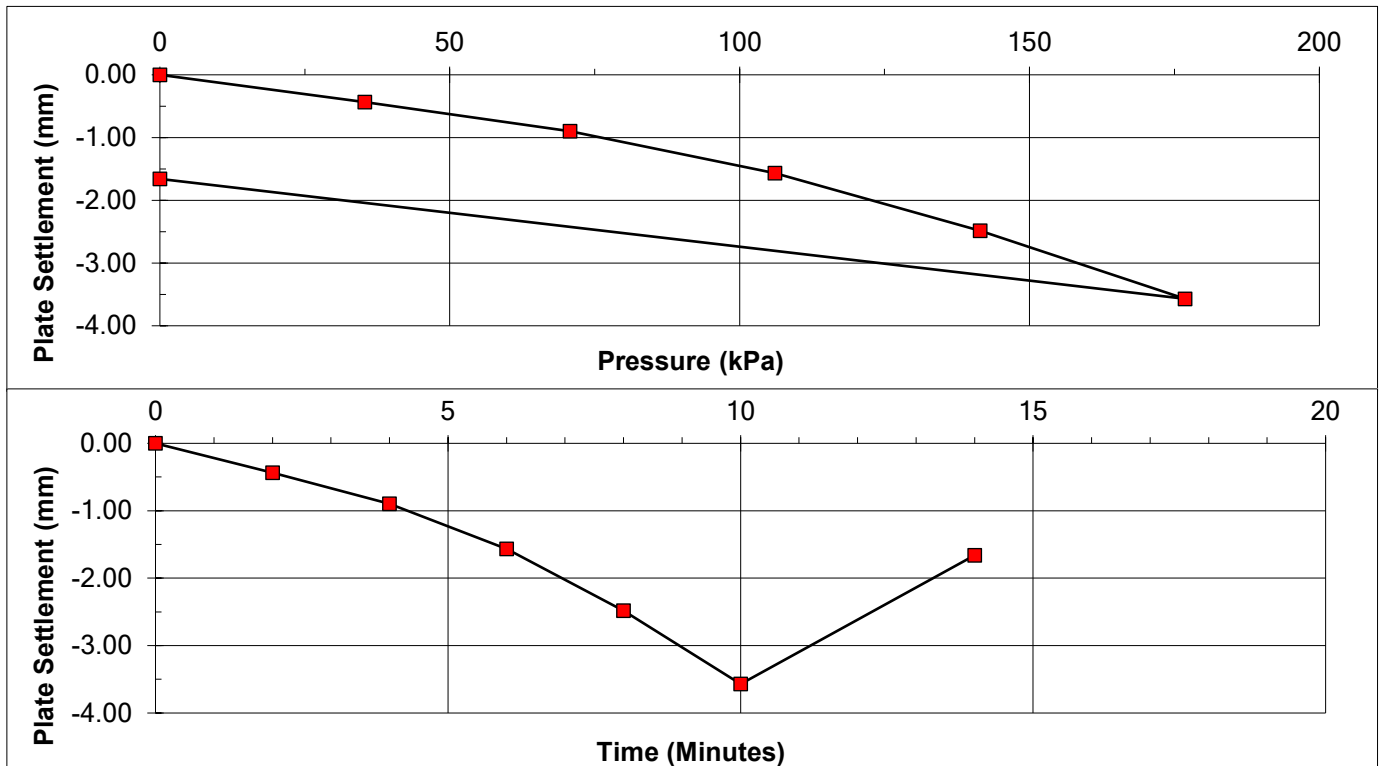
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |              |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |              |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |              |  |  |
| JOB NUMBER          | MRN 4579/65A                             |                    |                       |              |  |  |
| TEST LOCATION       | Test 01                                  | LOADING DEVICE     | 10 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 08-Sep-23                                | PLATE SIZE (mm)    | 600 diameter          |              |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush                                    |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4243                     | 4340                     | 4458                     | 4347                   | 0.00                    | 0.00         | 0.0               |
| 4211                     | 4289                     | 4410                     | 4303                   | -0.44                   | 10.00        | 35.4              |
| 4160                     | 4244                     | 4368                     | 4257                   | -0.90                   | 20.00        | 70.7              |
| 4099                     | 4177                     | 4295                     | 4190                   | -1.57                   | 30.00        | 106.1             |
| 4010                     | 4084                     | 4202                     | 4099                   | -2.48                   | 40.00        | 141.5             |
| 3898                     | 3973                     | 4099                     | 3990                   | -3.57                   | 50.00        | 176.8             |
| 4120                     | 4159                     | 4264                     | 4181                   | -1.66                   | 0.00         | 0.0               |



Pressure at 1.25 mm deflexion = 89 kPa  
Modulus of subgrade reaction (k) = 72 MPa/m  
Equivalent 762 mm plate reaction = 58 MPa/m  
Equivalent CBR = 10.8 %

## REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 11-Sep-23

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



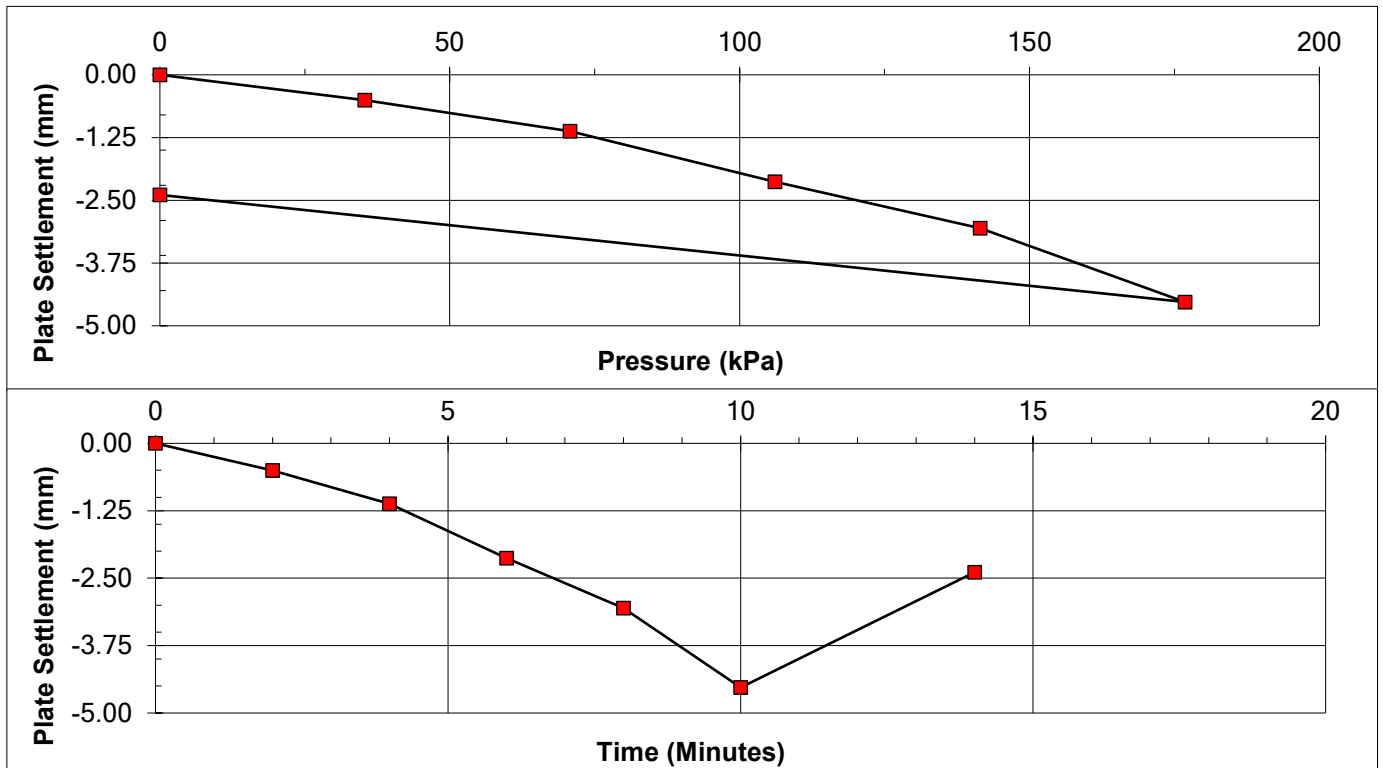
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |              |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |              |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |              |  |  |
| JOB NUMBER          | MRN 4579/65A                             |                    |                       |              |  |  |
| TEST LOCATION       | Test 02                                  | LOADING DEVICE     | 10 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 08-Sep-23                                | PLATE SIZE (mm)    | 600 diameter          |              |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush                                    |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4382                     | 4423                     | 4672                     | 4492                   | 0.00                    | 0.00         | 0.0               |
| 4325                     | 4372                     | 4629                     | 4442                   | -0.50                   | 10.00        | 35.4              |
| 4267                     | 4309                     | 4564                     | 4380                   | -1.12                   | 20.00        | 70.7              |
| 4160                     | 4201                     | 4477                     | 4279                   | -2.13                   | 30.00        | 106.1             |
| 4052                     | 4109                     | 4399                     | 4187                   | -3.06                   | 40.00        | 141.5             |
| 3838                     | 3981                     | 4300                     | 4040                   | -4.53                   | 50.00        | 176.8             |
| 4159                     | 4171                     | 4429                     | 4253                   | -2.39                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflexion =    | 75 kPa   |
| Modulus of subgrade reaction (k) = | 60 MPa/m |
| Equivalent 762 mm plate reaction = | 48 MPa/m |
| Equivalent CBR =                   | 8.0 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 11-Sep-23

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



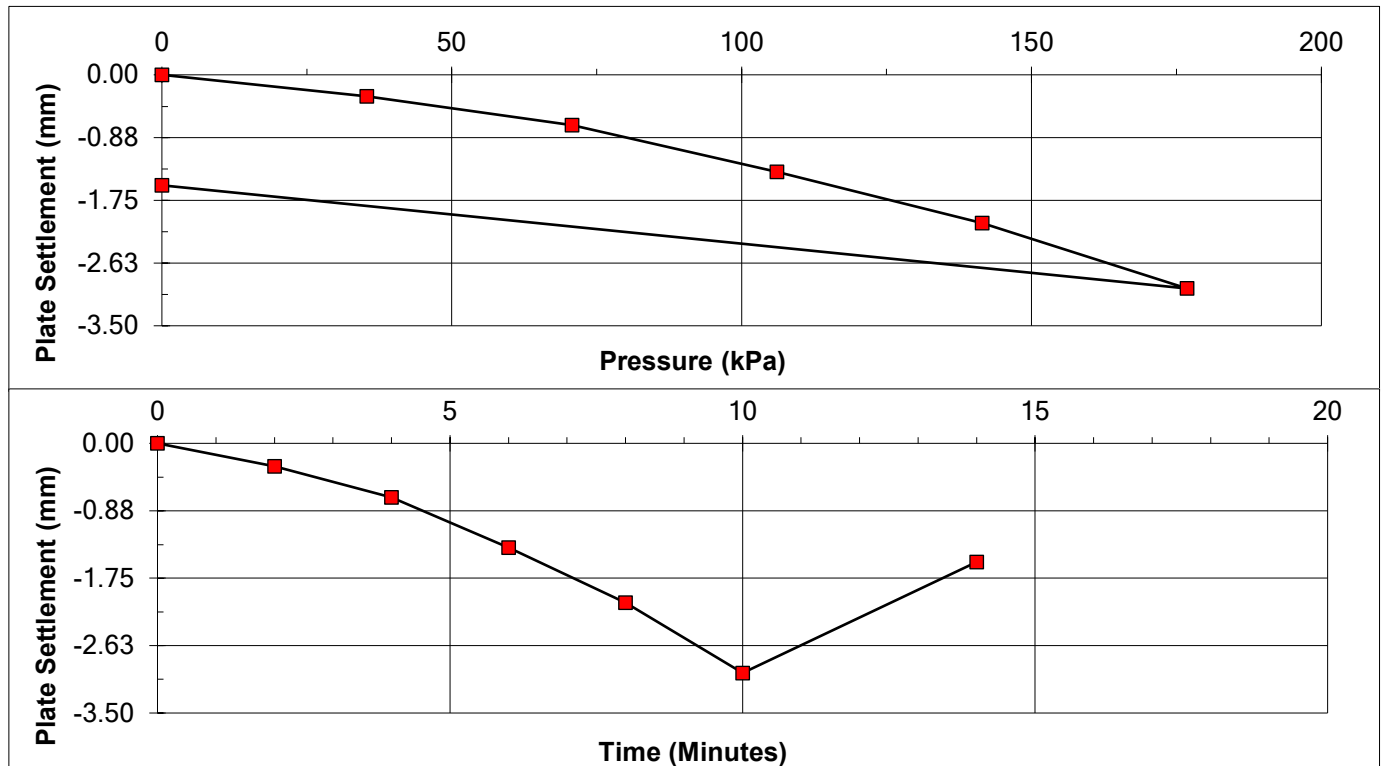
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |              |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |              |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |              |  |  |
| JOB NUMBER          | MRN 4579/65A                             |                    |                       |              |  |  |
| TEST LOCATION       | Test 03                                  | LOADING DEVICE     | 10 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 08-Sep-23                                | PLATE SIZE (mm)    | 600 diameter          |              |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush                                    |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4551                     | 4563                     | 4450                     | 4521                   | 0.00                    | 0.00         | 0.0               |
| 4542                     | 4522                     | 4410                     | 4491                   | -0.30                   | 10.00        | 35.4              |
| 4506                     | 4483                     | 4364                     | 4451                   | -0.70                   | 20.00        | 70.7              |
| 4437                     | 4419                     | 4302                     | 4386                   | -1.35                   | 30.00        | 106.1             |
| 4369                     | 4347                     | 4227                     | 4314                   | -2.07                   | 40.00        | 141.5             |
| 4280                     | 4254                     | 4136                     | 4223                   | -2.98                   | 50.00        | 176.8             |
| 4394                     | 4407                     | 4301                     | 4367                   | -1.54                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflexion =    | 100 kPa  |
| Modulus of subgrade reaction (k) = | 80 MPa/m |
| Equivalent 762 mm plate reaction = | 65 MPa/m |
| Equivalent CBR =                   | 13.2 %   |

REMARKS

SIGNED   
NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 11-Sep-23

## TEST REPORT

**Client** Chartrange Ltd

**Address** Wharf Street  
Dukinfield  
Cheshire  
SK16 4NJ

**Contract** Rochdale Road,  
Greater Manchester M4 4HY

**Job Number** MRN 4579/69A

**Date of Issue** 15 September 2023

**Page** 1 of 3

Approved Signatories

S J Hutchings, O P Davies

Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
- 3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.
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- 5 The results included within the report are representative of the samples submitted for analysis.
- 6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.



Andrew House, Hadfield Street, Dukinfield, Cheshire SK16 4QX Tel: 0161 475 0870  
Email: [enquiries@murrayrix.com](mailto:enquiries@murrayrix.com) Website: [www.murrayrix.com](http://www.murrayrix.com)

Also at: London: 020 8523 1999

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# MURRAY RIX

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TEL 0161 475 0870



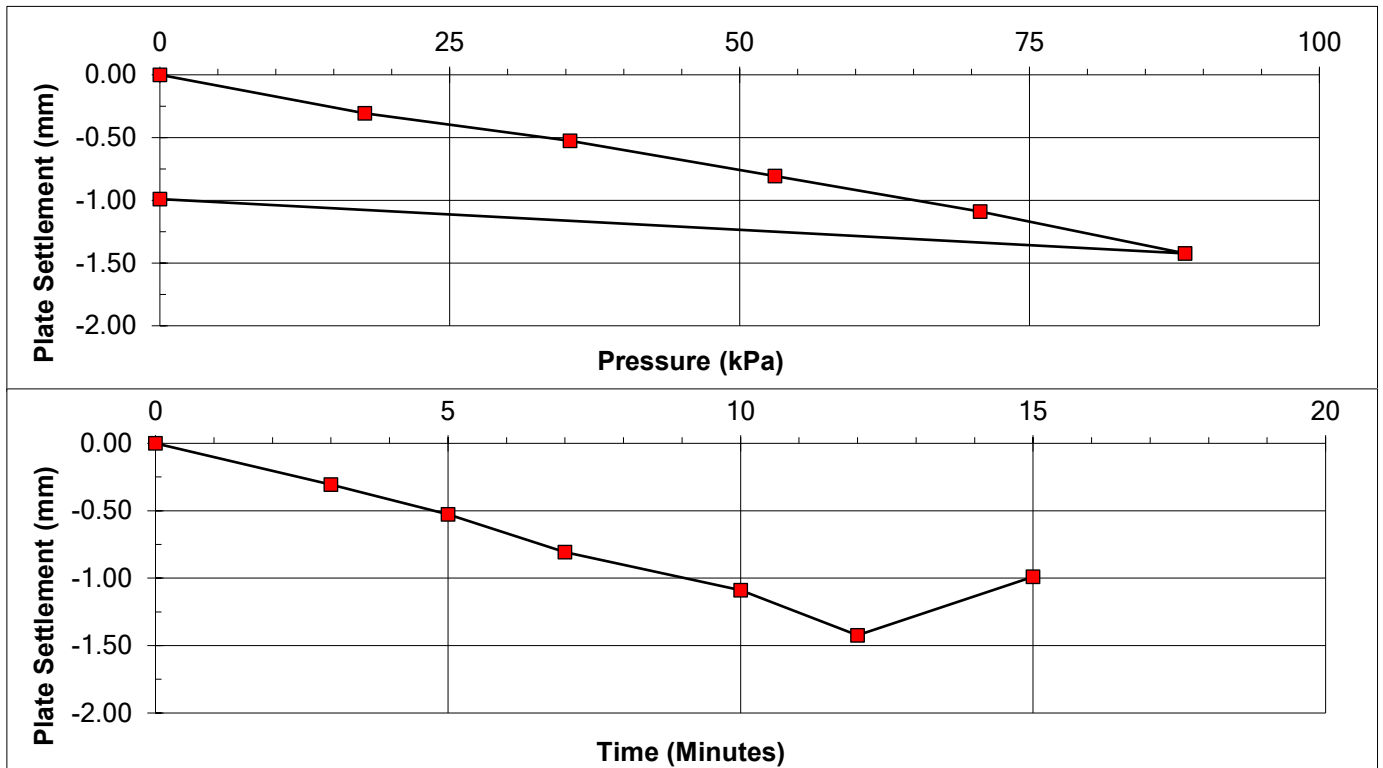
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |              |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |              |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |              |  |  |
| JOB NUMBER          | MRN 4579/69A                             |                    |                       |              |  |  |
| TEST LOCATION       | Test 01                                  | LOADING DEVICE     | 20 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 14-Sep-23                                | PLATE SIZE (mm)    | 600 diameter          |              |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush                                    |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4609                     | 4624                     | 4635                     | 4623                   | 0.00                    | 0.00         | 0.0               |
| 4572                     | 4589                     | 4615                     | 4592                   | -0.31                   | 5.00         | 17.7              |
| 4548                     | 4570                     | 4592                     | 4570                   | -0.53                   | 10.00        | 35.4              |
| 4520                     | 4540                     | 4566                     | 4542                   | -0.81                   | 15.00        | 53.1              |
| 4493                     | 4507                     | 4541                     | 4514                   | -1.09                   | 20.00        | 70.7              |
| 4460                     | 4471                     | 4510                     | 4480                   | -1.42                   | 25.00        | 88.4              |
| 4503                     | 4519                     | 4549                     | 4524                   | -0.99                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflexion =    | 79 kPa   |
| Modulus of subgrade reaction (k) = | 63 MPa/m |
| Equivalent 762 mm plate reaction = | 51 MPa/m |
| Equivalent CBR =                   | 8.8 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 15-Sep-23

# MURRAY RIX

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DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



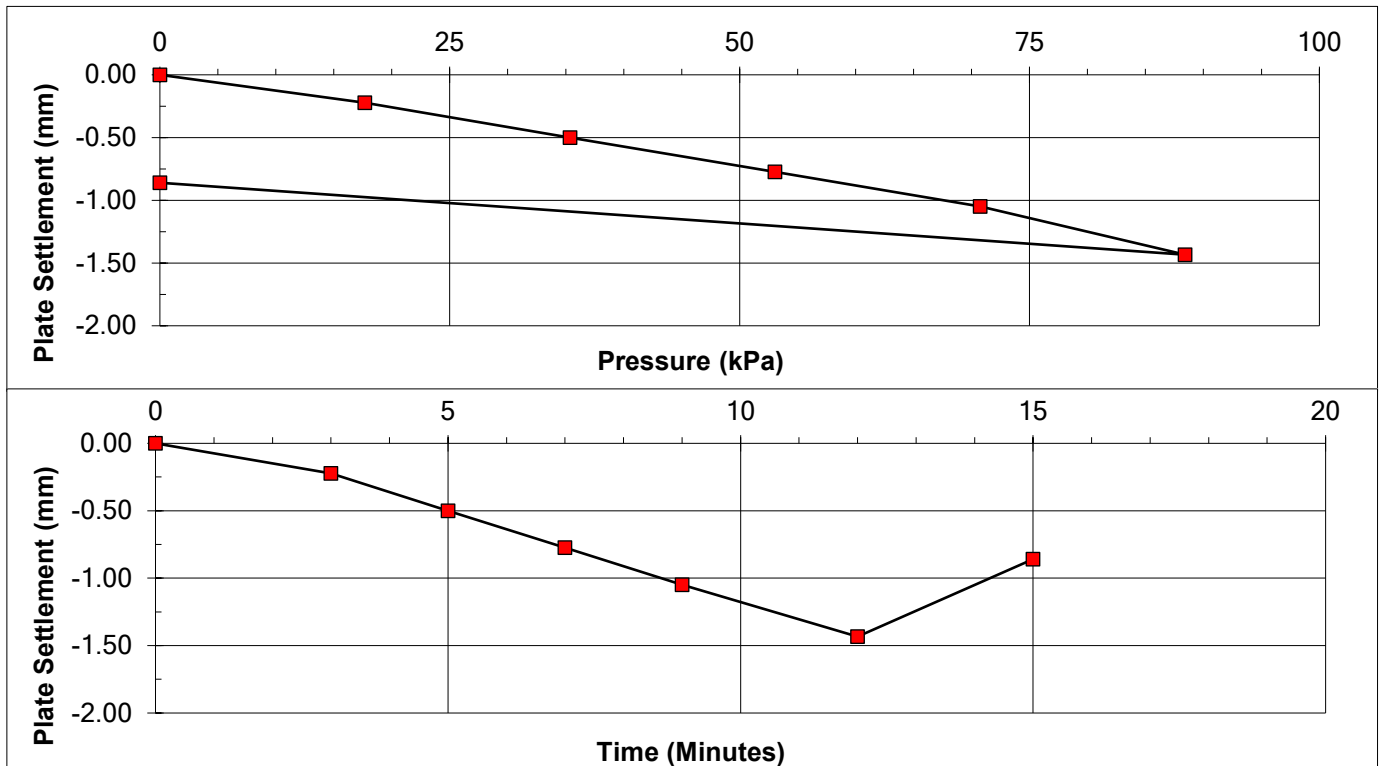
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |              |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |              |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |              |  |  |
| JOB NUMBER          | MRN 4579/69A                             |                    |                       |              |  |  |
| TEST LOCATION       | Test 02                                  | LOADING DEVICE     | 20 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 14-Sep-23                                | PLATE SIZE (mm)    | 600 diameter          |              |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush                                    |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4809                     | 4643                     | 4685                     | 4712                   | 0.00                    | 0.00         | 0.0               |
| 4792                     | 4617                     | 4661                     | 4690                   | -0.22                   | 5.00         | 17.7              |
| 4764                     | 4588                     | 4635                     | 4662                   | -0.50                   | 10.00        | 35.4              |
| 4738                     | 4556                     | 4611                     | 4635                   | -0.77                   | 15.00        | 53.1              |
| 4712                     | 4525                     | 4585                     | 4607                   | -1.05                   | 20.00        | 70.7              |
| 4672                     | 4491                     | 4544                     | 4569                   | -1.43                   | 25.00        | 88.4              |
| 4708                     | 4546                     | 4625                     | 4626                   | -0.86                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflexion =    | 80 kPa   |
| Modulus of subgrade reaction (k) = | 64 MPa/m |
| Equivalent 762 mm plate reaction = | 51 MPa/m |
| Equivalent CBR =                   | 8.9 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 15-Sep-23

## TEST REPORT

**Client** Chartrange Ltd

**Address** Wharf Street  
Dukinfield  
Cheshire  
SK16 4NJ

**Contract** Rochdale Road,  
Greater Manchester M4 4HY

**Job Number** MRN 4579/78

**Date of Issue** 17 October 2023

**Page** 1 of 3

Approved Signatories

S J Hutchings, O P Davies

Notes

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Email: [enquiries@murrayrix.com](mailto:enquiries@murrayrix.com) Website: [www.murrayrix.com](http://www.murrayrix.com)

Also at: London: 020 8523 1999

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# MURRAY RIX

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DUKINFIELD, CHESHIRE SK16 4QX  
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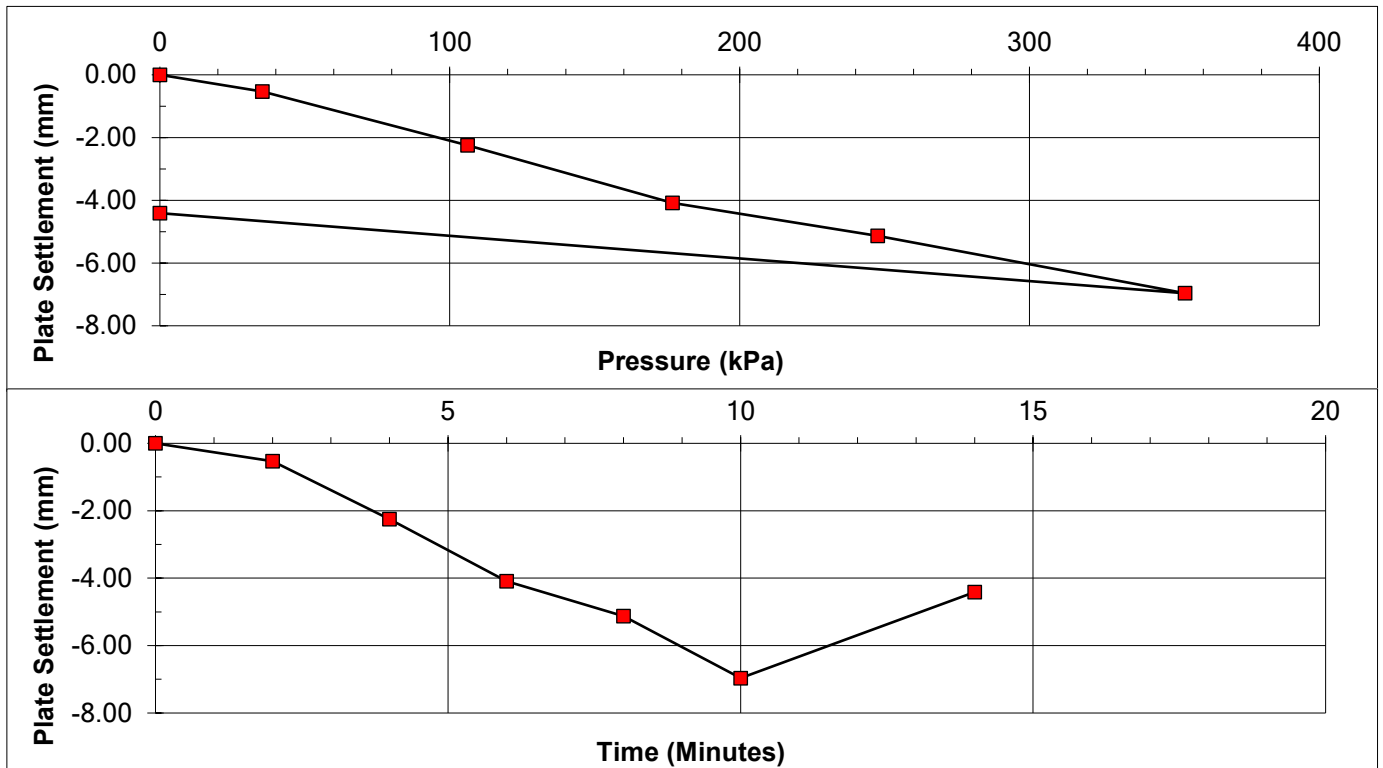
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |              |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |              |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |              |  |  |
| JOB NUMBER          | MRN 4579/78                              |                    |                       |              |  |  |
| TEST LOCATION       | Block 2 Test 1                           | LOADING DEVICE     | 10 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 16-Oct-23                                | PLATE SIZE (mm)    | 600 diameter          |              |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush                                    |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4671                     | 4692                     | 4240                     | 4534                   | 0.00                    | 0.00         | 0.0               |
| 4610                     | 4635                     | 4199                     | 4481                   | -0.53                   | 10.00        | 35.4              |
| 4414                     | 4463                     | 4051                     | 4309                   | -2.25                   | 30.00        | 106.1             |
| 4198                     | 4279                     | 3900                     | 4126                   | -4.09                   | 50.00        | 176.8             |
| 4041                     | 4139                     | 3884                     | 4021                   | -5.13                   | 70.00        | 247.6             |
| 3869                     | 3988                     | 3657                     | 3838                   | -6.96                   | 100.00       | 353.7             |
| 4023                     | 4267                     | 3989                     | 4093                   | -4.41                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflexion =    | 65 kPa   |
| Modulus of subgrade reaction (k) = | 52 MPa/m |
| Equivalent 762 mm plate reaction = | 42 MPa/m |
| Equivalent CBR =                   | 6.2 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 17-Oct-23

# MURRAY RIX

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DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



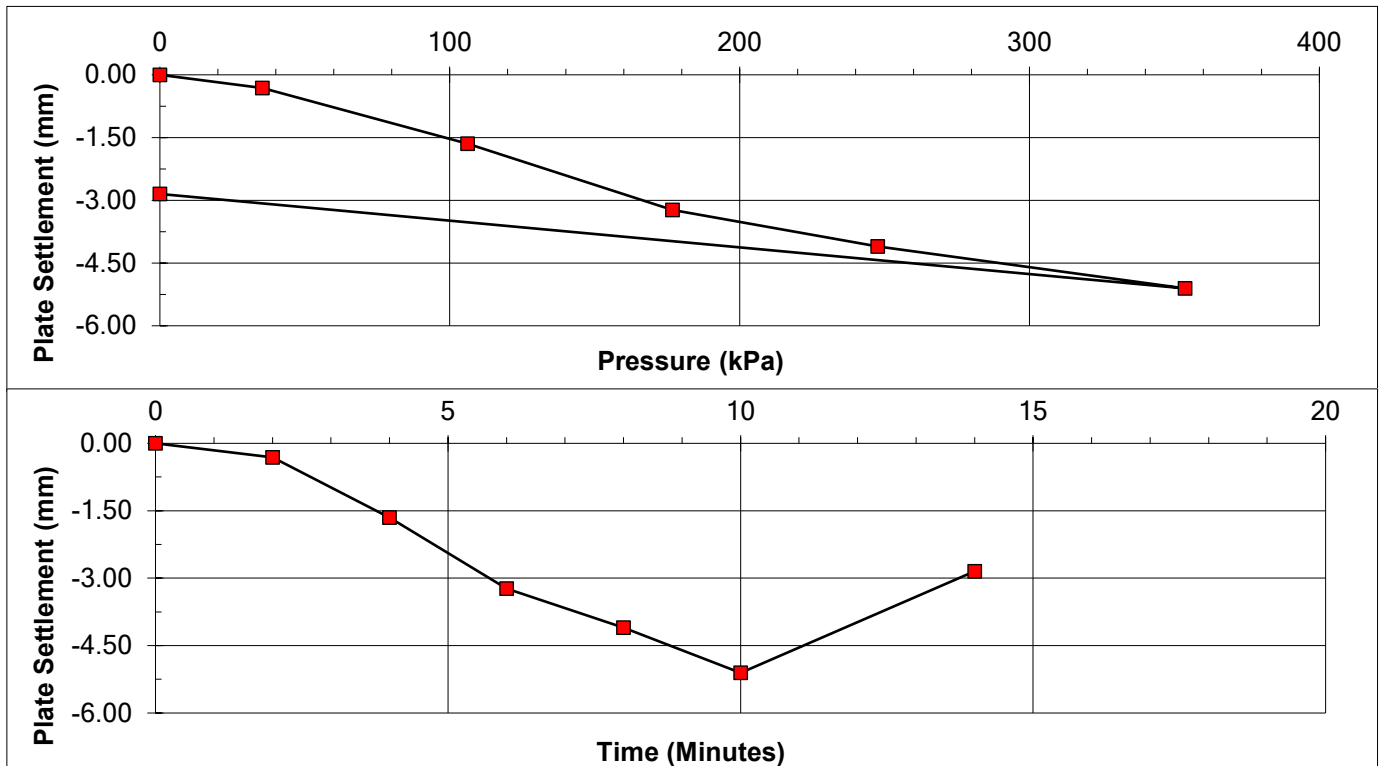
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |              |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--------------|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |              |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |              |  |
| JOB NUMBER          | MRN 4579/78                              |                    |                       |              |  |
| TEST LOCATION       | Block 2 Test 2                           | LOADING DEVICE     | 10 Tonne Enerpac Jack |              |  |
| TEST DATE           | 16-Oct-23                                | PLATE SIZE (mm)    | 600 diameter          |              |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |              |  |
| MATERIAL UNDER TEST | Crush                                    |                    | MOISTURE CONTENT      | Not Required |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4665                     | 4708                     | 4051                     | 4475                   | 0.00                    | 0.00         | 0.0               |
| 4634                     | 4679                     | 4017                     | 4443                   | -0.31                   | 10.00        | 35.4              |
| 4421                     | 4519                     | 3989                     | 4310                   | -1.65                   | 30.00        | 106.1             |
| 4276                     | 4296                     | 3882                     | 4151                   | -3.23                   | 50.00        | 176.8             |
| 4138                     | 4280                     | 3775                     | 4064                   | -4.10                   | 70.00        | 247.6             |
| 4040                     | 4190                     | 3662                     | 3964                   | -5.11                   | 100.00       | 353.7             |
| 4342                     | 4456                     | 3772                     | 4190                   | -2.85                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflexion =    | 85 kPa   |
| Modulus of subgrade reaction (k) = | 68 MPa/m |
| Equivalent 762 mm plate reaction = | 55 MPa/m |
| Equivalent CBR =                   | 9.9 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 17-Oct-23

## TEST REPORT

**Client** Chartrange Ltd

**Address** Wharf Street  
Dukinfield  
Cheshire  
SK16 4NJ

**Contract** Rochdale Road,  
Greater Manchester M4 4HY

**Job Number** MRN 4579/80

**Date of Issue** 19 October 2023

**Page** 1 of 5

Approved Signatories

S J Hutchings, O P Davies

Notes

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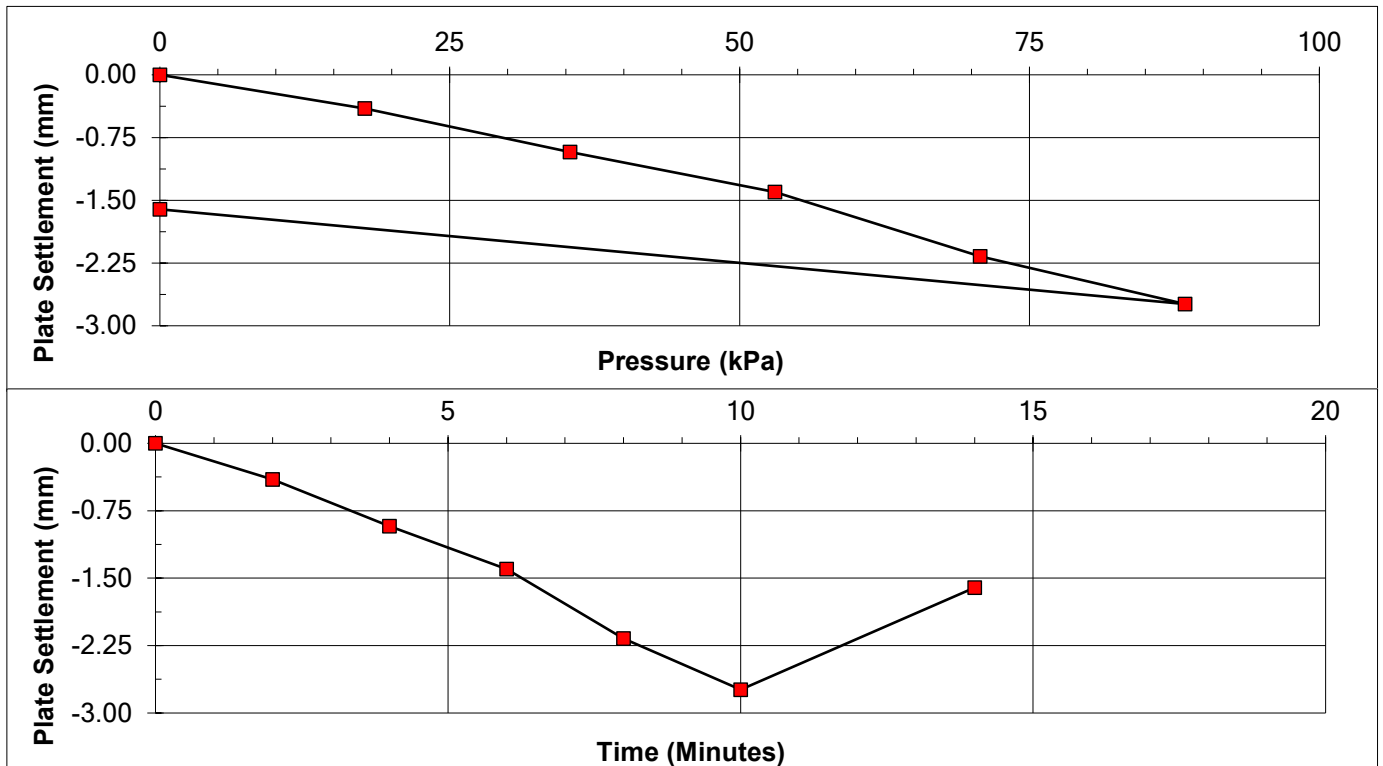
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |              |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |              |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |              |  |  |
| JOB NUMBER          | MRN 4579/80                              |                    |                       |              |  |  |
| TEST LOCATION       | Test 01                                  | LOADING DEVICE     | 10 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 18-Oct-23                                | PLATE SIZE (mm)    | 600 diameter          |              |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush                                    |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4682                     | 4430                     | 4665                     | 4592                   | 0.00                    | 0.00         | 0.0               |
| 4640                     | 4367                     | 4649                     | 4552                   | -0.40                   | 5.00         | 17.7              |
| 4588                     | 4309                     | 4603                     | 4500                   | -0.92                   | 10.00        | 35.4              |
| 4528                     | 4265                     | 4564                     | 4452                   | -1.40                   | 15.00        | 53.1              |
| 4448                     | 4203                     | 4475                     | 4375                   | -2.17                   | 20.00        | 70.7              |
| 4396                     | 4128                     | 4431                     | 4318                   | -2.74                   | 25.00        | 88.4              |
| 4488                     | 4336                     | 4471                     | 4432                   | -1.61                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflexion =    | 47 kPa   |
| Modulus of subgrade reaction (k) = | 38 MPa/m |
| Equivalent 762 mm plate reaction = | 31 MPa/m |
| Equivalent CBR =                   | 3.6 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 19-Oct-23

# MURRAY RIX

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DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



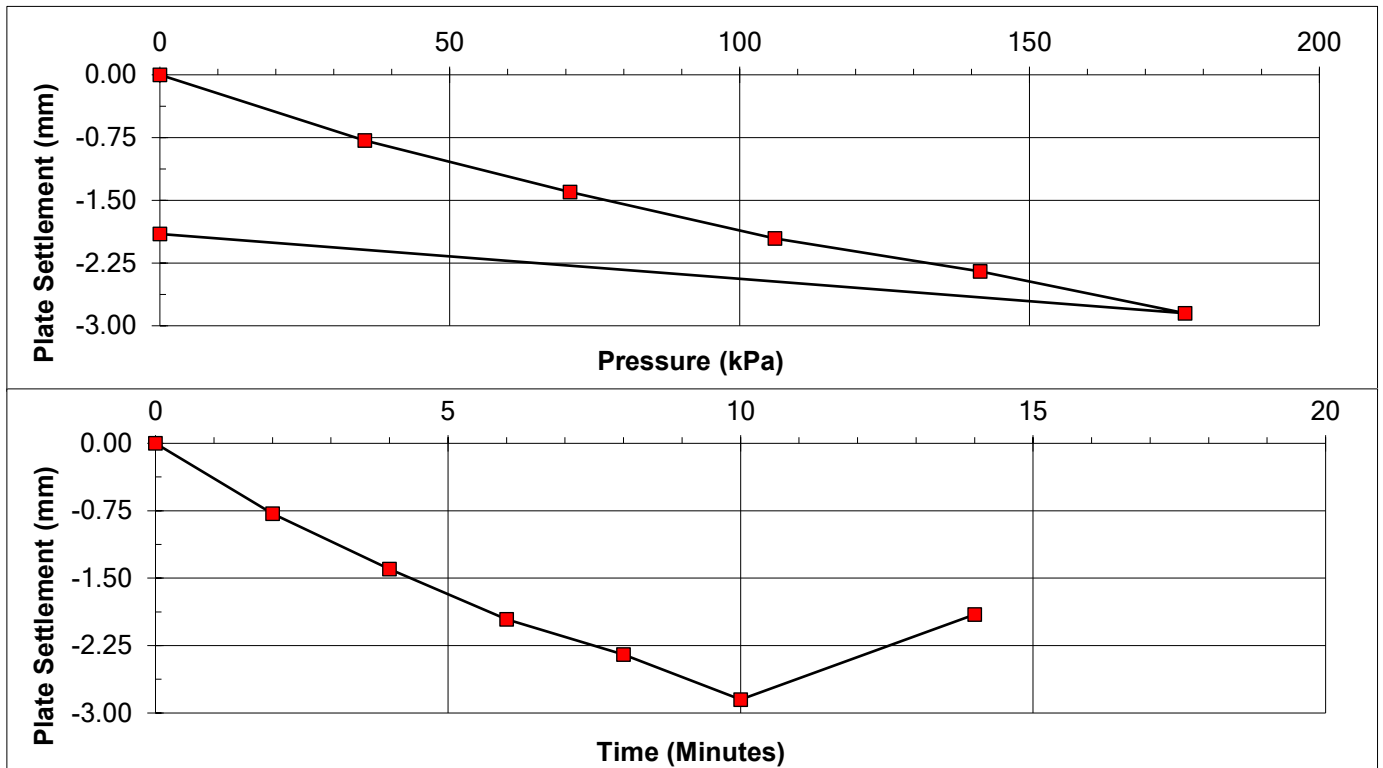
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |              |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |              |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |              |  |  |
| JOB NUMBER          | MRN 4579/80                              |                    |                       |              |  |  |
| TEST LOCATION       | Test 02                                  | LOADING DEVICE     | 10 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 18-Oct-23                                | PLATE SIZE (mm)    | 600 diameter          |              |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush                                    |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4888                     | 4668                     | 4920                     | 4825                   | 0.00                    | 0.00         | 0.0               |
| 4875                     | 4456                     | 4910                     | 4747                   | -0.78                   | 10.00        | 35.4              |
| 4809                     | 4380                     | 4867                     | 4685                   | -1.40                   | 20.00        | 70.7              |
| 4744                     | 4322                     | 4823                     | 4630                   | -1.96                   | 30.00        | 106.1             |
| 4701                     | 4280                     | 4790                     | 4590                   | -2.35                   | 40.00        | 141.5             |
| 4656                     | 4206                     | 4759                     | 4540                   | -2.85                   | 50.00        | 176.8             |
| 4732                     | 4356                     | 4817                     | 4635                   | -1.90                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflexion =    | 62 kPa   |
| Modulus of subgrade reaction (k) = | 50 MPa/m |
| Equivalent 762 mm plate reaction = | 40 MPa/m |
| Equivalent CBR =                   | 5.8 %    |

REMARKS

SIGNED   
NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 19-Oct-23

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



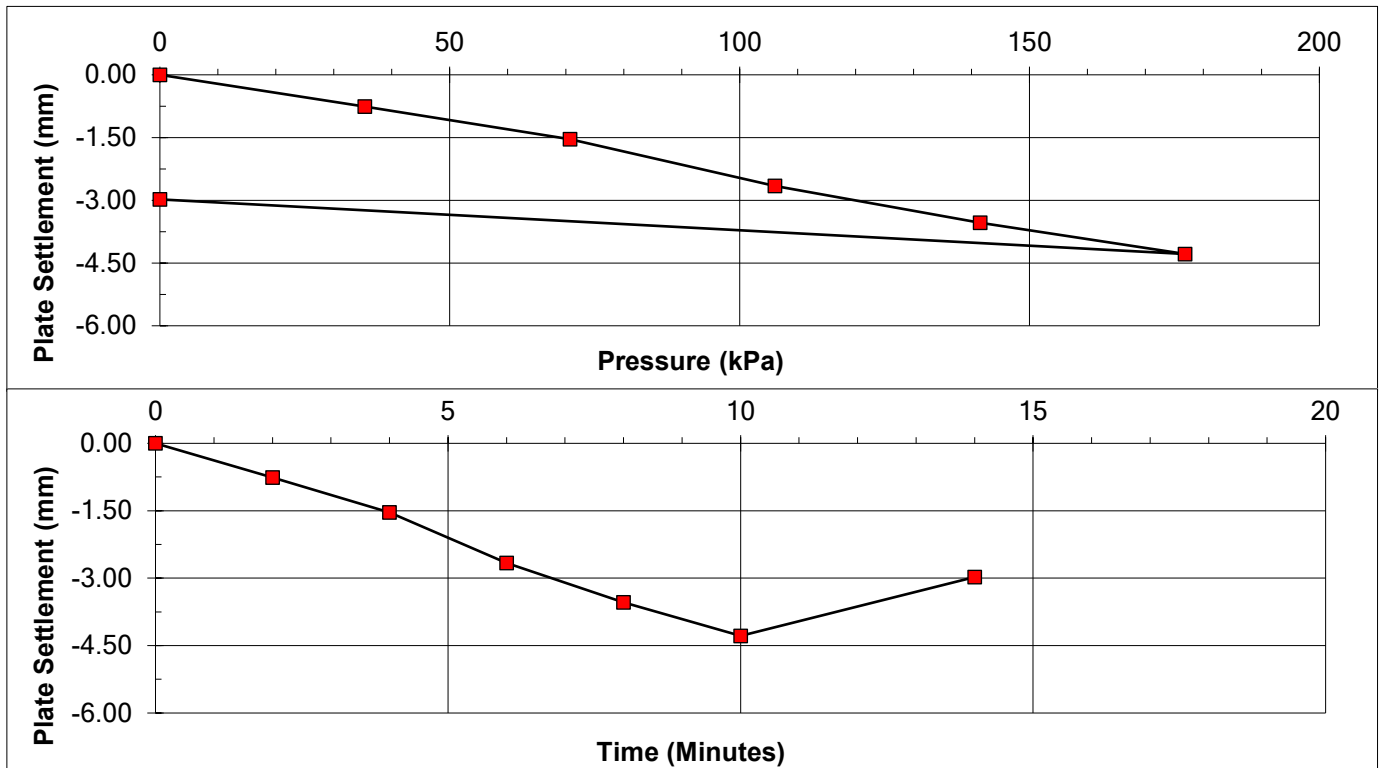
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |              |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |              |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |              |  |  |
| JOB NUMBER          | MRN 4579/80                              |                    |                       |              |  |  |
| TEST LOCATION       | Test 03                                  | LOADING DEVICE     | 10 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 18-Oct-23                                | PLATE SIZE (mm)    | 600 diameter          |              |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush                                    |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4406                     | 4291                     | 4596                     | 4431                   | 0.00                    | 0.00         | 0.0               |
| 4314                     | 4219                     | 4532                     | 4355                   | -0.76                   | 10.00        | 35.4              |
| 4239                     | 4140                     | 4452                     | 4277                   | -1.54                   | 20.00        | 70.7              |
| 4120                     | 4060                     | 4315                     | 4165                   | -2.66                   | 30.00        | 106.1             |
| 4030                     | 3981                     | 4220                     | 4077                   | -3.54                   | 40.00        | 141.5             |
| 3960                     | 3889                     | 4159                     | 4003                   | -4.28                   | 50.00        | 176.8             |
| 4081                     | 4046                     | 4273                     | 4133                   | -2.98                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflexion =    | 58 kPa   |
| Modulus of subgrade reaction (k) = | 46 MPa/m |
| Equivalent 762 mm plate reaction = | 37 MPa/m |
| Equivalent CBR =                   | 5.0 %    |

REMARKS

SIGNED   
NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 19-Oct-23

# MURRAY RIX

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DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



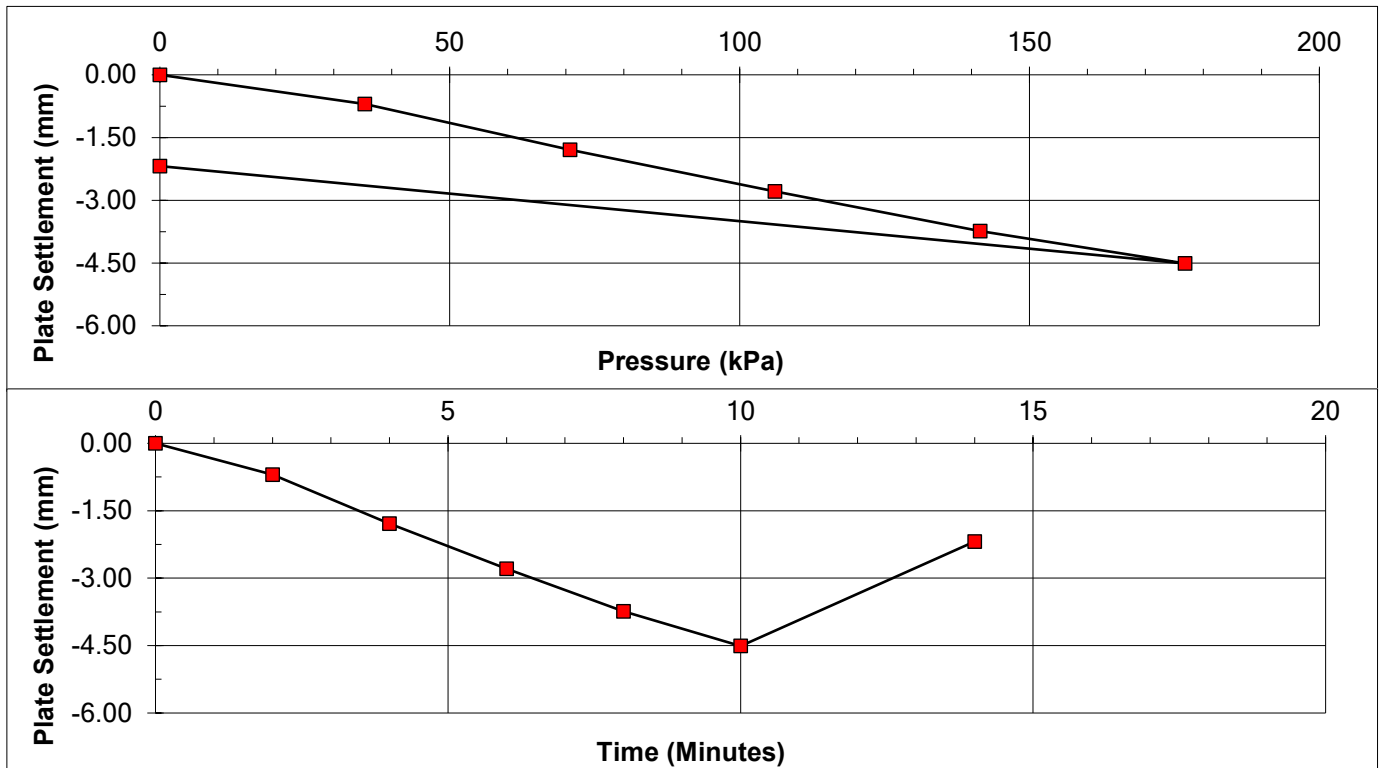
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |              |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |              |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |              |  |  |
| JOB NUMBER          | MRN 4579/80                              |                    |                       |              |  |  |
| TEST LOCATION       | Test 04                                  | LOADING DEVICE     | 10 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 18-Oct-23                                | PLATE SIZE (mm)    | 600 diameter          |              |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush                                    |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4526                     | 4299                     | 4472                     | 4432                   | 0.00                    | 0.00         | 0.0               |
| 4460                     | 4217                     | 4410                     | 4362                   | -0.70                   | 10.00        | 35.4              |
| 4359                     | 4099                     | 4302                     | 4253                   | -1.79                   | 20.00        | 70.7              |
| 4264                     | 3990                     | 4206                     | 4153                   | -2.79                   | 30.00        | 106.1             |
| 4174                     | 3889                     | 4113                     | 4059                   | -3.74                   | 40.00        | 141.5             |
| 4099                     | 3817                     | 4028                     | 3981                   | -4.51                   | 50.00        | 176.8             |
| 4259                     | 4144                     | 4239                     | 4214                   | -2.18                   | 0.00         | 0.0               |



Pressure at 1.25 mm deflexion = 53 kPa  
Modulus of subgrade reaction (k) = 43 MPa/m  
Equivalent 762 mm plate reaction = 34 MPa/m  
Equivalent CBR = 4.4 %

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 19-Oct-23

## TEST REPORT

**Client** Chartrange Ltd

**Address** Wharf Street  
Dukinfield  
Cheshire  
SK16 4NJ

**Contract** Rochdale Road,  
Greater Manchester M4 4HY

**Job Number** MRN 4579/83

**Date of Issue** 31 October 2023

**Page** 1 of 5

Approved Signatories

S J Hutchings, O P Davies

Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
- 3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.
- 4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted.
- 5 The results included within the report are representative of the samples submitted for analysis.
- 6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.



Andrew House, Hadfield Street, Dukinfield, Cheshire SK16 4QX Tel: 0161 475 0870  
Email: [enquiries@murrayrix.com](mailto:enquiries@murrayrix.com) Website: [www.murrayrix.com](http://www.murrayrix.com)

Also at: London: 020 8523 1999

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# MURRAY RIX

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DUKINFIELD, CHESHIRE SK16 4QX  
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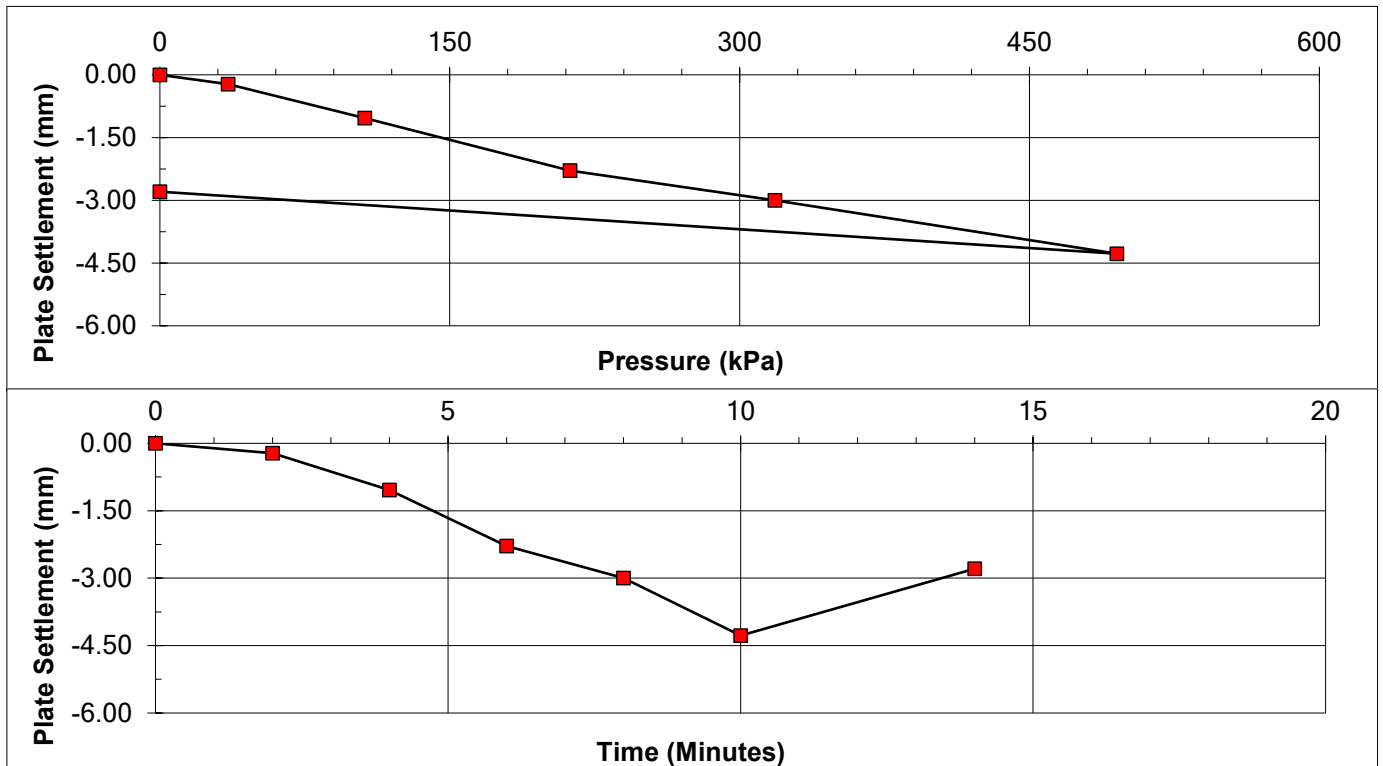
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |              |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |              |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |              |  |  |
| JOB NUMBER          | MRN 4579/83                              |                    |                       |              |  |  |
| TEST LOCATION       | Test 01                                  | LOADING DEVICE     | 20 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 30-Oct-23                                | PLATE SIZE (mm)    | 600 diameter          |              |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush                                    |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4579                     | 4503                     | 4900                     | 4661                   | 0.00                    | 0.00         | 0.0               |
| 4542                     | 4498                     | 4875                     | 4638                   | -0.22                   | 10.00        | 35.4              |
| 4439                     | 4453                     | 4779                     | 4557                   | -1.04                   | 30.00        | 106.1             |
| 4365                     | 4222                     | 4709                     | 4432                   | -2.29                   | 60.00        | 212.2             |
| 4279                     | 4140                     | 4663                     | 4361                   | -3.00                   | 90.00        | 318.3             |
| 4169                     | 3958                     | 4572                     | 4233                   | -4.28                   | 140.00       | 495.1             |
| 4260                     | 4184                     | 4700                     | 4381                   | -2.79                   | 0.00         | 0.0               |



Pressure at 1.25 mm deflexion = 124 kPa  
Modulus of subgrade reaction (k) = 99 MPa/m  
Equivalent 762 mm plate reaction = 80 MPa/m  
Equivalent CBR = 19.1 %

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 31-Oct-23

# MURRAY RIX

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TEL 0161 475 0870



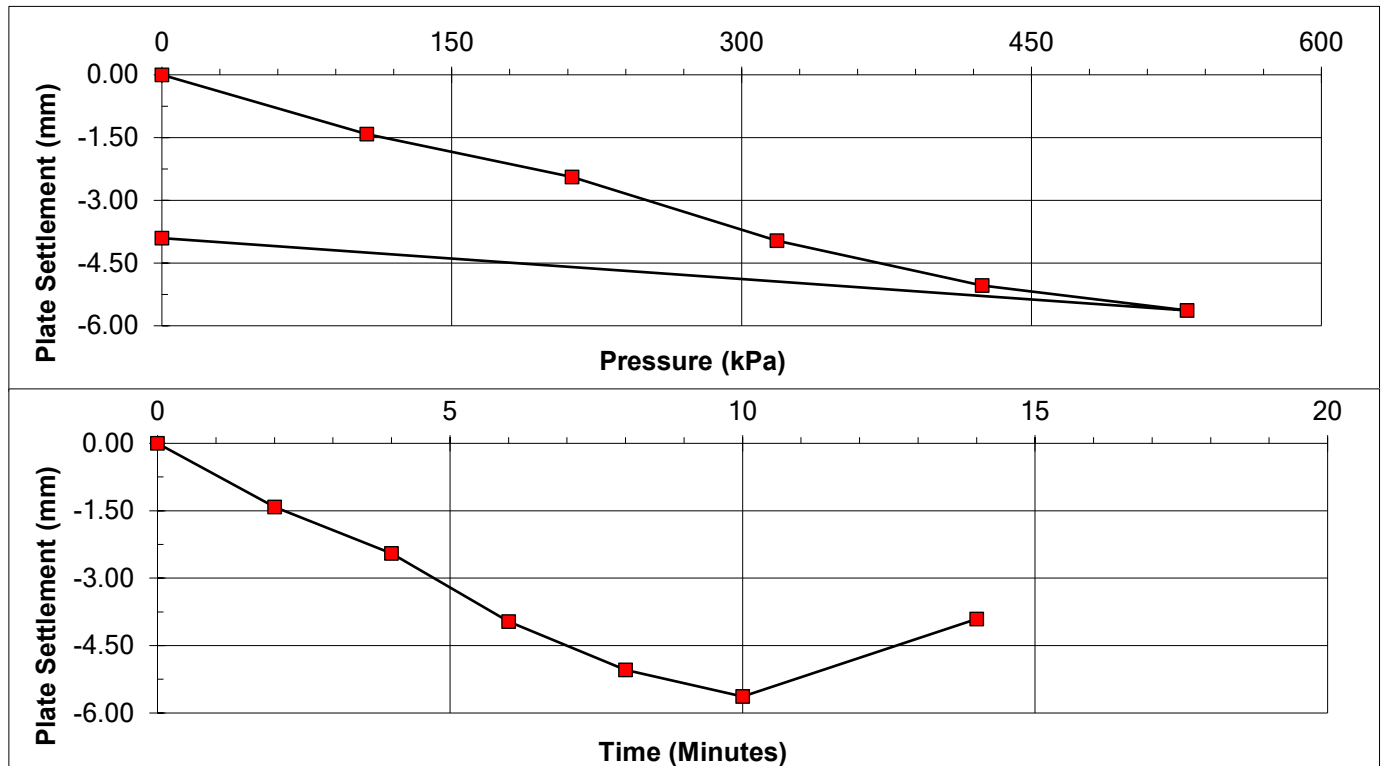
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |              |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |              |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |              |  |  |
| JOB NUMBER          | MRN 4579/83                              |                    |                       |              |  |  |
| TEST LOCATION       | Test 02                                  | LOADING DEVICE     | 20 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 30-Oct-23                                | PLATE SIZE (mm)    | 600 diameter          |              |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush                                    |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4358                     | 4426                     | 4721                     | 4502                   | 0.00                    | 0.00         | 0.0               |
| 4212                     | 4279                     | 4589                     | 4360                   | -1.42                   | 30.00        | 106.1             |
| 4137                     | 4179                     | 4455                     | 4257                   | -2.45                   | 60.00        | 212.2             |
| 4037                     | 4066                     | 4213                     | 4105                   | -3.96                   | 90.00        | 318.3             |
| 3952                     | 3962                     | 4079                     | 3998                   | -5.04                   | 120.00       | 424.4             |
| 3908                     | 3912                     | 3995                     | 3938                   | -5.63                   | 150.00       | 530.5             |
| 4062                     | 4061                     | 4210                     | 4111                   | -3.91                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflexion =    | 94 kPa   |
| Modulus of subgrade reaction (k) = | 75 MPa/m |
| Equivalent 762 mm plate reaction = | 60 MPa/m |
| Equivalent CBR =                   | 11.7 %   |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 31-Oct-23

# MURRAY RIX

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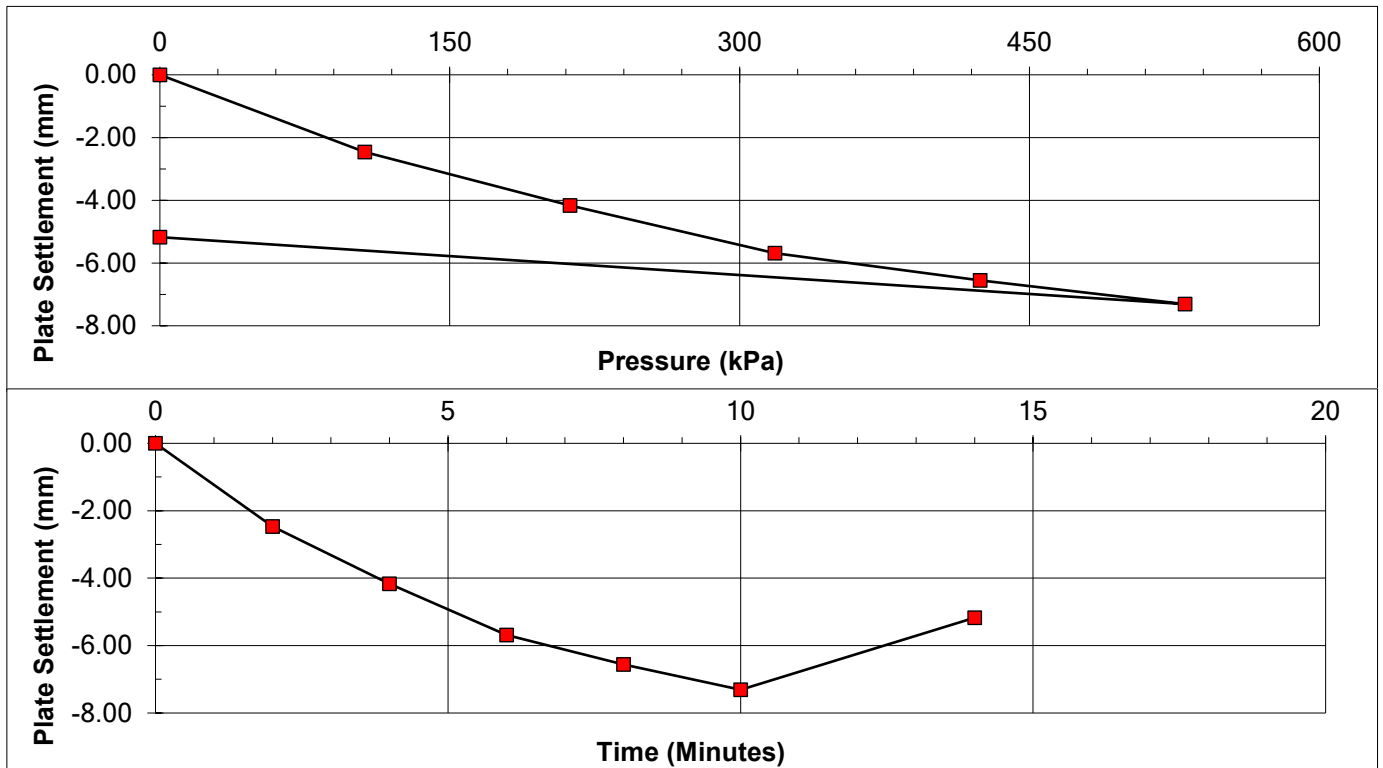
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |              |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |              |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |              |  |  |
| JOB NUMBER          | MRN 4579/83                              |                    |                       |              |  |  |
| TEST LOCATION       | Test 03                                  | LOADING DEVICE     | 20 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 30-Oct-23                                | PLATE SIZE (mm)    | 600 diameter          |              |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush                                    |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4493                     | 4580                     | 4597                     | 4557                   | 0.00                    | 0.00         | 0.0               |
| 4202                     | 4267                     | 4462                     | 4310                   | -2.46                   | 30.00        | 106.1             |
| 4013                     | 4028                     | 4379                     | 4140                   | -4.17                   | 60.00        | 212.2             |
| 3779                     | 3886                     | 4299                     | 3988                   | -5.69                   | 90.00        | 318.3             |
| 3669                     | 3795                     | 4239                     | 3901                   | -6.56                   | 120.00       | 424.4             |
| 3595                     | 3696                     | 4186                     | 3826                   | -7.31                   | 150.00       | 530.5             |
| 3839                     | 3958                     | 4321                     | 4039                   | -5.17                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflexion =    | 54 kPa   |
| Modulus of subgrade reaction (k) = | 43 MPa/m |
| Equivalent 762 mm plate reaction = | 35 MPa/m |
| Equivalent CBR =                   | 4.5 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 31-Oct-23

# MURRAY RIX

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DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



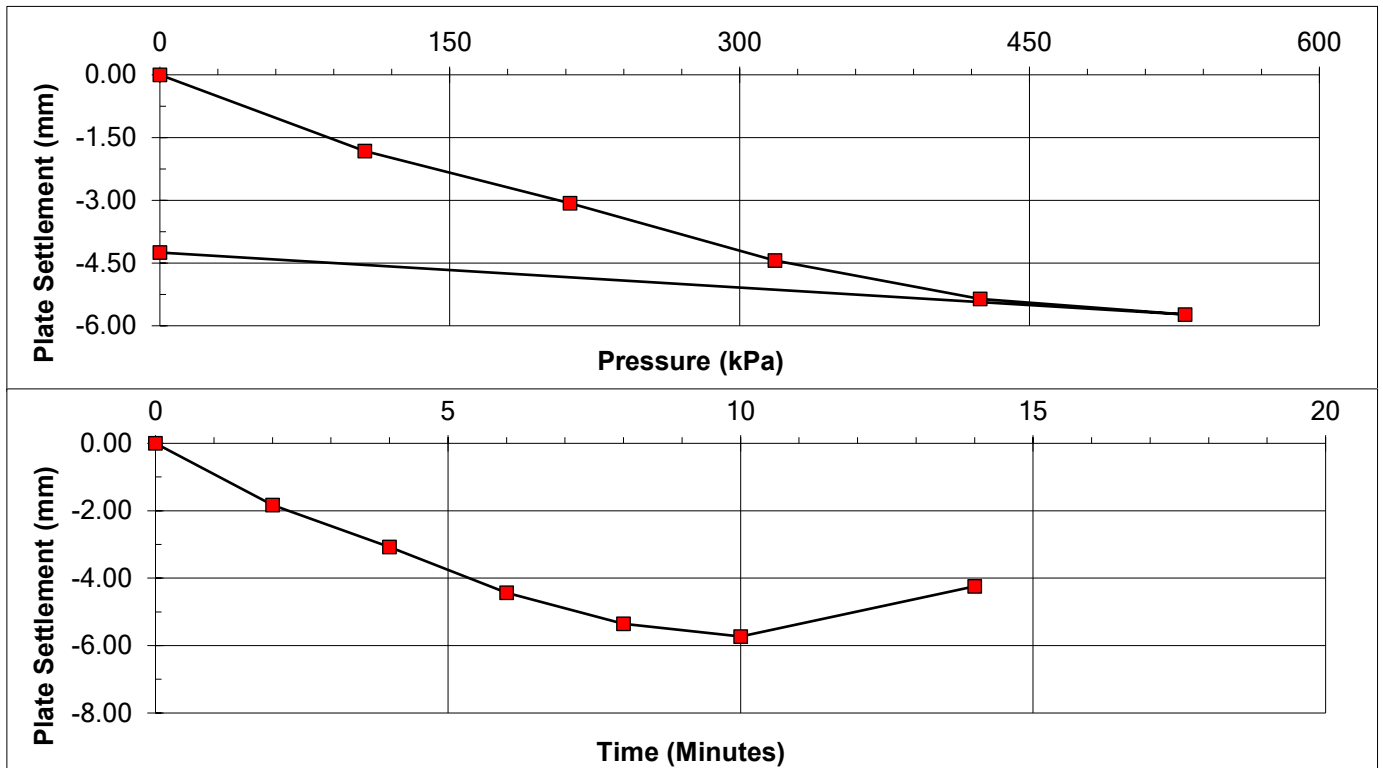
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |              |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |              |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |              |  |  |
| JOB NUMBER          | MRN 4579/83                              |                    |                       |              |  |  |
| TEST LOCATION       | Test 04                                  | LOADING DEVICE     | 20 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 30-Oct-23                                | PLATE SIZE (mm)    | 600 diameter          |              |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush                                    |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4510                     | 4730                     | 4545                     | 4595                   | 0.00                    | 0.00         | 0.0               |
| 4378                     | 4545                     | 4314                     | 4412                   | -1.83                   | 30.00        | 106.1             |
| 4283                     | 4446                     | 4134                     | 4288                   | -3.07                   | 60.00        | 212.2             |
| 4185                     | 4277                     | 3992                     | 4151                   | -4.44                   | 90.00        | 318.3             |
| 4091                     | 4196                     | 3891                     | 4059                   | -5.36                   | 120.00       | 424.4             |
| 4056                     | 4154                     | 3856                     | 4022                   | -5.73                   | 150.00       | 530.5             |
| 4179                     | 4301                     | 4031                     | 4170                   | -4.25                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflexion =    | 73 kPa   |
| Modulus of subgrade reaction (k) = | 58 MPa/m |
| Equivalent 762 mm plate reaction = | 47 MPa/m |
| Equivalent CBR =                   | 7.5 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 31-Oct-23

## TEST REPORT

**Client** Chartrange Ltd

**Address** Wharf Street  
Dukinfield  
Cheshire  
SK16 4NJ

**Contract** Rochdale Road,  
Greater Manchester M4 4HY

**Job Number** MRN 4579/85  
**Date of Issue** 07 November 2023  
**Page** 1 of 3

Approved Signatories

S J Hutchings, O P Davies

Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
- 3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.
- 4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted.
- 5 The results included within the report are representative of the samples submitted for analysis.
- 6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.



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Email: [enquiries@murrayrix.com](mailto:enquiries@murrayrix.com) Website: [www.murrayrix.com](http://www.murrayrix.com)

Also at: London: 020 8523 1999

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DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



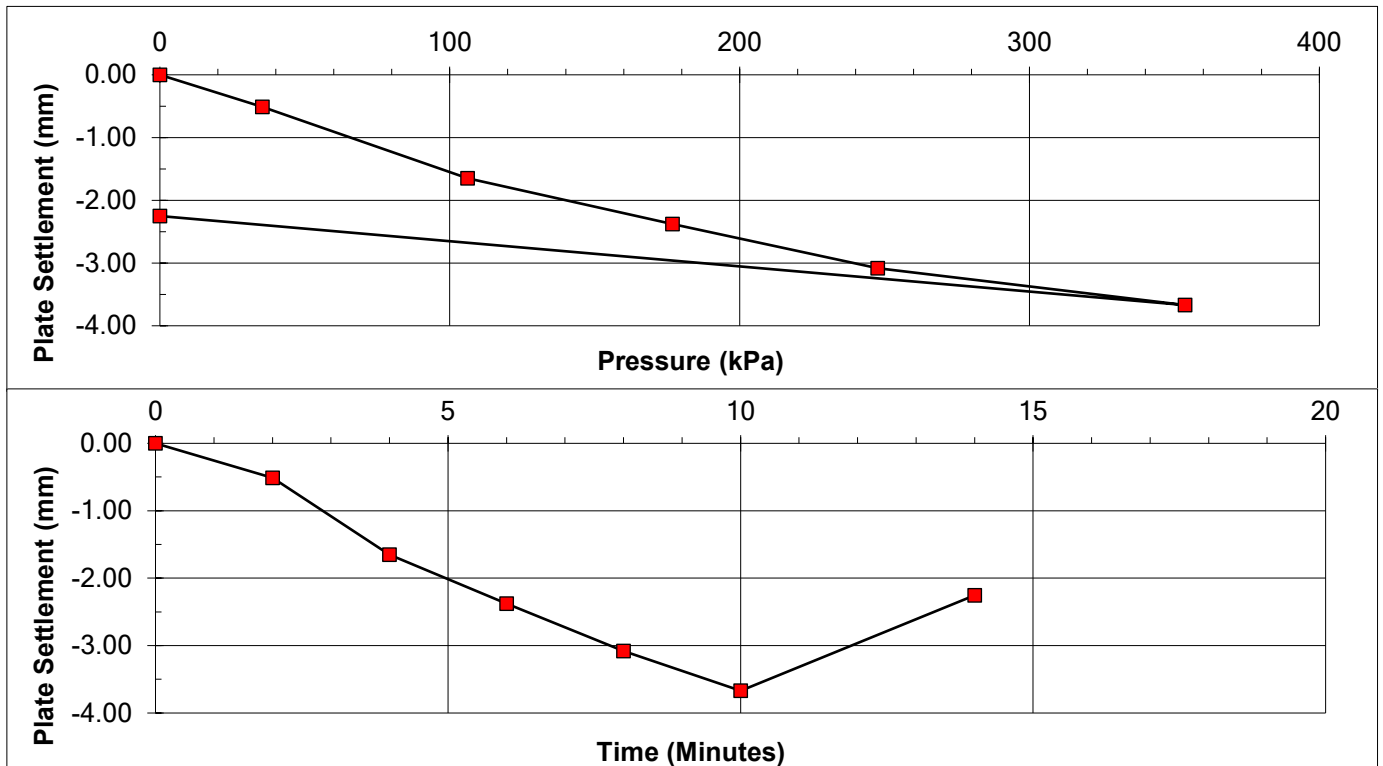
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |              |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |              |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |              |  |  |
| JOB NUMBER          | MRN 4579/85                              |                    |                       |              |  |  |
| TEST LOCATION       | Test 01                                  | LOADING DEVICE     | 10 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 06-Nov-23                                | PLATE SIZE (mm)    | 600 diameter          |              |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush                                    |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4486                     | 4386                     | 4221                     | 4364                   | 0.00                    | 0.00         | 0.0               |
| 4432                     | 4329                     | 4179                     | 4313                   | -0.51                   | 10.00        | 35.4              |
| 4327                     | 4195                     | 4076                     | 4199                   | -1.65                   | 30.00        | 106.1             |
| 4255                     | 4110                     | 4014                     | 4126                   | -2.38                   | 50.00        | 176.8             |
| 4191                     | 4030                     | 3948                     | 4056                   | -3.08                   | 70.00        | 247.6             |
| 4136                     | 3962                     | 3894                     | 3997                   | -3.67                   | 100.00       | 353.7             |
| 4279                     | 4141                     | 3997                     | 4139                   | -2.25                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflexion =    | 81 kPa   |
| Modulus of subgrade reaction (k) = | 65 MPa/m |
| Equivalent 762 mm plate reaction = | 52 MPa/m |
| Equivalent CBR =                   | 9.2 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 07-Nov-23

# MURRAY RIX

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DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



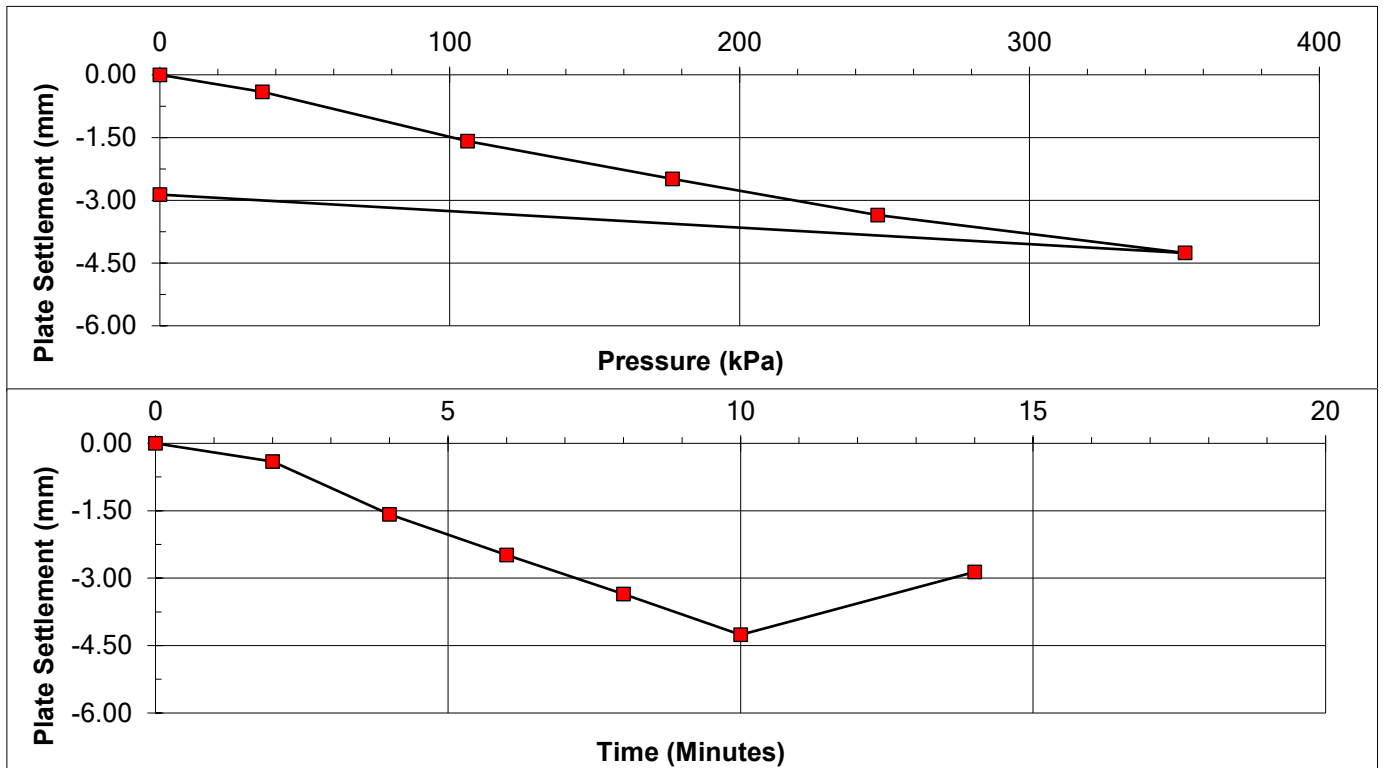
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |              |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |              |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |              |  |  |
| JOB NUMBER          | MRN 4579/85                              |                    |                       |              |  |  |
| TEST LOCATION       | Test 02                                  | LOADING DEVICE     | 10 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 06-Nov-23                                | PLATE SIZE (mm)    | 600 diameter          |              |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush                                    |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 3919                     | 4458                     | 3809                     | 4062                   | 0.00                    | 0.00         | 0.0               |
| 3864                     | 4415                     | 3785                     | 4021                   | -0.41                   | 10.00        | 35.4              |
| 3740                     | 4301                     | 3670                     | 3904                   | -1.58                   | 30.00        | 106.1             |
| 3652                     | 4204                     | 3584                     | 3813                   | -2.49                   | 50.00        | 176.8             |
| 3566                     | 4119                     | 3495                     | 3727                   | -3.35                   | 70.00        | 247.6             |
| 3472                     | 4033                     | 3403                     | 3636                   | -4.26                   | 100.00       | 353.7             |
| 3515                     | 4227                     | 3586                     | 3776                   | -2.86                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflexion =    | 86 kPa   |
| Modulus of subgrade reaction (k) = | 69 MPa/m |
| Equivalent 762 mm plate reaction = | 55 MPa/m |
| Equivalent CBR =                   | 10.1 %   |

REMARKS

SIGNED   
NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 07-Nov-23

## TEST REPORT

**Client** Chartrange Ltd

**Address** Wharf Street  
Dukinfield  
Cheshire  
SK16 4NJ

**Contract** Rochdale Road,  
Greater Manchester M4 4HY

**Job Number** MRN 4579/89  
**Date of Issue** 10 November 2023  
**Page** 1 of 9

Approved Signatories

S J Hutchings, O P Davies

Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
- 3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.
- 4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted.
- 5 The results included within the report are representative of the samples submitted for analysis.
- 6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.



Andrew House, Hadfield Street, Dukinfield, Cheshire SK16 4QX Tel: 0161 475 0870  
Email: [enquiries@murrayrix.com](mailto:enquiries@murrayrix.com) Website: [www.murrayrix.com](http://www.murrayrix.com)

Also at: London: 020 8523 1999

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# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



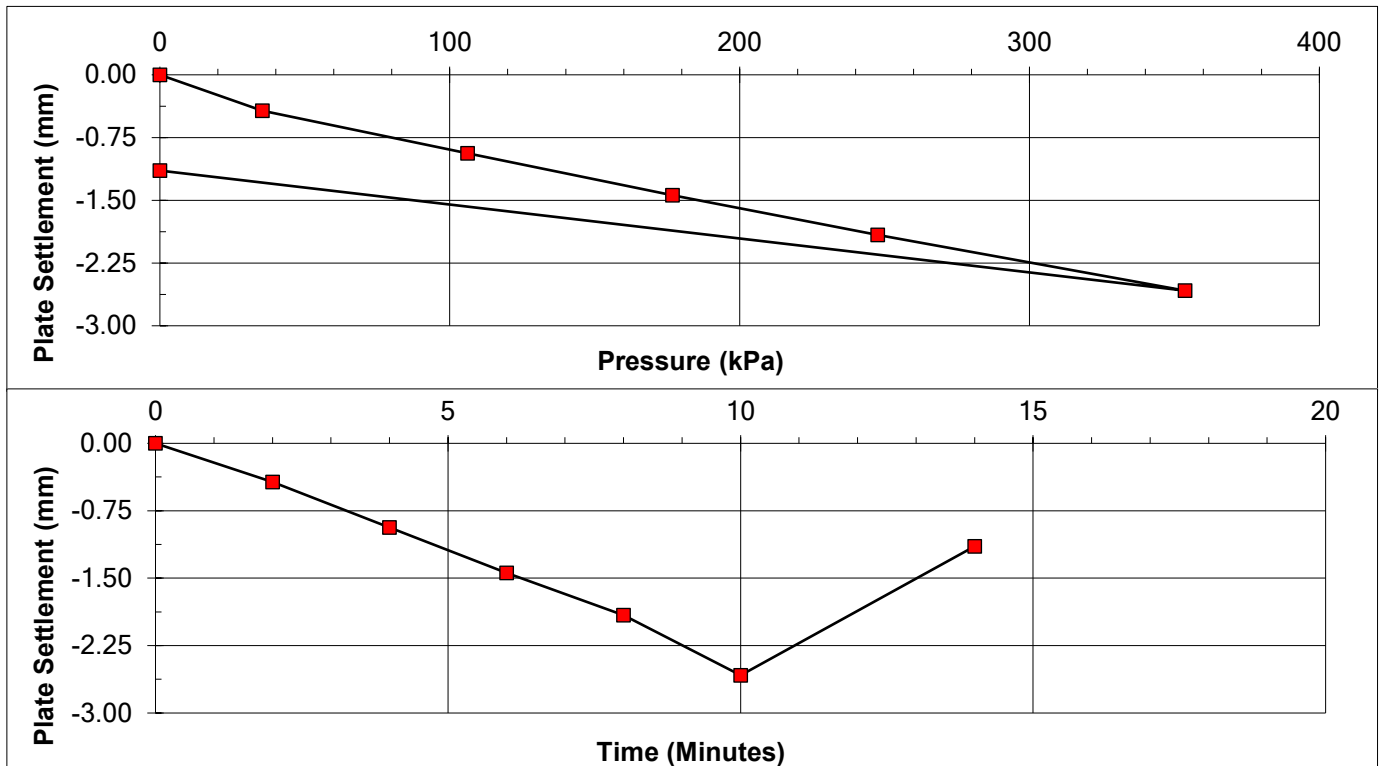
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |              |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |              |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |              |  |  |
| JOB NUMBER          | MRN 4579/89                              |                    |                       |              |  |  |
| TEST LOCATION       | Test 01                                  | LOADING DEVICE     | 10 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 09-Nov-23                                | PLATE SIZE (mm)    | 600 diameter          |              |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush                                    |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4396                     | 4720                     | 4268                     | 4461                   | 0.00                    | 0.00         | 0.0               |
| 4358                     | 4670                     | 4227                     | 4418                   | -0.43                   | 10.00        | 35.4              |
| 4311                     | 4604                     | 4188                     | 4368                   | -0.94                   | 30.00        | 106.1             |
| 4269                     | 4541                     | 4142                     | 4317                   | -1.44                   | 50.00        | 176.8             |
| 4224                     | 4484                     | 4102                     | 4270                   | -1.91                   | 70.00        | 247.6             |
| 4154                     | 4407                     | 4049                     | 4203                   | -2.58                   | 100.00       | 353.7             |
| 4263                     | 4618                     | 4159                     | 4347                   | -1.15                   | 0.00         | 0.0               |



|                                    |           |
|------------------------------------|-----------|
| Pressure at 1.25 mm deflexion =    | 150 kPa   |
| Modulus of subgrade reaction (k) = | 120 MPa/m |
| Equivalent 762 mm plate reaction = | 97 MPa/m  |
| Equivalent CBR =                   | 26.6 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 10-Nov-23

# MURRAY RIX

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DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



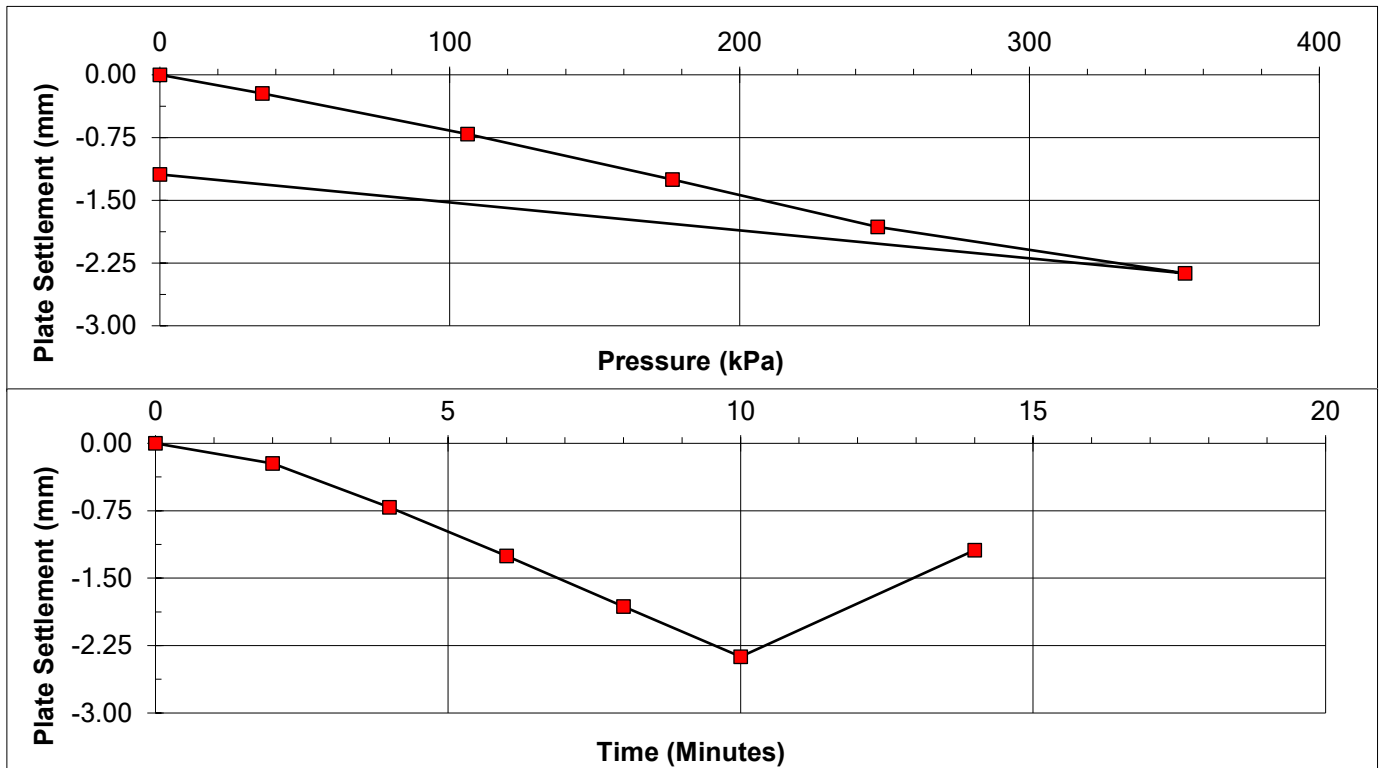
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |              |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |              |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |              |  |  |
| JOB NUMBER          | MRN 4579/89                              |                    |                       |              |  |  |
| TEST LOCATION       | Test 02                                  | LOADING DEVICE     | 10 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 09-Nov-23                                | PLATE SIZE (mm)    | 600 diameter          |              |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush                                    |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4708                     | 4836                     | 4739                     | 4761                   | 0.00                    | 0.00         | 0.0               |
| 4700                     | 4806                     | 4710                     | 4739                   | -0.22                   | 10.00        | 35.4              |
| 4646                     | 4743                     | 4681                     | 4690                   | -0.71                   | 30.00        | 106.1             |
| 4581                     | 4688                     | 4638                     | 4636                   | -1.25                   | 50.00        | 176.8             |
| 4516                     | 4628                     | 4594                     | 4579                   | -1.82                   | 70.00        | 247.6             |
| 4462                     | 4571                     | 4538                     | 4524                   | -2.37                   | 100.00       | 353.7             |
| 4600                     | 4687                     | 4639                     | 4642                   | -1.19                   | 0.00         | 0.0               |



|                                    |           |
|------------------------------------|-----------|
| Pressure at 1.25 mm deflexion =    | 176 kPa   |
| Modulus of subgrade reaction (k) = | 141 MPa/m |
| Equivalent 762 mm plate reaction = | 114 MPa/m |
| Equivalent CBR =                   | 35.1 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 10-Nov-23

# MURRAY RIX

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DUKINFIELD, CHESHIRE SK16 4QX  
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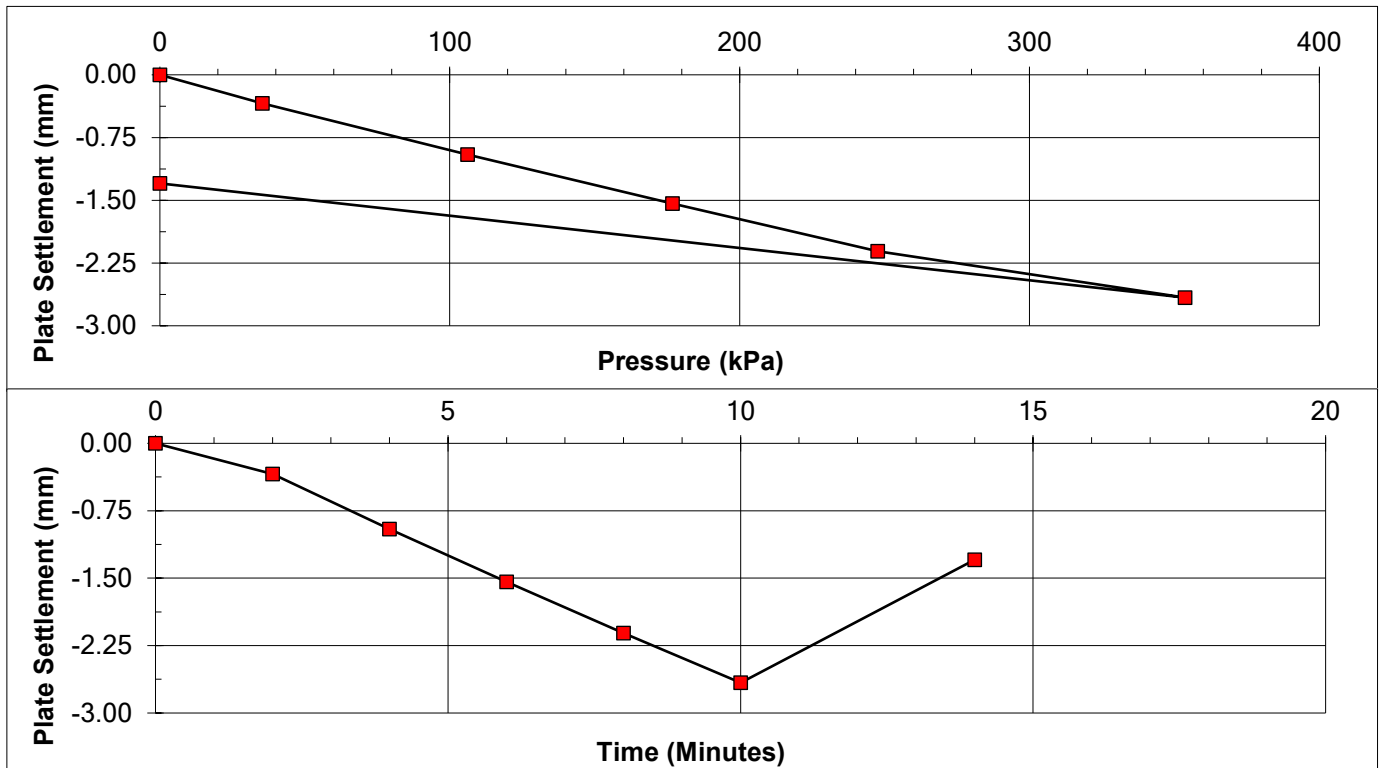
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |              |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |              |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |              |  |  |
| JOB NUMBER          | MRN 4579/89                              |                    |                       |              |  |  |
| TEST LOCATION       | Test 03                                  | LOADING DEVICE     | 10 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 09-Nov-23                                | PLATE SIZE (mm)    | 600 diameter          |              |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush                                    |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4637                     | 4820                     | 4577                     | 4678                   | 0.00                    | 0.00         | 0.0               |
| 4618                     | 4767                     | 4547                     | 4644                   | -0.34                   | 10.00        | 35.4              |
| 4551                     | 4711                     | 4486                     | 4583                   | -0.95                   | 30.00        | 106.1             |
| 4498                     | 4649                     | 4425                     | 4524                   | -1.54                   | 50.00        | 176.8             |
| 4434                     | 4593                     | 4374                     | 4467                   | -2.11                   | 70.00        | 247.6             |
| 4376                     | 4538                     | 4321                     | 4412                   | -2.66                   | 100.00       | 353.7             |
| 4521                     | 4657                     | 4467                     | 4548                   | -1.30                   | 0.00         | 0.0               |



|                                    |           |
|------------------------------------|-----------|
| Pressure at 1.25 mm deflexion =    | 142 kPa   |
| Modulus of subgrade reaction (k) = | 113 MPa/m |
| Equivalent 762 mm plate reaction = | 91 MPa/m  |
| Equivalent CBR =                   | 24.1 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 10-Nov-23

# MURRAY RIX

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TEL 0161 475 0870



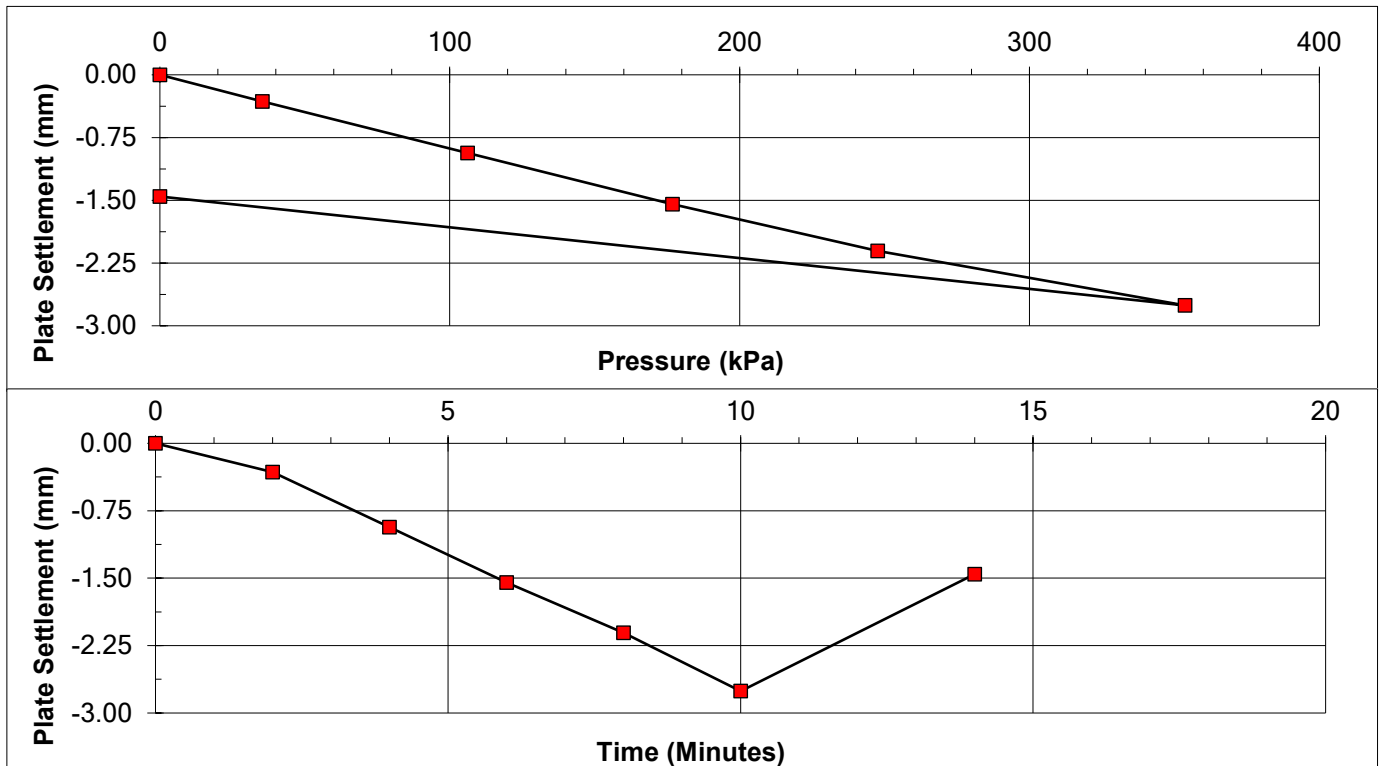
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |              |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |              |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |              |  |  |
| JOB NUMBER          | MRN 4579/89                              |                    |                       |              |  |  |
| TEST LOCATION       | Test 04                                  | LOADING DEVICE     | 10 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 09-Nov-23                                | PLATE SIZE (mm)    | 600 diameter          |              |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush                                    |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4604                     | 4671                     | 4649                     | 4641                   | 0.00                    | 0.00         | 0.0               |
| 4574                     | 4644                     | 4610                     | 4609                   | -0.32                   | 10.00        | 35.4              |
| 4519                     | 4577                     | 4548                     | 4548                   | -0.93                   | 30.00        | 106.1             |
| 4461                     | 4510                     | 4489                     | 4487                   | -1.55                   | 50.00        | 176.8             |
| 4402                     | 4451                     | 4439                     | 4431                   | -2.11                   | 70.00        | 247.6             |
| 4336                     | 4375                     | 4386                     | 4366                   | -2.76                   | 100.00       | 353.7             |
| 4460                     | 4528                     | 4499                     | 4496                   | -1.46                   | 0.00         | 0.0               |



|                                    |           |
|------------------------------------|-----------|
| Pressure at 1.25 mm deflexion =    | 143 kPa   |
| Modulus of subgrade reaction (k) = | 114 MPa/m |
| Equivalent 762 mm plate reaction = | 92 MPa/m  |
| Equivalent CBR =                   | 24.3 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 10-Nov-23

# MURRAY RIX

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DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



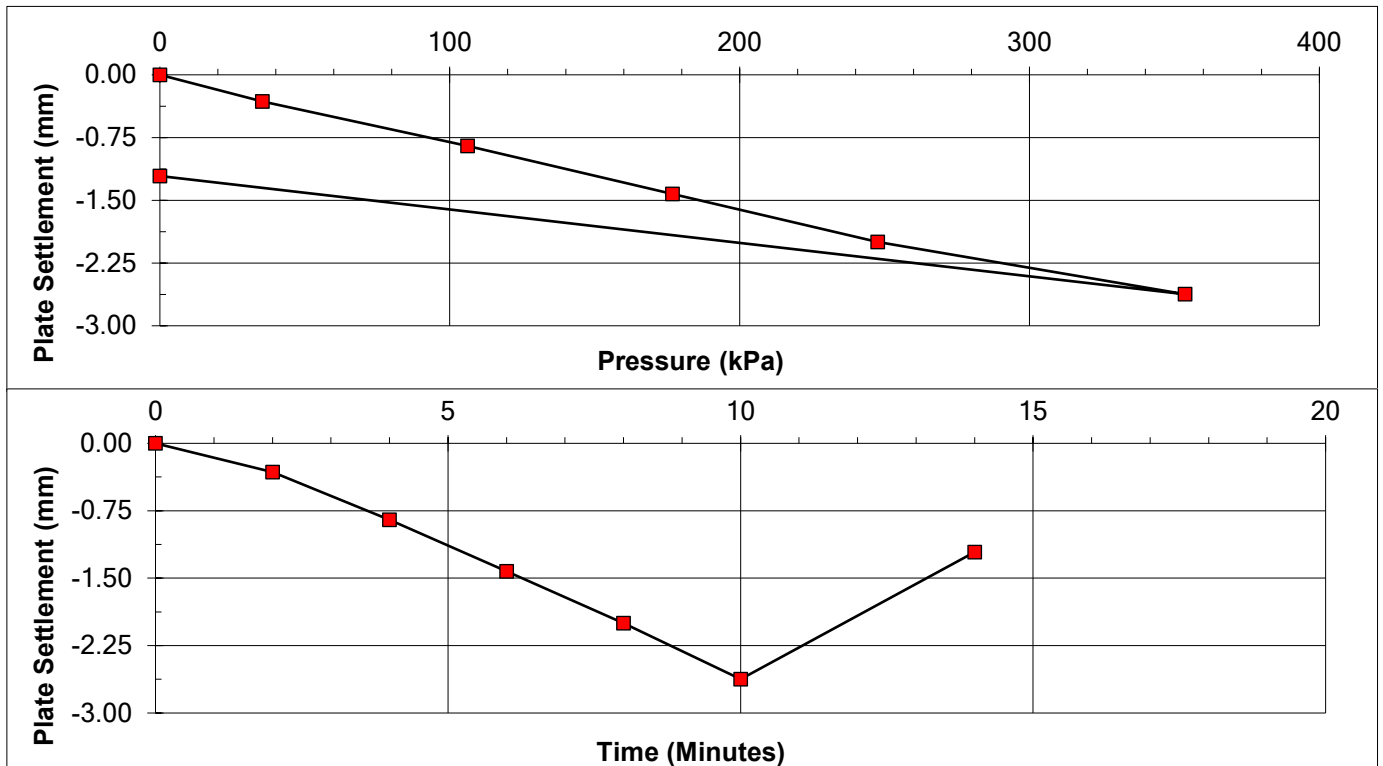
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |              |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--------------|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |              |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |              |  |
| JOB NUMBER          | MRN 4579/89                              |                    |                       |              |  |
| TEST LOCATION       | Test 05                                  | LOADING DEVICE     | 10 Tonne Enerpac Jack |              |  |
| TEST DATE           | 09-Nov-23                                | PLATE SIZE (mm)    | 600 diameter          |              |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |              |  |
| MATERIAL UNDER TEST | Crush                                    |                    | MOISTURE CONTENT      | Not Required |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4678                     | 4804                     | 4536                     | 4673                   | 0.00                    | 0.00         | 0.0               |
| 4642                     | 4774                     | 4506                     | 4641                   | -0.32                   | 10.00        | 35.4              |
| 4581                     | 4729                     | 4453                     | 4588                   | -0.85                   | 30.00        | 106.1             |
| 4526                     | 4668                     | 4397                     | 4530                   | -1.42                   | 50.00        | 176.8             |
| 4469                     | 4608                     | 4341                     | 4473                   | -2.00                   | 70.00        | 247.6             |
| 4412                     | 4541                     | 4278                     | 4410                   | -2.62                   | 100.00       | 353.7             |
| 4560                     | 4673                     | 4422                     | 4552                   | -1.21                   | 0.00         | 0.0               |



|                                    |           |
|------------------------------------|-----------|
| Pressure at 1.25 mm deflexion =    | 155 kPa   |
| Modulus of subgrade reaction (k) = | 124 MPa/m |
| Equivalent 762 mm plate reaction = | 100 MPa/m |
| Equivalent CBR =                   | 28.2 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 10-Nov-23

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



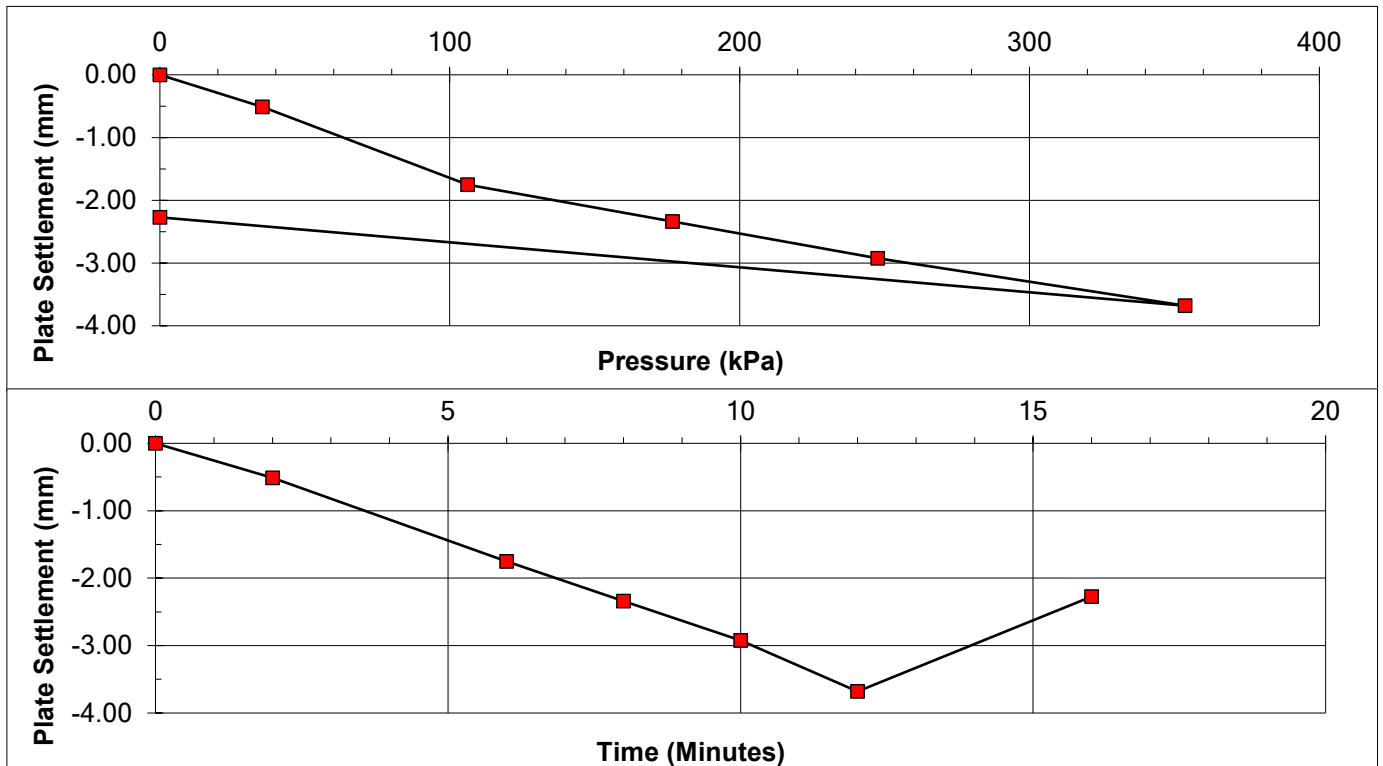
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |              |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |              |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |              |  |  |
| JOB NUMBER          | MRN 4579/89                              |                    |                       |              |  |  |
| TEST LOCATION       | Test 06                                  | LOADING DEVICE     | 10 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 09-Nov-23                                | PLATE SIZE (mm)    | 600 diameter          |              |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush                                    |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4537                     | 4604                     | 4683                     | 4608                   | 0.00                    | 0.00         | 0.0               |
| 4484                     | 4555                     | 4632                     | 4557                   | -0.51                   | 10.00        | 35.4              |
| 4349                     | 4441                     | 4509                     | 4433                   | -1.75                   | 30.00        | 106.1             |
| 4289                     | 4386                     | 4447                     | 4374                   | -2.34                   | 50.00        | 176.8             |
| 4228                     | 4327                     | 4392                     | 4316                   | -2.92                   | 70.00        | 247.6             |
| 4140                     | 4253                     | 4327                     | 4240                   | -3.68                   | 100.00       | 353.7             |
| 4299                     | 4397                     | 4446                     | 4381                   | -2.27                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflexion =    | 78 kPa   |
| Modulus of subgrade reaction (k) = | 62 MPa/m |
| Equivalent 762 mm plate reaction = | 50 MPa/m |
| Equivalent CBR =                   | 8.5 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 10-Nov-23

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



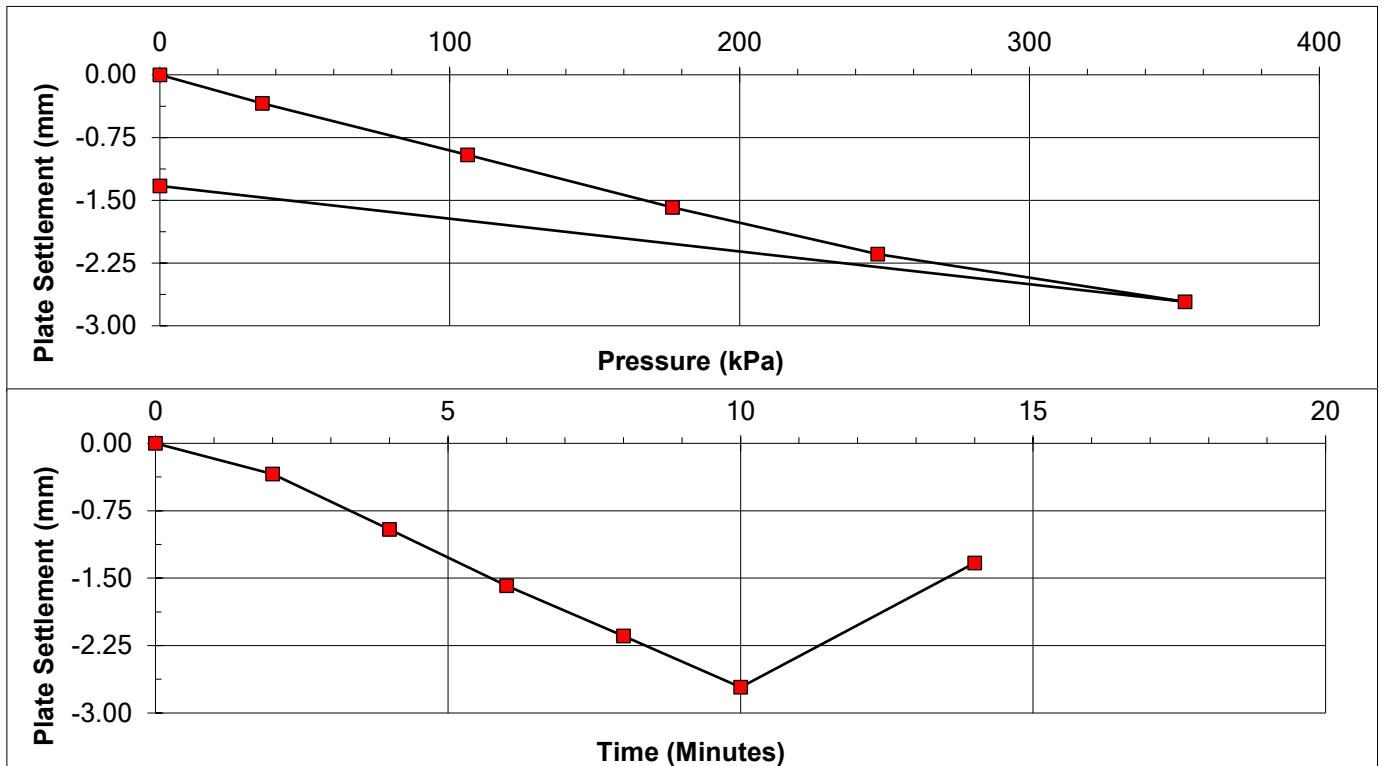
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |              |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |              |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |              |  |  |
| JOB NUMBER          | MRN 4579/89                              |                    |                       |              |  |  |
| TEST LOCATION       | Test 07                                  | LOADING DEVICE     | 10 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 09-Nov-23                                | PLATE SIZE (mm)    | 600 diameter          |              |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush                                    |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4441                     | 4951                     | 4802                     | 4731                   | 0.00                    | 0.00         | 0.0               |
| 4402                     | 4929                     | 4761                     | 4697                   | -0.34                   | 10.00        | 35.4              |
| 4347                     | 4863                     | 4697                     | 4636                   | -0.96                   | 30.00        | 106.1             |
| 4286                     | 4804                     | 4629                     | 4573                   | -1.58                   | 50.00        | 176.8             |
| 4226                     | 4746                     | 4579                     | 4517                   | -2.14                   | 70.00        | 247.6             |
| 4164                     | 4690                     | 4526                     | 4460                   | -2.71                   | 100.00       | 353.7             |
| 4301                     | 4822                     | 4672                     | 4598                   | -1.33                   | 0.00         | 0.0               |



|                                    |           |
|------------------------------------|-----------|
| Pressure at 1.25 mm deflexion =    | 139 kPa   |
| Modulus of subgrade reaction (k) = | 111 MPa/m |
| Equivalent 762 mm plate reaction = | 90 MPa/m  |
| Equivalent CBR =                   | 23.3 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 10-Nov-23

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



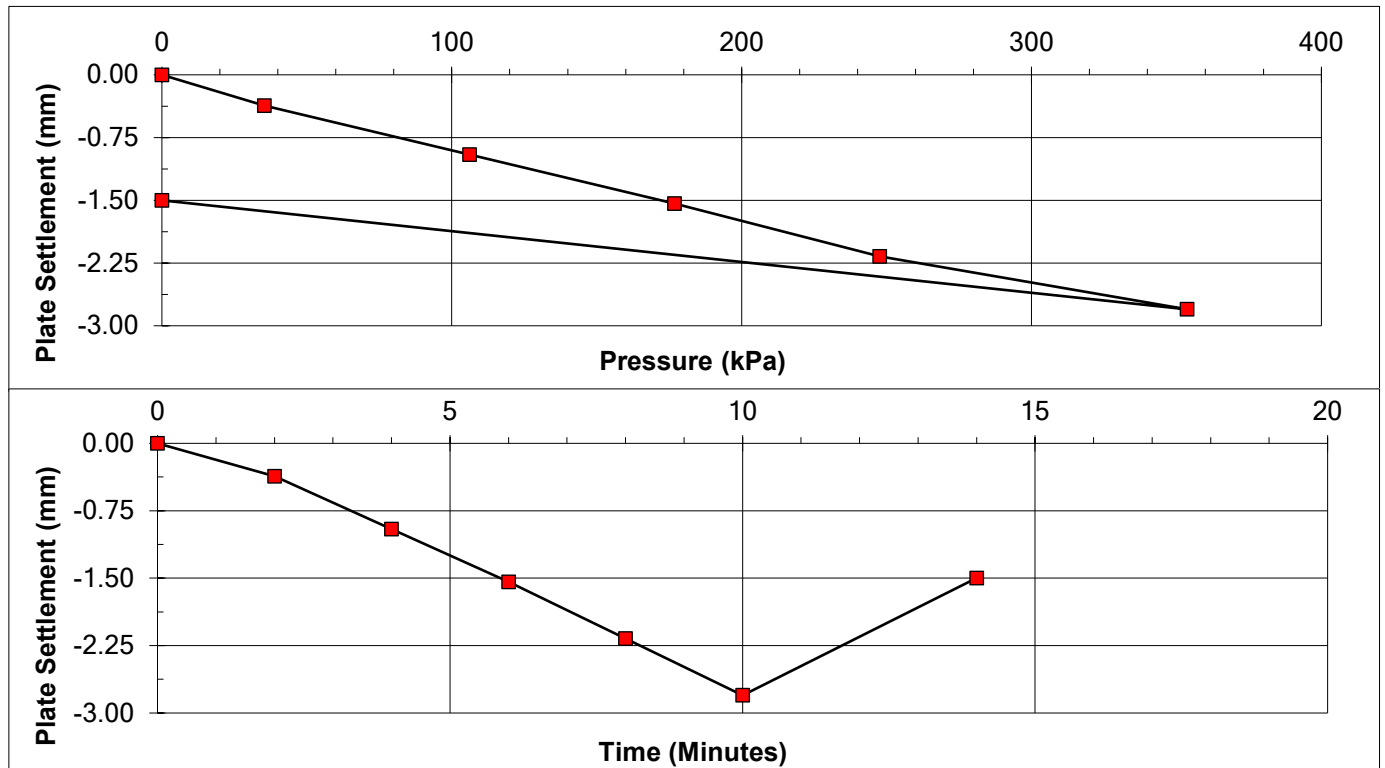
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |              |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |              |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |              |  |  |
| JOB NUMBER          | MRN 4579/89                              |                    |                       |              |  |  |
| TEST LOCATION       | Test 08                                  | LOADING DEVICE     | 10 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 09-Nov-23                                | PLATE SIZE (mm)    | 600 diameter          |              |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush                                    |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4625                     | 4442                     | 4642                     | 4570                   | 0.00                    | 0.00         | 0.0               |
| 4570                     | 4425                     | 4604                     | 4533                   | -0.37                   | 10.00        | 35.4              |
| 4508                     | 4374                     | 4541                     | 4474                   | -0.95                   | 30.00        | 106.1             |
| 4448                     | 4312                     | 4487                     | 4416                   | -1.54                   | 50.00        | 176.8             |
| 4386                     | 4245                     | 4427                     | 4353                   | -2.17                   | 70.00        | 247.6             |
| 4314                     | 4186                     | 4368                     | 4289                   | -2.80                   | 100.00       | 353.7             |
| 4468                     | 4298                     | 4493                     | 4420                   | -1.50                   | 0.00         | 0.0               |



|                                    |           |
|------------------------------------|-----------|
| Pressure at 1.25 mm deflexion =    | 142 kPa   |
| Modulus of subgrade reaction (k) = | 113 MPa/m |
| Equivalent 762 mm plate reaction = | 91 MPa/m  |
| Equivalent CBR =                   | 24.1 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 10-Nov-23

## TEST REPORT

**Client** Chartrange Ltd

**Address** Wharf Street  
Dukinfield  
Cheshire  
SK16 4NJ

**Contract** Rochdale Road,  
Greater Manchester M4 4HY

**Job Number** MRN 4579/91  
**Date of Issue** 13 November 2023  
**Page** 1 of 6

Approved Signatories

S J Hutchings, O P Davies

Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
- 3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.
- 4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted.
- 5 The results included within the report are representative of the samples submitted for analysis.
- 6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.



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Email: [enquiries@murrayrix.com](mailto:enquiries@murrayrix.com) Website: [www.murrayrix.com](http://www.murrayrix.com)

Also at: London: 020 8523 1999

Murray Rix is the trading name of Murray Rix (Northern) Limited. Registered in England 2878361

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



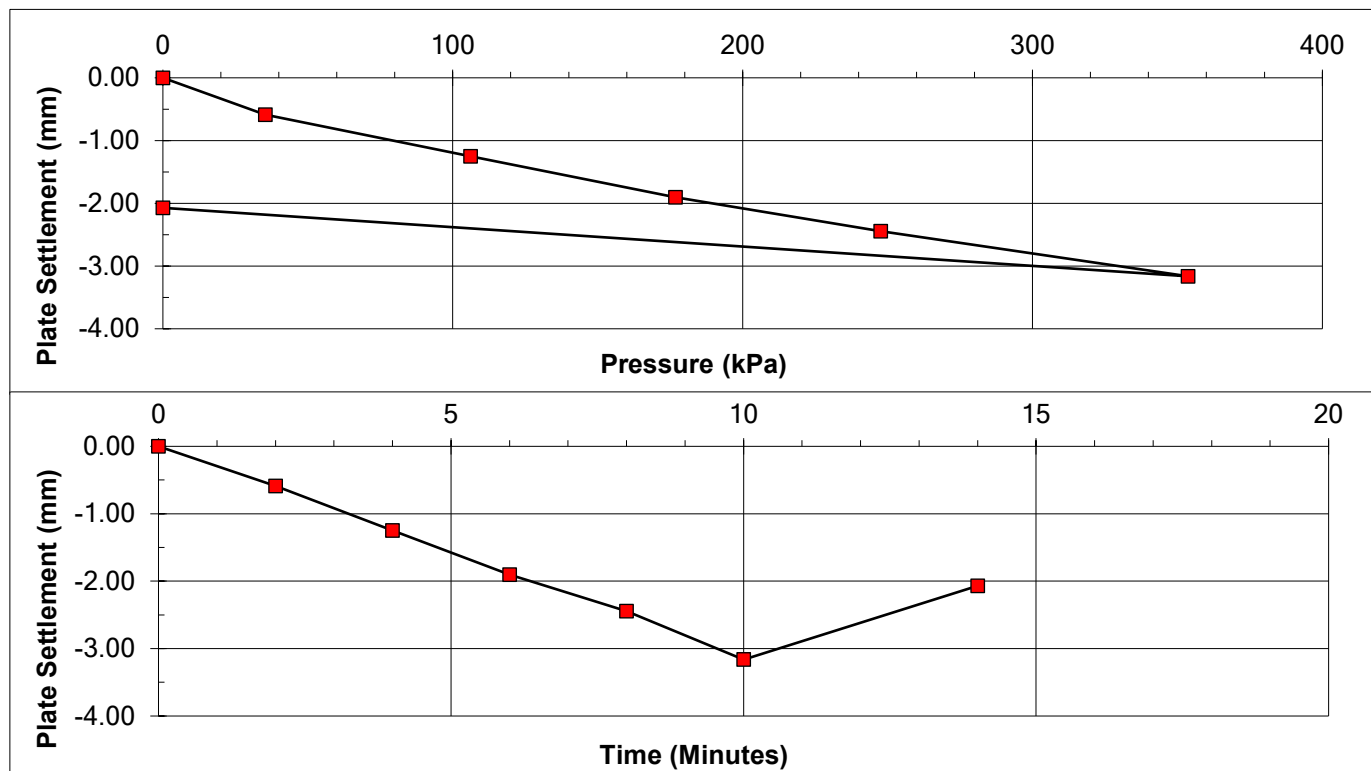
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |              |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |              |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |              |  |  |
| JOB NUMBER          | MRN 4579/91                              |                    |                       |              |  |  |
| TEST LOCATION       | Test 01                                  | LOADING DEVICE     | 10 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 10-Nov-23                                | PLATE SIZE (mm)    | 600 diameter          |              |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush                                    |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4610                     | 4495                     | 4737                     | 4614                   | 0.00                    | 0.00         | 0.0               |
| 4514                     | 4437                     | 4714                     | 4555                   | -0.59                   | 10.00        | 35.4              |
| 4446                     | 4370                     | 4651                     | 4489                   | -1.25                   | 30.00        | 106.1             |
| 4369                     | 4306                     | 4596                     | 4424                   | -1.90                   | 50.00        | 176.8             |
| 4304                     | 4264                     | 4540                     | 4369                   | -2.45                   | 70.00        | 247.6             |
| 4214                     | 4201                     | 4478                     | 4298                   | -3.16                   | 100.00       | 353.7             |
| 4372                     | 4312                     | 4537                     | 4407                   | -2.07                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflexion =    | 106 kPa  |
| Modulus of subgrade reaction (k) = | 85 MPa/m |
| Equivalent 762 mm plate reaction = | 68 MPa/m |
| Equivalent CBR =                   | 14.6 %   |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 13-Nov-23

# MURRAY RIX

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DUKINFIELD, CHESHIRE SK16 4QX  
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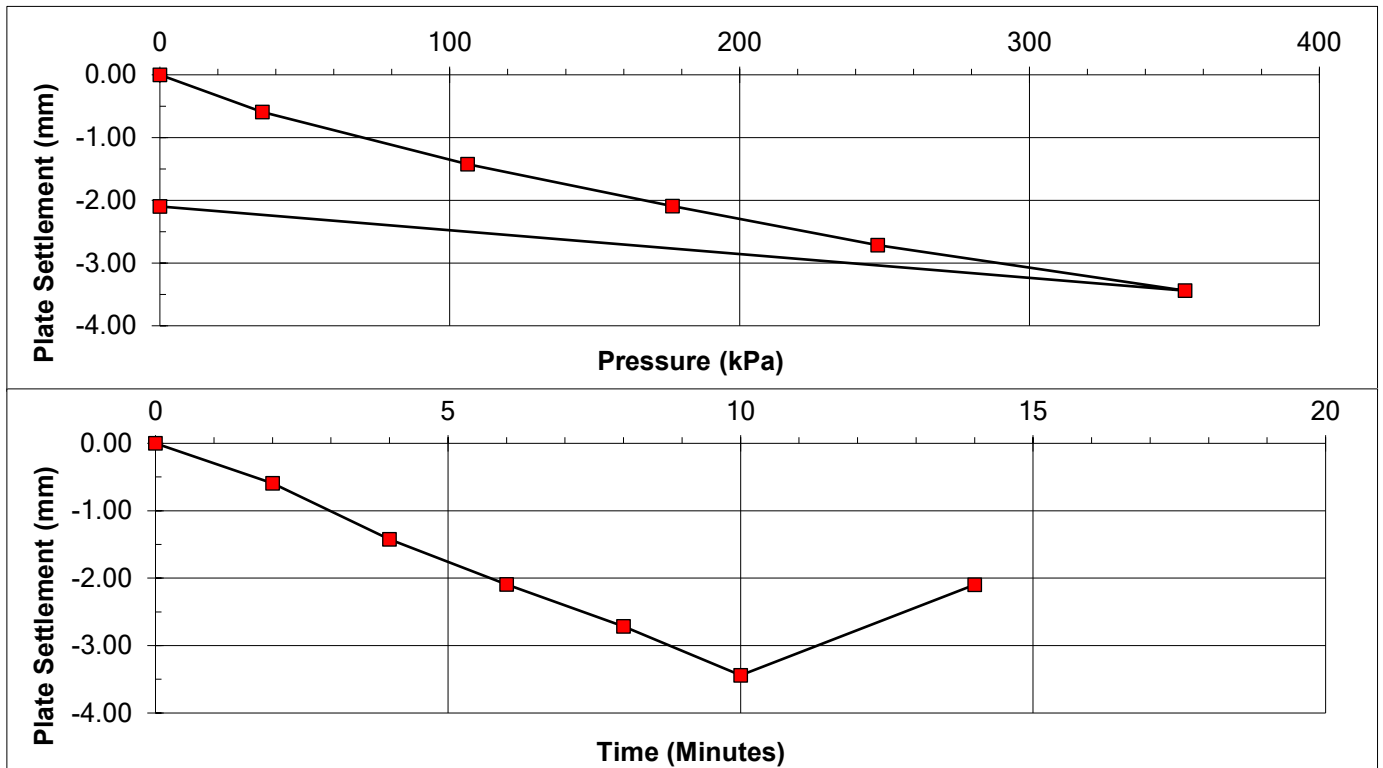
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |              |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |              |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |              |  |  |
| JOB NUMBER          | MRN 4579/91                              |                    |                       |              |  |  |
| TEST LOCATION       | Test 02                                  | LOADING DEVICE     | 10 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 10-Nov-23                                | PLATE SIZE (mm)    | 600 diameter          |              |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush                                    |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4667                     | 4421                     | 4762                     | 4617                   | 0.00                    | 0.00         | 0.0               |
| 4618                     | 4379                     | 4675                     | 4557                   | -0.59                   | 10.00        | 35.4              |
| 4554                     | 4251                     | 4618                     | 4474                   | -1.42                   | 30.00        | 106.1             |
| 4477                     | 4192                     | 4553                     | 4407                   | -2.09                   | 50.00        | 176.8             |
| 4419                     | 4133                     | 4484                     | 4345                   | -2.71                   | 70.00        | 247.6             |
| 4342                     | 4068                     | 4408                     | 4273                   | -3.44                   | 100.00       | 353.7             |
| 4499                     | 4159                     | 4562                     | 4407                   | -2.10                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflexion =    | 91 kPa   |
| Modulus of subgrade reaction (k) = | 73 MPa/m |
| Equivalent 762 mm plate reaction = | 59 MPa/m |
| Equivalent CBR =                   | 11.2 %   |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 13-Nov-23

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DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



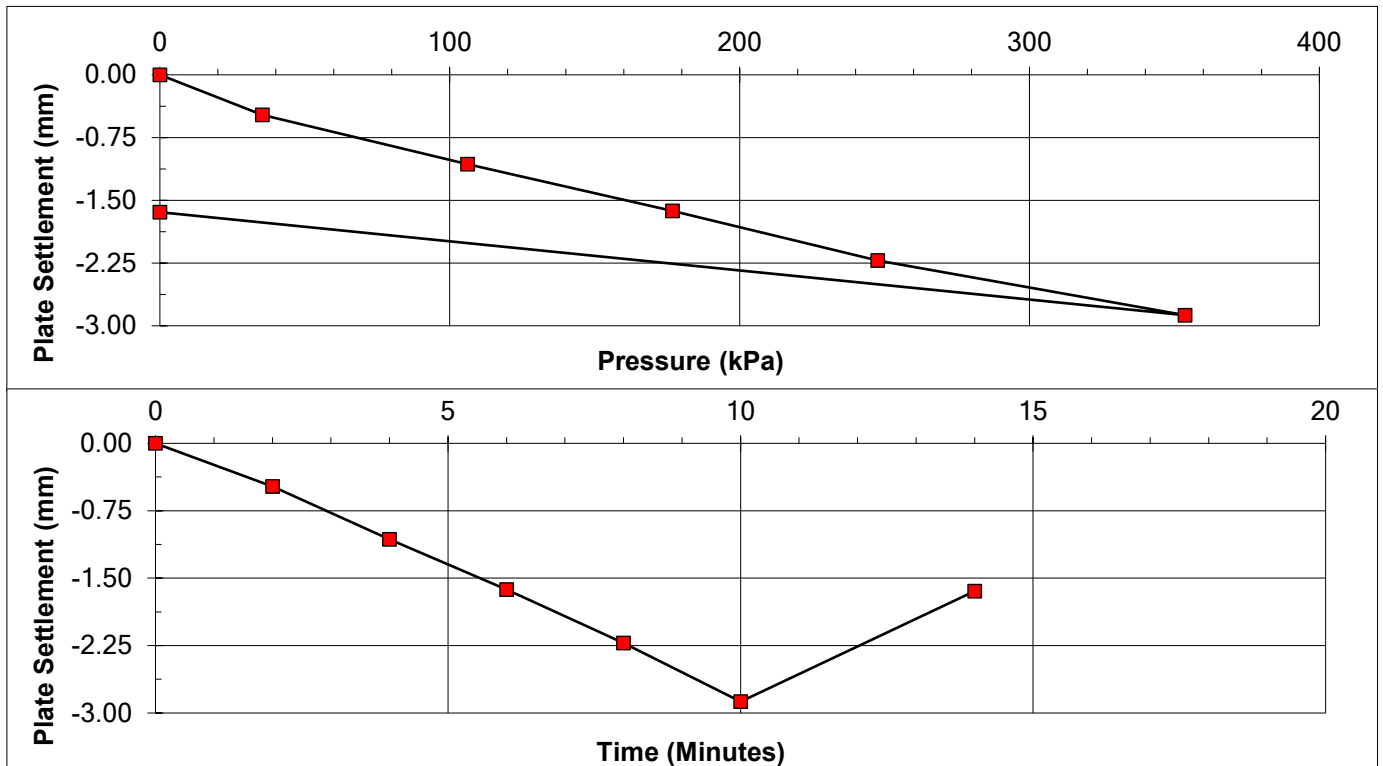
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |              |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |              |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |              |  |  |
| JOB NUMBER          | MRN 4579/91                              |                    |                       |              |  |  |
| TEST LOCATION       | Test 03                                  | LOADING DEVICE     | 10 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 10-Nov-23                                | PLATE SIZE (mm)    | 600 diameter          |              |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush                                    |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4719                     | 4492                     | 4651                     | 4621                   | 0.00                    | 0.00         | 0.0               |
| 4679                     | 4410                     | 4629                     | 4573                   | -0.48                   | 10.00        | 35.4              |
| 4626                     | 4324                     | 4592                     | 4514                   | -1.07                   | 30.00        | 106.1             |
| 4569                     | 4261                     | 4544                     | 4458                   | -1.63                   | 50.00        | 176.8             |
| 4509                     | 4198                     | 4489                     | 4399                   | -2.22                   | 70.00        | 247.6             |
| 4450                     | 4123                     | 4427                     | 4333                   | -2.87                   | 100.00       | 353.7             |
| 4601                     | 4274                     | 4494                     | 4456                   | -1.64                   | 0.00         | 0.0               |



Pressure at 1.25 mm deflexion = 129 kPa  
Modulus of subgrade reaction (k) = 103 MPa/m  
Equivalent 762 mm plate reaction = 83 MPa/m  
Equivalent CBR = 20.5 %

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 13-Nov-23

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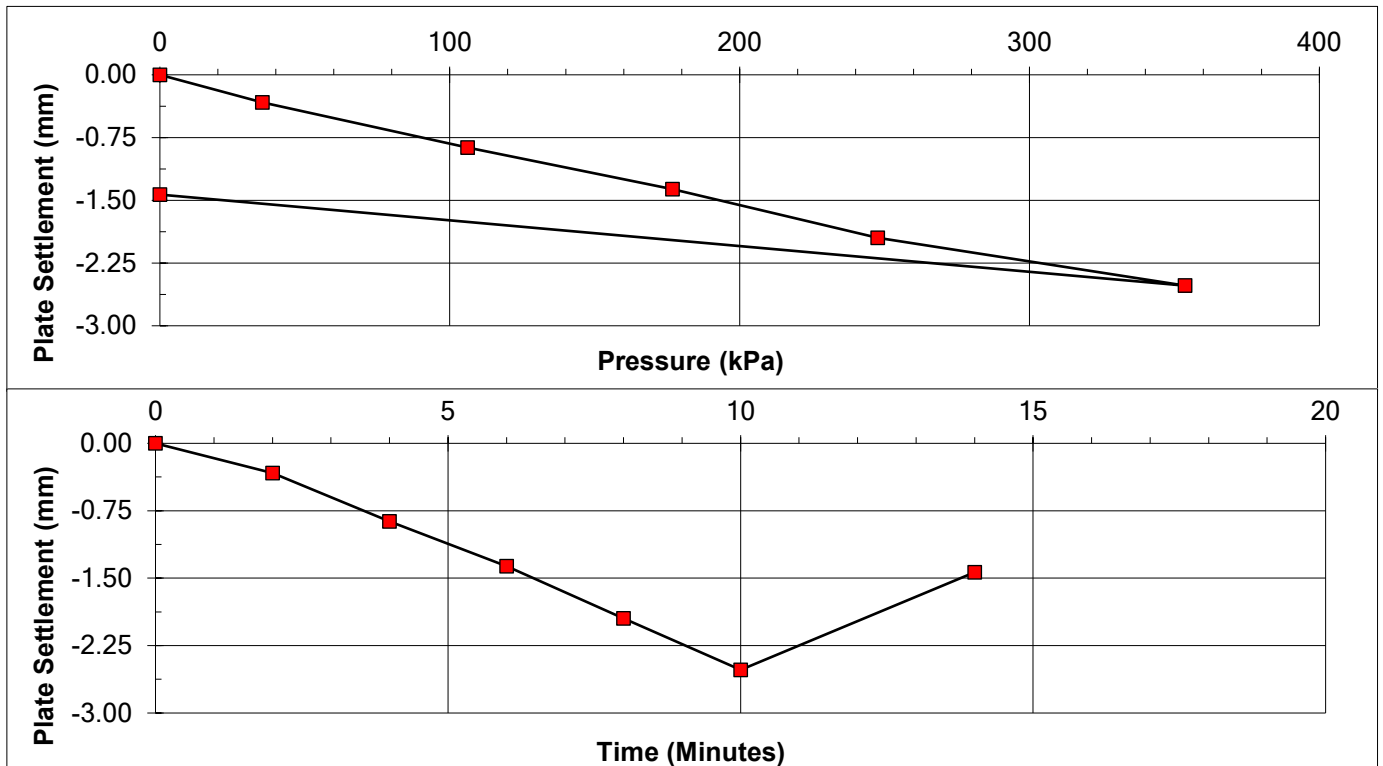
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |              |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |              |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |              |  |  |
| JOB NUMBER          | MRN 4579/91                              |                    |                       |              |  |  |
| TEST LOCATION       | Test 04                                  | LOADING DEVICE     | 10 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 10-Nov-23                                | PLATE SIZE (mm)    | 600 diameter          |              |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush                                    |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4801                     | 4551                     | 4631                     | 4661                   | 0.00                    | 0.00         | 0.0               |
| 4758                     | 4512                     | 4614                     | 4628                   | -0.33                   | 10.00        | 35.4              |
| 4691                     | 4479                     | 4552                     | 4574                   | -0.87                   | 30.00        | 106.1             |
| 4635                     | 4443                     | 4495                     | 4524                   | -1.37                   | 50.00        | 176.8             |
| 4580                     | 4390                     | 4429                     | 4466                   | -1.95                   | 70.00        | 247.6             |
| 4514                     | 4342                     | 4371                     | 4409                   | -2.52                   | 100.00       | 353.7             |
| 4679                     | 4436                     | 4438                     | 4518                   | -1.43                   | 0.00         | 0.0               |



|                                    |           |
|------------------------------------|-----------|
| Pressure at 1.25 mm deflexion =    | 160 kPa   |
| Modulus of subgrade reaction (k) = | 128 MPa/m |
| Equivalent 762 mm plate reaction = | 103 MPa/m |
| Equivalent CBR =                   | 29.7 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 13-Nov-23

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TEL 0161 475 0870



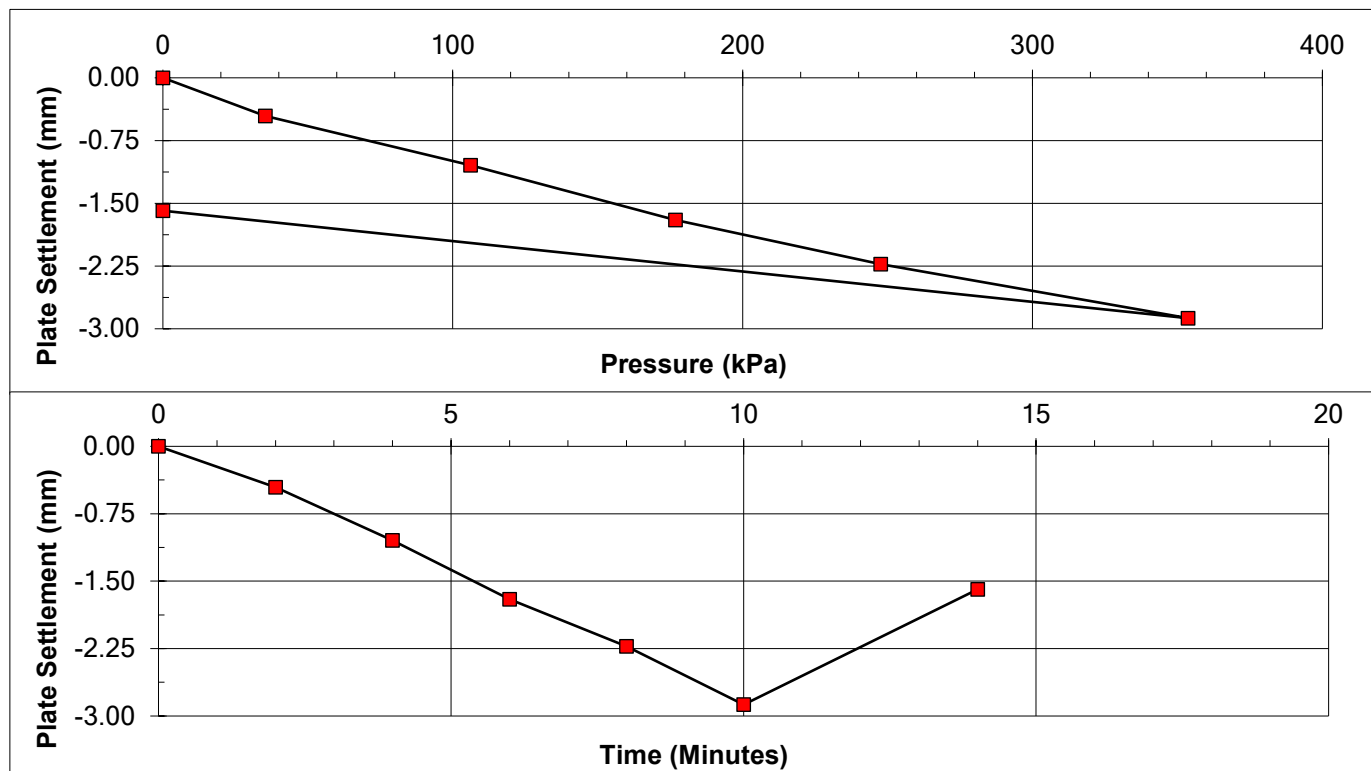
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |              |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |              |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |              |  |  |
| JOB NUMBER          | MRN 4579/91                              |                    |                       |              |  |  |
| TEST LOCATION       | Test 05                                  | LOADING DEVICE     | 10 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 10-Nov-23                                | PLATE SIZE (mm)    | 600 diameter          |              |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush                                    |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4602                     | 4635                     | 4742                     | 4660                   | 0.00                    | 0.00         | 0.0               |
| 4557                     | 4581                     | 4704                     | 4614                   | -0.46                   | 10.00        | 35.4              |
| 4510                     | 4519                     | 4636                     | 4555                   | -1.05                   | 30.00        | 106.1             |
| 4442                     | 4460                     | 4567                     | 4490                   | -1.70                   | 50.00        | 176.8             |
| 4386                     | 4407                     | 4518                     | 4437                   | -2.23                   | 70.00        | 247.6             |
| 4314                     | 4351                     | 4452                     | 4372                   | -2.87                   | 100.00       | 353.7             |
| 4432                     | 4484                     | 4586                     | 4501                   | -1.59                   | 0.00         | 0.0               |



|                                    |           |
|------------------------------------|-----------|
| Pressure at 1.25 mm deflexion =    | 128 kPa   |
| Modulus of subgrade reaction (k) = | 102 MPa/m |
| Equivalent 762 mm plate reaction = | 82 MPa/m  |
| Equivalent CBR =                   | 20.2 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 13-Nov-23

## TEST REPORT

**Client** Chartrange Ltd

**Address** Wharf Street  
Dukinfield  
Cheshire  
SK16 4NJ

**Contract** Rochdale Road,  
Greater Manchester M4 4HY

**Job Number** MRN 4579/93  
**Date of Issue** 16 November 2023  
**Page** 1 of 7

Approved Signatories

S J Hutchings, O P Davies

Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
- 3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.
- 4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted.
- 5 The results included within the report are representative of the samples submitted for analysis.
- 6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.



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Email: [enquiries@murrayrix.com](mailto:enquiries@murrayrix.com) Website: [www.murrayrix.com](http://www.murrayrix.com)

Also at: London: 020 8523 1999

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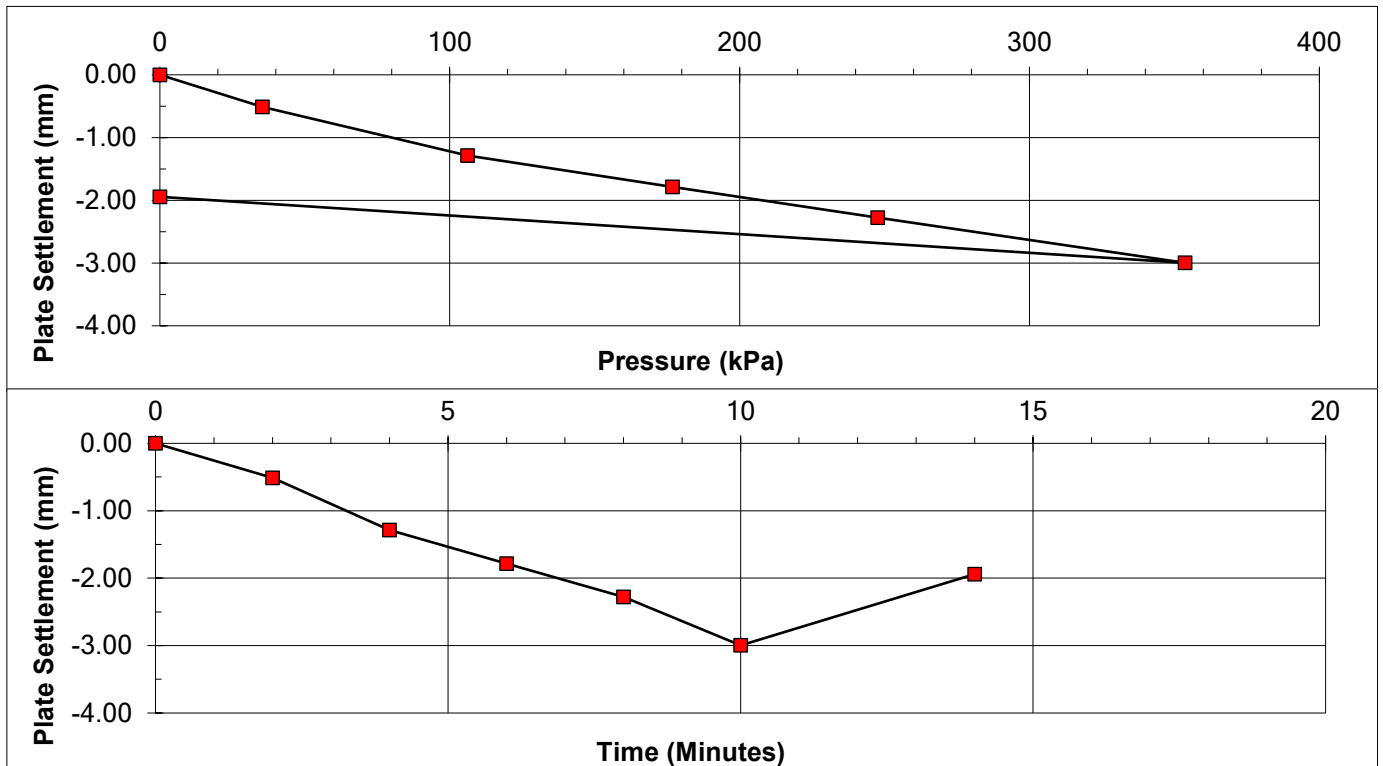
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |              |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |              |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |              |  |  |
| JOB NUMBER          | MRN 4579/93                              |                    |                       |              |  |  |
| TEST LOCATION       | Test 01                                  | LOADING DEVICE     | 20 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 15-Nov-23                                | PLATE SIZE (mm)    | 600 diameter          |              |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush                                    |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4696                     | 4761                     | 4743                     | 4733                   | 0.00                    | 0.00         | 0.0               |
| 4651                     | 4709                     | 4687                     | 4682                   | -0.51                   | 10.00        | 35.4              |
| 4569                     | 4637                     | 4608                     | 4605                   | -1.29                   | 30.00        | 106.1             |
| 4516                     | 4587                     | 4561                     | 4555                   | -1.79                   | 50.00        | 176.8             |
| 4469                     | 4540                     | 4508                     | 4506                   | -2.28                   | 70.00        | 247.6             |
| 4401                     | 4469                     | 4431                     | 4434                   | -3.00                   | 100.00       | 353.7             |
| 4506                     | 4565                     | 4546                     | 4539                   | -1.94                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflexion =    | 103 kPa  |
| Modulus of subgrade reaction (k) = | 82 MPa/m |
| Equivalent 762 mm plate reaction = | 66 MPa/m |
| Equivalent CBR =                   | 13.8 %   |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 16-Nov-23

# MURRAY RIX

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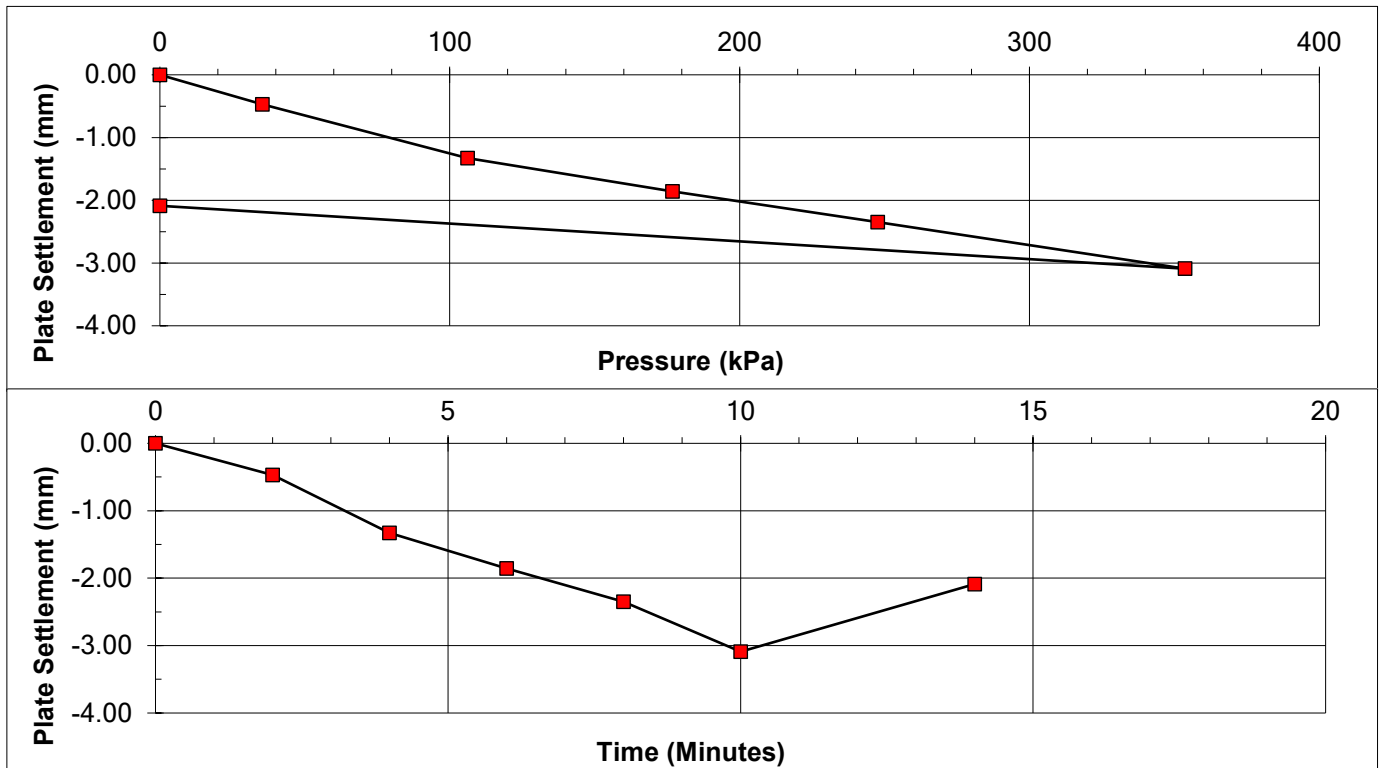
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### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |              |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |              |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |              |  |  |
| JOB NUMBER          | MRN 4579/93                              |                    |                       |              |  |  |
| TEST LOCATION       | Test 02                                  | LOADING DEVICE     | 20 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 15-Nov-23                                | PLATE SIZE (mm)    | 600 diameter          |              |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush                                    |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4736                     | 4588                     | 4706                     | 4677                   | 0.00                    | 0.00         | 0.0               |
| 4683                     | 4542                     | 4664                     | 4630                   | -0.47                   | 10.00        | 35.4              |
| 4601                     | 4459                     | 4571                     | 4544                   | -1.33                   | 30.00        | 106.1             |
| 4544                     | 4410                     | 4519                     | 4491                   | -1.86                   | 50.00        | 176.8             |
| 4488                     | 4369                     | 4468                     | 4442                   | -2.35                   | 70.00        | 247.6             |
| 4408                     | 4304                     | 4391                     | 4368                   | -3.09                   | 100.00       | 353.7             |
| 4523                     | 4392                     | 4489                     | 4468                   | -2.09                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflexion =    | 100 kPa  |
| Modulus of subgrade reaction (k) = | 80 MPa/m |
| Equivalent 762 mm plate reaction = | 64 MPa/m |
| Equivalent CBR =                   | 13.0 %   |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 16-Nov-23

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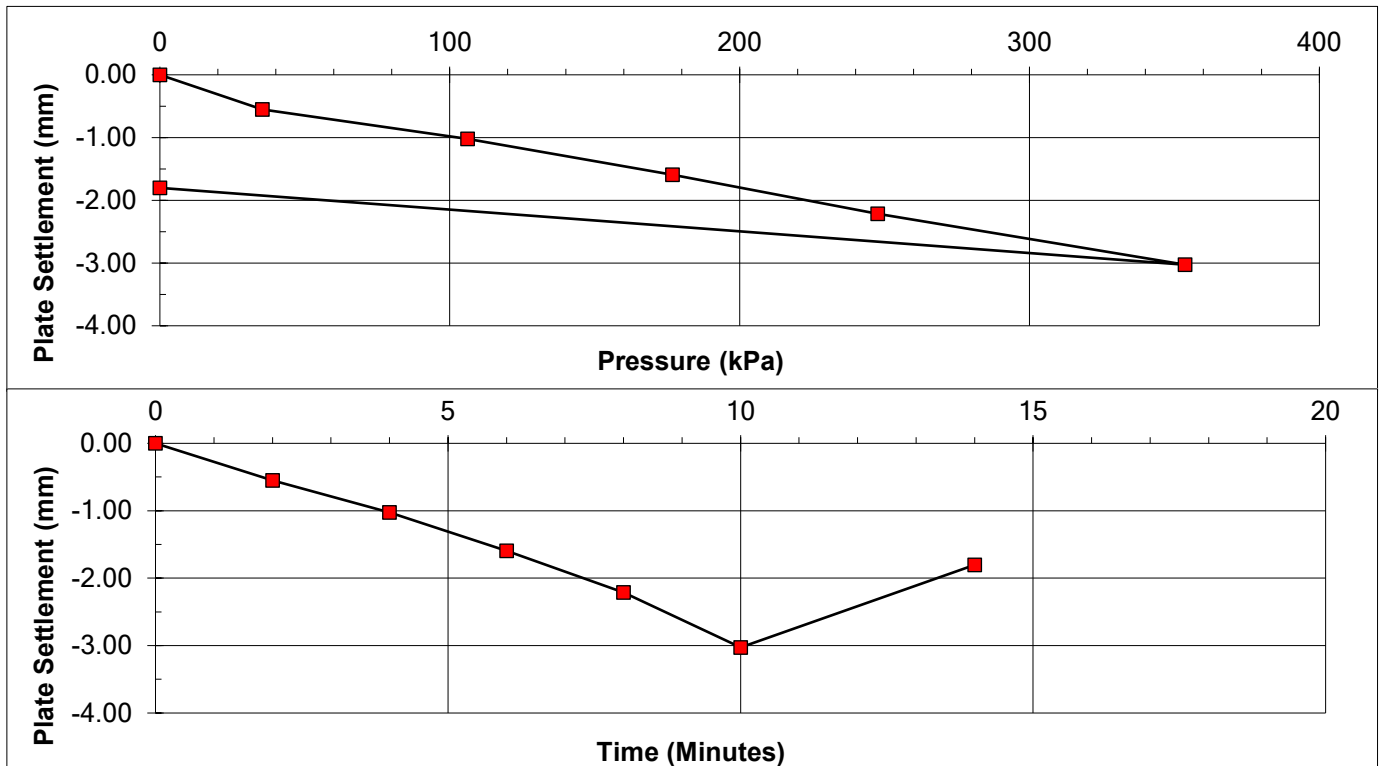
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |              |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |              |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |              |  |  |
| JOB NUMBER          | MRN 4579/93                              |                    |                       |              |  |  |
| TEST LOCATION       | Test 03                                  | LOADING DEVICE     | 20 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 15-Nov-23                                | PLATE SIZE (mm)    | 600 diameter          |              |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush                                    |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4565                     | 4688                     | 4623                     | 4625                   | 0.00                    | 0.00         | 0.0               |
| 4511                     | 4621                     | 4579                     | 4570                   | -0.55                   | 10.00        | 35.4              |
| 4471                     | 4569                     | 4529                     | 4523                   | -1.02                   | 30.00        | 106.1             |
| 4419                     | 4516                     | 4463                     | 4466                   | -1.59                   | 50.00        | 176.8             |
| 4361                     | 4452                     | 4399                     | 4404                   | -2.21                   | 70.00        | 247.6             |
| 4279                     | 4370                     | 4319                     | 4323                   | -3.03                   | 100.00       | 353.7             |
| 4401                     | 4511                     | 4423                     | 4445                   | -1.80                   | 0.00         | 0.0               |



|                                    |           |
|------------------------------------|-----------|
| Pressure at 1.25 mm deflexion =    | 134 kPa   |
| Modulus of subgrade reaction (k) = | 107 MPa/m |
| Equivalent 762 mm plate reaction = | 86 MPa/m  |
| Equivalent CBR =                   | 21.9 %    |

REMARKS

SIGNED   
NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 16-Nov-23

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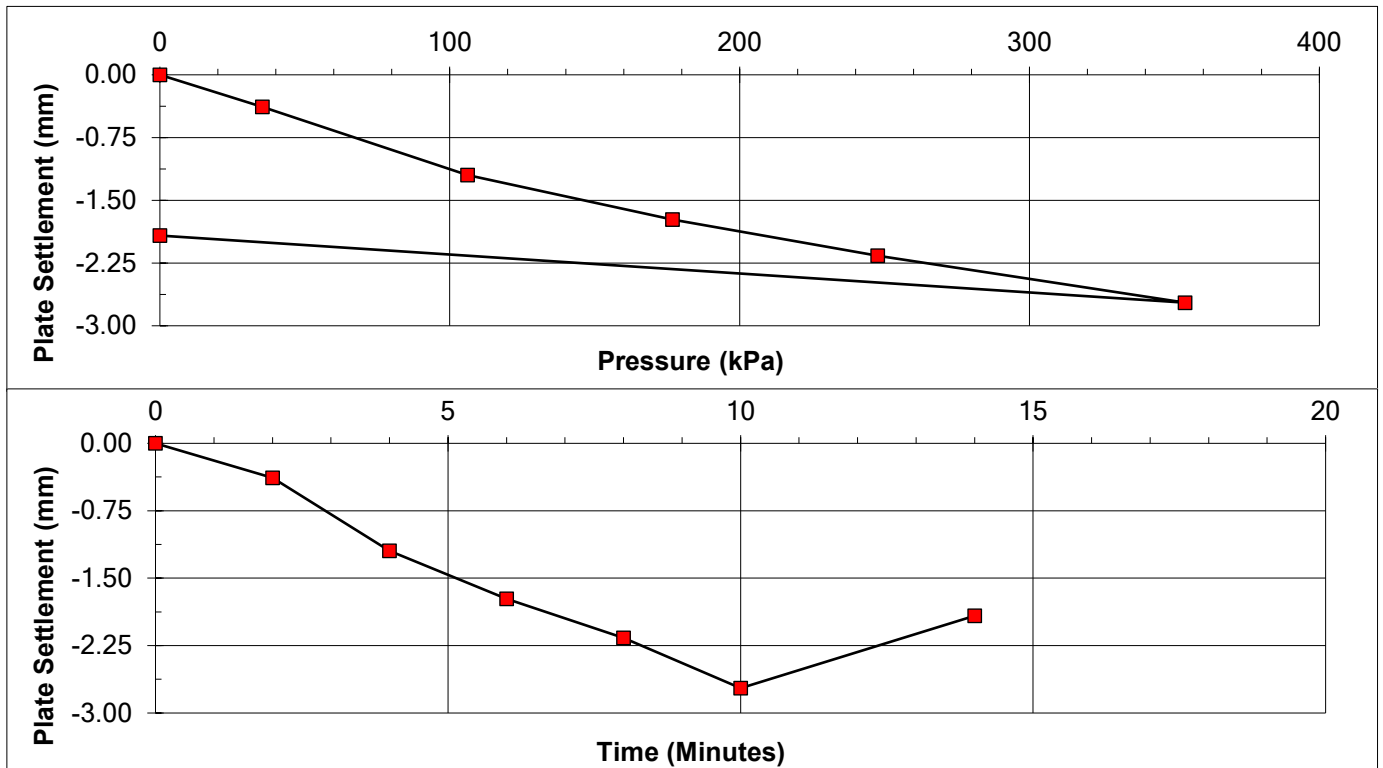
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |              |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |              |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |              |  |  |
| JOB NUMBER          | MRN 4579/93                              |                    |                       |              |  |  |
| TEST LOCATION       | Test 04                                  | LOADING DEVICE     | 20 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 15-Nov-23                                | PLATE SIZE (mm)    | 600 diameter          |              |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush                                    |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4480                     | 4716                     | 4698                     | 4631                   | 0.00                    | 0.00         | 0.0               |
| 4447                     | 4671                     | 4661                     | 4593                   | -0.38                   | 10.00        | 35.4              |
| 4352                     | 4599                     | 4584                     | 4512                   | -1.20                   | 30.00        | 106.1             |
| 4298                     | 4541                     | 4536                     | 4458                   | -1.73                   | 50.00        | 176.8             |
| 4256                     | 4499                     | 4490                     | 4415                   | -2.16                   | 70.00        | 247.6             |
| 4199                     | 4436                     | 4442                     | 4359                   | -2.72                   | 100.00       | 353.7             |
| 4280                     | 4526                     | 4512                     | 4439                   | -1.92                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflexion =    | 113 kPa  |
| Modulus of subgrade reaction (k) = | 91 MPa/m |
| Equivalent 762 mm plate reaction = | 73 MPa/m |
| Equivalent CBR =                   | 16.3 %   |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 16-Nov-23

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



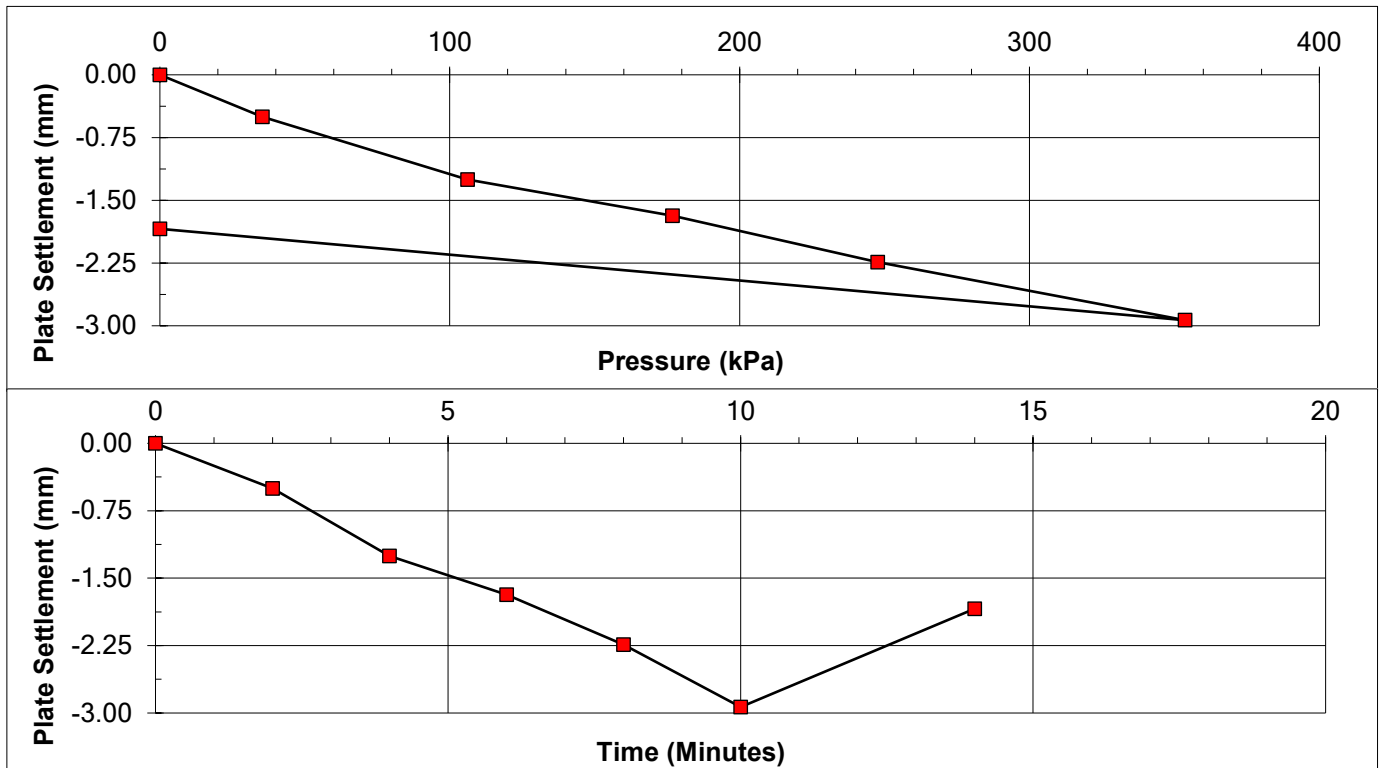
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |              |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |              |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |              |  |  |
| JOB NUMBER          | MRN 4579/93                              |                    |                       |              |  |  |
| TEST LOCATION       | Test 05                                  | LOADING DEVICE     | 20 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 15-Nov-23                                | PLATE SIZE (mm)    | 600 diameter          |              |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush                                    |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4884                     | 4799                     | 4582                     | 4755                   | 0.00                    | 0.00         | 0.0               |
| 4832                     | 4750                     | 4532                     | 4705                   | -0.50                   | 10.00        | 35.4              |
| 4754                     | 4671                     | 4464                     | 4630                   | -1.25                   | 30.00        | 106.1             |
| 4709                     | 4635                     | 4416                     | 4587                   | -1.68                   | 50.00        | 176.8             |
| 4668                     | 4571                     | 4354                     | 4531                   | -2.24                   | 70.00        | 247.6             |
| 4601                     | 4507                     | 4277                     | 4462                   | -2.93                   | 100.00       | 353.7             |
| 4689                     | 4613                     | 4411                     | 4571                   | -1.84                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflexion =    | 106 kPa  |
| Modulus of subgrade reaction (k) = | 85 MPa/m |
| Equivalent 762 mm plate reaction = | 68 MPa/m |
| Equivalent CBR =                   | 14.5 %   |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 16-Nov-23

# MURRAY RIX

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TEL 0161 475 0870



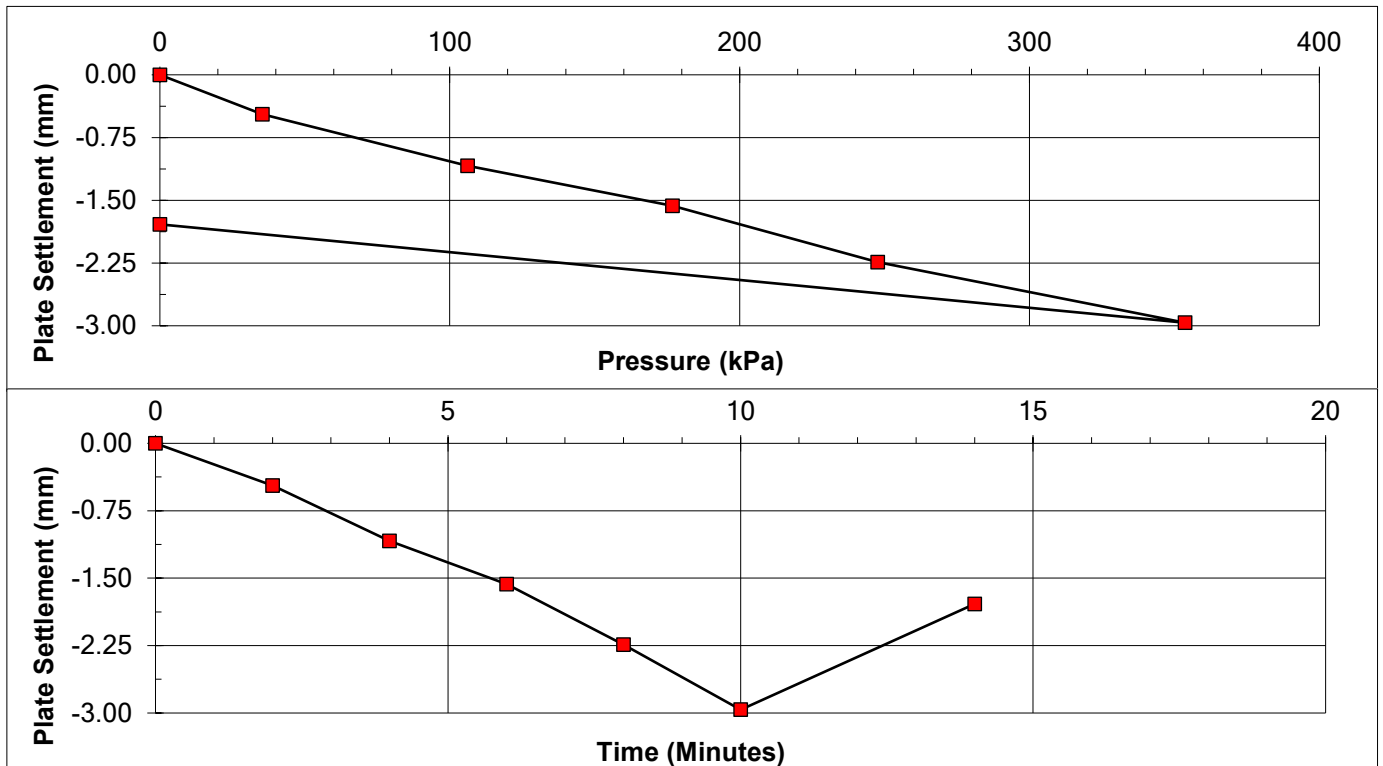
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                                          |                    |                       |              |  |  |
|---------------------|------------------------------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | Chartrange Ltd                           |                    |                       |              |  |  |
| SITE                | Rochdale Road, Greater Manchester M4 4HY |                    |                       |              |  |  |
| JOB NUMBER          | MRN 4579/93                              |                    |                       |              |  |  |
| TEST LOCATION       | Test 06                                  | LOADING DEVICE     | 20 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 15-Nov-23                                | PLATE SIZE (mm)    | 600 diameter          |              |  |  |
| TEST DEPTH          | Surface                                  | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush                                    |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4789                     | 4716                     | 4680                     | 4728                   | 0.00                    | 0.00         | 0.0               |
| 4741                     | 4671                     | 4632                     | 4681                   | -0.47                   | 10.00        | 35.4              |
| 4679                     | 4611                     | 4569                     | 4620                   | -1.09                   | 30.00        | 106.1             |
| 4630                     | 4564                     | 4521                     | 4572                   | -1.57                   | 50.00        | 176.8             |
| 4561                     | 4503                     | 4449                     | 4504                   | -2.24                   | 70.00        | 247.6             |
| 4497                     | 4431                     | 4368                     | 4432                   | -2.96                   | 100.00       | 353.7             |
| 4606                     | 4540                     | 4503                     | 4550                   | -1.79                   | 0.00         | 0.0               |



|                                    |           |
|------------------------------------|-----------|
| Pressure at 1.25 mm deflexion =    | 130 kPa   |
| Modulus of subgrade reaction (k) = | 104 MPa/m |
| Equivalent 762 mm plate reaction = | 84 MPa/m  |
| Equivalent CBR =                   | 20.8 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

DATE 16-Nov-23

