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Report Details

Project Name	Heckmondwike Bus Hub
Client	R G Carter (Lincoln) limited
Service	Earthworks Verification Report
Date of Issue	30th September 2025
Project number	EGE-24-08-07-05

Author Details

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Quality Control

Revision	Date	Made by	Description
00	30th September 2025	PB	-
01	13th January 2026	PW	Updated with WSP comments

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1.0 Authorisation, Context and Purpose

1.1 Authorisation

Evolve Geo-Environmental Limited (EGE) was instructed by RG Carter (Lincoln) Limited (the 'Client') to undertake an Earthworks Verification Report for Heckmondwike Bus Hub (the 'Site').

1.2 Context and Purpose

This Verification Report is required to support the requirements of the Earthworks Performance Specification produced by WSP.

For information on the Site setting and full details of intrusive investigations undertaken at the Site, this Verification Report should be read in conjunction with previous 3rd party and reports as follows:

- Heckmondwike Bus Hub Phase 1 Geo-Environmental Assessment', Ref: TCF-WSP-KHBH-XXXRP-CE-00001-V0.1 (WSP UK Limited, July 2021), July 2021;
- 'Heckmondwike Bus Hub - Phase 2 Geotechnical Interpretative Report' (GIR); WSP, Ref: TCFWSP-KHBH-XXX-RP-CE-0002-V0.1, February 2023;
- Earthworks Performance Specification, Heckmondwike Bus Hub, WSP Ref TCF-WSP-KHBH-XXX-SP-CE-0001, August 2023; and
- Geotechnical Design Report, Heckmondwike Bus Hub, WSP Ref TCF-WSP-KHBH-XXX-RP-CE-0003-V0.1, July 2023.

1.3 Validation Requirements

The validation requirements as set out within the third-party WSP Earthworks Specification are summarised as follows:

The Contractor shall be responsible for all laboratory analysis / validation testing and for the compilation of a "Validation Report" for the Works, which shall include:

- Description of the objectives of the works;
- Results of initial testing;
- Scale plans and sections showing extent of works and depth of treatment;
- Photographs;
- Interpretation of validation testing;
- Comment on any remedial works undertaken; and,
- Validation test results provided in excel. (sent to WSP via email)

Evidential information that the above earthworks were completed sufficiently for the proposed end-use are detailed in the following Sections of this Report.

1.4 Limitations

The EGE standard limitations are included as Appendix I.

This Report covers the area below the Bus Hub area only and a further report will be produced for remainder of the Site.

The information has been provided by the Client and the Clients sub-contractors, although every effort has been made to verify the information provided, EGE cannot be held responsible for the accuracy of the information.

1.5 Roles and Responsibilities

The following companies were involved in the earthworks:

- Overall Client — Kirklees Council
- Clients Engineer — WSP
- Contractor — R G Carter (Lincoln) Limited
- Earthworks Contractor — Dowling Civil Engineering
- Earthworks Testing — Kiwa CMT
- Earthworks Testing — Isotest (Hand Shear Vane Testing)

EGE has been commissioned to produce the validation report required by the WSP Specification on behalf of RG Carter (Lincoln) Limited based on data supplied by RG Carter (Lincoln) Limited, Dowling Civil Engineering, Kiwa CMT and Isotest.

2.0 Site Setting

2.1 Site Information

The below Site setting is based on the information provided by the third-party reports listed in Section 1.2.

The proposed Heckmondwike Bus Hub Site comprises the existing bus hub, with a perimeter bus route and five bus waiting shelters arranged around the central portion of the site which is open to pedestrian access (covered by paving, grassed areas and a number of small trees in the south). Surrounding land uses comprise mixed commercial developments within the town centre setting.

The redevelopment is proposed to include the construction of six new bus stands with canopies, associated updates to the bus routes/carriageway, a layover space, as well as waiting and office space.

The Site has previously been occupied by various residential and commercial properties prior to its development as a bus station. Associated historical basements are understood to have been backfilled and, therefore, variable ground conditions are anticipated beneath the proposed structures/infrastructure.

As such, the earthworks specification included for the excavation and replacement of Made Ground deposits and weaker/softer natural soils beneath the proposed structural foundations and key infrastructure.

2.2 Ground Model

Based on the WSP investigation the ground conditions generally comprise:

- Surfacing of asphalt or paving slabs between 0.10 to 0.20 m;
- Made Ground comprising former paving layers overlying limestone sub base, silty sands and clays between 0.30 and 2.20 m thick;
- Weathered Pennine Lower Coal Measures Bedrock comprising very soft to stiff clays up to 1.95 m thick; and
- Pennine Middle Coal Measures comprising extremely weak to very weak mudstone with occasional bands of sandstone.

3.0 Construction Process

3.1 Specification

The Specification for the works was set out in the following document:

- Earthworks Performance Specification, Heckmondwike Bus Hub, WSP Ref TCF-WSP-KHBH-XXX-SP-CE-0001 Dated August 2023;

The specification for the use in the bulk earthworks detailed the required performance of the engineered fill, acceptable material types, the testing regime to be adopted and the rate of sample collection for compliance testing.

3.2 General Sequence of Works

The general sequence of works proposed by WSP for the areas below the buildings (the focus of this Report) were as follows:

- Remove all topsoil/subsoils and pavement/surfacing;
- Remove all Made Ground to a depth of 2.0 m bgl;
- Remove unsuitable soils including very soft/soft weathered bedrock to a depth of 2.0 m bgl;
- Undertake inspection and testing of formation/sub-formation;
- Where required, undertake additional excavation to remove soils that do not meet the specification requirements; and
- Where required, upfill with suitable materials to provide a drained modulus of subgrade reaction ≥30kN/m2/mm.

3.3 Programme

Based on the Site diaries provided by the Client, filling and testing was undertaken between the 8th and 17th April 2025. The Site diaries are provided as Appendix II.

3.4 Sources of Fill Material

Fill Material was imported from Tarmac, Harrycroft Quarry.

Pre-importation testing was supplied by the source Site (Harrycroft Quarry) with additional testing undertaken on samples obtained by EGE on behalf of R G Carter.

The material met the grading type of a Class 1A fill in accordance with SHW Series 600.

Parameter	Number of Tests	Range of Values
Moisture content (%)	3	6.4 - 7.1
Optimum Moisture Content (%) on 4.5 kg hammer	4	6.9 - 8.7
Maximum Dry Density (Mg/M^3) on 4.5 kg hammer	4	2.21 - 2.28
Particle Size Distribution (%)	2	Passing 125 mm - 100 - 100

		Passing 63 microns - 6 - 8
pH	4	9.1 - 9.2
Water soluble sulphate (mg/l)	4	5.86 - < 50

Copies of the test certificates are included as Appendix III.

3.5 Material Types

Only material from Harrycroft Quarry was used as Class 1A Fill. Import Tickets are included as Appendix IV.

3.6 Compliance Criteria

The end product compaction criteria for the Class 1A Fill below the foundations was set out in WSP Earthworks Specification as follows:

Parameter	Material Requirement	Testing Requirement
Moisture content	Optimum Moisture content +- 2%	Testing on a 10 m grid and per compacted layer
Air voids content	Air void less than 5 %	NDG testing on a 10 m grid on each compacted layer. SRT one per 15 NDGs
Maximum Dry Density	95% with a 4.5 kg hammer or 100% with 2.5 kg hammer	
Drained Modulus of subgrade reaction	30kN/m2/mm	Tests on a 10 m grid on final surface to 1.25 mm penetration

Based on the layout of the Bus Hub a total of six (6 no.) tests were required per layer to meet the requirements of the 10 m grid.

3.7 Construction Methodology

The earthworks contractor has confirmed that

- the excavation size was approximately 24 meters long, 12.7 meters wide and 1.8 meters deep on average;
- The benching works were undertaken as per the specification;
- No dewatering was undertaken or required; and
- That the excavation was proof rolled prior to filling.

The earthworks were brought up in 250 mm thick layers with a total of six (6 no.) layers of fill used. The fill materials were compacted with a 5-tonne roller.

Photographs of the works are included as Appendix V.

3.8 Contaminated Materials

No known instances where Class U1B (controlled waste) or U2 (hazardous and radioactive) materials have been recorded on the Site during the works.

Chemical testing was undertaken on three (3 no.) selected composite samples of the imported fill to meet the requirements of the Specification.

Soils collected for laboratory analysis were placed in a variety of containers appropriate to the anticipated testing suite. All samples were submitted to a UKAS accredited laboratory (I2) with testing methodologies for each specific compound contained within the laboratory results included as Appendix III.

The results of the testing indicated PAH, TPH, and BTEX all less than laboratory levels of detection and no asbestos detected. The results for metals also met the acceptance criteria for imported fill. Therefore all determinands met the acceptance criteria for imported fill.

4.0 Geotechnical Compliance Testing

4.1 General

Kiwa undertook Site visits for testing of the imported fill on 8th, 9th, 10th, 16th and 17th April 2025.

4.2 Testing of Formation

Testing of the undrained shear strength of the Formation level was undertaken by Isotest Ltd on 5th March 2025. Prior to the testing the Formation was inspected to ensure suitability and was proof rolled as per the requirements of the WSP Specification.

Six (6 no.) tests were undertaken across the formation using a hand shear vane with a 19 mm vane. Test results were as follows:

Location	Specification Requirement	Average Dial Reading	Vane Factor	Vane Shear Strength (kN/m²)	Pass/ Fail
Test 1	50	140	1.42	199	Pass
Test 2		140		199	Pass
Test 3		132		190	Pass
Test 4		140		199	Pass
Test 5		140		199	Pass
Test 6		140		199	Pass

The requirement within the earthworks specification was an average undrained shear strength of 50kN/m2. All six tests recorded values above this and was considered suitable to commence the earthworks filling operations. The results of the formation testing are included as Appendix VI.

A Drawing of the test locations – Ref RGC/HWB/CHVT/001, Hub Building: Calibrated Hand Vein Test Locations dated March 2025 is included in the Drawings Section of this Report.

4.3 End Product Testing

As part of the WSP Earthworks Specification, in-situ dry density tests were required for the compacted fill which were undertaken using Nuclear Density Gauge (NDG) tests, with a confirmatory Sand Replacement Density (SRD) every 15 no. tests. The WSP Earthworks Specification stated that field dry density tests were required on a 10 m grid, which is the

equivalent of six (6 no.) tests per layer. Drawings of the test locations are included in the drawings section of the Report.

End product testing was undertaken by Kiwa on behalf on the earthworks contractor. The results of the testing are included in Appendix VII and a summary presented below.

Layer	Layer 1	Layer 2	Layer 3	Layer 4	Layer 5	Layer 6
Number of NDG Tests	6	6	6	6	6	6
Moisture Content (%)	5.5 - 6.9	5.0 - 7.2	5.1 - 7.2	5.3 - 7.0	5.4 - 8.2	5.8 - 6.7
Minimum Compaction (%) compared to 4.5kg lab test	95.0	95.4	95.3	97.5	95.4	98.0
Maximum Compaction (%) compared to 4.5kg lab test	97.6	99.1	99.7	99.8	99.0	99.3
Number of NDM meeting compaction requirement	6 of 6	6 of 6	6 of 6	6 of 6	6 of 6	6 of 6
Air Voids (%)	4.8 - 6.7	3.9 - 5.5	3.4 - 4.7	0.5 - 5.3	0.7 - 4.7	2.4 - 4.0
Number meeting air void requirement	1 of 6	5 of 6	6 of 6	5 of 6	6 of 6	6 of 6

A total of 36 no. NDG were undertaken with 8 no. SRD equivalents undertaken, with the frequency of testing required by the Specification being met.

Testing was undertaken in two periods, on Layers 1 to 4 between the 8th and 10th April and on Layers 5 and 6 on the 16th and 17th April 2025.

A summary of the testing undertaken from 8th to 10th April 2025 on Layers 1 to 4 are presented below:

- Moisture content testing suggests one of the three test results is below the required OMC±2% (4.8%), albeit very marginally (compared to a lower limit of 4.9%);
- Sand Replacement Density (SRD) testing suggests three of the seven tests results are below the required 95% compaction (93, 93, 94%); and
- The Nuclear Density Testing (NDT) results all meet the required 95% compaction, although six of the test results (Layers 1 and 2, 5.4 - 6.7%) are above the required max 5% air voids.

A summary of the testing undertaken from testing on 16th and 17th April 2025 on Layers 4 to 6 are presented below:

- All the SRD testing result meets the required 95% compaction;
- Moisture content testing result meets the required OMC±2%;
- The NDG results all meet the required 95% compaction, with one of the test results (Layer 4, 5.3%) being above the required max 5% air voids.

4.4 Final Formation Performance Criteria

To satisfy the performance criteria set out by the WSP Earthworks Specification, plate testing was required on the final layer (layer 6) to establish compliance with the performance criteria.

A minimum requirement of 30kN/m2/mm was specified for the plate load tests a summary of the test results is presented below.

Location	Modulus of subgrade reaction kN/m2/mm	Specification requirement for modulus of subgrade reaction	Pass/ Fail
Test 1	178.83	30kN/m2/mm	Pass
Test 2	224.35		Pass
Test 3	221.099		Pass
Test 4	225.00		Pass
Test 5	118.353		Pass
Test 6	119.003		Pass

4.5 Testing Summary

The testing undertaken as part of the earthworks placement meets the frequency required by the WSP Specification with a total of 36 no. NDGs, 7 no. SRDs and 4 no. laboratory moisture contents undertaken.

While some of the results for the fill materials fall outside the design target criteria, these in part reflect the material variability and limitations of the sampling and testing regimes and are not considered to be significant.

There are three SRD tests which are marginal below the required 95% compaction at 93 %, 93% and 94 % respectively. Whilst these do not strictly meet the requirements of the Specification the vast majority of the data indicates that the material is suitable and has been compacted appropriately. Soil is never a homogenous material and as such some variability in the dry density is to be anticipated given the volume of fill imported. Therefore given the likely variability in dry density these minor failures are not considered to be significant. The potential impact to the infrastructure above is considered to be very low

Additionally these failures were within Layer 1 towards the base of the fill and as such some compactive effort from the earthworks at higher levels will likely to have further compacted this material over time.

WSP were consulted regarding the air voids being above the requirement of 5 % in some instances and the following response was received:

"Regarding the air voids being higher than required in some cases - as the material appears to have been placed dry of optimum, and the air voids are all less than 7%, we would generally consider the air voids to be acceptable in this instance."

"Our view is that although some of the results are marginally out, the risk is low".

A copy of the correspondence is included in Appendix VIII.

All of the plate load tests were well above the requirements for the finished surface.

5.0 Summary

On the basis of the evidential information collected and provided in Section 3.0 and 4.0, it is considered that the earthworks have been undertaken as per the requirements of the WSP Earthworks Specification and is suitable for its intended end use.

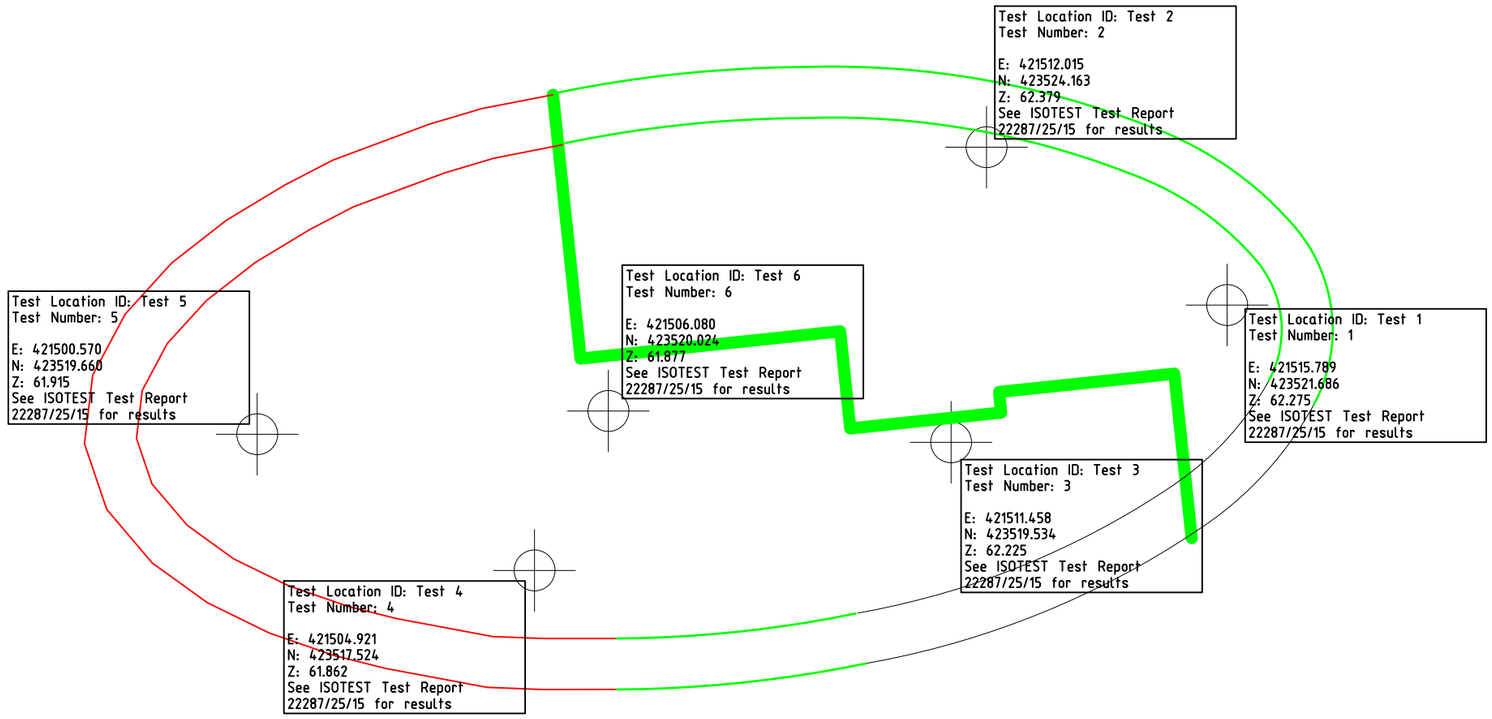
Drawings

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Drawing I – Bus Hub Formation CVT Locations

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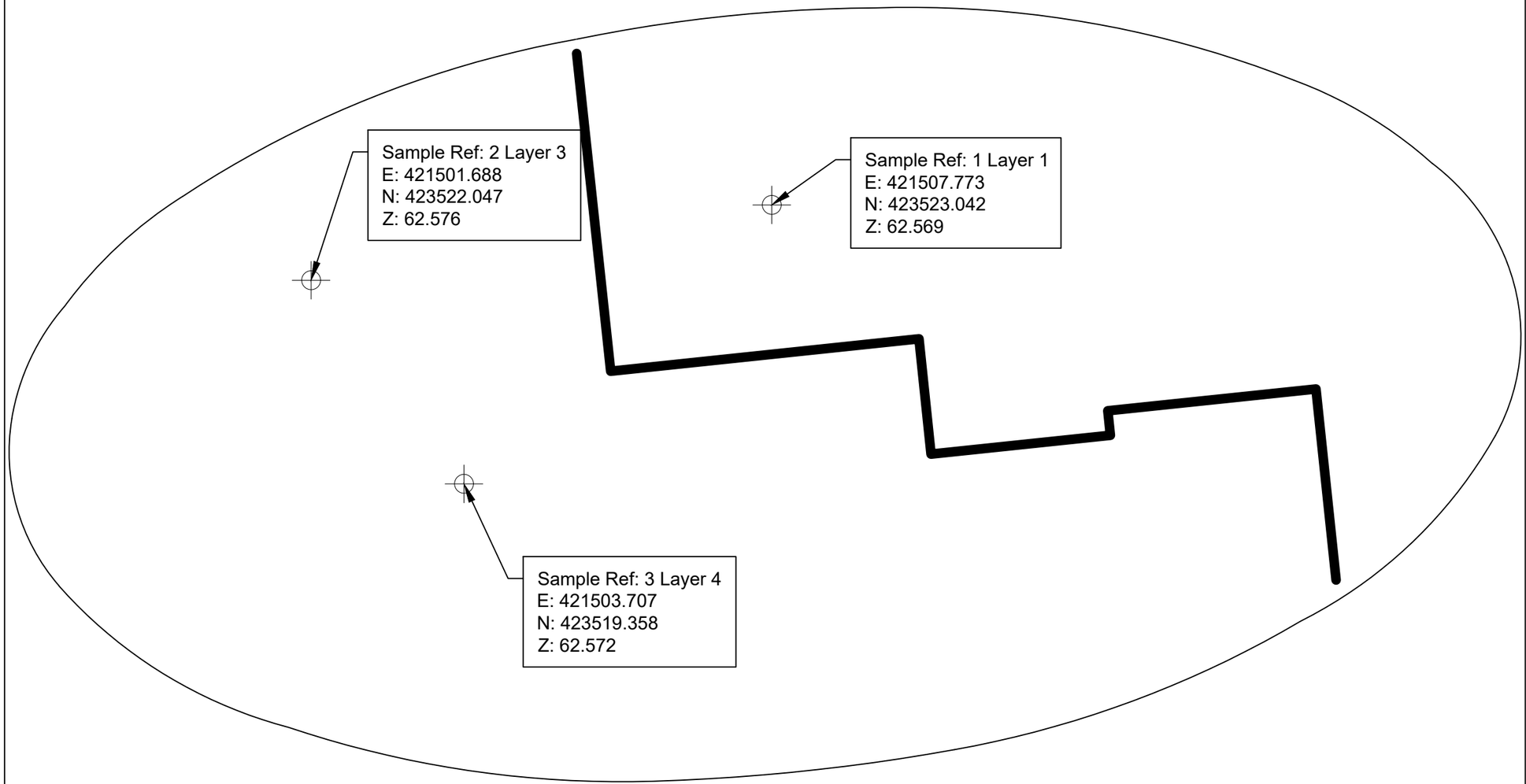
For results refer to ISOTEST report no: 22287/25/15

DOWLING CIVIL ENGINEERING

Client:	RG Carter
Project:	Heckmondwike Bus Hub
Drawing Title:	Hub Building: Calibrated Hand Vein Test Locations
Drawing No:	RGC/HWB/CHVT/001
Date:	March 2025
Scale:	N.T.S
Rev:	01

Drawing II – Test Location Data 08.04.25

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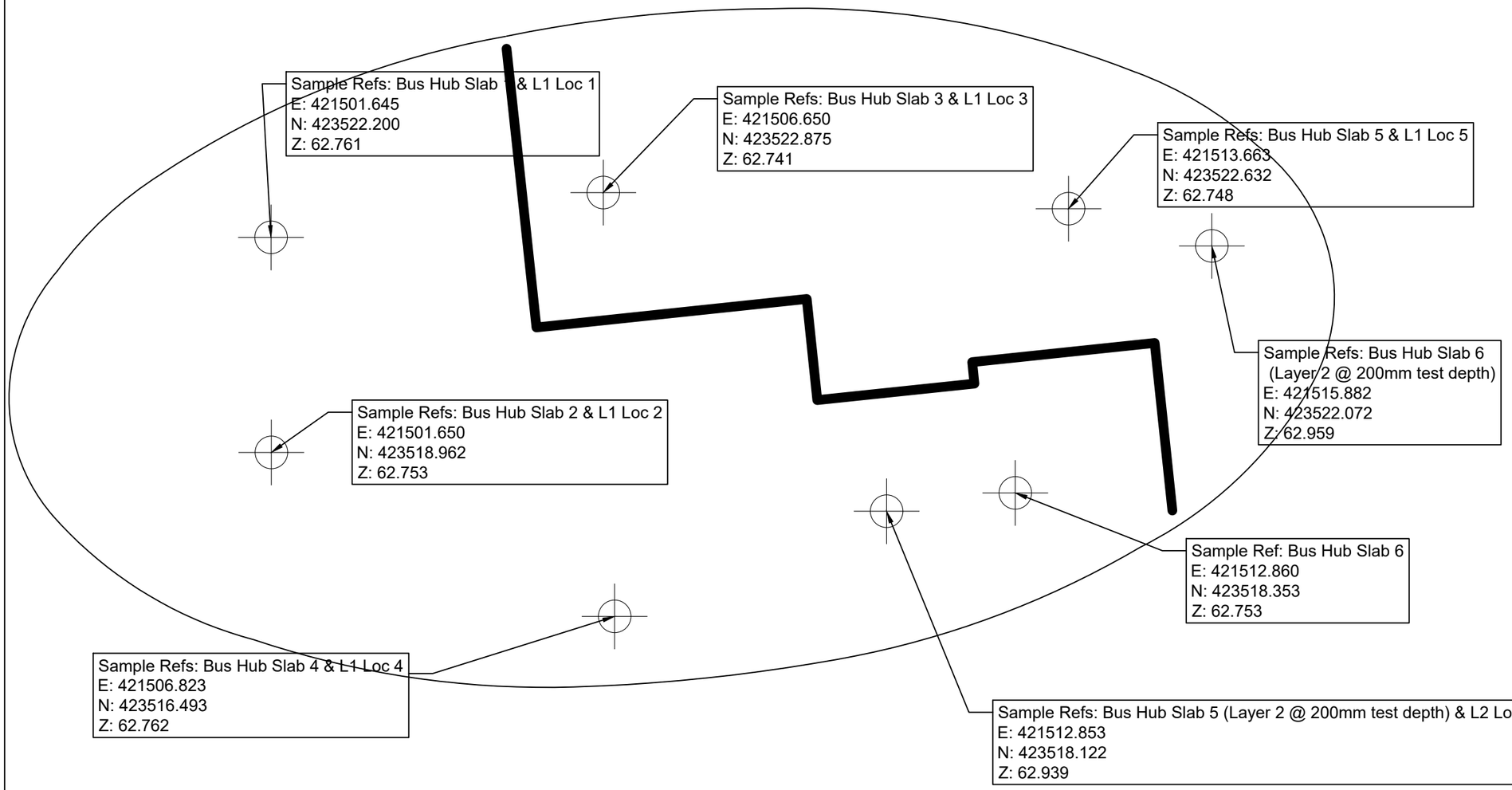
See KIWA CMT report 120225-02-A for results

DOWLING CIVIL ENGINEERING

Client:	RG CARTER
Project:	Heckmondwike Bus Hub
Drawing Title:	Heckmondwike Bus Hub - NDG, SRD & Moisture content test location information. Recorded 08.04.25
Drawing No:	RGC/HWB/HFR/01
Date:	SEPTEMBER 2025
Scale:	N.T.S
Rev:	01

Drawing III – Test Location Data 09.04.25

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See KIWA CMT Report 120225-02-A for results

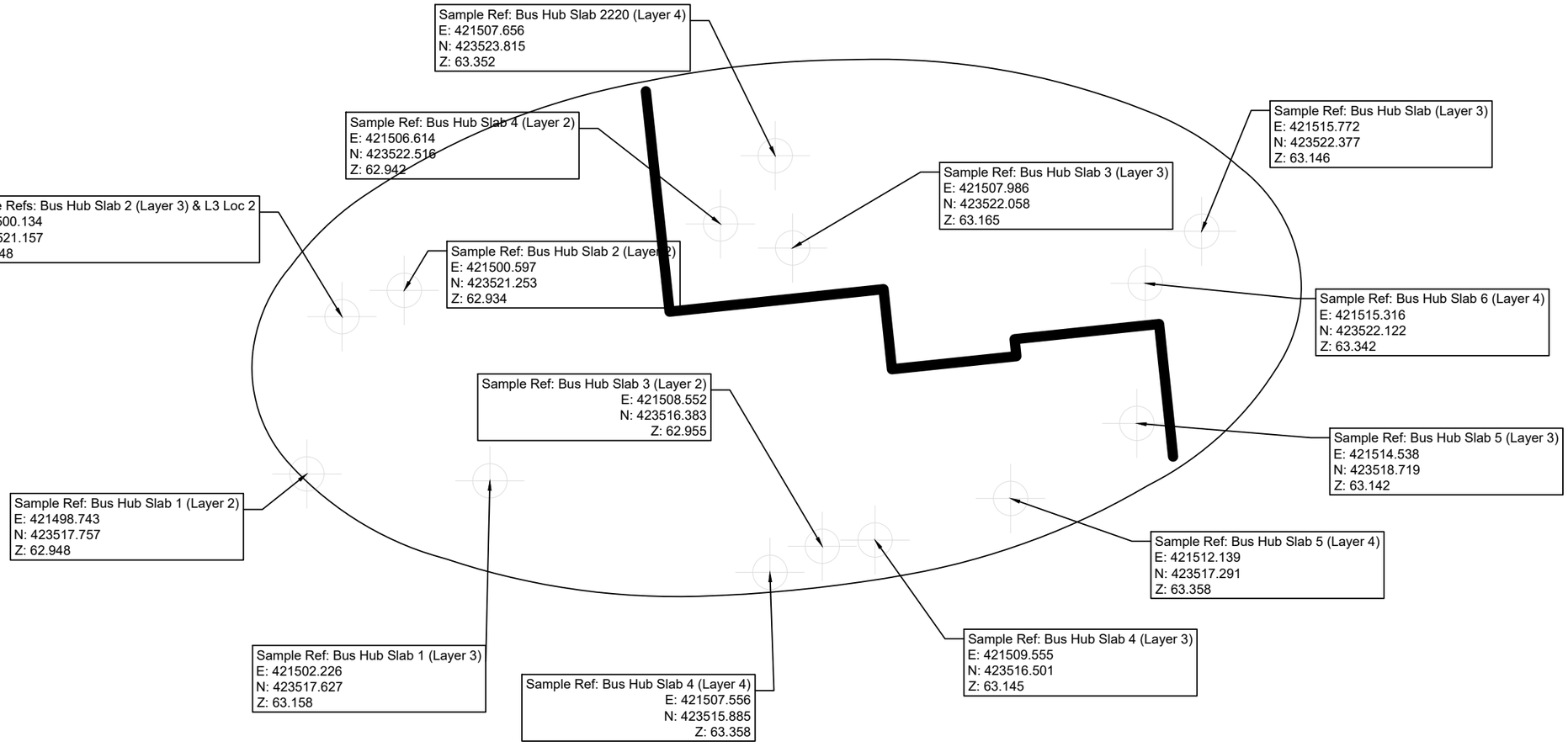
DOWLING CIVIL ENGINEERING

Client:	RG CARTER
Project:	Heckmondwike Bus Hub
Drawing Title:	Heckmondwike Bus Hub - NDG, SRD & Moisture content test location information. Recorded 09.04.25
Drawing No:	RGC/HWB/HFR/02

Date:	SEPTEMBER 2025
Scale:	N.T.S
Rev:	01

Drawing IV – Test Location Data 10.04.25

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See KIWA CMT report 120225-02-A for results

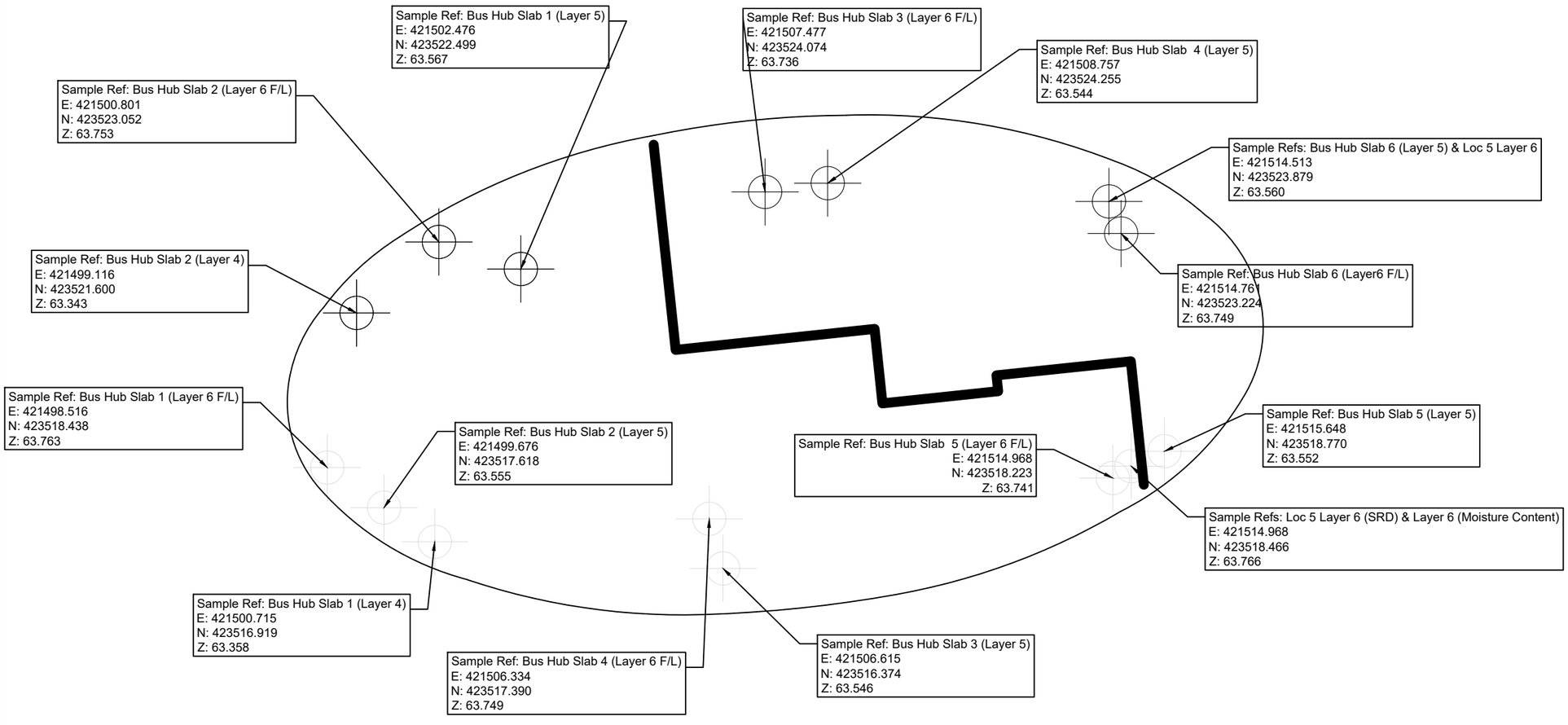
DOWLING CIVIL ENGINEERING

Client:	RG CARTER
Project:	Heckmondwike Bus Hub
Drawing Title:	Heckmondwike Bus Hub - NDG, SRD & Moisture content test location information. Recorded 10.04.25
Drawing No:	RGC/HWB/HFR/03

Date:	SEPTEMBER 2025
Scale:	N.T.S
Rev:	01

Drawing V – Test Location Data 16.04.25

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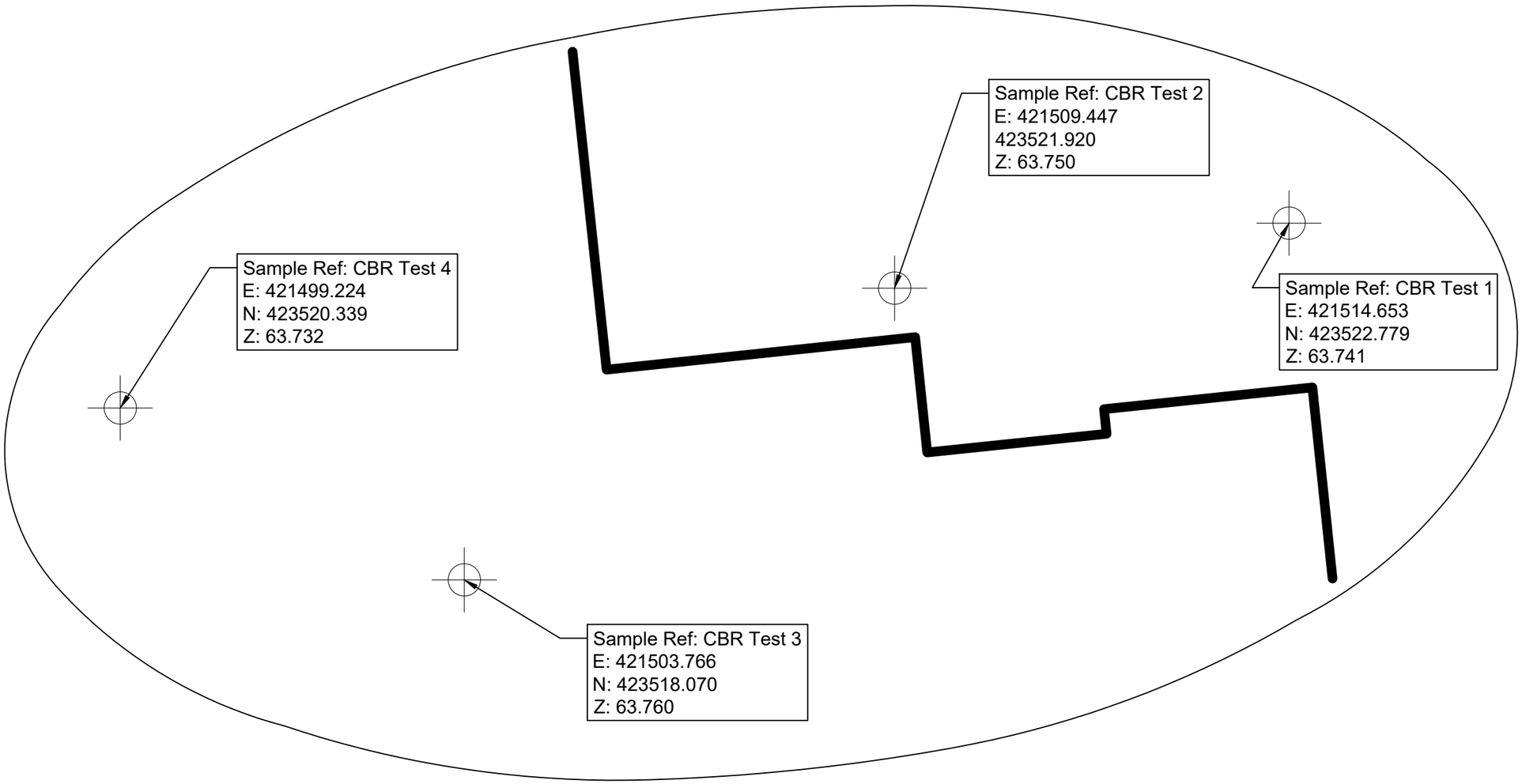
See KIWA CMT report 160425-06 for results

DOWLING CIVIL ENGINEERING

Client:	RG CARTER
Project:	Heckmondwike Bus Hub
Drawing Title:	Heckmondwike Bus Hub - NDG, SRD & Moisture content test location information. Recorded 16.04.25
Drawing No:	RGC/HWB/HFR/04
Date:	SEPTEMBER 2025
Scale:	N.T.S
Rev:	01

Drawing VI – Test Location Data 17.04.25

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See KIWA CMT report 160425-06 for results

DOWLING CIVIL ENGINEERING

Client:	RG CARTER
Project:	Heckmondwike Bus Hub
Drawing Title:	Heckmondwike Bus Hub - NDG, SRD & Moisture content test location information. Recorded 17.04.25
Drawing No:	RGC/HWB/HFR/05
Date:	SEPTEMBER 2025
Scale:	N.T.S
Rev:	01

Appendices

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Appendix I – Standard Limitations

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Limitations

The conclusions and recommendations made in this Report are limited to those that can be made based on the findings of the investigation and in the context of the proposed development.

Where comments are made based on information obtained from third parties, EGE assumes that all third party information is true and correct. No independent action has been undertaken to validate the findings of third parties, unless specifically stated.

This Report has been prepared in accordance with our understanding of current best practice. However changes to best practice, guidance or legislation may necessitate revision of this Report after the date of issue.

EGE has prepared this Report for the sole use and reliance of the Client, in accordance with our Standard Conditions and Limitations issued with the proposal. This Report may not be used or relied upon by any unauthorised third party without the explicit written agreement of EGE. Third parties use the information at their own risk.

Appendix II – Site Diaries

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CARTER	Project Name	LN0089 (PCSA) & LN0112 - YORBuild3 - New Bus Station, Heckmondwike
	Project Code	LN0112
Completed By: Lee Sorrell	Date:	29/09/2025

DAILY SITE DIARY

Contract No:LN0112

Date:08-04-25	Start Time:700	Hours lost by weather	Finish Time:1700	Hours lost by weather
	Weather A.M. dry		Weather P.M. dry	
	Temp at 9 a.m. 6	0	Temp at 3 p.m. 15	0

OPERATIVES										SUB-CONTRACTORS							PLANT										
SMPm	SITEOPS									DCE	MJM	Nigelsmith	Kiwa				8TEX	25TEX	6TDUMP								
2										2			1				1	1	1								A.M.
2										2		1	1				1	1	1								P.M.

VISITORS	PLANT HIRE DETAILS		
WSP-Ian j	IN PLANT HIRE FOLDER	Satisfactory	S
Nigel Smith plumbers		Non Conformity	N
		Final Inspection	F

DAYS PROGRESS AND INSPECTION/TESTS

Activity	Operation	Location	
	DCE – Starting compaction in bus hub foundation	Site	
	Kiwa- here for testing procedure outlined in the spec		
	John from Kiwa has advised WSP that the 5% AV will be almost impossible to achieve with this type 1/ also advised DCE to hire a roller for better compaction		
	DCE ran out of stone		
	Nigel smith came to fit new tap to canteen chargeable to plant.		

MATTERS DELAYING PROGRESS

CARTER		Project Name	LN0089 (PCSA) & LN0112 - YORBuild3 - New Bus Station, Heckmondwike
		Project Code	LN0112
Completed By	Lee Sorrell	Date:	29/09/2025

VARIATIONS/INSTRUCTIONS		AUTHORITY
		DISTRIBUTION
		Yellow Office
		Pink Surveyor
SITE MANAGER'S SIGNATURE	LS	Blue Site

CARTER	Project Name	LN0089 (PCSA) & LN0112 - YORBuild3 - New Bus Station, Heckmondwike
	Project Code	LN0112
Completed By: Lee Sorrell	Date:	29/09/2025

DAILY SITE DIARY

Contract No:LN0112

Date:09-04-25	Start Time:700	Hours lost by weather	Finish Time:1700	Hours lost by weather
	Weather A.M. dry		Weather P.M. dry	
	Temp at 9 a.m. 5	0	Temp at 3 p.m. 11	0

OPERATIVES										SUB-CONTRACTORS							PLANT								
SMPm	SITEOPS									DCE	MJM	kiwa					8TEX	25TEX	6TDUMP	5TROLLER					
2										2		1					1	1	1	1					A.M.
2										2		1					1	1	1	1					P.M.

VISITORS	PLANT HIRE DETAILS		
WSP-Ian Johnson	IN PLANT HIRE FOLDER	Satisfactory	S
		Non Conformity	N
		Final Inspection	F

DAYS PROGRESS AND INSPECTION/TESTS

Activity	Operation	Location	
	DCE – compaction in bus hub foundation at 250 due to better compaction strength	Site	
	Kiwa- here for testing procedure outlined in the spec		
	Roller delivered		

MATTERS DELAYING PROGRESS

VARIATIONS/INSTRUCTIONS | AUTHORITY

CARTER		Project Name	LN0089 (PCSA) & LN0112 - YORBuild3 - New Bus Station, Heckmondwike
		Project Code	LN0112
Completed By	Lee Sorrell	Date:	29/09/2025

		DISTRIBUTION
		Yellow Office
		Pink Surveyor
SITE MANAGER'S SIGNATURE	LS	Blue Site

CARTER	Project Name	LN0089 (PCSA) & LN0112 - YORBuild3 - New Bus Station, Heckmondwike
	Project Code	LN0112
Completed By: Lee Sorrell	Date:	29/09/2025

DAILY SITE DIARY

Contract No:LN0112

Date:10-04-25	Start Time:700	Hours lost by weather	Finish Time:1700	Hours lost by weather
	Weather A.M. dry		Weather P.M. dry	
	Temp at 9 a.m. 6	0	Temp at 3 p.m. 12	0

OPERATIVES										SUB-CONTRACTORS							PLANT								
SM	SITEOPS									DCE	MJM	kiwa					8TEX	25TEX	6TDUMP	5TROLLER					
1										4		1					1	1	1	1					A.M.
1										4		1					1	1	1	1					P.M.

VISITORS	PLANT HIRE DETAILS		
WSP-Ian Johnson	IN PLANT HIRE FOLDER	Satisfactory	S
		Non Conformity	N
		Final Inspection	F

DAYS PROGRESS AND INSPECTION/TESTS

Activity	Operation	Location	
	DCE – compaction in bus hub foundation at 250 due to better compaction strength	Site	
	Kiwa- here for testing procedure outlined in the spec		
	Upto layer 4		
	Roadsweeper today		

MATTERS DELAYING PROGRESS

VARIATIONS/INSTRUCTIONS | AUTHORITY

CARTER		Project Name	LN0089 (PCSA) & LN0112 - YORBuild3 - New Bus Station, Heckmondwike
		Project Code	LN0112
Completed By	Lee Sorrell	Date:	29/09/2025

		DISTRIBUTION
		Yellow Office
		Pink Surveyor
SITE MANAGER'S SIGNATURE	LS	Blue Site

CARTER	Project Name	LN0089 (PCSA) & LN0112 - YORBuild3 - New Bus Station, Heckmondwike
	Project Code	LN0112
Completed By: Lee Sorrell	Date:	29/09/2025

DAILY SITE DIARY

Contract No:LN0112

Date:11-04-25	Start Time:700	Hours lost by weather	Finish Time:1700	Hours lost by weather
	Weather A.M. dry		Weather P.M. dry	
	Temp at 9 a.m. 7	0	Temp at 3 p.m. 18	0

OPERATIVES										SUB-CONTRACTORS							PLANT								
SM	SITEOPS									DCE	MJM						8TEX	25TEX	6TDUMP	5TROLLER					
1										5							1	1	1	1				A.M.	
1										4							1	1	1	1				P.M.	

VISITORS	PLANT HIRE DETAILS		
WSP-razz	IN PLANT HIRE FOLDER	Satisfactory	S
Michael Rodgers kirklees		Non Conformity	N
		Final Inspection	F

DAYS PROGRESS AND INSPECTION/TESTS

Activity	Operation	Location	
	DCE – started on foundation drainage under hub	Site	
	Upto layer 4		
	Danny openreach picked up D Slam unit		
	Lampost ex5 removed		

MATTERS DELAYING PROGRESS

VARIATIONS/INSTRUCTIONS	AUTHORITY

CARTER		Project Name	LN0089 (PCSA) & LN0112 - YORBuild3 - New Bus Station, Heckmondwike
		Project Code	LN0112
Completed By	Lee Sorrell	Date:	29/09/2025

		DISTRIBUTION
		Yellow Office
		Pink Surveyor
SITE MANAGER'S SIGNATURE	LS	Blue Site

CARTER	Project Name	LN0089 (PCSA) & LN0112 - YORBuild3 - New Bus Station, Heckmondwike
	Project Code	LN0112
Completed By: Lee Sorrell	Date:	29/09/2025

DAILY SITE DIARY

Contract No:LN0112

Date:14-04-25	Start Time:700	Hours lost by weather	Finish Time:1700	Hours lost by weather
	Weather A.M. dry		Weather P.M. dry	
	Temp at 9 a.m. 7	0	Temp at 3 p.m. 12	0

OPERATIVES										SUB-CONTRACTORS							PLANT								
SM	SITEOPS									DCE	MJM						8TEX	25TEX	6TDUMP	5TROLLER					
1										4							1	1	1	1				A.M.	
1										4							1	1	1	1				P.M.	

VISITORS	PLANT HIRE DETAILS		
WSP-razz	IN PLANT HIRE FOLDER	Satisfactory	S
Wsp clayton wilson		Non Conformity	N
Steve jones RGC		Final Inspection	F

DAYS PROGRESS AND INSPECTION/TESTS

Activity	Operation	Location	
	DCE – continued drainage works under hub foundation	Site	
	Foul and surface water		
	She advisors onsite		
	Upto layer 4		

MATTERS DELAYING PROGRESS

VARIATIONS/INSTRUCTIONS	AUTHORITY

CARTER		Project Name	LN0089 (PCSA) & LN0112 - YORBuild3 - New Bus Station, Heckmondwike
		Project Code	LN0112
Completed By	Lee Sorrell	Date:	29/09/2025

		DISTRIBUTION
		Yellow Office
		Pink Surveyor
SITE MANAGER'S SIGNATURE	LS	Blue Site

CARTER	Project Name	LN0089 (PCSA) & LN0112 - YORBuild3 - New Bus Station, Heckmondwike
	Project Code	LN0112
Completed By: Lee Sorrell	Date:	29/09/2025

DAILY SITE DIARY

Contract No:LN0112

Date:15-04-25	Start Time:700	Hours lost by weather	Finish Time:1700	Hours lost by weather
	Weather A.M. dry		Weather P.M. dry	
	Temp at 9 a.m. 8	0	Temp at 3 p.m. 12	0

OPERATIVES										SUB-CONTRACTORS							PLANT								
SM pm	SITEOPS									DCE	MJM						8TEX	25TEX	6TDUMP	5TROLLER					
2										4							1	1	1	1				A.M.	
2										4							1	1	1	1				P.M.	

VISITORS	PLANT HIRE DETAILS		
WSP-ian johnson	IN PLANT HIRE FOLDER	Satisfactory	S
		Non Conformity	N
		Final Inspection	F

DAYS PROGRESS AND INSPECTION/TESTS

Activity	Operation	Location	
	DCE – continued drainage works under hub foundation	Site	
	Plus service ducts		
	Progress meeting with RGC Carl/James/Miles/DS/ james kenny		

MATTERS DELAYING PROGRESS

VARIATIONS/INSTRUCTIONS | AUTHORITY

CARTER		Project Name	LN0089 (PCSA) & LN0112 - YORBuild3 - New Bus Station, Heckmondwike
		Project Code	LN0112
Completed By	Lee Sorrell	Date:	29/09/2025

		DISTRIBUTION
		Yellow Office
		Pink Surveyor
SITE MANAGER'S SIGNATURE	LS	Blue Site

CARTER	Project Name	LN0089 (PCSA) & LN0112 - YORBuild3 - New Bus Station, Heckmondwike
	Project Code	LN0112
Completed By: Lee Sorrell	Date:	29/09/2025

DAILY SITE DIARY

Contract No:LN0112

Date:16-04-25	Start Time:700	Hours lost by weather	Finish Time:1700	Hours lost by weather
	Weather A.M. dry		Weather P.M. dry	
	Temp at 9 a.m. 6	0	Temp at 3 p.m. 13	0

OPERATIVES										SUB-CONTRACTORS							PLANT								
SM pm	SITEOPS									DCE	MJM	KIWA					8TEX	25TEX	6TDUMP	5TROLLER					
3										3		1					1	1	1	1					A.M.
3										3		1					1	1	1	1					P.M.

VISITORS	PLANT HIRE DETAILS		
WSP-ian johnson	IN PLANT HIRE FOLDER	Satisfactory	S
		Non Conformity	N
		Final Inspection	F

DAYS PROGRESS AND INSPECTION/TESTS

Activity	Operation	Location	
	DCE – continuing compaction with testing between layers	Site	
	Kiwa- NDG/SRT tests		
	Meeting between RGC and the client over the delays on site		
	Building control passed the drainage in the hub		

MATTERS DELAYING PROGRESS

VARIATIONS/INSTRUCTIONS | AUTHORITY

CARTER		Project Name	LN0089 (PCSA) & LN0112 - YORBuild3 - New Bus Station, Heckmondwike
		Project Code	LN0112
Completed By	Lee Sorrell	Date:	29/09/2025

		DISTRIBUTION
		Yellow Office
		Pink Surveyor
SITE MANAGER'S SIGNATURE	LS	Blue Site

CARTER	Project Name	LN0089 (PCSA) & LN0112 - YORBuild3 - New Bus Station, Heckmondwike
	Project Code	LN0112
Completed By: Lee Sorrell	Date:	29/09/2025

DAILY SITE DIARY

Contract No:LN0112

Date:17-04-25	Start Time:700	Hours lost by weather	Finish Time:1700	Hours lost by weather
	Weather A.M. dry		Weather P.M. dry	
	Temp at 9 a.m. 6	0	Temp at 3 p.m. 15	0

OPERATIVES										SUB-CONTRACTORS							PLANT								
SM pm	SITEOPS									DCE	MJM	KIWA					8TEX	25TEX	6TDUMP	5TROLLER					
2										3		1					1	1	1	1					A.M.
2										3		1					1	1	1	1					P.M.

VISITORS	PLANT HIRE DETAILS		
WSP-ian johnson/ illyas visit 4pm	IN PLANT HIRE FOLDER	Satisfactory	S
		Non Conformity	N
		Final Inspection	F

DAYS PROGRESS AND INSPECTION/TESTS

Activity	Operation	Location	
	DCE – continuing compaction with testing between layers	Site	
	Now on top layer for CBR		
	Kiwa- CBR tests for hub and crane pad		

MATTERS DELAYING PROGRESS

VARIATIONS/INSTRUCTIONS	AUTHORITY

CARTER		Project Name	LN0089 (PCSA) & LN0112 - YORBuild3 - New Bus Station, Heckmondwike
		Project Code	LN0112
Completed By	Lee Sorrell	Date:	29/09/2025

		DISTRIBUTION
		Yellow Office
		Pink Surveyor
SITE MANAGER'S SIGNATURE	LS	Blue Site

Appendix III – Pre-Import Laboratory Testing

evolve
GEO-ENVIRONMENTAL

Evolve Geo-Environmental Limited
15 Newland
Lincoln
Lincolnshire

e: paulh@evolvegeo-env.co.uk

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 25-012124

Project / Site name:	New Bus Station, Heckmondwike	**Samples received on:**	11/03/2025
Your job number:	EGE-24-07-14-02	**Samples instructed on/ Analysis started on:**	11/03/2025
Your order number:	EGE0568	**Analysis completed by:**	20/03/2025
Report Issue Number:	1	**Report issued on:**	20/03/2025
Samples Analysed:	3 soil samples		

Signed:

Charlotte Andrew
Key Account Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting
air	- once the analysis is complete

Excel copies of reports are only valid when accompanied by this PDF certificate.

Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 25-012124
Project / Site name: New Bus Station, Heckmondwike
Your Order No: EGE0568

Lab Sample Number				478130	478131	478132
Sample Reference				S201	S202	S203
Sample Number				Composite	Composite	Composite
Water Matrix				N/A	N/A	N/A
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				10/03/2025	10/03/2025	10/03/2025
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**			
Stone Content	%	0.1	NONE	47.6	84.2	59.9
Moisture Content	%	0.01	NONE	5.3	3.9	5.8
Total mass of sample received	kg	0.1	NONE	0.8	0.8	0.9
Asbestos						
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	JWU	JWU	JWU
Analysis completed	N/A	N/A	N/A	18/03/2025	18/03/2025	18/03/2025
General Inorganics						
pH (L099)	pH Units	N/A	MCERTS	9.2	9.2	9.1
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	13	15	12
Water Soluble SO_4 16hr extraction (2:1)	mg/l	1.25	MCERTS	6.29	7.47	5.86
Total Phenols						
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Speciated PAHs						
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Heavy Metals / Metalloids						
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	2.5	3.6	2.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	1.7	2.3	2.3
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	7	5.4	9.4
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	7.1	5.5	9.4
Copper (aqua regia extractable)	mg/kg	1	MCERTS	5.8	16	14
Lead (aqua regia extractable)	mg/kg	1	MCERTS	60	45	49
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	4	3.1	4
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	140	130	120
Petroleum Hydrocarbons						
TPHCWG - Aliphatic >EC5 - EC6 $_{HS_1D_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 $_{HS_1D_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 $_{HS_1D_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 $_{EH_CU_1D_AL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 $_{EH_CU_1D_AL}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC5 - EC35 $_{EH_CU+HS_1D_AL}$	mg/kg	10	NONE	< 10	< 10	< 10

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 25-012124
Project / Site name: New Bus Station, Heckmondwike
Your Order No: EGE0568

Lab Sample Number				478130	478131	478132
Sample Reference				S201	S202	S203
Sample Number				Composite	Composite	Composite
Water Matrix				N/A	N/A	N/A
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				10/03/2025	10/03/2025	10/03/2025
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**			
TPHCWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10	< 10	< 10
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR	mg/kg	10	NONE	< 10	< 10	< 10
VOCs						
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number : 25-012124
Project / Site name: New Bus Station, Heckmondwike

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
478130	S201	Composite	None Supplied	Brown loam with stones
478131	S202	Composite	None Supplied	Brown loam with stones
478132	S203	Composite	None Supplied	Brown loam with stones

Analytical Report Number : 25-012124
Project / Site name: New Bus Station, Heckmondwike

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/W	MCERTS
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080-PL/L130B	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080-PL	W	MCERTS
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099-PL	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution

SUMMARY REPORT

DETERMINATION OF WATER CONTENT

Tested in Accordance with: BS EN ISO 17892-1:2014+A1:2022, BS 1377-2: 2022, clause 4.1

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Client: Evolve Geo-Environmental Limited

Client Address: 15 Newland, Lincoln, Lincolnshire

Contact: Paul Huteson

Site Address: New Bus Station, Heckmondwilke

Client Reference: EGE-24-07-14-02
Job Number: 25-012172-1
Date Sampled: 10/03/2025
Date Received: 11/03/2025
Date Tested: 19/03/2025
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	WC											
		Reference	Depth Top m	Depth Base m	Type			%											
478510	S201	Composite	Not Given	Not Given	B	Light brown sandy clayey GRAVEL with cobbles		6.4											

Comments:

Signed:

Katarzyna Koziel
Geotechnical Reporting Team Leader
for and on behalf of i2 Analytical Ltd

Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation. This report may not be reproduced other than in full without the prior written approval of the issuing laboratory. The results included within the report relate only to the sample(s) submitted for testing.

Date Reported: 01/04/2025

GF 126.19

4041

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS EN ISO 17892-4:2016, BS 1377-2:2022 cl. 10

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

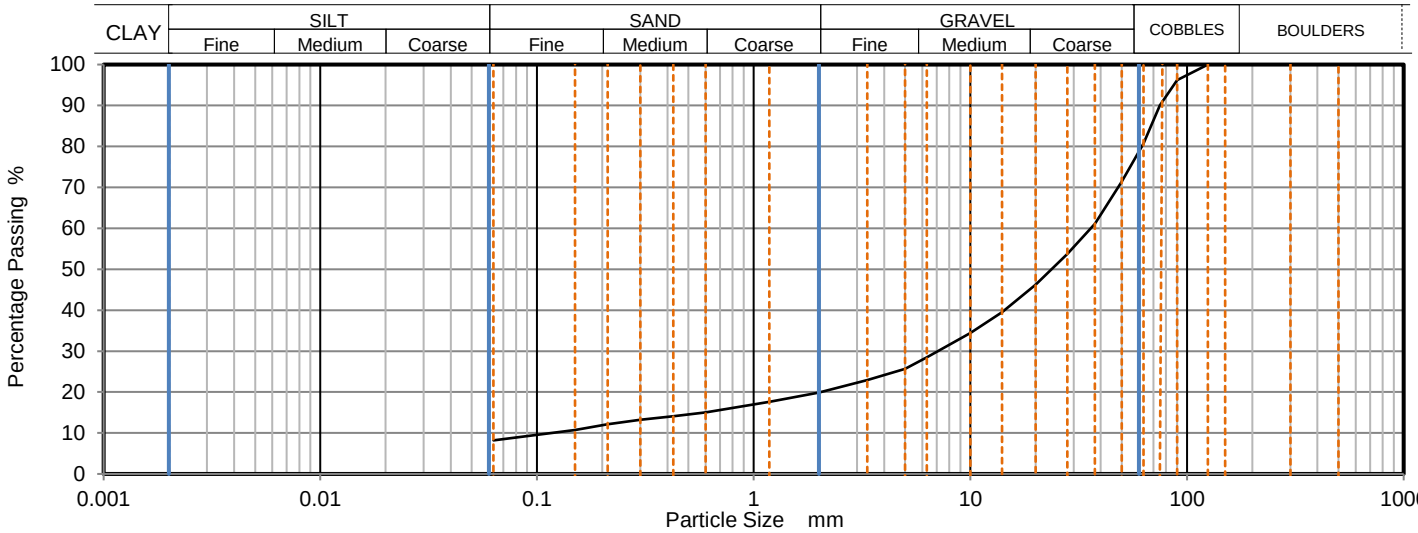
Environmental Science

Client:	Evolve Geo-Environmental Limited	Client Reference:	EGE-24-07-14-02
Client Address:	15 Newland, Lincoln, Lincolnshire	Job Number:	25-012172-1
		Date Sampled:	10/03/2025
		Date Received:	11/03/2025
Contact:	Paul Huteson	Date Tested:	19/03/2025
Site Address:	New Bus Station, Heckmondwilke	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	478510	Depth Top [m]:	Not Given
Hole No.:	S201	Depth Base [m]:	Not Given
Sample Reference:	Composite	Sample Type:	B
Sample Description:	Light brown sandy clayey GRAVEL with cobbles		
Sample Preparation:	Sample was whole tested, oven dried at 108.0 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	96		
75	90		
63	81		
50	71		
37.5	61		
28	54		
20	46		
14	40		
10	34		
6.3	29		
5	26		
3.35	23		
2	20		
1.18	18		
0.6	15		
0.425	14		
0.3	13		
0.212	12		
0.15	11		
0.063	8		

Sample Proportions	% dry mass
Very coarse	19
Gravel	61
Sand	12
Fines <0.063 mm	8

Grading Analysis		
D100	mm	125
D60	mm	35.8
D30	mm	7.08
D10	mm	0.117
Uniformity Coefficient		310
Curvature Coefficient		12

Uniformity and Curvature Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with ISO 17892 -4, by sieving on as received or wet sample

Remarks:

Signed:

Katarzyna Koziel
Geotechnical Reporting Team Leader
for and on behalf of i2 Analytical Ltd

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Date Reported: 01/04/2025

GF 366.12

4041

TEST CERTIFICATE

DETERMINATION OF DRY DENSITY/WATER CONTENT RELATIONSHIP COMPACTION METHOD USING 2.5 KG RAMMER

Tested in Accordance with: BS 1377-2: 2022, cl.11

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

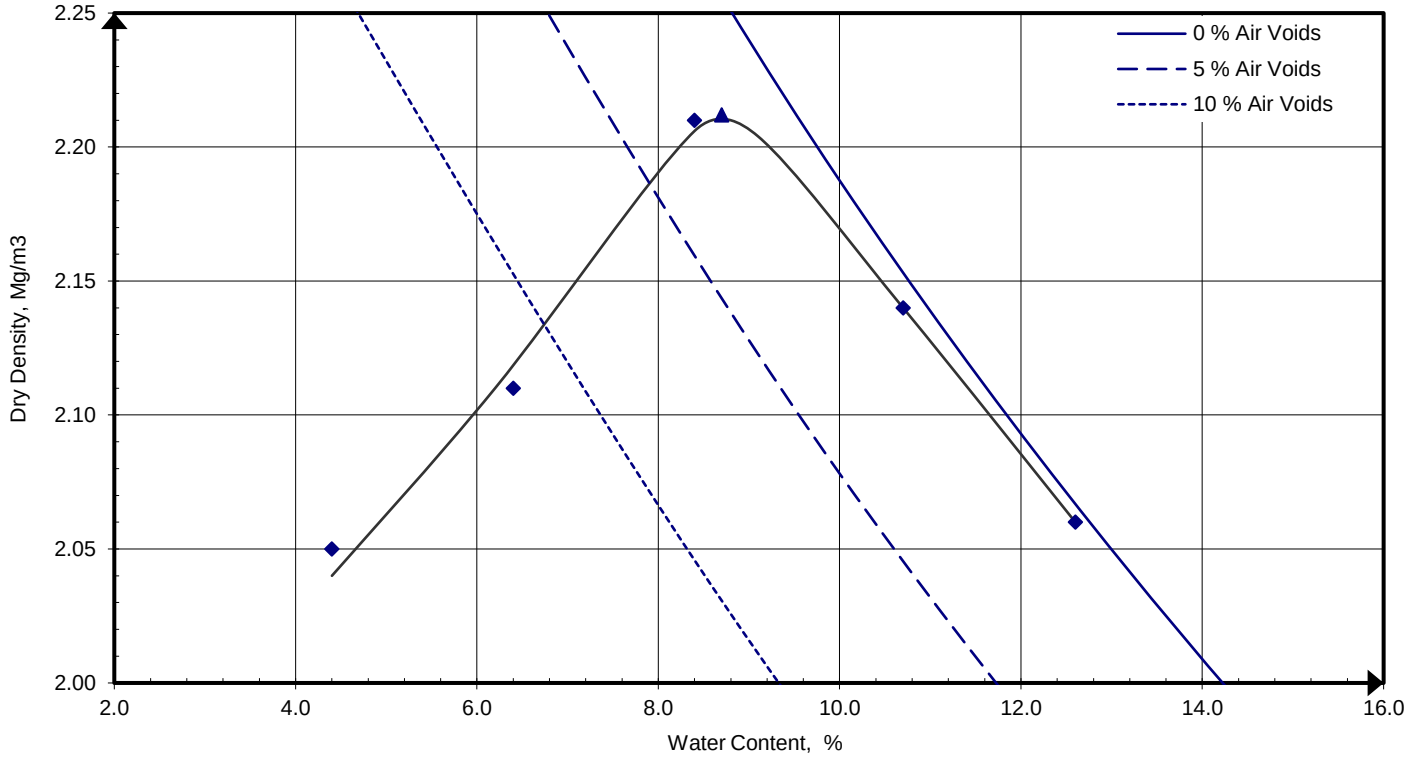
Environmental Science

Client:	Evolve Geo-Environmental Limited	Client Reference:	EGE-24-07-14-02
Client Address:	15 Newland, Lincoln, Lincolnshire	Job Number:	25-012172-1
		Date Sampled:	10/03/2025
		Date Received:	11/03/2025
Contact:	Paul Huteson	Date Tested:	28/03/2025
Site Address:	New Bus Station, Heckmondwilke	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	478510	Depth Top [m]:	Not Given
Hole No.:	S201	Depth Base [m]:	Not Given
Sample Reference:	Composite	Sample Type:	B
Sample Description:	Light brown sandy clayey GRAVEL with cobbles		
Sample Preparation:	Sample was quartered and broken down by hand. Material used was natural.		



Compaction Point No.		1	2	3	4	5
Water Content	%	4.4	6.4	8.4	10.7	12.6
Dry Density	Mg/m³	2.05	2.11	2.21	2.14	2.06

Grading zone	X
Mould Type	CBR
Samples Used	Single sample tested

Material Retained on 37.5 mm Sieve	%	37
Material Retained on 20.0 mm Sieve	%	56
Particle Density - Assumed	Mg/m³	2.80
As received Water Content	%	6.4
Maximum Dry Density	Mg/m³	**2.21**

Optimum Water Content	%	**8.7**

Note: BS 1377-2:2022, CL 11.4

Remarks: Zone X - test carried out with clients consent.

Signed:

Katarzyna Koziel
Geotechnical Reporting Team Leader
for and on behalf of i2 Analytical Ltd

Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation. This report may not be reproduced other than in full without the prior written approval of the issuing laboratory. The results included within the report relate only to the sample(s) submitted for testing.

Date Reported: 01/04/2025

GF 599.2

Product Data Sheet

TARMAC
A CRH COMPANY

Tarmac - Central

Harrycroft Quarry

SHW Series 600 , Earthworks

Class 6F5 , Selected granular material (Coarse Grading) - imported onto the site.

Conformity Requirements, Table 6/1		
	Requirements	Declared Value
Resistance to Fragmentation , Los Angeles Test	LA_{50}	LA_{48}
Volume Stability of Blast furnace Slag	Pass	NR
Volume Stability of Steel Slag	V_5	NR
Other Aggregate Requirements BS EN 13242	NR	NR
Class A Asphalt Content Clause 710	< 50%	NR
Bitumen Content BS 598: Part 102	< 2.0%	NR

Grading Requirements , Table 6/5			
	Requirements	Declared Value	Typical Value
125mm	100	100	100
80mm	75 - 99	75 - 100	96
40mm	50 - 90	50 - 90	76
20mm	30 - 75	30 - 75	53
10mm	15 - 60	15 - 60	37
2mm	0 - 35	0 - 35	22
0.063mm	0 - 12	0 - 12	6.6

Chemical Test Data 1744			
			Typical Value
Water Soluble Sulfate		**BS EN1744 - cl10**	**<50mg/L**
Total Sulfur	**%**	**BS EN1744 - cl11**	**<0.1**
Acid Soluble Sulfides	**%**	**BS EN1744 - cl13**	**Limestone NR**
pH		**BS 1377**	**9.1**

Additional Test Data		
Optimum MC	%	8.5
Max Dry Density	Mg/m3	2.22

David St Dennis
Technical Systems Manager

Date of Issue : 01 March 2024

Notes

1. The above data is provided in good faith as a guide to typical values and does not constitute a specification
2. The company reserves the right to revise the data at any time
3. Individual Certification available on request

GFQ-008-74
Issue 02 - Nov 23

Summary of Classification Test Results

Project No.
J305510

Project Name
Heckmondwike

Hole No.	Sample				Soil Description	Density bulk Mg/m³	Density dry Mg/m³	w %	Passing 425µm %	LL %	If 1 Point Test Pen 1	If 1 Point Test Pen 2	If 1 Point Test CF	PL %	PI %	Particle density Mg/m³	Remarks
	Ref	Top	Base	Type													
S202		0.00		B	Light brown slightly sandy clayey GRAVEL with occasional cobbles			7.1									

Key

Density tests:
Linear measurement unless :
wd - water displacement
wi - immersion in water

w - water content

Atterberg:
4pt cone unless :
cas - Casagrande method
1pt - single point test
CF - Correlation Factor

Liquid limit test: i - increasing moisture content, d - decreasing moisture content

Atterberg sample prep: n - Natural, HP - Hand Picked, w - Washed

Particle density:
sp - fluid pycnometer
gj - gas pycnometer

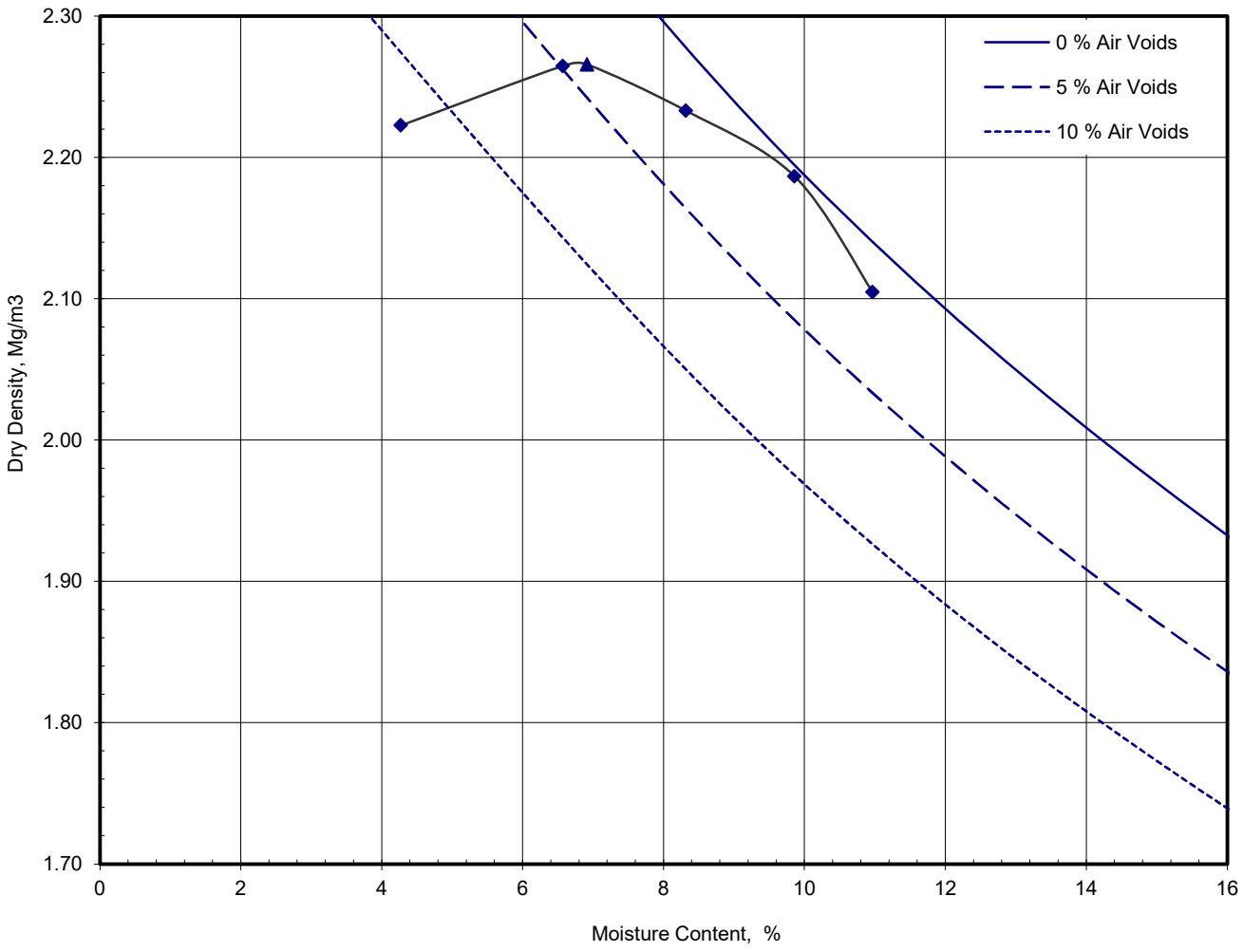
Test Standards:

Bulk Density Tests - BS EN ISO 17892-2:2014
Water Content - BS EN ISO 17892-1:2014+A1:2022
Liquid & Plastic Limits - BS EN ISO 17892-12:2018+A2:2022
Particle Density - BS EN ISO 17892-3:2015

Date Printed:
01/04/2025

ISO INDX

GQF-008-46 Issue 02 - June 24	**Dry Density / Moisture Content Relationship Heavy Compaction**			Job Ref	**J305510**
				Borehole / Pit No	S201
Project Name	**Heckmondwike**			Sample No	
Soil Description	Light brown slightly sandy clayey GRAVEL			Depth	0.00 m
Specimen Ref.		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 4:1990, clause 3.6, 4.5kg rammer			Keylab ID	TTLP2025032426
				Compaction Test Reference/No.	



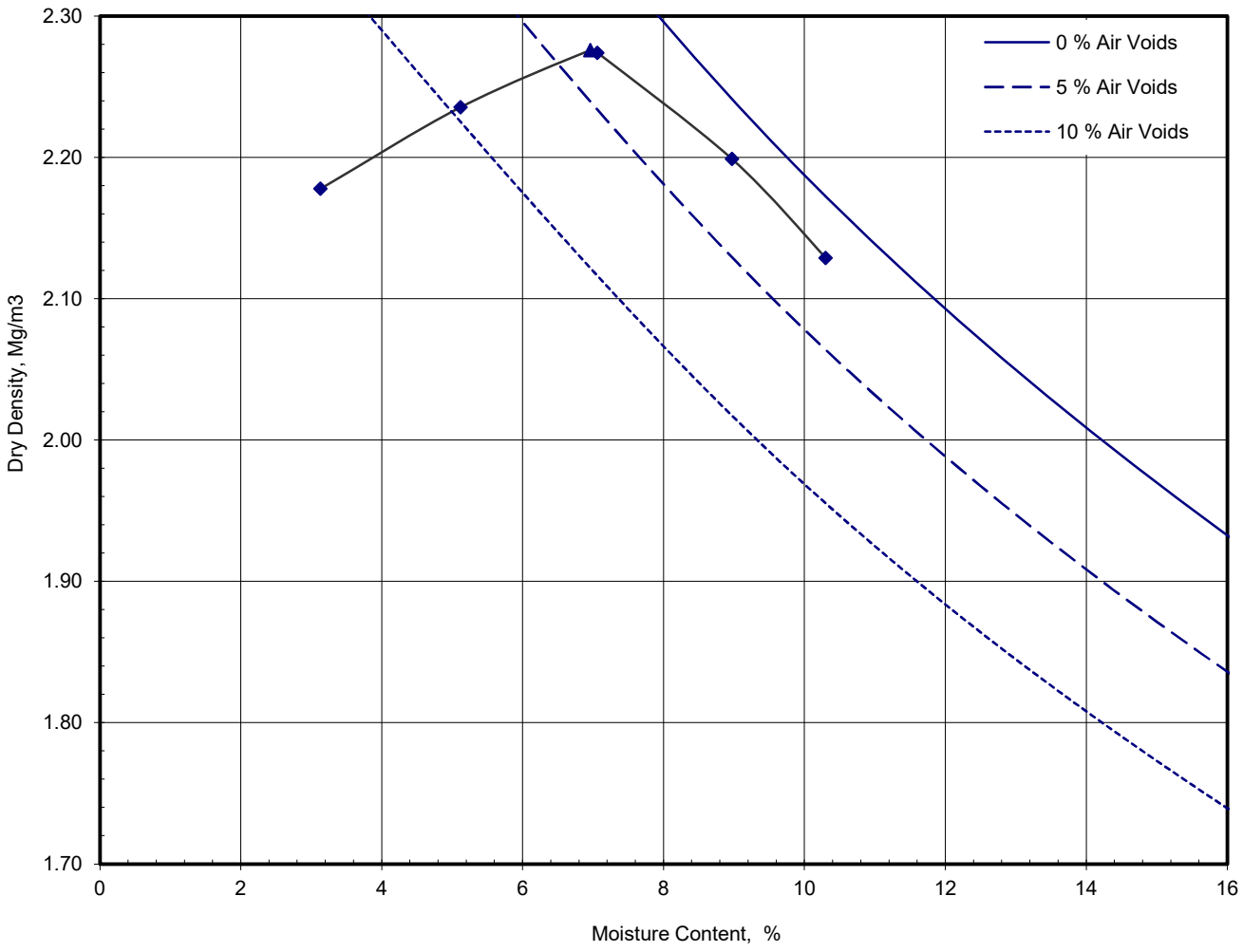
Preparation		Material used was natural
Mould Type		CBR
Samples Used		Composite specimens tested
Material Retained on 37.5 mm Sieve	%	44
Material Retained on 20.0 mm Sieve	%	22
Particle Density - Assumed	Mg/m³	2.80

Maximum Dry Density	Mg/m³	**2.27**

Optimum Moisture Content	%	**6.9**

		Remarks		**COMPH**
	7758	Date Printed	01/04/2025	

GQF-008-46 Issue 02 - June 24	**Dry Density / Moisture Content Relationship Heavy Compaction**			Job Ref	**J305510**
				Borehole / Pit No	S202
Project Name	**Heckmondwike**			Sample No	
Soil Description	Light brown slightly sandy clayey GRAVEL with occasional cobbles			Depth	0.00 m
Specimen Ref.		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 4:1990, clause 3.6, 4.5kg rammer			Keylab ID	TTLP2025032427
				Compaction Test Reference/No.	

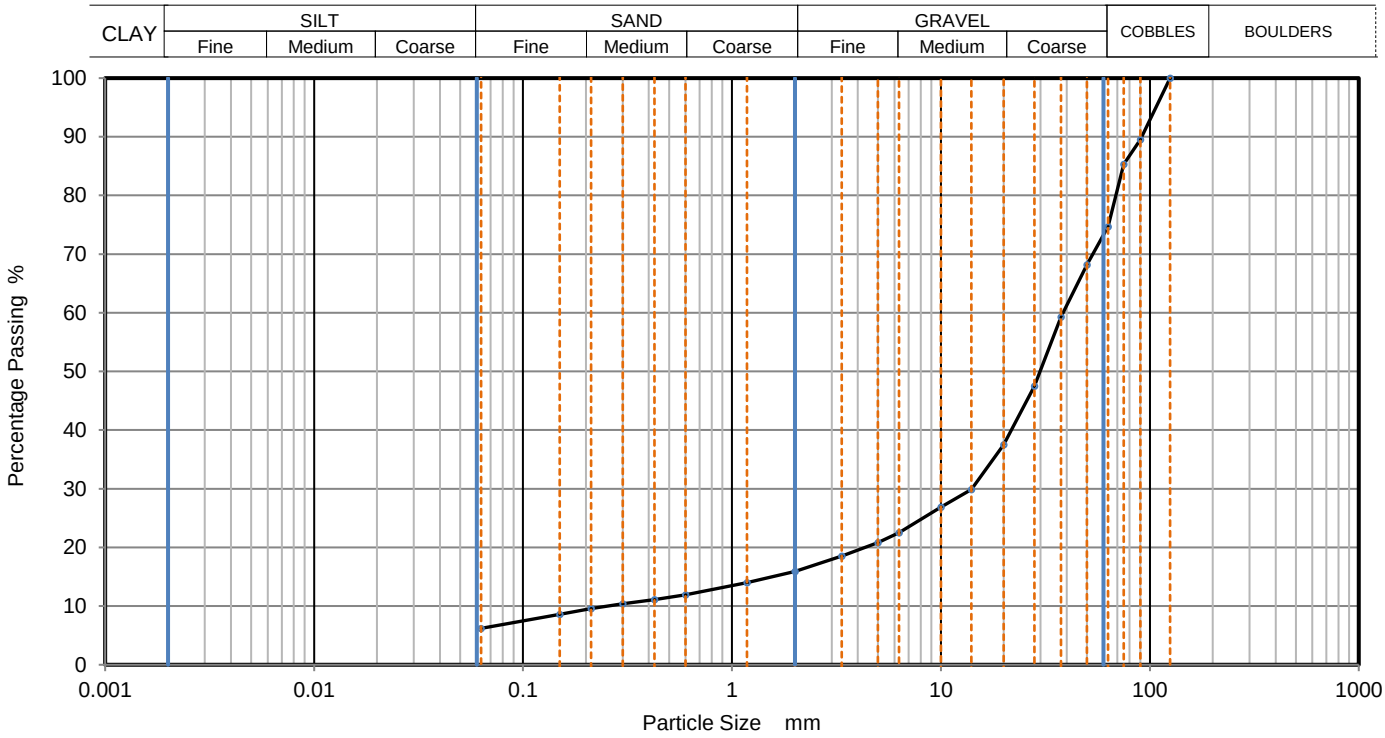


Preparation		Material used was natural
Mould Type		CBR
Samples Used		Composite specimens tested
Material Retained on 37.5 mm Sieve	%	32
Material Retained on 20.0 mm Sieve	%	57
Particle Density - Assumed	Mg/m³	2.80

Maximum Dry Density	Mg/m³	**2.28**
Optimum Moisture Content	%	**7**

		Remarks		**COMPH**
TTL	UKAS TESTING 7758	Date Printed	01/04/2025	

GFQ-008-77 Issue 02 - Nov 23	**Determination of Particle Size Distribution (ISO 17892-4:2016)**			Job Ref	**J305510**
				Borehole/Pit No.	S202
Project Name	Heckmondwike			Sample No.	
Soil Description	Light brown slightly sandy clayey GRAVEL with occasional cobbles			Depth, m	0.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	ISO 17892 -4, by sieving on pre-dried or dry sample			KeyLAB ID	TTLP2025032427



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	90		
75	85		
63	75		
50	68		
37.5	59		
28	48		
20	38		
14	30		
10	27		
6.3	23		
5	21		
3.35	19		
2	16		
1.18	14		
0.6	12		
0.425	11		
0.3	10		
0.212	10		
0.15	9		
0.063	6		

Dry Mass of sample, g: 21577

Sample Proportions	% dry mass
Very coarse	25
Gravel	59
Sand	10
Fines <0.063mm	6

Grading Analysis		
D100	mm	125
D60	mm	38.4
D30	mm	14.1
D10	mm	0.252
Uniformity Coefficient		150
Curvature Coefficient		21
Pretreatment Method (If Applicable)		

Remarks

Preparation and testing performed to BS EN ISO 17892-4 unless noted below

Date Printed: 01/04/2025

ISO PSD

Appendix IV – Transfer Notes (Imported Materials)

evolve
GEO-ENVIRONMENTAL

BROCKLEBANK & CO DEMOLITION LTD

TICKET NUMBER
607859

Address: Allende Way, Sheffield, S9 5AP
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Email Address: brocklebank@ymail.com
Website: www.brocklebankltd.com

DATE	TIME	
15-4-25	ON SITE	
	OFF SITE	

✓	DELIVERY NOTE
	CONTROLLED TRANSFER NOTE

CUSTOMER
DOWLINGS

DELIVERY ADDRESS
HECKMONDWYKE RUE POINT

MATERIAL DESCRIPTION
QUARRIED 6F5

VEHICLE REGISTRATION

COLLECTION ADDRESS
TARMAC HARRY CROFT

TARE WEIGHT

GROSS WEIGHT

NETT WEIGHT
1 LOAD 19600

EWC CODE		
17 01 02	HARDCORE / CONCRETE	
17 03 02	PLANINGS / TARMAC	
17 05 04	SOILS / STONES	
19 12 09	MINERALS (SAND / STONES)	✓
	OTHER MATERIALS	

PURCHASE ORDER NUMBER

VEHICLE SIZE			
✓	8-WHEELER		8-YARD SKIP
	6-WHEELER		TRANSIT PICKUP
	4-WHEELER		ARTIC

SIC CODE	PRICE (OFFICE USE)

DRIVER SIGNATURE

DECLARATION	
✓	By ticking this box, I confirm I have fulfilled my duty to apply the waste hierarchy as required by regulation 12 of the waste (England & Wales) Regulation 2011.

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REG. NUMBER – CBDU83553

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DATE	TIME	
15/4/25	ON SITE	
	OFF SITE	

CUSTOMER
Dowlings (8395)

DELIVERY ADDRESS
Fleck Hardwicke, Union St. WF16 0111

MATERIAL DESCRIPTION
6fs Quarried

COLLECTION ADDRESS
Tarmac Haigh Wolf, Worksop. S81 8BD.

VEHICLE REGISTRATION

EWC CODE		
17 01 02	HARDCORE / CONCRETE	
17 03 02	PLANINGS / TARMAC	
17 05 04	SOILS / STONES	
19 12 09	MINERALS (SAND / STONES)	✓
	OTHER MATERIALS	

TARE WEIGHT

GROSS WEIGHT

NETT WEIGHT
18.56

VEHICLE SIZE			
✓	8-WHEELER		8-YARD SKIP
	6-WHEELER		TRANSIT PICKUP
	4-WHEELER		ARTIC

PURCHASE ORDER NUMBER

SIC CODE	PRICE (OFFICE USE)

CUSTOMER SIGNATURE

NAME

DRIVER SIGNATURE

DECLARATION

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	DELIVERY NOTE
/	CONTROLLED TRANSFER NOTE

DELIVERY ADDRESS
Heckmondwyke Union Street

COLLECTION ADDRESS
Tarmac Honeycroft

EWC CODE		
17 01 02	HARDCORE / CONCRETE	
17 03 02	PLANINGS / TARMAC	
17 05 04	SOILS / STONES	
19 12 09	MINERALS (SAND / STONES)	
	OTHER MATERIALS	/

VEHICLE SIZE			
/	8-WHEELER		8-YARD SKIP
	6-WHEELER		TRANSIT PICKUP
	4-WHEELER		ARTIC

SIC CODE	PRICE (OFFICE USE)

DECLARATION	
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DATE	TIME	
15-4-25	ON SITE	
	OFF SITE	

CUSTOMER
Dawlings

MATERIAL DESCRIPTION
6FS Dunned

VEHICLE REGISTRATION

TARE WEIGHT

GROSS WEIGHT
31.90

NETT WEIGHT

PURCHASE ORDER NUMBER

CUSTOMER SIGNATURE

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DATE	TIME	
15/4/25	ON SITE	
	OFF SITE	

✓	DELIVERY NOTE
	CONTROLLED TRANSFER NOTE

CUSTOMER
DOWLINGS

DELIVERY ADDRESS
HECKMONDWIKE BUS STATION

MATERIAL DESCRIPTION
6FS

VEHICLE REGISTRATION

COLLECTION ADDRESS
HARRYCROFT

TARE WEIGHT

GROSS WEIGHT

NETT WEIGHT
18.54

EWC CODE		
17 01 02	HARDCORE / CONCRETE	
17 03 02	PLANINGS / TARMAC	
17 05 04	SOILS / STONES	
19 12 09	MINERALS (SAND / STONES)	
	OTHER MATERIALS	

PURCHASE ORDER NUMBER

VEHICLE SIZE			
✓	8-WHEELER		8-YARD SKIP
	6-WHEELER		TRANSIT PICKUP
	4-WHEELER		ARTIC

SIC **FFICE USE)**

DECLARATION

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Website: www.brocklebankltd.com

DATE	TIME	
15/4/25	ON SITE	
	OFF SITE	

✓	DELIVERY NOTE
	CONTROLLED TRANSFER NOTE

CUSTOMER
DOWLINGS

DELIVERY ADDRESS
HECKMONDWIKE BUS STATION

MATERIAL DESCRIPTION
6FS

VEHICLE REGISTRATION

COLLECTION ADDRESS
HARRY CROFT

TARE WEIGHT

GROSS WEIGHT

NETT WEIGHT
18.38

EWC CODE		
17 01 02	HARDCORE / CONCRETE	
17 03 02	PLANINGS / TARMAC	
17 05 04	SOILS / STONES	
19 12 09	MINERALS (SAND / STONES)	
	OTHER MATERIALS	

PURCHASE ORDER NUMBER

VEHICLE SIZE			
✓	8-WHEELER		8-YARD SKIP
	6-WHEELER		TRANSIT PICKUP
			ARTIC

CUSTOMER SIGNATURE

FFICE USE)

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606012

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Office Number: 0114 244 1584
Email Address: brocklebank@ymail.com
Website: www.brocklebankltd.com

	DELIVERY NOTE
/	CONTROLLED TRANSFER NOTE

DELIVERY ADDRESS
HECKMONDWIKE

COLLECTION ADDRESS
TARMAC HORSFORTH

EWC CODE		
17 01 02	HARDCORE / CONCRETE	
17 03 02	PLANINGS / TARMAC	
17 05 04	SOILS / STONES	
19 12 09	MINERALS (SAND / STONES)	/
	OTHER MATERIALS	

VEHICLE SIZE			
/	8-WHEELER		8-YARD SKIP
	6-WHEELER		TRANSIT PICKUP
	4-WHEELER		ARTIC

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DATE	TIME	
15-4-25	ON SITE	
	OFF SITE	

CUSTOMER
DOWLINGS

MATERIAL DESCRIPTION
6F5

VEHICLE REGISTRATION

TARE WEIGHT

GROSS WEIGHT

NETT WEIGHT
1 LOAD

PURCHASE ORDER NUMBER

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607858

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Email Address: brocklebank@ymail.com
Website: www.brocklebankltd.com

DATE	TIME	
15-4-25	ON SITE	
	OFF SITE	

✓	DELIVERY NOTE
	CONTROLLED TRANSFER NOTE

CUSTOMER
DOWLINGS

DELIVERY ADDRESS
HEADMOOR QUARRY BUS POINT

MATERIAL DESCRIPTION
QUARRIED 6F5

VEHICLE REGISTRATION

COLLECTION ADDRESS
TARMAC HARRY CROFT

TARE WEIGHT

GROSS WEIGHT

NETT WEIGHT
LOAD 19 TON

EWC CODE		
17 01 02	HARDCORE / CONCRETE	
17 03 02	PLANINGS / TARMAC	
17 05 04	SOILS / STONES	
19 12 09	MINERALS (SAND / STONES)	✓
	OTHER MATERIALS	

PURCHASE ORDER NUMBER

VEHICLE SIZE			
✓	8-WHEELER		8-YARD SKIP
	6-WHEELER		TRANSIT PICKUP
	4-WHEELER		ARTIC

SIC CODE	PRICE (OFFICE USE)

DRIVER SIGNATURE

DECLARATION	
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REGISTERED WASTE CARRIER
REG. NUMBER – CBDU83553

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BROCKLEBANK & CO DEMOLITION LTD

TICKET NUMBER
607545

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Office Number: 0114 244 1584
Email Address: brocklebank@ymail.com
Website: www.brocklebankltd.com

DATE	TIME	
15/4/25	ON SITE	
	OFF SITE	

✓	DELIVERY NOTE
	CONTROLLED TRANSFER NOTE

CUSTOMER
Dowlings (8395)

DELIVERY ADDRESS
Heckmondwike
UNIT 1 Sr, WF16 0HH

MATERIAL DESCRIPTION
6FS Quarry

COLLECTION ADDRESS
Tarmac Harworth,
Worksop, S81

VEHICLE REGISTRATION

TARE WEIGHT

GROSS WEIGHT

NETT WEIGHT
1920

EWC CODE		
17 01 02	HARDCORE / CONCRETE	
17 03 02	PLANINGS / TARMAC	
17 05 04	SOILS / STONES	
19 12 09	MINERALS (SAND / STONES)	✓
	OTHER MATERIALS	

PURCHASE ORDER NUMBER

VEHICLE SIZE			
✓	8-WHEELER		8-YARD SKIP
	6-WHEELER		TRANSIT PICKUP
	4-WHEELER		ARTIC

CUSTOMER SIGNATURE

SIC CODE	PRICE (OFFICE USE)

DRIVER SIGNATURE
(2)

DECLARATION

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REG. NUMBER – CBDU83553

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MATERIAL PRODUCED AND DELIVERED IN ACCORDANCE WITH WRAP QUALITY PROTOCOL

BROCKLEBANK & CO DEMOLITION LTD

TICKET NUMBER
606011

Address: Allende Way, Sheffield, S9 5AP
Office Number: 0114 244 1584
Email Address: brocklebank@ymail.com
Website: www.brocklebankltd.com

DATE	TIME	
15-4-25	ON SITE	
	OFF SITE	

	DELIVERY NOTE
/	CONTROLLED TRANSFER NOTE

CUSTOMER

DOWLINGS

DELIVERY ADDRESS

HECKMONDWIKE

MATERIAL DESCRIPTION

6F5

COLLECTION ADDRESS

TARMAC
HARTLEPOOL

VEHICLE REGISTRATION

TARE WEIGHT

GROSS WEIGHT

NETT WEIGHT

1 LOAD

EWC CODE		
17 01 02	HARDCORE / CONCRETE	
17 03 02	PLANINGS / TARMAC	
17 05 04	SOILS / STONES	
19 12 09	MINERALS (SAND / STONES)	
	OTHER MATERIALS	

PURCHASE ORDER NUMBER

VEHICLE SIZE			
/	8-WHEELER		8-YARD SKIP
	6-WHEELER		TRANSIT PICKUP
	4-WHEELER		ARTIC

CUSTOMER SIGNATURE

SIC CODE	PRICE (OFFICE USE)

DRIVER SIGNATURE

DECLARATION	
✓	By ticking this box, I confirm I have fulfilled my duty to apply the waste hierarchy as required by regulation 12 of the waste (England & Wales) Regulation 2011.

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REG. NUMBER – CBDU83553

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BROCKLEBANK & CO DEMOLITION LTD

TICKET NUMBER
608603

Address: Allende Way, Sheffield, S9 5AP
Office Number: 0114 244 1584
Email Address: brocklebank@ymail.com
Website: www.brocklebankltd.com

DATE	TIME	
15-4-25	ON SITE	
	OFF SITE	

✓	DELIVERY NOTE
	CONTROLLED TRANSFER NOTE

CUSTOMER
Dowlings

DELIVERY ADDRESS
heckmondwyke Union Street

MATERIAL DESCRIPTION
6F5

VEHICLE REGISTRATION

COLLECTION ADDRESS
Tarmac harrycroft

TARE WEIGHT

GROSS WEIGHT
31.98

NETT WEIGHT

EWC CODE		
17 01 02	HARDCORE / CONCRETE	
17 03 02	PLANINGS / TARMAC	
17 05 04	SOILS / STONES	
19 12 09	MINERALS (SAND / STONES)	
	OTHER MATERIALS	✓

PURCHASE ORDER NUMBER

VEHICLE SIZE			
✓	8-WHEELER		8-YARD SKIP
	6-WHEELER		TRANSIT PICKUP
	4-WHEELER		ARTIC

CUSTOMER SIGNATURE

SIC CODE	PRICE (OFFICE USE)

DECLARATION	
✓	By ticking this box, I confirm I have fulfilled my duty to apply the waste hierarchy as required by regulation 12 of the waste (England & Wales) Regulation 2011.

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REG. NUMBER – CBDU83553

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BROCKLEBANK & CO DEMOLITION LTD

TICKET NUMBER
606274

Address: Allende Way, Sheffield, S9 5AP
Office Number: 0114 244 1584
Email Address: brocklebank@ymail.com
Website: www.brocklebankltd.com

DATE	TIME	
15/4/25	ON SITE	
	OFF SITE	

✓	DELIVERY NOTE
	CONTROLLED TRANSFER NOTE

CUSTOMER
Dowlings

DELIVERY ADDRESS
Heckmondwike Bus Station

MATERIAL DESCRIPTION
6F5

VEHICLE REGISTRATION

COLLECTION ADDRESS
Harry Croft

TARE WEIGHT

GROSS WEIGHT

NETT WEIGHT
18.28

EWC CODE		
17 01 02	HARDCORE / CONCRETE	
17 03 02	PLANINGS / TARMAC	
17 05 04	SOILS / STONES	
19 12 09	MINERALS (SAND / STONES)	
	OTHER MATERIALS	

PURCHASE ORDER NUMBER

VEHICLE SIZE			
✓	8-WHEELER		8-YARD SKIP
	6-WHEELER		TRANSIT PICKUP
			TIC

E USE)

luty to apply
✓ the waste hierarchy as required by regulation 12 of the waste (England & Wales) Regulation 2011

CUSTOMER SIGNATURE

BROCKLEBANK & CO (DEMO) LTD IS A REGISTERED WASTE CARRIER
REG. NUMBER – CBDU83553

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MATERIAL PRODUCED AND DELIVERED IN ACCORDANCE WITH WRAP QUALITY PROTOCOL

BROCKLEBANK & CO DEMOLITION LTD

TICKET NUMBER
607544

Address: Allende Way, Sheffield, S9 5AP
Office Number: 0114 244 1584
Email Address: brocklebank@ymail.com
Website: www.brocklebankltd.com

	DELIVERY NOTE
	CONTROLLED TRANSFER NOTE

DELIVERY ADDRESS
Heckmondwike, Union St, WF16 0HH

COLLECTION ADDRESS
Tarmac Haywcroft Worksop, S81 8BD

EWC CODE		
17 01 02	HARDCORE / CONCRETE	
17 03 02	PLANINGS / TARMAC	
17 05 04	SOILS / STONES	
19 12 09	MINERALS (SAND / STONES)	
	OTHER MATERIALS	

VEHICLE SIZE			
	8-WHEELER		8-YARD SKIP
	6-WHEELER		TRANSIT PICKUP
	4-WHEELER		ARTIC

SIC CODE	PRICE (OFFICE USE)

DRIVER SIGNATURE

DECLARATION	
✓	By ticking this box, I confirm I have fulfilled my duty to apply the waste hierarchy as required by regulation 12 of the waste (England & Wales) Regulation 2011

DATE	TIME	
15/4/25	ON SITE	
	OFF SITE	

CUSTOMER
Dowlings (8395)

MATERIAL DESCRIPTION
6F5 Quarried

VEHICLE REGISTRATION

TARE WEIGHT
GROSS WEIGHT
NETT WEIGHT
18.70

PURCHASE ORDER NUMBER

CUSTOMER SIGNATURE
CUSTOMER PRINT NAME

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REGISTERED WASTE CARRIER
REG. NUMBER – CBDU83553

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MATERIAL PRODUCED AND DELIVERED IN ACCORDANCE WITH WRAP QUALITY PROTOCOL.

BROCKLEBANK & CO DEMOLITION LTD

TICKET NUMBER
606010

Address: Allende Way, Sheffield, S9 5AP
Office Number: 0114 244 1584
Email Address: brocklebank@ymail.com
Website: www.brocklebankltd.com

✓	DELIVERY NOTE
	CONTROLLED TRANSFER NOTE

DATE	TIME	
15-4-25	ON SITE	
	OFF SITE	

CUSTOMER

DOUGS

DELIVERY ADDRESS

HECKMONDWIKE

MATERIAL DESCRIPTION

6F5

VEHICLE REGISTRATION

COLLECTION ADDRESS

TARMAC
HARRICROFT

TARE WEIGHT

GROSS WEIGHT

NETT WEIGHT

1 LOAD

EWC CODE		
17 01 02	HARDCORE / CONCRETE	
17 03 02	PLANINGS / TARMAC	
17 05 04	SOILS / STONES	
19 12 09	MINERALS (SAND / STONES)	
	OTHER MATERIALS	

PURCHASE ORDER NUMBER

VEHICLE SIZE			
✓	8-WHEELER		8-YARD SKIP
	6-WHEELER		TRANSIT PICKUP
	4-WHEELER		ARTIC

SIC CODE	PRICE (OFFICE USE)

DRIVER SIGNATURE

DECLARATION

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REG. NUMBER – CBDU83553

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MATERIAL PRODUCED AND DELIVERED IN ACCORDANCE WITH WRAP QUALITY PROTOCOL.

BROCKLEBANK & CO DEMOLITION LTD

TICKET NUMBER
607857

Address: Allende Way, Sheffield, S9 5AP
Office Number: 0114 244 1584
Email Address: brocklebank@ymail.com
Website: www.brocklebankltd.com

DATE	TIME	
15-4-25	ON SITE	
	OFF SITE	

✓	DELIVERY NOTE
	CONTROLLED TRANSFER NOTE

CUSTOMER
DOWLINGS

DELIVERY ADDRESS
HEEKMONDWYKE BUS POINT

MATERIAL DESCRIPTION
QUARRIED 6F5

VEHICLE REGISTRATION

COLLECTION ADDRESS
TARMAC HARRYCROFT

TARE WEIGHT

GROSS WEIGHT

NETT WEIGHT
1 LOAD 19t00T

EWC CODE		
17 01 02	HARDCORE / CONCRETE	
17 03 02	PLANINGS / TARMAC	
17 05 04	SOILS / STONES	
19 12 09	MINERALS (SAND / STONES)	✓
	OTHER MATERIALS	

PURCHASE ORDER NUMBER

VEHICLE SIZE			
✓	8-WHEELER		8-YARD SKIP
	6-WHEELER		TRANSIT PICKUP
	4-WHEELER		ARTIC

CUSTOMER SIGNATURE

SIC CODE	PRICE (OFFICE USE)

DRIVER SIGNATURE

IS A
REGISTERED WASTE CARRIER
REG. NUMBER – CBDU83553

DECLARATION	
✓	By ticking this box, I confirm I have fulfilled my duty to apply the waste hierarchy as required by regulation 12 of the waste (England & Wales) Regulation 2011

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BROCKLEBANK & CO DEMOLITION LTD

TICKET NUMBER
608602

Address: Allende Way, Sheffield, S9 5AP
Office Number: 0114 244 1584
Email Address: brocklebank@ymail.com
Website: www.brocklebankltd.com

DATE	TIME	
15-4-25	ON SITE	
	OFF SITE	

✓	DELIVERY NOTE
	CONTROLLED TRANSFER NOTE

CUSTOMER
Dowlings

DELIVERY ADDRESS
heckmondwyke Bus Point, Union Street

MATERIAL DESCRIPTION
6FS Quarried

VEHICLE REGISTRATION

COLLECTION ADDRESS
Tarmac Haigh

TARE WEIGHT

GROSS WEIGHT
31.80

NETT WEIGHT

EWC CODE		
17 01 02	HARDCORE / CONCRETE	
17 03 02	PLANINGS / TARMAC	
17 05 04	SOILS / STONES	
19 12 09	MINERALS (SAND / STONES)	
	OTHER MATERIALS	✓

PURCHASE ORDER NUMBER

VEHICLE SIZE			
✓	8-WHEELER		8-YARD SKIP
	6-WHEELER		TRANSIT PICKUP
	4-WHEELER		ARTIC

SIC CODE	PRICE (OFFICE USE)

CUSTOMER PRINT NAME

DECLARATION	
✓	By ticking this box, I confirm I have fulfilled my duty to apply the waste hierarchy as required by regulation 12 of the waste (England & Wales) Regulation 2011.

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REG. NUMBER – CBDU83553

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MATERIAL PRODUCED AND DELIVERED IN ACCORDANCE WITH WRAP QUALITY PROTOCOL

Delivery Note

No: 287836

LUNNESS

Earthworks • Crushing • Waste Disposal & Recycling • Aggregates • Marine

Date	Haulier	Vehicle Reg	Driver
15-6-25	Tigh		Name TOM
			Signed

Delivery Address

St George Street

WF16 OHH

Material

20mm

Pipe

Bedding

Customer

Dowling Civil

Loads	1	
8 Wheel	✓	
6 Wheel		
4 Wheel		
Artic		
Gross Weight		
Tare Weight		
Nett Weight		19.970

Materials Received By

Name

Signatur

Date

Comments

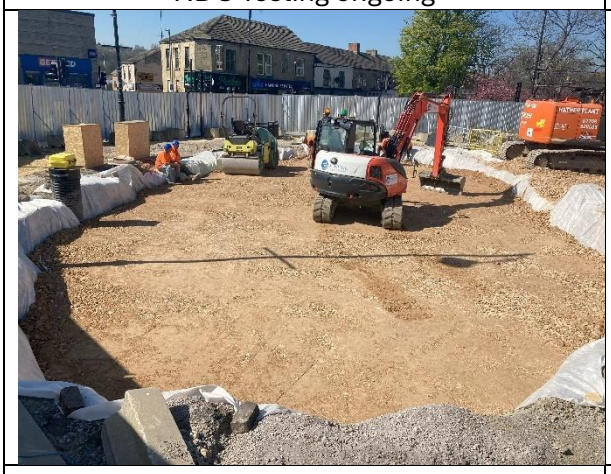
01977 689929 info@kelunness.co.uk www.kelunness.co.uk

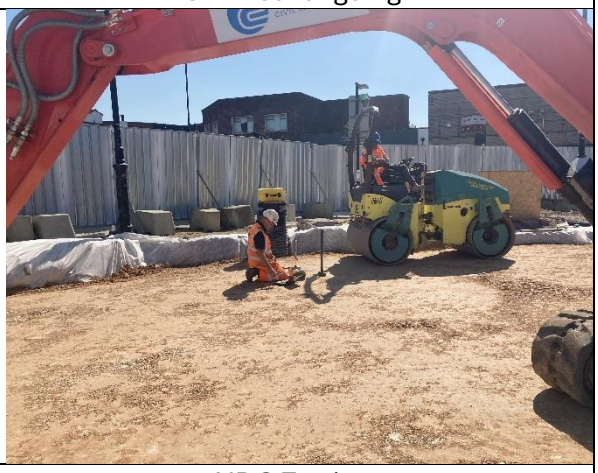
K.E.Lunness Aggregates Ltd, Betteras Hill Quarry, Brotherton Road, Monk Fryston, Leeds LS25 5HD

Company Reg No: 03517787 (England & Wales) VAT No: 457 5614 25

Appendix V - Photographic Record

evolve
GEO-ENVIRONMENTAL

	
Compaction ongoing	SRD Test Location
	
NDG Testing ongoing	Filling works
	
Filling works	Filling and compaction works

	
Showing locations of testing	SRD Test ongonig
	
Filling Operations	NDG Testing

Appendix VI – Formation Testing Results

evolve
GEO-ENVIRONMENTAL

Isotest Ltd
8, Hood Road,
Daventry,
Northamptonshire
NN11 4JS
Email: info@isotest.org.uk

ISO TEST

TEST REPORT

DETERMINATION OF UNDRAINED SHEAR STRENGTH

Client:	Dowling Civil Engineering Ltd	Report No:	22287/25/15
Client Address:	Unit G Station Road North Hykeham Lincoln	Our Ref:	L519-01
Postcode:	LN6 3QY		
Contact:	John Joyce		
Site:	RG Carter, Royal Fold, Heckmondwike, WF16 0HS		

Test Results

Date Tested:	05/03/2025	Vane Depth:	100mm
Weather:	Sunny	Vane Factor:	1.42
Material Type:	Brown/Blue Clay	Vane Size:	19mm
Test Location:	Site Specified	Tested By:	OW

Test Results:

Test Number	Location	Avg Dial Reading	Vane Shear Strength (Kpa)
1	Test 1	140	199
2	Test 2	140	199
3	Test 3	132	190
4	Test 4	140	199
5	Test 5	140	199
6	Test 6	140	199

Comments:

Certified that the testing was carried out in accordance with Isotest Limited Documented In House Procedure DIHM601.

Date: 07/03/2025 **Signed:** _____ [✓]S. Hudspeth - Director

This test report shall not be reproduced, except in full, without the written approval of Isotest Limited. These results relate only to the items tested.

Appendix VII – End Product Testing Results

evolve
GEO-ENVIRONMENTAL

Kiwa CMT

Kiwa CMT
Unit 5 Prime Park Way
Prime Enterprise Park
Derby
DE1 3QB

T +44 (0)1332 383333
E uk.cmt.enquiries@kiwa.com

www.kiwa.co.uk/cmt

Client: Dowling Civil Engineering Ltd.
Unit G, Westminster Trading Estate
Station Road
North Hykeham
Lincolnshire
LN6 3QY

Date: 14th April 2025

Lab Ref: 080425-04

Originator: Shaun Geraghty

Order Ref: 2417/KIWA

Site: RG Carter (Heckmonwike Bus Hub), Royale Fold, Heckmondwike WF16 0HS

Requirements:

Attend the above site on 8th, 9th & 10th April 2025 in order to carry out the following:

- 7No. Sand Replacement Density Tests in accordance with **BS1377-9:1990**
- Nuclear Density Testing in accordance with **Documented In-House Method** SO35 and **BS1377:1990** (not UKAS accredited)
- Take samples for Moisture Content testing in accordance with **BS1377-2:1990**

Results:

The individual result sheets may be viewed on pages 2 to 2 of this report and test results relate only to the locations/items tested.

Kiwa CMT Testing

Author: L Anaz
Technical Administrator

Checked and Approved by: R. Cartlidge
Department Head

Kiwa CMT

Sand Replacement Density Test

Client: Dowling Civil Engineering Ltd

Weather: Dry

Lab Ref: 080425-04

Test Date: 9th/10th April 2025

^Site Heckmondwicke Bus Hub
Royale Fold

^Sample Ref:	^Sample Description:	^Location	Bulk Density (Mg/m³)	Dry Density (Mg/m³)	Moisture Content %	Compaction
1	Crushed stone	L1 Loc 1	2.28	2.20	3.5	97%
2	Crushed stone	L1 Loc 2	2.21	2.13	3.9	94%
3	Crushed stone	L1 Loc 3	2.27	2.19	4.0	96%
4	Crushed stone	L1 Loc 4	2.18	2.11	3.4	93%
5	Crushed stone	L1 Loc 5	2.22	2.11	5.3	93%
6	Crushed stone	L2 Loc 5	2.28	2.17	5.0	96%
7	Crushed stone	L3 Loc 2	2.43	2.32	4.5	102%

^Max Dry Density 2.27 Mg/m3

Comments: All tests carred out in accordance with **BS1377: Part 9: Clause 2.2: 1990**

Information supplied by the customer indicated by ^ may affect the validity of the results.
Results relate only to the samples tested and presented.

Kiwa CMT

UKAS TESTING
0529

Signed by: D Newton
Laboratory Supervisor

Kiwa CMT

Nuclear Density Testing

in accordance with Documented In-House Method SO35 and BS1377-9:1990

Job Nº:	080425-04	**Client Ref:**	2417/kiwa	**Date:**	09/04/25	**Weather:**	Dry		
Client:	Dowling Civil Eng			**Tech Name:**	John Macintyre				
Site:	Heckmondwike Bus Hub Royale Fold West Yorkshire WF16 0HH			**Max DD/OMC Source:**		Client			
				MDD:	2270	**PD:**	2.7	**OMC:**	7 %
				Density offset:		0	**Moisture offset:**		0 %
				Test depth, mm:		125	**Time:**		15 secs
Material:	Crushed Stone			**New MS:**	684		**% Difference:**		0.2 %
				New DS:	1553		**% Difference:**		0.5 %

Nº	Wet Density kg/m³	Dry Density kg/m³	Compaction %	MC %	Air Voids %	Plot and Grid	Level	Test No.	SRD
N	2317	2174	95.8	6.6	5.2	Bus Hub Slab	1	1	calibrate gauge
S	2348	2230	98.2	5.3	5.6			AOD	
E	2369	2237	98.5	5.9	3.9	1		E	
W	2354	2223	97.9	5.9	4.6			N	
Mean	**2347**	**2216**	**97.6**	**5.9**	**4.8**				
N	2294	2164	95.3	6.0	6.9	Bus Hub Slab	1	2	calibrate gauge
S	2312	2194	96.6	5.4	6.9			AOD	
E	2304	2176	95.8	5.9	6.6	2		E	
W	2303	2173	95.7	6.0	6.5			N	
Mean	**2303**	**2176**	**95.9**	**5.8**	**6.7**				
N	2286	2148	94.6	6.4	6.7	Bus Hub Slab	1	3	calibrate gauge
S	2400	2264	99.7	6.0	2.6			AOD	
E	2270	2156	95.0	5.3	8.7	3		E	
W	2321	2227	98.1	4.2	8.1			N	
Mean	**2319**	**2199**	**96.9**	**5.5**	**6.5**				
N	2328	2200	96.9	5.8	5.7	Bus Hub Slab	1	4	calibrate gauge
S	2316	2177	95.9	6.4	5.5			AOD	
E	2299	2190	96.5	5.0	8.0	4		E	
W	2286	2148	94.6	6.4	6.7			N	
Mean	**2307**	**2179**	**96.0**	**5.9**	**6.5**				
N	2290	2130	93.8	7.5	5.1	Bus Hub Slab	1	5	calibrate gauge
S	2306	2147	94.6	7.4	4.6			AOD	
E	2348	2219	97.8	5.8	4.9	5		E	
W	2268	2124	93.6	6.8	6.9			N	
Mean	**2303**	**2155**	**95.0**	**6.9**	**5.4**				
N	2321	2196	96.7	5.7	6.2	Bus Hub Slab	1	6	
S	2323	2167	95.5	7.2	4.1			AOD	
E	2333	2228	98.2	4.7	7.0	6		E	
W	2331	2220	97.8	5.0	6.7			N	
Mean	**2327**	**2203**	**97.1**	**5.7**	**6.0**				
N	2364	2230	98.2	6.0	4.0	Bus Hub Slab	Layer 2 @ 200mm test Depth	7	
S	2350	2240	98.7	4.9	6.1			AOD	
E	2363	2259	99.5	4.6	5.9	6		E	
W	2368	2270	100.0	4.3	6.1			N	
Mean	**2361**	**2250**	**99.1**	**5.0**	**5.5**				

Kiwa CMT

Nuclear Density Testing

in accordance with Documented In-House Method SO35 and BS1377-9:1990

Job Nº:	080425-04	**Client Ref:**	2417/kiwa	**Date:**	09/04/25	**Weather:**	Dry		
Client:	Dowling Civil Eng			**Tech Name:**	John Macintyre				
Site:	Heckmondwike Bus Hub Royale Fold West Yorkshire WF16 0HH			**Max DD/OMC Source:**		Client			
				MDD:	2270	**PD:**	2.7	**OMC:**	7 **%**
				Density offset:		0	**Moisture offset:**		0 **%**
				Test depth, mm:		125	**Time:**		15 **secs**
Material:	Crushed Stone			**New MS:**	684		**% Difference:**		0.2 **%**
				New DS:	1553		**% Difference:**		0.5 **%**

Nº	Wet Density kg/m³	Dry Density kg/m³	Compaction %	MC %	Air Voids %	Plot and Grid	Level	Test No.	SRD
N	2268	2124	93.6	6.8	6.9	Bus Hub Slab	Layer 2 @ 200mm test Depth	8	y
S	2279	2134	94.0	6.8	6.5			AOD	
E	2349	2179	96.0	7.8	2.3	5		E	
W	2380	2233	98.4	6.6	2.6			N	
Mean	**2319**	**2167**	**95.5**	**7.0**	**4.6**				

Kiwa CMT

Nuclear Density Testing

in accordance with Documented In-House Method SO35 and BS1377-9:1990

Job Nº:	080425-04	**Client Ref:**	2417/kiwa	**Date:**	10/04/25		**Weather:**	Dry	
Client:	Dowling Civil Eng			**Tech Name:**	John Macintyre				
Site:	Heckmondwike Bus Hub Royale Fold West Yorkshire WF16 0HH			**Max DD/OMC Source:**	Client				
				MDD:	2270	**PD:** 2.7	**OMC:**	7	%
				Density offset:	0		**Moisture offset:**	0	%
				Test depth, mm:	200		**Time:**	15	secs
Material:	Crushed Aggregate / Compaction trial			**New MS:**	684		**% Difference:**	0.1	%
				New DS:	1557		**% Difference:**	0	%

Nº	Wet Density kg/m³	Dry Density kg/m³	Compaction %	MC %	Air Voids %	Plot and Grid	Level	Test No.	SRD
N	2324	2174	95.8	6.9	4.5	Bus Hub Slab	Layer 2	9	
S	2318	2179	96.0	6.4	5.4			AOD	
E	2324	2172	95.7	7.0	4.4	4		E	
W	2312	2133	94.0	8.4	3.1			N	
Mean	**2320**	**2164**	**95.4**	**7.2**	**4.4**				
N	2355	2220	97.8	6.1	4.3	Bus Hub Slab	Layer 2	10	
S	2376	2254	99.3	5.4	4.3			AOD	
E	2371	2226	98.1	6.5	3.1	3		E	
W	2371	2237	98.5	6.0	3.7			N	
Mean	**2368**	**2234**	**98.4**	**6.0**	**3.9**				
N	2341	2215	97.6	5.7	5.3	Bus Hub Slab	Layer 2	11	
S	2371	2241	98.7	5.8	4.0			AOD	
E	2372	2261	99.6	4.9	5.2	2		E	
W	2347	2231	98.3	5.2	5.8			N	
Mean	**2358**	**2237**	**98.6**	**5.4**	**5.1**				
N	2373	2216	97.6	7.1	2.2	Bus Hub Slab	layer 2	12	
S	2354	2214	97.6	6.3	4.0			AOD	
E	2388	2244	98.9	6.4	2.5	1		E	
W	2296	2185	96.2	5.1	7.9			N	
Mean	**2353**	**2215**	**97.6**	**6.2**	**4.2**				
N	2397	2274	100.2	5.4	3.5	Bus Hub Slab	layer 3	13	
S	2388	2268	99.9	5.3	4.0			AOD	
E	2382	2269	99.9	5.0	4.6	6		E	
W	2349	2246	98.9	4.6	6.5			N	
Mean	**2379**	**2264**	**99.7**	**5.1**	**4.7**				
N	2349	2179	96.0	7.8	2.3	Bus Hub Slab	Layer 3	14	
S	2323	2167	95.5	7.2	4.1			AOD	
E	2306	2147	94.6	7.4	4.6	5		E	
W	2400	2264	99.7	6.0	2.6			N	
Mean	**2345**	**2189**	**96.5**	**7.1**	**3.4**				
N	2343	2208	97.3	6.1	4.7	Bus Hub Slab	Layer 3	15	
S	2342	2193	96.6	6.8	3.9			AOD	
E	2351	2210	97.3	6.4	4.0	4		E	
W	2332	2200	96.9	6.0	5.3			N	
Mean	**2342**	**2203**	**97.0**	**6.3**	**4.5**				

Kiwa CMT

Nuclear Density Testing

in accordance with Documented In-House Method SO35 and BS1377-9:1990

Job Nº:	080425-04	**Client Ref:**	2417/kiwa	**Date:**	10/04/25	**Weather:**	Dry
Client:	Dowling Civil Eng			**Tech Name:**	John Macintyre		
Site:	Heckmondwike Bus Hub Fold West Yorkshire 0HH Royale WF16			**Max DD/OMC Source:**	Client		
				MDD: 2270	**PD:** 2.7	**OMC:** 7	%
				Density offset:	0	**Moisture offset:**	0 %
				Test depth, mm:	200	**Time:**	15 secs
Material:	Crushed Aggregate / Compaction trial			**New MS:**	684	**% Difference:**	0.1 %
				New DS:	1557	**% Difference:**	0 %

Nº	Wet Density kg/m³	Dry Density kg/m³	Compaction %	MC %	Air Voids %	Plot and Grid	Level	Test No.	SRD
N	2322	2176	95.9	6.7	4.8	Bus Hub Slab	Layer 3	16	
S	2344	2197	96.8	6.7	3.9			AOD	
E	2315	2153	94.9	7.5	4.1	3		E	
W	2300	2134	94.0	7.8	4.3			N	
Mean	**2320**	**2165**	**95.4**	**7.2**	**4.3**				
N	2334	2169	95.6	7.6	3.2	Bus Hub Slab	Layer 3	17	y
S	2324	2197	96.8	5.8	5.9			AOD	
E	2293	2145	94.5	6.9	5.8	2		E	
W	2321	2143	94.4	8.3	2.8			N	
Mean	**2318**	**2163**	**95.3**	**7.2**	**4.4**				
N	2346	2226	98.1	5.4	5.5	Bus Hub Slab	layer 3	18	
S	2302	2164	95.3	6.4	6.0			AOD	
E	2354	2204	97.1	6.8	3.4	1		E	
W	2372	2215	97.6	7.1	2.2			N	
Mean	**2344**	**2202**	**97.0**	**6.4**	**4.3**				
N	2371	2197	96.8	7.9	1.3	Bus Hub Slab	layer 4	19	
S	2433	2276	100.3	6.9	0.0			AOD	
E	2418	2262	99.6	6.9	0.6	6		E	
W	2447	2302	101.4	6.3	0.2			N	
Mean	**2417**	**2259**	**99.5**	**7.0**	**0.5**				
N	2371	2226	98.1	6.5	3.1	Bus Hub Slab	layer 4	20	
S	2392	2246	98.9	6.5	2.2			AOD	
E	2408	2276	100.3	5.8	2.5	5		E	
W	2396	2263	99.7	5.9	2.9			N	
Mean	**2392**	**2253**	**99.3**	**6.2**	**2.7**				
N	2345	2219	97.7	5.7	5.2	Bus Hub Slab	layer 4	21	
S	2317	2132	93.9	8.7	2.5			AOD	
E	2374	2229	98.2	6.5	3.0	4		E	
W	2412	2273	100.1	6.1	1.9			N	
Mean	**2362**	**2213**	**97.5**	**6.8**	**3.2**				
N	2388	2268	99.9	5.3	4.0	2220	layer 4	22	
S	2382	2269	99.9	5.0	4.6			AOD	
E	2393	2247	99.0	6.5	2.2	3		E	
W	2408	2276	100.3	5.8	2.5			N	
Mean	**2393**	**2265**	**99.8**	**5.7**	**3.3**				

Kiwa CMT

Certificate for Determination of Moisture Content

Client: Dowling Civil Engineering

Site: Hecknondike Bus Hub

Lab Ref: 080425-04

Date of Test: 08-Apr-25

Test Method: **BS 1377-2:1990**

Results:

Sample Ref	Material Description	MC %
1 Layer 1	Crushed stone	5.7
2 Layer 3	Crushed stone	5.0
3 Layer 4	Crushed stone	4.8

The samples tested were disturbed and in their natural condition.
MC = Moisture Content

Kiwa CMT

UKAS TESTING 0529

Signed by: D. Newton
Laboratory Supervisor

Kiwa CMT

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Client: Dowling Civil Engineering Ltd.
Unit G, Westminster Trading Estate
Station Road
North Hykeham
Lincolnshire
LN6 3QY

Date: 22nd April 2025

Lab Ref: 160425-06

Originator: Shaun Geraghty

Order Ref: 2417/KIWA

Site: RG Carter (Heckmonwike Bus Hub), Royale Fold, Heckmondwike WF16 0HS

Requirements:

Attend the above site on 16th & 17th April 2025 in order to carry out the following:

- 1No. Sand Replacement Density Tests in accordance with **BS1377-9:1990**
- 14No. Nuclear Density Testing in accordance with **Documented In-House Method** SO35 and **BS1377:1990** (not UKAS accredited)
- 4No. Plate bearings for equivalent CBR% tests to evaluate the modulus of sub-grade reaction 'k' and estimate the equivalent CBR percentage in accordance with Interim Advice Note (IAN) 73/06 Revision 1 (2009).
- 2No. Plate bearings for Settlement tests in accordance with **BS1377-9:1990**
- Take 1No. sample for Moisture Content test in accordance with **BS1377-2:1990**

Results:

The individual result sheets may be viewed on pages 2 to 11 of this report and test results relate only to the locations/items tested.

Kiwa CMT

Author: L Anaz
Technical Administrator

Checked and Approved by: R. Cartlidge
Department Head

Kiwa CMT

Sand Replacement Density Test

Client: Dowling Civil Engineering

Weather: Dry

Lab Ref: 160425-06

Test Date: 16th April 2025

^Site Heckmondwike Bus Hub
Royale Fold

^Sample Ref:	^Sample Description:	^Location	Bulk Density (Mg/m³)	Dry Density (Mg/m³)	Moisture Content %	Compaction
1	Crushed stone	Loc. 5 Layer 6	2.29	2.19	4.5	96%

^Max Dry Density 2.27 Mg/m3

Comments: All tests carred out in accordance with **BS1377: Part 9: Clause 2.2: 1990**

Information supplied by the customer indicated by ^ may affect the validity of the results.
Results relate only to the samples tested and presented.

Kiwa CMT

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Signed by: D Newton
Laboratory Supervisor

Kiwa CMT

Nuclear Density Testing

in accordance with Documented In-House Method SO35 and BS1377-9:1990

Reading at surface of transport case prior to departure from site, uSv/hr (approx. 50)	50

Job Nº:	160425-06	**Client Ref:**	2417/kiwa	**Date:**	16/04/25	**Weather:**	Dry		
Client:	Dowling Civil Eng			**Tech Name:**	John Macintyre				
Site:	Heckmondwike Bus Hub Royale Fold West Yorkshire WF16 0HH			**Max DD/OMC Source:**	Client				
				MDD:	2270	**PD:**	2.7	**OMC:**	7 %
				Density offset:				**Moisture offset:**	%
				Test depth, mm:	200			**Time:**	15 secs
Material:	Crushed Aggregate / Compaction trial			**New MS:**	686			**% Difference:**	0.8 %
				New DS:	1558			**% Difference:**	0.2 %

Nº	Wet Density kg/m³	Dry Density kg/m³	Compaction %	MC %	Air Voids %	Plot and Grid	Level	Test No.	SRD
N	2382	2235	98.5	6.6	2.6	Bus Hub Slab	Layer 4	23	
S	2370	2275	100.2	4.2	6.2			AOD	
E	2353	2206	97.2	6.7	3.6	1		E	
W	2349	2197	96.8	6.9	3.4			N	
Mean	**2364**	**2228**	**98.2**	**6.1**	**4.0**				
N	2380	2249	99.1	5.8	3.6	Bus Hub Slab	Layer 4	24	
S	2302	2181	96.1	5.5	7.1			AOD	
E	2356	2232	98.3	5.5	5.0	2		E	
W	2380	2279	100.4	4.4	5.5			N	
Mean	**2355**	**2235**	**98.5**	**5.3**	**5.3**				
N	2374	2256	99.4	5.2	4.6	Bus Hub Slab	Layer 5	25	
S	2438	2274	100.2	7.2	-0.5			AOD	
E	2300	2125	93.6	8.3	3.8	6		E	
W	2390	2223	97.9	7.5	1.0			N	
Mean	**2376**	**2220**	**97.8**	**7.1**	**2.2**				
N	2390	2214	97.5	7.9	0.5	Bus Hub Slab	layer 5	26	
S	2323	2188	96.4	6.2	5.4			AOD	
E	2321	2192	96.5	5.9	5.9	5		E	
W	2291	2142	94.4	7.0	5.7			N	
Mean	**2331**	**2184**	**96.2**	**6.8**	**4.4**				
N	2362	2158	95.1	9.5	-0.3	Bus Hub Slab	Llayer 5	27	
S	2332	2157	95.0	8.1	2.6			AOD	
E	2390	2205	97.1	8.4	-0.2	4		E	
W	2421	2264	99.8	6.9	0.5			N	
Mean	**2376**	**2196**	**96.8**	**8.2**	**0.7**				
N	2329	2133	94.0	9.2	1.4	Bus Hub Slab	Layer 5	28	
S	2358	2186	96.3	7.9	1.8			AOD	
E	2352	2178	95.9	8.0	1.9	3		E	
W	2343	2165	95.4	8.2	2.0			N	
Mean	**2346**	**2166**	**95.4**	**8.3**	**1.8**				
N	2372	2248	99.1	5.5	4.3	Bus Hub Slab	Layer 5	29	
S	2361	2244	98.9	5.2	5.2			AOD	
E	2390	2275	100.2	5.1	4.2	2		E	
W	2347	2220	97.8	5.7	5.1			N	
Mean	**2368**	**2247**	**99.0**	**5.4**	**4.7**				

Kiwa CMT

Nuclear Density Testing

in accordance with Documented In-House Method SO35 and BS1377-9:1990

Job Nº:	160425-06	**Client Ref:**	2417/kiwa	**Date:**	16/04/25	**Weather:**	Dry		
Client:	Dowling Civil Eng			**Tech Name:**	John Macintyre				
Site:	Heckmondwike Bus Hub Royale Fold West Yorkshire WF16 0HH			**Max DD/OMC Source:**	Client				
				MDD:	2270	**PD:**	2.7	**OMC:**	7 %
				Density offset:	0	**Moisture offset:**	0 %		
				Test depth, mm:	200	**Time:**	15 secs		
Material:	Crushed Aggregate / Compaction trial			**New MS:**	686	**% Difference:**	0.8 %		
				New DS:	1558	**% Difference:**	0.2 %		

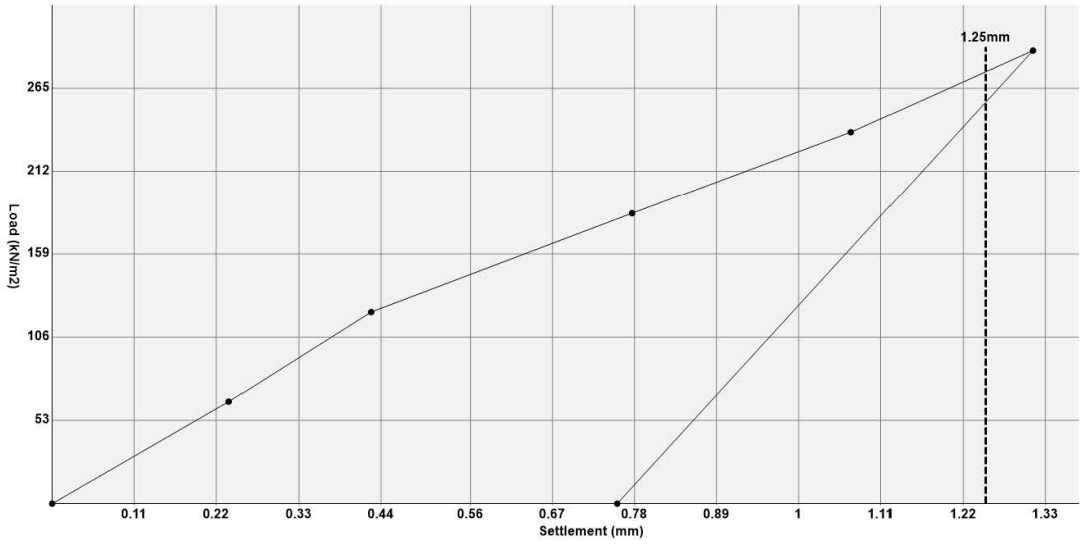
Nº	Wet Density kg/m³	Dry Density kg/m³	Compaction %	MC %	Air Voids %	Plot and Grid	Level	Test No.	SRD
N	2398	2225	98.0	7.8	0.3	Bus Hub Slab	Layer 5	30	
S	2361	2185	96.3	8.0	1.5			AOD	
E	2344	2197	96.8	6.7	3.9	1		E	
W	2318	2163	95.3	7.2	4.4			N	
Mean	**2355**	**2193**	**96.6**	**7.4**	**2.5**				
N	2334	2203	97.1	5.9	5.3	Bus Hub Slab	Layer 6 F/L	31	
S	2394	2261	99.6	5.9	2.9			AOD	
E	2407	2253	99.3	6.8	1.2	6		E	
W	2385	2271	100.0	5.0	4.5			N	
Mean	**2380**	**2247**	**99.0**	**5.9**	**3.5**				
N	2420	2289	100.8	5.7	2.1	Bus Hub Slab	Layer 6 F/L	32	y
S	2409	2231	98.3	8.0	-0.4			AOD	
E	2336	2186	96.3	6.8	4.1	5		E	
W	2352	2214	97.5	6.2	4.2			N	
Mean	**2379**	**2230**	**98.2**	**6.7**	**2.5**				
N	2377	2267	99.9	4.8	5.1	Bus Hub Slab	Layer 6 F/L	33	
S	2321	2193	96.6	5.8	6.0			AOD	
E	2368	2234	98.4	6.0	3.0	4		E	
W	2392	2241	98.7	6.7	1.9			N	
Mean	**2365**	**2234**	**98.4**	**5.8**	**4.0**				
N	2334	2199	96.6	6.2	5.0	Bus Hub Slab	Layer 6 F/L	34	
S	2430	2284	100.6	6.4	0.7			AOD	
E	2400	2269	100.0	5.8	2.9	3		E	
W	2419	2268	99.9	6.7	0.9			N	
Mean	**2396**	**2255**	**99.3**	**6.3**	**2.4**				
N	2331	2184	96.2	6.7	4.4	Bus Hub Slab	Layer 6 F/L	35	
S	2397	2280	100.4	5.1	3.9			AOD	
E	2393	2236	98.5	7.0	1.5	2		E	
W	2382	2241	98.7	6.3	2.9			N	
Mean	**2376**	**2235**	**98.5**	**6.3**	**3.2**				
N	2371	2203	97.1	7.6	1.6	Bus Hub Slab	Layer 6 F/L	36	
S	2371	2214	97.5	7.1	2.3			AOD	
E	2351	2233	98.4	5.3	5.5	1		E	
W	2373	2244	98.8	5.8	3.9			N	
Mean	**2367**	**2224**	**98.0**	**6.5**	**3.3**				

Kiwa CMT

600mm Diameter Plate Test

Client:	Dowling Civil Engineering Ltd	**Material Type:**	crushed stone
Site:	Heckmondwike Bus Hub Royale Fold West Yorkshire	**Test No:**	CBR Test 1
		^ **Test Location:**	Loc 1 Layer 6 F/L
Lab Ref.:	160425-06	**Layer:**	Laid
Kentledge:	25 Tonne Digger	^ **Road No:**	^ **Chainage:**
Conditions:	Dry	**Date of Test:**	17/04/2025

Pressure (kN/m2)	Settlement (mm)
0	0.00
65	0.24
122	0.43
185	0.78
237	1.07
289	1.31
0	0.76



Test Method: Interim Advice Note (IAN) 73/06 Revision 1 (2009)

Result: Modulus of Sub grade Reaction k762 = **178830 kN/m2/m**
Equivalent CBR = **77.2 %**

Comments: Information marked by ^ supplied by the client can affect the validity of the results, these apply only to the locations provided.

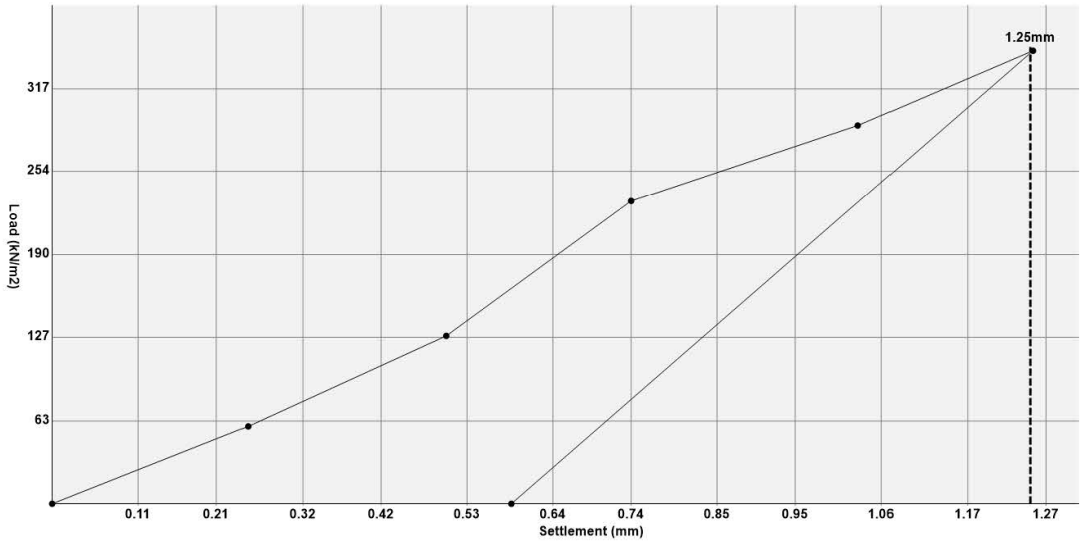
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Kiwa CMT

600mm Diameter Plate Test

Client:	Dowling Civil Engineering Ltd	**Material Type:**	crushed stone
Site:	Heckmondwike Bus Hub Royale Fold West Yorkshire	**Test No:**	CBR Test 2
		^ **Test Location:**	Loc 2 Layer 6 F/L
Lab Ref.:	160425-06	**Layer:**	Laid
Kentledge:	25 Tonne Digger	^ **Road No:**	^ **Chainage:**
Conditions:	Dry	**Date of Test:**	17/04/2025

Pressure (kN/m2)	Settlement (mm)
0	0.00
59	0.25
128	0.50
231	0.74
289	1.03
346	1.25
0	0.59



Test Method: Interim Advice Note (IAN) 73/06 Revision 1 (2009)

Result: Modulus of Sub grade Reaction k762 = **224350 kN/m2/m**
Equivalent CBR = **> 99 %**

Comments: Information marked by ^ supplied by the client can affect the validity of the results, these apply only to the locations provided.

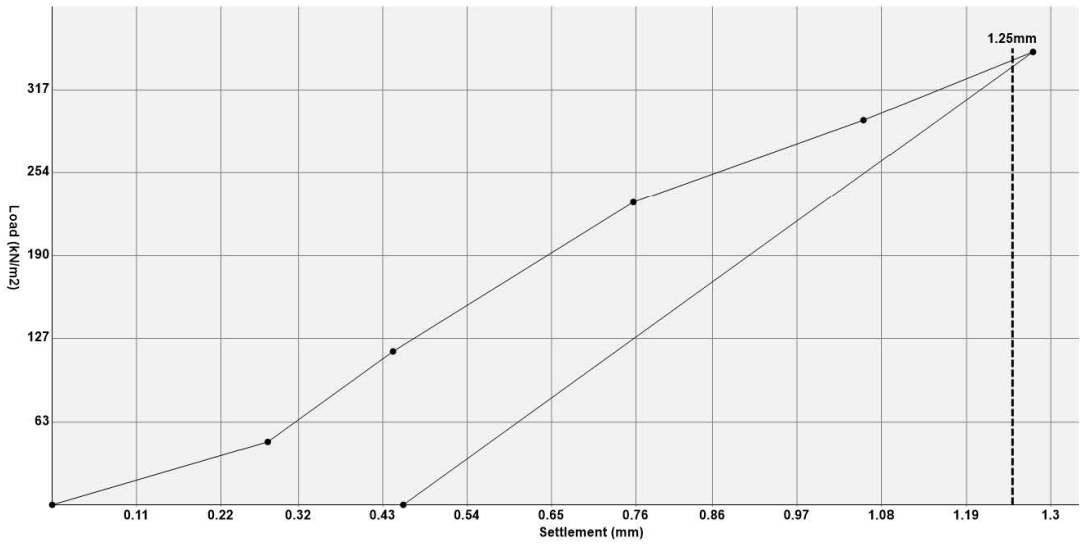
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Kiwa CMT

600mm Diameter Plate Test

Client:	Dowling Civil Engineering Ltd	**Material Type:**	crushed stone
Site:	Heckmondwike Bus Hub Royale Fold West Yorkshire	**Test No:**	CBR Test 3
		^ **Test Location:**	-Loc 3 Layer 6 F/L
Lab Ref.:	160425-06	**Layer:**	Laid
Kentledge:	25 Tonne Digger	^ **Road No:**	^ **Chainage:**
Conditions:	Dry	**Date of Test:**	17/04/2025

Pressure (kN/m2)	Settlement (mm)
0	0.00
48	0.28
117	0.44
231	0.76
294	1.06
346	1.28
0	0.46



Test Method: Interim Advice Note (IAN) 73/06 Revision 1 (2009)

Result: Modulus of Sub grade Reaction k762 = **221099 kN/m2/m**
Equivalent CBR = **> 99 %**

Comments: Information marked by ^ supplied by the client can affect the validity of the results, these apply only to the locations provided.

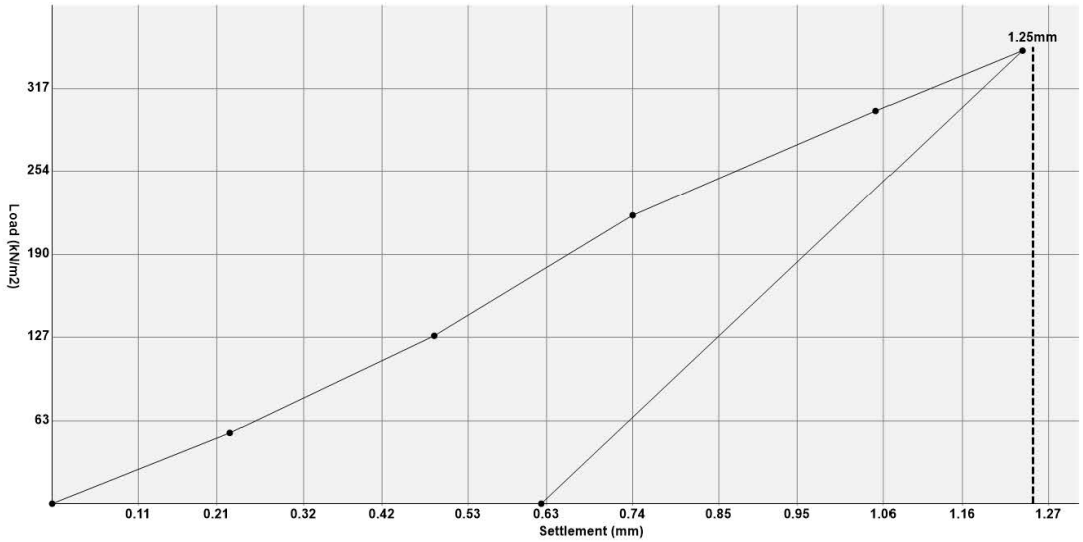
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Kiwa CMT

600mm Diameter Plate Test

Client:	Dowling Civil Engineering Ltd	**Material Type:**	crushed stone
Site:	Heckmondwike Bus Hub Royale Fold West Yorkshire	**Test No:**	CBR Test 4
		^ **Test Location:**	Loc 4 Layer 6 F/L
Lab Ref.:	160425-06	**Layer:**	Laid
Kentledge:	25 Tonne Digger	^ **Road No:**	^ **Chainage:**
Conditions:	Dry	**Date of Test:**	17/04/2025

Pressure (kN/m2)	Settlement (mm)
0	0.00
54	0.23
128	0.49
220	0.74
300	1.05
346	1.24
0	0.62



Test Method: Interim Advice Note (IAN) 73/06 Revision 1 (2009)

Result: Modulus of Sub grade Reaction k762 = **>225000 kN/m2/m**
Equivalent CBR = **> 99 %**

Comments: Information marked by ^ supplied by the client can affect the validity of the results, these apply only to the locations provided.

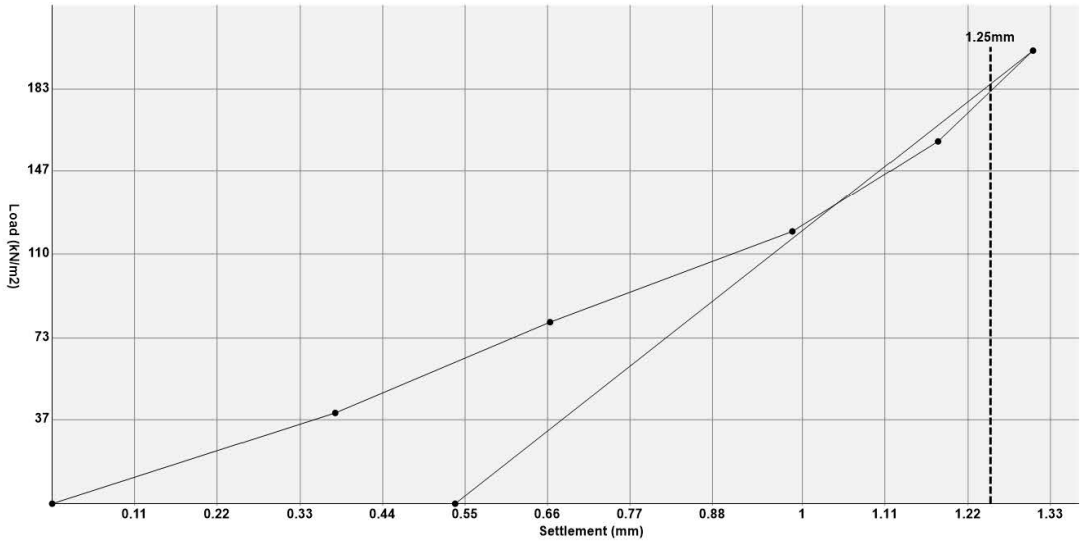
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Kiwa CMT

600mm Diameter Plate Test

Client:	Dowling Civil Engineering Ltd	**Material Type:**	Crushed Aggregates
Site:	Heckmondwike Bus Hub Royale Fold West Yorkshire	**Test No:**	Settlement Test 1
		^ **Test Location:**	Loc 1 crane pad
Lab Ref.:	160425-06	**Layer:**	Formation
Kentledge:	25 Tonne Digger	^ **Road No:**	^ **Chainage:**
Conditions:	Dry	**Date of Test:**	17/04/2025

Pressure (kN/m2)	Settlement (mm)	Time (Mins)
0	0.00	0
40	0.38	5
80	0.66	5
120	0.99	10
160	1.18	5
200	1.31	10
0	0.54	10



Test Method: BS1377:Part 9:1990

Result: Modulus of Sub grade Reaction k762 = **118353 kN/m2/m**
Equivalent CBR = **37.8 % (1.31mm @200kN/m2)**

Comments: Information marked by ^ supplied by the client can affect the validity of the results, these apply only to the locations provided.

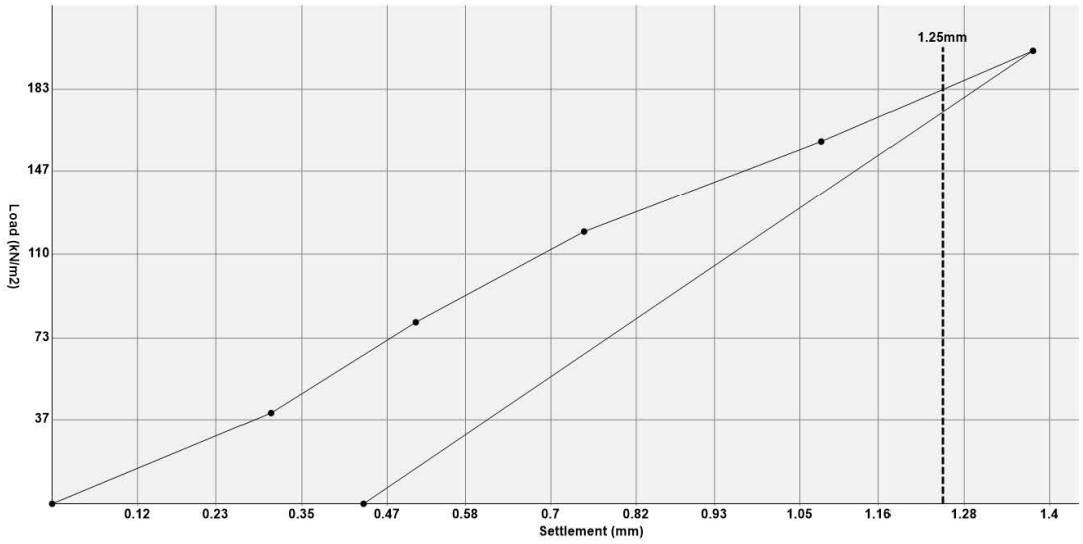
UKAS TESTING
0529

Kiwa CMT

600mm Diameter Plate Test

Client:	Dowling Civil Engineering Ltd	**Material Type:**	Crushed Aggregates
Site:	Heckmondwike Bus Hub Royale Fold West Yorkshire	**Test No:**	Settlement Test 2
		^ **Test Location:**	Loc 2 Crane Pad
Lab Ref.:	160425-06	**Layer:**	Formation
Kentledge:	25 Tonne Digger	^ **Road No:**	^ **Chainage:**
Conditions:	Dry	**Date of Test:**	17/04/2025

Pressure (kN/m2)	Settlement (mm)	Time (Mins)
0	0.00	0
40	0.31	10
80	0.51	5
120	0.75	10
160	1.08	10
200	1.38	10
0	0.44	10



Test Method: BS1377:Part 9:1990

Result: Modulus of Sub grade Reaction k762 = **119003 kN/m2/m**
Equivalent CBR = **38.1 % (1.38mm @200kN/m2)**

Comments: Information marked by ^ supplied by the client can affect the validity of the results, these apply only to the locations provided.

UKAS TESTING
0529

Kiwa CMT

Certificate for Determination of Moisture Content

Client: Dowling Civil Engineering

Site: Heckmondwike Bus Hub
Royale Fold

Lab Ref: 160425-06

Date of Test: 16-Apr-25

Test Method: **BS 1377-2:1990**

Results:

Sample Ref	Material Description	MC %
Layer 6	Crushed stone	5.7

The samples tested were disturbed and in their natural condition.
MC = Moisture Content

Kiwa CMT

UKAS TESTING
0529

Signed by: D. Newton
Laboratory Supervisor

Appendix VIII – Testing Email Correspondence

evolve
GEO-ENVIRONMENTAL

From: David Spencer
To: Paul Huteson; Phil Webb
Cc: Carl Greenwood; Jo Gray; Lee Sorrell
Subject: FW: New Bus Station, Heckmondwike -GC-24 Hub Fill Data
Date: 29 April 2025 12:55:11
Attachments: image001.png
image007.png
image008.png
image009.png
bd19a5bd-e77c-4bd6-be13-062e5b203c60.png
LinkedIn_5616890b-dfdd-4093-9332-2edcc7ea468d.png
Instagram_1b7a08a2-b264-478b-9adc-da18bf57f133.png
250415 RGC Hub Foundation Fill Tickets.pdf
Importance: High

Good Afternoon,

Could you assist us with the below please? We are currently unsure as to exactly what they are asking for us and it doesn't seem to make much sense. Mainly the part about the NDT and SRD results.

Could you please read and comment on it for us please.

Kind regards
David

David Spencer
Assistant Project Manager

CARTER

R G Carter
Regatta Building
Henley Way
Lincoln
Lincolnshire, LN6 3QR

01522 561540
07342 093310
www.rgcarter-construction.co.uk

From: Johnson, Ian <Ian.Johnson2@wsp.com>
Sent: 29 April 2025 11:37
To: David Spencer <David.Spencer@rgcarter.co.uk>; Lee Sorrell <Lee.Sorrell@rgcarter.co.uk>
Cc: Thompson, Ben <Ben.Thompson@wsp.com>; Khan, Rawaz <Rawaz.Khan1@wsp.com>; john.macintyre@kiwa.com
Subject: Re: New Bus Station, Heckmondwike -GC-24 Hub Fill Data
Importance: High

David,

I thought this one had gone away?

I do not seem to have a response from you in my mailer?

Raz has since confirmed that the infill material was type 6F5 quarried (clean material) as the attached delivery notes, but if this is the case, Ben advises that it doesn't meet the specified requirements (Class 1A, Class 6N or Type 1 fill). However, he says that it may be possible for the Class 6F5 to also classify as a Class 1A…i.e. meet the specified requirements for that material. Please can you verify what class of material you used and, if it was 6F5, can it be reclassified as Class 1A?

Ben has since noted that all of the NDT results are >95%, so they seem to include the re-test results. However, the SRD testing is the issue now. These are lab calculated density results -and so are not re-tested. However, these should be used to calibrate the NDT results.

Please can you respond, so that we can close this out?

Ian

Ian Johnson

Associate Director

BA hons, Dip. Arch, Prince2, ARB, RIBA

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!! ATTENTION: This email originated outside of the R G Carter Group. Please exercise caution when opening attachments or clicking links !!

From: Johnson, Ian <Ian.Johnson2@wsp.com>
Sent: Thursday, April 24, 2025 15:07
To: David Spencer <David.Spencer@rgcarter.co.uk>; Lee Sorrell <Lee.Sorrell@rgcarter.co.uk>
Cc: Thompson, Ben <Ben.Thompson@wsp.com>; Khan, Rawaz <Rawaz.Khan1@wsp.com>; john.macintyre@kiwa.com <john.macintyre@kiwa.com>
Subject: New Bus Station, Heckmondwike -GC-24 Hub Fill Data

David / Lee,

I am sharing this e-mail with you in advance of receiving Raz's comments

Having had a discussion with Ben, some of the results are slightly lower than expected

Green text means the results are OK
Orange text means that there are a few concerns (underlining is my emphasis)
Red text means that we require commentary from you (John) please?

Our view is that although some of the results are marginally out, the risk is low. However before we can close this out, we need the input that we have requested for our records

Regards,

Ian

Ian Johnson

Associate Director

BA hons, Dip. Arch, Prince2, ARB, RIBA

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From: Thompson, Ben
Sent: Thursday, April 24, 2025 14:40
To: Johnson, Ian; Khan, Rawaz
Cc: Ratan, Akanksha
Subject: RE: LN0112 - LN0112 - YORBuild3 - New Bus Station, Heckmondwike

Ian/Raz,

I have reviewed the in situ test data provided and note the following:

- HSV testing of the exposed formation:
  - The number of tests and the results appear to meet the requirements for testing the exposed formation set out within the specification.
- Testing from 09/10 April (Layers 1 to 4):
  - Moisture content testing suggests one of the three test results is below the required OMC±2% (4.8%), albeit very marginally (compared to a lower limit of 4.9%).
  - Sand Replacement Density (SRD) testing suggests three of the seven tests results are below the required 95% compaction (93, 93, 94%)?
  - The Nuclear Density Testing (NDT) results all meet the required 95% compaction, although six of the test results (Layers 1 and 2, 5.4-6.7%) are above the required max 5% air voids.
- Testing from 16/17 April (Layers 4 to 6):
  - The SRD testing result meets the required 95% compaction.
  - Moisture content testing result meets the required OMC±2%.
  - The NDT results all meet the required 95% compaction, with one of the test results (Layer 4, 5.3%) being above the required max 5% air voids.
  - The Plate Load testing results all meet the required >2.5% CBR and >30kN/m^2/mm drained modulus of subgrade reaction.

This does raise the following questions/requests, which would be good to get the contractor's consultant's opinion on please:

- Have the NDT results been calibrated against the SRD results? Do the NDT results in general need to be amended to take account of the SRD results?
- Commentary on the significance of these lower density results (and the potential impact, or lack thereof, on the proposed infrastructure above) is requested please.

Regarding the air voids being higher than required in some cases - as the material appears to have been placed dry of optimum, and the air voids are all less than 7%, we would generally consider the air voids to be acceptable in this instance.

Regarding material source testing:

- We appear to still be missing one moisture content result for the fill used. However, as we now have further moisture content testing for the materials on site, this is considered acceptable.
- The source datasheet we've received is for a Class 6F5 fill, rather than a Class 1A. Can it please be confirmed that it has been imported as a Class 1A in line with the specification?

Regards

Ben Thompson

Associate Director – Geotechnics & Tunnelling

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Registered office: WSP House, 70 Chancery Lane, London, WC2A 1AF.

From: Johnson, Ian <Ian.Johnson2@wsp.com>
Sent: 23 April 2025 10:45
To: Khan, Rawaz <Rawaz.Khan1@wsp.com>
Cc: Thompson, Ben <Ben.Thompson@wsp.com>; David Spencer <David.Spencer@rgcarter.co.uk>; Lee Sorrell <Lee.Sorrell@rgcarter.co.uk>; Ratan, Akanksha <Akanksha.Ratan@wsp.com>; Timothy Fawcett <timothy.fawcett@kirklees.gov.uk>; Ilyas Ramjan <ilyas.ramjan@kirklees.gov.uk>
Subject: Fw: LN0112 - LN0112 - YORBuild3 - New Bus Station, Heckmondwike

Raz,

For your review too please?

Ian

Ian Johnson

Associate Director

BA hons, Dip. Arch, Prince2, ARB, RIBA

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From: David Spencer <David.Spencer@rgcarter.co.uk>
Sent: Wednesday, April 23, 2025 10:25
To: Johnson, Ian <Ian.Johnson2@wsp.com>; Thompson, Ben <Ben.Thompson@wsp.com>
Cc: Carl Greenwood <Carl.Greenwood@rgcarter.co.uk>; Lee Sorrell <Lee.Sorrell@rgcarter.co.uk>; Fouda, Ahmed <Ahmed.M.Fouda@wsp.com>
Subject: LN0112 - LN0112 - YORBuild3 - New Bus Station, Heckmondwike

Please find attached testing data for the HUB fill exercise.

We intend to commence the foundation this coming Thursday (24th April), with that in mind, could you review the data and advise accordingly by close of play if possible

Many thanks

David Spencer
Assistant Project Manager

CARTER

R G Carter
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