

Proposed Residential Development Site

Wythenshawe Park Cycle Facilities

Skills Area

Flood Risk Assessment Report

Prepared for

Manchester City Council

December 2021

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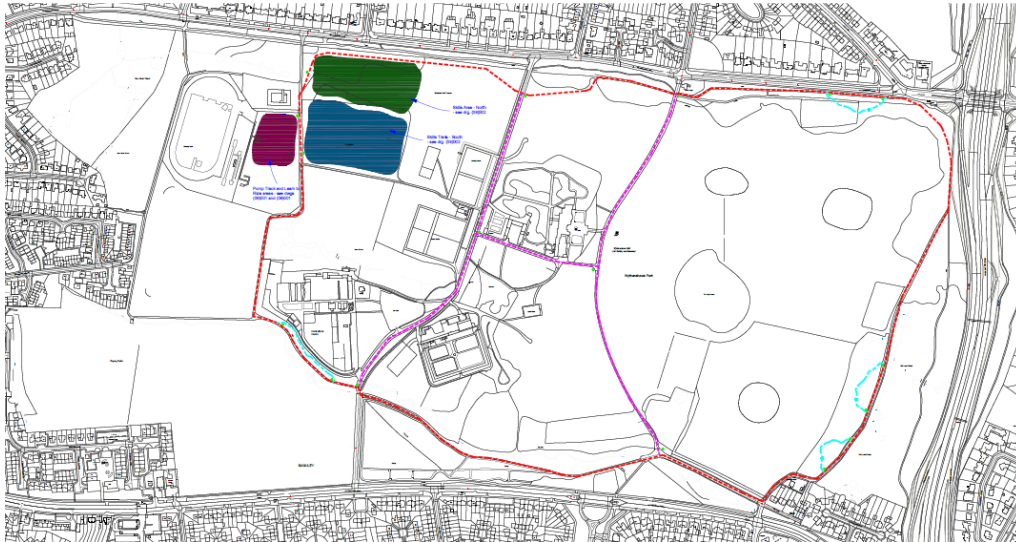


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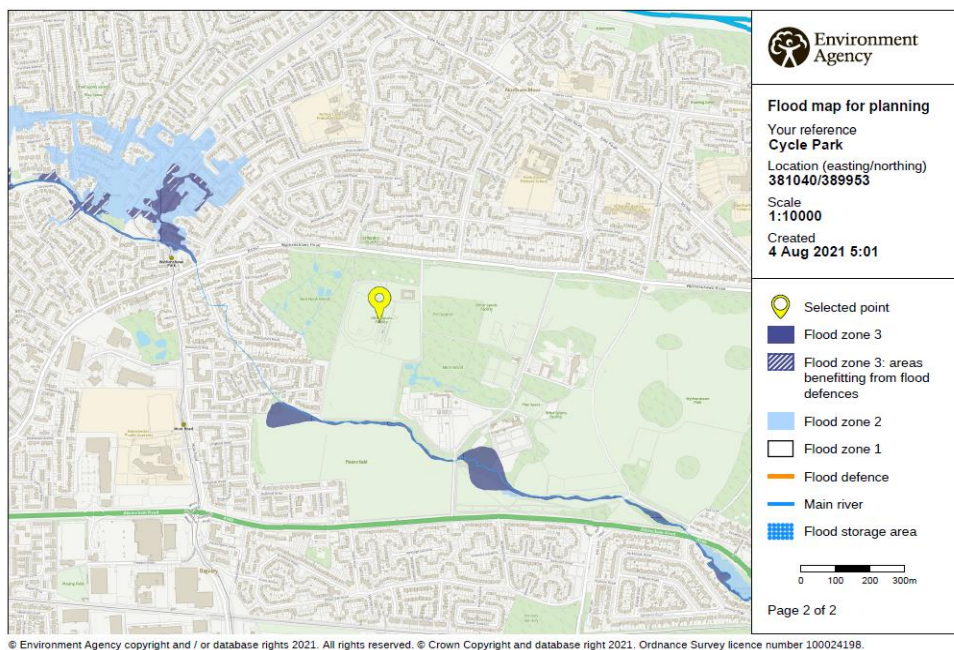
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1.0 Introduction

This Flood Risk Assessment has been prepared in support of the Planning Application LP/44968 for the creation of a cycling facilities at Wythenshawe Park and in particular the Skills Area. The whole proposed development comprises of a Learn to Ride Area and Pump Track (the mauve shaded area), Perimeter Trail (red dashed line), Skills Area (the green area) and Skills Trail (the blue area). All as shown on the extract below from drawing Proposed Track Route WYP-MCC-XX-XX-DR-B-0010-S2. The background and details are described in the Planning Supporting Statement-Specification and Construction Details document provided with the Planning Application. Pertinent details will be included in appendices for ease of reference.



1.2 While most of the park proposed development falls within a Zone 1 the Perimeter Trail passes through a Zone 3 Flood Risk area as delineated on the Environmental Agency's (EA's) Flood Risk Map on their web site, extract below, which need to be addressed for any development that falls within them.



1.3 Also, in discussion with the Council's Flood Risk Management Team Officer there has been identified specific requirements relating to recent flood records in the park as recorded on the Lead Local Flood Authority (LLFA) Data Screen reproduced below (full details in Appendix B). This shows a cluster of incidents on the Western Park boundary together with one to Fir Coppice (denoted by the ! in a yellow triangle, full key in Appendix A). Also the yellow hashed area to Nan Nook Wood in the north west corner of the park is identified as a recorded flooding area.



1.4 The incident in Fir Coppice was a manhole cover not a flooding occurrence (a copy of the incident report provided by LLFA is in Appendix B) and so can be ignored for this assessment.

1.5 This Flood Risk Assessment Report will follow the guidelines of the EA's guidance flood risk assessment standing advice. Following the submission of the original report further investigation and design development has been undertaken to address concern raised by the MCC Flood Risk Team and these are presented in this revised report.

1.6 This report addresses the Skills Area as each of the three main areas shaded above have separate drainage and flooding issues due to their terrain, vegetation and the proposed facility.

2.1 Site Address

3.0 Description of Development

- i. Drawing WYP-MCC-XX-XX-DR-B-0010-S3 - Site Location Plan
- ii. Drawing 20-011-(07)001-D3 – Site Plan
- iii. Drawing 20-011-(08)001-D3 – Pump Track and LTR Area
- iv. Drawing 20-011-(08)002-D3 – Skills Area & Skills Trail
- v. Drawing 20-011-(09)001-D3 – Pump Track and Trail Sections
- vi. Drawing 20-011-(08)002-D3 – Skills Area & Skills Trail
- vii. Drawing 20-011-(09)001-D3 – Pump Track and Trail Sections
- viii. LP/44968 – Heritage Statement - Wythenshawe Park Cycle Facilities
- ix. LP/44968 – Arboricultural Statement - Wythenshawe Park Cycle Facilities
- x. LP/44968 - Tree Survey Location Plans - Wythenshawe Park Cycle Facilities
- xi. LP/44968 - Tree Survey Data - Wythenshawe Park Cycle Facilities

3.2 Wythenshawe Park has Baguley Brook, a tributary that feeds into the River Mersey, running through it from East to West which is culverted beyond the park boundaries. The topography of the Park is such that there are two areas of Zone 3 Flood Risk identified as shown in 1.2 above as well as along the full length of the water course itself. The Perimeter Trail crosses the water course and runs through one of these Flood Zones. The park includes numerous streams and ponds which reflect it's low lying and flat topography. Other than the perimeter Trail all the other proposed developments are in Zone 1 Flood risk areas.



3.3 The Skills Area is proposed on an open grassland area which at present is the western end of the mini golf course in the park marked green on the plan below. This appears to flow into Nan Nook Wood which is a wooded area with multiple ponds which correspond the yellow hatched area on the LLFA plan in 1.3 above. The proposed Skills Area will be a series of six to seven cycle track routes of varying skill levels as shown below that will reduce the grassed area by only some 10%. Details of the track construction is given in Appendix C. With the surface run off reporting to French drains connected to local soak aways. A soak away test has been performed in this area which demonstrated a capacity of local soak aways to take the nominal flow expected from the small areas of hard standing of this cycle feature. The details are included in Appendix E.

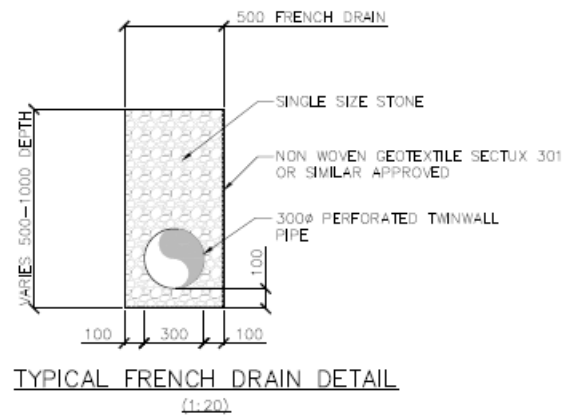


3.4 The plan below shows the latest design proposal. The final six Soak away locations (the yellow Squares) indicated on the plan below will be determined to suit any final grading and topography in this area.

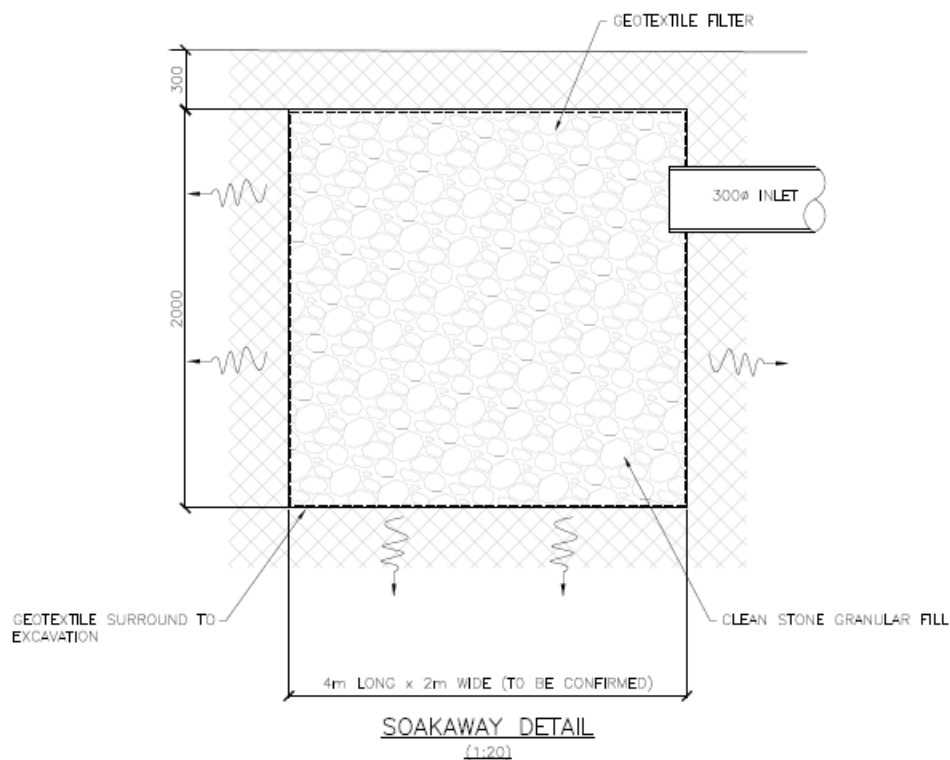


Extract of drawing 20-011(08)002 D3 in Appendix D

3.5 The proposed details of the French collection drains and the soak aways are as shown below.



NUMBER OFF & FINAL SIZES TO
BE CONFIRMED ON TOPGRAPHIC



3.6 A soak away test was conducted in this area following the guidelines of the BRE digest 365 which found that there was a soil infiltration rate of between 1.73 E-5 and 2.29 E-5 (ms-1) into the sand lens found at 1.7m depth. The full details are provided in Appendix E. While this is not high it is sufficient for the proposed areas. With each of the six proposed soak aways taking some 13m2 of surface run off the soak aways are proposed to be 2m deep and 2m x 4m on plan.

4.0 Assessment of Flood Risk

4.1

While the whole proposed development has Flood Risk Zoning up to Zone 3 under the EA guidance Table 2: Flood Risk vulnerability classification these proposed developments can be classified as Water Compatible Development as they can be classified under;

- Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms.

Then in Table 3: Flood Risk vulnerability and Flood Zone 'Compatibility';

Flood Zones	Flood Risk Vulnerability Classification				
	Essential infrastructure	Highly vulnerable	More vulnerable	Less vulnerable	Water compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓
Zone 3a †	Exception Test required †	✗	Exception Test required	✓	✓
Zone 3b *	Exception Test required *	✗	✗	✗	✓*

Key:

✓ Development is appropriate

✗ Development should not be permitted.

Denotes that the development is appropriate and can be permitted.

5.0 Climate Change

5.1 An assessment of Flood Risk needs to consider an allowance for Climate change. Wythenshawe Park is naturally a low level flat area with numerous existing ponds. With the predicted increase in rainfall due to Climate Change it will potentially flood more often but the proposed development of the cycle routes and skill area will not exacerbate this. Indeed the mitigation of the soakaways to the Skills area will potentially reduce the effects of the increased run off the climate change predicts.

6.0 Conclusion

In conclusion while the site for the proposed cycle facilities lie within Zone 1, 2 and 3 Flood risk areas as identified by the EA Flood risk map the proposed use is assessed as Water Compatible and can be deemed an appropriate development.

The proposed flood mitigation of soakaways to the Skills Area improve the present flood risk potential and reduce Climate change risk.

Appendix A

DATA SCREEN SYMBOLOGY

Bridge

-  Good
-  Fair
-  Poor
-  Very Poor
-  Unknown

Trash Screen

-  Good
-  Fair
-  Poor
-  Very Poor
-  Unknown

Culvert Orifice

-  Very Good
-  Good
-  Fair
-  Poor
-  Very Poor
-  Unknown

Culvert Conduit

-  CCTV surveyed
-  Not CCTV surveyed
-  Ordinary Watercourse Conduit
-  MCC SuDS
-  MCC Flood Incident Points
-  MCC Section 19 Report
-  MCC Flood Incident Polygons
-  MCC Local Authority Boundary

Supplementary Information where available:

Critical Drainage Area – The site is within the Manchester Trafford Critical Drainage Area (CDA)

Flood Incidents –

MCC Flood Incident Polygon 23/04/2021: Blocked outlet led to flooding in the park, MCC maintenance attended to unblock.

MCC Flood Incident Points: A cluster of 5 points around the Lawnhurst Avenue area is noted (date range 15/12/2019 to 04/02/2021). These are recorded as ‘blocked gully or drain’ and ‘unspecified’, however due to data form limitations they may relate to surface water flooding. We recommend any data from public concern is considered. An incident 02/11/2020 in Fir Coppice is recorded as “Loose/rattling gully/grid or manhole cover”.

Culvert Conduits – There are several indicative ordinary watercourse culverts on-site. Should any be pertinent to the proposed development, please enquire with the LLFA for zoomed-in maps and searches for further information.

Survey and Design Archive – Extract from the 1984 survey of major drainage is included.

Any other information – The site would benefit from an assessment of surface water flood risk, main rivers & associated assets, fluvial flood risk, historic events & flood warning areas. We recommend the applicant screens appropriate EA datasets during their investigation.



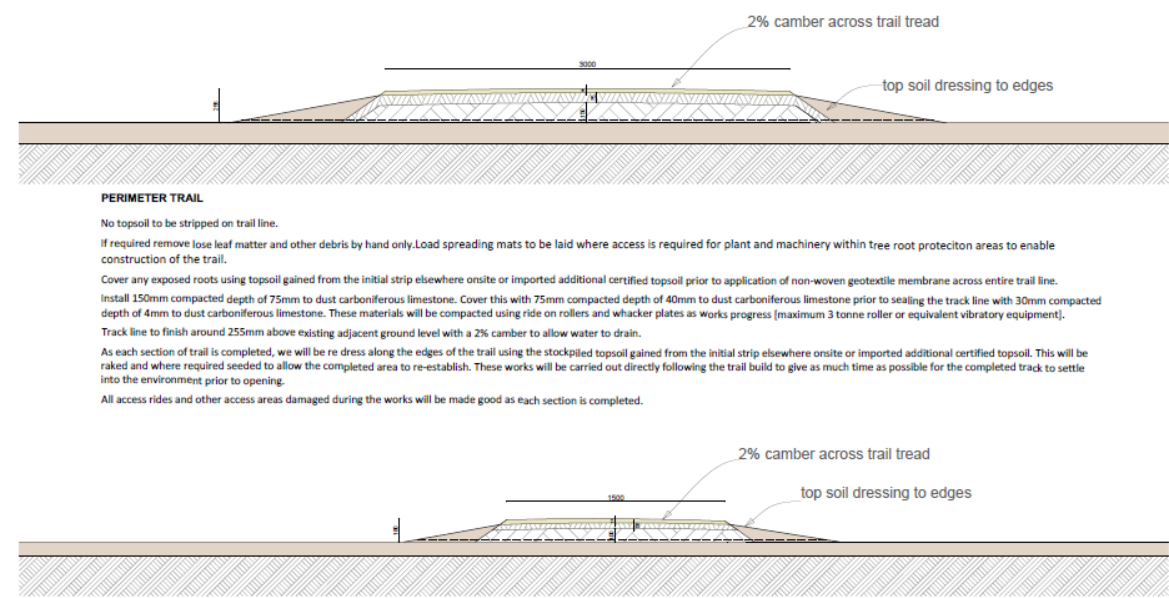
Appendix B

Extract from LLFA correspondence on the Fir Coppice incident report.

Thank you for your enquiry. Below is the full record for the Fir Coppice incident. Please note we do not have any record in our asset register of what the asset served by this gull/grid/manhole could be.

ServiceCategoryName	Drainage	
CRMReferenceNumber	CRM-426-6369	
FinancialYear	2020-21	
FinancialQuarter	Qtr 3	
MonthCreatedon	November	
DayCreatedon	2	
CreatedOn	20201102	
TimeStamp	02/11/2020 15:30:00	
Address	In Wythenshawe Park 80m north of Wythenshawe Park Wythenshawe Road Manchester M23 0AB	
Easting	381326	
Northing	389935	
Ward	Brooklands	
NeighbourhoodFocusArea	South & Wythenshawe	
StatusDesc	Closed	
DrainageThirdParty	Other third party	
DrainageProblem	Loose/rattling gully/grid or manhole cover	
FaultType	<null>	
DrainageStatuscodeDesc	Inspected - Passed to a Third Party	
Enquiry LLPG Reference	77251823	
Shape	Point	

Appendix C



PERIMETER TRAIL

No topsoil to be stripped on trail line.

If required remove loose leaf matter and other debris by hand only. Load spreading mats to be laid where access is required for plant and machinery within tree root protection areas to enable construction of the trail.

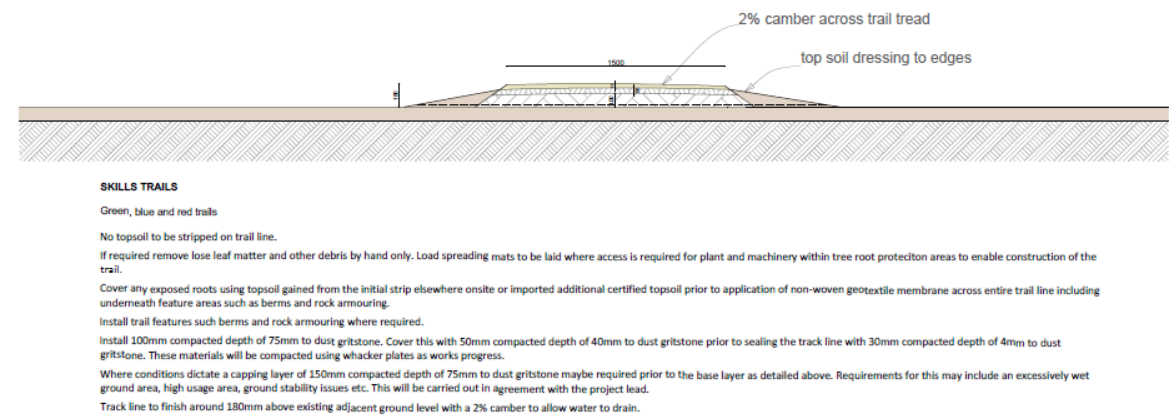
Cover any exposed roots using topsoil gained from the initial strip elsewhere onsite or imported additional certified topsoil prior to application of non-woven geotextile membrane across entire trail line.

Install 150mm compacted depth of 75mm to dust carboniferous limestone. Cover this with 75mm compacted depth of 40mm to dust carboniferous limestone prior to sealing the track line with 30mm compacted depth of 4mm to dust carboniferous limestone. These materials will be compacted using ride on rollers and whacker plates as works progress (maximum 3 tonne roller or equivalent vibratory equipment).

Track line to finish around 255mm above existing adjacent ground level with a 2% camber to allow water to drain.

As each section of trail is completed, we will be re dress along the edges of the trail using the stockpiled topsoil gained from the initial strip elsewhere onsite or imported additional certified topsoil. This will be raked and where required seeded to allow the completed area to re-establish. These works will be carried out directly following the trail build to give as much time as possible for the completed track to settle into the environment prior to opening.

All access rides and other access areas damaged during the works will be made good as each section is completed.



SKILLS TRAILS

Green, blue and red trails

No topsoil to be stripped on trail line.

If required remove loose leaf matter and other debris by hand only. Load spreading mats to be laid where access is required for plant and machinery within tree root protection areas to enable construction of the trail.

Cover any exposed roots using topsoil gained from the initial strip elsewhere onsite or imported additional certified topsoil prior to application of non-woven geotextile membrane across entire trail line including underneath feature areas such as berms and rock armouring.

Install trail features such berms and rock armouring where required.

Install 100mm compacted depth of 75mm to dust gritstone. Cover this with 50mm compacted depth of 40mm to dust gritstone prior to sealing the track line with 30mm compacted depth of 4mm to dust gritstone. These materials will be compacted using whacker plates as works progress.

Where conditions dictate a capping layer of 150mm compacted depth of 75mm to dust gritstone maybe required prior to the base layer as detailed above. Requirements for this may include an excessively wet ground area, high usage area, ground stability issues etc. This will be carried out in agreement with the project lead.

Track line to finish around 180mm above existing adjacent ground level with a 2% camber to allow water to drain.

Details of proposed trailways raised to avoid root damage

Appendix D

Plan 168721 Skills area & Skills trails



Notes

This drawing is a plan view of the Skills Area and Skills Trails. It is not a site plan and does not show the location of the Skills Area and Skills Trails in relation to the surrounding area. It is intended to provide a general overview of the Skills Area and Skills Trails and is not intended to be used as a reference for the location of the Skills Area and Skills Trails.

NOTE:

- Green line with white dots = 200m
- Green line = 100m
- Blue line = 50m
- Red line = 10m

KEY NOTES:

- Yellow dot = Waymarker
- Yellow line = Trail path
- Blue line = Trail path
- Red line = Trail path

Design Issues

Design Issue	Design Issue	Design Issue
D.1 Design Issue	D.2 Design Issue	D.3 Design Issue
D.4 Design Issue	D.5 Design Issue	D.6 Design Issue

Issues

BIKE TRACK
Manchester City Council
Wythenshawe Park
M23 OPH

Bike Park

Wythenshawe Park,

Wythenshawe Road, Manchester,

M23 OPH

Skills Area & Skills Trails

Scale: 1:1000

20-011 (08)002 D 3

20-011 (08)002 D 3

Appendix E



Site : Wythenshaw Park Cycle Track

Client : EQUANS

Engineer: LKC

Job Number
LKC 21 1532

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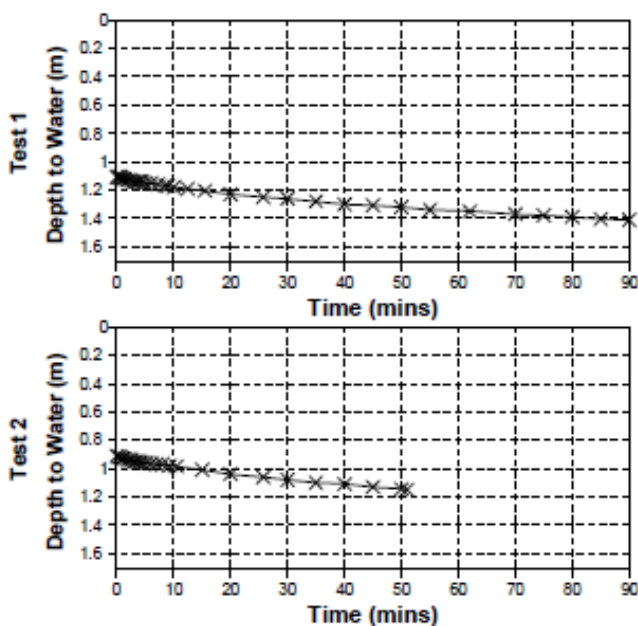
Location	Date	Level	Location
SA3	01/10/2021	36.00 mOD	E: 381311 N: 390079

Pit Width (m)	0.50
Pit Depth (m)	1.70
Pit Length (m)	1.90

Soil type at test level	SAND
Groundwater	None
Drain discharge depth	1.70
Sidewall stability	Unstable
Stone filled or open pit	Open pit

	1	2
Effective depth (m)	0.59	0.79
Volume outflowing between 75% & 25% (m3)	0.28	0.38
Mean surface area through which outflow occurs (m2)	2.37	2.85
Time for outflow between 75% & 25% (min)	114.10	95.80
SOIL INFILTRATION RATE (m/s), f	1.73E-5	2.29E-5

Remarks



Site : Wythenshaw Park Cycle Track

Client : EQUANS

Engineer: LKC

Job Number

LKC 21 1532

Sheet

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Elapsed time (mins)	Depth to Water Test 1	Depth to Water Test 2
0	1.11	0.91
0.333	1.11	0.92
0.667	1.11	0.92
0.833	1.12	
1	1.12	0.93
1.5	1.12	0.93
2	1.13	0.94
2.5	1.13	0.94
3	1.14	0.95
3.5	1.14	0.95
4	1.14	0.955
4.5	1.14	0.96
5	1.15	
5.25		0.96
6	1.15	0.965
7		0.97
7.25	1.16	
8		0.97
8.5	1.17	
9	1.17	
9.25		0.98
10	1.18	
10.5		0.985
12.5	1.19	
15		1.01
15.5	1.205	
20	1.23	1.04
25.75	1.25	1.06
30	1.26	1.08
35	1.28	1.10
40	1.30	1.11
45	1.31	1.13
50	1.32	1.145
51		1.15
55	1.34	
62	1.35	
70	1.37	
75	1.38	
80	1.39	
85	1.405	
90	1.41	