Response to Condition 5 – Drainage Scheme

Chorlton Irish Club
Chorlton-Cum-Hardy

Client Name: Southway Housing Trust

Our ref: 31296/LRD

The following request for information has been requested by the Planners in discharging of condition 5.

- Clarity required, is the soakaway a viable option? (No BRE365 results provided.)
- Evidence of drainage hierarchy not provided.
- Details of pollution controls not provided.
- Please provide proposed levels plan.
- No correspondence from UU provided.
- Update to incorporate a 45% climate change for the 1:100 + cc

In order to discharge the drainage planning condition, further information is needed to confirm that the proposed drainage design is adequate to manage flood risk.

The outstanding evidence required:

- Consideration of alternative SuDS solution (that is either utilising infiltration or attenuation) such as permeable paving if practicable;
- Evidence that the drainage system has been designed (unless an area is designated to hold and/or convey water as part of the design) so that flooding does not occur during a 1 in 100 year rainfall event with allowance for 45% climate change in any part of a building; where localised flooding occurs on site during high level storm events this should be illustrated on the drainage layout, evidencing that floodwaters are attenuated safely on site.
- Results of ground investigation carried out under Building Research Establishment Digest 365, involving filling the trial pit 3 times. Site investigations should be undertaken in the exact location and at the exact proposed depths of the proposed infiltration devices.
- 5m easements should be illustrated surrounding the proposed soakaway to ensure it is positioned appropriately.
- Groundwater monitoring should be carried out to ensure that the bottom of the soakaway is a minimum of 1m above the groundwater level (considering seasonal variation)
- Details of pollution control measures, to ensure that the soakaway does not create a potential pollution pathway to the groundwater (from the existing made ground and/or the proposed carpark).
- Correspondence from United Utilities evidencing that they are satisfied that the proposed development does not clash with the existing sewer easements.
- Construction details of flow control and SuDS elements.

<u>Is Soakaway a viable option.</u>

The infiltration rate obtained from a soakaway test, as provided within the Drainage Strategy submitted with the planning application, obtained an infiltration rate of 4.26E-5, which is suitable for infiltration.

Evidence of drainage hierarchy not provided.

The Drainage Strategy clearly goes through the drainage hierarchy in sections 3.0, 4.0, 5.0 and 6.0 and discusses each one in suitable detail.

Details of pollution controls not provided.

It is proposed to use green gap permeable paving for car parking spaces and a suitable product within the tree root protection zones, both are clearly indicated on Sutcliffe proposed drainage layout drawing number 31296-SUT-ZZ-XX-C-6200 Revision P06. A copy of the drawing is included within the appendix of this document. These products will allow the surface water runoff to drain directly into the sub surface and runoff will only be collected by piped drainage during excessive rainfall events where the surface water will not be able to infiltrate to ground quick enough. Hydrocarbons will be filtered out within the gravel infill where it will break down naturally.

The soakaway will also provide some pollution control as surface water infiltrates into the surrounding ground.

Please provide proposed levels plan.

See attached Sutcliffe drawing 31296-SUT-ZZ-XX-C-6150 Revision P03. A copy of the drawing is included within the appendix of this document.

No correspondence from UU provided.

Correspondence from United Utilities is included within the Drainage Strategy. A copy of the Drainage Strategy is included within the appendix of this document.

Update to incorporate a 45% climate change for the 1:100 + cc.

The calculations were originally prepared when climate change was required to be set at 40%. We have provided updated calculations to include an allowance for 45%. The drainage layout did not require updating.

To discharge the queries raised the following information has been requested and is discussed below.

Consideration of alternative SuDS solution (that is either utilising infiltration or attenuation) such as permeable pavings if practicable;

Permeable paving was considered but as attenuation will still be required to attenuate surface water from the roof then it was decided that a soakaway would be more practical.

The budget for this project is challenged due to the high land cost in obtaining the land. The parking bays are to be constructed using permeable construction and is indicated on the drainage layout.

Drainage from domestic roof's carries a low pollutant level and so a soakaway is suitable for treatment.

Evidence that the drainage system has been designed (unless an area is designated to hold and/or convey water as part of the design) so that flooding does not occur during a 1 in 100 year rainfall event with allowance for 45% climate change in any part of a building; where localised flooding occurs on site during high level storm events this should be illustrated on the drainage layout, evidencing that floodwaters are attenuated safely on site.

The drainage network has been designed to hold water underground for all storm events up to and including storm durations of 100 years + 45% climate change.

Where localised flooding occurs due to flood exceedance, which may occur as a result of a blockage or failure of the drainage network or an exceedance storm event a flood flow plan is included within the Drainage Strategy. A copy of the Drainage Strategy is included within the appendix of this document.

Results of ground investigation carried out under Building Research Establishment Digest 365, involving filling the trial pit 3 times. Site investigations should be undertaken in the exact location and at the exact proposed depths of the proposed infiltration devices.

A test in accordance with the BRE365 at the exact location of the soakaway could not be carried out at the time of the original drainage design as we did not know how were going to manage surface water for the proposed development at the time of investigation. The test carried out has been carried out in the vicinity of the proposed soakaway and ground conditions have been found to be consistent across the site.

An infiltration test in accordance with BRE365 will be required prior to confirming the exact location is as previously identified by the infiltration test to date.

5m easements should be illustrated surrounding the proposed soakaway to ensure it is positioned appropriately.

A 5m easement is clearly indicated on the proposed Sutcliffe drainage layout drawing number 31296-SUT-ZZ-XX-C-6200 Revision P06.

Groundwater monitoring should be carried out to ensure that the bottom of the soakaway is a minimum of 1m above the groundwater level (considering seasonal variation)

Ground water was not found to be consistent across the site suggesting that there are localised pockets of perched ground water. These areas of perched ground water were identified to the north and west of the site where the building is located.

The ground water was found to be 3.0m below ground levels. The soakaway is to be set at 1.8. below ground levels, providing 1.2m between the base of the

soakaway and ground water that was identified remote from the area of proposed infiltration.

No ground water was identified to the south of the site, where the soakaway is to be located.

Details of pollution control measures, to ensure that the soakaway does not create a potential pollution pathway to the groundwater (from the existing made ground and/or the proposed carpark).

Pollution control will be provided by the provision of permeable pavement to the car parking bays, sump units to the channel drainage and a sump prior to surface water entering the soakaway.

Correspondence from United Utilities evidencing that they are satisfied that the proposed development does not clash with the existing sewer easements.

We submitted a Build Over Sewer application and United Utilities have approved it. The approval from United Utilities is include in the appendix to this document.

Construction details of flow control and SuDS elements.

Drawings included in appendix of this document.

Appendix

Drainage Strategy

And

Flood Risk Assessment

for

Proposed Development

Cross Street

Chorlton

Manchester M21 9DJ

Client Name:	**Southway Housing trust**
Our ref:	**LRD31296**
Date:	**January 2022**
Revision:	**002**

SUTCLIFFE

Drainage Strategy & Flood Risk Assessment

DOCUMENT VERIFICATION

Report Reference: LRD31296 Issue: 002 Date: January 2022

Prepared by:

Name:	Dave Samuels
Title:	Executive Associate
Qualifications:	CEng MIStructE MAPS

Checked / Approved by:

Name:	Martin Pocock
Title:	Director
Qualifications:	BEng(Hons) CEng FICE MCIHT CMgr FCMI C.WEM MCIWEM

Revision History:

Rev	Date	Description	Prepared	Checked	Approved
001	Jan 2022	Issued for Planning	DS	MP	DS
002	Jan 2022	Introduction amended	DS	MP	DS
003	June 2022	Amended to revised Layout	DS	MP	DS

This document has been prepared by Sutcliffe within the terms of the Contract with the Client to whom this document is addressed. Sutcliffe disclaims any responsibility to the Client and others in respect of matters outside the scope of the said contract. No person other than the Client shall rely on it in any respect and Sutcliffe shall owe no duty of care to any such third party.

Sutcliffe

Contents

1.0 Introduction

2.0 Existing flood risk

3.0 Infiltration to ground

4.0 Discharge to suitable water course

5.0 Discharge to suitable surface water network

6.0 Discharge to suitable combined sewer network

7.0 Existing site surface water drainage

8.0 Site surface water drainage proposals

9.0 Site surface water runoff drainage design

10.0 Outstanding flood risk

11.0 Future surface water drainage management and maintenance

Appendix A	Existing Site Layout
	Proposed Site Layout
Appendix B	Existing United Utilities Sewer Records
	Existing Drainage Plan
Appendix C	Proposed Drainage Plan
	Proposed Flood Routing
Appendix D	Investigation Location Plan
	Borehole Logs
	Trial Hole
	Infiltration Test Results
Appendix E	Q_{bar}
	Drainage Areas Plan
	Hydraulic Calculations
Appendix F	Correspondence

1.0 Introduction

The site is currently occupied with a tarmac surfaced car park. The site is located within a developed area of Chorlton-cum-Hardy, Manchester.

The site accessed off Cross Road and currently part of the car park to the Irish Centre.

The proposed scheme consists of a 4-storey block of residential flats with associated parking.

The total site area is approximately 0.2 Ha and its location can be found by the following references;

Postcode M21 9DJ

Coordinates 381721, 393601

Grid reference SJ 81721 93601

The site has a level difference of up to 0.3m from west to east and 0.2m from north to south.

The purpose of the strategy and flood risk assessment is to consider how the surface water runoff from the development site will be effectually drained and managed throughout the lifetime of the development.

The site must, in the first instance, consider the use of SUDS in accordance with the National Planning Policy Framework.

SUDS are the provision of a surface water drainage scheme that manages the surface water runoff at source.

The hierarchy of managing surface water at source is:

- Infiltration to ground
- Discharge to a suitable water course
- Discharge to a suitable surface water sewer network
- Discharge to a combined sewer network

The following statements are made in relation to the above stated hierarchy in relation to the proposed scheme.

2.0 Existing Flood Risk

An inspection of the Environment Agency flood maps was made on the internet and the following can be stated.

- That the site is located within a Zone 1 low risk flood area and the site is, therefore, considered not to be at risk of flooding from rivers or sea.
- That the site is indicated as having a low risk of surface water flooding. The area of surface water flooding is shown to the existing car park area.
- That the site is at risk from flooding from reservoirs.

Flooding from reservoirs is very rare due to the legislation in place requiring regular inspections to be made of structures retaining water. It is very unlikely that a sudden failure of a dam, or water retaining structure, will occur and it is likely that there would be adequate warning in place to allow evacuation should it be required.

Therefore, from the above observations we confirm that the site is at low risk of flooding from existing sources.

3.0 Infiltration to ground

Infiltration to ground is, in the main, provided by the provision of soakaways and permeable paving.

Soakaways can be provided where the ground has a suitable infiltration rate and where there are no limiting factors that would preclude the use of soakaways.

Infiltration tests have been carried out and a suitable infiltration rate was calculated.

Therefore, the use of soakaways is possible for this site.

4.0 Discharge to suitable water course

An inspection of historic / current maps and the Environment Agency maps reveal that there are no watercourses either on, adjacent to, or within reasonable distance of the site.

Therefore, discharge of surface water into a water course is not available for this site.

5.0 Discharge to a suitable surface water network

A review of the existing drainage network within the surroundings of the development site was made and of United Utility sewer records. A drainage investigation of the on- site drainage was also undertaken.

No surface water drains or sewers were identified.

Therefore, disposal of surface water drainage into a surface water drain, sewer or highway drain is not available for this site.

6.0 Discharge to a suitable combined sewer network

A review of the existing drainage network and of United Utility sewer records within the surroundings of the development site was made.

The review indicated that there are available combined sewers in the vicinity of the site.

Therefore, discharge of surface water into a combined sewer is available for this site.

7.0 Existing Site Surface Water Drainage

The existing surface water drainage for the existing car park is a not able to be properly calculated as one of the road gullies draining the car park was not identified during the CCTV drainage survey and so assumed to go to ground.

Greenfield run-off rates have been calculated using Micro Drainage software as being;

Q_{bar} = 1.3 l/s

$Q_{1\ year}$ = 1.2 l/s

$Q_{2\ year}$ = 1.4 l/s

$Q_{30\ year}$ = 1.9 l/s

$Q_{100\ year}$ = 2.1 l/s

A copy of the hydraulic calculations is included in Appendix D.

8.0 Site Surface Water Runoff Drainage Proposals

From the above discussions made the following surface water drainage strategy is proposed.

Infiltration via soakaways is possible as a suitable infiltration test result was proved.

There are no watercourses within reasonable and economic distance of the site.

There is no existing surface water sewer on or adjacent to the site.

There are combined sewers available but will not be used as infiltration can be used to manage surface water disposal for this site.

United Utilities have been consulted and responded requesting we followed the surface water drainage hierarchy. Should the hierarchy be that discharge to a sewer was required then a connection to a combined sewer would be allowed at a discharge rate of no more than 5.0 l/s.

Therefore, from the above discussion it is proposed to provide soakaway drainage to drain surface water runoff from the site.

The soakaway will be designed to cater for all rainfall events up to and including the 100 year + 40% climate change.

No allowance for urban creep is proposed as the development is flats and urban creep is not required to be considered.

9.0 Site Surface Water Runoff Drainage Design

The site is located in an area where SUDS is to be utilised as ground conditions allow for infiltration.

From the discussion in the previous section, we propose to provide a soakaway suitably designed to manage surface water runoff for storm events up to and including the 100-year + 40% climate change storm events.

From the above discussion, it is our proposal to provide the following surface water drainage proposal;

> *To provide a private drainage network to collect and discharge surface water to a soakaway that will discharge the surface water into the underlying sands. The soakaway will be provided to attenuate all storm events up to and including the 100 year + 40% climate change storm event.*

Hydraulic calculations undertaken for the proposed sewer network design using Micro Drainage provide evidence that the various storm events can be

managed within the proposed drainage network and reduce future flood risk both on and off site.

Calculations for the following rainfall events were interrogated;

- 1 Year
- 2 Year
- 30 Year
- 100 year + 20% Climate Change
- 100 year + 30% Climate Change
- 100 year + 40% Climate Change

No flooding occurred for any of the storm events up to and including the 100 year + 20% climate change.

There was minor flooding for the 100 year +30% and 40% events with flooding volumes not exceeding 0.875m^3. The extent of flooding was interrogated on the 3D model and the flooding is contained within the confines of the car park and does not leave site or affect property. The extent of flooding is indicated on the flood routing drawing 32196-SUT-ZZ-XX-DR-C-6201.

The maximum half drain down time for the soakaway is 431minutes, which is acceptable.

Hydraulic calculations are included in Appendix E.

A proposed drainage plan, 32196-SUT-ZZ-XX-DR-C-6200, has been prepared in accordance with the above proposals and is included in Appendix C.

In the event of an exceedance storm event (greater than 100 year + 40% climate change) or a drainage failure event, such as a blockage, then overland flooding could be expected. Overland flood routes have been indicated on the site plan and indicate where the water will flow. No dwellings, either on or off site are affected. The flood routing drawing, 32047-SUT-ZZ-XX-DR-C-6201, is included in Appendix C.

From the above we believe that the requirements of the Lead Local Flood Authority have been met to manage surface water runoff from the development on the site.

10.0 Outstanding Flood Risk

From the above drainage strategy and flood risk assessment we confirm that the site is at a low risk of flooding from on site and external sources.

The drainage design has reduced current flood risk by retaining all surface water on site and discharging it via soakaway rather than a positive piped drainage network.

In the event of exceedance rainfall events and / or blocked drains, flooding is likely to occur as the drainage system becomes overwhelmed. A flood exceedance flood route is indicated on drawing 32196-SUT-ZZ-XX-DR-C-6201.

Therefore, the proposed development has a low risk of flooding both on and off site and reduces flood risk from the previous development and has been designed to retain and manage surface water discharge on site for up to and including the 100 year + 40% climate change storm events.

11.0 Future Surface Water Drainage Management and Maintenance

At this point of the design process, we are not able to provide a full management and maintenance plan but the following summary can be provided to give a general strategy of future management and maintenance. As the development proceeds to full design and construction stage the management and maintenance strategy can be developed.

At this stage of design, it is anticipated that the drainage within the proposed development will remain privately owned and maintained by Southway Housing Trust, who will be responsible for ongoing maintenance throughout the lifetime of the development.

The Housing Association will be responsible for the whole of the drainage network as it will remain privately owned.

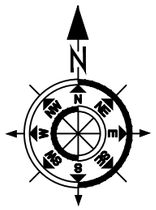
It is anticipated that the costs for ongoing maintenance will be charged via a management fee that tenants contribute towards as part of their rent. The Housing Association will ensure that the private drainage is maintained to the point of discharge into the adopted sewers.

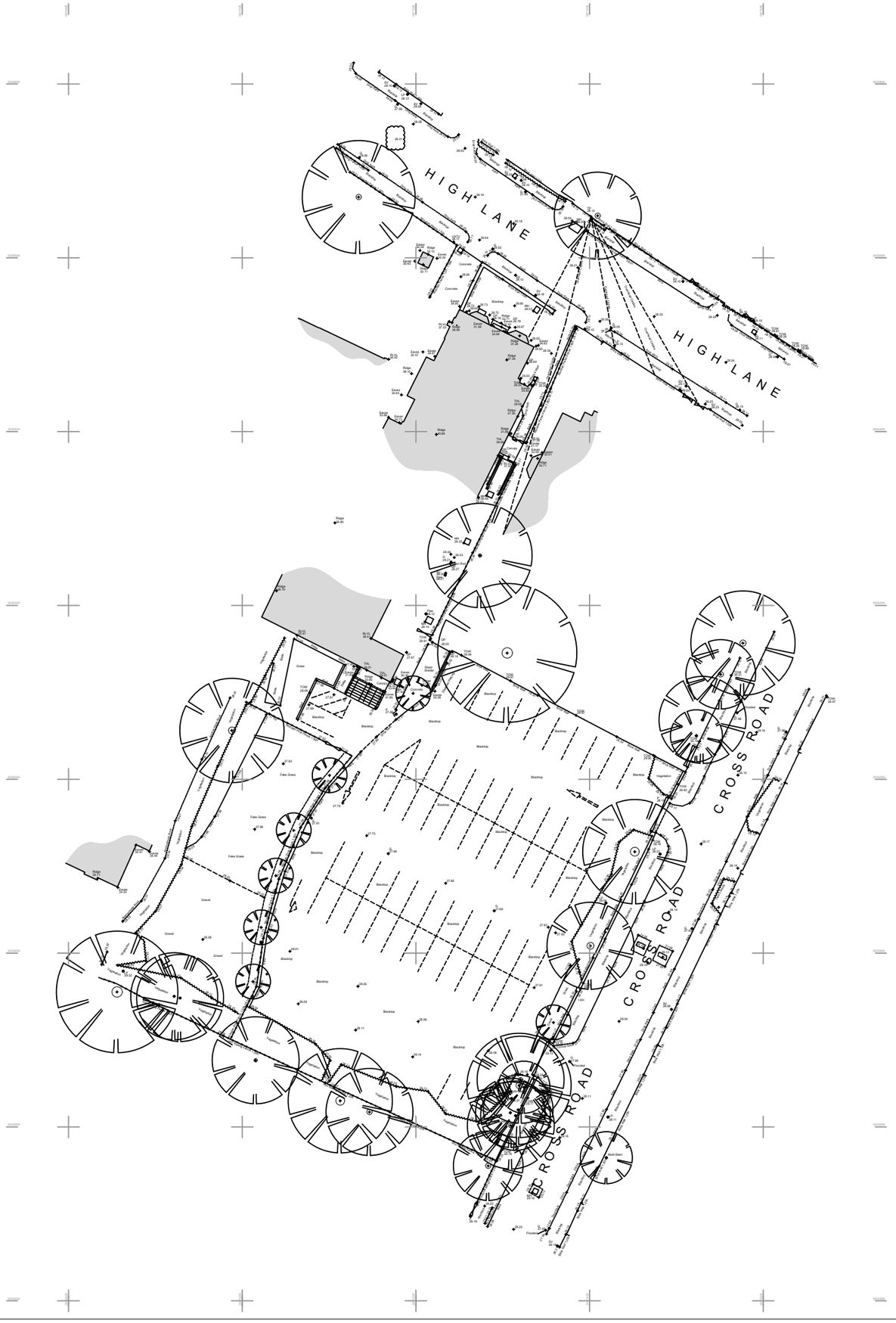
The maintenance schedule will be developed once planning is awarded and the drainage design is finalised.

Appendix A

Existing Site Layout

Proposed Site Layout





Topographical Survey Abbreviations

AC	AIR CONDITIONING UNIT	LP	LAMP POST
B	BOLLARD	MKR	MARKER POST
BB	BELISHA BEACON	MH	MANHOLE
BED	BED LEVEL	OHC	OVERHEAD CABLE
BH	BOREHOLE (WITH No.)	PM	PARKING METER
BS	BUS STOP	P	POST
BT	BRITISH TELECOM COVER	RE	RODDING EYE
CATV	CABLE TELEVISION COVER	RS	ROAD SIGN
CC	CONTROL CABINET	RWL	RETAINING WALL
CL	COVER LEVEL (MANHOLE)	SA	SOAK AWAY
COL	COLUMN	SCAM	SECURITY CAMERA
CP	CATCH PIT	SG	STRIP GULLY
DP	RAIN WATER DOWN PIPE	SP	SIGN POST
EC	ELECTRIC CABLE	SV	STOP VALVE
EL	ELECTRIC COVER	TAP	WATER TAP
EP	ELECTRIC POLE	TCB	TELEPHONE CALL BACK
ER	EARTH ROD	THL	THRESHOLD LEVEL
FFL	FINISHED FLOOR LEVEL	TL	TRAFFIC LIGHT
FH	FIRE HYDRANT	TOF	TOP OF FENCE LEVEL
FLT	FLOODLIGHT	TOW	TOP OF WALL LEVEL
G	GULLY	TP	TELEGRAPH POLE
GP	GATE POST	TPIT	TRIAL PIT (WITH No)
GV	GAS VALVE	VP	VENT PIPE
IC	INSPECTION CHAMBER	WLV	WATER LEVEL
IL	INVERT LEVEL	WM	WATER METER
KO	KERB OUTLET	WO	WASH OUT
LB	LITTER BIN		

BUILDINGS

OPEN SIDED BUILDINGS

TREE
SPREAD & DIA. TO SCALE

Technical Notes:

- All survey levels and co-ordinates are related to OS Datum using the GPS Active Network. The Grid is orientated to Grid North with a Scale Factor of 1.00.
- All Boundaries surveyed are physical features. Please bear in mind that these may not represent the legally conveyed ownership.
- Trees are drawn to scale showing the average canopy spread and are approximate only. Where heights are shown they have been taken from ground level and are an estimate only.
- All underground features have been measured from the surface, therefore pipe sizes, depths etc are only an estimate or assumption. If dimensions are critical information must be checked and verified prior to work commencing.
- Whilst every effort has been made to locate all physical features during the survey no responsibility can be taken where features are obscured or hidden at the time of survey. This is especially important where high volumes of plant or vehicles are present on site.
- Off site features may have been measured remotely and as such may not show the full detail of the feature due to limited access or obstructions with line of sight.
- All critical dimensions including levels should be checked prior to construction. Any errors or discrepancies should be reported immediately.
- All measurements have been taken from ground level only.
- Do not scale from this drawing.
- Tree Information

1. Trunk Diameters are measured where possible at approximately 1.5m above ground.
2. Tree Spreads are indicative only and are representative of the generalised canopy size, and therefore may not represent the true canopy position as outlined on site. Tree boles may also not sit centrally to the canopy.
3. Where tree heights are shown they are an approximate height to the top of the canopy and are an estimation from ground level.
4. Attention should be paid to the original survey brief as to which trees have actually been surveyed; i.e. Only Trees larger than "X"mm diameter, or Only Trees within the site.

DO NOT SCALE OFF THIS DRAWING

1:50 - 0 1m 2m 3m
1:100 - 0 1m 2m 3m 4m 5m 6m 7m 8m 9m 10m
1:200 - 0 2m 4m 6m 8m 10m 12m 14m 16m 18m 20m
1:500 - 0 10m 20m 30m 40m 50m

SAXON HOUSE
21 MARKET SQUARE
SANDBACH
CHESHIRE
CW11 1AT
TEL: 0800 024 8052
WEB: WWW.REDBOXSURVEYS.CO.UK
EMAIL: INFO@REDBOXSURVEYS.CO.UK

redbox SURVEYS

Client:

View Associates

Project:

High Lane / Cross Street
Chorlton
Manchester

Drawing Title:

Topographical Survey

Rev.	Description	Surveyed	Approved	Date

Surveyor:	Checked By:	Approved By:	Date of Survey:	Date of Issue:
SB	VM	AJS	24/08/20	02/09/20

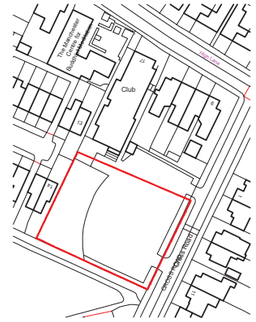
Drawing Status:	Scale:	Paper Size:	Sheet No:
DRAFT	1:200	A1	1 of 1

Project No:	Drawing No:	Revision:
RBS - 20/2061	RBS - 20/2061/001	-

© The contents of this drawing and entities used are copyright of Redbox Surveys Limited 2010. Written consent must be obtained before using the data other than for the purpose it was originally supplied. No Liability will be accepted for amendments made by other persons.

Cross Road, Chorlton

Do not scale from this drawing All dimensions and levels are to be checked on site. All areas are approximate and are for information only.
This drawings is to be read in conjunction with all other relevant documents and all works are to comply with the current Building regulations, British Standards and Codes of Practice etc.
All details of the existing structure are to be verified by others on site prior to any works commencing.
The copyright of this drawing and all works executed from this drawing remain the property of View Associates Ltd. Any 3rd party survey information contained on this drawing is not the responsibility of View Associates Ltd



Ordnance Survey, (c) Crown Copyright 2020. All rights reserved. Licence number 100022432

Scale 1:1250
0 25 50 75 100 125

Revision	Description	Date

Drawing Number: (PL)001 REV B	Date: 22.12.21
Stage: PLANNING	
Scale: 1:200 + 1:1250 @ A1	
Drawn By: HH	Checked By: IJ
Client: Southway Housing Trust	
Drawing Title: PROPOSED SITE PLAN + LOCATION PLAN	

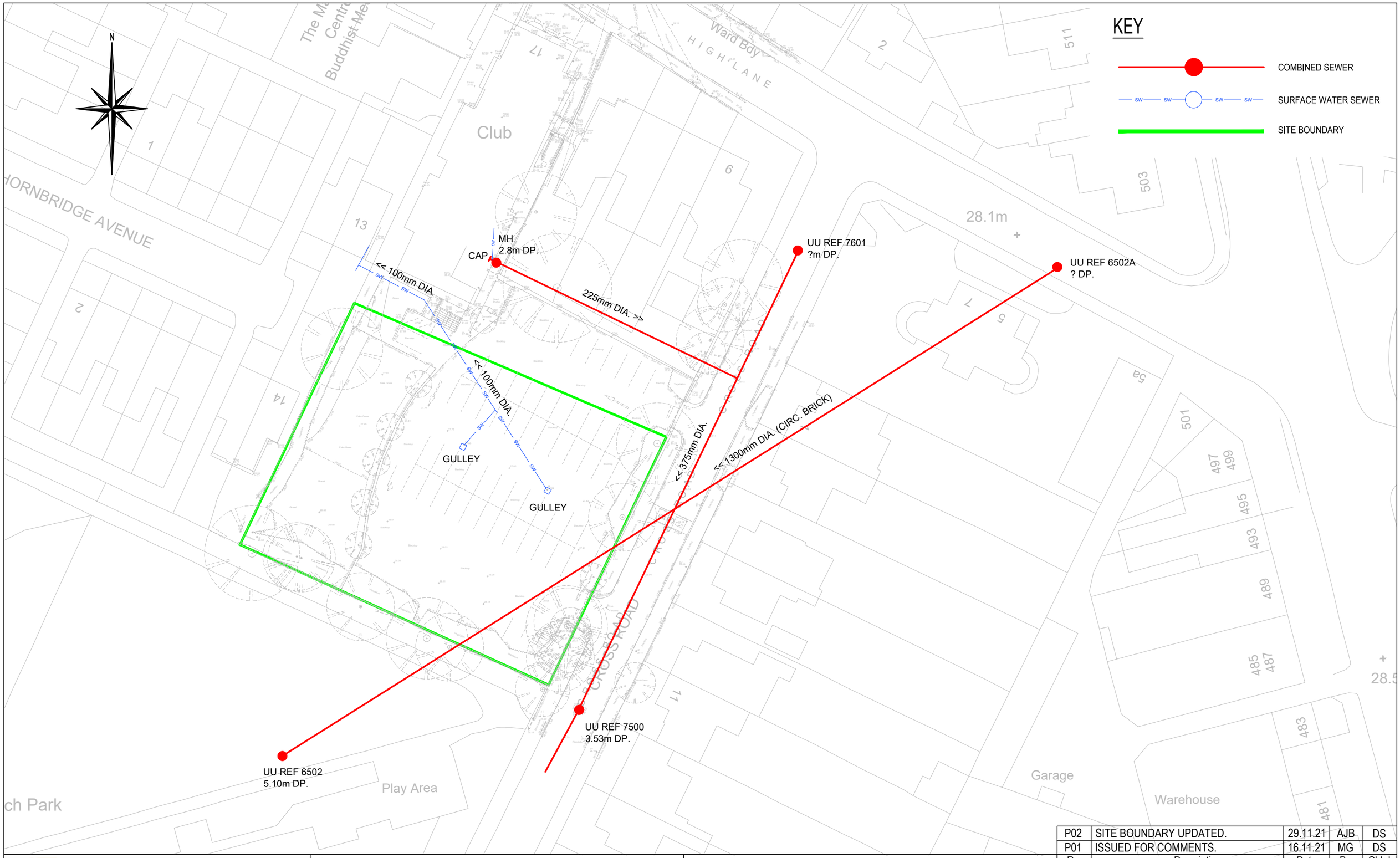
VIEW ASSOCIATES
CHARTERED ARCHITECT
RIBA
T 0161 941 7458
W viewassociates.co.uk
View Associates Ltd
Greystone House, Moss Lane
Altrincham WA15 8HW

Appendix B

Existing United Utilities Sewer Records

Existing Drainage Plan

CHORLTON-CUM-HARDY
MANCHESTER
HIGH LANE
BEECH ROAD
CROSS ROAD
WILTON ROAD
THORNBRIDGE AVENUE
SANDY LANE
CHESTNUT AVENUE
HARDY AVENUE
ACRES ROAD
CHEQUERS ROAD
STOCKTON ROAD
CROSSLAND ROAD
COPGROVE ROAD
PINEWOOD ROAD
FINNEY DRIVE
MALTON AVENUE
ST ANNES ROAD
HARTINGTON ROAD
TORBAY ROAD
ZETLAND ROAD
FAIRHAVEN AVENUE
NORBRECK AVENUE
ANSDELL AVENUE
LYTHAM AVENUE
CLEVELEYS AVENUE
BEECH MEWS
Beech Park
The Samatha Centre
Club
Holland Court
Chorlton Central Church
Our Lady and St John Parish Centre
Islamic High School for Girls
Ivy Court
Garage
Warehouse
Day Nursery
Surgery
Works
El Sub Sta
Police Station
Bus Station
1400x1250 BR
1400x1240 BR
2800 BR
975x600 BR
920x600 CO
1220x1090 BR
1220x1100 BR
1050 CO



Rev	Description	Date	By	Chkd
P02	SITE BOUNDARY UPDATED.	29.11.21	AJB	DS
P01	ISSUED FOR COMMENTS.	16.11.21	MG	DS

Sutcliffe

Structural & Civil Engineering
Geotechnical & Environmental Investigations
Building Surveying
Pre Planning Services

Liverpool Head Office: 0151 227 3155
Manchester Office: 0161 817 5180
North Wales Office: 01978 664 071
London Office: 020 8016 4320
www.sutcliffe.co.uk

Drawing Status
PRELIMINARY

Client
SOUTHWAY HOUSING TRUST

Project
CHORLTON IRISH CLUB
CHORLTON-CUM-HARDY

Drawing Title
EXISTING DRAINAGE

Date: 16.11.2021
Drawn By: MG
Checked By: DS
Scale at A3: 1:500
Project Number: 31296
Sheet Number: 31296-SUT-ZZ-XX-DR-C-600-0001
Revision: P02

Appendix C

Proposed Drainage Layout

Proposed Flood Routing

13

14

N

NEW BACKDROP CONNECTION TO EXISTING COMBINED MANHOLE IL:26.890

EX MH CL: 28.10 IL: 25.30

EX COM 225ø >>

EX MH CL: 27.93 IL:

EXISTING MANHOLE DETAILS TBC ALLOW FOR ABANDONING EXISTING MANHOLE AND CONNECTING EXISTING DRAINAGE INTO NEW 150ø FW DRAIN

NOTE: NEW DRAINAGE REQUIRED TO RETAINED SECTION OF CAR PARK 'BY OTHERS'

<< EX SW 100ø

<< EX SW 100ø

FW 150 1:100 >>

<< EX COM 375ø

SW 01 PPIC CL:28.259 IL:27.650

FW 03 PPIC CL:28.276 IL:27.050

FW 1:14 >>

FW 04 PPIC CL:28.275 IL:27.510

FW 07 PPIC CL:28.288 IL:27.590

BD 27.590

SW 150ø 1:42 >>

<< FW 150ø 1:93

FW 06 PPIC CL:28.300 IL:27.590

FW 05 PPIC CL:28.296 IL:27.590

SW 02 PPIC CL:28.269 IL:26.950

<< SW 1:18

FW 02 PPIC CL:28.280 IL:27.350

FW 01 PPIC CL:28.276 IL:27.425

SW 06 PPIC CL:28.325 IL:27.575

RWP

SP

BIG

FFL 28.450

<< SW 150ø 1:75

<< EX COM 1300ø BRICK

SW 05 PPIC CL:28.085 IL:26.596

SW 225ø 1:26 >>

SW 04 1200ø MH CL:28.138 IL:26.055 SUMP:25.555

<< SW 150ø 1:19

<< SW 225ø 1:52

SW 03 PPIC CL:28.159 IL:26.650

ACO CHANNEL DRAIN

ACO MULTIDRAIN SUMP UNIT

ACO MULTIDRAIN SUMP UNIT

ACO CHANNEL DRAIN

ACO MULTIDRAIN SUMP UNIT

ACO CHANNEL DRAIN

SURFACE WATER SOAKAWAY - IL:26.000
10M X 5M X 1.5M DEEP POLYSTORM CELLS SYSTEM TO BE VENTED & INSTALLED TO MANUFACTURERS DETAILS.
MINIMUM COVER 500MM.

TREE ROOT PROTECTION ZONE REFER TO 31296-SUT-ZZ-XX-DR-C-6800 FOR CAR PARK CONSTRUCTION DETAILS TO TREE ROOT PROTECTION ZONE

TREE ROOT PROTECTION ZONE REFER TO 31296-SUT-ZZ-XX-DR-C-6800 FOR CAR PARK CONSTRUCTION DETAILS TO TREE ROOT PROTECTION ZONE

CROSS ROAD

Delivery Bay

EX MH 7500 CL: 28.16 IL: 24.63

SCALE BAR 1:100

0 1 2 3 4 5 10 Meters

NOTE: SP POSITIONS HAVE BEEN ASSUMED BASED ON ARCHITECTS PLANNING DRAWINGS DATED OCTOBER 2021. RWP LOCATIONS TO BE CONFIRMED BY ARCHITECT.

General Notes

DO NOT SCALE OFF THIS DRAWING

THIS DRAWING TO READ IN CONJUNCTION WITH ALL RELEVANT STRUCTURAL AND ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.

ALL DIMENSIONS TO BE CHECKED ON SITE BY THE CONTRACTOR / FABRICATOR PRIOR TO COMMENCEMENT OF WORKS.

ALL DIMENSIONS ARE IN MILLIMETRES UNLESS STATED OTHERWISE.

ALL WORKS TO BE CARRIED OUT IN STRICT ACCORDANCE WITH THE ENGINEER'S SPECIFICATIONS, RELEVANT BRITISH STANDARDS, STATUTORY HEALTH AND SAFETY/C.D.M. REGULATIONS, RELEVANT CODES OF PRACTICE AND THE CURRENT EDITION OF THE BUILDING REGULATIONS.

FOR FINAL SETTING OUT INFORMATION RELATING TO GRID LINES AND WALL POSITIONS REFER TO THE ARCHITECT'S DRAWINGS.

ALL FLOOR LEVELS TO BE CONFIRMED BY ARCHITECT PRIOR TO CONSTRUCTION

ALL COVER LEVELS TO BE CONFIRMED BY ARCHITECT PRIOR TO CONSTRUCTION

ALL DRAINAGE PENETRATING THOUGH FLOOR SLABS AND RAINWATER PIPE LOCATIONS TAKEN FROM ARCHITECTS DRAWINGS. ARCHITECT TO CONFIRM LOCATIONS PRIOR TO CONSTRUCTION.

EXISTING SERVICES

ROAD SIGNS AND LAMP COLUMNS ON THE SITE PERIPHERY TO BE RE-SITED IF REQUIRED BY, AND TO THE APPROVAL OF, THE LOCAL AUTHORITY.

CONTRACTOR TO SATISFY THEMSELVES THAT EXISTING AND PROPOSED SERVICES DO NOT CLASH WITH PROPOSED DRAINAGE

KNOWN EXISTING SERVICES ARE INDICATED ON THE PLAN WHERE THEY CROSS THE PROPOSED DRAINAGE. THE EXACT TYPE AND LOCATION SHALL BE CONFIRMED BY THE CONTRACTOR PRIOR TO START OF WORKS TO ENSURE THAT PROPOSED DRAINAGE LEVELS DO NOT INTERFERE WITH SERVICES. ALL DISCREPANCIES SHALL BE REPORTED TO ENGINEER IMMEDIATELY.

THE CONTRACTOR SHALL CHECK ALL EXISTING COVER / INVERT LEVELS AND PIPE / SEWER SIZES ON SITE PRIOR TO START OF WORKS TO ENSURE PROPOSED DRAINAGE CAN BE CONSTRUCTED AS INDICATED ON THE DRAWING. ANY DISCREPANCIES TO BE REPORTED TO THE ENGINEER IMMEDIATELY.

ALL REDUNDANT DRAINAGE WITHIN SITE TO BE GRUBBED UP, CHASED AND SEALED TO APPROVAL OF LOCAL AUTHORITY

PROPOSED DRAINAGE

OUTSIDE EDGE OF ADOPTED SEWER SHALL NOT ENCROACH WITHIN 1M OF KERB FACE. OUTSIDE EDGE OF ADOPTED MANHOLES SHALL NOT ENCROACH WITHIN 0.5M OF KERB FACE.

ALL DRAINAGE IN HIGHWAYS/CAR PARKING AREAS/DRIVEWAYS LESS THAN 1.2M DEEP TO BE CONCRETE ENCASED.

ALL PPIC'S GREATER THAN 1.2M DEEP TO HAVE REDUCED ACCESS COVERS TO PREVENT MAN ENTRY.

SURFACE WATER DRAINAGE:
ALL PRIVATE SURFACE WATER DRAINAGE TO BE 100MM ø AT 1:80 GRADIENT UNLESS NOTED OTHERWISE.
ALLOWANCE TO BE MADE FOR DRIVEWAY GULLIES AND ASSOCIATED DRAIN RUNS WHERE APPLICABLE

FOUL WATER / COMBINED DRAINAGE:
ALL UNDERSLAB FOUL WATER DRAINAGE TO BE 100MM ø AT 1:40 GRADIENT UNLESS NOTED OTHERWISE ALL OTHER PRIVATE FOUL WATER DRAINAGE TO BE 100MM ø AT 1:80 GRADIENT UNLESS NOTED OTHERWISE
INTERNAL VENTING OF DRAINAGE SYSTEM TO ARCHITECTS DETAILS
ALL INTERNAL SP/RWP POSITIONS TO BE CONFIRMED BY ARCHITECT PRIOR TO CONSTRUCTION OF GROUND FLOOR SLAB

- Site boundary
- Existing Surface water drain/sewer
- Existing Foul water drain/sewer
- Existing Combined water drain/sewer
- Proposed Surface water private drain
- Proposed Foul water private drain
- Exisg drainage to be abandoned to Local Authority approval

RWP	Rainwater pipe location
SP	Soil pipe location
BIG	Back inlet gulley
SG	Shower gulley
EX G	Existing Road gulley
RG	New road gulley
DG	New driveway gulley

NOTE: INTERNAL SVP/SP POSITIONS TO BE CONFIRMED BY ARCHITECT PRIOR TO CONSTRUCTION OF GROUND FLOOR SLAB.

NOTE: ALL DRAINAGE CONNECTIONS SHALL BE SOFFIT TO SOFFIT UNLESS DETAILED/NOTED OTHERWISE

Rev	Description	Date	By	Chkd
P03	AMENDED TO SUIT NEW LAYOUT	09.06.22	MJG	DS
P02	DRAINAGE AMENDED APT 08	07.01.22	AJB	DS
P01	ISSUED FOR COMMENT	29.11.21	AJB	DS

Drawing Status
PRELIMINARY DRAWING

Sutcliffe
Structural & Civil Engineering
Geotechnical & Environmental Investigations
Building Surveying
Pre Planning Services
Liverpool Head Office: 0151 227 5165
Manchester Office: 0161 817 5160
North Wales Office: 01978 664 075
London Office: 0203 8614 4555
www.sutcliffe.co.uk

Client
SOUTHWAY HOUSING TRUST

Project
CHORLTON IRISH CLUB
CHORLTON-CUM-HARDY

Drawing Title
PROPOSED DRAINAGE LAYOUT

Date	Drawn By	Checked By
NOV. 2021	AJB	DS

Scale at A1	Project Number
1:100	31296

Sheet Number	Revision
31296-SUT-ZZ-XX-DR-C-6200	P03

General Notes

~~DO NOT SCALE OFF THIS~~ DRAWING

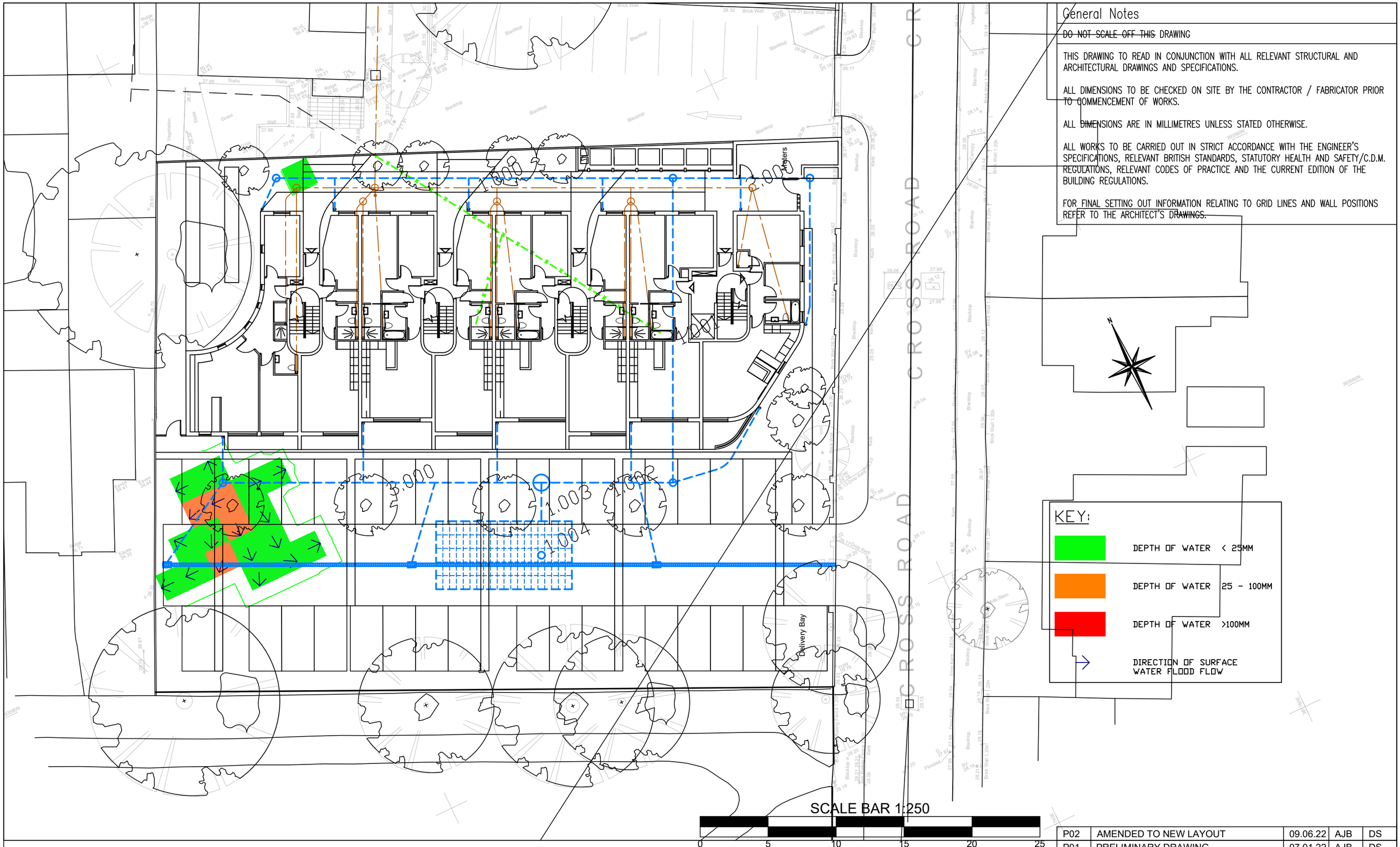
THIS DRAWING TO READ IN CONJUNCTION WITH ALL RELEVANT STRUCTURAL AND ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.

ALL DIMENSIONS TO BE CHECKED ON SITE BY THE CONTRACTOR / FABRICATOR PRIOR TO COMMENCEMENT OF WORKS.

ALL ~~DIMENSIONS~~ ARE IN MILLIMETRES UNLESS STATED OTHERWISE.

ALL WORKS TO BE CARRIED OUT IN STRICT ACCORDANCE WITH THE ENGINEER'S SPECIFICATIONS, RELEVANT BRITISH STANDARDS, STATUTORY HEALTH AND SAFETY/C.D.M. REGULATIONS, RELEVANT CODES OF PRACTICE AND THE CURRENT EDITION OF THE BUILDING REGULATIONS.

FOR FINAL SETTING OUT INFORMATION RELATING TO GRID LINES AND WALL POSITIONS REFER TO THE ARCHITECT'S ~~DRAWINGS~~.



Rev	Description	Date	By	Chkd
P02	AMENDED TO NEW LAYOUT	09.06.22	AJB	DS
P01	PRELIMINARY DRAWING	07.01.22	AJB	DS

Sutcliffe
Structural & Civil Engineering
Geotechnical & Environmental Investigations
Building Surveying
Pre Planning Services
Liverpool Head Office: 0151 227 3155
Manchester Office: 0161 817 5180
North Wales Office: 01978 664 071
London Office: 020 8016 4320
www.sutcliffe.co.uk

Drawing Status
PRELIMINARY DRAWING

Client
SOUTHWAY HOUSING TRUST

Project
CHORLTON IRISH CLUB
CHORLTON-CUM-HARDY

Drawing Title
FLOOD FLOW PLAN

Date	Drawn By	Checked By
JAN 2022	AJB	DS

Scale at A3	Project Number
1:250	31296

Sheet Number	Revision
31296-SUT-ZZ-XX-DR-C-6201	P02

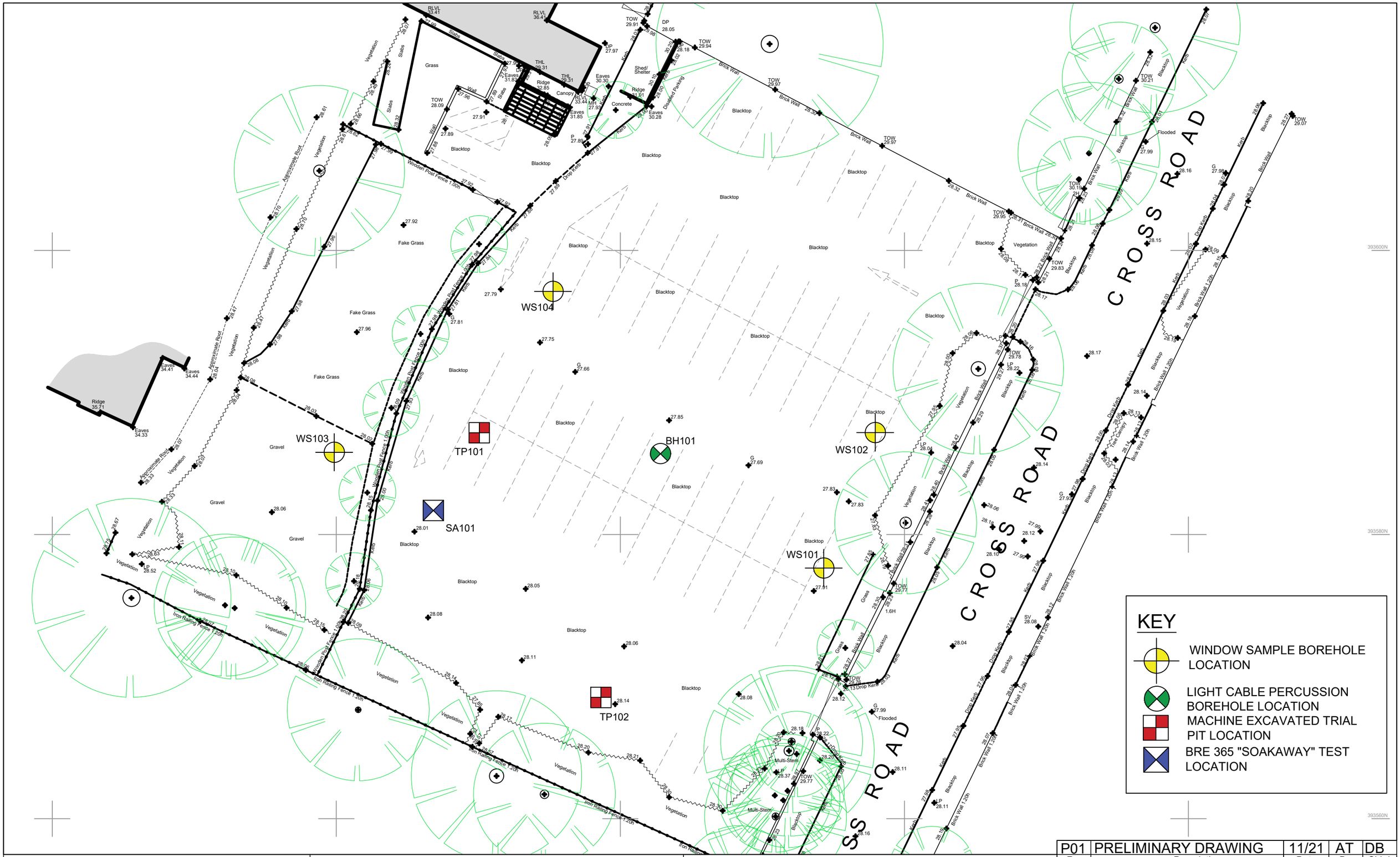
Appendix D

Investigation Location Plan

Borehole Logs

Trial Hole Logs

Infiltration Test Result



Sutcliffe

Structural & Civil Engineering
Geotechnical & Environmental Investigations
Building Surveying
Pre Planning Services

Liverpool Head Office: 0151 227 3155
Manchester Office: 0161 817 5180
North Wales Office: 01978 664 071
London Office: 020 8016 4320
www.sutcliffe.co.uk

Drawing Status
FOR INFORMATION

Client
SOUTHWAY HOUSING TRUST

Project
CHORLTON IRISH CLUB
CROSS ROAD, CHORLTON

Drawing Title
SITE INVESTIGATION LOCATION ON EXISTING PLAN

Rev	Description	Date	By	Chkd
P01	PRELIMINARY DRAWING	11/21	AT	DB

Date	Drawn By	Checked By
NOV 2021	A TOSH	DB

Scale at A3	Project Number
NTS	31296LG

Sheet Number	Revision
31296-SUT-ZZ-00-DR-G-720-0001	P01

Sutcliffe

Site	Number
Chorlton Irish Club	WS101

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Windowless Sampler			Southway Devco Ltd	31296LG
	Location	**Dates** 17/05/2021	**Engineer** Michael Wiggins, Jack Smith	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10) 0.10	(MADE GROUND) Tarmac.		
0.30-0.50	ES1				(0.20) 0.30	(MADE GROUND) Dark brown blackish, sandy, angular-subangular, fine-coarse GRAVEL, of tarmac. Sand is fine-coarse. Slight hydrocarbon odour.		
					(0.20) 0.50	(MADE GROUND) Dark brown, slightly silty, gravelly, fine-coarse SAND. Gravel is fine-coarse, angular, of brick. Occasional cobbles of brick.		
1.20-1.65	SPT N=9		1,2/2,2,2,3			Greyish light brown, slightly gravelly, fine-coarse SAND. Gravel is fine-medium, subrounded, of sandstone. (Below 2.00m is reddish brown. Below 3.00m is brown).		
2.00-2.45	SPT N=12		2,3/3,3,3,3		(3.00)			
3.00-3.45	SPT N=15		3,3/4,4,3,4					
					3.50	Stiff, brown, slightly silty, slightly sandy CLAY. Sand is fine-medium.		
					(0.50)			
4.00-4.45	SPT N=19		4,3/3,5,5,6		4.00	NO RECOVERY.		
					(1.45)			
5.00-5.45	SPT N=12		3,3/3,3,3,3					
					5.45	Complete at 5.45m		

Remarks
Drilling contractor: VC Drilling

Scale (approx)	Logged By
1:40	MW

Figure No. 31296LG.WS101

Produced by the GEOtechnical DAtabase SYstem (GEODASY) © all rights reserved

Sutcliffe

Site	Number
Chorlton Irish Club	WS102

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Windowless Sampler			Southway Devco Ltd	31296LG
	Location	**Dates** 17/05/2021	**Engineer** Michael Wiggins, Jack Smith	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10) 0.10	(MADE GROUND) Tarmac.		
0.10-0.30	ES1				(0.20) 0.30	(MADE GROUND) Black, sandy, angular-subangular, fine-coarse GRAVEL, of tarmac. Sand is fine-coarse.		
0.50-1.00	B1				(0.20) 0.50	(MADE GROUND) Dark brown, very gravelly, ashy, fine-coarse SAND. Gravel is fine-coarse, angular-subangular, of brick. Occasional fine-coarse clinker.		
						Light brown, slightly gravelly, fine-medium SAND. Gravel is fine-medium, rounded-subrounded, of natural stone.		
1.20-1.65	SPT N=8		2,2/2,2,2,2		(2.00)			
2.00-2.45	SPT N=11		2,3/3,2,3,3					
					2.50	Orangey brown, clayey, gravelly, slightly cobbly, fine-coarse SAND. Gravel is fine-coarse, subangular-subrounded, of natural stone. Cobbles are subrounded-rounded, of natural stone.		
					(0.80)			▽1
3.00-3.45	SPT N=14		Water strike(1) at 3.00m. 3,3/4,3,3,4		3.30			
					(0.20) 3.50	Firm-stiff, brown, slightly sandy, slightly gravelly CLAY. Gravel is fine-medium, subrounded-rounded, of natural stone.		
					(0.50) 4.00	Stiff-very stiff, brown, slightly sandy, slightly gravelly CLAY. Gravel is fine-medium, subrounded-rounded, of natural stone. Sand is fine-medium.		
					(0.40) 4.40	Light brown, gravelly, fine-coarse, wet SAND. Gravel is fine-medium, rounded, of mixed lithology.		
					(0.60) 5.00	Firm-stiff, light brown, very sandy, slightly gravelly CLAY. Sand is fine-medium, gravel is fine-medium, subrounded-rounded, of natural stone.		
						Complete at 5.00m		

Remarks
Drilling contractor: VC Drilling.
Took barrel to 4.00m, hole collapsed to 3.00m, barrel sent back down to 5.00m.

Scale (approx)	Logged By
1:40	JS

Figure No. 31296LG.WS102

Produced by the GEOtechnical DAtabase SYstem (GEODASY) © all rights reserved

Sutcliffe	Site: Chorlton Irish Club	Number: WS103

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Windowless Sampler			Southway Devco Ltd	31296LG
	Location	**Dates** 17/05/2021	**Engineer** Michael Wiggins, Jack Smith	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10) 0.10	(MADE GROUND) Greyish white, sandy, fine-coarse, subangular-subrounded GRAVEL, of natural stone. Sand is fine-medium.		
0.25-0.70	ES1				(0.15) 0.25			
					(0.45) 0.70	(MADE GROUND) Dark brown blackish, sandy, angular-subangular, fine-coarse GRAVEL, of tarmac. Sand is fine-coarse. Slight hydrocarbon odour.		
						(MADE GROUND) Dark brown , slightly silty, slightly gravelly, fine-coarse SAND. Gravel is fine-coarse, angular-subangular, of brick and natural stone with occasional glass.		
1.20-1.65	SPT N=8		2,2/2,2,2,2			Light brown, slightly gravelly, fine-coarse SAND. Gravel is fine-medium, subrounded-rounded, of natural stone.		
2.00-2.45	SPT N=18		2,3/4,4,5,5		(3.30)			
3.00-3.45	SPT N=13		Water strike(1) at 3.00m. 3,3/4,3,3,3					▽1
4.00-4.45	SPT N=10		4,3/3,2,2,3		4.00	Complete at 4.45m		

Remarks
Drilling contractor: VC Drilling.
Hole collapsed from 4.00m to 3.00m after SPT.

Scale (approx)	Logged By
1:40	MW

Figure No. 31296LG.WS103

Produced by the GEOtechnical DAtabase SYstem (GEODASY) © all rights reserved

Sutcliffe

Site	Number
Chorlton Irish Club	WS104

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Windowless Sampler			Southway Devco Ltd	31296LG
	Location	**Dates** 17/05/2021	**Engineer** Michael Wiggins, Jack Smith	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10) 0.10	(MADE GROUND) Tarmac.		
0.30-0.70	B1				(0.20) 0.30	(MADE GROUND) Dark brown, gravelly, fine-coarse SAND. Gravel is fine-coarse, angular, of brick, tarmac and natural stone.		
0.30-0.70	ES1				(0.40)			
					0.70	(MADE GROUND) Dark brown, slightly silty, slightly gravelly, fine-medium SAND. Gravel is fine-coarse, angular-subangular, of brick and natural stone.		
1.20-1.65	SPT N=8		1,2/2,2,2,2			Light brown, slightly gravelly, fine-coarse SAND. Gravel is fine-medium, subrounded-rounded, of sandstone. (Below 2.20m is very gravelly).		
2.00-2.45	SPT N=11		2,3/3,3,2,3		(3.00)			
3.00-3.45	SPT N=13		3,3/3,3,3,4					
					3.70	Soft, brown, sandy CLAY. Sand is fine-medium.		
4.00-4.45	SPT N=11		2,2/3,2,3,3		(0.45)			
					4.15 (0.15) 4.30	Brown, silty, very gravelly, fine-coarse SAND. Gravel is fine-medium, rounded, of natural stone.		
					(0.70)	Firm-stiff, brown, slightly sandy CLAY. Sand is fine-medium.		
5.00-5.45	SPT N=14		3,2/3,4,3,4		5.00	Complete at 5.45m		

Remarks
Drilling contractor: VC Drilling.

Scale (approx)	Logged By
1:40	MW

Figure No. 31296LG.WS104

Produced by the GEOtechnical DAtabase SYstem (GEODASY) © all rights reserved

Sutcliffe

Site	Trial Pit Number
Chorlton Irish Club	TP101

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit			Southway Devco Ltd	31296LG
	Location	**Dates** 17/05/2021	**Engineer** Michael Wiggins, Jack Smith	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10)	(MADE GROUND) Tarmac.		
					0.10			
					(0.10)	(MADE GROUND) Dark brown, fine-coarse, angular-subangular GRAVEL, of tarmac. Slight hydrocarbon odour.		
0.20-0.40	ES1				0.20			
					(0.60)	(MADE GROUND) Dark brown, gravelly, fine-coarse SAND. Gravel is fine-coarse, angular, of brick, tarmac and occasional pottery. Occasional cobbles of brick.		
					0.80	Light brown, slightly gravelly, fine-coarse SAND. Gravel is fine-coarse, subrounded, of sandstone.		
					(0.80)			
					1.60	Complete at 1.60m		

Remarks

Excavation/Plant contractor: Clive Hurt Plant Hire

Scale (approx)	Logged By	Figure No.
1:20	MW	31296LG.TP101

Produced by the GEOtechnical DAtabase SYstem (GEODASY) © all rights reserved

Sutcliffe

Site	Trial Pit Number
Chorlton Irish Club	TP102

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit			Southway Devco Ltd	31296LG
	Location	**Dates** 17/05/2021	**Engineer** Michael Wiggins, Jack Smith	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.20-0.50	ES1				(0.10) 0.10	(MADE GROUND) Tarmac.		
					(0.10) 0.20	(MADE GROUND) Dark brown, gravelly, fine-coarse SAND. Gravel is fine-coarse, angular, of tarmac and brick.		
					(0.60) 0.80	(MADE GROUND) Dark brown, slightly silty, gravelly, fine-coarse SAND. Gravel is fine-coarse, angular, of brick. Occasional cobbles of brick.		
					(0.90) 1.70	Light brown, slightly gravelly, fine-coarse SAND. Gravel is fine-coarse, subangular-subrounded, of natural stone.		
						Complete at 1.70m		

Remarks

Excavation/Plant contractor: Clive Hurt Plant Hire.

Scale (approx)	Logged By	Figure No.
1:20	MW	31296LG.TP102

Produced by the GEOtechnical DAtabase SYstem (GEODASY) © all rights reserved

Soakaway Test (BRE Digest 365)

Site : Chorlton Irish Club

Client : Southway Devco Ltd

Engineer : Michael Wiggins, Jack Smith

Job Number 31296LG

Sheet 1 / 1

Location	Date	Level	Location
SA101	05/11/2021		E: 381710 N: 393587

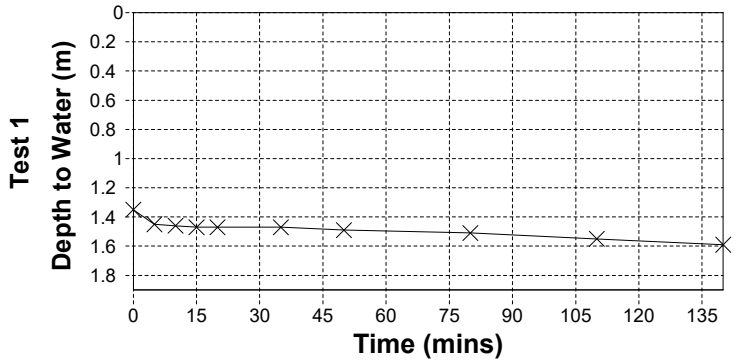
Pit Width (m)	0.70
Pit Depth (m)	1.90
Pit Length (m)	2.10

Soil type at test level	SAND
Groundwater	
Drain discharge depth	
Sidewall stability	Unstable
Stone filled or open pit	Open pit

	1
Effective depth (m)	0.55
Volume outflowing between 75% & 25% (m3)	0.40
Mean surface area through which outflow occurs (m2)	3.01
Time for outflow between 75% & 25% (min)	52.50
SOIL INFILTRATION RATE (ms-1), f	4.26E-5

Remarks

Elapsed time (mins)	Depth to Water Test 1
0	1.35
5	1.45
10	1.46
15	1.47
20	1.47
35	1.47
50	1.49
80	1.51
110	1.55
140	1.59



Produced by the GEOtechnical DAtabase SYstem (GEODASY) © all rights reserved

Appendix E

Q_{bar} Calculation

Proposed Drainage Areas Plan

Proposed Drainage Network Hydraulic Calculations

ICP SUDS Mean Annual Flood

Input

Return Period (years)	2	Soil	0.300
Area (ha)	0.200	Urban	0.750
SAAR (mm)	842	Region Number	Region 10

Results l/s

QBAR Rural	0.5
QBAR Urban	1.3
Q2 years	1.4
Q1 year	1.2
Q30 years	1.9
Q100 years	2.1

©1982-2020 Innovyze

1.000
1.000 - 249m2
2.000
3.000 - 247m2
2.000 - 85m2
1.001
3.000
1.002 - 146m2
3.000 - 667m2
1.003
1.002
1.004

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Surface Network 1

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	2	PIMP (%)	100
M5-60 (mm)	18.000	Add Flow / Climate Change (%)	0
Ratio R	0.378	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.500
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	1.000	Min Slope for Optimisation (1:X)	400

Designed with Level Soffits

Network Design Table for Surface Network 1

« - Indicates pipe capacity < flow

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	29.191	0.700	41.7	0.025	5.00	0.0	0.600	o	150	Pipe/Conduit	
2.000	10.079	0.575	17.5	0.009	5.00	0.0	0.600	o	100	Pipe/Conduit	
1.001	22.400	0.300	74.7	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.002	9.672	0.595	16.3	0.015	0.00	0.0	0.600	o	150	Pipe/Conduit	
3.000	23.445	0.976	24.0	0.092	5.00	0.0	0.600	o	225	Pipe/Conduit	
1.003	2.843	0.045	63.2	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.004	2.690	-1.700	-1.6	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	50.00	5.31	27.650	0.025	0.0	0.0	0.0	1.56	27.6	4.5
2.000	50.00	5.09	27.575	0.009	0.0	0.0	0.0	1.85	14.6	1.5
1.001	50.00	5.63	26.950	0.033	0.0	0.0	0.0	1.16	20.6	6.0
1.002	50.00	5.70	26.650	0.048	0.0	0.0	0.0	2.51	44.4	8.7
3.000	50.00	5.15	27.031	0.092	0.0	0.0	0.0	2.68	106.6	16.5
1.003	50.00	5.73	26.055	0.140	0.0	0.0	0.0	1.27	22.4«	25.2
1.004	50.00	6.22	26.010	0.140	0.0	0.0	0.0	0.09	1.6«	25.2

©1982-2020 Innovyze

Area Summary for Surface Network 1

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	User	-	100	0.025	0.025	0.025
2.000	User	-	100	0.009	0.009	0.009
1.001	-	-	100	0.000	0.000	0.000
1.002	User	-	100	0.015	0.015	0.015
3.000	User	-	100	0.025	0.025	0.025
	User	-	100	0.067	0.067	0.092
1.003	-	-	100	0.000	0.000	0.000
1.004	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.140	0.140	0.140

Free Flowing Outfall Details for Surface Network 1

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.004	PS7	28.068	27.710	0.000	180	0

Simulation Criteria for Surface Network 1

Volumetric Runoff Coeff	1.000	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	0.000
Hot Start (mins)	0	Inlet Coeffiecient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1

Number of Input Hydrographs	0	Number of Storage Structures	1
Number of Online Controls	0	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	2	Cv (Summer)	1.000
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	18.000	Storm Duration (mins)	30
Ratio R	0.378		

©1982-2020 Innovyze

Storage Structures for Surface Network 1

Cellular Storage Manhole: S1, DS/PN: 1.004

Invert Level (m) 26.010 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.15336 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.15336

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	50.0	50.0	1.501	0.0	95.0
1.500	50.0	95.0			

©1982-2020 Innovyze

Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 1

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	1
Number of Online Controls	0	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model		FSR	Ratio R 0.378
Region	England and Wales	Cv (Summer)	1.000
M5-60 (mm)	18.000	Cv (Winter)	1.000

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	ON
DVD Status	OFF
Inertia Status	OFF

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	1
Climate Change (%)	0

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	PS1	15 Summer	1	+0%					27.688
2.000	PS6	15 Summer	1	+0%					27.596
1.001	PS2	15 Summer	1	+0%					27.003
1.002	PS3	15 Summer	1	+0%					26.693
3.000	PS5	15 Summer	1	+0%					27.088
1.003	PS4	240 Summer	1	+0%	1/15 Summer				26.284
1.004	S1	240 Summer	1	+0%	1/15 Summer				26.282

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	PS1	-0.112	0.000	0.15			3.9	OK	
2.000	PS6	-0.079	0.000	0.10			1.3	OK	
1.001	PS2	-0.097	0.000	0.26			5.1	OK	
1.002	PS3	-0.107	0.000	0.18			7.0	OK	
3.000	PS5	-0.168	0.000	0.15			14.3	OK	
1.003	PS4	0.079	0.000	0.48			6.4	SURCHARGED	
1.004	S1	0.122	0.000	0.00		143	0.0	SURCHARGED	

©1982-2020 Innovyze

Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 1

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	1
Number of Online Controls	0	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model		FSR	Ratio R 0.378
Region	England and Wales	Cv (Summer)	1.000
M5-60 (mm)	18.000	Cv (Winter)	1.000

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	ON
DVD Status	OFF
Inertia Status	OFF

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	2
Climate Change (%)	0

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	PS1	15 Summer	2	+0%					27.694
2.000	PS6	15 Summer	2	+0%					27.599
1.001	PS2	15 Summer	2	+0%					27.011
1.002	PS3	15 Summer	2	+0%					26.699
3.000	PS5	15 Summer	2	+0%					27.097
1.003	PS4	120 Winter	2	+0%	2/15 Summer				26.374
1.004	S1	120 Winter	2	+0%	2/15 Summer				26.372

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	PS1	-0.106	0.000	0.19			5.0	OK	
2.000	PS6	-0.076	0.000	0.13			1.7	OK	
1.001	PS2	-0.089	0.000	0.34			6.7	OK	
1.002	PS3	-0.101	0.000	0.23			9.1	OK	
3.000	PS5	-0.159	0.000	0.19			18.5	OK	
1.003	PS4	0.169	0.000	0.63			8.4	SURCHARGED	
1.004	S1	0.212	0.000	0.00		128	0.0	SURCHARGED	

©1982-2020 Innovyze

Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 1

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	1
Number of Online Controls	0	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model		FSR	Ratio R 0.378
Region	England and Wales	Cv (Summer)	1.000
M5-60 (mm)	18.000	Cv (Winter)	1.000

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	ON
DVD Status	OFF
Inertia Status	OFF

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	30
Climate Change (%)	0

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	PS1	15 Summer	30	+0%					27.712
2.000	PS6	15 Summer	30	+0%					27.608
1.001	PS2	15 Summer	30	+0%					27.068
1.002	PS3	15 Summer	30	+0%	30/15 Summer				26.961
3.000	PS5	15 Summer	30	+0%					27.124
1.003	PS4	15 Summer	30	+0%	30/15 Summer				26.861
1.004	S1	240 Winter	30	+0%	30/15 Summer				26.803

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	PS1	-0.088	0.000	0.36			9.4	OK	
2.000	PS6	-0.067	0.000	0.24			3.3	OK	
1.001	PS2	-0.032	0.000	0.64			12.4	OK	
1.002	PS3	0.161	0.000	0.41			16.2	SURCHARGED	
3.000	PS5	-0.132	0.000	0.36			35.0	OK	
1.003	PS4	0.656	0.000	3.62			48.0	SURCHARGED	
1.004	S1	0.643	0.000	0.00		242	0.0	SURCHARGED	

©1982-2020 Innovyze

Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 1

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	1
Number of Online Controls	0	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model		FSR	Ratio R 0.378
Region	England and Wales	Cv (Summer)	1.000
M5-60 (mm)	18.000	Cv (Winter)	1.000

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	ON
DVD Status	OFF
Inertia Status	OFF

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	100
Climate Change (%)	20

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	PS1	15 Summer	100	+20%	100/15 Summer				28.250
2.000	PS6	15 Summer	100	+20%	100/15 Summer				28.149
1.001	PS2	15 Summer	100	+20%	100/15 Summer				28.095
1.002	PS3	15 Summer	100	+20%	100/15 Summer				27.884
3.000	PS5	15 Summer	100	+20%	100/15 Summer				27.932
1.003	PS4	15 Summer	100	+20%	100/15 Summer				27.671
1.004	S1	240 Winter	100	+20%	100/15 Summer				27.375

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	PS1	0.450	0.000	0.52			13.6	FLOOD RISK	
2.000	PS6	0.474	0.000	0.35			4.7	FLOOD RISK	
1.001	PS2	0.995	0.000	0.87			16.9	FLOOD RISK	
1.002	PS3	1.084	0.000	0.56			22.1	FLOOD RISK	
3.000	PS5	0.676	0.000	0.52			50.8	FLOOD RISK	
1.003	PS4	1.466	0.000	5.24			69.6	SURCHARGED	
1.004	S1	1.215	0.000	0.00		347	0.0	SURCHARGED	

©1982-2020 Innovyze

Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 1

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	1
Number of Online Controls	0	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model		FSR	Ratio R 0.378
Region	England and Wales	Cv (Summer)	1.000
M5-60 (mm)	18.000	Cv (Winter)	1.000

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	ON
DVD Status	OFF
Inertia Status	OFF

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	100
Climate Change (%)	30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	PS1	15 Summer	100	+30%	100/15 Summer			
2.000	PS6	15 Summer	100	+30%	100/15 Summer			
1.001	PS2	15 Summer	100	+30%	100/15 Summer			
1.002	PS3	15 Summer	100	+30%	100/15 Summer			
3.000	PS5	15 Summer	100	+30%	100/15 Summer	100/15 Summer		
1.003	PS4	15 Summer	100	+30%	100/15 Summer			
1.004	S1	240 Winter	100	+30%	100/15 Summer			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
1.000	PS1	28.255	0.455	0.000	0.54			14.4	FLOOD RISK
2.000	PS6	28.271	0.596	0.000	0.37			5.1	FLOOD RISK
1.001	PS2	28.178	1.078	0.000	1.00			19.5	FLOOD RISK
1.002	PS3	28.024	1.224	0.000	0.59			23.4	FLOOD RISK
3.000	PS5	28.085	0.829	0.191	0.56			54.4	FLOOD
1.003	PS4	27.823	1.618	0.000	5.58			74.2	SURCHARGED
1.004	S1	27.508	1.348	0.000	0.00		367	0.0	SURCHARGED

©1982-2020 Innovyze

Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 1

PN	US/MH Name	Level Exceeded
1.000	PS1	
2.000	PS6	
1.001	PS2	
1.002	PS3	
3.000	PS5	1
1.003	PS4	
1.004	S1	

©1982-2020 Innovyze

Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 1

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	1
Number of Online Controls	0	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model		FSR	Ratio R 0.378
Region	England and Wales	Cv (Summer)	1.000
M5-60 (mm)	18.000	Cv (Winter)	1.000

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	ON
DVD Status	OFF
Inertia Status	OFF

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	100
Climate Change (%)	40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	PS1	15 Summer	100	+40%	100/15 Summer	100/15 Summer		
2.000	PS6	15 Summer	100	+40%	100/15 Summer			
1.001	PS2	15 Summer	100	+40%	100/15 Summer			
1.002	PS3	15 Summer	100	+40%	100/15 Summer			
3.000	PS5	15 Summer	100	+40%	100/15 Summer	100/15 Summer		
1.003	PS4	30 Summer	100	+40%	100/15 Summer			
1.004	S1	240 Winter	100	+40%	100/15 Summer			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
1.000	PS1	28.260	0.460	1.018	0.60			15.9	FLOOD
2.000	PS6	28.316	0.641	0.000	0.43			5.9	FLOOD RISK
1.001	PS2	28.222	1.122	0.000	1.05			20.4	FLOOD RISK
1.002	PS3	28.104	1.304	0.000	0.60			23.7	FLOOD RISK
3.000	PS5	28.086	0.830	0.875	0.58			56.8	FLOOD
1.003	PS4	27.851	1.646	0.000	5.40			71.8	FLOOD RISK
1.004	S1	27.843	1.683	0.000	0.32		431	3.4	FLOOD RISK

©1982-2020 Innovyze

Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 1

PN	US/MH Name	Level Exceeded
1.000	PS1	1
2.000	PS6	
1.001	PS2	
1.002	PS3	
3.000	PS5	3
1.003	PS4	
1.004	S1	

©1982-2020 Innovyze

Appendix F

Correspondence

From:	Wastewater Developer Services
To:	Martin Pocock
Cc:	Wastewater Developer Services
Subject:	FW: 31296 - Chorlton Irish Club - UU Developer Enquiry - 4200034114
Date:	13 October 2020 12:47:47
Attachments:	image001.jpg image002.png image003.png 31296 - Chorlton Irish Club - UU Developer Enquiry 06102020.pdf 31296-SUT-ZZ-XX-DR-C-6000-0001-P01 - SITE LOCATION PLAN.pdf 31296-SUT-ZZ-XX-DR-C-6000-0002-P01 - EXISTING DEVELOPMENT CATCHMENT AREA.pdf 31296-SUT-ZZ-XX-DR-C-6000-0003-P01 - PROPOSED DEVELOPMENT CATCHMENT AREA.pdf 31296-SUT-ZZ-XX-DR-C-6000-0004-P01 - PROPOSED EASEMENT TO EXISTING UNITED UTILITIES SEWER.pdf RBS-20-2061-001.pdf

---

Good Afternoon Martin,

We have carried out an assessment of your application which is based on the information provided. This pre-development advice on your drainage strategy will be valid for 12 months. Your drainage strategy will need to be reviewed by other competent authorities as part of the planning process, and we advise that you carry out the necessary site investigations to confirm the viability of your proposals.

If your investigations require access to our public sewer network, we ask that you contact our network engineers with a request for an access certificate via our main contact telephone number 0345 3723223 or refer to the link below:

https://www.unitedutilities.com/builders-developers/working-near-our-assets/

Foul Water

Foul flow from this site will be allowed to drain into the public foul water/combined sewer system an unrestricted rate.

Surface Water

All surface water flow from the proposed development should drain in-line with the drainage hierarchy, as outlined in Paragraph 80, (Reference ID: 7-080-20150323), of the National Planning Practice Guidance. We also recommend you prioritise the use of multi-functional sustainable drainage systems for the management of surface water in accordance with national planning policy.

Generally, the aim should be to discharge surface run off as high up the following hierarchy of drainage options as reasonably practicable.
This is outlined as follows, in order of priority:

1. **into the ground (infiltration);**
2. **to a surface waterbody;**
3. **to a surface water sewer or highway drain;**
4. **to a combined sewer.**

For guidance, The North West SuDS Pro-Forma provides information on the appropriate evidence required at each stage of the hierarchy, to demonstrate how each level has been discounted.

The Lead Local Flood Authority has responsibility for all surface water drainage concerns and their input to your proposal is critical. You should also consider whether it is necessary to discuss your

proposal with the Environment Agency, or Internal Drainage Board (if operating in your area).

The Local Planning Authority are the determining authority for any application for planning permission and the appropriate authority for determining cost viability of a proposed drainage scheme, such assessments are outside of the jurisdiction of United Utilities.

Infiltration

Surface water runoff generated from this development should discharge to the ground via infiltration system where feasible. According to online data, infiltration may be possible at this site due to ground bieng made up of sand and gravel.

A detailed evidence based feasibility assessment must be carried out in line with Chapter 25 of the CIRIA SuDS Manual 2015 to determine whether infiltration is a suitable method of surface water disposal.

Particular attention must be paid to Ground Water Source Protection Zones to ensure that the risk of pollution to these valuable resources is not compromised. Details can be obtained from the government website:
https://www.gov.uk/guidance/groundwater-source-protection-zones-spzs#find-groundwater-spzs

If your site is in a Groundwater Source Protection Zone, you should have regard to the Environment Agency's approach to Groundwater Protection. Information on this is available via the link below:

https://www.gov.uk/government/publications/groundwater-protection-position-statements

Please note that such a location could have implications for the principle of your development and the need for additional mitigating measures to protect the groundwater environment and public water supply in the detailed design of your site.

Public Sewer

In accordance with the hierarchy of drainage options within the National Planning Practice Guidance, both discharge to ground via infiltration and discharge to a waterbody should be discounted prior to consideration of discharging surface water to the public sewer system. Evidence should be provided to demonstrate how these have been discounted, as outlined in the North West SuDS pro-forma.

Once evidence is provided as outlined above, United Utilities will consider a connection to the 300mm diameter public combined sewer located 13m North of the proposed site at a pass forward flow to be agreed by the Lead Local Flood Authority. United Utilities request that any agreed rate does not exceed 5 l/s.

As a Water Company, we have no obligation to accept highway drainage into our public sewer network. However, should your proposals include runoff from highways, we would request that consideration is given to SuDS components that deliver source control are incorporated within the design of the scheme to reduce the volume and frequency of discharges of these flows to the public sewer.

Levels

For low-lying sites, (where the ground level of the site or the level of a basement is below the ground level at the point where the drainage connects to the public sewer), care should be taken to ensure that the property is not at increased risk of flooding. If these circumstances exist, we recommend that you contact us to discuss further. It could affect the detailed design of your site and result in the need to incorporate appropriate mitigating measures in your drainage scheme.

Existing Wastewater Assets Crossing the Site

According to our public sewer records there are public sewers located within your site boundary. We will require unrestricted access to the sewer for maintenance purposes, we would ask that you maintain a minimum clearance of 6m which is measured 3m from the centre line of the pipe unless there happens to be a formal easement agreement in place, in which case the specified easement width would apply. If you cannot achieve this then you may wish to consider diverting and or abandoning the public sewer.

Please refer to the link below to obtain full details of the processes involved with building over,

https://www.unitedutilities.com/builders-developers/small-housing-developments/building-over-a-public-sewer/

Please refer to the link below to obtain full details of the processes involved with diversions,

https://www.unitedutilities.com/builders-developers/larger-developments/wastewater/sewer-diversions/

-

Existing Water Assets Crossing the Site

It is the developer responsibility to identify utilities on-site. Where clean water assets are shown on our records, we recommend that you contact our Water Pre-Development Team, via the following email address: DeveloperServicesWater@uuplc.co.uk. Further information for this service can be found on our website via the link below:
https://www.unitedutilities.com/builders-developers/larger-developments/pre-development/water-pre-dev/

Connection Application

Although we may discuss and agree discharge points and rates in principle, please be aware that you will have to apply for a formal sewer connection. This is so that we can assess the method of construction, Health & Safety requirements and to ultimately inspect the connection when it is made. Details of the application process and the form itself can be obtained from our website by following the link below:

https://www.unitedutilities.com/builders-developers/larger-developments/wastewater/sewer-connections/

We recommend that the detailed design should confirm the locations of all utilities in the area and ensure that any proposed drainage solution considers routing and clash checks where required.

If we can be of any further assistance please don't hesitate to contact us further.

Kind regards,

Marie Mura
Assistant Developer Engineer
Developer Services & Metering
Customer Services
T: 01925 537745
unitedutilities.com

If you have received a great service today why not tell us?
Visit: unitedutilities.com/wow

Did you know we now have a live chat facility available to you Mon to Friday 8 -5pm. You just click on the orange live chat box on our webpage and one of our advisors will be ready to chat to you and help you with your enquiry https://www.unitedutilities.com/builders-developers/ or you can email us at developerserviceswater@uuplc.co.uk

---

From: Martin Pocock [mailto:Martin.Pocock@sutcliffe.co.uk]
Sent: 06 October 2020 15:34
To: Wastewater Developer Services <WastewaterDeveloperServices@uuplc.co.uk>
Cc: William Baldwin <William.Baldwin@sutcliffe.co.uk>; Tom Williams <tom.williams@neoprojects.co.uk>
Subject: 31296 - Chorlton Irish Club - UU Developer Enquiry

I have attached a completed UU Developer enquiry, drawings and topographical survey of the site.

The site is a brownfield redevelopment of the existing Chorlton Irish Club car park. As yet no CCTV has been carried out to confirm the existing surface water outfall.

I have also attached a plan s=indicating the proposed easement relating to the existing combined sewer cutting across the south east corner of the development area.

I would be grateful if UU can confirm if a building over agreement required with UU, as the building offset distance is greater than 3.0m from the centre line of the existing sewer.

Please let me know if you need any further information.

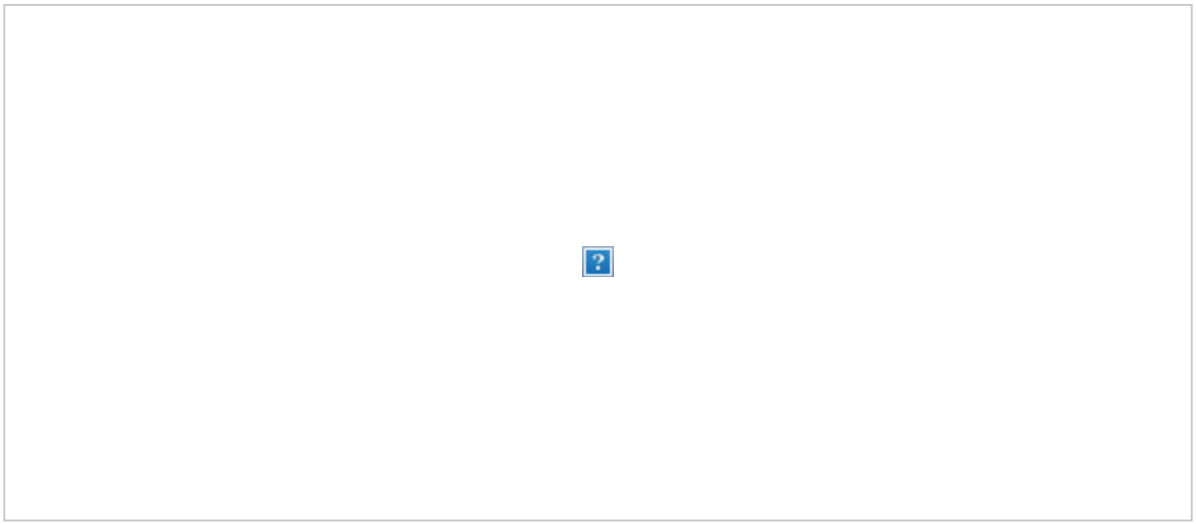
Look forward to your comments.

Regards

Martin Pocock
BEng(Hons) CEng FICE MCIHT CMgr FCMI C.WEM MCIWEM
Director

SUTCLIFFE
18-20 HARRINGTON STREET
LIVERPOOL
L2 9QA

t: 0151 227 3155
ddi: 0151 305 5404
m: 07792 460043
e: martin.pocock@sutcliffe.co.uk
w: **www.sutcliffe.co.uk**



Sutcliffe Projects is a Limited Company registered in England and Wales No 4287238

The information contained in this email is confidential and may be subject to legal privilege. Access to this email by anyone other than the intended recipient is unauthorised. If you are not the intended recipient, you must not use, copy, distribute or disclose the email or any part of its content, or take any action in reliance on it.

If you have received this email in error, please notify us immediately by email or telephone. All reasonable precautions have been taken to ensure that no viruses are present in the email. As Sutcliffe cannot accept responsibility for loss or damage arising from the use of this email or attachments, we recommend that you subject these to your virus checking procedures prior to use.

EMGateway3.uuplc.co.uk made the following annotations

The information contained in this e-mail is intended only
for the individual to whom it is addressed. It may contain
legally privileged or confidential information or otherwise
be exempt from disclosure. If you have received this Message
in error or there are any problems, please notify the sender
immediately and delete the message from your computer. You
must not use, disclose, copy or alter this message for any
unauthorised purpose. Neither United Utilities Group PLC nor
any of its subsidiaries will be liable for any direct, special,
indirect or consequential damages as a result of any virus being
passed on, or arising from the alteration of the contents of
this message by a third party.

United Utilities Group PLC, Haweswater House, Lingley Mere
Business Park, Lingley Green Avenue, Great Sankey,
Warrington, WA5 3LP
Registered in England and Wales. Registered No 6559020

www.unitedutilities.com
www.unitedutilities.com/subsidiaries

General Notes

DO NOT SCALE OFF THIS DRAWING

THIS DRAWING TO READ IN CONJUNCTION WITH ALL RELEVANT STRUCTURAL AND ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.

ALL DIMENSIONS TO BE CHECKED ON SITE BY THE CONTRACTOR / FABRICATOR PRIOR TO COMMENCEMENT OF WORKS.

ALL DIMENSIONS ARE IN MILLIMETRES UNLESS STATED OTHERWISE.

ALL WORKS TO BE CARRIED OUT IN STRICT ACCORDANCE WITH THE ENGINEER'S SPECIFICATIONS, RELEVANT BRITISH STANDARDS, STATUTORY HEALTH AND SAFETY/C.D.M. REGULATIONS, RELEVANT CODES OF PRACTICE AND THE CURRENT EDITION OF THE BUILDING REGULATIONS.

FOR FINAL SETTING OUT INFORMATION RELATING TO GRID LINES AND WALL POSITIONS REFER TO THE ARCHITECT'S DRAWINGS.

EXISTING SITE CONDITIONS

THE DEVELOPER SHALL NOT COMMENCE ANY WORK WHICH AFFECTS THE PUBLIC HIGHWAY UNTIL ALL THE APPROVED TRAFFIC SAFETY AND MANAGEMENT MEASURES NECESSITATED BY THE WORKS ARE IN PLACE.

THE DEVELOPER SHALL MAINTAIN ACCESS TO AND ALONG ALL EXISTING FOOTWAYS, PRIVATE ACCESSES, PUBLIC RIGHTS OF WAY AND PROPOSED CROSSINGS OF THE WORKS THROUGHOUT THE CONSTRUCTION PHASE.

THE CONTRACTOR IS TO CONFIRM EXISTING ROAD LEVELS AT ALL PROPOSED JUNCTIONS BETWEEN NEW AND EXISTING ROAD CONSTRUCTION PRIOR TO COMMENCEMENT OF WORKS.

PROPOSED HIGHWAY WORKS

ALL HIGHWAY WORKS TO BE DESIGNED AND CONSTRUCTED TO THE APPROVAL OF THE LOCAL AUTHORITY HIGHWAYS DEPARTMENT.

ALL ROAD OPENING NOTICES ETC., AS REQUIRED UNDER THE HIGHWAYS ACTS ARE TO BE OBTAINED PRIOR TO COMMENCEMENT OF WORKS ON SITE. ALL WORKS ARE TO BE INSPECTED BY THE LOCAL AUTHORITY.

ALL MATERIALS SHALL BE TRANSPORTED & LAID IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE APPROPRIATE CURRENT BRITISH STANDARD FOR THAT MATERIAL

ALL GULLIES TO BE PROTECTED FROM SILT DURING THE CONSTRUCTION PROCESS WITH A LAYER OF HESSIAN SHEETING PLACED UNDER THE GULLY GRATING. THE HESSIAN SHALL BE CLEANED AND MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.

REFER TO SEPARATE DRAWINGS FOR ALL KERB / ROAD / FOOTPATHS NOTES AND DETAILS. REFER TO DRAWING ISSUE SHEET FOR A FULL LIST OF DRAWINGS.

EXISTING TREES

ALL EXISTING TREES, BUSHES SHALL BE UP ROOTED OR CUT DOWN AS NEAR TO GROUND LEVEL AS POSSIBLE. ALL FELLED TIMBER TO BE DISPOSED OF BY THE CONTRACTOR.

STUMPS AND ROOTS FROM FELLED TREES, BUSHES AND HEDGES SHALL BE GRUBBED UP AND DISPOSED OF BY THE CONTRACTOR. HOLES LEFT FROM STUMPS AND ROOTS SHALL BE FILLED WITH ACCEPTABLE MATERIAL AND COMPACTED.

ALL RETAINED EXISTING TREES, SHRUBS, GRASSLAND AND THE LIKE ON OR ADJOINING THE SITE SHALL BE PROTECTED FROM DAMAGE ARISING THROUGH SITE OPERATIONS.

RETAINING STRUCTURES

EXTENT OF ALL RETAINING WALLS, GABIONS AND FLAG ON EDGE RETAINING STRUCTURES NOTED ON THIS DRAWING ARE INDICATIVE ONLY. REFER TO SEPARATE DRAWINGS FOR ALL NOTES AND DETAILS. REFER TO DRAWING ISSUE SHEET FOR A FULL LIST OF DRAWINGS.

THE CONTRACTOR IS TO BE FULLY RESPONSIBLE FOR ALL TEMPORARY / PERMANENT PROPPING AND SHORING ON THE PROJECT. CONTRACTOR TO ENSURE THAT ALL PARTS OF THE STRUCTURE ARE ADEQUATELY PROPPED PRIOR TO ANY COMMENCEMENT OF WORKS. ADVICE MAY BE SOUGHT FROM A SPECIALIST OR FROM THE ENGINEER.

KEY PLAN

×28.235	PROPOSED SPOT LEVEL
•28.30	PROPOSED LEVEL AT CORNER OF BUILDING
1 in 40 ▷	PROPOSED SURFACE GRADIENT
× 27.96	EXISTING SPOT LEVELS
FFL 28.450	FINISHED FLOOR LEVEL
0300	PROPOSED GRAVEL BOARD DIFFERENCE FROM PROPOSED LOWER GROUND LEVEL TO HIGHER GROUND LEVEL (mm)
28.000	PROPOSED MAJOR CONTOUR
28.050	PROPOSED MINOR CONTOUR

Rev	Description	Date	By	Chkd
P03	SITE LAYOUT UPDATED	18.11.22	AJB	DS
P02	AMENDED TO SUIT NEW LAYOUT	27.09.22	AJB	DS
P01	ISSUED FOR COMMENT	29.11.21	AJB	DS

Drawing Status
PRELIMINARY DRAWING

Sutcliffe
Structural & Civil Engineering
Geotechnical & Environmental Investigations
Building Surveying
Pre Planning Services
Liverpool Head Office: 0117 227 3155 | Manchester Office: 0161 817 5160 | North Wales Office: 01978 664 071 | London Office: 020 8614 4320
www.sutcliffe.co.uk

Client
SOUTHWAY HOUSING TRUST

Project
CHORLTON IRISH CLUB
CHORLTON-CUM-HARDY

Drawing Title
PROPOSED LEVELS

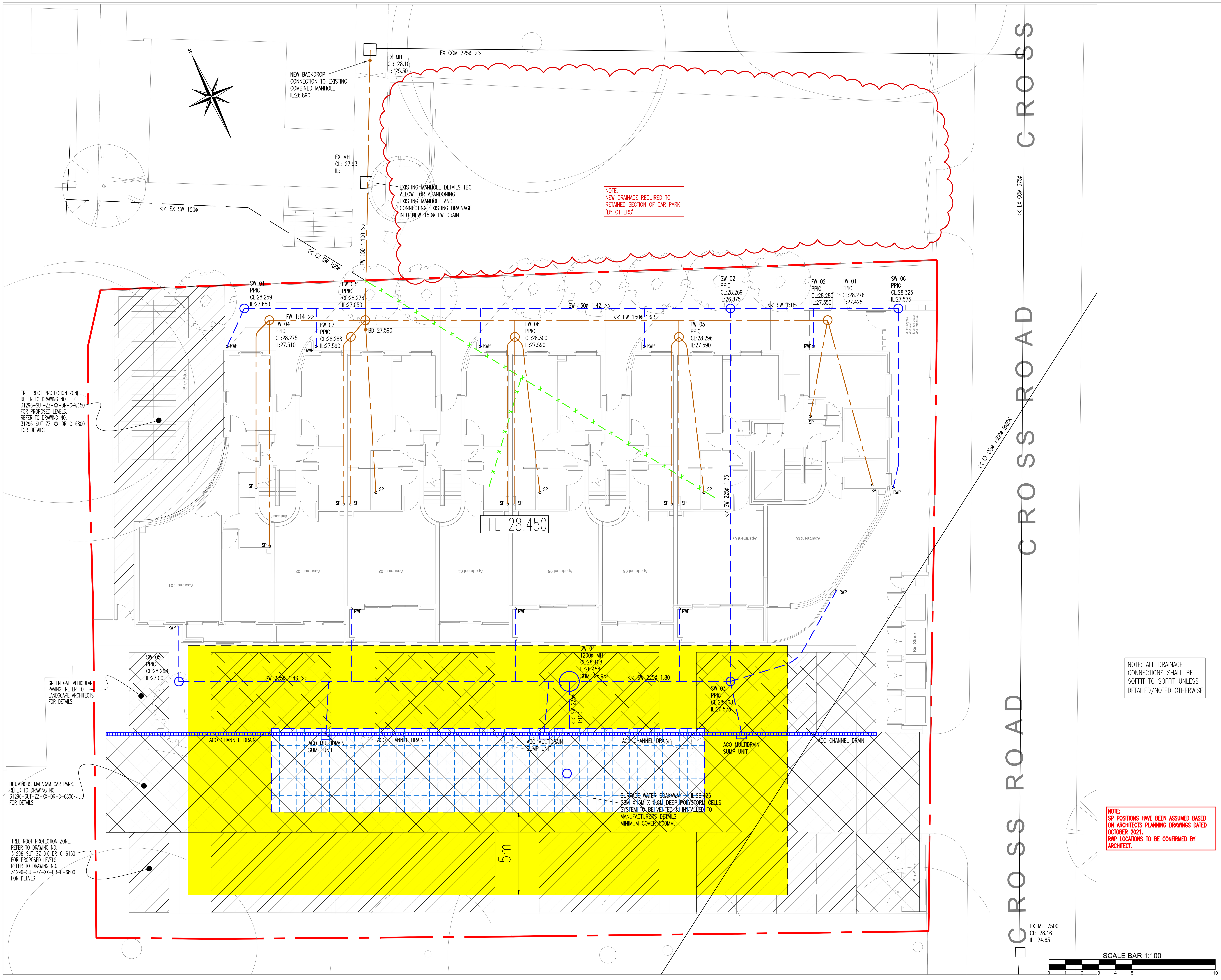
Date	Drawn By	Checked By
NOV. 2021	AJB	DS

Scale at A1	Project Number
1:100	31296

Sheet Number
31296-SUT-ZZ-XX-DR-C-6150

Revision
P03

SCALE BAR 1:100
0 1 2 3 4 5 10



NOTE: ALL DRAINAGE CONNECTIONS SHALL BE SOFFIT TO SOFFIT UNLESS DETAILED/NOTED OTHERWISE

NOTE:
SP POSITIONS HAVE BEEN ASSUMED BASED ON ARCHITECTS PLANNING DRAWINGS DATED OCTOBER 2021.
RWP LOCATIONS TO BE CONFIRMED BY ARCHITECT.

SCALE BAR 1:100

0 1 2 3 4 5 10

General Notes

DO NOT SCALE OFF THIS DRAWING

THIS DRAWING TO READ IN CONJUNCTION WITH ALL RELEVANT STRUCTURAL AND ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.

ALL DIMENSIONS TO BE CHECKED ON SITE BY THE CONTRACTOR / FABRICATOR PRIOR TO COMMENCEMENT OF WORKS.

ALL DIMENSIONS ARE IN MILLIMETRES UNLESS STATED OTHERWISE.

ALL WORKS TO BE CARRIED OUT IN STRICT ACCORDANCE WITH THE ENGINEER'S SPECIFICATIONS, RELEVANT BRITISH STANDARDS, STATUTORY HEALTH AND SAFETY/C.D.M. REGULATIONS, RELEVANT CODES OF PRACTICE AND THE CURRENT EDITION OF THE BUILDING REGULATIONS.

FOR FINAL SETTING OUT INFORMATION RELATING TO GRID LINES AND WALL POSITIONS REFER TO THE ARCHITECT'S DRAWINGS.

ALL FLOOR LEVELS TO BE CONFIRMED BY ARCHITECT PRIOR TO CONSTRUCTION

ALL COVER LEVELS TO BE CONFIRMED BY ARCHITECT PRIOR TO CONSTRUCTION

ALL DRAINAGE PENETRATING THOUGH FLOOR SLABS AND RAINWATER PIPE LOCATIONS TAKEN FROM ARCHITECTS DRAWINGS. ARCHITECT TO CONFIRM LOCATIONS PRIOR TO CONSTRUCTION.

EXISTING SERVICES

ROAD SIGNS AND LAMP COLUMNS ON THE SITE PERIPHERY TO BE RE-SITED IF REQUIRED BY, AND TO THE APPROVAL OF, THE LOCAL AUTHORITY.

CONTRACTOR TO SATISFY THEMSELVES THAT EXISTING AND PROPOSED SERVICES DO NOT CLASH WITH PROPOSED DRAINAGE

KNOWN EXISTING SERVICES ARE INDICATED ON THE PLAN WHERE THEY CROSS THE PROPOSED DRAINAGE. THE EXACT TYPE AND LOCATION SHALL BE CONFIRMED BY THE CONTRACTOR PRIOR TO START OF WORKS TO ENSURE THAT PROPOSED DRAINAGE LEVELS DO NOT INTERFERE WITH SERVICES. ALL DISCREPANCIES SHALL BE REPORTED TO ENGINEER IMMEDIATELY.

THE CONTRACTOR SHALL CHECK ALL EXISTING COVER / INVERT LEVELS AND PIPE / SEWER SIZES ON SITE PRIOR TO START OF WORKS TO ENSURE PROPOSED DRAINAGE CAN BE CONSTRUCTED AS INDICATED ON THE DRAWING. ANY DISCREPANCIES TO BE REPORTED TO THE ENGINEER IMMEDIATELY.

ALL REDUNDANT DRAINAGE WITHIN SITE TO BE GRUBBED UP, CHASED AND SEALED TO APPROVAL OF LOCAL AUTHORITY

PROPOSED DRAINAGE

OUTSIDE EDGE OF ADOPTED SEWER SHALL NOT ENCROACH WITHIN 1M OF KERB FACE. OUTSIDE EDGE OF ADOPTED MANHOLES SHALL NOT ENCROACH WITHIN 0.5M OF KERB FACE.

ALL DRAINAGE IN HIGHWAYS/CAR PARKING AREAS/DRIVEWAYS LESS THAN 1.2M DEEP TO BE CONCRETE ENCASED.

ALL PPIC'S GREATER THAN 1.2M DEEP TO HAVE REDUCED ACCESS COVERS TO PREVENT MAN ENTRY.

SURFACE WATER DRAINAGE:
ALL PRIVATE SURFACE WATER DRAINAGE TO BE 100MM ø AT 1:80 GRADIENT UNLESS NOTED OTHERWISE.
ALLOWANCE TO BE MADE FOR DRIVEWAY GULLIES AND ASSOCIATED DRAIN RUNS WHERE APPLICABLE

FOUL WATER / COMBINED DRAINAGE:
ALL UNDERSLAB FOUL WATER DRAINAGE TO BE 100MM ø AT 1:40 GRADIENT UNLESS NOTED OTHERWISE ALL OTHER PRIVATE FOUL WATER DRAINAGE TO BE 100MM ø AT 1:80 GRADIENT UNLESS NOTED OTHERWISE
INTERNAL VENTING OF DRAINAGE SYSTEM TO ARCHITECTS DETAILS
ALL INTERNAL SP/SVP POSITIONS TO BE CONFIRMED BY ARCHITECT PRIOR TO CONSTRUCTION OF GROUND FLOOR SLAB

KEY

- Site boundary
- Existing Surface water drain/sewer
- Existing Foul water drain/sewer
- Existing Combined water drain/sewer
- Proposed Surface water private drain
- Proposed Foul water private drain
- Extg drainage to be abandoned to Local Authority approval
- RWP — Rainwater pipe location
- SP — Soil pipe location
- BIG — Back inlet gulley
- SG — Shower gulley
- EX G — Existing Road gulley
- RG — New road gulley
- DG — New driveway gulley
- Bituminous Macadam Car Park
- Tree root protection zone
- Green gap vehicular paving
- 5m Easement Soakaway

NOTE: INTERNAL SVP/SP POSITIONS TO BE CONFIRMED BY ARCHITECT PRIOR TO CONSTRUCTION OF GROUND FLOOR SLAB.

Rev	Description	Date	By	Chkd
P06	SOAKAWAY EASEMENT ADDED	19.12.23	JG	DS
P05	PERMEABLE CAR PARK REMOVED	18.11.22	AJB	DS
P04	AMENDED TO SUIT REVISED LEVELS	27.09.22	AJB	DS
P03	AMENDED TO SUIT NEW LAYOUT	09.06.22	MJG	DS
P02	DRAINAGE AMENDED APT 08	07.01.22	AJB	DS
P01	ISSUED FOR COMMENT	29.11.21	AJB	DS

Drawing Status
PRELIMINARY DRAWING

Sutcliffe
Structural & Civil Engineering
Geotechnical & Environmental Investigations
Building Surveying
Pre Planning Services
Liverpool Head Office: 0151 227 3155
Manchester Office: 0161 817 5180
North Wales Office: 01978 664 071
London Office: 020 8016 4320
www.sutcliffe.co.uk

Client
SOUTHWAY HOUSING TRUST

Project
CHORLTON IRISH CLUB
CHORLTON-CUM-HARDY

Drawing Title
PROPOSED DRAINAGE LAYOUT

Date	Drawn By	Checked By
NOV. 2021	AJB	DS

Scale at A1	Project Number
1:100	31296

Sheet Number	Revision
31296-SUT-ZZ-XX-DR-C-6200	P06

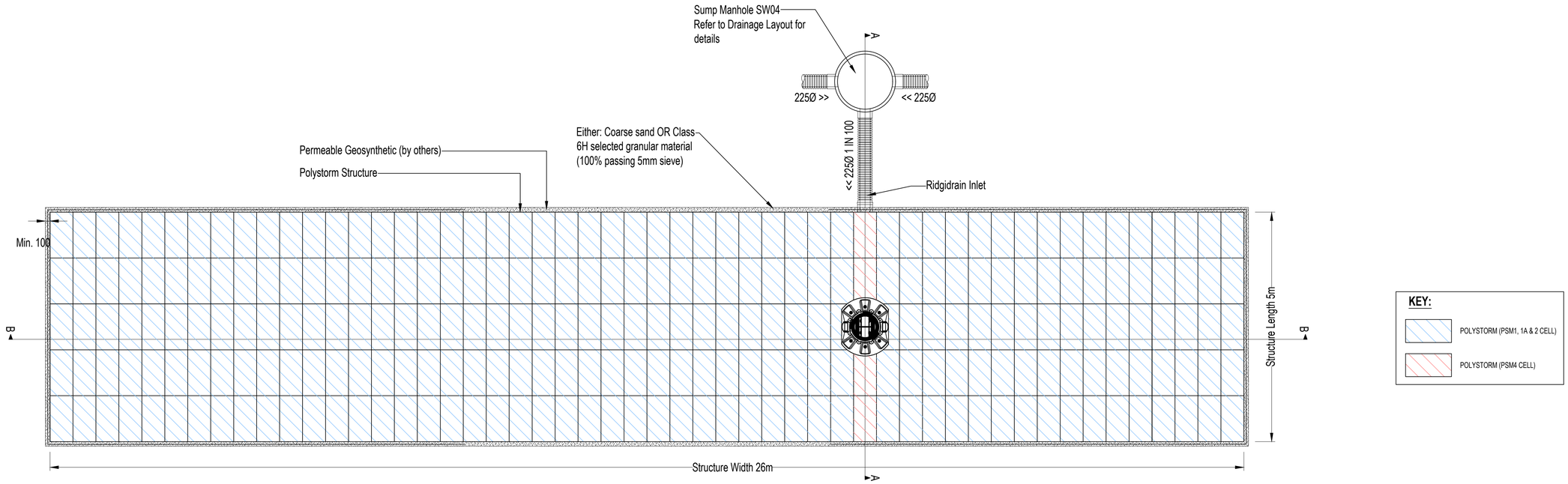
DO NOT SCALE OFF THIS DRAWING

GENERAL NOTES

THIS DRAWING TO READ IN CONJUNCTION WITH ALL RELEVANT STRUCTURAL AND ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.

ALL DIMENSIONS TO BE CHECKED ON SITE BY THE CONTRACTOR / FABRICATOR PRIOR TO COMMENCEMENT OF WORKS.

ALL DIMENSIONS ARE IN MILLIMETRES UNLESS STATED OTHERWISE.

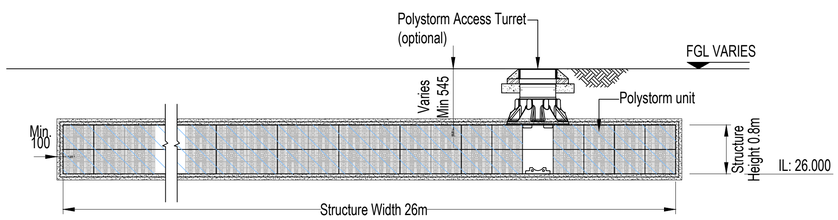


KEY:

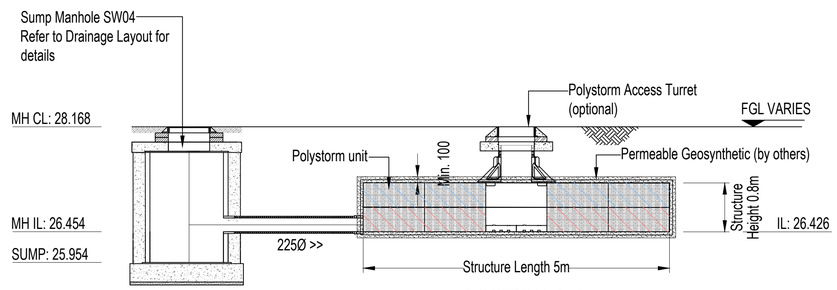
POLYSTORM (PSM1, 1A & 2 CELL)

POLYSTORM (PSM4 CELL)

TYPICAL SOAKAWAY TANK PLAN



SECTION B-B



SECTION A-A

Rev	Description	Date	By	Chkd
P04	SIZE AMENDED	20.12.23	JG	DS
P03	HATCHING AMENDED	26.09.22	AJB	DS
P02	DIMS / LEVELS ADDED	29.07.22	AJB	DS
P01	ISSUED FOR COMMENT	30.11.21	AJB	DS

Drawing Status
PRELIMINARY DRAWING

Sutcliffe
Structural & Civil Engineering
Geotechnical & Environmental Investigations
Building Surveying
Pre Planning Services
Liverpool Head Office: 0151 227 3155
Manchester Office: 0161 877 5180
North Wales Office: 01978 664 071
London Office: 020 8014 4220
www.sutcliffe.co.uk

Client
SOUTHWAY HOUSING TRUST

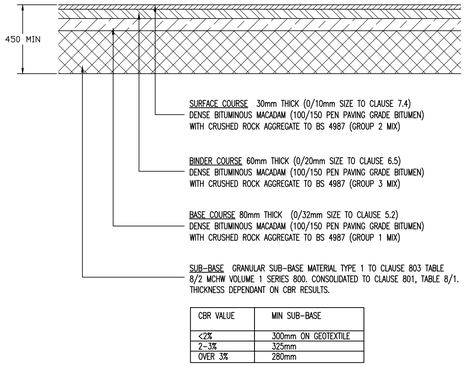
Project
CHORLTON IRISH CLUB
CHORLTON-CUM-HARDY

Drawing Title
SOAKAWAY DETAILS

Date	Drawn By	Checked By
NOV. 2021	AJB	DS

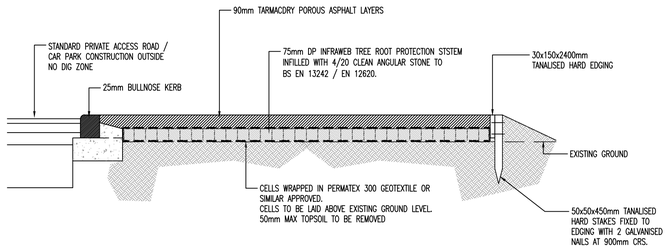
Scale at A1	Project Number
AS SHOWN	31296

Sheet Number	Revision
31296-SUT-ZZ-XX-DR-C-6660	P04

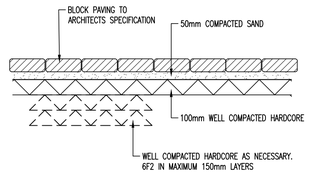


CBR VALUE	MIN SUB-BASE
<2%	300mm ON GEOTEXTILE
2 - 3%	325mm
OVER 3%	280mm

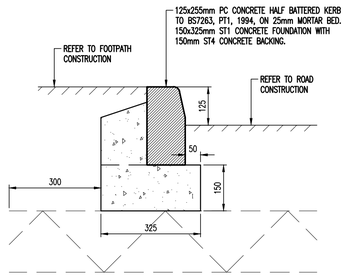
PRIVATE ACCESS ROAD / CAR PARK CONSTRUCTION
SCALE 1:20



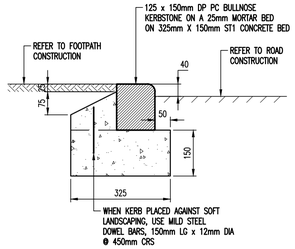
CAR PARK CONSTRUCTION IN TREE ROOT PROTECTION ZONE
SCALE 1:20



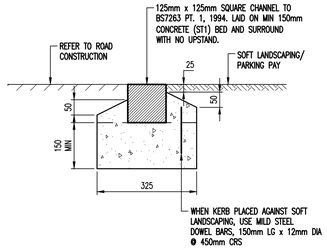
TYPICAL SECTION THROUGH PRIVATE FOOTPATH CONSTRUCTION (BLOCK PAVING)
SCALE 1:20



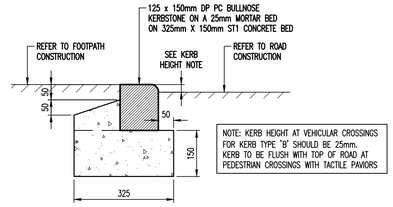
STANDARD KERB (TYPE A)
SCALE 1:10



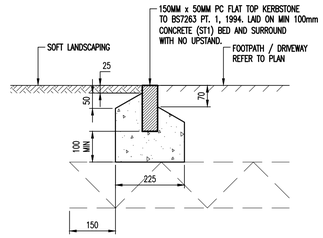
BULLNOSE KERB (TYPE B1)
SCALE 1:10
(AGAINST SOFT LANDSCAPING)



CHANNEL KERB (TYPE D)
SCALE 1:10



BULLNOSE KERB (TYPE B)
SCALE 1:10



EDGING KERB (TYPE C)
SCALE 1:10

General Notes

THIS DRAWING TO READ IN CONJUNCTION WITH ALL RELEVANT STRUCTURAL AND ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.

ALL DIMENSIONS TO BE CHECKED ON SITE BY THE CONTRACTOR / FABRICATOR PRIOR TO COMMENCEMENT OF WORKS.

ALL DIMENSIONS ARE IN MILLIMETRES UNLESS STATED OTHERWISE.

ALL WORKS TO BE CARRIED OUT IN STRICT ACCORDANCE WITH THE ENGINEER'S SPECIFICATIONS, RELEVANT BRITISH STANDARDS, STATUTORY HEALTH AND SAFETY/C.D.M. REGULATIONS, RELEVANT CODES OF PRACTICE AND THE CURRENT EDITION OF THE BUILDING REGULATIONS.

FOR FINAL SETTING OUT INFORMATION RELATING TO GRID LINES AND WALL POSITIONS REFER TO THE ARCHITECT'S DRAWINGS.

Rev	Description	Date	By	Chkd
P03	CAR PARK CONSTRUCTION AMENDED	18.11.22	AJB	DS
P02	DETAILS UPDATED	27.09.22	AJB	DS
P01	PRELIMINARY ISSUE	30.11.21	AJB	DS

Drawing Status
PRELIMINARY

Sutcliffe
Structural & Civil Engineering
Geotechnical & Environmental Investigations
Building Surveying
Pre Planning Services
Liverpool Head Office: 0151 227 5155
Manchester Office: 0161 817 5160
North Wales Office: 01978 664 071
London Office: 020 8816 4329
www.sutcliffe.co.uk

Client
SOUTHWAY HOUSING TRUST

Project
CHORLTON IRISH CLUB
CHORLTON-CUM-HARDY

Drawing Title
TYPICAL EXTERNAL WORKS DETAILS - PRIVATE

Date	Drawn By	Checked By
NOV. 21	AJB	DS

Scale at A1	Project Number
AS SHOWN	31296

Sheet Number	Revision
31296-SUT-ZZ-XX-DR-C-6800	P03

Network Details

Manhole Schedule

Manhole	Catchment Area (ha)	Diameter (m)	Type	CL (m)	IL (m)	Depth To Soffit (m)	Easting (m)	Northing (m)
PS1	0.025	0.450	Type E	28.259	27.650	0.459	381708.085	393607.435
PS6	0.009	0.450	Type E	28.308	27.575	0.633	381743.608	393590.696
PS2	0.000	0.450	Type E	28.282	26.875	1.182	381734.491	393594.992
PS3	0.013	0.450	Type E	28.168	26.575	1.368	381724.942	393574.730
PS5	0.094	0.450	Type E	28.268	27.000	1.043	381694.981	393588.838
PS4	0.000	1.200	Type E	28.168	26.154	1.489	381716.193	393578.852
PS7	0.000	0.600	Type E	28.186	26.351	1.610	381713.775	393573.875
PS8	0.000	0.600	Type E	28.431	27.300	0.981	381710.467	393567.864

Pipe Schedule

Pipe Number	US Manhole	US IL (m)	DS Manhole	DS IL (m)	Diameter (m)	Length (m)	Gradient (1:x)	Roughness (mm)	US Depth To Soffit (m)	DS Depth To Soffit (m)
1.000	PS1	27.650	PS2	26.950	0.150	29.191	41.7	0.600	0.459	1.182
2.000	PS6	27.575	PS2	27.000	0.100	10.079	17.5	0.600	0.633	1.182
1.001	PS2	26.875	PS3	26.575	0.225	22.400	74.7	0.600	1.182	1.368
1.002	PS3	26.575	PS4	26.454	0.225	9.672	79.9	0.600	1.368	1.489
3.000	PS5	27.000	PS4	26.454	0.225	23.445	42.9	0.600	1.043	1.489
1.003	PS4	26.454	PS7	26.351	0.225	5.533	53.7	0.600	1.489	1.610
1.004	PS7	27.369	PS8	27.300	0.150	6.862	100.0	0.600	0.667	0.981

Outfall Details

Outfall Manhole PS8 : Free Discharge

Flow Control Details

Tank Structure at Manhole PS7

Tank Invert (m)	Tank Height (m)	Void Ratio (%)	Area (m2)	Effective Area (m2) Area x Void Ratio	Max Storage (m3) Effective Area x Height	Infil Base (m/hr)	Infil Side (m/hr)	Safety Factor
26.351	0.800	95.00	130.000	123.500	98.800	0.15300000	0.15300000	2.00

Simulation Settings

FSR: M5-60=18.00, R=0.38, Locale=England and Wales

Summer (Cv: 0.75), Winter (Cv: 0.84)

Global Time of Entry: 5.0 mins

Durations (mins): 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080

Return Periods (yrs) + Climate Change: (100, +45%)

Simulated Rainfall Events

Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %	Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %
100Yr +45% 15Min Winter	125.198	0.00	-0.59	100Yr +45% 720Min Winter	8.207	0.00	0.00
100Yr +45% 15Min Summer	125.198	0.00	-0.16	100Yr +45% 960Min Summer	6.550	0.00	0.00
100Yr +45% 30Min Winter	83.057	0.00	-0.45	100Yr +45% 960Min Winter	6.550	0.00	0.00
100Yr +45% 30Min Summer	83.057	0.00	-0.46	100Yr +45% 1440Min Summer	4.758	0.00	0.00
100Yr +45% 60Min Summer	52.627	0.00	-0.35	100Yr +45% 1440Min Winter	4.758	0.00	0.00
100Yr +45% 60Min Winter	52.627	0.00	-0.30	100Yr +45% 2160Min Summer	3.451	0.00	0.00
100Yr +45% 120Min Winter	32.289	0.00	-0.15	100Yr +45% 2160Min Winter	3.451	0.00	0.00
100Yr +45% 120Min Summer	32.289	0.00	-0.19	100Yr +45% 2880Min Summer	2.744	0.00	0.00
100Yr +45% 180Min Summer	23.964	0.00	-0.14	100Yr +45% 2880Min Winter	2.744	0.00	0.00
100Yr +45% 180Min Winter	23.964	0.00	-0.10	100Yr +45% 4320Min Summer	1.984	0.00	0.00
100Yr +45% 240Min Summer	19.288	0.00	-0.12	100Yr +45% 4320Min Winter	1.984	0.00	0.00
100Yr +45% 240Min Winter	19.288	0.00	-0.09	100Yr +45% 5760Min Summer	1.575	0.00	0.00
100Yr +45% 360Min Winter	14.084	0.00	-0.04	100Yr +45% 5760Min Winter	1.575	0.00	0.00
100Yr +45% 360Min Summer	14.084	0.00	-0.07	100Yr +45% 7200Min Summer	1.315	0.00	0.00
100Yr +45% 480Min Summer	11.260	0.00	-0.05	100Yr +45% 7200Min Winter	1.315	0.00	0.00
100Yr +45% 480Min Winter	11.260	0.00	-0.03	100Yr +45% 8640Min Summer	1.135	0.00	0.00
100Yr +45% 600Min Summer	9.464	0.00	-0.04	100Yr +45% 8640Min Winter	1.135	0.00	0.00
100Yr +45% 600Min Winter	9.464	0.00	0.00	100Yr +45% 10080Min Winter	1.002	0.00	0.00
100Yr +45% 720Min Summer	8.207	0.00	0.00	100Yr +45% 10080Min Summer	1.002	0.00	0.00

Simulation Results

Return Period Yrs: 100.0

Climate Change %: 45

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
PS1	15 min Winter	8	27.725	0.075	13.902		OK
PS6	15 min Winter	8	27.616	0.041	5.056		OK
PS2	15 min Winter	8	26.960	0.085	18.719		OK
PS3	120 min Winter	92	26.735	0.160	2.234		OK
PS5	15 min Winter	8	27.132	0.132	52.638		OK
PS4	120 min Winter	92	26.735	0.581	6.625		Surcharged
PS7	120 min Winter	92	26.734	0.383	6.629		OK
PS8	10080 min Summer	-1	27.300	0.000	0.000		Outfall

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Velocity (m/s)	Flow (l/s)	Flow / Capacity	Status
1.000	15 min Winter	8	PS1	PS2	0.074	1.565	13.690	0.496	OK
2.000	15 min Winter	8	PS6	PS2	0.041	1.681	5.029	0.346	OK
1.001	15 min Winter	8	PS2	PS3	0.094	1.175	18.589	0.309	OK
1.002	120 min Winter	92	PS3	PS4	0.193	0.062	2.236	0.038	OK
3.000	15 min Winter	8	PS5	PS4	0.166	1.668	52.406	0.659	OK
1.003	120 min Winter	92	PS4	PS7	0.225	0.167	6.629	0.093	OK
1.004	120 min Winter	92	PS7	PS8	0.000	0.000	0.000	0.000	OK

From:	Perry, Graham
To:	Dave Samuels; Lucy Furber
Cc:	Aljafarawi, Mohammed; Wastewater Developer Services; J.Turner@southwayhousing.co.uk; tom.williams@neoprojects.co.uk; Graham Swanson
Subject:	RE: genq 4200047444 Cross Road, Chorlton
Date:	17 March 2022 14:26:25
Attachments:	image001.png image002.png image003.png image004.png image005.png

Hello Dave

I can confirm that this is acceptable. A build over agreement is not necessary if the 3m offset is maintained but we would ask that the foundation is designed in a way so that it does not impart loading onto the sewer and vibration is minimised when carrying out the construction works.

Thanks

Graham Perry

United Utilities
Water for the North West

Graham Perry
Development Engineer
Developer Services
M: 07557 577548
T: 01925 679405
unitedutilities.com

If you have received a great service today why not tell us?
Visit: unitedutilities.com/wow

From: Dave Samuels [mailto:dave.samuels@sutcliffe.co.uk]
Sent: 17 March 2022 14:23
To: Perry, Graham <Graham.Perry@uuplc.co.uk>; Lucy Furber <LFurber@iceniprojects.com>
Cc: Aljafarawi, Mohammed <Mohammed.Aljafarawi@uuplc.co.uk>; Wastewater Developer Services <WastewaterDeveloperServices@uuplc.co.uk>; J.Turner@southwayhousing.co.uk; tom.williams@neoprojects.co.uk; Graham Swanson <graham.swanson@sutcliffe.co.uk>
Subject: RE: genq 4200047444 Cross Road, Chorlton
Importance: High

EXTERNAL EMAIL This email originated outside of the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Hi Graham

Thanks for clarification.

We have met, as a Design Team, and will review the building layout based on a **3.675m** easement measured from the centre line of the 1350 DIA sewer giving a 3m distance from the edge of the

sewer.

Can you please confirm this is acceptable to UU ?

Your quick response to this would be appreciated as the architect is currently ongoing with their layout review.

Any queries please do not hesitate to call.

Regards
Dave Samuels
BEng(Hons) CEng MIStructE MaPS
Executive Associate

SUTCLIFFE
18-20 Harrington Street, Liverpool, L2 9QA

t: 0151 227 3155
m: 07968 514 672
dd: 0151 305 5439
e: dave.samuels@sutcliffe.co.uk
w: www.sutcliffe.co.uk

Sutcliffe Projects is a Limited Company registered in England and Wales No 4287238

If you have received this email in error, please notify us immediately by email or telephone.

From: Perry, Graham <Graham.Perry@uuplc.co.uk>
Sent: 16 March 2022 10:21
To: Lucy Furber <LFurber@iceniprojects.com>
Cc: Aljafarawi, Mohammed <Mohammed.Aljafarawi@uuplc.co.uk>; Wastewater Developer Services <WastewaterDeveloperServices@uuplc.co.uk>; Dave Samuels <dave.samuels@sutcliffe.co.uk>; J.Turner@southwayhousing.co.uk; tom.williams@neoprojects.co.uk; Graham Swanson <graham.swanson@sutcliffe.co.uk>
Subject: RE: genq 4200047444 Cross Road, Chorlton

Hello All

To avoid confusion the easement must be measured from the edge of the pipe the building. Our

preference would be to have a 5m offset between the edge of the pipe to the building but we would accept a 3m offset between the building and edge of the pipe.

Thanks

Graham Perry

Graham Perry
Development Engineer
Developer Services
M: 07557 577548
T: 01925 679405
unitedutilities.com

If you have received a great service today why not tell us?
Visit: unitedutilities.com/wow

From: Perry, Graham
Sent: 16 March 2022 10:09
To: 'Lucy Furber' <LFurber@iceniprojects.com>
Cc: Aljafarawi, Mohammed <Mohammed.Aljafarawi@uuplc.co.uk>; Wastewater Developer Services <WastewaterDeveloperServices@uuplc.co.uk>; 'Dave Samuels' <dave.samuels@sutcliffe.co.uk>; 'J.Turner@southwayhousing.co.uk' <J.Turner@southwayhousing.co.uk>; 'tom.williams@neoprojects.co.uk' <tom.williams@neoprojects.co.uk>; 'graham.swanson@sutcliffe.co.uk' <graham.swanson@sutcliffe.co.uk>
Subject: RE: genq 4200047444 Cross Road, Chorlton

Hello All

Following a meeting yesterday on another similar scheme our position has changed and it is clear that there is a reluctance to allow build overs of significant assets , we must therefore reject any proposal to build over the sewer crossing the site.

Although we would prefer to see a minimum easement of 5m, the minimum we would accept would be a 3m easement in line with Building Regulations.

Thanks

Graham Perry

Graham Perry
Development Engineer
Developer Services
M: 07557 577548
T: 01925 679405
unitedutilities.com

If you have received a great service today why not tell us?
Visit: unitedutilities.com/wow

From: Lucy Furber [mailto:LFurber@iceniprojects.com]
Sent: 14 March 2022 20:27
To: Perry, Graham <Graham.Perry@uuplc.co.uk>
Cc: Aljafarawi, Mohammed <Mohammed.Aljafarawi@uuplc.co.uk>; Wastewater Developer Services <WastewaterDeveloperServices@uuplc.co.uk>
Subject: RE: genq 4200047444 Cross Road, Chorlton

EXTERNAL EMAIL This email originated outside of the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Hi Graham,

Many thanks for your response, it is appreciated.

If the build over agreement is not possible and we have to amend the scheme and still make the May committee, receiving a response from you by Friday 25th March would give us time to amend the plans, and time for the statutory consultees time to review.

If we can aim for Friday 25th I would be eternally grateful but please advise if this isn't possible.

Kind regards

Lucy

Lucy Furber
Planner, Planning

telephone: 0161 509 2844
mobile: 07825 517 718
email: LFurber@iceniprojects.com

Find Us : Birmingham | Edinburgh | Glasgow | London | Manchester

Follow us on : Instagram | LinkedIn | Twitter | Vimeo | Ian's Blog

The information transmitted, including attachments, is intended only for the person(s) or entity to which it is addressed and may contain confidential and/or privileged material. Any review, retransmission, dissemination or other use of, or taking of any action in reliance upon this information by persons or entities other than the intended recipient is prohibited. If you received this in error please contact the sender and destroy any copies of this information.

From: Perry, Graham <Graham.Perry@uuplc.co.uk>
Sent: 11 March 2022 20:17
To: Lucy Furber <LFurber@iceniprojects.com>
Cc: Aljafarawi, Mohammed <Mohammed.Aljafarawi@uuplc.co.uk>; Wastewater Developer Services <WastewaterDeveloperServices@uuplc.co.uk>
Subject: FW: genq 4200047444 Cross Road, Chorlton

Hello Lucy

I cannot give a specific date for the approval/rejection of the build over but I will try to have the scheme prioritized to that you have a firm answer well before the May deadline date.

Do you have a 'must have a response'date?

Thanks

Graham Perry

Graham Perry
Development Engineer
Developer Services
M: 07557 577548
T: 01925 679405
unitedutilities.com

If you have received a great service today why not tell us?
Visit: unitedutilities.com/wow

From: Lucy Furber [mailto:LFurber@iceniprojects.com]
Sent: 09 March 2022 09:17
To: Perry, Graham <Graham.Perry@uuplc.co.uk>
Cc: Wastewater Developer Services <WastewaterDeveloperServices@uuplc.co.uk>
Subject: RE: genq 4200047444 Cross Road, Chorlton

EXTERNAL EMAIL This email originated outside of the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Dear Graham,

I hope you're well,

I have been forwarded this email chain as I am the planning agent for the application at Cross Road, Chorlton, where up until now, I have left conversations regarding the potential for a build over agreement to Dave Samuels at Sutcliffe. However I have now picked up this matter as it has become more of a planning issue.

The email from you in the chain below indicates that a build over may be feasible, however we are still waiting on comments from the principal engineer. In the meantime, separate to the project team's conversations with you via Dave Samuels, Manchester City Council received the statutory planning consultee feedback from UU last week (attached). Having spoken on the phone to the Developer Engineer who wrote the consultee response letter, Mohammed Aljafarawi, it is clear that the letter doesn't reflect the most recent conversations we've been having with you separately. Mohammed said he would try and speak to you about this application once you returned from leave, but I'm not sure if he has.

In light of the UU comments, the Planning Officer at MCC has asked that the determination of the application is delayed until the 31st May planning committee (it was meant to be March) in order to get this matter resolved. I would therefore be grateful if you can please advise when a principle civil engineer will be able to carry out a full assessment of the details?

I appreciate the service is extremely busy at the moment, and you have been very helpful throughout this process to date, therefore even just an indication of when the full assessment may be carried out would be greatly appreciated, so we can update the planning officer on progress and I can manage client expectations with regards to timescales. It would be fantastic if we could make the May planning committee as this is the only outstanding matter we need to resolve.

I am available to discuss via mobile all week if you are able to provide any updates.

Kind regards,

Lucy

Lucy Furber
Planner, Planning

telephone: 0161 509 2844
mobile: 07825 517 718
email: LFurber@iceniprojects.com

Find Us : Birmingham | Edinburgh | Glasgow | London | Manchester

Follow us on : Instagram | LinkedIn | Twitter | Vimeo | Ian's Blog

The information transmitted, including attachments, is intended only for the person(s) or entity to which it is addressed and may contain confidential and/or privileged material. Any review, retransmission, dissemination or other use of, or taking of any action in reliance upon this information by persons or entities other than the intended recipient is prohibited. If you received this in error please contact the sender and destroy any copies of this information.

From: Dave Samuels <dave.samuels@sutcliffe.co.uk>
Sent: 01 March 2022 17:01
To: Ian Jones <ian@viewassociates.co.uk>; Jonathan Turner <J.Turner@southwayhousing.co.uk>; Tom Williams <tom.williams@neoprojects.co.uk>
Cc: Graham Swanson <graham.swanson@sutcliffe.co.uk>
Subject: FW: genq 4200047444 Cross Road, Chorlton

All

Please see below email from Graham Perry at United Utilities.

Although positive we still need to wait for UU's Principle Engineer comments.

Regards
Dave Samuels
BEng(Hons) CEng MIStructE MaPS
Executive Associate

SUTCLIFFE
18-20 Harrington Street, Liverpool, L2 9QA

t: 0151 227 3155
m: 07968 514 672
dd: 0151 305 5439
e: dave.samuels@sutcliffe.co.uk
w: www.sutcliffe.co.uk

Sutcliffe Projects is a Limited Company registered in England and Wales No 4287238

If you have received this email in error, please notify us immediately by email or telephone.

From: Perry, Graham <Graham.Perry@uuplc.co.uk>
Sent: 01 March 2022 16:04
To: Dave Samuels <dave.samuels@sutcliffe.co.uk>
Cc: Wastewater Developer Services <WastewaterDeveloperServices@uuplc.co.uk>
Subject: FW: genq 4200047444 Cross Road, Chorlton

Hello Dave

I have reviewed the information submitted by Ian and believe that a build over may be feasible but will have to go our principle civil engineer for full assessment.

I have now passed the information over to the relevant team and awaiting a response. Please be aware that the workload for the principle engineer is quite high at the moment

Thanks

Graham Perry

Graham Perry
Development Engineer
Developer Services
M: 07557 577548
T: 01925 679405
unitedutilities.com

If you have received a great service today why not tell us?
Visit: unitedutilities.com/wow

From: Dave Samuels [mailto:dave.samuels@sutcliffe.co.uk]
Sent: 17 February 2022 14:52
To: Perry, Graham <Graham.Perry@uuplc.co.uk>; Wastewater Developer Services <WastewaterDeveloperServices@uuplc.co.uk>
Subject: FW: Cross Road, Chorlton

EXTERNAL EMAIL This email originated outside of the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Hi Graham

Just had a Progress Meeting on the above referenced project and following Ian Jones' email below (12th January) can you please respond as this item is critical to the proposed layout / planning application that is currently running

Regards
Dave Samuels
BEng(Hons) CEng MIStructE MaPS
Executive Associate

SUTCLIFFE
18-20 Harrington Street, Liverpool, L2 9QA

t: 0151 227 3155
m: 07968 514 672
dd: 0151 305 5439
e: dave.samuels@sutcliffe.co.uk
w: www.sutcliffe.co.uk

Sutcliffe
CELEBRATING 35 YEARS

Structural & Civil Engineering
Geotechnical & Environmental Investigations
Building Surveying
Pre Planning Services

Inspiring and influencing the built environment since 1985

Head Office:
18-20 Harrington Street, Liverpool, L2 9QA
Tel: 0151 227 3155

Manchester Office: 0161 817 5180
North Wales Office: 01978 664 071
London Office: 020 8016 4320

Sutcliffe Projects is a Limited Company registered in England and Wales No 4287238

If you have received this email in error, please notify us immediately by email or telephone.

From: Ian Jones
Sent: 12 January 2022 17:02
To: Graham.Perry@uuplc.co.uk
Subject: Cross Road, Chorlton

Graham

Firstly I hope you had a good Christmas break.

You may recall we had a conversation pre Christmas regarding the existing sewer on the above site and I emailed you (as attached) on the 15/12.

I now attach, as promised, a set of documents prepared by Sutcliffe, the engineers for the project. These documents describe how the foundations will be formed to respect the sewer easement and how the sewer can be maintained by excavation if required.

We are aware that Sutcliffe have previously asked for a relaxation on the easement in this regard and that has been refused. I am now writing to ask if that decision can possible be revisited for the following reasons.

- We have been working on the planning submission for this site for over 2 years. That has involved a significant amount of design work for an extensive design team, extensive agreement with 3rd parties, something like 5 pre app meeting with Manchester City Council Planning department, consultation with elected members, consultation with councillors together with a full public consultations. This process has lead to a completed design which is now ready for submission to the planning authority.

- The application is for 100% affordable housing which in its own right is a considerable achievement.

- We only became aware of the fact that the building sits over the sewer easement in one corner after the engineers undertook an full sewer survey. Up until that point we had been working to the sewer records and we have designed the building to respect the sewer

easement on the sewer records.

- And finally the sewer has recently been maintained without excavation and that will need to be the case in the future because this specific sewer already passes under houses and building on the other side of the road.

I am more than happy to run through any matters on the phone or at a meeting but we would be very grateful if this matter can be looked at again to see if there is any scope to amend the decision or have some form of compromise.

Your assistance is much appreciated.

Regards

Ian

Ian Jones
B.A. (Hons) Dip. Arch RIBA

T 0161 941 7458 **M** 07957 353180
W www.viewassociates.co.uk

VIEW ASSOCIATES CHARTERED ARCHITECT | RIBA

View Associates Ltd
Greystone House, Moss Lane, Altrincham WA15 8HW

The information contained in this e-mail is intended only for the individual to whom it is addressed. It may contain legally privileged or confidential information or otherwise be exempt from disclosure. If you have received this Message in error or there are any problems, please notify the sender immediately and delete the message from your computer. You must not use, disclose, copy or alter this message for any unauthorised purpose. Neither United Utilities Group PLC nor any of its subsidiaries will be liable for any direct, special, indirect or consequential damages as a result of any virus being passed on, or arising from the alteration of the contents of this message by a third party.

United Utilities Group PLC, Haweswater House, Lingley Mere Business Park, Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP
Registered in England and Wales. Registered No 6559020

www.unitedutilities.com
www.unitedutilities.com/subsidiaries