EXPLORATION
& TESTING ASSOCIATES

Unit 8B Bowburn South Industrial Estate
Durham, DH6 5AD T: 0191 389 6543

UKAS TESTING

Test Report

Client	Groundwork Services (Durham) Limited
Address	Littleburn Industrial Estate Langley Moor Durham DH7 8HJ
F.A.O	Paul Barton
Project:	Giga One Factory, Washington
Project Number:	D10557V
Report Number:	L22-522
Date Received:	8th July 2022

Testing Required:	Insitu Density by Core Cutter - BS:1377-9:1990 Clause 2.3 Vertical Deformation and Strength Characteristics by the Incremental Plate Load Test - BS:1377-9:1990 Clause 4.1 Determination of Equivalent CBR Value using the Plate Bearing Test - Design Manual for Roads and Bridges, Volume 7: Pavement Design and Maintenance - Foundations HD25/9
Date Started:	8th July 2022
Date Finished:	11th July 2022

Report Issue Date:	8th July 2022
Reviewed By:	Natalie Hodson - Materials Director
Authorised By:	Nik O'Brien - Laboratory Manager
Remarks:	(*) denotes testing is outside of UKAS Scope of Accreditation. (+) denotes subcontracted testing.

Samples will be stored for one month after the report has been issue before being disposed of.

The published results appertain only to the specimens tested.

EXPLORATION & TESTING ASSOCIATES

Summary of in-situ density test results

Project No.	Project Name
D10557V	Giga One, Envision, Washington

Test Position Reference	Test reference	Depth to top m	Date of test	Soil Description	Site conditions during test	Test Type see below	In-situ Bulk Density Mg/m^3	Moisture Content %	In-situ Dry Density Mg/m^3	Remarks
E481841_N 54925064	CC223		08/07/22	Clay	Sunny	CCD	1.90	30	1.47	
E481731_N 5492543	CC224		08/07/22	Clay	Sunny	CCD	1.89	15	1.64	
E481814_N 54924981	CC225		08/07/22	Clay	Sunny	CCD	2.00	18	1.70	
E482126_N 54925029	CC226		08/07/22	Clay	Sunny	CCD	2.07	17	1.77	
E481810_N 54923248	CC227		08/07/22	Clay	Sunny	CCD	1.96	17	1.68	
E481570_N 54923160	CC228		08/07/22	Clay	Sunny	CCD	2.05	22	1.68	
E482201_N 54924756	CC229		08/07/22	Clay	Sunny	CCD	2.16	11	1.95	
E482256_N 54924947	CC230		08/07/22	Clay	Sunny	CCD	1.96	18	1.66	
E482267_N 54925526	CC231		08/07/22	Clay	Sunny	CCD	2.03	18	1.72	
E481899_N 54925036	CC232		08/07/22	Clay	Sunny	CCD	2.00	17	1.70	
E433274_N 559069	CC233		08/07/22	Clay	Sunny	CCD	2.06	17	1.76	
E481731_N 549255	CC234		08/07/22	Clay	Sunny	CCD	2.03	18	1.72	

Specifications

BS 1377 : Part 2 : 1990 Clause 3 Moisture content by oven drying method
BS 1377 : Part 9 : 1990 : In situ density tests, clauses :
SRDS 2.1 Sand replacement method (Small pouring cylinder)
SRDL 2.2 Sand replacement method (Large pouring cylinder)
CCD 2.4 Core cutter method

Approved By

Date 11/07/2022

N Hodson

Materials Director

UKAS Accredited Laboratory No. 20632

EXPLORATION & TESTING ASSOCIATES

Summary of in-situ density test results

Project No.	Project Name
D10557V	Giga One, Envision, Washington

Test Position Reference	Test reference	Depth to top m	Date of test	Soil Description	Site conditions during test	Test Type see below	In-situ Bulk Density Mg/m^3	Moisture Content %	In-situ Dry Density Mg/m^3	Remarks
E482201_N 54924756	CC235		08/07/22	Clay	Sunny	CCD	2.07	15	1.80	
E482055_N 54924970	CC236		08/07/22	Clay	Sunny	CCD	2.01	16	1.73	
E482426_N 54925160	CC237		08/07/22	Clay	Sunny	CCD	2.00	14	1.75	
E481904_N 54925155	CC238		08/07/22	Clay	Sunny	CCD	2.12	16	1.83	
E482111_N 54925199	CC239		08/07/22	Clay	Sunny	CCD	2.02	15	1.75	
E481962_N 54925007	CC240		08/07/22	Clay	Sunny	CCD	1.98	17	1.70	
E482046_N 54925092	CC241		08/07/22	Clay	Sunny	CCD	1.96	20	1.64	
E482267_N 54925326	CC242		08/07/22	Clay	Sunny	CCD	2.05	21	1.69	
E481996_N 54924929	CC243		08/07/22	Clay	Sunny	CCD	1.99	20	1.66	
E481971_N 54925113	CC244		08/07/22	Clay	Sunny	CCD	2.05	17	1.76	
E481712_N 54923118	CC245		08/07/22	Clay	Sunny	CCD	2.01	21	1.67	

Specifications

BS 1377 : Part 2 : 1990 Clause 3 Moisture content by oven drying method
BS 1377 : Part 9 : 1990 : In situ density tests, clauses :
SRDS 2.1 Sand replacement method (Small pouring cylinder)
SRDL 2.2 Sand replacement method (Large pouring cylinder)
CCD 2.4 Core cutter method

Approved By

N Hodson

Materials Director

Date

11/07/2022

UKAS Accredited Laboratory No. 20632

Unit 8B, Bowburn South Industrial Estate
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Tel. (+44) 0191 389 6543

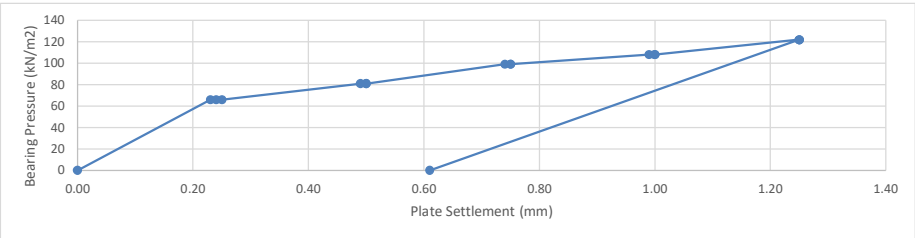
Test Report

Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing

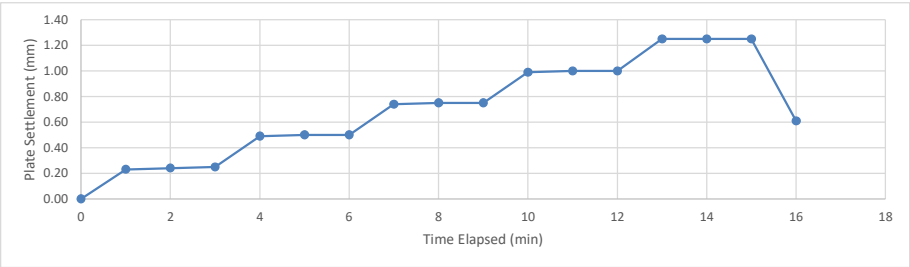
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557U
Client	Groundwork Services (Durham) Limited	**Date Tested**	08/07/2022
	Thistle Road	**Weather Conditions**	Sunny, Dry
	Littleburn Industrial Estate	**Air Temperature °C**	19°C
	Langley Moor	**Sample Description**	Clay
	DH7 8HJ	**Reaction Load**	21t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	450	**Test Location**	549222 / 483465
Distance between the edge of the plate and the wall of the excavation (mm)		N/A	

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	122	**Maximum Deformation (mm)**	1.25
Pressure at 1.25mm penetration (kPa)	122	**Modulus of Subgrade Reaction (Mn/M²/M)**	60.8
Calculated CBR (%) at 1.25mm	12		

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been caluclated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superseded document HD 25/94

Comments:

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

The published results are appertaining only to the locations tested and are correct at the time of testing.

Test Carried Out By:

M. Smith

Materials Technician

Approved By:

Materials Director

Approved Date: 08 July 2022

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Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing

BS 1377-9:1990 Clause 4.1

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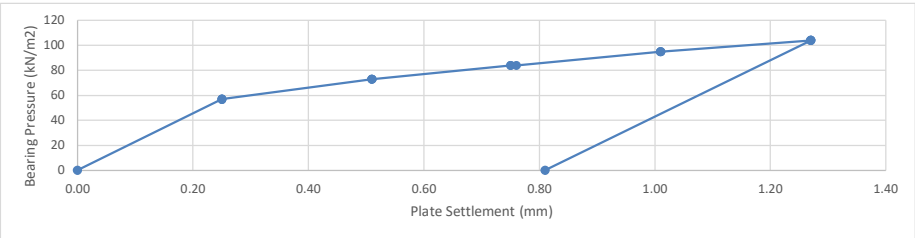
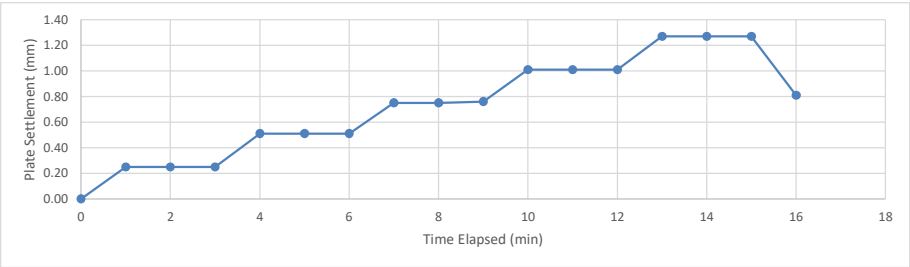
Client	Groundwork Services (Durham) Limited	**Date Tested**	08/07/2022
	Thistle Road	**Weather Conditions**	Sunny, Dry
	Littleburn Industrial Estate	**Air Temperature °C**	20°C
	Langley Moor	**Sample Description**	Clay
	DH7 8HJ	**Reaction Load**	21t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	450	**Test Location**	433184 / 558685
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	104	**Maximum Deformation (mm)**	1.27
Pressure at 1.25mm penetration (kPa)	103	**Modulus of Subgrade Reaction (Mn/M²/M)**	51.5
Calculated CBR (%) at 1.25mm	9		

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been caluclated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

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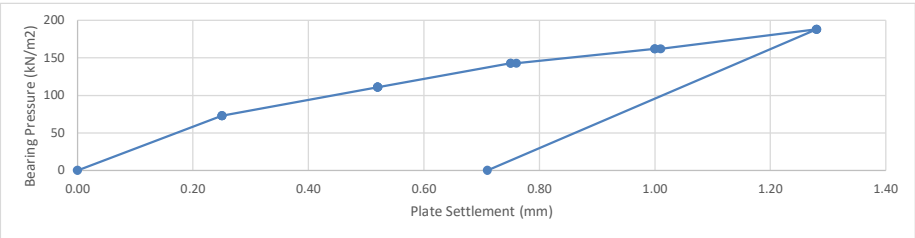
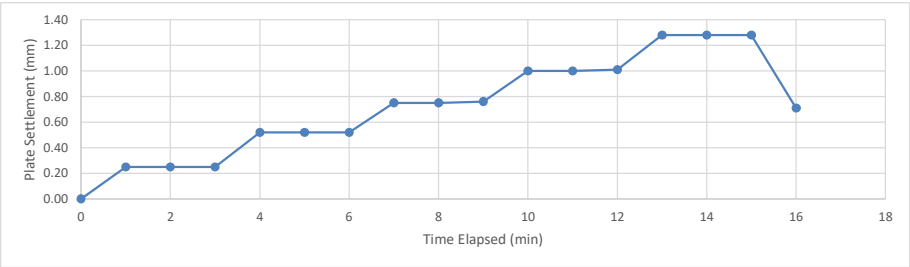
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557U
Client	Groundwork Services (Durham) Limited	**Date Tested**	08/07/2022
	Thistle Road	**Weather Conditions**	Sunny, Dry
	Littleburn Industrial Estate	**Air Temperature °C**	19°C
	Langley Moor	**Sample Description**	Clay
	DH7 8HJ	**Reaction Load**	21t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	450	**Test Location**	433184 / 558685
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	188	**Maximum Deformation (mm)**	1.28
Pressure at 1.25mm penetration (kPa)	185	**Modulus of Subgrade Reaction (Mn/M²/M)**	92.3
Calculated CBR (%) at 1.25mm	25		

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been caluclated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

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BS 1377-9:1990 Clause 4.1

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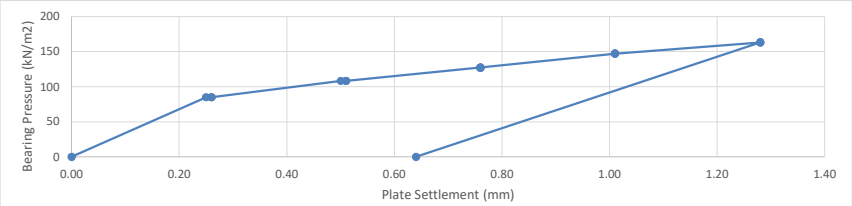
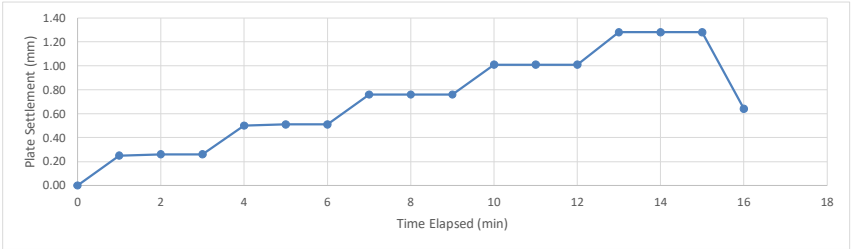
Client	Groundwork Services (Durham) Limited	**Date Tested**	08/07/2022
	Thistle Road	**Weather Conditions**	Sunny, Dry
	Littleburn Industrial Estate	**Air Temperature °C**	19°C
	Langley Moor	**Sample Description**	Clay
	DH7 8HJ	**Reaction Load**	21t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	450	**Test Location**	Zone 3 - 54924756 / 482201
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	163	**Maximum Deformation (mm)**	1.28
Pressure at 1.25mm penetration (kPa)	161	**Modulus of Subgrade Reaction (Mn/M²/M)**	80.4
Calculated CBR (%) at 1.25mm	19		

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been caluclated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

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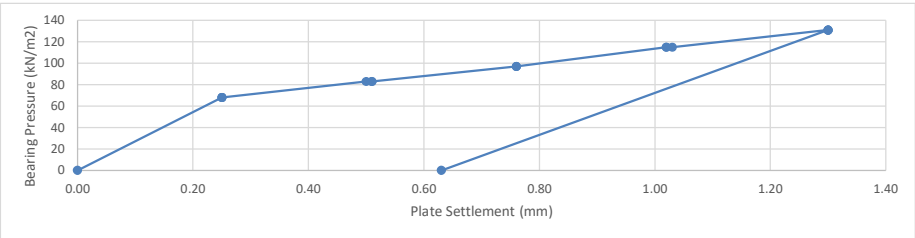
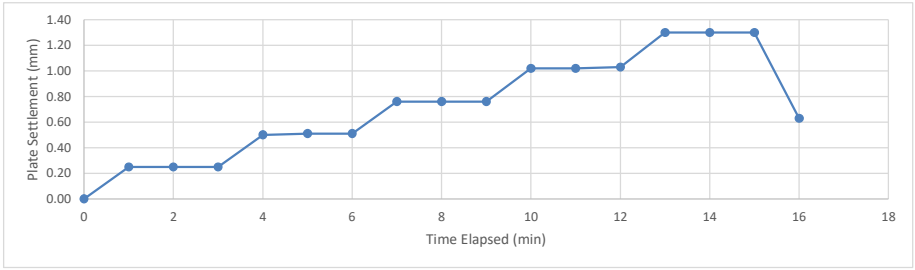
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557U
Client	Groundwork Services (Durham) Limited	**Date Tested**	08/07/2022
	Thistle Road	**Weather Conditions**	Sunny, Dry
	Littleburn Industrial Estate	**Air Temperature °C**	20°C
	Langley Moor	**Sample Description**	Clay
	DH7 8HJ	**Reaction Load**	21t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	450	**Test Location**	Zone 3 - 549255 / 481731
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	131	**Maximum Deformation (mm)**	1.30
Pressure at 1.25mm penetration (kPa)	128	**Modulus of Subgrade Reaction (Mn/M²/M)**	63.8
Calculated CBR (%) at 1.25mm	13		

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been caluclated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

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Test Report

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BS 1377-9:1990 Clause 4.1

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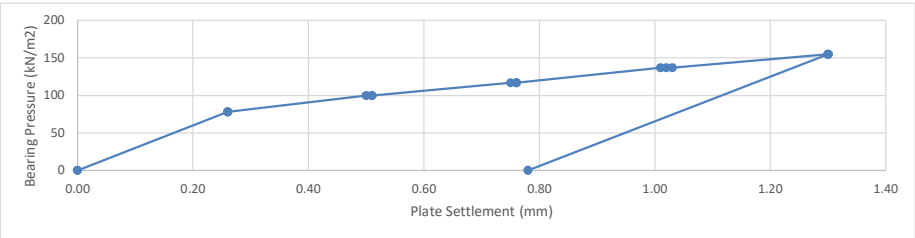
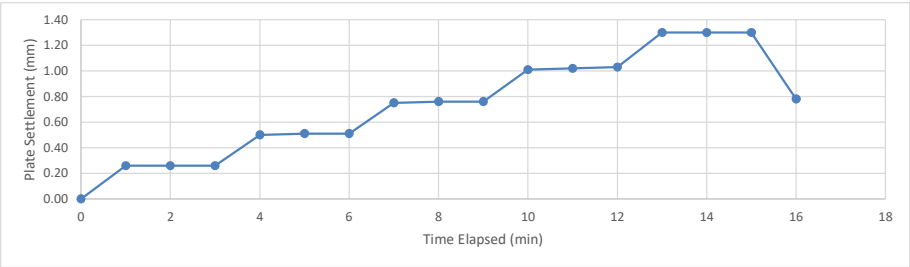
Client	Groundwork Services (Durham) Limited	**Date Tested**	08/07/2022
	Thistle Road	**Weather Conditions**	Sunny, Dry
	Littleburn Industrial Estate	**Air Temperature °C**	20°C
	Langley Moor	**Sample Description**	Clay
	DH7 8HJ	**Reaction Load**	21t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	450	**Test Location**	Zone 3 - 433274 / 559069
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	155	**Maximum Deformation (mm)**	1.30
Pressure at 1.25mm penetration (kPa)	152	**Modulus of Subgrade Reaction (Mn/M²/M)**	75.6
Calculated CBR (%) at 1.25mm	17		

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BS 1377-9:1990 Clause 4.1

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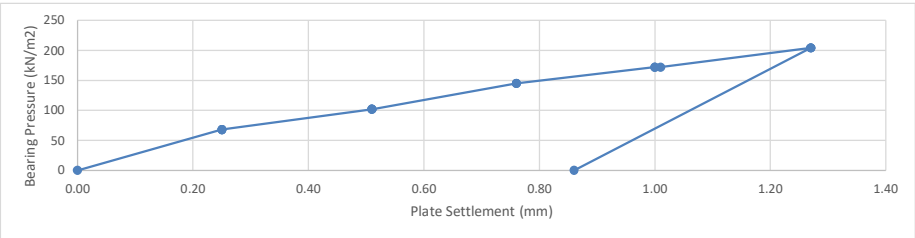
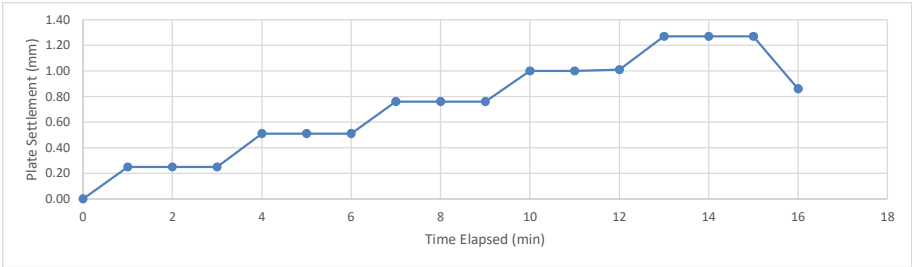
Client	Groundwork Services (Durham) Limited	**Date Tested**	08/07/2022
	Thistle Road	**Weather Conditions**	Sunny, Dry
	Littleburn Industrial Estate	**Air Temperature °C**	19°C
	Langley Moor	**Sample Description**	Clay
	DH7 8HJ	**Reaction Load**	21t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	450	**Test Location**	433117 / 558703
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	204	**Maximum Deformation (mm)**	1.27
Pressure at 1.25mm penetration (kPa)	202	**Modulus of Subgrade Reaction (Mn/M²/M)**	100.5
Calculated CBR (%) at 1.25mm	28		

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been caluclated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

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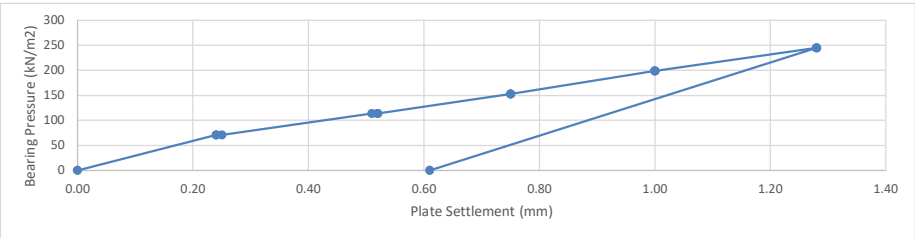
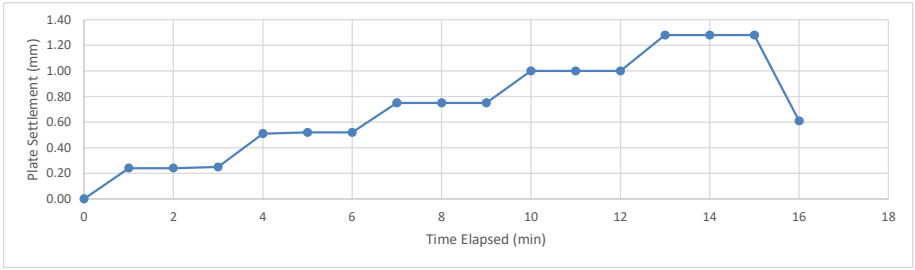
Client	Groundwork Services (Durham) Limited	**Date Tested**	08/07/2022
	Thistle Road	**Weather Conditions**	Sunny, Dry
	Littleburn Industrial Estate	**Air Temperature °C**	19°C
	Langley Moor	**Sample Description**	Clay
	DH7 8HJ	**Reaction Load**	21t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	450	**Test Location**	54921926 / 484830
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	245	**Maximum Deformation (mm)**	1.28
Pressure at 1.25mm penetration (kPa)	240	**Modulus of Subgrade Reaction (Mn/M²/M)**	119.7
Calculated CBR (%) at 1.25mm	38		

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been caluclated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

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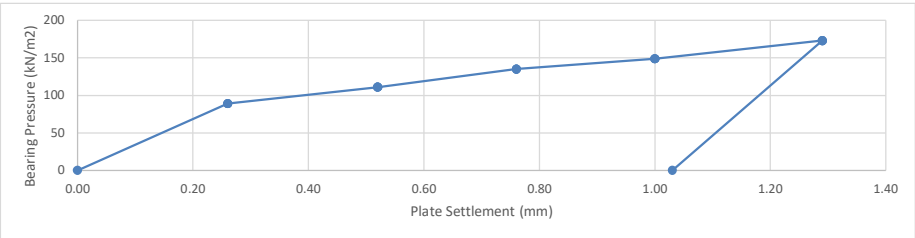
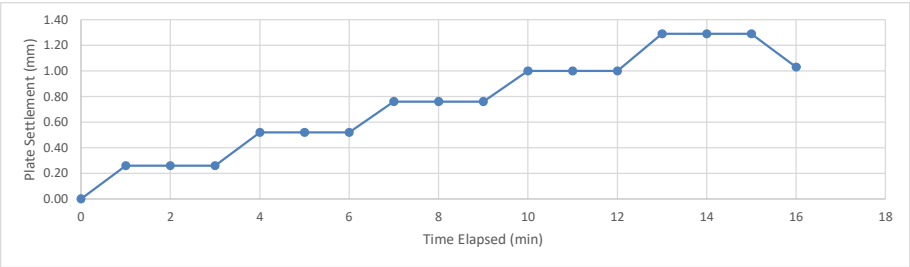
Project	Envision, Washington	**Job Number**	D10557U
Client	Groundwork Services (Durham) Limited	**Date Tested**	08/07/2022
	Thistle Road	**Weather Conditions**	Sunny, Dry
	Littleburn Industrial Estate	**Air Temperature °C**	19°C
	Langley Moor	**Sample Description**	Clay
	DH7 8HJ	**Reaction Load**	21t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	450	**Test Location**	549222 / 483242
Distance between the edge of the plate and the wall of the excavation (mm)		N/A	

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	173	**Maximum Deformation (mm)**	1.29
Pressure at 1.25mm penetration (kPa)	170	**Modulus of Subgrade Reaction (Mn/M²/M)**	84.6
Calculated CBR (%) at 1.25mm	21		

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been caluclated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superseded document HD 25/94

Comments:

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

The published results are appertaining only to the locations tested and are correct at the time of testing.

Test Carried Out By:

M. Smith

Materials Technician

Approved By:

Materials Director

Approved Date: 08 July 2022

EXPLORATION
& TESTING ASSOCIATES

Unit 8B Bowburn South Industrial Estate
Durham, DH6 5AD T: 0191 389 6543

UKAS TESTING

Test Report

Client	Groundwork Services (Durham) Limited
Address	Littleburn Industrial Estate Langley Moor Durham DH7 8HJ
F.A.O	Paul Barton
Project:	Giga One Factory, Washington
Project Number:	D10557V
Report Number:	L22-522-1
Date Received:	8th July 2022

Testing Required:	Insitu Density by Core Cutter - BS:1377-9:1990 Clause 2.3 Vertical Deformation and Strength Characteristics by the Incremental Plate Load Test - BS:1377-9:1990 Clause 4.1 Determination of Equivalent CBR Value using the Plate Bearing Test - Design Manual for Roads and Bridges, Volume 7: Pavement Design and Maintenance - Foundations HD25/9 Hand Shear Vane
Date Started:	8th July 2022
Date Finished:	11th July 2022

Report Issue Date:	8th July 2022
Reviewed By:	Natalie Hodson - Materials Director
Authorised By:	Nik O'Brien - Laboratory Manager
Remarks:	(*) denotes testing is outside of UKAS Scope of Accreditation. (+) denotes subcontracted testing. Test location references updated as per GWS instruction.

Samples will be stored for one month after the report has been issue before being disposed of.

The published results appertain only to the specimens tested.

EXPLORATION & TESTING ASSOCIATES

Summary of in-situ density test results

Project No.	Project Name
D10557V	Giga One, Envision, Washington

Test Position Reference	Test reference	Depth to top m	Date of test	Soil Description	Site conditions during test	Test Type see below	In-situ Bulk Density Mg/m^3	Moisture Content %	In-situ Dry Density Mg/m^3	Remarks
E433252 N558803	CC223		08/07/22	Clay	Sunny	CCD	1.90	30	1.47	Zone 7
E433258 N588796	CC224		08/07/22	Clay	Sunny	CCD	1.89	15	1.64	Zone 7
E433263 N588788	CC225		08/07/22	Clay	Sunny	CCD	2.00	18	1.70	Zone 7
E433264 N558788	CC226		08/07/22	Clay	Sunny	CCD	2.07	17	1.77	Zone 7
E433274 N558799	CC227		08/07/22	Clay	Sunny	CCD	1.96	17	1.68	Zone 7
E433568 N558810	CC228		08/07/22	Clay	Sunny	CCD	2.05	22	1.68	Zone 7
E433272 N558804	CC229		08/07/22	Clay	Sunny	CCD	2.16	11	1.95	Zone 7
E433272 N558804	CC230		08/07/22	Clay	Sunny	CCD	1.96	18	1.66	Zone 7
E433277 N558791	CC231		08/07/22	Clay	Sunny	CCD	2.03	18	1.72	Zone 7
E433282 N558785	CC232		08/07/22	Clay	Sunny	CCD	2.00	17	1.70	Zone 7
E433274 N559069	CC233		08/07/22	Clay	Sunny	CCD	2.06	17	1.76	CTW - Zone 3
E433232 N558790	CC234		08/07/22	Clay	Sunny	CCD	2.03	18	1.72	Zone 2

Specifications

BS 1377 : Part 2 : 1990 Clause 3 Moisture content by oven drying method

BS 1377 : Part 9 : 1990 : In situ density tests, clauses :

SRDS 2.1 Sand replacement method (Small pouring cylinder)

SRDL 2.2 Sand replacement method (Large pouring cylinder)

CCD 2.4 Core cutter method

Approved By

N Hodson

Materials Director

Date

17/07/2022

UKAS Accredited Laboratory No. 20632

EXPLORATION & TESTING ASSOCIATES

Summary of in-situ density test results

Project No.	Project Name
D10557V	Giga One, Envision, Washington

Test Position Reference	Test reference	Depth to top m	Date of test	Soil Description	Site conditions during test	Test Type see below	In-situ Bulk Density Mg/m^3	Moisture Content %	In-situ Dry Density Mg/m^3	Remarks
E433332 N559098	CC235		08/07/22	Clay	Sunny	CCD	2.07	15	1.80	ZTW - Zone 3
E433332 N559096	CC236		08/07/22	Clay	Sunny	CCD	2.01	16	1.73	Road
E433331 N559094	CC237		08/07/22	Clay	Sunny	CCD	2.00	14	1.75	CTW - Zone 3
E433338 N559093	CC238		08/07/22	Clay	Sunny	CCD	2.12	16	1.83	CTW - Zone 3
E433331 N559092	CC239		08/07/22	Clay	Sunny	CCD	2.02	15	1.75	Road
E433332 N559089	CC240		08/07/22	Clay	Sunny	CCD	1.98	17	1.70	Zone 2
E433248 N558775 CC14-RT	CC241		08/07/22	Clay	Sunny	CCD	1.96	20	1.64	Zone 2
E433242 N558773 CC15-RT	CC242		08/07/22	Clay	Sunny	CCD	2.05	21	1.69	Zone 2
E433242 N558771 CC13-RT	CC243		08/07/22	Clay	Sunny	CCD	1.99	20	1.66	Zone 2
E433236 N558767 CC12-RT	CC244		08/07/22	Clay	Sunny	CCD	2.05	17	1.76	Zone 2
E433222 N558779 CC11-RT	CC245		08/07/22	Clay	Sunny	CCD	2.01	21	1.67	Zone 2

Specifications

BS 1377 : Part 2 : 1990 Clause 3 Moisture content by oven drying method

BS 1377 : Part 9 : 1990 : In situ density tests, clauses :

SRDS 2.1 Sand replacement method (Small pouring cylinder)

SRDL 2.2 Sand replacement method (Large pouring cylinder)

CCD 2.4 Core cutter method

Approved By

N Hodson

Materials Director

Date

17/07/2022

UKAS Accredited Laboratory No. 20632

Unit 8B, Bowburn South Industrial Estate
Durham, DH6 5AD
Tel. (+44) 0191 389 6543

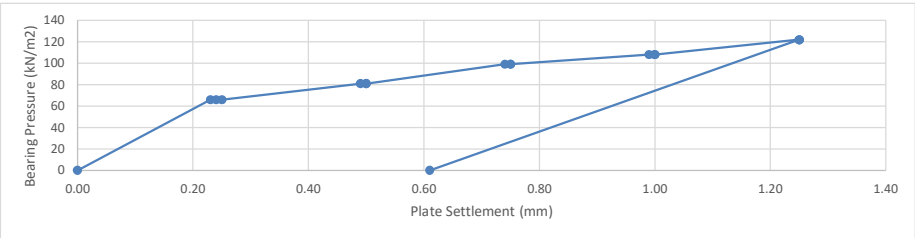
Test Report

Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing

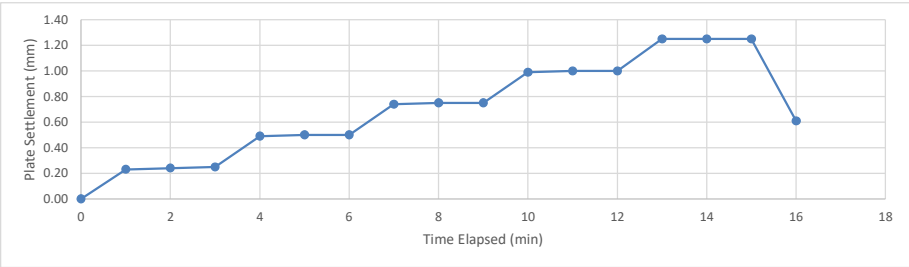
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557V
Client	Groundwork Services (Durham) Limited	**Date Tested**	08/07/2022
	Thistle Road	**Weather Conditions**	Sunny, Dry
	Littleburn Industrial Estate	**Air Temperature °C**	19°C
	Langley Moor	**Sample Description**	Clay
	DH7 8HJ	**Reaction Load**	21t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	450	**Test Location**	549222 / 483465
Distance between the edge of the plate and the wall of the excavation (mm)		N/A	

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	122	**Maximum Deformation (mm)**	1.25
Pressure at 1.25mm penetration (kPa)	122	**Modulus of Subgrade Reaction (Mn/M²/M)**	85.9
Calculated CBR (%) at 1.25mm	12		

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

The published results are appertaining only to the locations tested and are correct at the time of testing.

Test Carried Out By:

M. Smith

Materials Technician

Approved By:

Materials Director

Approved Date: 08 July 2022

Unit 8B, Bowburn South Industrial Estate
Durham, DH6 5AD
Tel. (+44) 0191 389 6543

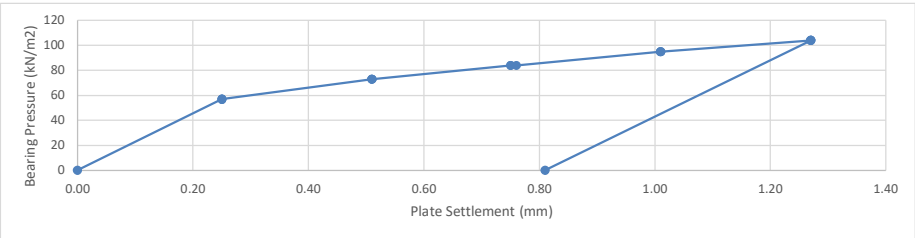
Test Report

Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing

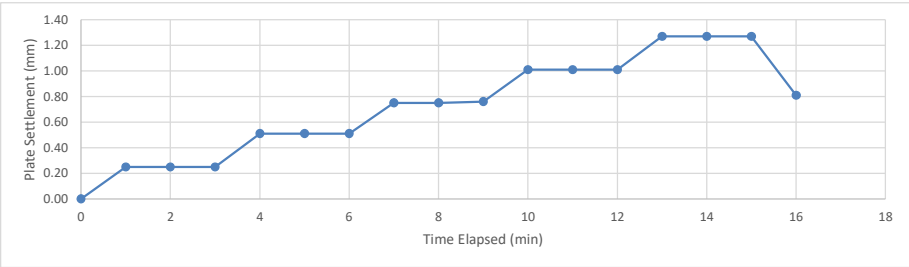
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557V
Client	Groundwork Services (Durham) Limited	**Date Tested**	08/07/2022
	Thistle Road	**Weather Conditions**	Sunny, Dry
	Littleburn Industrial Estate	**Air Temperature °C**	20°C
	Langley Moor	**Sample Description**	Clay
	DH7 8HJ	**Reaction Load**	21t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	450	**Test Location**	433184 / 558685
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	104	**Maximum Deformation (mm)**	1.27
Pressure at 1.25mm penetration (kPa)	103	**Modulus of Subgrade Reaction (Mn/M²/M)**	71.5
Calculated CBR (%) at 1.25mm	8.9		

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been caluclated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superseded document HD 25/94

Comments:

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

The published results are appertaining only to the locations tested and are correct at the time of testing.

Test Carried Out By:

M. Smith

Materials Technician

Approved By:

Materials Director

Approved Date: 08 July 2022

Unit 8B, Bowburn South Industrial Estate
Durham, DH6 5AD
Tel. (+44) 0191 389 6543

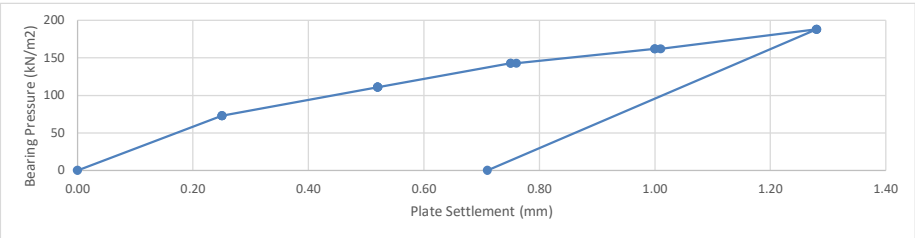
Test Report

Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing

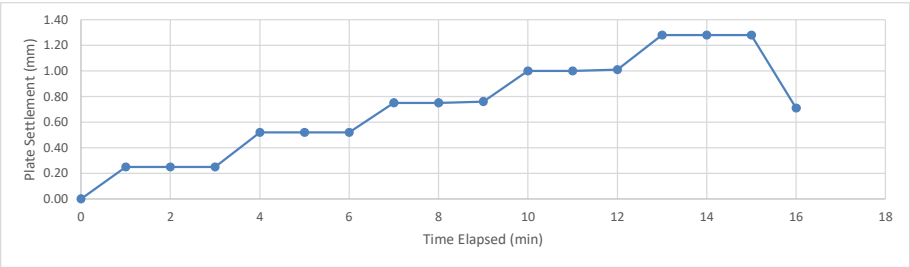
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557V
Client	Groundwork Services (Durham) Limited	**Date Tested**	08/07/2022
	Thistle Road	**Weather Conditions**	Sunny, Dry
	Littleburn Industrial Estate	**Air Temperature °C**	19°C
	Langley Moor	**Sample Description**	Clay
	DH7 8HJ	**Reaction Load**	21t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	450	**Test Location**	433184 / 558685
Distance between the edge of the plate and the wall of the excavation (mm)		N/A	

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	188	**Maximum Deformation (mm)**	1.28
Pressure at 1.25mm penetration (kPa)	185	**Modulus of Subgrade Reaction (Mn/M²/M)**	149.9
Calculated CBR (%) at 1.25mm	25		

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

The published results are appertaining only to the locations tested and are correct at the time of testing.

Test Carried Out By:

M. Smith

Materials Technician

Approved By:

Materials Director

Approved Date: 08 July 2022

Unit 8B, Bowburn South Industrial Estate
Durham, DH6 5AD
Tel. (+44) 0191 389 6543

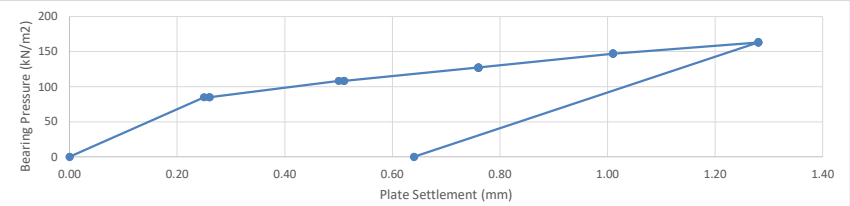
Test Report

Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing

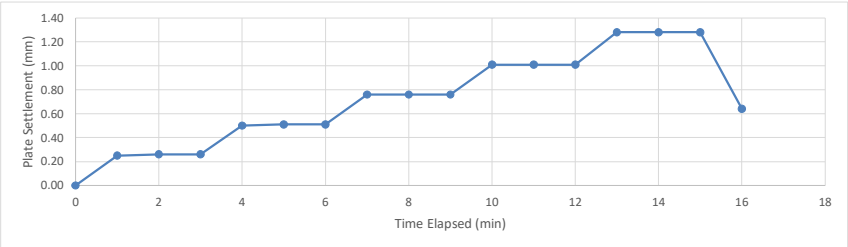
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557V
Client	Groundwork Services (Durham) Limited	**Date Tested**	08/07/2022
	Thistle Road	**Weather Conditions**	Sunny, Dry
	Littleburn Industrial Estate	**Air Temperature °C**	19°C
	Langley Moor	**Sample Description**	Clay
	DH7 8HJ	**Reaction Load**	21t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	450	**Test Location**	Zone 3 - 54924756 / 482201
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	163	**Maximum Deformation (mm)**	1.28
Pressure at 1.25mm penetration (kPa)	161	**Modulus of Subgrade Reaction (Mn/M²/M)**	117.1
Calculated CBR (%) at 1.25mm	19		

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

The published results are appertaining only to the locations tested and are correct at the time of testing.

Test Carried Out By:

M. Smith

Materials Technician

Approved By:

Materials Director

Approved Date: 08 July 2022

Unit 8B, Bowburn South Industrial Estate
Durham, DH6 5AD
Tel. (+44) 0191 389 6543

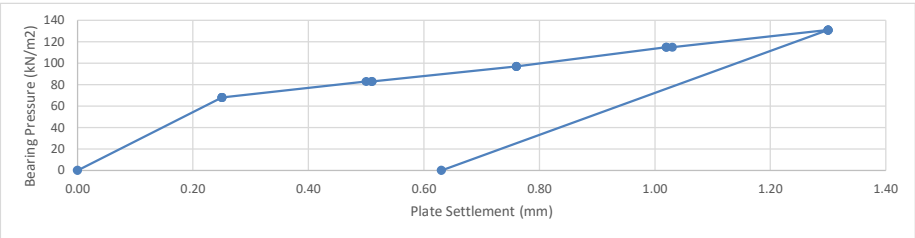
Test Report

Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing

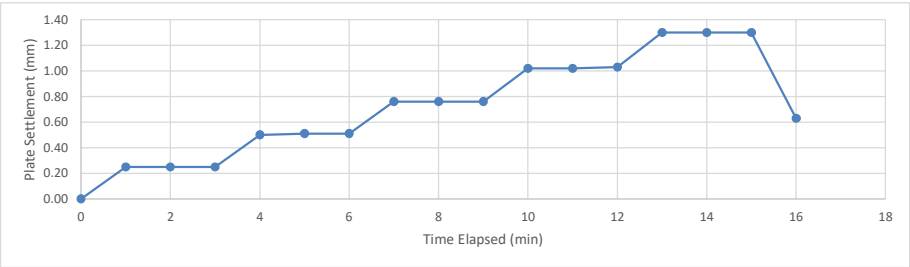
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557V
Client	Groundwork Services (Durham) Limited	**Date Tested**	08/07/2022
	Thistle Road	**Weather Conditions**	Sunny, Dry
	Littleburn Industrial Estate	**Air Temperature °C**	20°C
	Langley Moor	**Sample Description**	Clay
	DH7 8HJ	**Reaction Load**	21t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	450	**Test Location**	Zone 3 - 549255 / 481731
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	131	**Maximum Deformation (mm)**	1.30
Pressure at 1.25mm penetration (kPa)	128	**Modulus of Subgrade Reaction (Mn/M²/M)**	90.7
Calculated CBR (%) at 1.25mm	13		

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

The published results are appertaining only to the locations tested and are correct at the time of testing.

Test Carried Out By:

M. Smith

Materials Technician

Approved By:

Materials Director

Approved Date: 08 July 2022

EXPLORATION
& TESTING ASSOCIATES

Unit 8B, Bowburn South Industrial Estate
Durham, DH6 5AD
Tel. (+44) 0191 389 6543

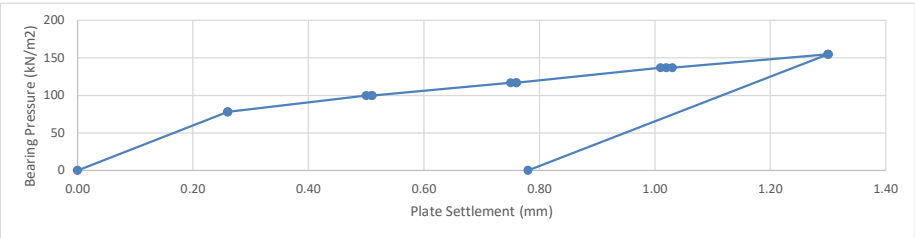
Test Report

Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing

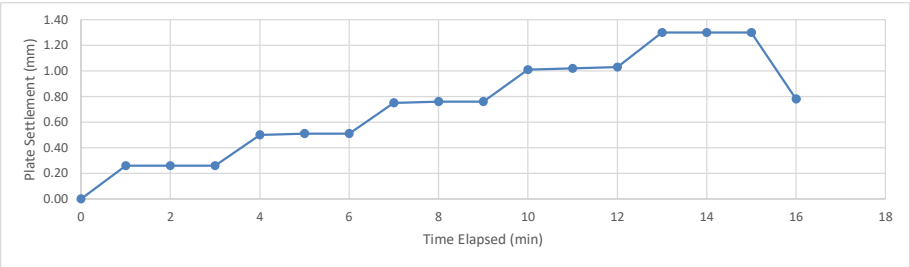
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557V
Client	Groundwork Services (Durham) Limited	**Date Tested**	08/07/2022
	Thistle Road	**Weather Conditions**	Sunny, Dry
	Littleburn Industrial Estate	**Air Temperature °C**	20°C
	Langley Moor	**Sample Description**	Clay
	DH7 8HJ	**Reaction Load**	21t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	450	**Test Location**	Zone 3 - 433274 / 559069
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	155	**Maximum Deformation (mm)**	1.30
Pressure at 1.25mm penetration (kPa)	152	**Modulus of Subgrade Reaction (Mn/M²/M)**	109.4
Calculated CBR (%) at 1.25mm	17		

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

The published results are appertaining only to the locations tested and are correct at the time of testing.

Test Carried Out By:

M. Smith

Materials Technician

Approved By:

Materials Director

Approved Date: 08 July 2022

Unit 8B, Bowburn South Industrial Estate
Durham, DH6 5AD
Tel. (+44) 0191 389 6543

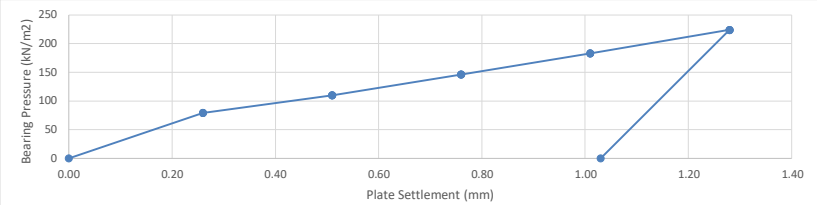
Test Report

Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing

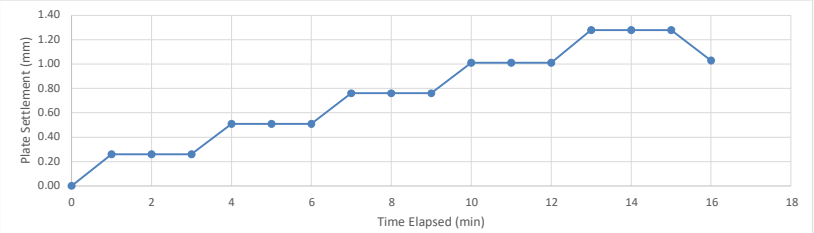
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557V
Client	Groundwork Services (Durham) Limited	**Date Tested**	08/07/2022
	Thistle Road	**Weather Conditions**	Sunny, Dry
	Littleburn Industrial Estate	**Air Temperature °C**	20°C
	Langley Moor	**Sample Description**	Clay
	DH7 8HJ	**Reaction Load**	21t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	450	**Test Location**	54925006/ 481165
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	224	**Maximum Deformation (mm)**	1.28
Pressure at 1.25mm penetration (kPa)	219	**Modulus of Subgrade Reaction (Mn/M²/M)**	164.8
Calculated CBR (%) at 1.25mm	33		

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

The published results are appertaining only to the locations tested and are correct at the time of testing.

Test Carried Out By:

M. Smith

Materials Technician

Approved By:

Materials Director

Approved Date: 12 July 2022

Unit 8B, Bowburn South Industrial Estate
Durham, DH6 5AD
Tel. (+44) 0191 389 6543

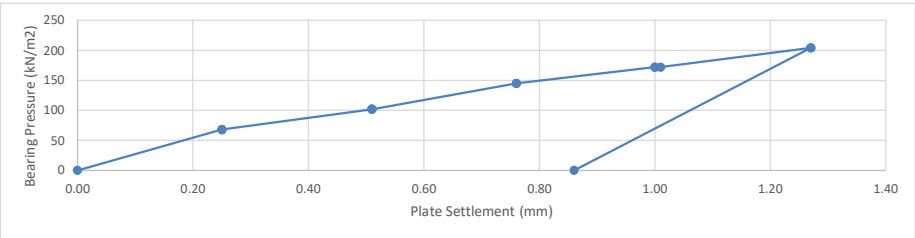
Test Report

Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing

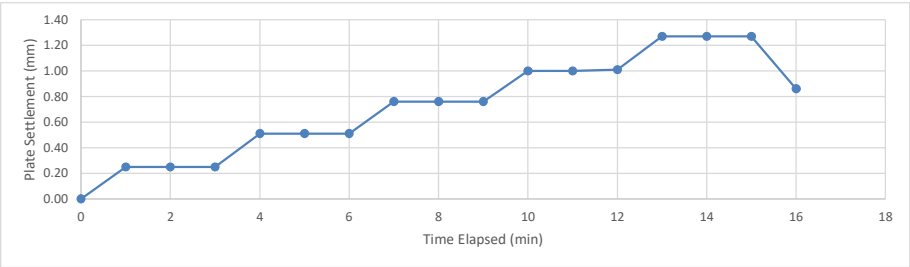
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557V
Client	Groundwork Services (Durham) Limited	**Date Tested**	08/07/2022
	Thistle Road	**Weather Conditions**	Sunny, Dry
	Littleburn Industrial Estate	**Air Temperature °C**	19°C
	Langley Moor	**Sample Description**	Clay
	DH7 8HJ	**Reaction Load**	21t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	450	**Test Location**	433117 / 558703
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	204	**Maximum Deformation (mm)**	1.27
Pressure at 1.25mm penetration (kPa)	202	**Modulus of Subgrade Reaction (Mn/M²/M)**	148.5
Calculated CBR (%) at 1.25mm	28		

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

The published results are appertaining only to the locations tested and are correct at the time of testing.

Test Carried Out By:

M. Smith

Materials Technician

Approved By:

Materials Director

Approved Date: 08 July 2022

Unit 8B, Bowburn South Industrial Estate
Durham, DH6 5AD
Tel. (+44) 0191 389 6543

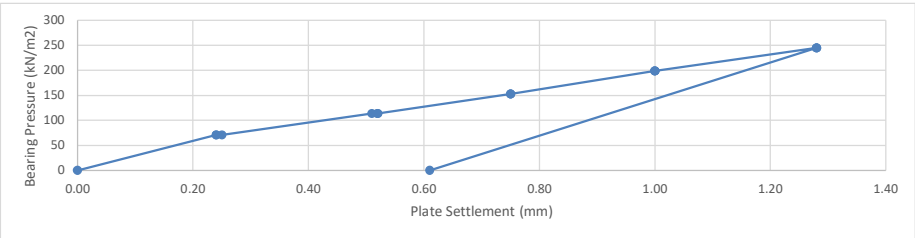
Test Report

Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing

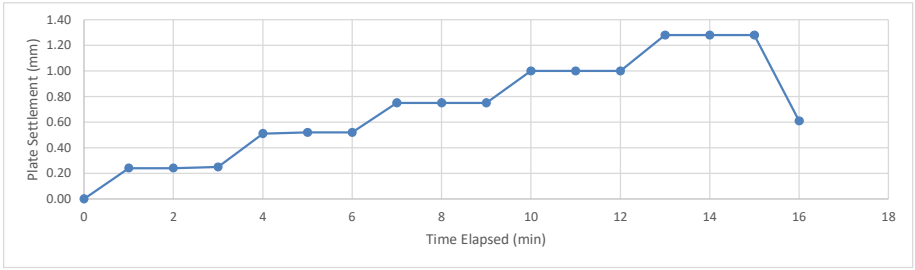
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557V
Client	Groundwork Services (Durham) Limited	**Date Tested**	08/07/2022
	Thistle Road	**Weather Conditions**	Sunny, Dry
	Littleburn Industrial Estate	**Air Temperature °C**	19°C
	Langley Moor	**Sample Description**	Clay
	DH7 8HJ	**Reaction Load**	21t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	450	**Test Location**	54921926 / 484830
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	245	**Maximum Deformation (mm)**	1.28
Pressure at 1.25mm penetration (kPa)	240	**Modulus of Subgrade Reaction (Mn/M²/M)**	182.0
Calculated CBR (%) at 1.25mm	38		

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

The published results are appertaining only to the locations tested and are correct at the time of testing.

Test Carried Out By:

M. Smith

Materials Technician

Approved By:

Materials Director

Approved Date: 08 July 2022

Unit 8B, Bowburn South Industrial Estate
Durham, DH6 5AD
Tel. (+44) 0191 389 6543

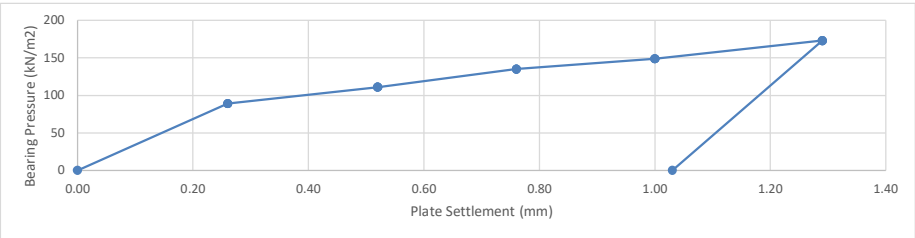
Test Report

Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing

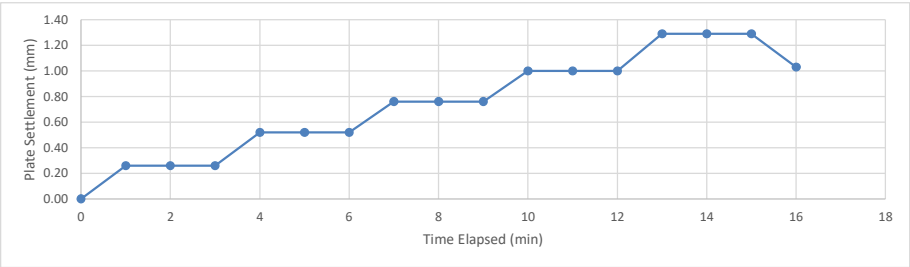
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557V
Client	Groundwork Services (Durham) Limited	**Date Tested**	08/07/2022
	Thistle Road	**Weather Conditions**	Sunny, Dry
	Littleburn Industrial Estate	**Air Temperature °C**	19°C
	Langley Moor	**Sample Description**	Clay
	DH7 8HJ	**Reaction Load**	21t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	450	**Test Location**	549222 / 483242
Distance between the edge of the plate and the wall of the excavation (mm)		N/A	

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	173	**Maximum Deformation (mm)**	1.29
Pressure at 1.25mm penetration (kPa)	170	**Modulus of Subgrade Reaction (Mn/M²/M)**	123.9
Calculated CBR (%) at 1.25mm	21		

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

The published results are appertaining only to the locations tested and are correct at the time of testing.

Test Carried Out By:

M. Smith

Materials Technician

Approved By:

Materials Director

Approved Date: 08 July 2022

TEST CERTIFICATE
Determination of the Shear Strength Using the Laboratory Handvane

Client: Groundwork Services (Durham) Ltd

Project No: D10557S

Project: Envision, Washington

Date Tested: 8th July 2022

Sampled By: M. Smith for ETA

Ambient Temperature: 16°C

Weather Conditions: *Dry*

Vane Used: Small

Comments:

	E482201-N54924756	E482055-N54924970	E482426-N54925160	E481157-N54923160	E482201-N54924756	E482256-N54924947
Client Reference	**1**	**2**	**3**	**4**	**5**	**6**
Reading 1	12.0	12.0	12.0	12.0	12.0	11.6
Reading 2	12.0	12.0	11.8	12.0	12.0	12.0
Reading 3	12.0	12.0	11.6	12.0	12.0	12.0
Average Readings:	12.0	12.0	11.8	12.0	12.0	11.8
Equivalent Shear Stress (kN/m2)	**240**	**240**	**236**	**240**	**240**	**237**
	E482267-N54925326	**E41899-N54925036**	**E481841-N54925064**	**E481731-N5492543**	**E481996-N549249929**	**E481971-N54925113**
Client Reference	**7**	**8**	**9**	**10**	**11**	**12**
Reading 1	11.8	12.0	12.0	12.0	11.8	12.0
Reading 2	11.0	12.0	12.0	12.0	11.6	12.0
Reading 3	11.4	12.0	12.0	12.0	12.0	12.0
Average Readings:	11.4	12.0	12.0	12.0	11.8	12.0
Equivalent Shear Stress (kN/m2)	**228**	**240**	**240**	**240**	**236**	**240**

	E481712-N54923118	E481904-N54925155	E482111-N54925199	E481962-N54925007	E482046-N54925092	E482267-N54925326
Client Reference	**13**	**14**	**15**	**16**	**17**	**18**
Reading 1	10.8	12.0	12.0	12.0	12.0	12.0
Reading 2	12.0	12.0	12.0	12.0	12.0	12.0
Reading 3	11.8	12.0	12.0	12.0	12.0	12.0
Average Readings:	11.5	12.0	12.0	12.0	12.0	12.0
Equivalent Shear Stress (kN/m2)	**231**	**240**	**240**	**240**	**240**	**240**

	E433274-N559069	E481731-N549255	E481814-N54924981	E482126-N54925029	E481810-N54923245
Client Reference	**19**	**20**	**21**	**22**	**23**
Reading 1	12.0	12.0	12.0	12.0	12.0
Reading 2	12.0	12.0	12.0	12.0	12.0
Reading 3	12.0	12.0	12.0	12.0	12.0
Average Readings:	12.0	12.0	12.0	12.0	12.0
Equivalent Shear Stress (kN/m2)	**240**	**240**	**240**	**240**	**240**

Approved By: **Date: 11th July 2022**

N.Hodson
Materials Director

EXPLORATION
& TESTING ASSOCIATES

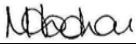
Unit 8B Bowburn South Industrial Estate
Durham, DH6 5AD T: 0191 389 6543

UKAS TESTING

Test Report

Client	Groundwork Services (Durham) Limited
Address	Littleburn Industrial Estate Langley Moor Durham DH7 8HJ
F.A.O	Paul Barton
Project:	Giga One Factory, Washington
Project Number:	D10557AO
Report Number:	L22-643
Date Received:	3rd August 2022

Testing Required:	Insitu Density by Core Cutter - BS:1377-9:1990 Clause 2.3 Hand Shear Vane* Vertical Deformation and Strength Characteristics by the Incremental Plate Load Test - BS:1377-9:1990 Clause 4.1 Determination of Equivalent CBR Value using the Plate Bearing Test - Design Manual for Roads and Bridges, Volume 7: Pavement Design and Maintenance - Foundations HD25/9
Date Started:	3rd August 2022
Date Finished:	4th August 2022

Report Issue Date:	4th August 2022
Reviewed By:	
	Natalie Hodson - Materials Director
Authorised By:	
	Nik O'Brien - Laboratory Manager
Remarks:	(*) denotes testing is outside of UKAS Scope of Accreditation. (+) denotes subcontracted testing.

Samples will be stored for one month after the report has been issue before being disposed of.

The published results appertain only to the specimens tested.

EXPLORATION & TESTING ASSOCIATES

Summary of in-situ density test results

Project No.	Project Name
D10557AO	Giga One, Washington

Test Position Reference	Test reference	Depth to top m	Date of test	Soil Description	Site conditions during test	Test Type see below	In-situ Bulk Density Mg/m^3	Moisture Content %	In-situ Dry Density Mg/m^3	Remarks
Z6-L3-CC2 433313/ 558879	CC432		03/08/22	Clay	Cloudy	CCD	2.04	20	1.70	
Z6-L4-CC2 433344/ 558890	CC433		03/08/22	Clay	Cloudy	CCD	2.09	20	1.74	
Z6-L3-CC3 433363/ 558898	CC434		03/08/22	Clay	Cloudy	CCD	2.03	18	1.73	
Z6-L3-CC1 433388/ 558904	CC435		03/08/22	Clay	Cloudy	CCD	2.05	20	1.71	
Z6-L4-CC6 433382/ 558902	CC436		03/08/22	Clay	Cloudy	CCD	2.08	20	1.73	
Z6-L4-CC4 433393/ 558912	CC437		03/08/22	Clay	Cloudy	CCD	2.10	16	1.81	
Z6-L4-CC5 433373/ 558906	CC438		03/08/22	Clay	Cloudy	CCD	2.09	18	1.78	
Z6-L4-CC3 433383/ 558918	CC439		03/08/22	Clay	Cloudy	CCD	1.96	25	1.57	
Z6-L4-CC1 433381/ 558942	CC440		03/08/22	Clay	Cloudy	CCD	2.11	17	1.80	

Specifications

BS 1377 : Part 2 : 1990 Clause 3 Moisture content by oven drying method

BS 1377 : Part 9 : 1990 : In situ density tests, clauses :

SRDS 2.1 Sand replacement method (Small pouring cylinder)

SRDL 2.2 Sand replacement method (Large pouring cylinder)

CCD 2.4 Core cutter method

Approved By

Date

04/08/2022

N Hodson

Materials Director

UKAS Accredited Laboratory No. 20632

EXPLORATION & TESTING ASSOCIATES

Summary of in-situ density test results

Project No.	Project Name
D10557AO	Giga One, Washington

Test Position Reference	Test reference	Depth to top m	Date of test	Soil Description	Site conditions during test	Test Type see below	In-situ Bulk Density Mg/m^3	Moisture Content %	In-situ Dry Density Mg/m^3	Remarks
CC386-RT	CC386-RT		03/08/22	Clay	Cloudy	CCD	2.07	18	1.75	
CC396-RT	CC396-RT		03/08/22	Clay	Cloudy	CCD	2.09	19	1.76	
CC398-RT	CC398-RT		03/08/22	Clay	Cloudy	CCD	2.03	20	1.69	
CC402-RT	CC402-RT		03/08/22	Clay	Cloudy	CCD	2.05	21	1.70	
CC404-RT	CC404-RT		03/08/22	Clay	Cloudy	CCD	2.07	18	1.75	
CC407-RT	CC407-RT		03/08/22	Clay	Cloudy	CCD	2.04	20	1.70	
CC413-RT	CC413-RT		03/08/22	Clay	Cloudy	CCD	2.06	19	1.73	

Specifications

BS 1377 : Part 2 : 1990 Clause 3 Moisture content by oven drying method
BS 1377 : Part 9 : 1990 : In situ density tests, clauses :
SRDS 2.1 Sand replacement method (Small pouring cylinder)
SRDL 2.2 Sand replacement method (Large pouring cylinder)
CCD 2.4 Core cutter method

Approved By

Date
04/08/2022

N Hodson

Materials Director

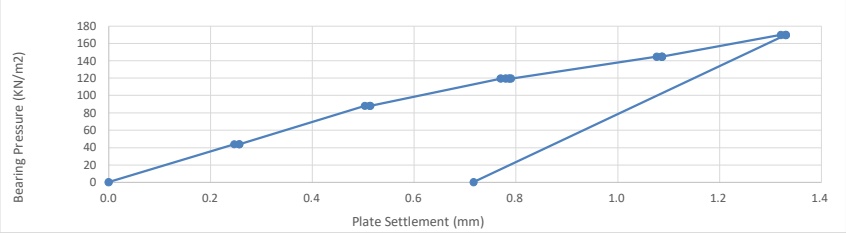
UKAS Accredited Laboratory No. 20632

EXPLORATION & TESTING ASSOCIATES
Unit 8B Bowburn South Industrial Estate
Durham, DH6 5AD
Tel. (+44) 0191 389 6543

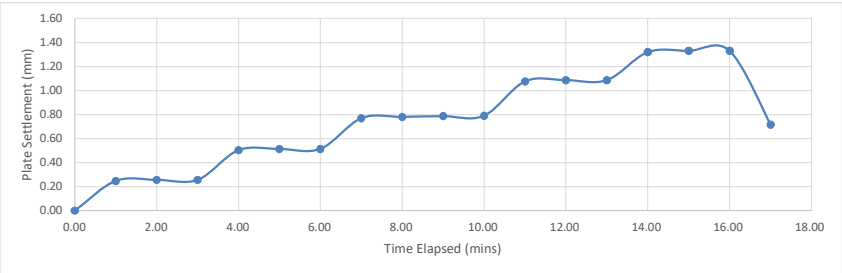
Test Report
Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557AO
Client	Groundwork Services (Durham) Limited	**Date Tested**	03/08/2022
	Thistle Road	**Weather Conditions**	Cloudy
	Littleburn Industrial Estate	**Air Temperature °C**	18°C
	Langley Moor	**Sample Description**	Clay
	DH7 8HJ	**Reaction Load**	13t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	450	**Test Location**	ZONE 1 Service Yard CBR 1
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	170	**Maximum Deformation (mm)**	1.33
Pressure at 1.25mm penetration (kPa)	162	**Modulus of Subgrade Reaction (Mn/M²/M)**	117.9
Calculated CBR (%) at 1.25mm	20		

In Accordance with CD225 Design for New Pavement Foundations,CBR Value has been caluclated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

The published results are appertaining only to the locations tested and are correct at the time of testing.

Test Carried Out By:

J. Round

Quality Technician

Approved By:

Materials Director

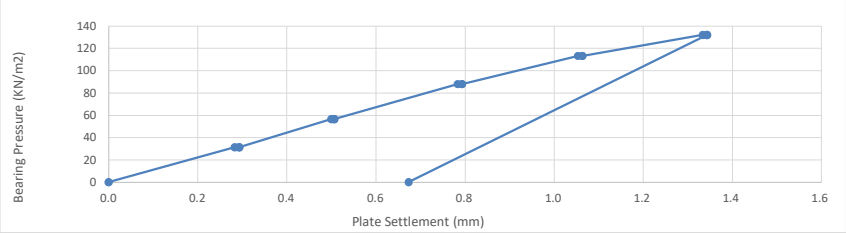
Approved Date: 04 August 2022

EXPLORATION & TESTING ASSOCIATES
Unit 8B Bowburn South Industrial Estate
Durham, DH6 5AD
Tel. (+44) 0191 389 6543

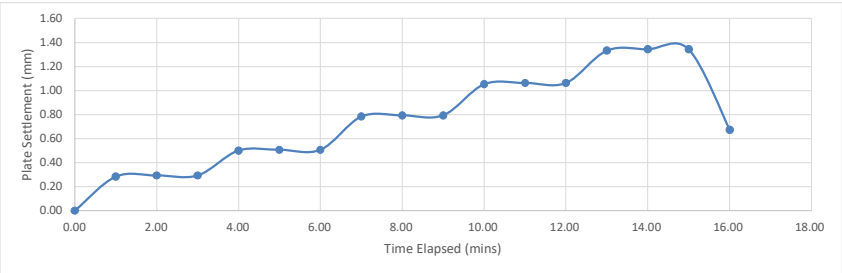
Test Report
Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557AO
Client	Groundwork Services (Durham) Limited	**Date Tested**	03/08/2022
	Thistle Road	**Weather Conditions**	Cloudy
	Littleburn Industrial Estate	**Air Temperature °C**	18°C
	Langley Moor	**Sample Description**	Clay
	DH7 8HJ	**Reaction Load**	13t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	450	**Test Location**	ZONE 1 Service Yard CBR 2
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	132	**Maximum Deformation (mm)**	1.34
Pressure at 1.25mm penetration (kPa)	126	**Modulus of Subgrade Reaction (Mn/M²/M)**	89.2
Calculated CBR (%) at 1.25mm	13		

In Accordance with CD225 Design for New Pavement Foundations,CBR Value has been caluclated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

The published results are appertaining only to the locations tested and are correct at the time of testing.

Test Carried Out By:

J. Round

Quality Technician

Approved By:

Materials Director

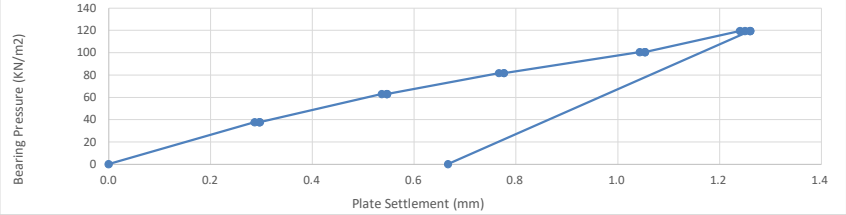
Approved Date: 04 August 2022

EXPLORATION & TESTING ASSOCIATES
Unit 8B Bowburn South Industrial Estate
Durham, DH6 5AD
Tel. (+44) 0191 389 6543

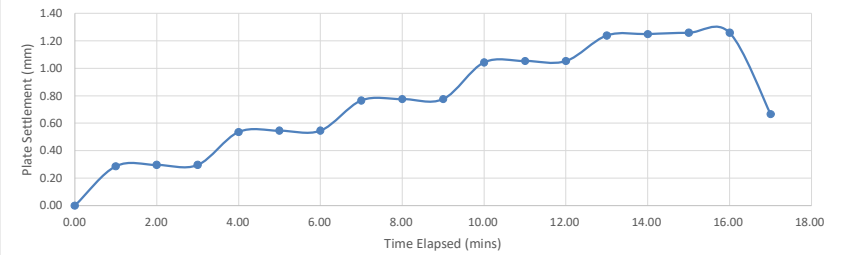
Test Report
Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557AO
Client	Groundwork Services (Durham) Limited	**Date Tested**	03/08/2022
	Thistle Road	**Weather Conditions**	Cloudy
	Littleburn Industrial Estate	**Air Temperature °C**	18°C
	Langley Moor	**Sample Description**	Clay
	DH7 8HJ	**Reaction Load**	13t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	450	**Test Location**	ZONE 1 Service Yard CBR 3
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	120	**Maximum Deformation (mm)**	1.26
Pressure at 1.25mm penetration (kPa)	120	**Modulus of Subgrade Reaction (Mn/M²/M)**	84.0
Calculated CBR (%) at 1.25mm	11		

In Accordance with CD225 Design for New Pavement Foundations,CBR Value has been caluclated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

The published results are appertaining only to the locations tested and are correct at the time of testing.

Test Carried Out By:

J. Round

Quality Technician

Approved By:

Materials Director

Approved Date: 04 August 2022

EXPLORATION
& TESTING ASSOCIATES

TEST CERTIFICATE
Determination of the Shear Strength Using the Laboratory Handvane

Client: Groundwork Services (Durham) Ltd

Project No: D10557AO

Project: Envision, Washington

Date Tested: 3rd August 2022

Sampled By: J. Round for ETA

Ambient Temperature: 20°C

Weather Conditions: *Dry, Overcast*

Vane Used: Small

Comments:

	Z6-L3	Z6-L3	Z6-L3	Z6-L3	Z6-L3
Client Reference	433313/558879	433344/558890	433363/558898	433388/558904	433382/558902
Reading 1	9.4	10.0	9.0	12.0	7.4
Reading 2	8.4	9.4	8.8	8.6	8.8
Reading 3	9.6	9.0	8.8	9.2	11.0
Average Readings:	9.1	9.4	8.8	9.9	9.0
Equivalent Shear Stress (kN/m2)	**183**	**189**	**177**	**195**	**181**

	Z6-L3	Z6-L4	Z6-L4	Z6-L4
Client Reference	433393/558912	433373/558906	433383/558918	433381/558942
Reading 1	8.2	9.0	7.8	8.4
Reading 2	8.6	8.8	8.2	8.2
Reading 3	8.0	8.8	8.8	8.4
Average Readings:	8.2	8.8	8.2	8.3
Equivalent Shear Stress (kN/m2)	**165**	**177**	**165**	**167**

Approved By: N.Hodson .

N.Hodson
Materials Director

Date: 4th August 2022

EXPLORATION
& TESTING ASSOCIATES

Unit 8B Bowburn South Industrial Estate
Durham, DH6 5AD T: 0191 389 6543

UKAS TESTING

Test Report

Client	Groundwork Services (Durham) Limited
Address	Littleburn Industrial Estate Langley Moor Durham DH7 8HJ
F.A.O	Paul Barton
Project:	Giga One Factory, Washington
Project Number:	D10557AQ
Report Number:	L22-656
Date Received:	5th August 2022

Testing Required:	Insitu Density by Core Cutter - BS:1377-9:1990 Clause 2.3 Hand Shear Vane* Vertical Deformation and Strength Characteristics by the Incremental Plate Load Test - BS:1377-9:1990 Clause 4.1 Determination of Equivalent CBR Value using the Plate Bearing Test - Design Manual for Roads and Bridges, Volume 7: Pavement Design and Maintenance - Foundations HD25/9
Date Started:	5th August 2022
Date Finished:	7th August 2022

Report Issue Date:	7th August 2022
Reviewed By:	
	Natalie Hodson - Materials Director
Authorised By:	
	Nik O'Brien - Laboratory Manager
Remarks:	(*) denotes testing is outside of UKAS Scope of Accreditation.
	(+) denotes subcontracted testing.

Samples will be stored for one month after the report has been issue before being disposed of.

The published results appertain only to the specimens tested.

EXPLORATION & TESTING ASSOCIATES

Summary of in-situ density test results

Project No.	Project Name
D10557AQ	Giga One, Washington

Test Position Reference	Test reference	Test No.	Depth to top m	Date of test	Soil Description	Site conditions during test	Test Type see below	In-situ Bulk Density Mg/m^3	Moisture Content %	In-situ Dry Density Mg/m^3	Remarks
Z6-L1	CC451	CC451	0.00	06/08/22	Brown, Slightly Sandy, Silty CLAY	Cloudy, 14C	CCD	2.07	17	1.76	
Z6-L1	CC452	CC452	0.00	06/08/22	Brown, Slightly Sandy, Silty CLAY	Cloudy, 14C	CCD	2.03	21	1.67	
Z6-L2	CC453	CC453	0.00	06/08/22	Brown, Slightly Sandy, Silty CLAY	Cloudy, 14C	CCD	2.03	20	1.69	
Z6-L2	CC454	CC454	0.00	06/08/22	Brown, Slightly Sandy, Silty CLAY	Cloudy, 14C	CCD	2.06	17	1.77	
Z6-L2	CC455	CC455	0.00	06/08/22	Brown, Slightly Sandy, Silty CLAY	Cloudy, 14C	CCD	2.05	20	1.71	
Z6-L4	CC456	CC456	0.00	06/08/22	Brown, Slightly Sandy, Silty CLAY	Cloudy, 14C	CCD	2.08	20	1.74	
Z6-L4	CC457	CC457	0.00	06/08/22	Brown, Slightly Sandy, Silty CLAY	Cloudy, 14C	CCD	2.00	22	1.64	
Z6-L4	CC458	CC458	0.00	06/08/22	Brown, Slightly Sandy, Silty CLAY	Cloudy, 14C	CCD	2.02	21	1.67	
Z6-L4	CC459	CC459	0.00	06/08/22	Brown, Slightly Sandy, Silty CLAY	Cloudy, 14C	CCD	2.07	21	1.71	
Z6-L4	CC460	CC460	0.00	06/08/22	Brown, Slightly Sandy, Silty CLAY	Cloudy, 14C	CCD	2.13	20	1.78	

Specifications

BS 1377 : Part 2 : 1990 Clause 3 Moisture content by oven drying method
BS 1377 : Part 9 : 1990 : In situ density tests, clauses :
SRDS 2.1 Sand replacement method (Small pouring cylinder)
SRDL 2.2 Sand replacement method (Large pouring cylinder)
CCD 2.4 Core cutter method

Approved By

Date
07/08/2022

N O'Brien

Laboratory Manager

UKAS Accredited Laboratory No. 20632

EXPLORATION
& TESTING ASSOCIATES

TEST CERTIFICATE
Determination of the Shear Strength Using the Laboratory Handvane

Client: Groundwork Services (Durham) Ltd
Project No: D10557AQ

Project: Envision, Washington
Date Tested: 6th August 2022

Sampled By: D. Tennant for ETA
Ambient Temperature: 14°C

Weather Conditions: Dry, Overcast
Vane Used: Small

Comments:

	Z6-L1	Z6-L1	Z6-L2	Z6-L2	Z6-L2
Client Reference					
Reading 1	12.0	11.0	10.0	12.0	9.8
Reading 2	12.0	11.1	10.7	12.0	11.0
Reading 3	12.0	11.0	10.7	12.0	9.9
Average Readings:	12.0	11.0	10.5	12.0	10.2
Equivalent Shear Stress (kN/m2)	240	221	209	240	205

	Z6-L4	Z6-L4	Z6-L4	Z6-L4	Z6-L4
Client Reference					
Reading 1	10.5	10.1	10.9	12.0	12.0
Reading 2	10.5	10.4	10.9	12.0	12.0
Reading 3	10.8	10.4	11.3	12.0	12.0
Average Readings:	10.6	10.3	11.0	12.0	12.0
Equivalent Shear Stress (kN/m2)	212	206	221	240	240

Approved By:

N.Hodson
Materials Director

Date: 7th August 2022

Exploration and Testing Associates Limited, Unit 8B Bowburn South Industrial Estate, Durham, DH6 5AD

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& TESTING ASSOCIATES
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Durham, DH6 5AD
Tel. (+44) 0191 389 6543

UKAS TESTING

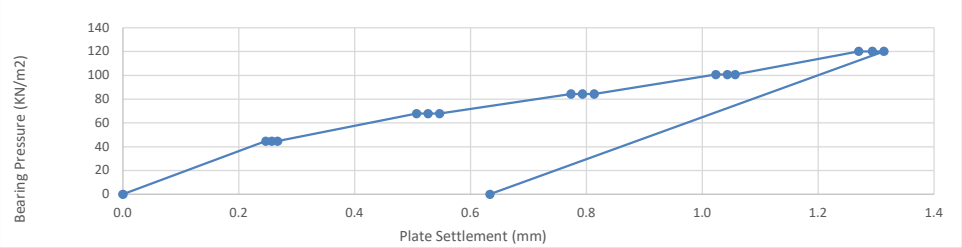
Test Report

Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing

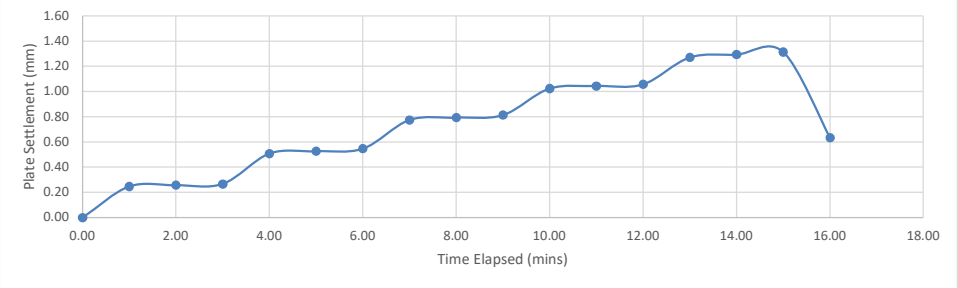
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557AQ
Client	Groundwork Services (Durham) Limited	**Date Tested**	05/08/2022
	Thistle Road	**Weather Conditions**	Cloudy
	Littleburn Industrial Estate	**Air Temperature °C**	19°C
	Langley Moor	**Sample Description**	Clay
	DH7 8HJ	**Reaction Load**	22t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	450	**Test Location**	433181/588634
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	120	**Maximum Deformation (mm)**	1.31
Pressure at 1.25mm penetration (kPa)	118	**Modulus of Subgrade Reaction (Mn/M²/M)**	83.0
Calculated CBR (%) at 1.25mm	11		

In Accordance with CD225 Design for New Pavement Foundations,CBR Value has been caluclated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

The published results are appertaining only to the locations tested and are correct at the time of testing.

Test Carried Out By:

D. Tennant

Materials Technician

Approved By:

Materials Director

Approved Date: 07 August 2022

EXPLORATION
& TESTING ASSOCIATES
Unit 8B Bowburn South Industrial Estate
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UKAS TESTING

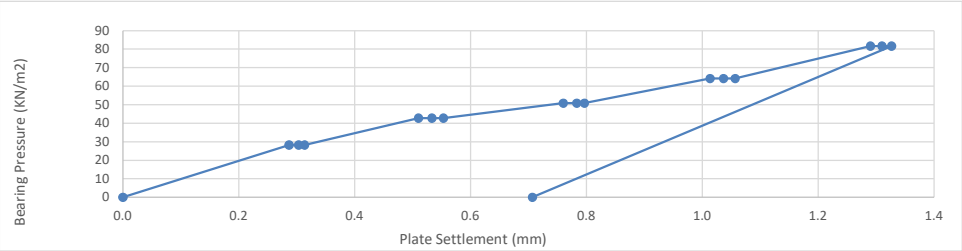
Test Report

Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing

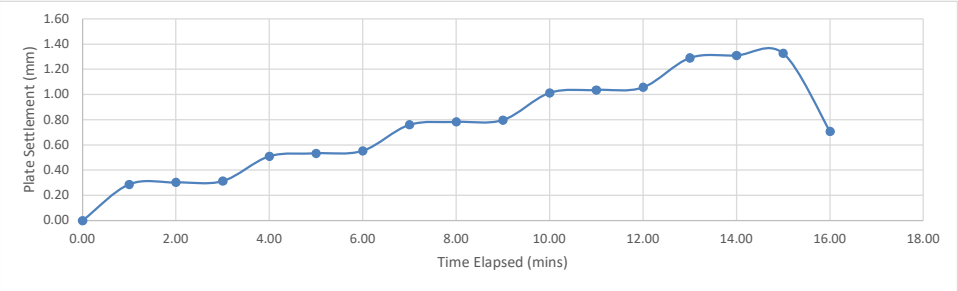
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557AQ
Client	Groundwork Services (Durham) Limited	**Date Tested**	05/08/2022
	Thistle Road	**Weather Conditions**	Cloudy
	Littleburn Industrial Estate	**Air Temperature °C**	19°C
	Langley Moor	**Sample Description**	Clay
	DH7 8HJ	**Reaction Load**	22t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	450	**Test Location**	433255/558649
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	82	**Maximum Deformation (mm)**	1.33
Pressure at 1.25mm penetration (kPa)	79	**Modulus of Subgrade Reaction (Mn/M²/M)**	52.8
Calculated CBR (%) at 1.25mm	5.6		

In Accordance with CD225 Design for New Pavement Foundations,CBR Value has been caluclated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

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Test Carried Out By:

D. Tennant

Materials Technician

Approved By:

Materials Director

Approved Date: 07 August 2022

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UKAS TESTING

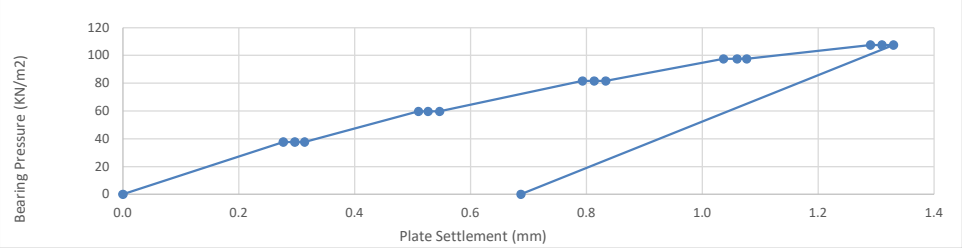
Test Report

Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing

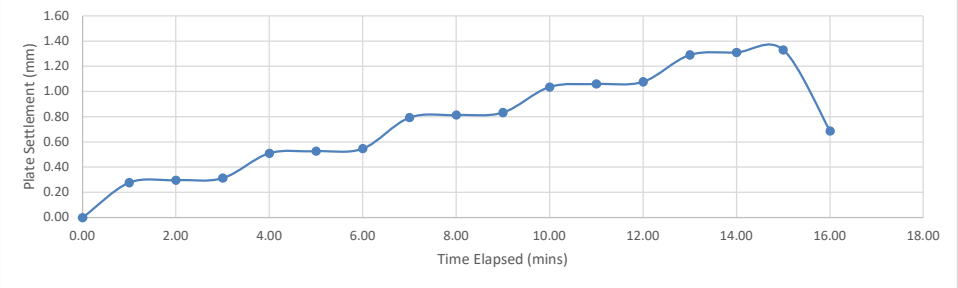
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557AQ
Client	Groundwork Services (Durham) Limited	**Date Tested**	05/08/2022
	Thistle Road	**Weather Conditions**	Clear, Dry
	Littleburn Industrial Estate	**Air Temperature °C**	18°C
	Langley Moor	**Sample Description**	Clay
	DH7 8HJ	**Reaction Load**	22t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	450	**Test Location**	433235/558618
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	108	**Maximum Deformation (mm)**	1.33
Pressure at 1.25mm penetration (kPa)	106	**Modulus of Subgrade Reaction (Mn/M²/M)**	73.2
Calculated CBR (%) at 1.25mm	9.3		

In Accordance with CD225 Design for New Pavement Foundations,CBR Value has been caluclated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

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Test Carried Out By:

D. Tennant

Materials Technician

Approved By:

Materials Director

Approved Date: 07 August 2022

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UKAS TESTING

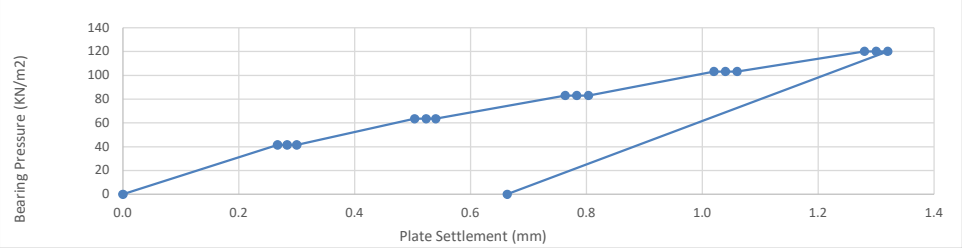
Test Report

Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing

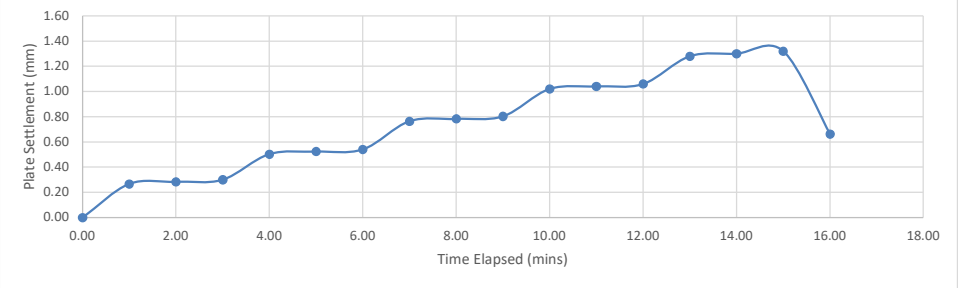
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557AQ
Client	Groundwork Services (Durham) Limited	**Date Tested**	05/08/2022
	Thistle Road	**Weather Conditions**	Clear, Dry
	Littleburn Industrial Estate	**Air Temperature °C**	17°C
	Langley Moor	**Sample Description**	Clay
	DH7 8HJ	**Reaction Load**	22t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	450	**Test Location**	433199/558606
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	120	**Maximum Deformation (mm)**	1.32
Pressure at 1.25mm penetration (kPa)	118	**Modulus of Subgrade Reaction (Mn/M²/M)**	82.6
Calculated CBR (%) at 1.25mm	11		

In Accordance with CD225 Design for New Pavement Foundations,CBR Value has been caluclated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

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Test Carried Out By:

D. Tennant

Materials Technician

Approved By:

Materials Director

Approved Date: 07 August 2022

EXPLORATION
& TESTING ASSOCIATES

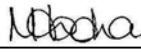
Unit 8B Bowburn South Industrial Estate
Durham, DH6 5AD T: 0191 389 6543

UKAS TESTING

Test Report

Client	Groundwork Services (Durham) Limited
Address	Littleburn Industrial Estate Langley Moor Durham DH7 8HJ
F.A.O	Paul Barton
Project:	Giga One Factory, Washington
Project Number:	D10557AS
Report Number:	L22-667
Date Received:	9th August 2022

Testing Required:	Insitu Density by Core Cutter - BS:1377-9:1990 Clause 2.3 Hand Shear Vane* Vertical Deformation and Strength Characteristics by the Incremental Plate Load Test - BS:1377-9:1990 Clause 4.1 Determination of Equivalent CBR Value using the Plate Bearing Test - Design Manual for Roads and Bridges, Volume 7: Pavement Design and Maintenance - Foundations HD25/9
Date Started:	9th August 2022
Date Finished:	10th August 2022

Report Issue Date:	10th August 2022
Reviewed By:	
	Natalie Hodson - Materials Director
Authorised By:	
	Nik O'Brien - Laboratory Manager
Remarks:	(*) denotes testing is outside of UKAS Scope of Accreditation.
	(+) denotes subcontracted testing.

Samples will be stored for one month after the report has been issue before being disposed of.

The published results appertain only to the specimens tested.

EXPLORATION & TESTING ASSOCIATES

Summary of in-situ density test results

Project No.	Project Name
D10557AS	Giga One, Washington

Test Position Reference	Test reference	Test No.	Depth to top m	Date of test	Soil Description	Site conditions during test	Test Type see below	In-situ Bulk Density Mg/m^3	Moisture Content %	In-situ Dry Density Mg/m^3	Remarks
Z7-L4-433388-558881	CC465	CC465	0.00	09/08/22	Brown, Slightly Sandy CLAY	Cloudy, 22C	CCD	2.12	19	1.78	
Z7-L4-433385-558895	CC466	CC466	0.00	09/08/22	Brown, Slightly Sandy CLAY	Cloudy, 22C	CCD	2.13	17	1.82	

Specifications

BS 1377 : Part 2 : 1990 Clause 3 Moisture content by oven drying method
BS 1377 : Part 9 : 1990 : In situ density tests, clauses :
SRDS 2.1 Sand replacement method (Small pouring cylinder)
SRDL 2.2 Sand replacement method (Large pouring cylinder)
CCD 2.4 Core cutter method

Approved By

Date
10/08/2022

N O'Brien

Laboratory Manager

UKAS Accredited Laboratory No. 20632

EXPLORATION
& TESTING ASSOCIATES

TEST CERTIFICATE
Determination of the Shear Strength Using the Laboratory Handvane

Client: Groundwork Services (Durham) Ltd

Project No: D10557AS

Project: Envision, Washington

Date Tested: 9th August 2022

Sampled By: J. Curry for ETA

Ambient Temperature: 22°C

Weather Conditions: Cloudy

Vane Used: Small

Comments:

	Z7-L4	Z7-L4
Client Reference	433388/ 558881	433385/ 558895
Reading 1	12.0	12.0
Reading 2	12.0	12.0
Reading 3	12.0	12.0
Average Readings:	12.0	12.0
Equivalent Shear Stress (kN/m2)	240	240

Approved By:

N.Hodson
Materials Director

Date: 10th August 2022

Exploration and Testing Associates Limited, Unit 8B Bowburn South Industrial Estate, Durham, DH6 5AD

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UKAS TESTING

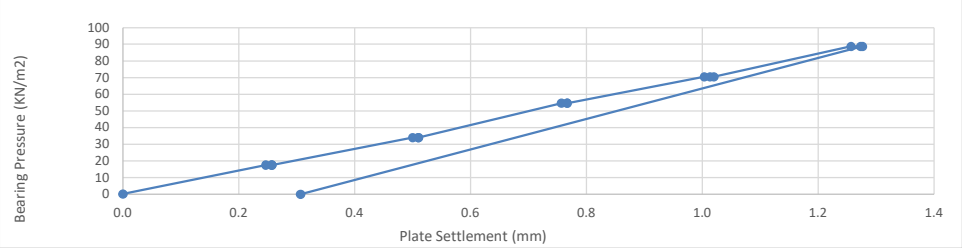
Test Report

Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing

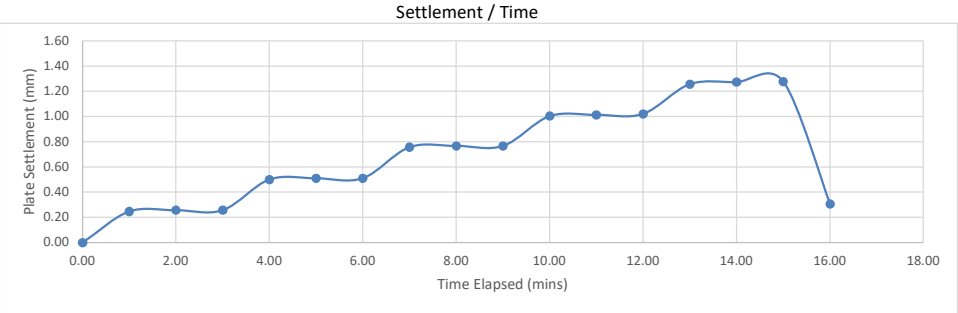
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557AS
Client	Groundwork Services (Durham) Limited	**Date Tested**	09/08/2022
	Thistle Road	**Weather Conditions**	Clear, Dry
	Littleburn Industrial Estate	**Air Temperature °C**	22°C
	Langley Moor	**Sample Description**	Clay
	DH7 8HJ	**Reaction Load**	22t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	450	**Test Location**	Zone 5 - Test 1
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	89	**Maximum Deformation (mm)**	1.28
Pressure at 1.25mm penetration (kPa)	88	**Modulus of Subgrade Reaction (Mn/M²/M)**	59.9
Calculated CBR (%) at 1.25mm	6.8		

In Accordance with CD225 Design for New Pavement Foundations,CBR Value has been caluclated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

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Test Carried Out By:

J. Curry

Quality Technician

Approved By:

Materials Director

Approved Date: 10 August 2022

EXPLORATION
& TESTING ASSOCIATES
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UKAS TESTING

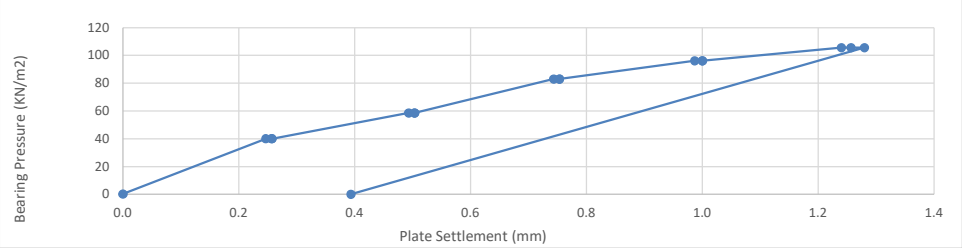
Test Report

Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing

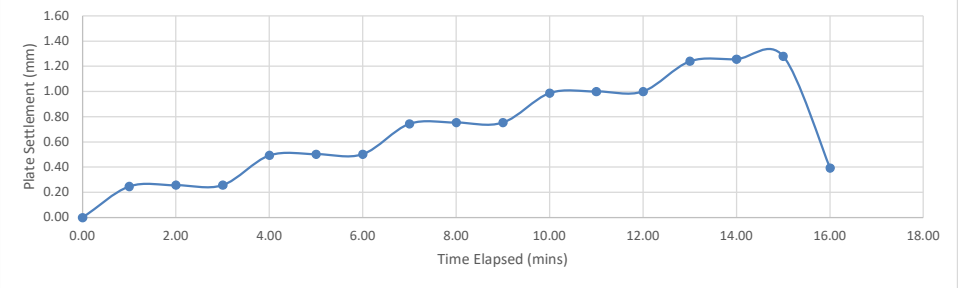
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557AS
Client	Groundwork Services (Durham) Limited	**Date Tested**	09/08/2022
	Thistle Road	**Weather Conditions**	Clear, Dry
	Littleburn Industrial Estate	**Air Temperature °C**	22°C
	Langley Moor	**Sample Description**	Clay
	DH7 8HJ	**Reaction Load**	22t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	450	**Test Location**	Zone 5 - Test 2
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	106	**Maximum Deformation (mm)**	1.28
Pressure at 1.25mm penetration (kPa)	105	**Modulus of Subgrade Reaction (Mn/M²/M)**	72.9
Calculated CBR (%) at 1.25mm	9.2		

In Accordance with CD225 Design for New Pavement Foundations,CBR Value has been caluclated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

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Test Carried Out By:

J. Curry

Quality Technician

Approved By:

Materials Director

Approved Date: 10 August 2022

EXPLORATION
& TESTING ASSOCIATES
Unit 8B Bowburn South Industrial Estate
Durham, DH6 5AD
Tel. (+44) 0191 389 6543

UKAS TESTING

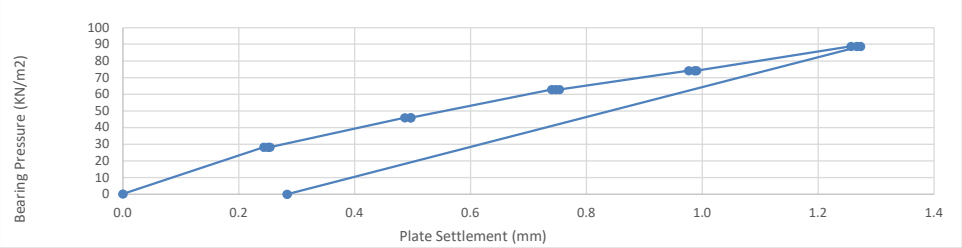
Test Report

Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing

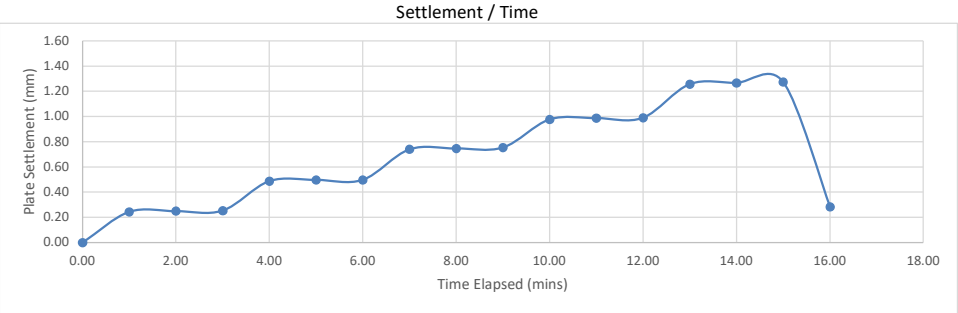
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557AS
Client	Groundwork Services (Durham) Limited	**Date Tested**	09/08/2022
	Thistle Road	**Weather Conditions**	Clear, Dry
	Littleburn Industrial Estate	**Air Temperature °C**	22°C
	Langley Moor	**Sample Description**	Clay
	DH7 8HJ	**Reaction Load**	22t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	450	**Test Location**	Zone 5 - Test 3
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	89	**Maximum Deformation (mm)**	1.27
Pressure at 1.25mm penetration (kPa)	88	**Modulus of Subgrade Reaction (Mn/M²/M)**	60.1
Calculated CBR (%) at 1.25mm	6.8		

In Accordance with CD225 Design for New Pavement Foundations,CBR Value has been caluclated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

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Test Carried Out By:

J. Curry

Quality Technician

Approved By:

Materials Director

Approved Date: 10 August 2022

EXPLORATION
& TESTING ASSOCIATES

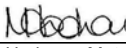
Unit 8B Bowburn South Industrial Estate
Durham, DH6 5AD T: 0191 389 6543

UKAS TESTING

Test Report

Client	Groundwork Services (Durham) Limited
Address	Littleburn Industrial Estate Langley Moor Durham DH7 8HJ
F.A.O	Paul Barton
Project:	Giga One Factory, Washington
Project Number:	D10557AU
Report Number:	L22-671
Date Received:	11th August 2022

Testing Required:	Insitu Density by Core Cutter - BS:1377-9:1990 Clause 2.3 Hand Shear Vane* Vertical Deformation and Strength Characteristics by the Incremental Plate Load Test - BS:1377-9:1990 Clause 4.1 Determination of Equivalent CBR Value using the Plate Bearing Test - Design Manual for Roads and Bridges, Volume 7: Pavement Design and Maintenance - Foundations HD25/9
Date Started:	11th August 2022
Date Finished:	12th August 2022

Report Issue Date:	12th August 2022
Reviewed By:	
	Natalie Hodson - Materials Director
Authorised By:	
	Nik O'Brien - Laboratory Manager
Remarks:	(*) denotes testing is outside of UKAS Scope of Accreditation.
	(+) denotes subcontracted testing.

Samples will be stored for one month after the report has been issue before being disposed of.

The published results appertain only to the specimens tested.

EXPLORATION & TESTING ASSOCIATES

Summary of in-situ density test results

Project No.	Project Name
D10557AU	Giga One, Washington

Test Position Reference	Test reference	Test No.	Depth to top m	Date of test	Soil Description	Site conditions during test	Test Type see below	In-situ Bulk Density Mg/m^3	Moisture Content %	In-situ Dry Density Mg/m^3	Remarks
Z8-L2-CC1	CC489	CC489	0.00	11/08/22	Brown, Sandy CLAY	Sunny, 28C	CCD	2.16	18	1.83	
Z8-L2-CC2	CC490	CC490	0.00	11/08/22	Brown, Sandy CLAY	Sunny, 28C	CCD	2.12	18	1.80	
Z8-L2-CC3	CC491	CC491	0.00	11/08/22	Brown, Sandy CLAY	Sunny, 28C	CCD	2.14	19	1.80	
Z8-L2-CC4	CC492	CC492	0.00	11/08/22	Brown, Sandy CLAY	Sunny, 28C	CCD	2.19	16	1.88	
Z8-L2-CC5	CC493	CC493	0.00	11/08/22	Brown, Sandy CLAY	Sunny, 28C	CCD	2.13	20	1.77	
Z8-L2-CC6	CC494	CC494	0.00	11/08/22	Brown, Sandy CLAY	Sunny, 28C	CCD	2.08	18	1.76	
Z8-L2-CC7	CC495	CC495	0.00	11/08/22	Brown, Sandy CLAY	Sunny, 28C	CCD	2.09	18	1.77	
Z8-L2-CC8	CC496	CC496	0.00	11/08/22	Brown, Sandy CLAY	Sunny, 28C	CCD	2.14	18	1.82	
Z8-L2-CC9	CC497	CC497	0.00	11/08/22	Brown, Sandy CLAY	Sunny, 28C	CCD	2.04	19	1.71	
Z8-L2-CC10	CC498	CC498	0.00	11/08/22	Brown, Sandy CLAY	Sunny, 28C	CCD	2.02	20	1.68	
Z8-L2-CC11	CC499	CC499	0.00	11/08/22	Brown, Sandy CLAY	Sunny, 29C	CCD	2.00	19	1.68	
Z8-L2-CC12	CC500	CC500	0.00	11/08/22	Brown, Sandy CLAY	Sunny, 29C	CCD	2.02	16	1.74	

Specifications

BS 1377 : Part 2 : 1990 Clause 3 Moisture content by oven drying method
BS 1377 : Part 9 : 1990 : In situ density tests, clauses :
SRDS 2.1 Sand replacement method (Small pouring cylinder)
SRDL 2.2 Sand replacement method (Large pouring cylinder)
CCD 2.4 Core cutter method

Approved By

Date
12/08/2022

N O'Brien

Laboratory Manager

UKAS Accredited Laboratory No. 20632

EXPLORATION & TESTING ASSOCIATES

Summary of in-situ density test results

Project No.	Project Name
D10557AU	Giga One, Washington

Test Position Reference	Test reference	Test No.	Depth to top m	Date of test	Soil Description	Site conditions during test	Test Type see below	In-situ Bulk Density Mg/m^3	Moisture Content %	In-situ Dry Density Mg/m^3	Remarks
Z8-L2-CC13	CC501	CC501	0.00	11/08/22	Brown, Sandy CLAY	Sunny, 29C	CCD	2.07	17	1.77	

Specifications

BS 1377 : Part 2 : 1990 Clause 3 Moisture content by oven drying method
BS 1377 : Part 9 : 1990 : In situ density tests, clauses :
SRDS 2.1 Sand replacement method (Small pouring cylinder)
SRDL 2.2 Sand replacement method (Large pouring cylinder)
CCD 2.4 Core cutter method

Approved By

N O'Brien

Laboratory Manager

Date

12/08/2022

UKAS Accredited Laboratory No. 20632

EXPLORATION
& TESTING ASSOCIATES

TEST CERTIFICATE
Determination of the Shear Strength Using the Laboratory Handvane

Client: Groundwork Services (Durham) Ltd

Project No: D10557AU

Project: Envision, Washington

Date Tested: 11th August 2022

Sampled By: D. Rutter for ETA

Ambient Temperature: ***28***°C

Weather Conditions: *Sunny, Dry*

Vane Used: Small

Comments:

	Z8-L2	Z8-L2	Z8-L2	Z8-L2	Z8-L2
Client Reference	CC489	CC490	CC491	CC492	CC493
Reading 1	9.8	11.0	12.0	11.0	9.8
Reading 2	10.4	11.1	12.0	11.3	9.9
Reading 3	10.6	10.8	12.0	11.3	8.7
Average Readings:	10.2	10.9	12.0	11.2	9.4
Equivalent Shear Stress (kN/m2)	**205**	**219**	**240**	**224**	**189**

	Z8-L2	Z8-L2	Z8-L2	Z8-L2	Z8-L2
Client Reference	CC494	CC495	CC496	CC497	CC498
Reading 1	10.2	10.3	11.6	12.0	10.9
Reading 2	10.3	10.3	12.0	12.0	11.3
Reading 3	9.6	9.8	12.0	12.0	11.8
Average Readings:	10.0	10.1	11.8	12.0	11.3
Equivalent Shear Stress (kN/m2)	**201**	**203**	**237**	**240**	**227**

	Z8-L2	Z8-L2	Z8-L2
Client Reference	CC499	CC500	CC501
Reading 1	12.0	10.9	11.0
Reading 2	12.0	11.1	11.4
Reading 3	12.0	10.8	11.4
Average Readings:	12.0	10.9	11.2
Equivalent Shear Stress (kN/m2)	**240**	**219**	**225**

Approved By: 

Date: 11th August 2022

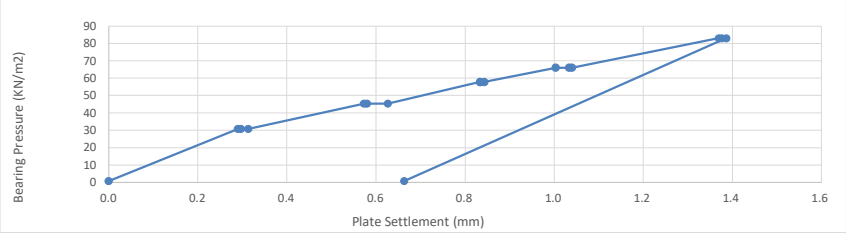
N.Hodson
Materials Director

EXPLORATION & TESTING ASSOCIATES
Unit 8B Bowburn South Industrial Estate
Durham, DH6 5AD
Tel. (+44) 0191 389 6543

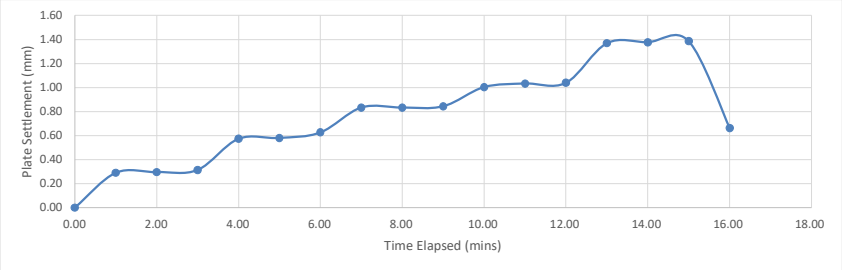
Test Report
Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557AU
Client	Groundwork Services (Durham) Limited	**Date Tested**	11/08/2022
	Thistle Road	**Weather Conditions**	Clear
	Littleburn Industrial Estate	**Air Temperature °C**	28°C
	Langley Moor	**Sample Description**	Brown Sandy Gravelly Clay
	DH7 8HJ	**Reaction Load**	13t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	450	**Test Location**	Zone 6 CBR 1
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	83	**Maximum Deformation (mm)**	1.39
Pressure at 1.25mm penetration (kPa)	77	**Modulus of Subgrade Reaction (Mn/M²/M)**	51.4
Calculated CBR (%) at 1.25mm	5.3		

In Accordance with CD225 Design for New Pavement Foundations,CBR Value has been caluclated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

The published results are appertaining only to the locations tested and are correct at the time of testing.

Test Carried Out By:

J. Curry

Quality Technician

Approved By:

Materials Director

Approved Date: 11 August 2022

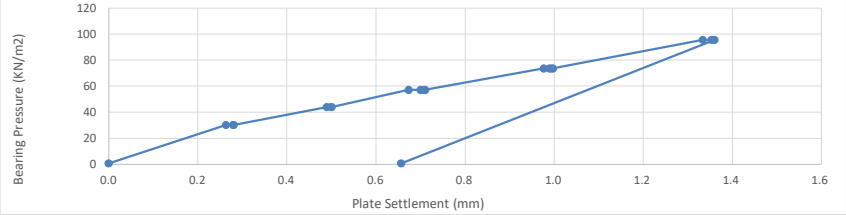
EXPLORATION
& TESTING ASSOCIATES
Unit 8B Bowburn South Industrial Estate
Durham, DH6 5AD
Tel. (+44) 0191 389 6543

UKAS TESTING

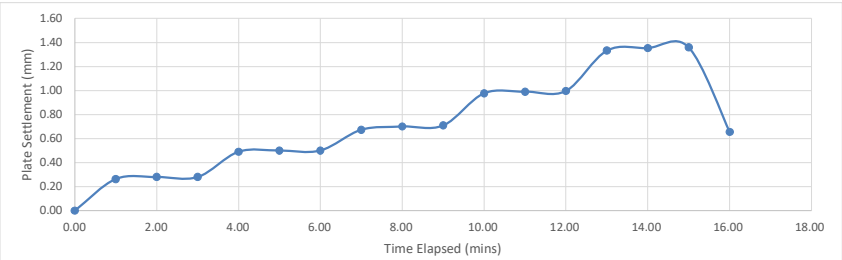
Test Report
Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557AU
Client	Groundwork Services (Durham) Limited	**Date Tested**	11/08/2022
	Thistle Road	**Weather Conditions**	Clear
	Littleburn Industrial Estate	**Air Temperature °C**	28°C
	Langley Moor	**Sample Description**	Brown Sandy Gravelly Clay
	DH7 8HJ	**Reaction Load**	13t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	450	**Test Location**	Zone 6 CBR 2
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	96	**Maximum Deformation (mm)**	1.36
Pressure at 1.25mm penetration (kPa)	90	**Modulus of Subgrade Reaction (Mn/M²/M)**	61.4
Calculated CBR (%) at 1.25mm	7.1		

In Accordance with CD225 Design for New Pavement Foundations,CBR Value has been caluclated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

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Test Carried Out By:

J. Curry

Quality Technician

Approved By:

Materials Director

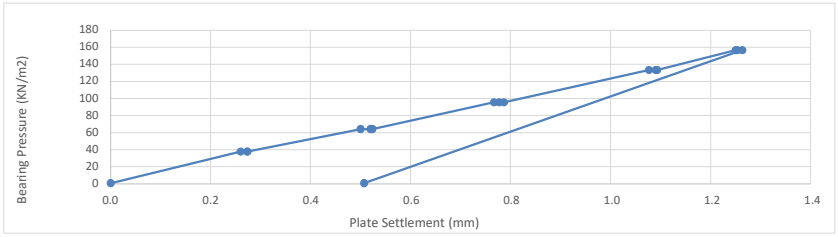
Approved Date: 11 August 2022

EXPLORATION
& TESTING ASSOCIATES
Unit 8B Bowburn South Industrial Estate
Durham, DH6 5AD
Tel. (+44) 0191 389 6543

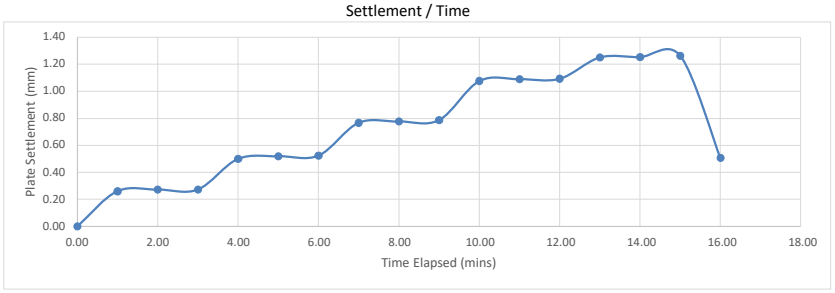
Test Report
Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557AU
Client	Groundwork Services (Durham) Limited	**Date Tested**	11/08/2022
	Thistle Road	**Weather Conditions**	Clear
	Littleburn Industrial Estate	**Air Temperature °C**	28°C
	Langley Moor	**Sample Description**	Brown Sandy Gravelly Clay
	DH7 8HJ	**Reaction Load**	13t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	450	**Test Location**	Zone 6 CBR 3
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	157	**Maximum Deformation (mm)**	1.26
Pressure at 1.25mm penetration (kPa)	157	**Modulus of Subgrade Reaction ($Mn/M^2/M$)**	113.3
Calculated CBR (%) at 1.25mm	18		

In Accordance with CD225 Design for New Pavement Foundations,CBR Value has been caluclated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

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The published results are appertaining only to the locations tested and are correct at the time of testing.

Test Carried Out By:

J. Curry

Quality Technician

Approved By:

Materials Director

Approved Date: 11 August 2022

EXPLORATION
& TESTING ASSOCIATES

Unit 8B Bowburn South Industrial Estate
Durham, DH6 5AD T: 0191 389 6543

UKAS TESTING

Test Report

Client	Groundwork Services (Durham) Limited
Address	Littleburn Industrial Estate Langley Moor Durham DH7 8HJ
F.A.O	Paul Barton
Project:	Giga One Factory, Washington
Project Number:	D10557AW
Report Number:	L22-704
Date Received:	15th August 2022

Testing Required:	Insitu Density by Core Cutter - BS:1377-9:1990 Clause 2.3 Hand Shear Vane* Vertical Deformation and Strength Characteristics by the Incremental Plate Load Test - BS:1377-9:1990 Clause 4.1 Determination of Equivalent CBR Value using the Plate Bearing Test - Design Manual for Roads and Bridges, Volume 7: Pavement Design and Maintenance - Foundations HD25/9
Date Started:	15th August 2022
Date Finished:	16th August 2022

Report Issue Date:	16th August 2022
Reviewed By:	
	Natalie Hodson - Materials Director
Authorised By:	
	Nik O'Brien - Laboratory Manager
Remarks:	(*) denotes testing is outside of UKAS Scope of Accreditation.
	(+) denotes subcontracted testing.

Samples will be stored for one month after the report has been issue before being disposed of.

The published results appertain only to the specimens tested.

EXPLORATION & TESTING ASSOCIATES

Summary of in-situ density test results

Project No.	Project Name
D10557AW	Giga One, Washington

Test Position Reference	Test reference	Depth to top m	Date of test	Soil Description	Site conditions during test	Test Type see below	In-situ Bulk Density Mg/m^3	Moisture Content %	In-situ Dry Density Mg/m^3	Remarks
Z8-L1-CC1 N558681/E433382	CC517		15/08/22	Clay	Sunny	CCD	2.06	17	1.76	
Z8-L1-CC2 N558703/E433393	CC518		15/08/22	Clay	Sunny	CCD	2.01	17	1.72	
Z8-L1-CC3 N558713/E433408	CC519		15/08/22	Clay	Sunny	CCD	2.00	18	1.70	
Z8-L1-CC4 N558721/E433401	CC520		15/08/22	Clay	Sunny	CCD	2.01	18	1.71	
Z8-L1-CC5 N558713/E433386	CC521		15/08/22	Clay	Sunny	CCD	2.04	14	1.78	
Z8-L1-CC6 N558730/E433416	CC522		15/08/22	Clay	Sunny	CCD	2.10	18	1.79	

Specifications

BS 1377 : Part 2 : 1990 Clause 3 Moisture content by oven drying method
BS 1377 : Part 9 : 1990 : In situ density tests, clauses :
SRDS 2.1 Sand replacement method (Small pouring cylinder)
SRDL 2.2 Sand replacement method (Large pouring cylinder)
CCD 2.4 Core cutter method

Approved By

Date
16/08/2022

N Hodson

Materials Director

UKAS Accredited Laboratory No. 20632

EXPLORATION
& TESTING ASSOCIATES

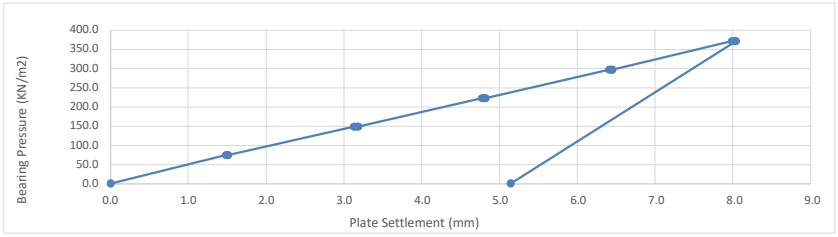
Unit 8B Bowburn South Industrial Estate
Durham, DH6 5AD

Tel. (+44) 0191 389 6543

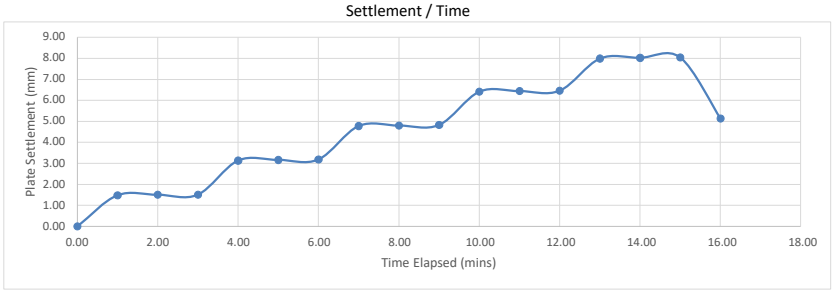
Test Report
Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557AW
Client	Groundwork Services (Durham) Limited	**Date Tested**	15/08/2022
	Thistle Road	**Weather Conditions**	Clear
	Littleburn Industrial Estate	**Air Temperature °C**	28°C
	Langley Moor	**Sample Description**	Brown Sandy Gravelly Clay
	DH7 8HJ	**Reaction Load**	13t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	600	**Test Location**	CBR 1
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	371	**Maximum Deformation (mm)**	8.04
Pressure at 1.25mm penetration (kPa)	63	**Modulus of Subgrade Reaction (Mn/M²/M)**	41.2
Calculated CBR (%) at 1.25mm	3.8		

In Accordance with CD225 Design for New Pavement Foundations,CBR Value has been caluclated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

The published results are appertaining only to the locations tested and are correct at the time of testing.

Test Carried Out By:

D. Rutter

Materials Technician

Approved By:

Materials Director

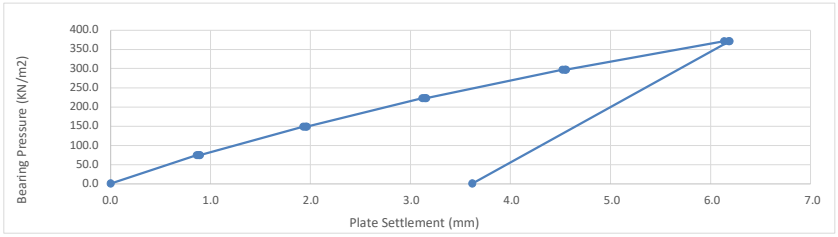
Approved Date: 16 August 2022

EXPLORATION
& TESTING ASSOCIATES
Unit 8B Bowburn South Industrial Estate
Durham, DH6 5AD
Tel. (+44) 0191 389 6543

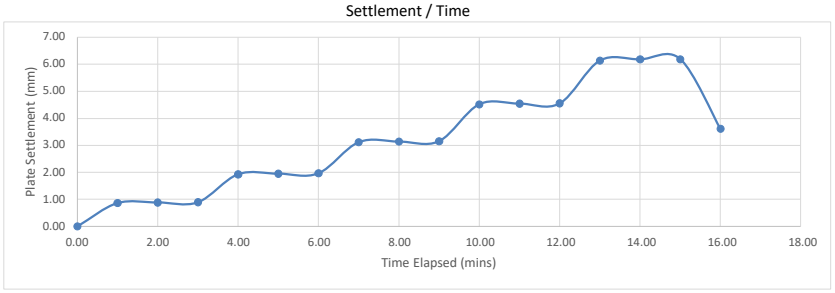
Test Report
Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557AW
Client	Groundwork Services (Durham) Limited	**Date Tested**	15/08/2022
	Thistle Road	**Weather Conditions**	Clear
	Littleburn Industrial Estate	**Air Temperature °C**	28°C
	Langley Moor	**Sample Description**	Brown Sandy Gravelly Clay
	DH7 8HJ	**Reaction Load**	13t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	600	**Test Location**	CBR 2
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	371	**Maximum Deformation (mm)**	6.19
Pressure at 1.25mm penetration (kPa)	100	**Modulus of Subgrade Reaction ($Mn/M^2/M$)**	68.9
Calculated CBR (%) at 1.25mm	8.4		

In Accordance with CD225 Design for New Pavement Foundations,CBR Value has been caluclated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

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Test Carried Out By:

D. Rutter

Materials Technician

Approved By:

Materials Director

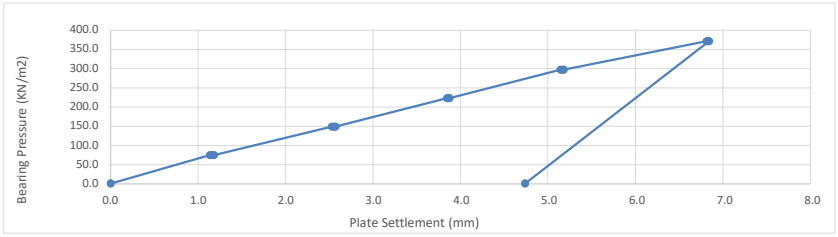
Approved Date: 16 August 2022

EXPLORATION
& TESTING ASSOCIATES
Unit 8B Bowburn South Industrial Estate
Durham, DH6 5AD
Tel. (+44) 0191 389 6543

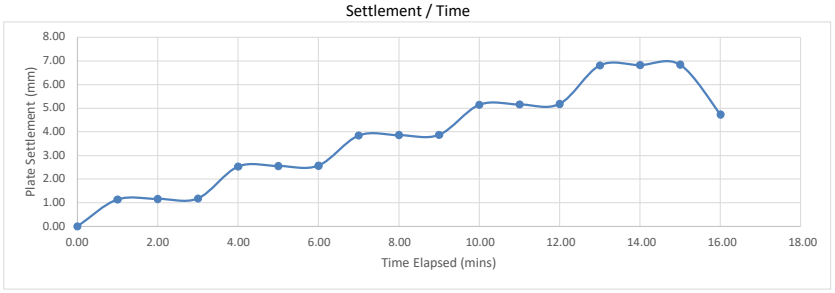
Test Report
Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557AW
Client	Groundwork Services (Durham) Limited	**Date Tested**	15/08/2022
	Thistle Road	**Weather Conditions**	Clear
	Littleburn Industrial Estate	**Air Temperature °C**	28°C
	Langley Moor	**Sample Description**	Brown Sandy Gravelly Clay
	DH7 8HJ	**Reaction Load**	13t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	600	**Test Location**	CBR 3
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	371	**Maximum Deformation (mm)**	6.84
Pressure at 1.25mm penetration (kPa)	78	**Modulus of Subgrade Reaction (Mn/M²/M)**	69.4
Calculated CBR (%) at 1.25mm	8.5		

In Accordance with CD225 Design for New Pavement Foundations,CBR Value has been caluclated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

The published results are appertaining only to the locations tested and are correct at the time of testing.

Test Carried Out By:

D. Rutter

Materials Technician

Approved By:

Materials Director

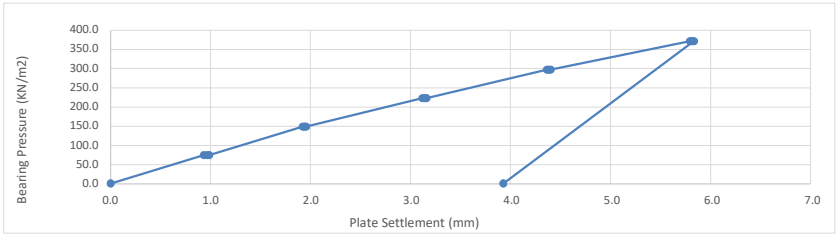
Approved Date: 16 August 2022

EXPLORATION
& TESTING ASSOCIATES
Unit 8B Bowburn South Industrial Estate
Durham, DH6 5AD
Tel. (+44) 0191 389 6543

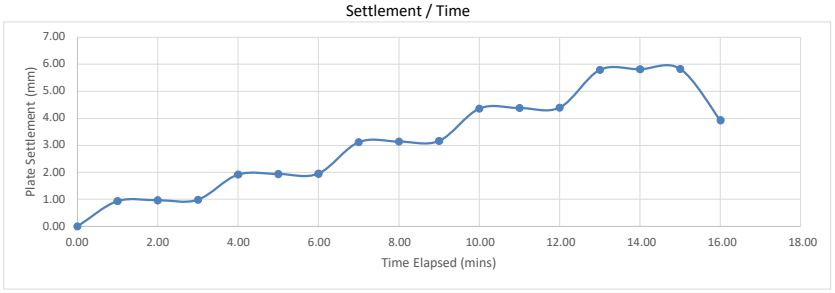
Test Report
Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557AW
Client	Groundwork Services (Durham) Limited	**Date Tested**	15/08/2022
	Thistle Road	**Weather Conditions**	Clear
	Littleburn Industrial Estate	**Air Temperature °C**	28°C
	Langley Moor	**Sample Description**	Brown Sandy Gravelly Clay
	DH7 8HJ	**Reaction Load**	13t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	600	**Test Location**	CBR 4
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	371	**Maximum Deformation (mm)**	5.83
Pressure at 1.25mm penetration (kPa)	95	**Modulus of Subgrade Reaction ($Mn/M^2/M$)**	86.7
Calculated CBR (%) at 1.25mm	12.1		

In Accordance with CD225 Design for New Pavement Foundations,CBR Value has been caluclated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

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The published results are appertaining only to the locations tested and are correct at the time of testing.

Test Carried Out By:

D. Rutter

Materials Technician

Approved By:

Materials Director

Approved Date: 16 August 2022

TEST CERTIFICATE
Determination of the Shear Strength Using the Laboratory Handvane

Client: Groundwork Services (Durham) Ltd

Project No: D10557AW

Project: Envision, Washington

Date Tested: 15th August 2022

Sampled By: D. Rutter for ETA

Ambient Temperature: ***26***°C

Weather Conditions: *Sunny, Dry*

Vane Used: Small

Comments:

	Z8-L1	Z8-L1	Z8-L1	Z8-L1	Z8-L1	Z8-L1
Client Reference	CC517	CC518	CC519	CC520	CC521	CC512
Reading 1	12.0	9.0	12.0	11.8	12.0	12.0
Reading 2	11.4	12.0	11.4	11.4	11.8	12.0
Reading 3	11.0	12.0	10.8	10.8	10.0	12.0
Average Readings:	11.4	11.0	11.4	11.3	11.2	12.0
Equivalent Shear Stress (kN/m2)	**229**	**220**	**228**	**227**	**225**	**240**

Approved By:

J. Curry
Quality Technician

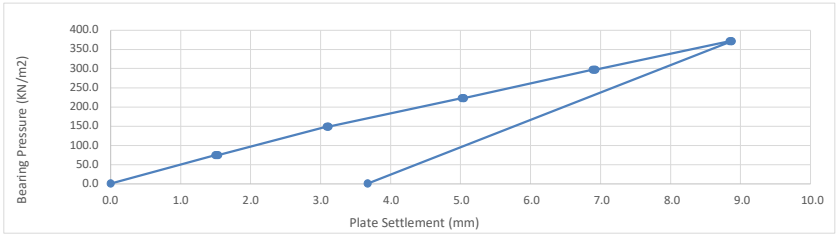
Date: 16th August 2022

EXPLORATION
& TESTING ASSOCIATES
Unit 8B Bowburn South Industrial Estate
Durham, DH6 5AD
Tel. (+44) 0191 389 6543

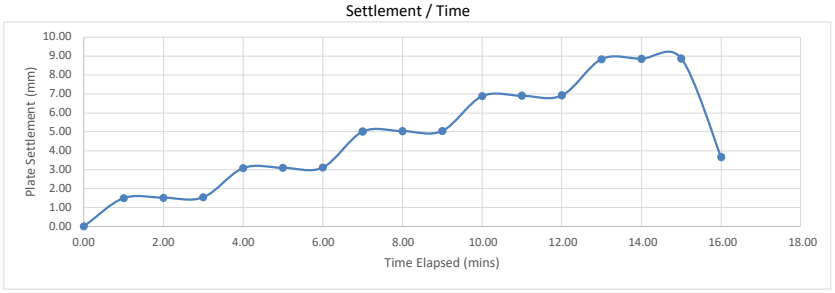
Test Report
Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557AW
Client	Groundwork Services (Durham) Limited	**Date Tested**	15/08/2022
	Thistle Road	**Weather Conditions**	Clear
	Littleburn Industrial Estate	**Air Temperature °C**	28°C
	Langley Moor	**Sample Description**	Brown Sandy Gravelly Clay
	DH7 8HJ	**Reaction Load**	13t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	600	**Test Location**	CBR 5
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	371	**Maximum Deformation (mm)**	8.88
Pressure at 1.25mm penetration (kPa)	62	**Modulus of Subgrade Reaction (Mn/M²/M)**	54.0
Calculated CBR (%) at 1.25mm	5.8		

In Accordance with CD225 Design for New Pavement Foundations,CBR Value has been caluclated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

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Test Carried Out By:

D. Rutter

Materials Technician

Approved By:

Materials Director

Approved Date: 16 August 2022

EXPLORATION
& TESTING ASSOCIATES
Unit 8B Bowburn South Industrial Estate
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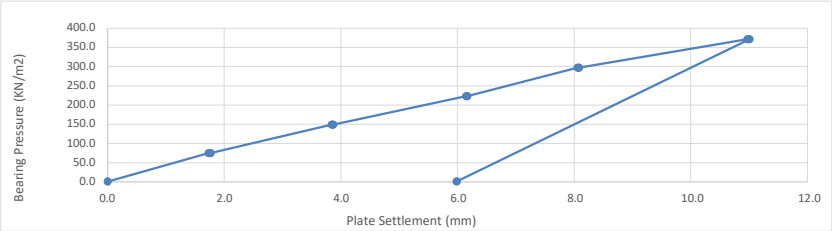
Tel. (+44) 0191 389 6543

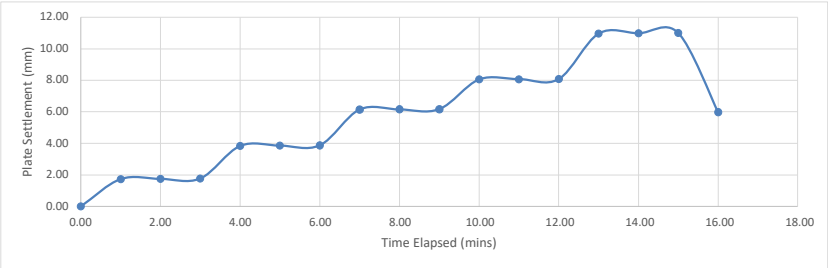
Test Report
Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557AW
Client	Groundwork Services (Durham) Limited	**Date Tested**	15/08/2022
	Thistle Road	**Weather Conditions**	Clear
	Littleburn Industrial Estate	**Air Temperature °C**	28°C
	Langley Moor	**Sample Description**	Brown Sandy Gravelly Clay
	DH7 8HJ	**Reaction Load**	13t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	600	**Test Location**	CBR 6
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	371	**Maximum Deformation (mm)**	11.01
Pressure at 1.25mm penetration (kPa)	54	**Modulus of Subgrade Reaction ($Mn/M^2/M$)**	46.1
Calculated CBR (%) at 1.25mm	4.5		

In Accordance with CD225 Design for New Pavement Foundations,CBR Value has been caluclated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

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Test Carried Out By:

D. Rutter

Materials Technician

Approved By:

Materials Director

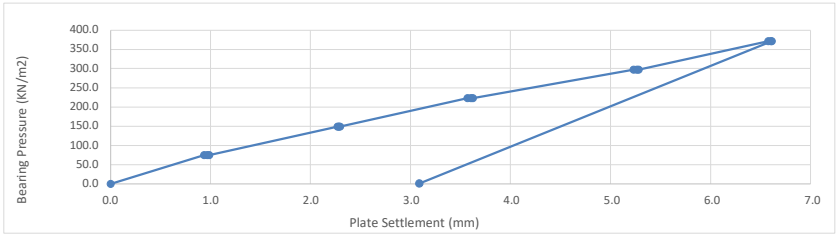
Approved Date: 16 August 2022

EXPLORATION
& TESTING ASSOCIATES
Unit 8B Bowburn South Industrial Estate
Durham, DH6 5AD
Tel. (+44) 0191 389 6543

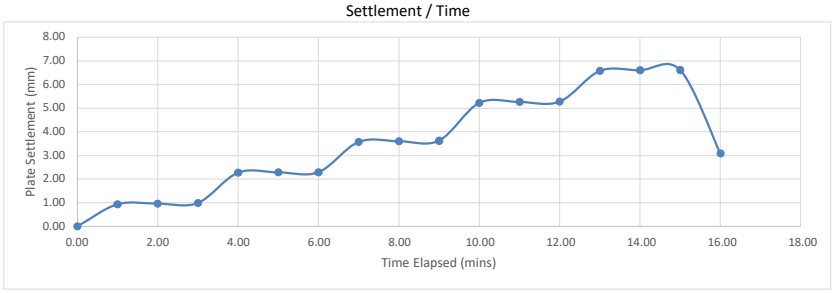
Test Report
Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557AX
Client	Groundwork Services (Durham) Limited	**Date Tested**	16/08/2022
	Thistle Road	**Weather Conditions**	Overcast
	Littleburn Industrial Estate	**Air Temperature °C**	18°C
	Langley Moor	**Sample Description**	Type 1
	DH7 8HJ	**Reaction Load**	22t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	600	**Test Location**	CBR 1 - L2 Pad
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	371	**Maximum Deformation (mm)**	6.61
Pressure at 1.25mm penetration (kPa)	90	**Modulus of Subgrade Reaction ($Mn/M^2/M$)**	80.9
Calculated CBR (%) at 1.25mm	11		

In Accordance with CD225 Design for New Pavement Foundations,CBR Value has been caluclated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

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Test Carried Out By:

D. Rutter

Materials Technician

Approved By:

Materials Director

Approved Date: 17 August 2022

EXPLORATION & TESTING ASSOCIATES
Unit 8B Bowburn South Industrial Estate
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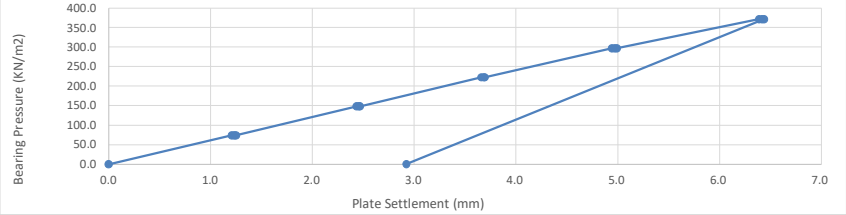
Tel. (+44) 0191 389 6543

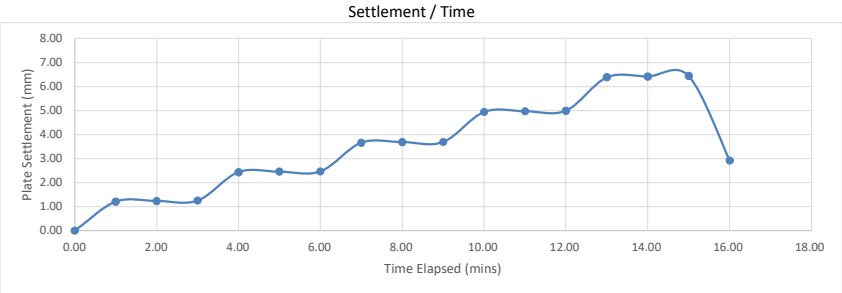
Test Report
Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557AX
Client	Groundwork Services (Durham) Limited	**Date Tested**	16/08/2022
	Thistle Road	**Weather Conditions**	Overcast
	Littleburn Industrial Estate	**Air Temperature °C**	18°C
	Langley Moor	**Sample Description**	Type 1
	DH7 8HJ	**Reaction Load**	22t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	600	**Test Location**	CBR 2 - L2 Pad
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	371	**Maximum Deformation (mm)**	6.44
Pressure at 1.25mm penetration (kPa)	74	**Modulus of Subgrade Reaction (Mn/M²/M)**	65.8
Calculated CBR (%) at 1.25mm	7.9		

In Accordance with CD225 Design for New Pavement Foundations,CBR Value has been caluclated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

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Test Carried Out By:

D. Rutter

Materials Technician

Approved By:

Materials Director

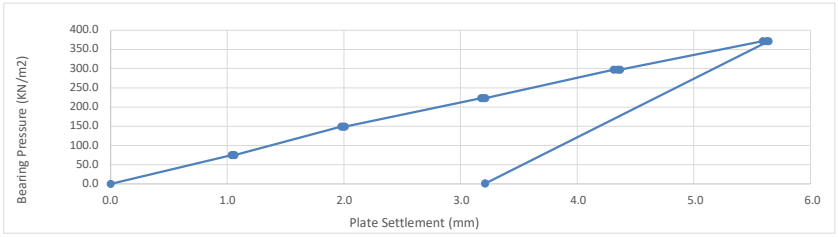
Approved Date: 17 August 2022

EXPLORATION
& TESTING ASSOCIATES
Unit 8B Bowburn South Industrial Estate
Durham, DH6 5AD
Tel. (+44) 0191 389 6543

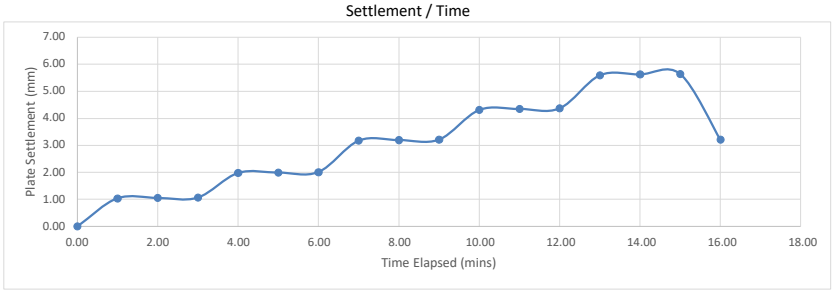
Test Report
Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557AX
Client	Groundwork Services (Durham) Limited	**Date Tested**	16/08/2022
	Thistle Road	**Weather Conditions**	Overcast
	Littleburn Industrial Estate	**Air Temperature °C**	18°C
	Langley Moor	**Sample Description**	Type 1
	DH7 8HJ	**Reaction Load**	22t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	600	**Test Location**	CBR 3 - L2 Pad
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	371	**Maximum Deformation (mm)**	5.64
Pressure at 1.25mm penetration (kPa)	89	**Modulus of Subgrade Reaction (Mn/M²/M)**	80.9
Calculated CBR (%) at 1.25mm	11		

In Accordance with CD225 Design for New Pavement Foundations,CBR Value has been caluclated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

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Test Carried Out By:

D. Rutter

Materials Technician

Approved By:

Materials Director

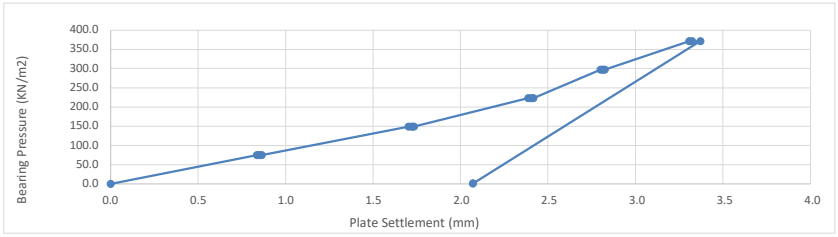
Approved Date: 17 August 2022

EXPLORATION
& TESTING ASSOCIATES
Unit 8B Bowburn South Industrial Estate
Durham, DH6 5AD
Tel. (+44) 0191 389 6543

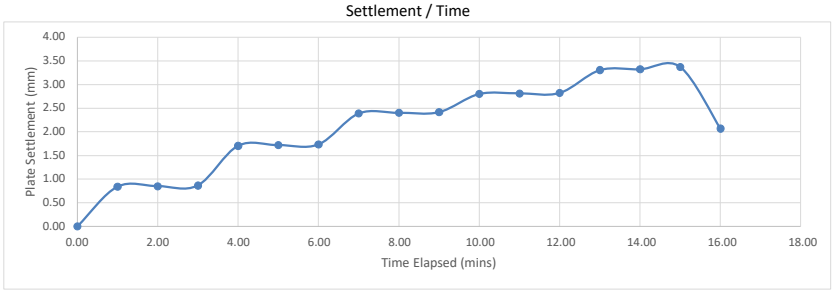
Test Report
Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557AX
Client	Groundwork Services (Durham) Limited	**Date Tested**	16/08/2022
	Thistle Road	**Weather Conditions**	Overcast
	Littleburn Industrial Estate	**Air Temperature °C**	18°C
	Langley Moor	**Sample Description**	Type 1
	DH7 8HJ	**Reaction Load**	22t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	600	**Test Location**	CBR 4 - L2 Pad
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	371	**Maximum Deformation (mm)**	3.37
Pressure at 1.25mm penetration (kPa)	108	**Modulus of Subgrade Reaction (Mn/M²/M)**	100.1
Calculated CBR (%) at 1.25mm	15		

In Accordance with CD225 Design for New Pavement Foundations,CBR Value has been caluclated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

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Comments:

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Test Carried Out By:

D. Rutter

Materials Technician

Approved By:

Materials Director

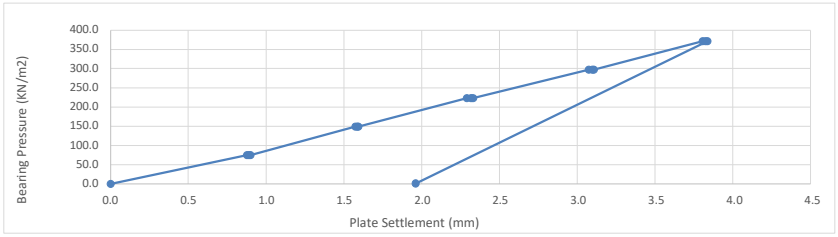
Approved Date: 17 August 2022

EXPLORATION
& TESTING ASSOCIATES
Unit 8B Bowburn South Industrial Estate
Durham, DH6 5AD
Tel. (+44) 0191 389 6543

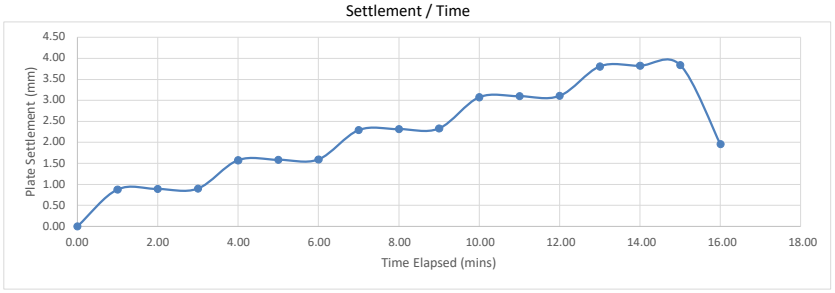
Test Report
Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557AX
Client	Groundwork Services (Durham) Limited	**Date Tested**	16/08/2022
	Thistle Road	**Weather Conditions**	Overcast
	Littleburn Industrial Estate	**Air Temperature °C**	18°C
	Langley Moor	**Sample Description**	Type 1
	DH7 8HJ	**Reaction Load**	22t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	600	**Test Location**	CBR 5 - L2 Pad
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	371	**Maximum Deformation (mm)**	3.84
Pressure at 1.25mm penetration (kPa)	113	**Modulus of Subgrade Reaction (Mn/M²/M)**	104.6
Calculated CBR (%) at 1.25mm	16		

In Accordance with CD225 Design for New Pavement Foundations,CBR Value has been caluclated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

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Test Carried Out By:

D. Rutter

Materials Technician

Approved By:

Materials Director

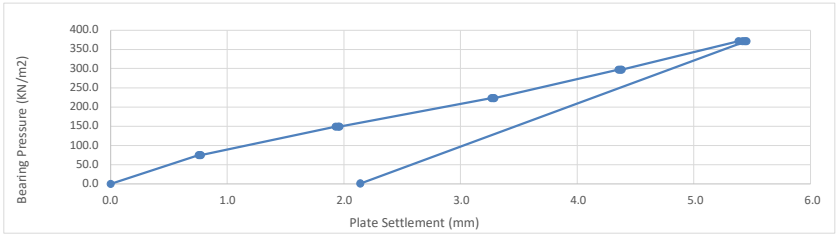
Approved Date: 17 August 2022

EXPLORATION
& TESTING ASSOCIATES
Unit 8B Bowburn South Industrial Estate
Durham, DH6 5AD
Tel. (+44) 0191 389 6543

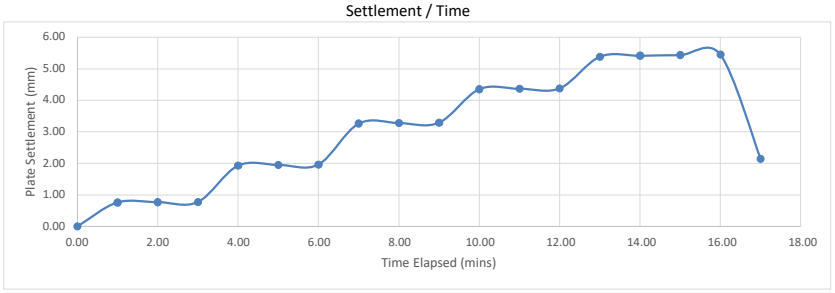
Test Report
Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557AX
Client	Groundwork Services (Durham) Limited	**Date Tested**	16/08/2022
	Thistle Road	**Weather Conditions**	Overcast
	Littleburn Industrial Estate	**Air Temperature °C**	18°C
	Langley Moor	**Sample Description**	Type 1
	DH7 8HJ	**Reaction Load**	22t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	600	**Test Location**	CBR 6 - L2 Pad
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	371	**Maximum Deformation (mm)**	5.45
Pressure at 1.25mm penetration (kPa)	105	**Modulus of Subgrade Reaction (Mn/M²/M)**	96.5
Calculated CBR (%) at 1.25mm	14		

In Accordance with CD225 Design for New Pavement Foundations,CBR Value has been caluclated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

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The published results are appertaining only to the locations tested and are correct at the time of testing.

Test Carried Out By:

D. Rutter

Materials Technician

Approved By:

Materials Director

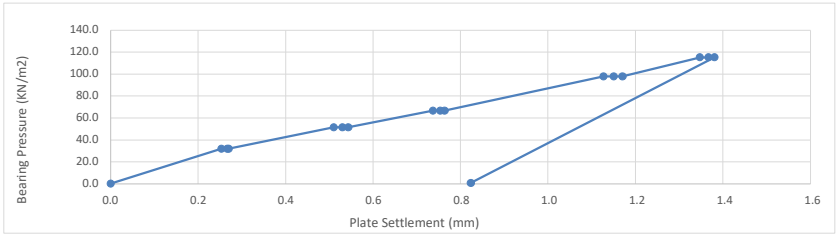
Approved Date: 17 August 2022

EXPLORATION
& TESTING ASSOCIATES
Unit 8B Bowburn South Industrial Estate
Durham, DH6 5AD
Tel. (+44) 0191 389 6543

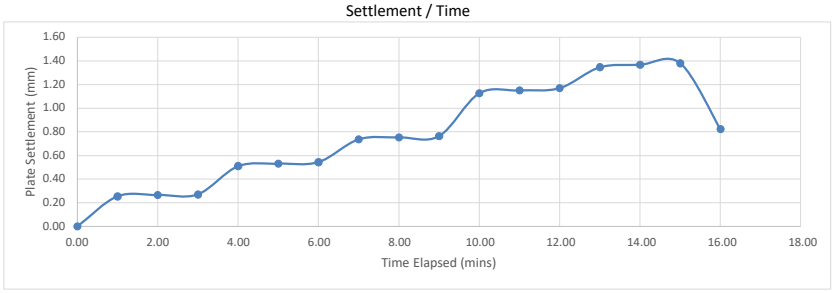
Test Report
Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557AX
Client	Groundwork Services (Durham) Limited	**Date Tested**	16/08/2022
	Thistle Road	**Weather Conditions**	Overcast
	Littleburn Industrial Estate	**Air Temperature °C**	18°C
	Langley Moor	**Sample Description**	Clay
	DH7 8HJ	**Reaction Load**	13t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	600	**Test Location**	CBR 7 - Road
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	115	**Maximum Deformation (mm)**	1.38
Pressure at 1.25mm penetration (kPa)	106	**Modulus of Subgrade Reaction ($Mn/M^2/M$)**	97.4
Calculated CBR (%) at 1.25mm	14		

In Accordance with CD225 Design for New Pavement Foundations,CBR Value has been caluclated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments: Test location will be retest with 450mm diameter plate on 17.08.2022

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

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Test Carried Out By:
D. Rutter
Materials Technician

Approved By:
Materials Director

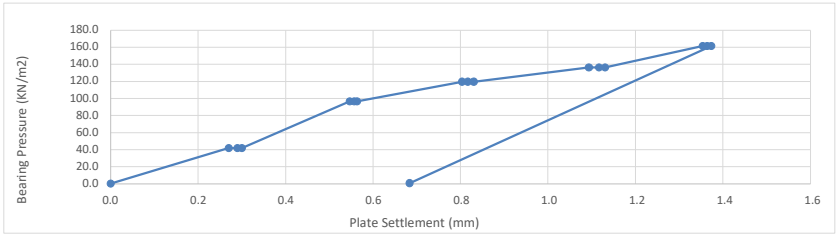
Approved Date: 17 August 2022

EXPLORATION
& TESTING ASSOCIATES
Unit 8B Bowburn South Industrial Estate
Durham, DH6 5AD
Tel. (+44) 0191 389 6543

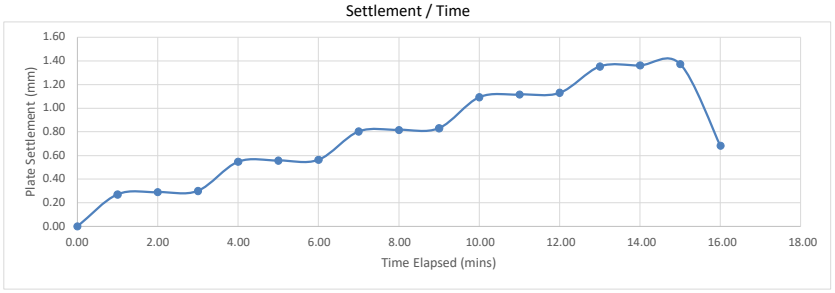
Test Report
Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557AX
Client	Groundwork Services (Durham) Limited	**Date Tested**	16/08/2022
	Thistle Road	**Weather Conditions**	Overcast
	Littleburn Industrial Estate	**Air Temperature °C**	18°C
	Langley Moor	**Sample Description**	Clay
	DH7 8HJ	**Reaction Load**	13t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	600	**Test Location**	CBR 8 - L2 Road
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	161	**Maximum Deformation (mm)**	1.37
Pressure at 1.25mm penetration (kPa)	150	**Modulus of Subgrade Reaction ($Mn/M^2/M$)**	143.1
Calculated CBR (%) at 1.25mm	26		

In Accordance with CD225 Design for New Pavement Foundations,CBR Value has been caluclated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments: Will be retested using 450mm diameter plate on 17.08.2022

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

The published results are appertaining only to the locations tested and are correct at the time of testing.

Test Carried Out By:
D. Rutter
Materials Technician

Approved By:
Materials Director

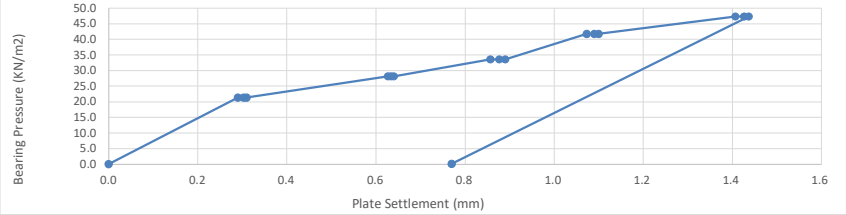
Approved Date: 17 August 2022

EXPLORATION & TESTING ASSOCIATES
Unit 8B Bowburn South Industrial Estate
Durham, DH6 5AD
Tel. (+44) 0191 389 6543

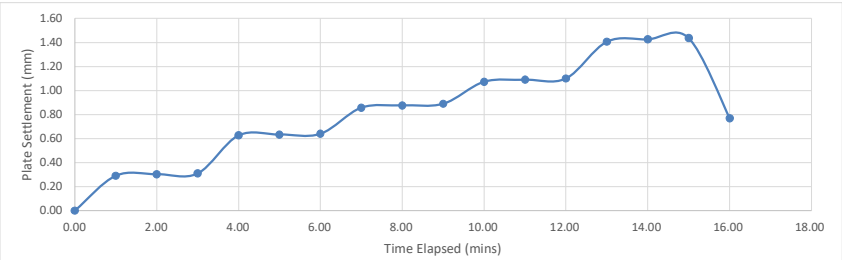
Test Report
Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557AX
Client	Groundwork Services (Durham) Limited	**Date Tested**	16/08/2022
	Thistle Road	**Weather Conditions**	Overcast
	Littleburn Industrial Estate	**Air Temperature °C**	18°C
	Langley Moor	**Sample Description**	Clay
	DH7 8HJ	**Reaction Load**	13t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	600	**Test Location**	CBR 9 - Road
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	47	**Maximum Deformation (mm)**	1.44
Pressure at 1.25mm penetration (kPa)	44	**Modulus of Subgrade Reaction (Mn/M²/M)**	37.2
Calculated CBR (%) at 1.25mm	3.2		

In Accordance with CD225 Design for New Pavement Foundations,CBR Value has been caluclated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments: Test location will be retested using 450mm diameter plate on 17.08.2022

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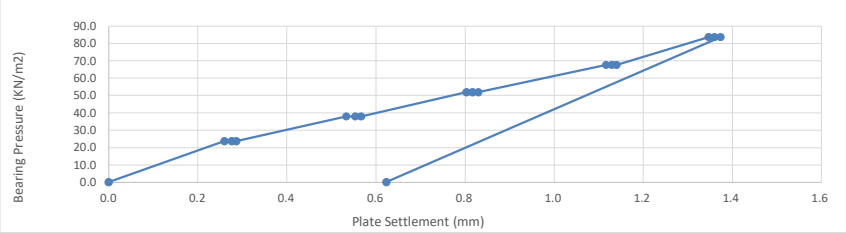
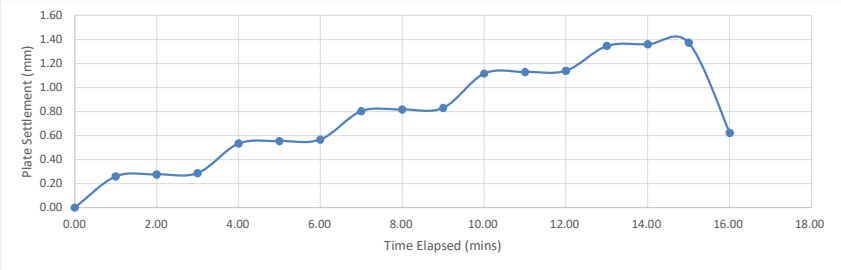
Test Report
Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557AX
Client	Groundwork Services (Durham) Limited	**Date Tested**	16/08/2022
	Thistle Road	**Weather Conditions**	Overcast
	Littleburn Industrial Estate	**Air Temperature °C**	18°C
	Langley Moor	**Sample Description**	Clay
	DH7 8HJ	**Reaction Load**	13t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	600	**Test Location**	CBR 10 - Zone 10
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	84	**Maximum Deformation (mm)**	1.37
Pressure at 1.25mm penetration (kPa)	76	**Modulus of Subgrade Reaction (Mn/M²/M)**	67.7
Calculated CBR (%) at 1.25mm	8.2		

In Accordance with CD225 Design for New Pavement Foundations,CBR Value has been caluclated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments: Test location will be retested using 450mm diameter plate on 17.08.2022

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

The published results are appertaining only to the locations tested and are correct at the time of testing.

Test Carried Out By:
D. Rutter
Materials Technician

Approved By:
Materials Director

Approved Date: 17 August 2022

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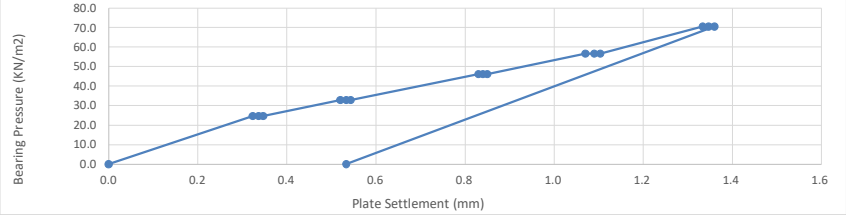
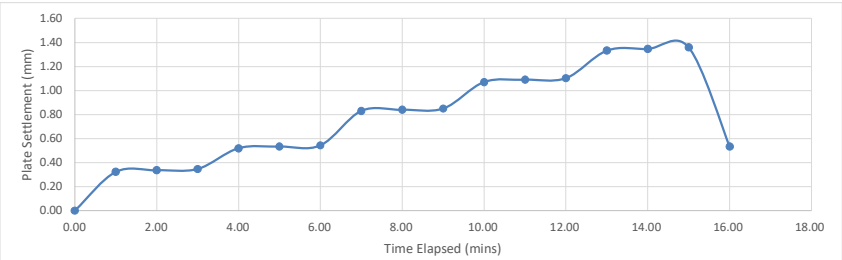
Test Report
Determination of the Vertifcal Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	**Job Number**	D10557AX
Client	Groundwork Services (Durham) Limited	**Date Tested**	16/08/2022
	Thistle Road	**Weather Conditions**	Overcast
	Littleburn Industrial Estate	**Air Temperature °C**	18°C
	Langley Moor	**Sample Description**	Clay
	DH7 8HJ	**Reaction Load**	13t Tracked Excavator
Depth of Test from Groundlevel	0	**Denisty & Moisture**	Not Requested
Plate Diameter (mm)	600	**Test Location**	CBR 11 - Road Zone 10
Distance between the edge of the plate and the wall of the excavation (mm)			N/A

Pressure Applied / Plate Setlement



Settlement / Time



Maximum Pressure Applied (kPa)	71	**Maximum Deformation (mm)**	1.36
Pressure at 1.25mm penetration (kPa)	66	**Modulus of Subgrade Reaction (Mn/M²/M)**	57.3
Calculated CBR (%) at 1.25mm	6.3		

In Accordance with CD225 Design for New Pavement Foundations,CBR Value has been caluclated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments: Test location being retested using 450mm diameter plate on 17.08.2022

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

The published results are appertaining only to the locations tested and are correct at the time of testing.

Test Carried Out By:
D. Rutter
Materials Technician

Approved By:
Materials Director

Approved Date: 17 August 2022

EXPLORATION
& TESTING ASSOCIATES

Unit 8B Bowburn South Industrial Estate
Durham, DH6 5AD T: 0191 389 6543

UKAS TESTING

Test Report

Client	Groundwork Services (Durham) Limited
Address	Littleburn Industrial Estate Langley Moor Durham DH7 8HJ
F.A.O	Paul Barton
Project:	Giga One Factory, Washington
Project Number:	D10557AY
Report Number:	L22-708
Date Received:	17th August 2022

Testing Required:	Insitu Density by Core Cutter - BS:1377-9:1990 Clause 2.3 Hand Shear Vane* Vertical Deformation and Strength Characteristics by the Incremental Plate Load Test - BS:1377-9:1990 Clause 4.1 Determination of Equivalent CBR Value using the Plate Bearing Test - Design Manual for Roads and Bridges, Volume 7: Pavement Design and Maintenance - Foundations HD25/9
Date Started:	17th August 2022
Date Finished:	18th August 2022

Report Issue Date:	18th August 2022
Reviewed By:	Natalie Hodson - Materials Director
Authorised By:	Nik O'Brien - Laboratory Manager
Remarks:	(*) denotes testing is outside of UKAS Scope of Accreditation. (+) denotes subcontracted testing.

Samples will be stored for one month after the report has been issue before being disposed of.

The published results appertain only to the specimens tested.

EXPLORATION & TESTING ASSOCIATES

Summary of in-situ density test results

Project No.	Project Name
D10557AY	Giga One, Washington

Test Position Reference	Test reference	Depth to top m	Date of test	Soil Description	Site conditions during test	Test Type see below	In-situ Bulk Density Mg/m^3	Moisture Content %	In-situ Dry Density Mg/m^3	Remarks
Z8-L2-CC1 N558712/E433391	CC522		17/08/22	Clay	Sunny	CCD	1.97	18	1.68	
Z8-L2-CC2 N558720/E433405	CC523		17/08/22	Clay	Sunny	CCD	2.02	18	1.71	
Z8-L2-CC3 N558723/E433415	CC524		17/08/22	Clay	Sunny	CCD	1.99	18	1.69	
Z8-L2-CC4 N558728/E433427	CC525		17/08/22	Clay	Sunny	CCD	2.08	17	1.78	
Z8-L2-CC5 N558733/E433440	CC526		17/08/22	Clay	Sunny	CCD	2.10	16	1.81	
Z8-L2-CC6 N558703/E433397	CC527		17/08/22	Clay	Sunny	CCD	2.11	16	1.81	
Z8-L2-CC7 N558708/E433408	CC528		17/08/22	Clay	Sunny	CCD	2.00	17	1.71	
Z8-L2-CC8 N558711/E433420	CC529		17/08/22	Clay	Sunny	CCD	2.00	18	1.69	
Z8-L2-CC9 N558718/E433432	CC530		17/08/22	Clay	Sunny	CCD	2.02	19	1.69	
Z8-L2-CC10 N558722/E433443	CC531		17/08/22	Clay	Sunny	CCD	2.03	18	1.72	

Specifications

BS 1377 : Part 2 : 1990 Clause 3 Moisture content by oven drying method

BS 1377 : Part 9 : 1990 : In situ density tests, clauses :

SRDS 2.1 Sand replacement method (Small pouring cylinder)

SRDL 2.2 Sand replacement method (Large pouring cylinder)

CCD 2.4 Core cutter method

Approved By

Date

18/08/2022

N Hodson

Materials Director

UKAS Accredited Laboratory No. 20632