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Ground Investigations Ireland

Chivers Factory Site, Coolock

Ground Investigation Report

DOCUMENT CONTROL SHEET

Project Title	Chivers Factory Site, Coolock
Engineer	Casey O'Rourke
Project No	7068-09-17
Document Title	Ground Investigation Report

Rev.	Status	Author(s)	Reviewed By	Approved By	Office of Origin	Issue Date
A	Final	R O'Toole	C Finnerty	F McNamara	Dublin	22 September 2017

GROUND INVESTIGATIONS IRELAND

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APPENDICES

1.0 Preamble

On the instructions of Casey O'Rourke, a site investigation was carried out by Ground Investigations Ireland Ltd., in September 2017 at the site of the proposed for development in Coolock, Dublin 17.

2.0 Overview

2.1. Background

It is proposed to construct a new residential development with associated services, access roads and car parking at the proposed site. The site is currently overgrown and occupied by commercial buildings and is situated in Coolock, Dublin 17. The proposed construction is envisaged to consist of conventional foundations and pavement make up with some local excavations for services and plant.

2.2. Purpose and Scope

The purpose of the site investigation was to investigate subsurface conditions utilising a variety of investigative methods in accordance with the project specification. The scope of the work undertaken for this project included the following:

- Visit project site to observe existing conditions
- Carry out 4 No. Trial Pits to a maximum depth of 2.00m BGL
- Carry out 4 No. Soakaways to determine a soil infiltration value to BRE digest 365
- Report with recommendations

3.0 Subsurface Exploration

3.1. General

During the ground investigation a programme of intrusive investigation specified by the Consulting Engineer was undertaken to determine the sub surface conditions at the proposed site. Regular sampling and in-situ testing was undertaken in the exploratory holes to facilitate the geotechnical descriptions and to enable laboratory testing to be carried out on the soil samples recovered during excavation and drilling.
The procedures used in this site investigation are in accordance with Eurocode 7 Part 2: Ground Investigation and testing (ISEN 1997 – 2:2007) and B.S. 5930:2015.

3.2. Trial Pits

The trial pits were excavated using a JCB 3CX excavator at the locations shown in the exploratory hole location plan in Appendix 1. The locations were checked using a CAT scan to minimise the potential for encountering services during the excavation. The trial pits were sampled, logged and photographed by a Geotechnical Engineer/Engineering Geologist prior to backfilling with arisings. Notes were made of any

services, inclusions, pit stability, groundwater encountered and the characteristics of the strata encountered and are presented on the trial pit logs which are provided in Appendix 2 of this Report.

3.3. Soakaway Testing

The soakaway testing was carried out in selected trial pits at the locations shown in the exploratory hole location plan in Appendix 1. These pits were carefully excavated and filled with water to assess the infiltration characteristics of the proposed site. The pits were allowed to drain and the drop in water level was recorded over time as required by BRE Digest 365. The pits were logged prior to completing the soakaway test and were backfilled with arising's upon completion. The soakaway test results are provided in Appendix 3 of this Report.

4.0 Ground Conditions

4.1. General

The ground conditions encountered during the investigation are summarised below with reference to insitu and laboratory test results. The full details of the strata encountered during the ground investigation are provided in the exploratory hole logs included in the appendices of this report.

The sequence of strata encountered were consistent across the site and are generally comprised;

- Surfacing
- Made Ground
- Cohesive Deposits

SURFACING:. Tarmac surfacing was present in SA03 and SA04 typically to a depth of 0.10m BGL.

MADE GROUND: Made Ground deposits were encountered beneath the Surfacing in SA03 and SA04 and was present to a relatively consistent depth of between 0.50m and 1.60m BGL. The deposits were described in SA03 as *black sandy gravelly CLAY with occasional cobbles and contained occasional fragments of concrete, red brick, wood and steel rope.* The deposits were described in SA04 as *grey slightly clayey fine to coarse sub rounded to sub angular SAND and GRAVEL with occasional cobbles and contained occasional fragments of wood.*

COHESIVE DEPOSITS: Cohesive deposits were encountered beneath the Made Ground and were described typically as *brown and black sandy gravelly CLAY with occasional cobbles.* The secondary sand and gravel constituents varied across the site and with depth, with granular lenses occasionally present in the glacial till matrix. These deposits had some, occasional or frequent cobble and boulder content where noted on the exploratory hole logs.

4.2. Groundwater

No groundwater was noted during the investigation however we would point out that these exploratory holes did not remain open for sufficiently long periods of time to establish the hydrogeological regime and groundwater levels would be expected to vary with the time of year, rainfall, nearby construction and other factors.

5.0 Recommendations & Conclusions

5.1. General

The recommendations given and opinions expressed in this report are based on the findings as detailed in the exploratory hole records. Where an opinion is expressed on the material between exploratory hole locations, this is for guidance only and no liability can be accepted for its accuracy. No responsibility can be accepted for conditions which have not been revealed by the exploratory holes. Limited information has been provided at the ground investigation stage and any designs based on the recommendations or conclusions should be completed in accordance with the current design codes, taking into account the variation and the specific details contained within the exploratory hole logs.

5.2. Excavations

Short term temporary excavations in the cohesive deposits will remain stable for a limited time only and will require to be appropriately battered or the sides supported if the excavation is below 1.25m BGL or is required to permit man entry. Excavations in the Made Ground, will require to be appropriately battered or the sides supported due to the low strength of these deposits. The groundwater and stability noted on the trial pit logs should be consulted when determining the most appropriate construction methods for excavations

5.3. Soakaway Design

At all the soakaway locations the water level dropped too slowly to allow calculation of ‘f’ the soil infiltration rate. These locations are therefore not recommended as suitable for soakaway design and construction.

The recommendations provided in this report should be verified in the design of the proposed buildings, using the full details of the loading conditions and taking into consideration the allowable tolerable settlements/movements that the building can accommodate. The founding strata should be inspected and verified by a suitably qualified engineer prior to construction of the building foundations.

APPENDIX 1 - Site Location Plan

SA - SOAKAWAY TEST

APPENDIX 2 – Trial Pit Records

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Site Chivers Factory Site, Coolock			**Trial Pit Number** SA01
Machine : JCB 3CX **Method :** Trial Pit	**Dimensions** (L x W x D) 2.70 x 0.70 x 2.00	**Ground Level (mOD)**	**Client** Casey O'Rourke	**Job Number** 7068-09-17
	Location	**Dates** 12/09/2017	**Engineer**	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10) 0.10	TOPSOIL		
					(0.40)	Firm brown sandy gravelly CLAY with occasional cobbles		
					0.50	Firm to stiff black sandy gravelly CLAY with occasional cobbles		
					(1.50)			
					2.00	Complete at 2.00m		

Plan

Remarks

TP terminated at 2.00m BGL to conduct soakaway test
Side Walls stable
No water observed in TP
TP backfilled on completion of soakaway test

Scale (approx)	Logged By	Figure No.
1:25	RO'T	7068-09-17.SA01

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Site Chivers Factory Site, Coolock			**Trial Pit Number** SA02
Machine : JCB 3CX **Method :** Trial Pit	**Dimensions** (L x W x D) 2.70 x 0.70 x 2.00	**Ground Level (mOD)**	**Client** Casey O'Rourke	**Job Number** 7068-09-17
	Location	**Dates** 12/09/2017	**Engineer**	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10) 0.10	TOPSOIL		
						Firm brown sandy gravelly CLAY with occasional cobbles		
					(1.90)			
					2.00	Complete at 2.00m		

Plan

Remarks

TP terminated at 2.00m BGL to conduct soakaway test
Side Walls stable
No water observed in TP
TP backfilled on completion of soakaway test

Scale (approx)	Logged By	Figure No.
1:25	RO'T	7068-09-17.SA02

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Site Chivers Factory Site, Coolock			**Trial Pit Number** SA03
Machine : JCB 3CX **Method :** Trial Pit	**Dimensions** (L x W x D) 2.70 x 0.70 x 2.00	**Ground Level (mOD)**	**Client** Casey O'Rourke	**Job Number** 7068-09-17
	Location	**Dates** 12/09/2017	**Engineer**	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10) 0.10	Concrete		
					(0.30)	SUB BASE: Grey angular to sub angular GRAVEL		
					0.40	MADE GROUND: Black sandy gravelly CLAY with occasional cobbles with fragments of concrete, red brick, wood and steel rope		
					(1.20)			
					1.60	Firm to stiff grey sandy gravelly silty CLAY with frequent cobbles		
					(0.40)			
					2.00	Complete at 2.00m		

Plan

Remarks

TP terminated at 2.00m BGL to conduct soakaway test
Side Walls stable
No water observed in TP
TP backfilled on completion of soakaway test

Scale (approx)	Logged By	Figure No.
1:25	RO'T	7068-09-17.SA03

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Site Chivers Factory Site, Coolock			**Trial Pit Number** SA04
Machine : JCB 3CX **Method :** Trial Pit	**Dimensions** (L x W x D) 2.70 x 0.70 x 2.00	**Ground Level (mOD)**	**Client** Casey O'Rourke	**Job Number** 7068-09-17
	Location	**Dates** 12/09/2017	**Engineer**	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10) 0.10	Concrete		
					(0.10) 0.20	SUB BASE: Grey angular to sub angular GRAVEL		
					(0.30) 0.50	MADE GROUND: Grey slightly clayey fine to coarse sub rounded to sub angular SAND and GRAVEL with occasional cobbles with fragments of wood		
					(1.50) 2.00	Firm black sandy gravelly CLAY with occasional cobbles		
						Complete at 2.00m		

Plan

Remarks

TP terminated at 2.00m BGL to conduct soakaway test
Side Walls stable
No water observed in TP
TP backfilled on completion of soakaway test

Scale (approx)	Logged By	Figure No.
1:25	RO'T	7068-09-17.SA04

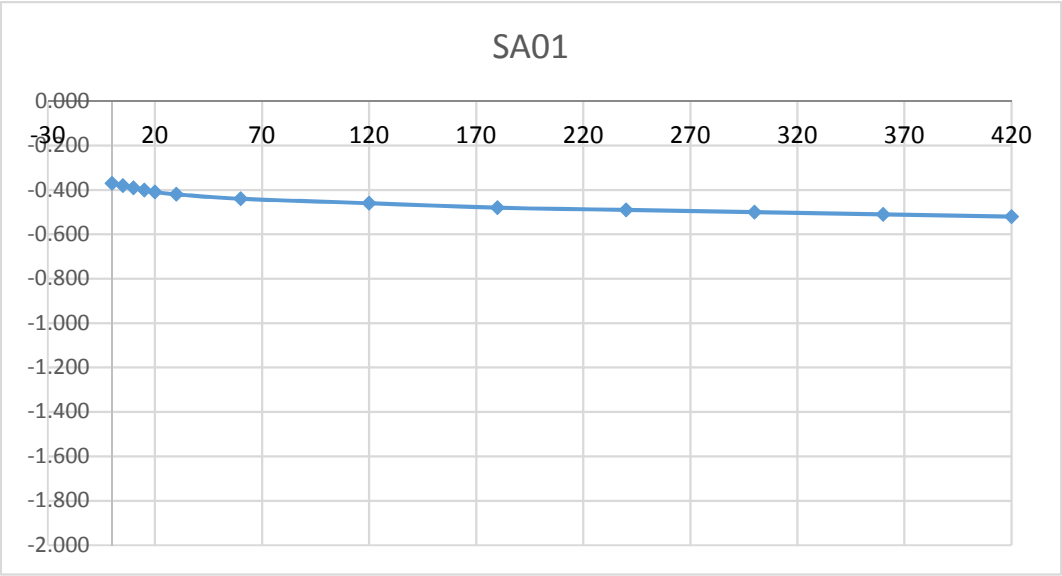
APPENDIX 3 – Soakaway Records

SA01

Soakaway Test to BRE Digest 365
Trial Pit Dimensions: 2.50m x 0.70m 2.00m (L x W x D)

Date	Time	Water level (m bgl)
12/09/2017	0	-0.370
12/09/2017	5	-0.380
12/09/2017	10	-0.390
12/09/2017	15	-0.400
12/09/2017	20	-0.410
12/09/2017	30	-0.420
12/09/2017	60	-0.440
12/09/2017	120	-0.460
12/09/2017	180	-0.480
12/09/2017	240	-0.490
12/09/2017	300	-0.500
12/09/2017	360	-0.510
12/09/2017	420	-0.520

***Soakaway failed - Pit backfilled**

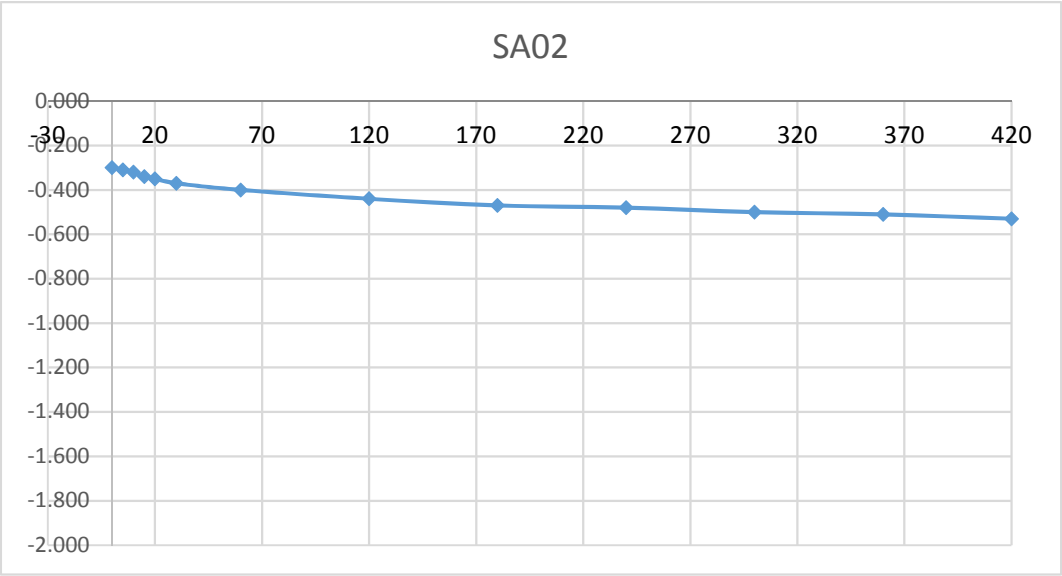


SA02

Soakaway Test to BRE Digest 365
Trial Pit Dimensions: 2.50m x 0.70m 2.00m (L x W x D)

Date	Time	Water level (m bgl)
12/09/2017	0	-0.300
12/09/2017	5	-0.310
12/09/2017	10	-0.320
12/09/2017	15	-0.340
12/09/2017	20	-0.350
12/09/2017	30	-0.370
12/09/2017	60	-0.400
12/09/2017	120	-0.440
12/09/2017	180	-0.470
12/09/2017	240	-0.480
12/09/2017	300	-0.500
12/09/2017	360	-0.510
12/09/2017	420	-0.530

***Soakaway failed - Pit backfilled**

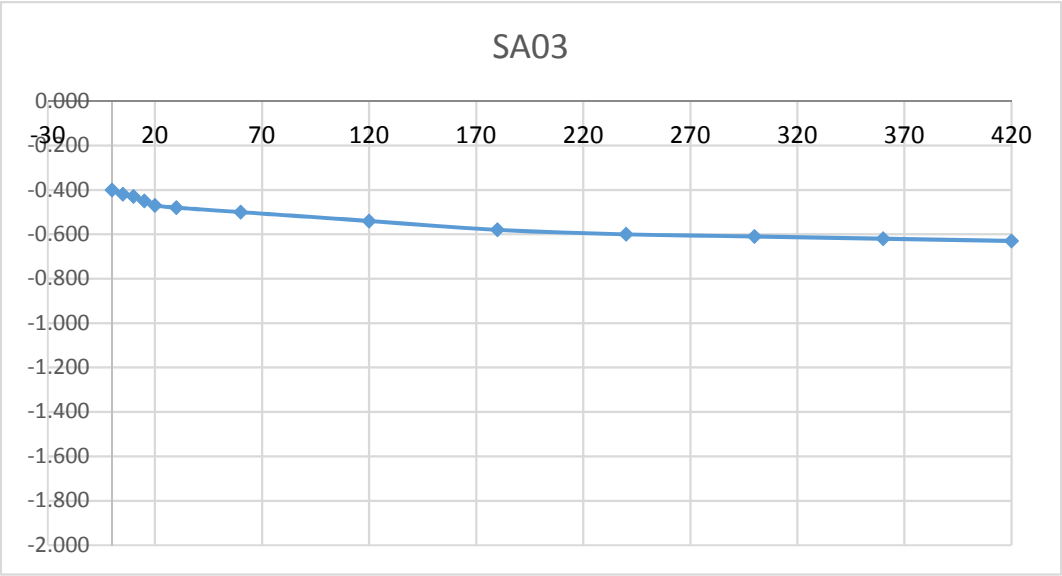


SA03

Soakaway Test to BRE Digest 365
Trial Pit Dimensions: 2.00m x 0.50m 2.00m (L x W x D)

Date	Time	Water level (m bgl)
12/09/2017	0	-0.400
12/09/2017	5	-0.420
12/09/2017	10	-0.430
12/09/2017	15	-0.450
12/09/2017	20	-0.470
12/09/2017	30	-0.480
12/09/2017	60	-0.500
12/09/2017	120	-0.540
12/09/2017	180	-0.580
12/09/2017	240	-0.600
12/09/2017	300	-0.610
12/09/2017	360	-0.620
12/09/2017	420	-0.630

***Soakaway failed - Pit backfilled**



SA04

Soakaway Test to BRE Digest 365
Trial Pit Dimensions: 2.00m x 0.50m 2.00m (L x W x D)

Date	Time	Water level (m bgl)
12/09/2017	0	-0.500
12/09/2017	5	-0.500
12/09/2017	10	-0.500
12/09/2017	15	-0.510
12/09/2017	20	-0.510
12/09/2017	30	-0.510
12/09/2017	60	-0.520
12/09/2017	120	-0.520
12/09/2017	180	-0.530
12/09/2017	240	-0.530
12/09/2017	300	-0.540
12/09/2017	360	-0.540
12/09/2017	420	-0.550

***Soakaway failed - Pit backfilled**