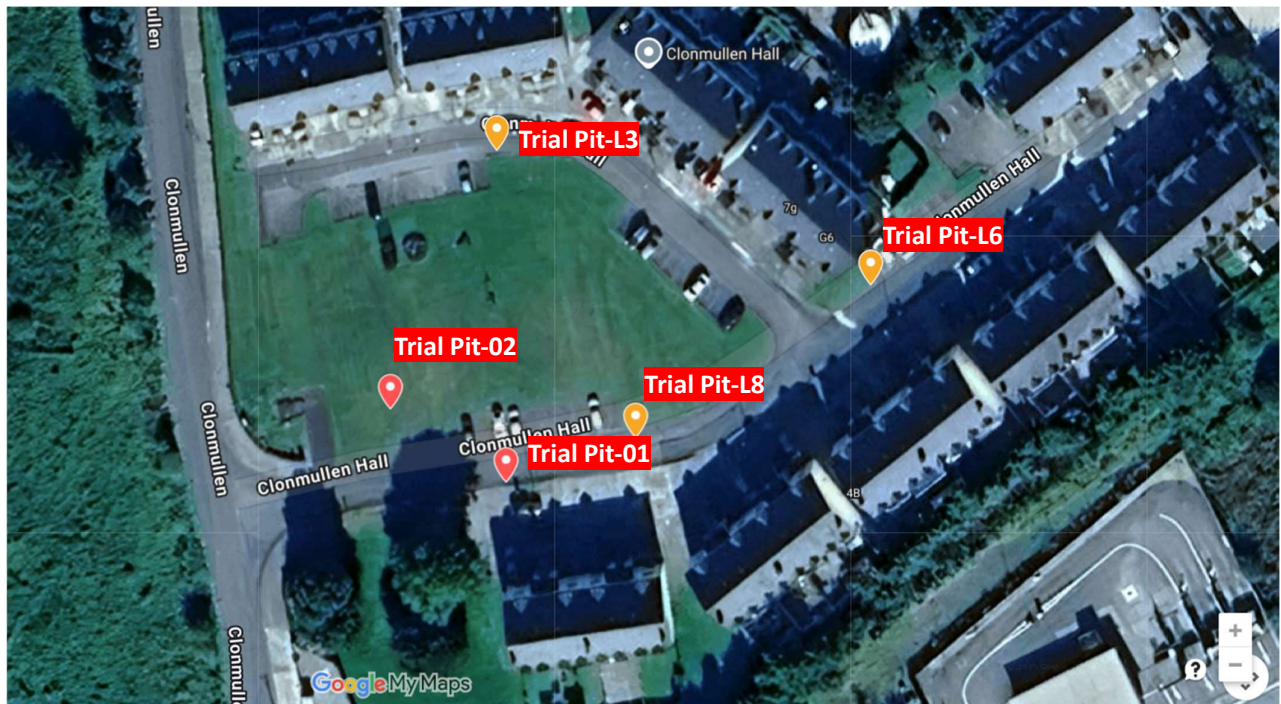


EDENDERRY-CLONMULLEN HALL GROUND **INVESTIGATION REPORTS**

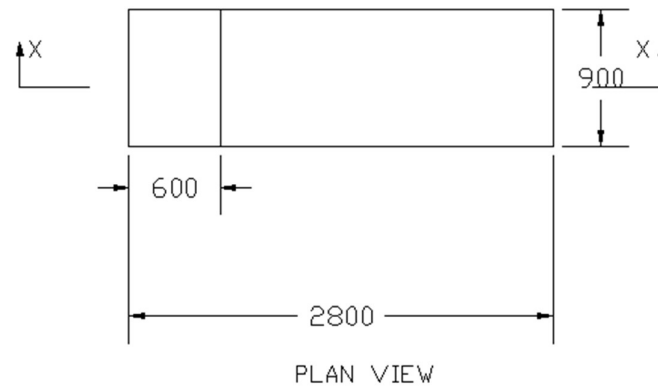
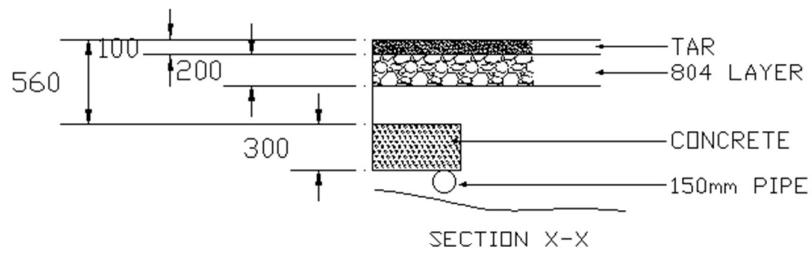


TRIAL PIT 01

Latitude : 53.34529322317342

Longitude : -7.046472843593974



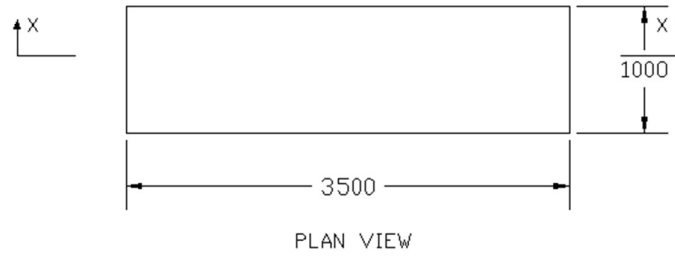
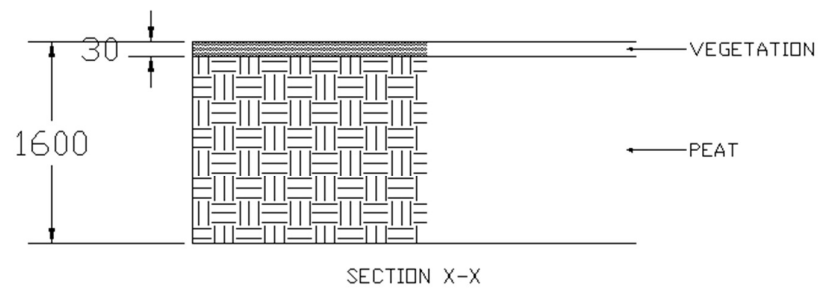


TRIAL PIT 02

Latitude : 53.3453942250291

Longitude : -7.046740918723405





TRIAL PIT- L3

Latitude : 53.34575173292537

Longitude : -7.0464926497061695



TRIAL PIT-L6

Latitude : 53.34556505739387

Longitude : -7.045625752059898



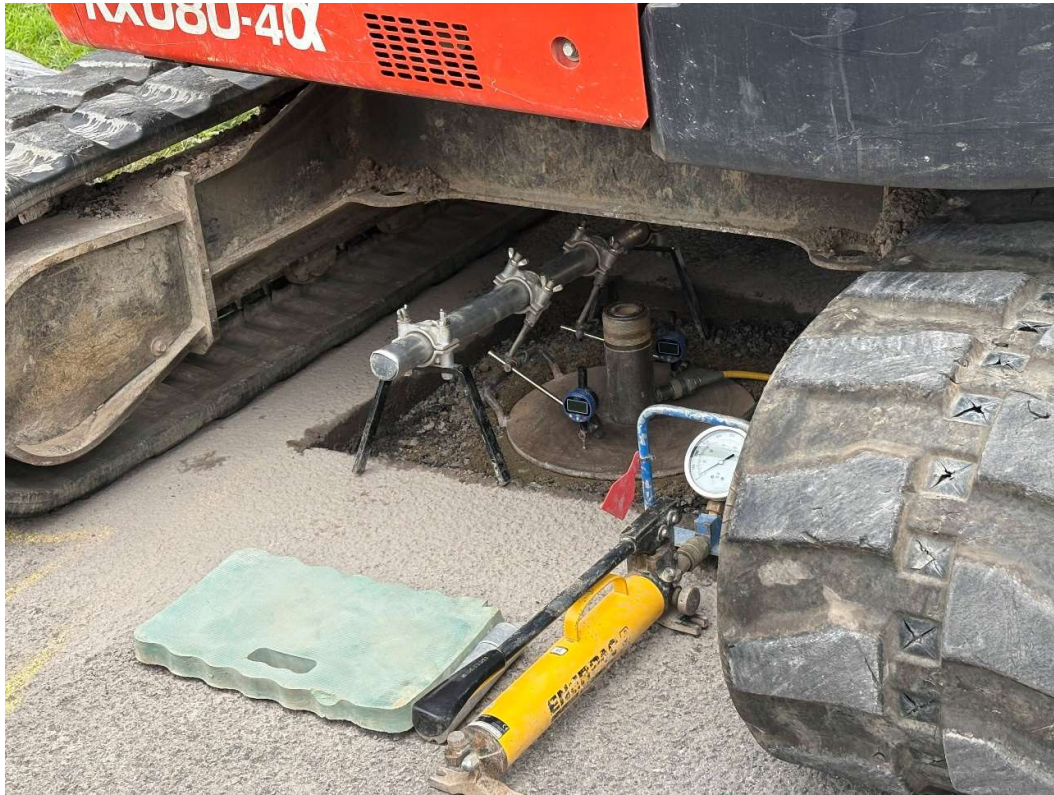


TRIAL PIT-L8

Latitude : 53.34535372295985

Longitude : -7.046171128690498



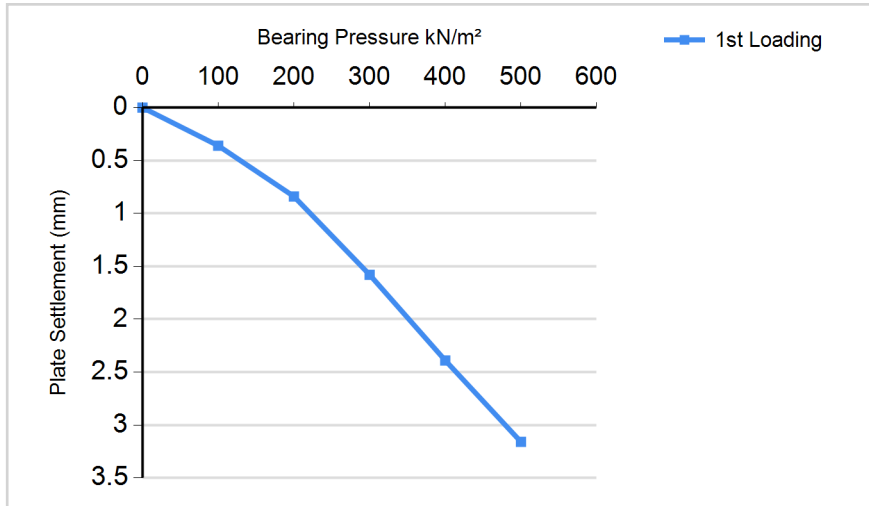


Client: Tower Plant and Civil Engineering
Tower House
Clonminch
Tullamore
FAO: Niall Garry

BHP Ref No: 25/07/2375
Order No: 137/001/034
Date Tested: 08/07/2025
Test Specification: Client Spec
Item: Fill Material

Project: Clonmullen Hall Edenderry
Location Reference: CBR Test Location L3
Type of Reaction Load: Track Machine
Plate Diameter: 450
BS 1377:Part 9:1990, CL4.1 (Plate Loading Test)

Bearing Pressure (kN/m ²)	Plate Settlement (mm)
0	0.00
100	0.36
200	0.84
300	1.58
400	2.39
500	3.16



Maximum Applied Pressure (kN/m ²)	500
Maximum Deformation (mm)	3.16
Estimated CBR % @ 1.25mm deformation	42
K = (KN/m ² /m) @ 1.25mm deformation	126480
K = (MN/m ² /m) @ 1.25mm deformation	126

Remarks:

CBR calculated in accordance with Part 2 DMRB Vule 7 : Part 2 HD 25/94
Time recorded at each interval was 3 minutes.

Where the deformation does not exceed 1.25mm during the test, the CBR and K values have been estimated and are not included under our scope of accreditation. Information identifying the 'Client', 'FTAO', 'Project', 'Client Ref.', 'Order No.' & information regarding the supply of a 'Sampling Certificate', has been supplied by the customer.

Approved By:	Signature:
James Purcell - Field Service Manager	

For and On Behalf of BHP Laboratories

Issue Date: 09/07/2025

Tested by BHP Laboratories, New Road, Thomondgate, Limerick Phone:(061) 455399 Email: jamespurcell@bhp.ie

This test report will not be duplicated expect in full without the permission of the laboratory. Information identifying the 'Client', 'FAO', 'Project', 'Location Reference', 'Item', 'Test Specification' and 'Order No' has been provided by the customer. Results apply only to the sample tested and where the laboratory is not responsible for sampling, result apply to the sample as received. Sampling is outside the scope of accreditation

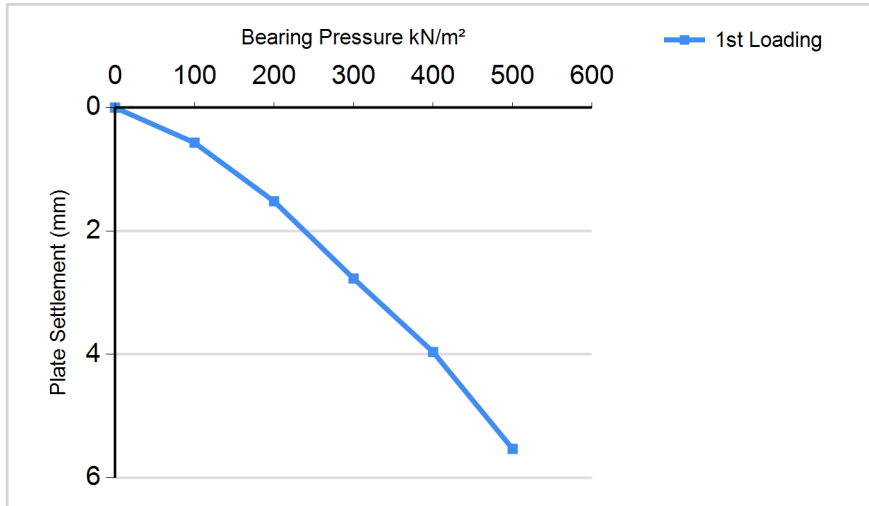
Client: Tower Plant and Civil Engineering
Tower House
Clonminch
Tullamore
FAO: Niall Garry

BHP Ref No: 25/07/2376
Order No: 137/001/034
Date Tested: 08/07/2025
Test Specification: Client Spec
Item: Fill Material

Project: Clonmullen Hall Edenderry
Location Reference: CBR Test Location L6
Type of Reaction Load: Track Machine
Plate Diameter: 450

BS 1377:Part 9:1990, CL4.1 (Plate Loading Test)

Bearing Pressure (kN/m ²)	Plate Settlement (mm)
0	0.00
100	0.57
200	1.52
300	2.77
400	3.96
500	5.53

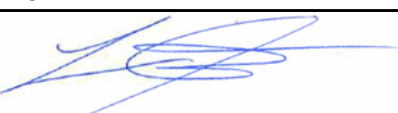


Maximum Applied Pressure (kN/m ²)	500
Maximum Deformation (mm)	5.53
Estimated CBR % @ 1.25mm deformation	21
K = (KN/m ² /m) @ 1.25mm deformation	85312
K = (MN/m ² /m) @ 1.25mm deformation	85

Remarks:

CBR calculated in accordance with Part 2 DMRB Vule 7 : Part 2 HD 25/94
Time recorded at each interval was 3 minutes.

Where the deformation does not exceed 1.25mm during the test, the CBR and K values have been estimated and are not included under our scope of accreditation. Information identifying the 'Client', 'FTAO', 'Project', 'Client Ref.', 'Order No.' & information regarding the supply of a 'Sampling Certificate', has been supplied by the customer.

Approved By:	Signature:
James Purcell - Field Service Manager	

For and On Behalf of BHP Laboratories

Issue Date: 09/07/2025

Tested by BHP Laboratories, New Road, Thomondgate, Limerick Phone:(061) 455399 Email: jamespurcell@bhp.ie

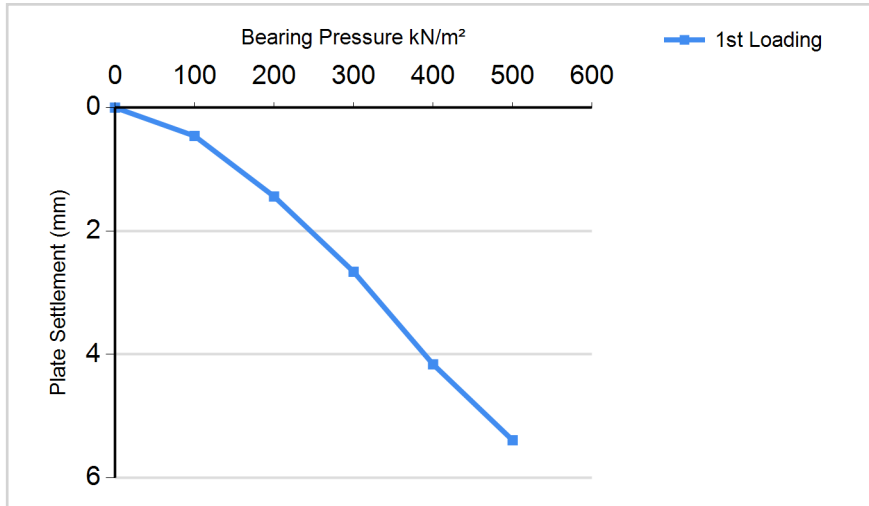
This test report will not be duplicated expect in full without the permission of the laboratory. Information identifying the 'Client', 'FAO', 'Project', 'Location Reference', 'Item', 'Test Specification' and 'Order No' has been provided by the customer. Results apply only to the sample tested and where the laboratory is not responsible for sampling, result apply to the sample as received. Sampling is outside the scope of accreditation

Client: Tower Plant and Civil Engineering
Tower House
Clonminch
Tullamore
FAO: Niall Garry

BHP Ref No: 25/07/2377
Order No: 137/001/034
Date Tested: 08/07/2025
Test Specification: Client Spec
Item: Fill Material

Project: Clonmullen Hall Edenderry
Location Reference: CBR Test Location L8
Type of Reaction Load: Track Machine
Plate Diameter: 450
BS 1377:Part 9:1990, CL4.1 (Plate Loading Test)

Bearing Pressure (kN/m ²)	Plate Settlement (mm)
0	0.00
100	0.46
200	1.44
300	2.66
400	4.16
500	5.39



Maximum Applied Pressure (kN/m ²)	500
Maximum Deformation (mm)	5.39
Estimated CBR % @ 1.25mm deformation	23
K = (KN/m ² /m) @ 1.25mm deformation	89776
K = (MN/m ² /m) @ 1.25mm deformation	89

Remarks:

CBR calculated in accordance with Part 2 DMRB Vule 7 : Part 2 HD 25/94
Time recorded at each interval was 3 minutes.

Where the deformation does not exceed 1.25mm during the test, the CBR and K values have been estimated and are not included under our scope of accreditation. Information identifying the 'Client', 'FTAO', 'Project', 'Client Ref.', 'Order No.' & information regarding the supply of a 'Sampling Certificate', has been supplied by the customer.

Approved By:	Signature:
James Purcell - Field Service Manager	

For and On Behalf of BHP Laboratories

Issue Date: 09/07/2025

Tested by BHP Laboratories, New Road, Thomondgate, Limerick Phone:(061) 455399 Email: jamespurcell@bhp.ie

This test report will not be duplicated expect in full without the permission of the laboratory. Information identifying the 'Client', 'FAO', 'Project', 'Location Reference', 'Item', 'Test Specification' and 'Order No' has been provided by the customer. Results apply only to the sample tested and where the laboratory is not responsible for sampling, result apply to the sample as received. Sampling is outside the scope of accreditation

Tower Civil Engineering
Clonmullen Hall, Edenderry,
Co. Offaly
MF134515



JULY 11

Tower Civil Engineering
Authored by: Enda Quinlan



Contents

1.0	Project Overview	Page 3
2.0	Project Requirements	Page 3
3.0	Location of Works	Page 3
	Dynamic Probe Test Reports	Appendix A

1.0 Project Overview

As part of some site investigation works for Tower Civil Engineering at Clonmullen Hall, Edenderry, Co. Offaly .The client was required to undertake Ground Investigation work to investigate the condition of the ground.

BHP was contracted by Niall Garry to provide these Ground Investigation Work.

2.0 Project Requirements

The scope of work for these investigative works was as follows:

- 3no. Dynamic Probe Testing.
- 3No. CBR Tests



Appendix A

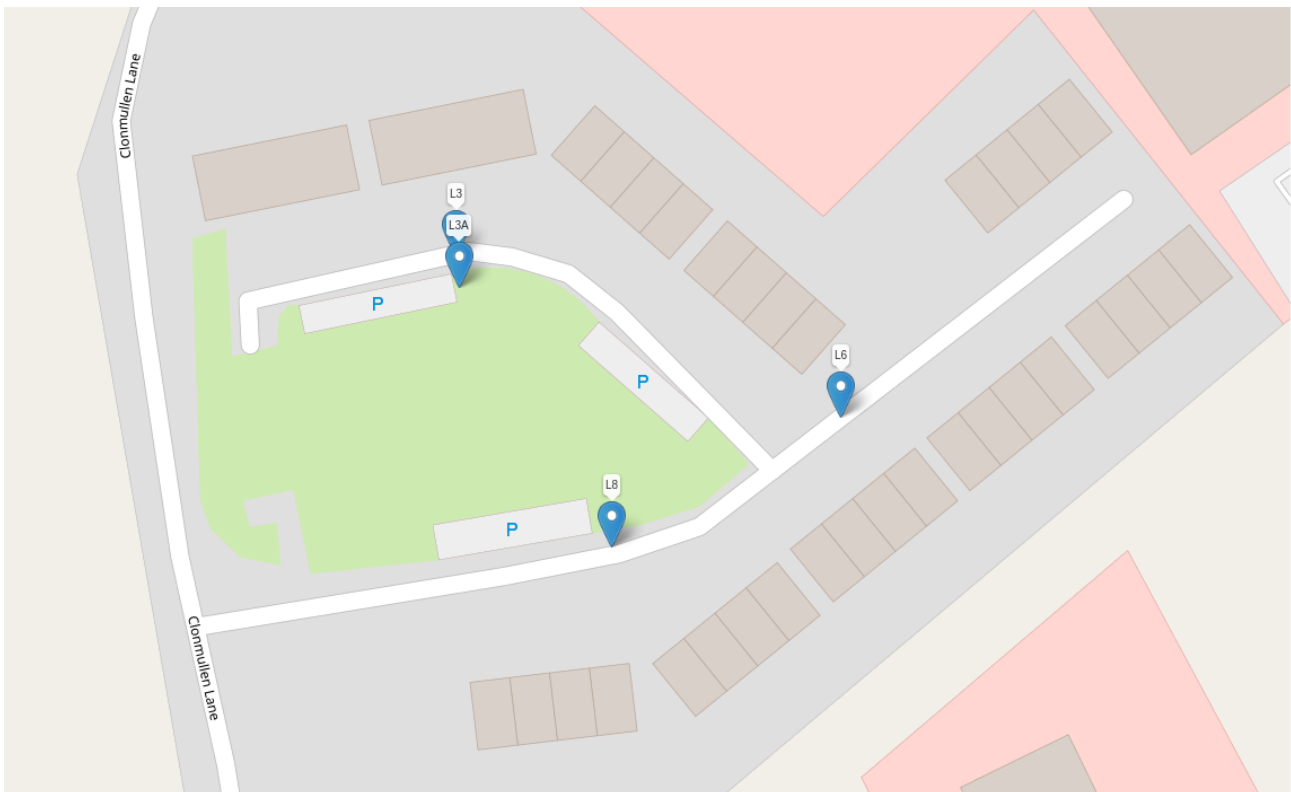
DYNAMIC PROBE TESTS

BHP completed 3No. Dynamic probe tests to a target depth of 5m or refusal. This was undertaken by using a Grizzly dynamic probing rig supplied by Sol Solution in France. The machine is a heavyweight constant energy dynamic cone penetrometer (DPSH) used for compaction control and soil investigation. There is also an ability for the machine to use a variable energy for probing – this means the drop height is automatically adjusted as it encounters variable ground conditions.

The results for this test are included in Appendix A of this report. It includes the determination of an estimated bearing capacity for the different layers. BHP has used the data recorded on the machines' software system to import into the accompanying geotechnical software called Websprint.

The dynamic probing test was undertaken using a 63.5kg hammer and a 20cm² cone. The probing method for this testing is the DPSH. In the blow/blow account the drop height is confirmed.

The table below provides a summary of the data contained in this report. Please note the bearing capacities offered in the report format is the ultimate bearing capacity and the allowable has been added to the below along with the allowable if the ground tested is deemed to be below the water table.



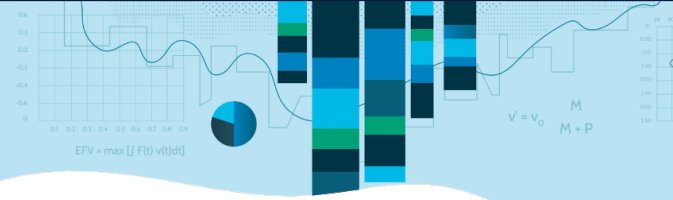
L3				
Depth	Cone Resistance (qd)	Ultimate Bearing Capacity (estimated)	Allowable Bearing Capacity (estimated)	Allowable Bearing Capacity (estimated) - if below water table
(m)	(Mpa)	(kPa)	(kPa)	(kPa)
0.21	18	892	297	149
0.41	18	903	301	150
0.61	77	3858	1286	643
0.81	174	8702	2901	1450

L3 A				
Depth	Cone Resistance (qd)	Ultimate Bearing Capacity (estimated)	Allowable Bearing Capacity (estimated)	Allowable Bearing Capacity (estimated) - if below water table
(m)	(Mpa)	(kPa)	(kPa)	(kPa)
0.24	1	66	22	11
0.47	4	178	59	30
0.71	6	302	101	50
0.94	1	58	19	10
1.2	1	42	14	7
1.4	1	39	13	6
1.6	1	39	13	6
1.9	1	42	14	7
2.1	1	46	15	8
2.3	1	44	15	7
2.6	1	55	18	9
2.8	1	57	19	10
3.0	1	63	21	10
3.3	1	62	21	10
3.5	2	94	31	16
3.7	1	65	22	11
4.0	1	69	23	12
4.2	2	93	31	16
4.4	2	85	28	14
4.7	2	78	26	13
4.9	2	84	28	14
5.1	2	89	30	15
5.3	2	90	30	15
5.6	2	86	29	14
5.8	2	103	34	17
6.0	4	180	60	30
6.3	4	203	68	34
6.5	3	157	52	26
6.7	4	182	61	30
7.0	5	253	84	42
7.2	6	299	100	50
7.4	6	289	96	48
7.7	5	264	88	44
7.9	8	406	135	68
8.1	8	393	131	65
8.4	9	440	147	73
8.6	11	531	177	89
8.8	10	500	167	83
9.1	10	516	172	86
9.3	13	629	210	105
9.5	15	740	247	123
9.8	12	621	207	104
10.0	14	699	233	116
10.2	14	697	232	116

L6				
Depth	Cone Resistance (qd)	Ultimate Bearing Capacity (estimated)	Allowable Bearing Capacity (estimated)	Allowable Bearing Capacity (estimated) - if below water table
(m)	(Mpa)	(kPa)	(kPa)	(kPa)
0.2	12	620	207	103
0.4	39	1955	652	326
0.6	50	2523	841	421
0.8	62	3086	1029	514
1.0	43	2169	723	362
1.2	36	1824	608	304
1.4	36	1810	603	302
1.7	16	813	271	135
1.9	6	306	102	51
2.1	1	44	15	7
2.3	1	41	14	7
2.5	1	41	14	7
2.7	1	55	18	9
2.9	1	68	23	11
3.1	1	67	22	11
3.3	2	75	25	13
3.5	2	85	28	14
3.7	2	99	33	17
3.9	3	152	51	25
4.1	2	112	37	19
4.3	2	122	41	20
4.5	3	136	45	23
4.7	3	125	42	21
4.9	3	136	45	23
5.1	3	134	45	22
5.3	3	161	54	27
5.5	5	233	78	39
5.8	5	232	77	39
6.0	4	216	72	36
6.2	5	226	75	38
6.4	5	237	79	39
6.6	8	422	141	70
6.8	13	636	212	106
7.0	12	615	205	103
7.2	8	383	128	64

L8				
Depth	Cone Resistance (qd)	Ultimate Bearing Capacity (estimated)	Allowable Bearing Capacity (estimated)	Allowable Bearing Capacity (estimated) - if below water table
(m)	(Mpa)	(kPa)	(kPa)	(kPa)
0.5	33	1664	555	277
1.1	21	1064	355	177
1.6	7	362	121	60
2.1	1	29	10	5
2.6	1	43	14	7
3.2	1	57	19	9
3.7	1	61	20	10
4.2	2	75	25	13
4.7	3	158	53	26
5.3	4	190	63	32
5.8	7	334	111	56
6.3	14	691	230	115
6.8	12	577	192	96
7.4	8	420	140	70

SOIL INVESTIGATION



Report name : Report - Tower Civil Engineering - Clonmullen Hall, Edenderry, Co. Offaly

File reference : MF134515

Construction site address : Clonmullen Hall, Edenderry, Co. Offaly

City : Edenderry

Investigation period : 10/07/2025 - 10/07/2025

Project owner : Tower Civil Engineering

Project manager : Niall Garry

Report date : 11/07/2025

Written by : Enda Quinlan

Review date : 11/07/2025

Reviewed by : James Purcell

Summary

1. Documents and information	3
1.1. Documents provided	3
2. Soil investigation results	4
2.1. Summary of soundings carried out	4
2.2. Test report	4

1. Documents and information

1.1. Documents provided

<i>Documents</i>	<i>Provided by</i>
Site plan	Not provided
Project plan	Not provided
Updated project plan	Not provided
As-built plan	Not provided
Long profile	Not provided
Execution plan	Not provided
Layout plan	Not provided
Access authorization for crossing private land	Not provided

2. Soil investigation results

2.1. Summary of soundings carried out

<i>Sounding</i>	<i>Material</i>	<i>Altitude</i>	<i>Stop condition</i>	<i>Reached depth</i>	<i>Page</i>
L3	Grizzly	72.8 m	Temporary	0.62 m	5
L3A	Grizzly	74.5 m	Temporary	10.0 m	6
L6	Grizzly	75.0 m	Temporary	7.01 m	7
L8	Grizzly	92.9 m	Temporary	7.01 m	8

2.2. Test report

Soundings results are displayed below

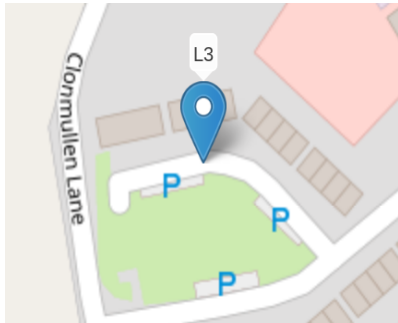


File reference : MF134515
Site : Tower
Construction site address : Clonmullen Hall, Edenderry,
Co. Offaly Edenderry

Dynamic penetrometer test
Soil investigation
NF P 94-115 EN ISO 22476-2

Sounding : L3
Date : 10/07/2025 12:20
Company : Sol Solution
User : AB
Supervisor : PM

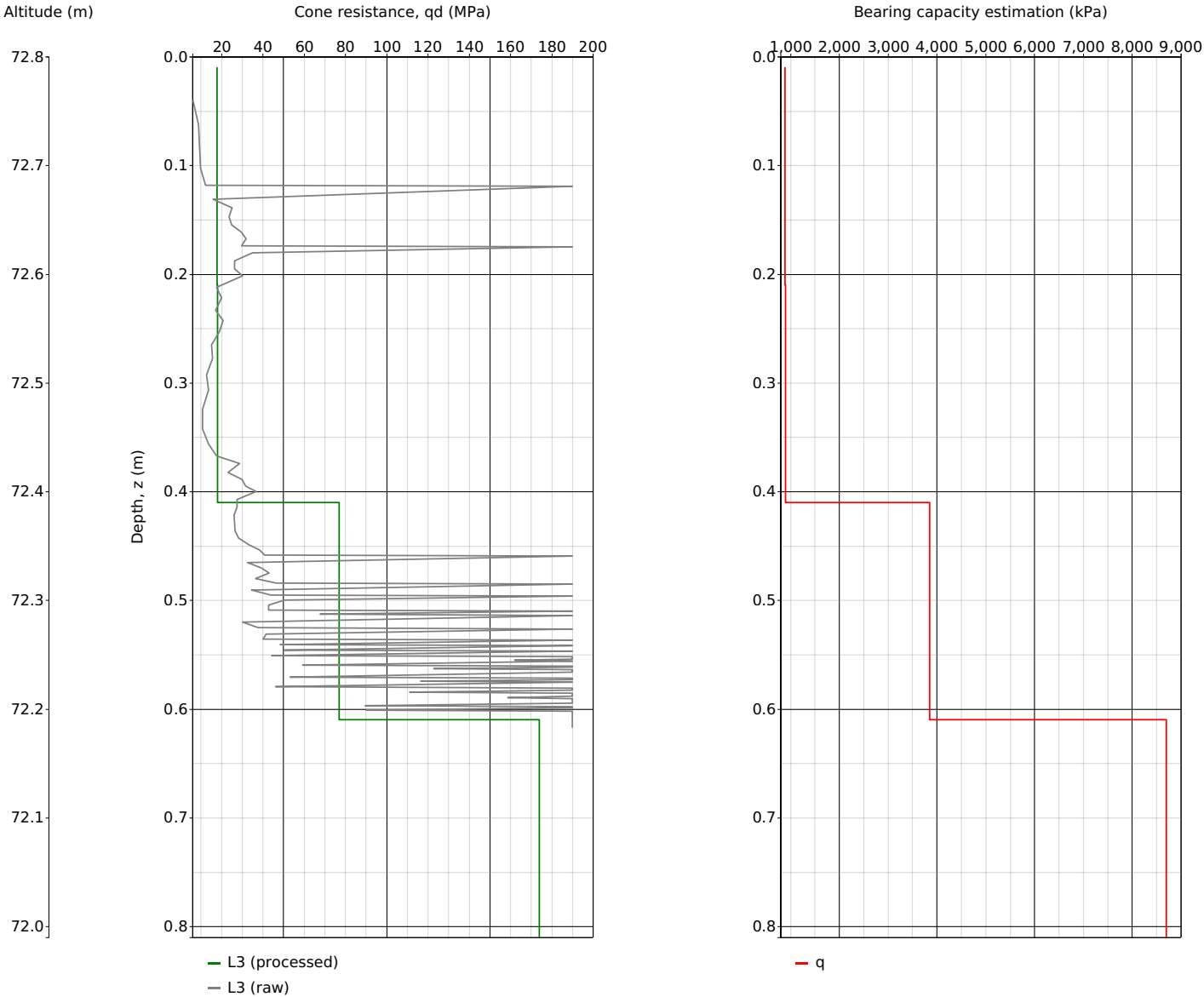
Comments
-



Device type : Grizzly
Ref. device : -
Energy type : Constant
Hammering mode : Mass 63.5 kg
Cone section : 20.0 cm²
Angle of test : -
Stop condition : Temporary
Machine : -
Tool : -
Reached depth : 0.62 m
Water table : Not found



53.345767 N | -7.046502 E 72.8 m



Penetrogram processing
Smoothing step : 50.0 mm

Regularization step : 200.0 mm

Bearing capacity
Estimation coefficient : 20.00

The bearing capacity estimation is given as an indication and cannot be considered as a reference



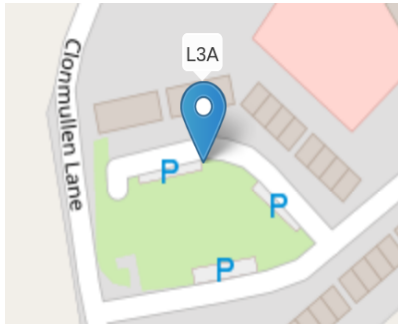


File reference : MF134515
Site : Tower
Construction site address : Clonmullen Hall, Edenderry,
Co. Offaly Edenderry

Dynamic penetrometer test
Soil investigation
NF P 94-115 EN ISO 22476-2

Sounding : L3A
Date : 10/07/2025 12:28
Company : Sol Solution
User : AB
Supervisor : PM

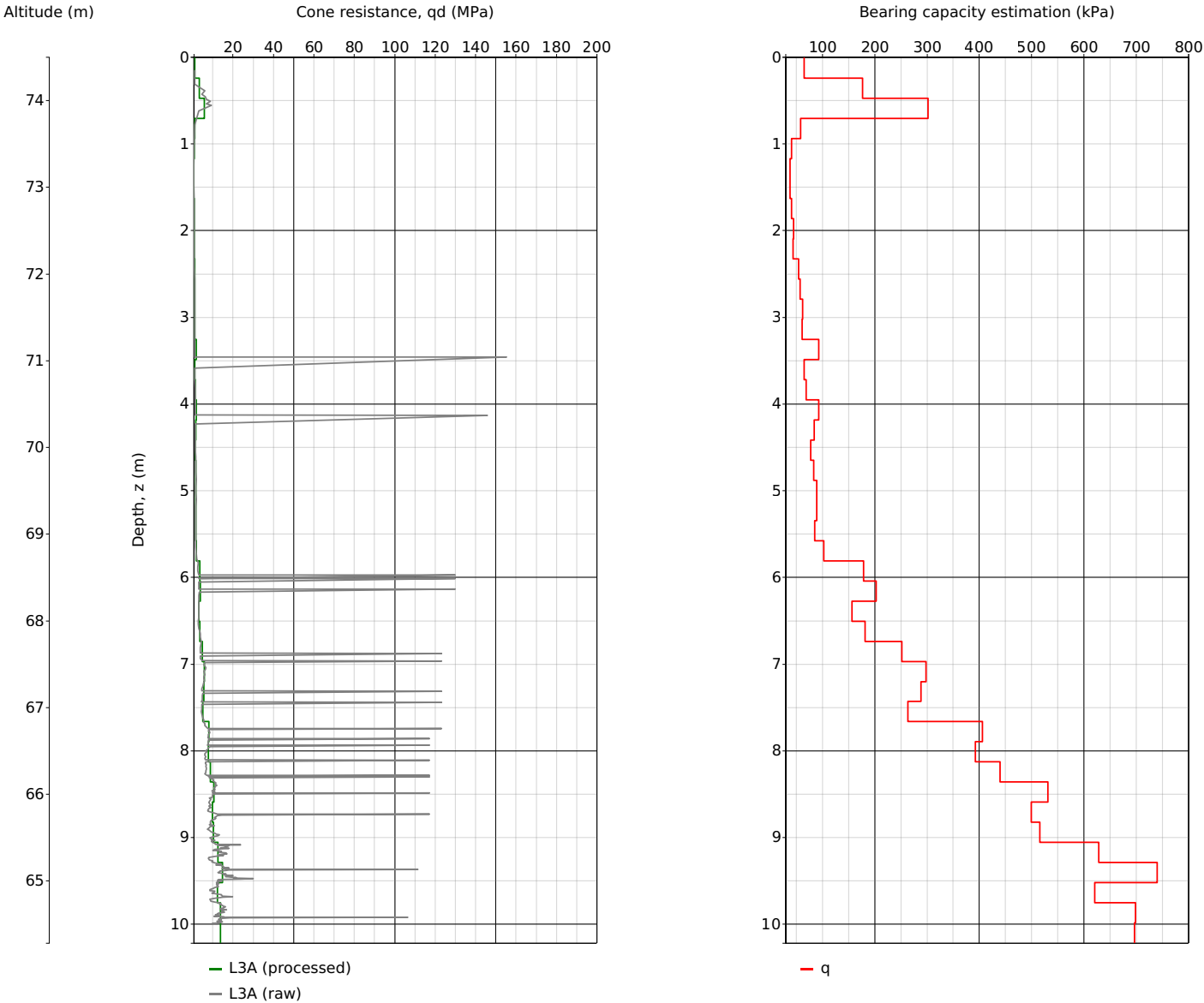
Comments
-



Device type : Grizzly
Ref. device : -
Energy type : Constant
Hammering mode : Mass 63.5 kg
Cone section : 20.0 cm²
Angle of test : -
Stop condition : Temporary
Machine : -
Tool : -
Reached depth : 10.0 m
Water table : Not found



53.345722 N | -7.046493 E 74.5 m



Penetrogram processing
Smoothing step : 232.0 mm

Regularization step : 232.0 mm

Bearing capacity
Estimation coefficient : 20.00

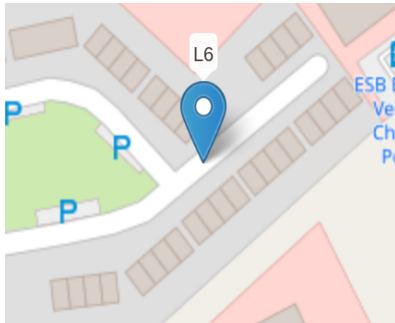
The bearing capacity estimation is given as an indication and cannot be considered as a reference



Sounding : **L6**
Date : 10/07/2025 11:25
Company : Sol Solution
User : AB
Supervisor : PM

Comments

-



Device type : Grizzly
Ref. device : -
Energy type : Constant
Hammering mode : Mass 63.5 kg
Cone section : 20.0 cm²
Angle of test : -
Stop condition : Temporary
Machine : -
Tool : -
Reached depth : 7.01 m
Water table : Not found



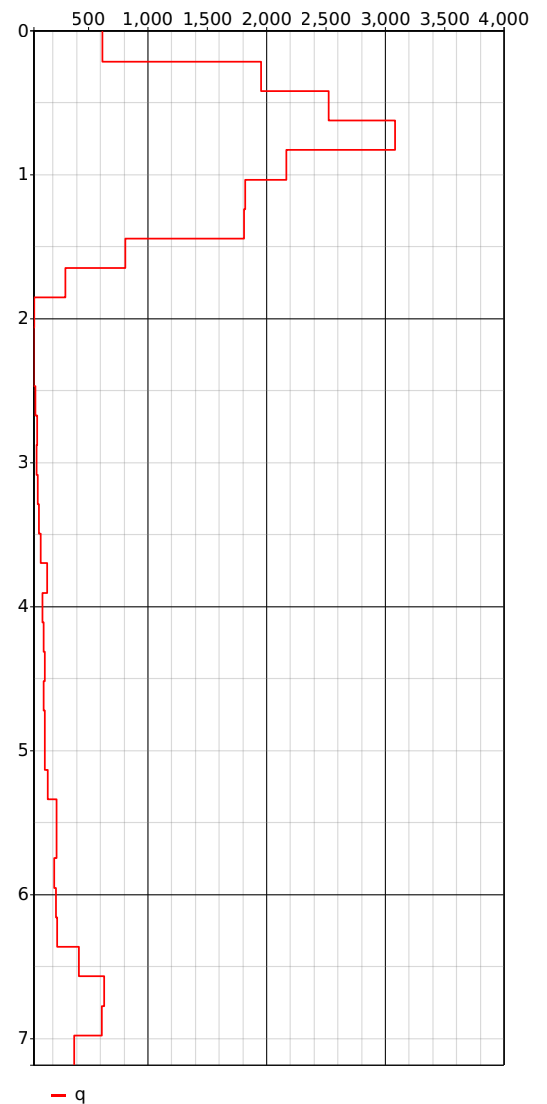
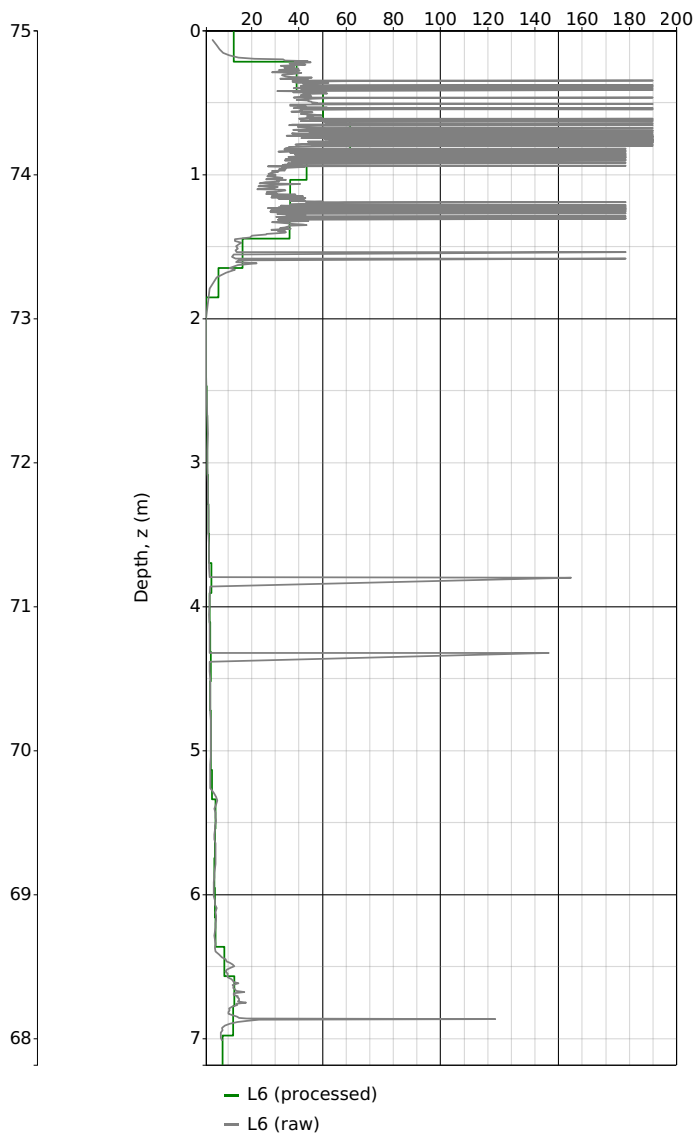
53.345538 N | -7.045586 E

75.0 m

Altitude (m)

Cone resistance, qd (MPa)

Bearing capacity estimation (kPa)



Penetrogram processing
Smoothing step : 205.0 mm

Regularization step : 205.0 mm

Bearing capacity
Estimation coefficient : 20.00

The bearing capacity estimation is given as an indication and cannot be considered as a reference

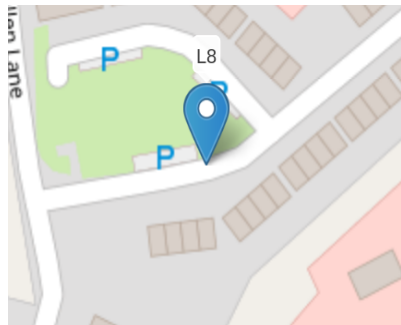


File reference : MF134515
Site : Tower
Construction site address : Clonmullen Hall, Edenderry,
Co. Offaly Edenderry

Dynamic penetrometer test
Soil investigation
NF P 94-115 EN ISO 22476-2

Sounding : L8
Date : 10/07/2025 10:55
Company : Sol Solution
User : AB
Supervisor : PM

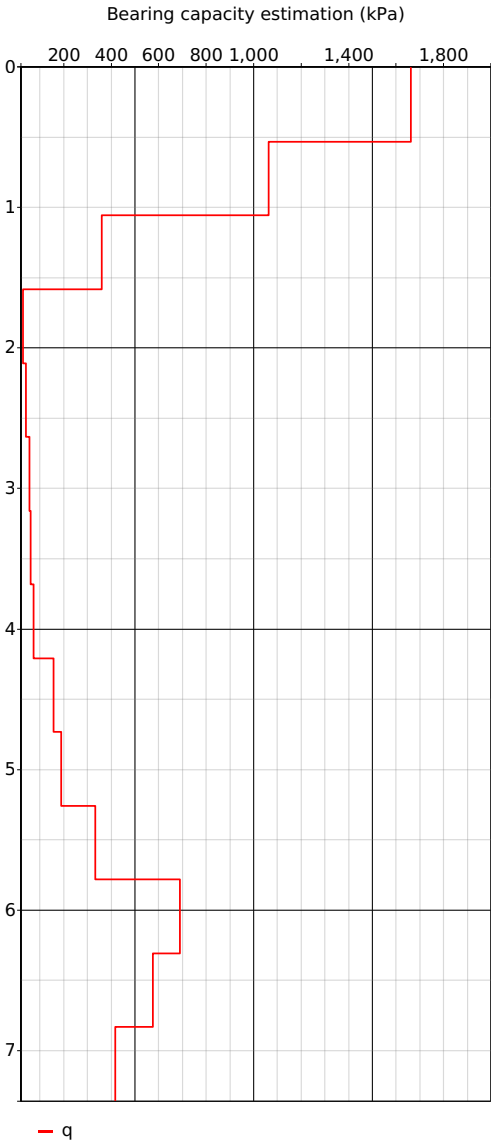
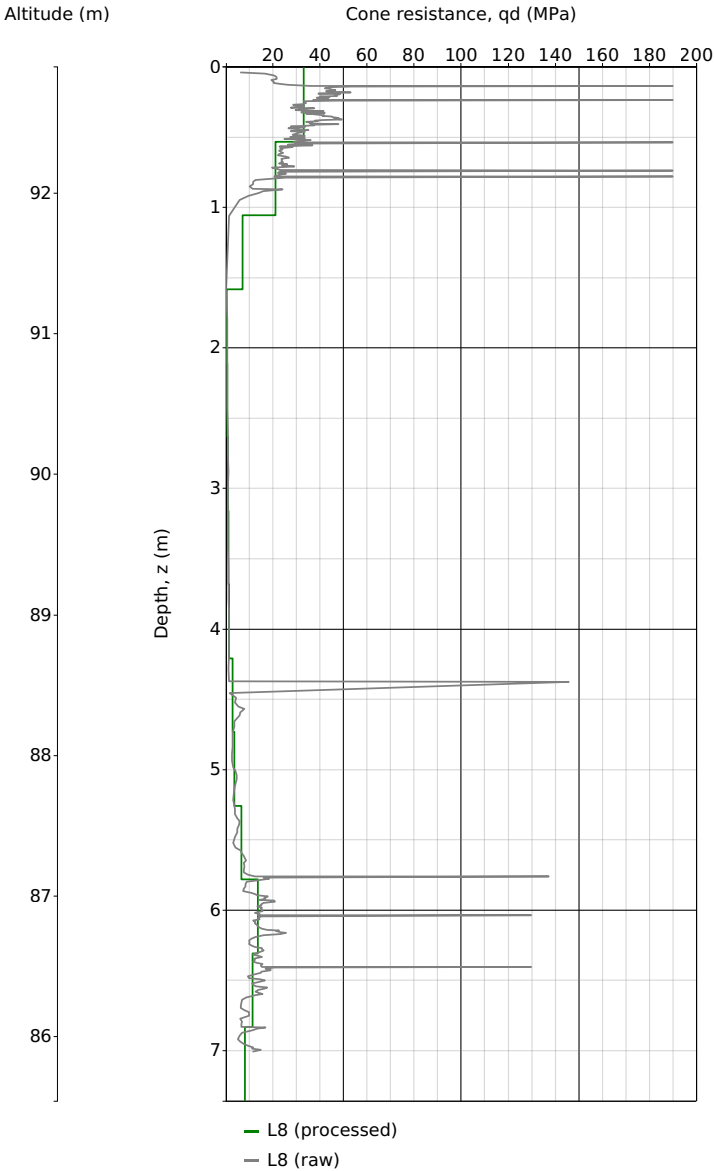
Comments
-



Device type : Grizzly
Ref. device : -
Energy type : Constant
Hammering mode : Mass 63.5 kg
Cone section : 20.0 cm²
Angle of test : -
Stop condition : Temporary
Machine : -
Tool : -
Reached depth : 7.01 m
Water table : Not found



53.345354 N | -7.046132 E 92.9 m



Penetrogram processing
Smoothing step : 525.0 mm

Regularization step : 525.0 mm

Bearing capacity
Estimation coefficient : 20.00

The bearing capacity estimation is given as an indication and cannot be considered as a reference





L3



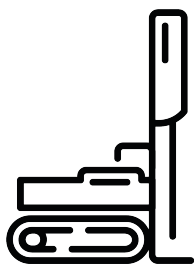
Sounding : L3
Site : Tower
Date : 10/07/2025 12:20
Company : Sol Solution
User : AB
Supervisor : PM
Lat. : 53.345767 N
Long. : -7.046502 E
Altitude : 72.8 m
Tracking :

Test

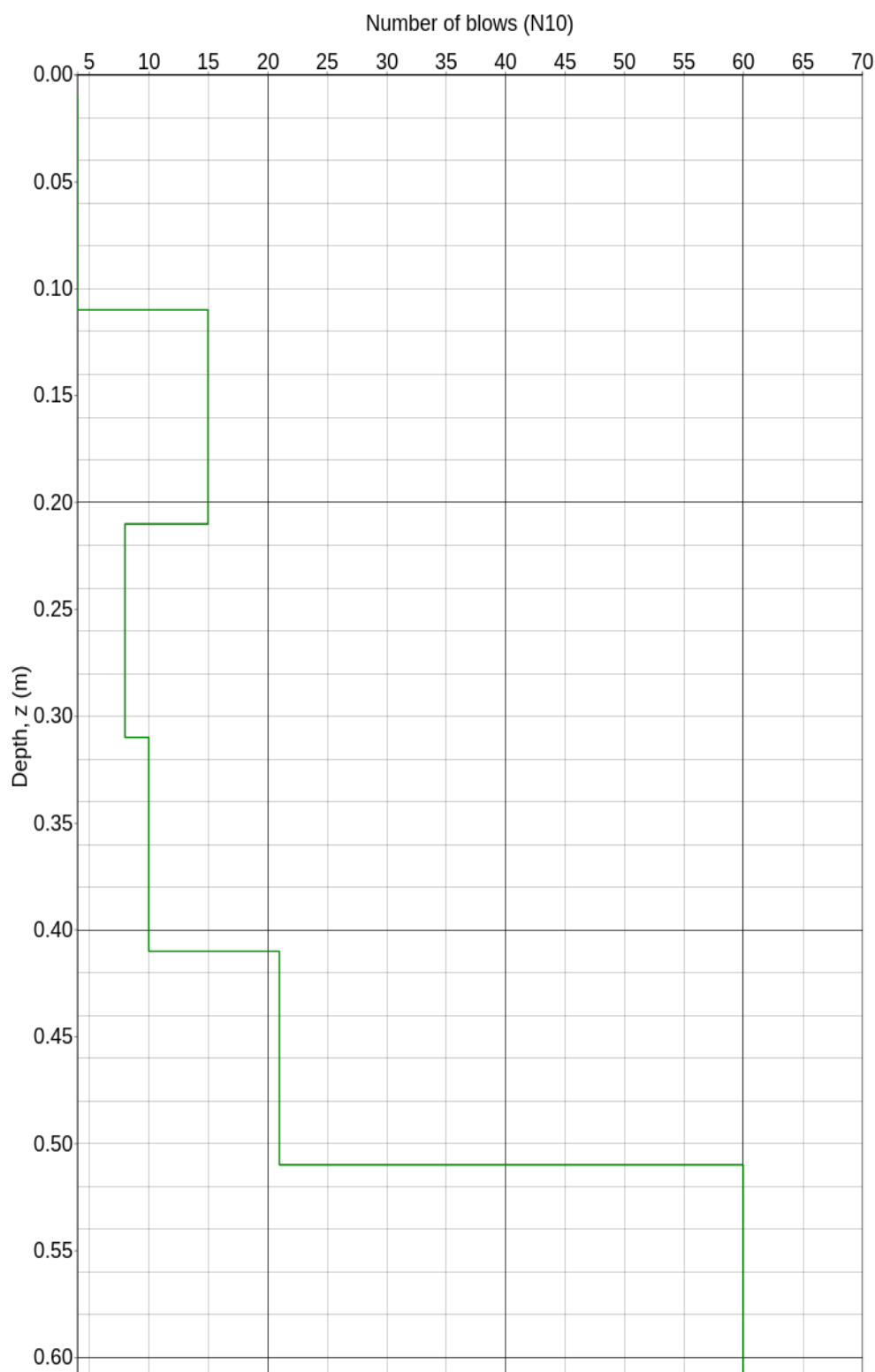
Target depth : 10.0 m
Pre-drilling depth : 0.01 m
Stop condition : Temporary
Reached depth : 0.62 m
Water table : Not found
Stable level :
Unstable level :

Characteristics

Device type : Grizzly
Hammering mode : Mass 63.5 kg
Cone section : 20 cm²



GRIZZLY®



Observation



L3A



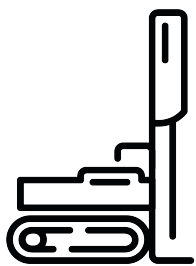
Sounding : L3A
Site : Tower
Date : 10/07/2025 12:28
Company : Sol Solution
User : AB
Supervisor : PM
Lat. : 53.345722 N
Long. : -7.046493 E
Altitude : 74.5 m
Tracking :

Test

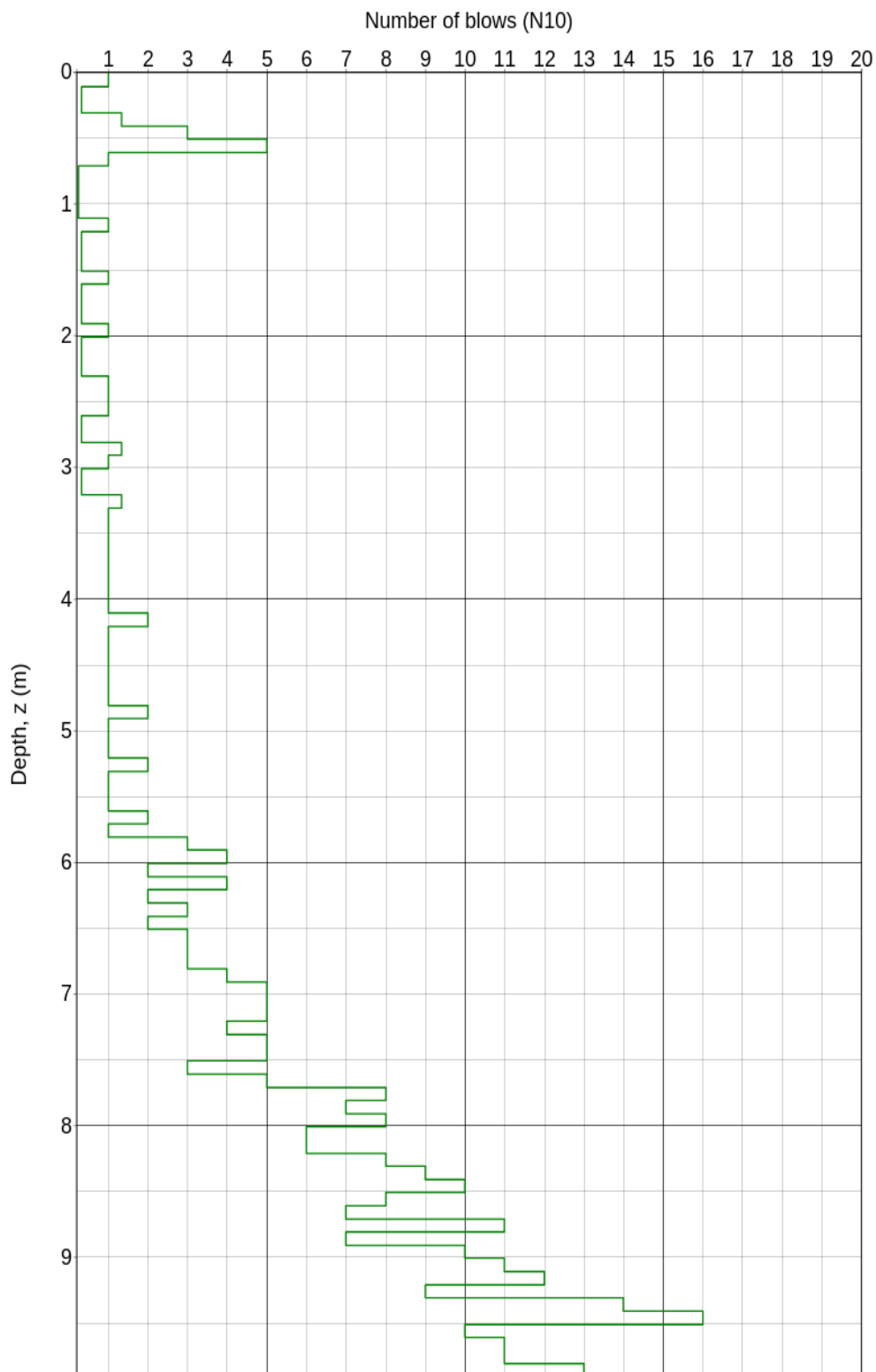
Target depth : 10.0 m
Pre-drilling depth : 0.01 m
Stop condition : Temporary
Reached depth : 10.0 m
Water table : Not found
Stable level :
Unstable level :

Characteristics

Device type : Grizzly
Hammering mode : Mass 63.5 kg
Cone section : 20 cm²



GRIZZLY®



Observation



L6



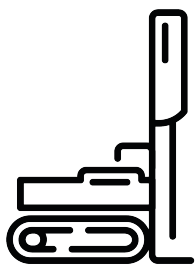
Sounding : L6
Site : Tower
Date : 10/07/2025 11:25
Company : Sol Solution
User : AB
Supervisor : PM
Lat. : 53.345577 N
Long. : -7.045603 E
Altitude : 75.0 m
Tracking :

Test

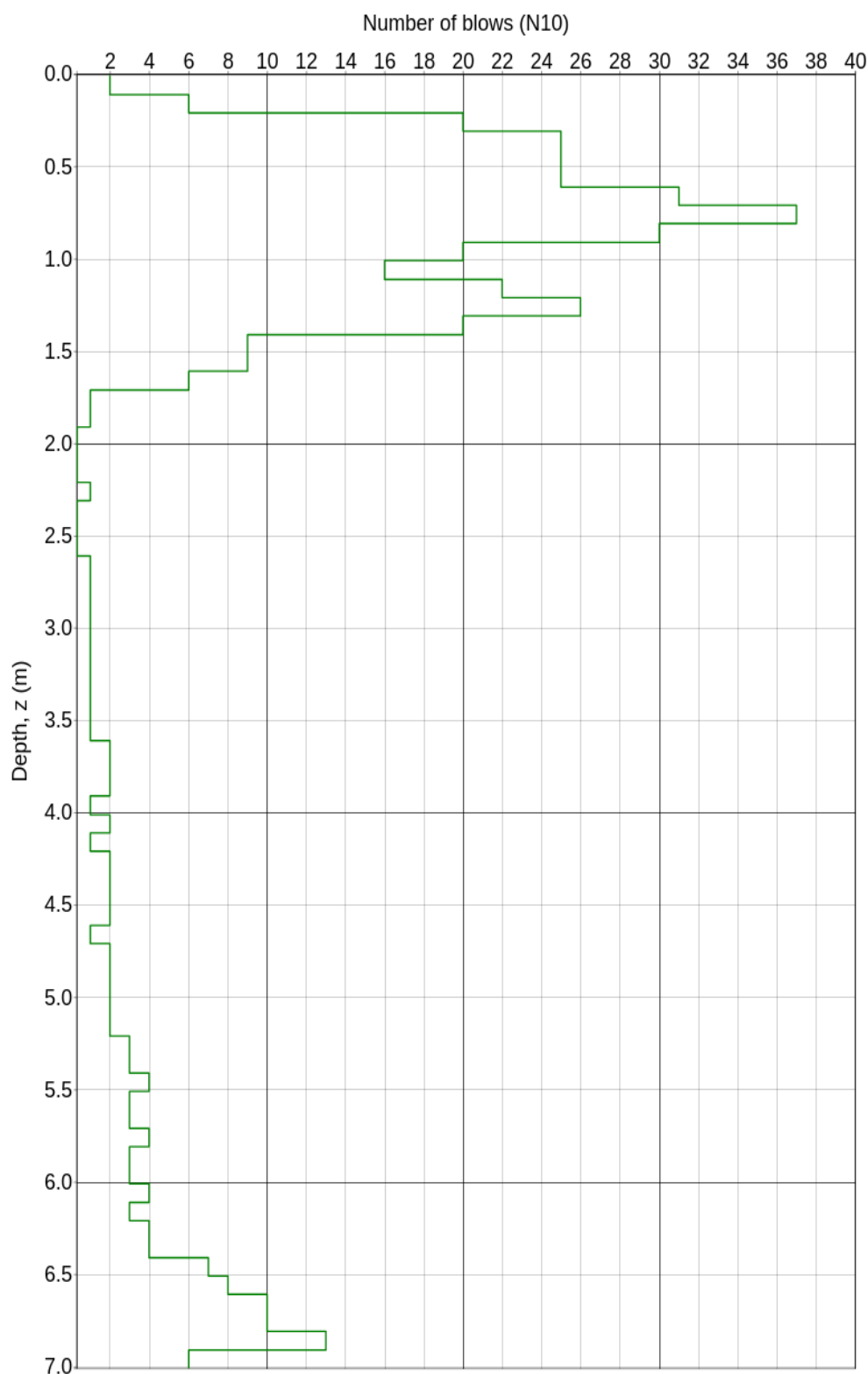
Target depth : 7.0 m
Pre-drilling depth : 0.01 m
Stop condition : Temporary
Reached depth : 7.01 m
Water table : Not found
Stable level :
Unstable level :

Characteristics

Device type : Grizzly
Hammering mode : Mass 63.5 kg
Cone section : 20 cm²



GRIZZLY®

**Observation**



L8



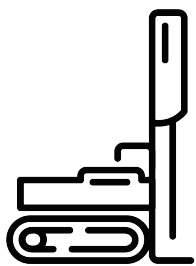
Sounding : L8
Site : Tower
Date : 10/07/2025 10:55
Company : Sol Solution
User : AB
Supervisor : PM
Lat. : 53.345393 N
Long. : -7.046223 E
Altitude : 92.9 m
Tracking :

Test

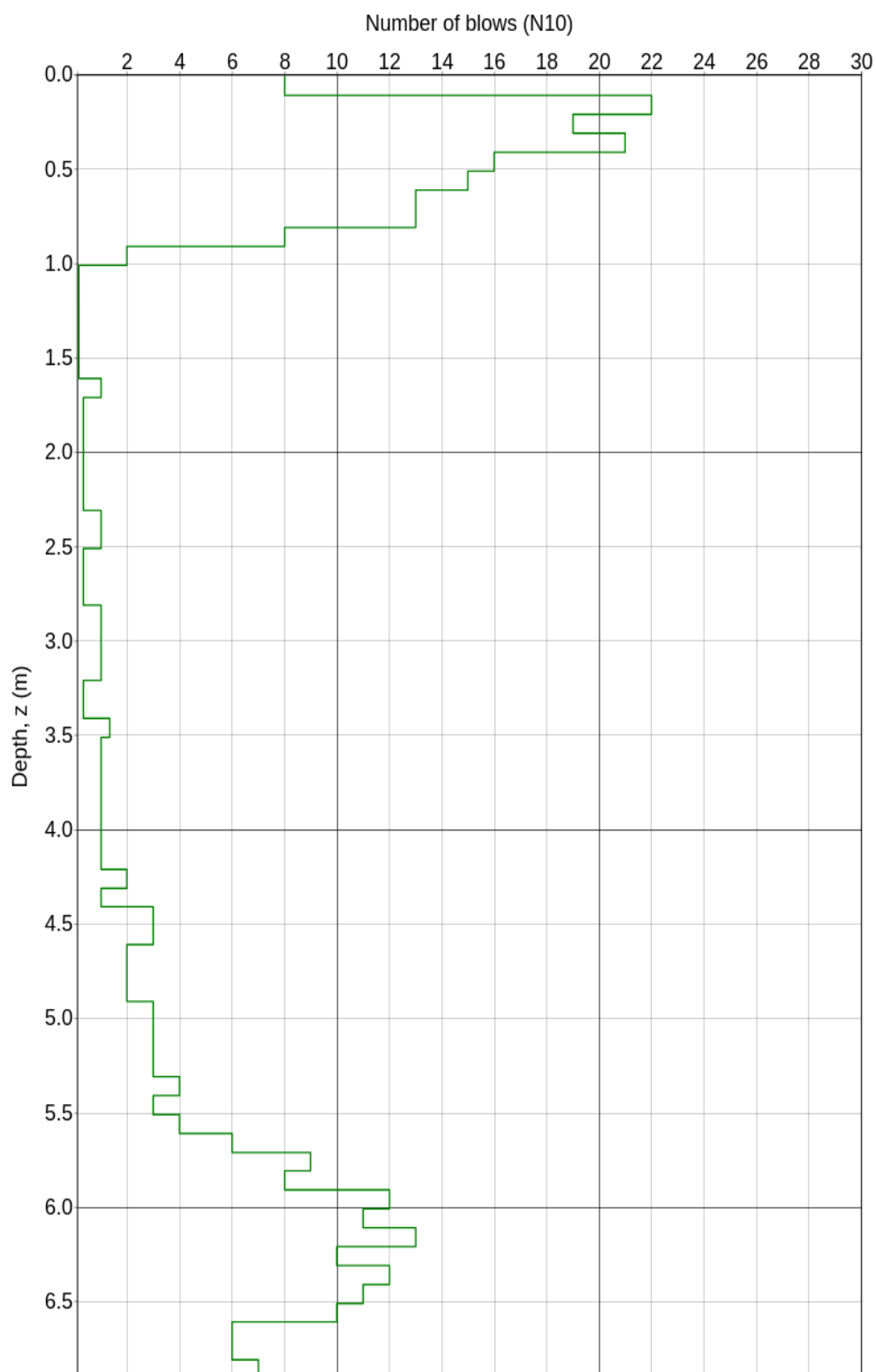
Target depth : 7.0 m
Pre-drilling depth : 0.01 m
Stop condition : Temporary
Reached depth : 7.01 m
Water table : Not found
Stable level :
Unstable level :

Characteristics

Device type : Grizzly
Hammering mode : Mass 63.5 kg
Cone section : 20 cm²



GRIZZLY®

**Observation**