

**Prior approval application
for the installation of
4 no. self-contained apartments
to the roof of the existing building at**

Poplar Court, 156 Moss Lane East, Manchester, M16 7DH

FLOOD RISK ASSESSMENT

September 2022

1. INTRODUCTION

This report arises from an instruction from Irish Anglo Properties (Hulme) Ltd to undertake a flood risk assessment of the site in support of a Prior Approval Application for a residential development comprising installation of 4 no. self-contained flats to the roof of the existing building, Poplar Court, 156 Moss Lane East, M16 7DH.

This document is prepared in accordance with the requirements of and in response to Planning Policy Statement 25: Development and Flood Risk (PPS25) which states that those proposing developments are responsible for:

- Providing an assessment of whether any proposed development is likely to be affected by flooding and whether it will increase the flood risk elsewhere and of the measures proposed to deal with these effects and risks, and
- Satisfying the local planning authority that any flood risk to the development or additional risk arising from the proposal will be successfully managed with the minimum environmental effect, to ensure that the site can be developed and occupied safely.

2. THE SITE

Description

The site comprises a brownfield site extending to 1068 sq m. The site was developed in 2006 as Poplar Court, a part 3/part 5 storey residential block comprising 34 no. apartments, together with undercroft car parking.

The front portion of the development comprises twelve two bed apartments over three floors. The rear portion of the development comprises twenty-two one and two bedroom apartments over five floors.

The development is symmetrically split down the centre around a central courtyard off Moss Lane East. Each half contains seventeen number apartments. Even numbers, 2-34, located to the west, odd numbers, 1-33, located to the east. Each side has a separate entrance, there are two separate lifts and two separate staircases. The two sides are totally separated from one another with no traversing possible internally, so that the development is essentially two separate blocks within a single curtilage.

Vehicle access is via two separate automated gates off Quinney Crescent to the rear with undercroft car parking.

Proposed Development

The proposed development comprises four number new two bedroom apartments above the third storey at the front of the property (Two on each side). The new apartments mirror the footprint of the existing apartments below them.

The resultant property will therefore comprise 38no. apartments over 4/5 floors.

Access/egress points into the building will be as existing.

Access/egress via internal corridors, lifts and stairs will be as existing. The access corridor at fourth storey already exists to provide access to the upper apartments at the rear of the building. Access/egress points into the new apartments will mirror existing apartments below.

A proposed development plan is attached at Appendix A.

Location

The site occupies a main road position fronting Moss Lane East opposite Alexandra House, a commercial office building presently owned and used by Manchester City Council. The site fronts Moss Lane East at the front and Quinney Crescent to the rear.

A site location plan is attached at Appendix B.

Topography/Construction

The site is fully developed, the original site was reasonably level and was a brownfield site comprising terraced housing which was slum cleared in the 1960's. The site was piled for the Poplar Court Development, which comprised traditional structural steel construction with concrete formed slab floors and a series of flat metal deck roofs with proprietary single ply membrane.

Development Type

The development is not considered a major development under PPS 25 Section 2.46.

Existing Services

A. Main's electricity is installed to all existing apartments supplied from an Electricity North West Sub Station built for purpose in 2006 and occupying the southwest the corner of the site onto Quinney Crescent. The sub station carries sufficient capacity for the four new apartments.

B. There is no gas connected to the site or property.

C. Mains water is supplied via 32mm supply from Quinney Crescent to a Base Mounted 500L Cat 5 - Lowara V VARITANK and Booster Set with twin SMB/5HM06 Pumps located on the ground floor providing booster storage mains water. Two Lowara Hydrovar pumps feed the incoming water to the individual apartments via United Utilities Water meters. The tanks and pumps carry sufficient capacity for the four new apartments.

D. Drainage is to the main sewer.

Foul drainage is divided. One line runs from the eastern corner via 150mm sewer within the property boundary into the 375mm combined sewer in Quinney Crescent at its junction with Pepperhill Road. This main sewer then falls eastwards towards Princess Road.

A second line runs from the western part of the property via 150mm sewer within the property boundary into the 525mm combined sewer in Quinney Crescent at its junction with Sewerby Close. This main sewer then falls westwards towards Alexandra Road South. Surface Water is similarly divided and follows the same runs into the respective 375mm and 525mm combined sewers in Quinney Crescent.

There are four manhole inspection chambers within the curtilage of the property, two for each respective run.

See attached Extract from the Map of Public Sewers at appendix C.

3. FLOOD LEVELS

Base Study

Using the Environmental Agency's flood maps (Ver. 3.15 issued in 2009) the site falls under an area signified as at medium risk of future flooding. This map refers to the probability of flooding from rivers principally and ignores any specific defences.

We have also extensively examined the Strategic Flood Risk Assessment undertaken this year on behalf of Manchester City Council, Salford City Council and Trafford Council.

Risk Identification

We have studied the following map models:

1. Fluvial flood extents;
2. Fluvial flood depth;
3. Fluvial flood hazards.

The results of these are shown in Appendix D.

In addition the following maps and data were examined:

1. Ground water flooding;
2. Surface water flooding, current and future;
3. Surface water flooding risk assessments;
4. Critical drainage areas.

The results of these studies are shown in Appendix E.

Irish Anglo Properties (Hulme) Ltd have occupied this site since 2003. There has been no incidence of flooding within 500mm of the site in those eighteen years.

We have communicated with United Utilities who have confirmed that they have no records or knowledge of any history of flooding in or around this site.

We have been in contact with Manchester Council Drainage Department who have confirmed that they have no records or knowledge of any history of flooding in or around this site.

Flooding Sources

The main source of flooding impacting on the subject site is the River Medlock. The River Medlock rises in the hills to the East of Oldham, travelling through Oldham and Tameside before reaching Clayton and the North side of Manchester. Thereafter the lower reaches of the river join the River Irwell in Central Manchester. Throughout the centre of Manchester both these rivers are extensively culverted. The flood plain of the River Medlock is relatively natural through Claytonvale, the river is culverted under the City of Manchester Stadium and continues to meander in and out of culvert through the city centre. Flood zones 2 and 3 are relatively wide through the urban landscape and downstream reaches and the far extent of these reaches could potentially impact on the subject site at its furthest reach. The location of subject site is very much at the perimeter of the reach of Zone 2 from the Medlock on a worst case scenario and the adjoining areas fall comfortably within Zone 1. Consequently the risk from flooding is medium to low.

Flooding from Ground Water

Site investigation undertaken at the site indicates groundwater levels to be located at >5m bgl. It is therefore considered unlikely that groundwater levels will impact on flood storage. The subject site is not identified as an area at risk from ground water flooding, shallow ground water or at risk of ground water rebound. The risk therefore from flooding from ground water is negligible.

Flooding from Land

The site is not in an area at risk of surface water flooding and identified in Level 2 SFRA of Manchester City, Salford City and Trafford Councils.

Flooding from Sewers

An examination of the SFRA indicates that the site is not in a particular sensitive location to an increase of rates of surface run off and/or volume from new developments.

Surface Water Flooding

An examination of the SFRA Surface Water Maps and information supplied by United Utilities indicates that the site is not in an area designated at risk of surface water flooding in general. Moss Lane East is indicated as having a low susceptibility to surface water flooding but examination of United Utilities records that there is no particular issue having been identified in the locality in the past.

Identification of Hazards

An examination of the Level 2 SFRA indicates that at present the site is not recognised as in an area at hazard of maximum flood and had potential of very low hazard over 100 years assuming full climate change impact. The potential flood depth area along Moss Lane East in a 100yr event is less than 0.3m.

4. HAZARD SUMMARY

An analysis of the existing data and extrapolation of models over a hundred year and thousand year event and thereafter a hundred year and a thousand year event subject to full climate change impact indicates very little risk of flooding affecting the site.

There is a susceptibility of some flood hazard in the wider area assuming the full impact of climate change in a one-thousand-year event. Even so, this is mainly on Moss Lane East to the west does not effect this site. There is also some potential hazard from surface water flooding although this is indicated as being a low susceptibility currently and, in the future, and again affects Moss Lane East.

Consequently, we feel this site is of extremely low risk for potential flooding and certainly the subject properties, new apartments will be positioned 9m above Moss Lane East.

5. UNITED UTILITIES

United Utilities was contacted in June 2021 to establish its requirements for the management of foul and surface water runoff at the site.

Their response by email is attached at Appendix H

6. DRAINAGE SOLUTION

Foul

See attached calculations from Jackson & Taylor. (Appendix F)

Proposed Wastewater Flow Rate 3.32 litre/second

Surface Water

In accordance with Approved Document H3 (3) the original surface water drainage system was designed and constructed according to the priority hierarchy. The surface water is delivered to two separate combined 525mm public sewers in Quinney crescent via two individual 150mm surface water drains within the curtilage of the property.

See attached calculations from Jackson & Taylor (Appendix G)

The proposals for the four new apartments will create the exact same Impermeable area and use the existing drainage system. The forward flow rates into the combined sewers in Quinney Crescent will therefore remain unaltered and the mains drainage system unaffected.

Proposed Surface Water Flow Rate 6.17 litre/second

The drainage system has been designed and constructed in accordance with the requirements of Sewers for Adoption and specifically demonstrates that:

- No surcharge of pipes occurs in the 1 in 2 year rainfall event.
- No surface flooding occurs in 1 in 30 year rainfall event.
- No flooding to buildings and adjacent properties occurs in 1 in 100 year rainfall event (including a 30% allowance for the effects of future climate change).

In line with best practice and industry guidance to protect network capacity the piped networks located throughout the site have been designed to accept peak flows during a 30 year return period rainfall event.

The requirements of the National Planning Policy Framework (2012), the National Standards for Sustainable Drainage Systems (2011), Sewers for Adoption (2012) and the SuDS Manual have been considered within this study.

7. MITIGATION

The following measures were adopted when Poplar Court was built to mitigate any potential future flooding threat.

1. No deep rooted shrubs and trees were be planted in the vicinity of the public sewer and overflow systems.
2. Land drainage was provided within the site in the common landscaped and permeable areas without recourse to the use of the public sewer system.
3. Foul drains have been fitted with adequate grease traps and all surface water drains have adequate oil interceptors.

4. The drainage system delivered was in accordance with the requirements of Sewers for Adoption and designed for the 1 in 2 year rainfall event, 1 in 30 year rainfall event and for the 1 in 100 year rainfall event (including an allowance for climate change).
5. All external levels have been set to fall away from buildings to allow surface water to shed away.
6. The original Topographical survey shows that the site has an average benchmarked height of +10.45 and Moss Lane East is measured at +9.98. By retaining these levels following construction this ensured all ground levels to the ground floor apartments were in excess of 300mm above Moss Lane East.

8. CONCLUSIONS

- Fluvial flood analysis indicates the risk from flooding is medium to low.
- The risks from flooding from ground water is negligible.
- The potential flood depth area along Moss Lane East in 100 years is less than 0.3m, which is lower than existing Ground Floor Level of Poplar Court.
- Poplar Court (Including drainage, landscaping and external treatment) was constructed in accordance with Building Regulations and Approved Document H.
- The property and neighbouring sites have suffered no incidences of flooding in the intervening 18 years.
- The proposed four apartments will be located 9m in height from Moss Lane East, foul and surface water discharge will utilise the existing drainage system which has the capacity to facilitate for climate change at 30% throughout the development lifetime as required by the National Planning Policy Framework. The proposals produce no additional pressures on the local or network system.

Accordingly, the proposed new development is sustainable and satisfactory, provides no flood risk and can be safely managed by the existing systems with minimum environmental effect, to ensure that the new apartments can be developed and occupied safely.

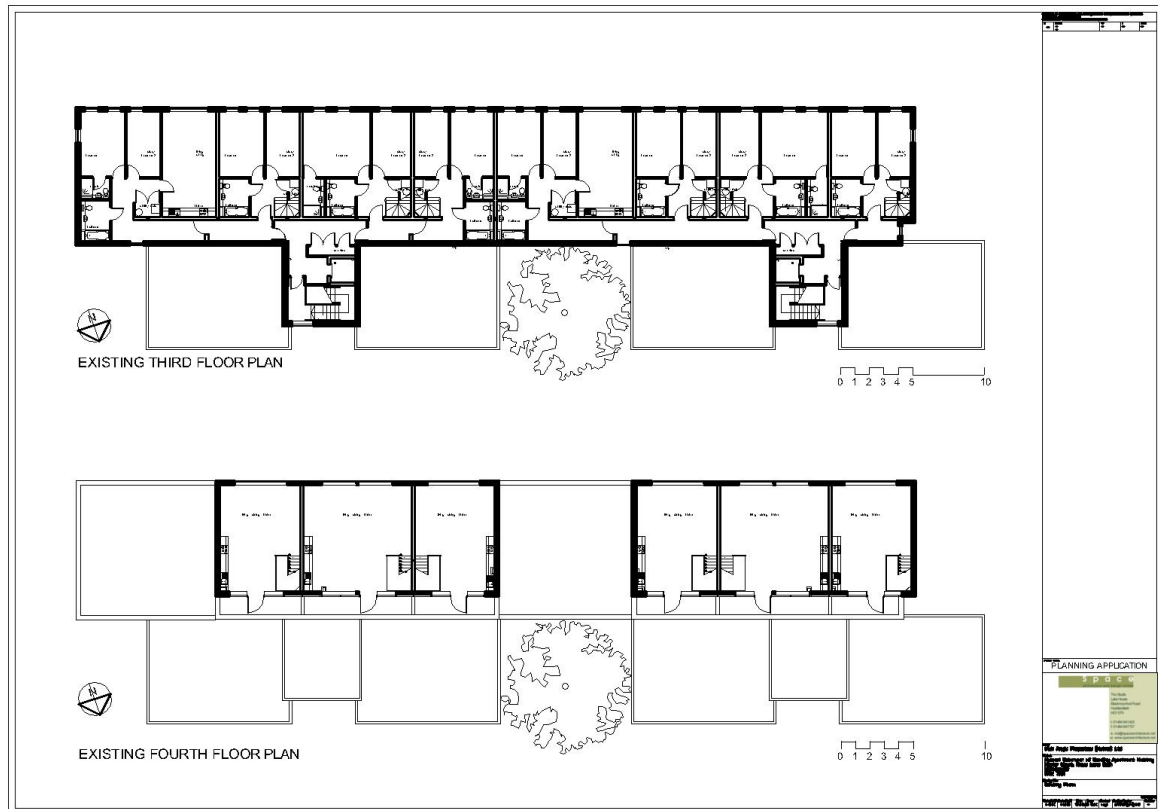
We trust this report is satisfactory, should you require further information please do not hesitate to contact us.

Signed: 

Dr Martin Lawless
PhD, MSc(Env), I.O.S.H.
Director
S.A.F.E. Consultants Ltd

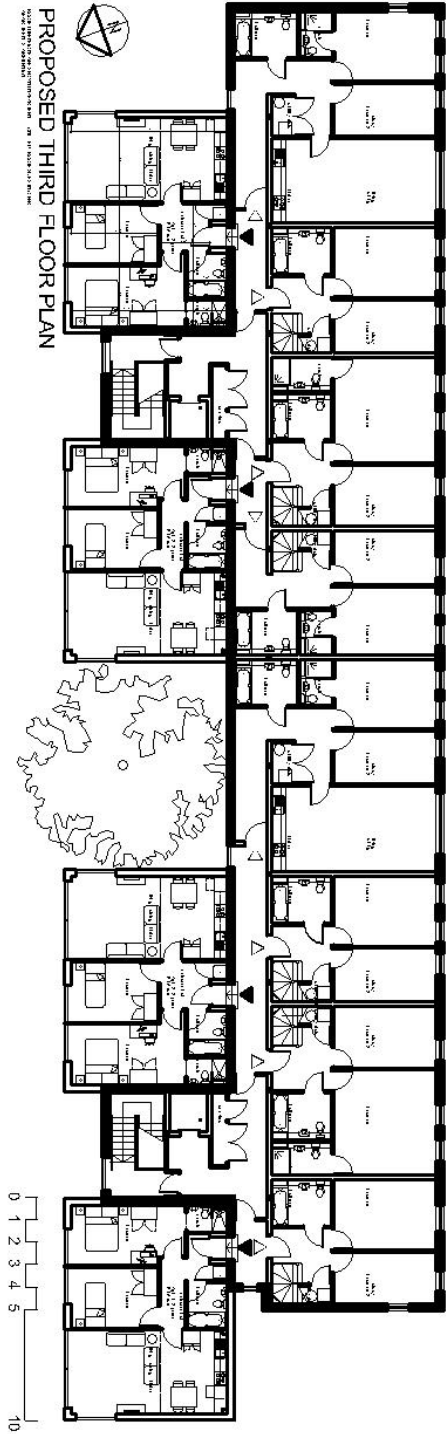
Date: 2nd September 2022

Existing Plans Poplar Court

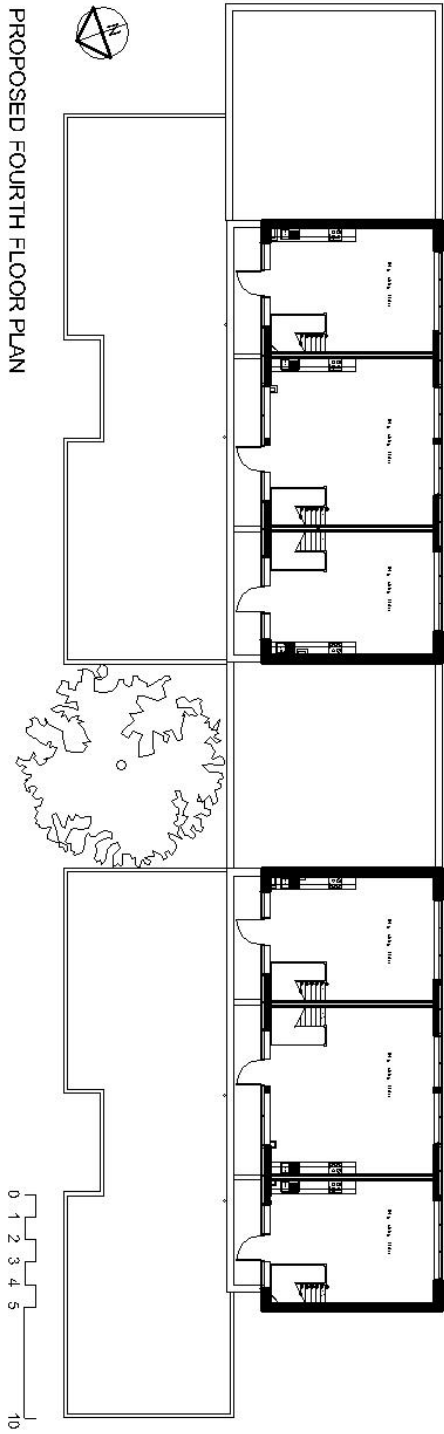


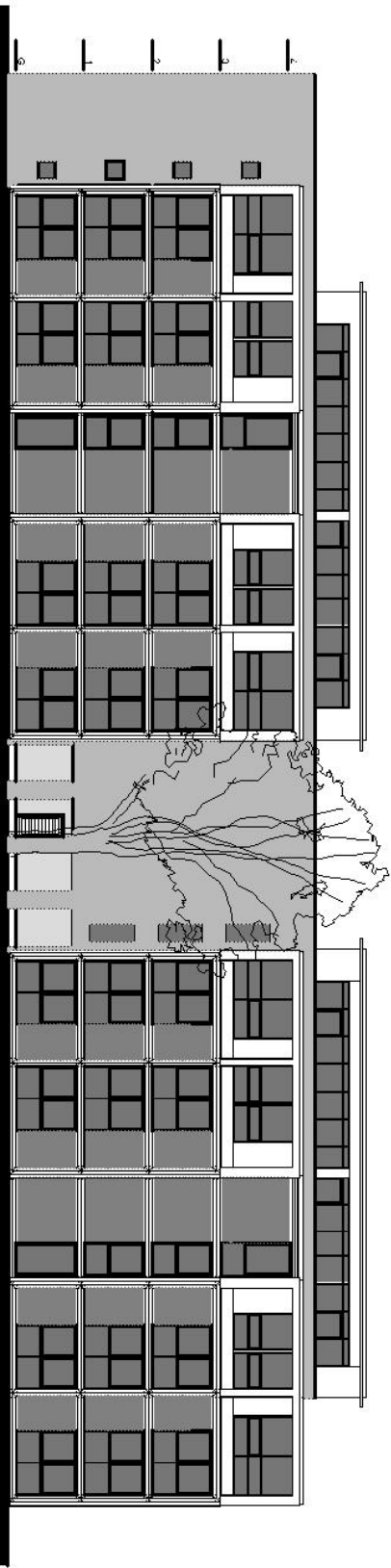
PROPOSED PLANS POPLAR COURT

PROPOSED THIRD FLOOR PLAN

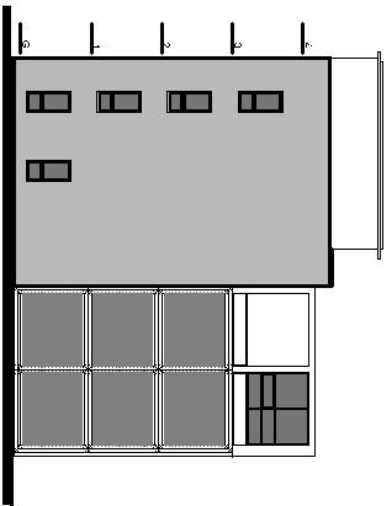


PROPOSED FOURTH FLOOR PLAN

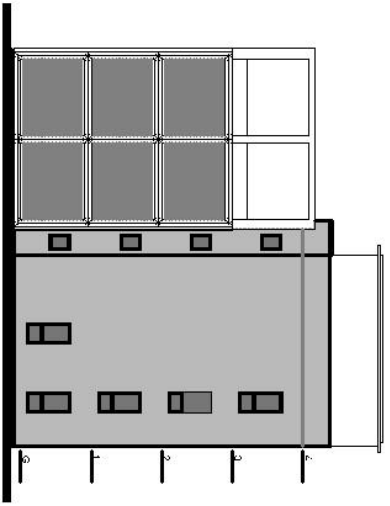




PROPOSED ELEVATION FACING MOSS LANE EAST

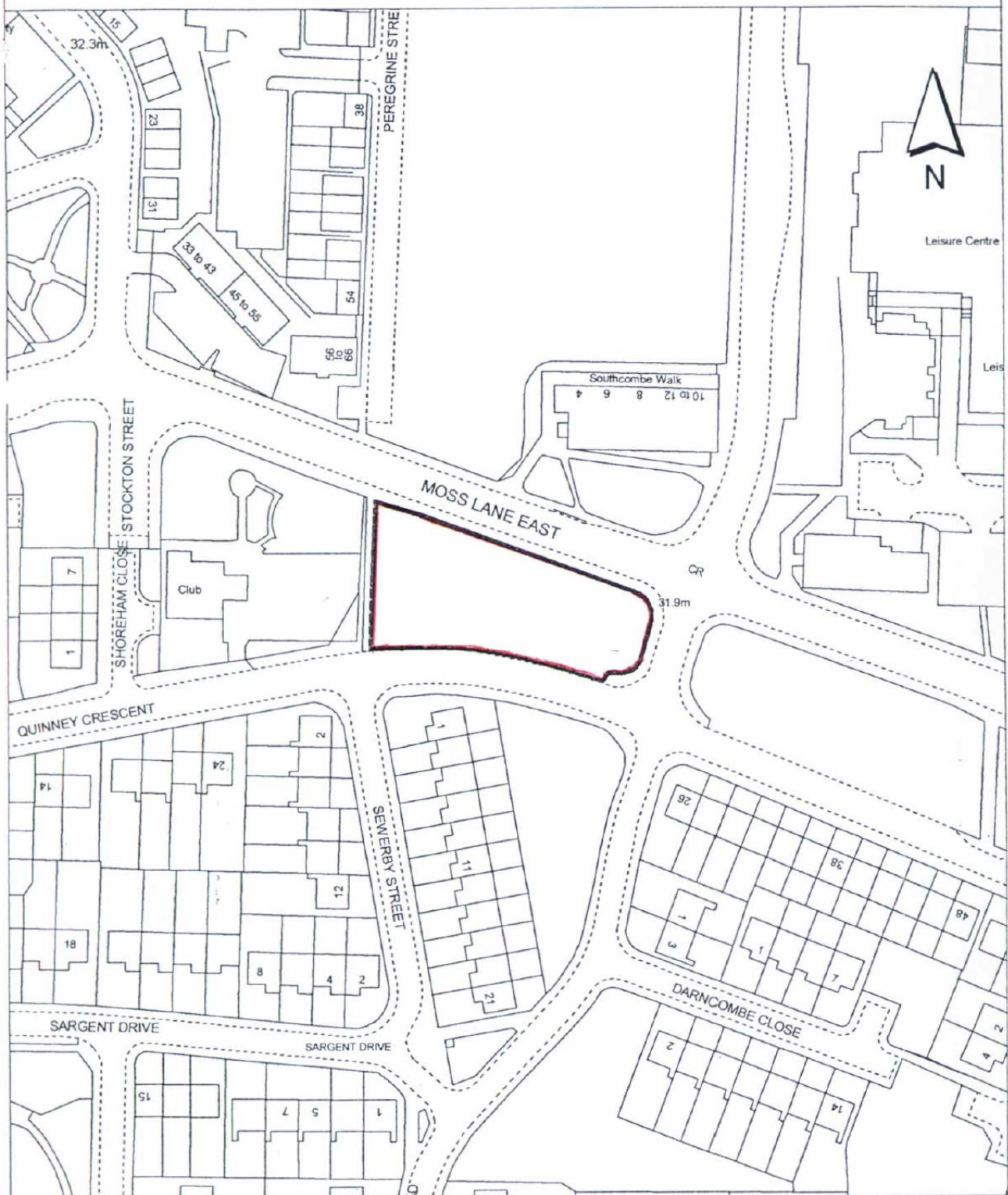


PROPOSED ELEVATION FACING SOUTH EAST



PROPOSED ELEVATION FACING NORTH WEST

PLAN REFERRED TO



CORPORATE SERVICES DEPARTMENT VALUATION AND PROPERTY SERVICES DIVISION

Serial No.
H 0233

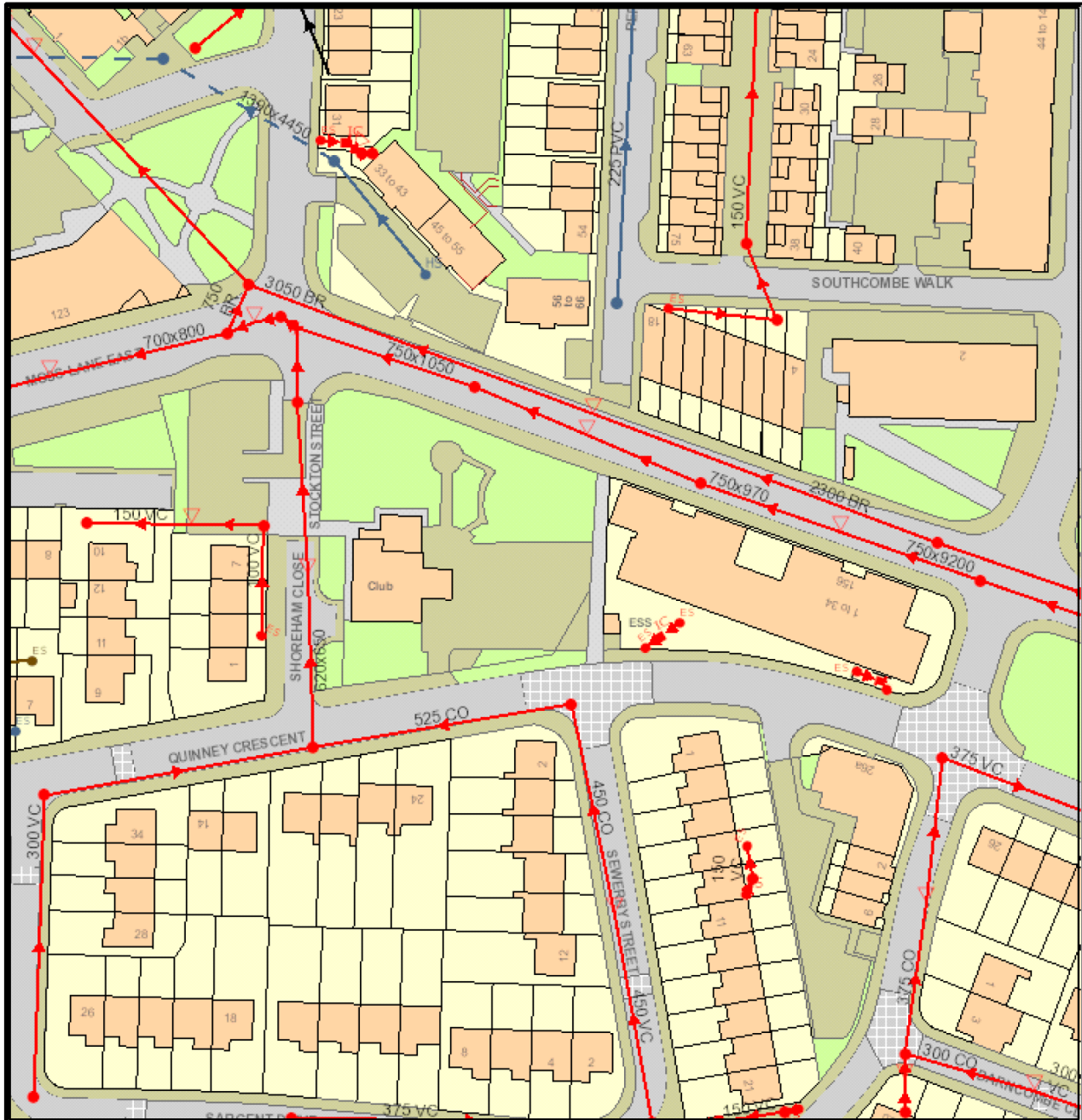
Plan No.
H 0233/1

Scale:
1:1250

JOHN NICHOLLS
HEAD OF VALUATION AND MANAGEMENT
VALUATION AND PROPERTY SERVICES DIVISION
P.O. BOX 451
LEVEL 4
TOWN HALL EXTENSION
MANCHESTER M60 2AX



SEWER RECORD LAND ADJACENT TO POPLAR COURT MOSS LANE EAST MOSS SIDE
MANCHESTER M16 7DH



The position of underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. The actual positions may be different from those shown on the plan and private pipes, sewers or drains may not be recorded. United Utilities Water Limited will not accept any liability for any damage caused by the actual positions being different from those shown.

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APPENDIX D

Flood Maps from Manchester City, Salford City and Trafford City Councils Level 2 Hybrid SFRA

Maps	Detail	Output
1.2.2 Flood Zones	Map FL1.2	
	Version 3.15 Environment Agency Flood Map 2009	Flood Zone 2 - Medium Risk
1.2.3 Fluvial Flood Extents		
(Assuming existing defences are operational)	Map FL1.3 – Q100 Extent	
	One in 100 Years	Nil
	One in 100 Years with Climate Change	Nil
	Map FL1.4 – Q1000 Extent	
	One in 1000 Years	Part
	One in 1000 Years with Climate Change	Nil
1.2.4 Fluvial Depth		
(Assuming existing defences are operational)	Map FL1.5 – Q100 Depth	
	One in 100 Years	Maximum Flood Depth – Nil
	Map FL1.7 – Q100CC Depth	
	One in 100 Years with Climate Change	Maximum Flood Depth – Nil
	Map FL1.8 – Q1000 Depth	
	One in 1000 Years	Maximum Flood Depth – Less than 0.5m in Road
	Map FL1.9 – Q1000CC Depth	
	One in 1000 Years with Climate Change	Maximum Flood Depth – Less than 0.5m in Road
1.2.5 Flood Hazard		
(Assuming existing defences are operational)	Map FL1.6 – Q100 Hazard	
	One in 100 Years	No flood Hazard
	Map FL1.10 – Q100CC Hazard	
	One in 100 Years with Climate Change	Very little hazard along road

APPENDIX E

Alternative sources of flooding

Flood Maps from Manchester City, Salford City and Trafford City Councils Level 2 Hybrid SFRA

Maps	Detail	Output
1.3.1 Groundwater Flooding	Map GW 2.1	
	At risk of ground water flooding – shallow ground water or at risk of ground water rebound.	Not in such an area.
1.5.1 Surface Water Flooding		
	Map SS 4.1 – Current	
	Susceptibility to surface water flooding	Low
	Map SS 4.2 – Future	
	Susceptibility to surface water flooding	Low
1.5.2 Surface Water Flooding Risk Assessment		
	Map SS 4.3 – Current	
	Area designated at risk of surface water flooding	Not in a risk area.
	Map SS 4.4 – Future	
	Area designated at risk of surface water flooding	Not in a risk area.
1.5.3 Critical Drainage Area		
	Map SS 4.5	
	Increase in rate of surface run-off and/or volume from new development.	Not in a sensitive location

Jackson & Taylor Ltd

Plumbers, Heating and Sanitary Engineers

23rd July 2021

S.A.F.E. Consultants Ltd
PRIME House
154 Moss Lane East
Manchester
M16 7DH

Dear Sirs,

Re: Poplar Court Extension, Drainage Calculations

In relation to the Development at Poplar Court, 156 Moss Lane East, M16 7DH and proposals for four new flats at high level, please find enclosed:

1. Appliance and Sanitaryware schedule
2. Water Consumption Calculations
3. Foul Drainage Discharge Flow Rate Calculations
4. Surface Water Discharge Flow Rate Calculations

The foul drainage discharge flow rate rises marginally with the new flats but is well within capacity of the exiting drainage system in Poplar Court.

The new flats will join an existing 110mm branch line at the third storey with three existing flats below. The capacity under Approved Document H (Section 1:15) for 110mm branch is 10 connections over a 15m length. The branch will need to be ventilated at new roof level. The surface water discharge flow rate is exactly the same as at present and will add nothing to the drainage system capacity.

Should you require any further information please let us know.

Yours Sincerely,



Bill Taylor
Jackson & Taylor Ltd

93a Market Street, Stalybridge, Cheshire, SK15 2AA
Tel: 0161 338 5048 Mobile: 07754 185420
V.A.T Reg No 148 3464 53



Cert No: 07/031019

Jackson & Taylor Ltd

Plumbers, Heating and Sanitary Engineers

POPLAR COURT, 156 MOSS LANE EAST, MANCHESTER, M16 7DH

FOUL DRAINAGE DISCHARGE FLOW RATE CALCULATIONS

Poplar Court		Discharge		DR/Unit	No. of	Discharge
Existing Apartments	No.	Rate l/s		l/s	Units	SUM
1 Bed Apartment						
WC with 4l cistern	1	1.8	1.8			
Wash Basin	1	0.3	0.3			
Bath (shower over)	1	0.6	0.6			
Kitchen sink	1	0.6	0.6			
Washing Machine	1	0.6	0.6	3.9	2	7.8
2 Bed, 1 Bath Apartment						
WC with 4l cistern	1	1.8	1.8			
Wash Basin	1	0.3	0.3			
Bath (shower over)	1	0.6	0.6			
Kitchen sink	1	0.6	0.6			
Washing Machine	1	0.6	0.6	3.9	24	93.6
2 Bed, 2 Bath Apartment						
WC with 4l cistern	2	1.8	3.6			
Wash Basin	2	0.3	0.6			
Bath	1	0.5	0.5			
Shower	1	0.4	0.4			
Kitchen sink	1	0.6	0.6			
Washing Machine	1	0.6	0.6	6.3	8	50.4
EXISTING DISCHARGE SUM					34	151.8
Resistance Rate (K)						
Apartment Block- Irregular Usage		0.5				
Total Waste Water Flow Rate	=	K	x (Square Root SUM)			
		0.5 x	12.32	=	6.16	
Waste Water Flow Rate to each combined sewer (2 Connections)					3.08	
Existing Waste Water Flow Rate					3.08 litres per second	
Additional 4 Apartments						
2 Bed, 2 Bath Apartment				6.3	4	25.2
NEW DISCHARGE SUM						177
		0.5 x	13.3	=	6.65	
Waste Water Flow Rate to each combined sewer (2 Connections)					3.33	
Proposed Waste Water Flow Rate					3.33 litres per second	

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Plumbers, Heating and Sanitary Engineers

POPLAR COURT, 156 MOSS LANE EAST, MANCHESTER, M16 7DH

SURFACE WATER DISCHARGE FLOW RATE CALCULATIONS

A. Existing Site Configuration

- 712 sq m of flat membrane roofs
- 170 sq m tarmacadam car park
- 186 sq m of permeable landscaping to, front, side and rear incorporating several trees.

Total Existing Impermeable Area 882 sq m

The existing surface water discharge rate is calculated based on a rainfall intensity of 50mm/hr to obtain a peak run off rate (i.e. based on 140 l/s hectare from BS EN 752-4).

882 sq m = 0.0882 ha @ 140 l/s ha = forward flow rate of 12.34 l/s to be divided by 2 (Two independent and separate mains sewer connections in Quinney Crescent)

Peak forward flow rate of 6.17 l/s to each 375mm and 525mm combined sewers in Quinney Crescent.

B. Proposed Site Configuration (Four new Flats with same roof print- See attached Dwg)

- 712 sq m of flat membrane roofs
- 170 sq m tarmacadam car park
- 186 sq m of permeable landscaping to, front, side and rear incorporating several trees.

Total Proposed Impermeable Area 882 sq m

Peak forward flow rate of 6.17 l/s to each 375mm and 525mm combined sewers in Quinney Crescent.

(Same calculation as above)

Jackson & Taylor Ltd

Plumbers, Heating and Sanitary Engineers

POPLAR COURT, 156 MOSS LANE EAST, MANCHESTER, M16 7DH

Land Use and Run Off Coefficients for surface water

Site Area	0.11 ha
Existing/Historic	Brownfield
Use	Residential
Existing Impermeable Area	0.088 ha
Proposed Impermeable Area	0.088 ha
Average Runoff Coefficient (Existing)	0.35
Average Runoff Coefficient (Proposed)	0.35
Calculated existing surface water discharge rate	QBAR = 6.17 l/s Q2 = 6.17 l/s Q30 = 8.02 l/s Q100 = 22.70 l/s
Existing discharge rate	6.17 l/s
Proposed Discharge Rate	6.17 l/s
Increase in Discharge Rate	0%
Infiltration	Limited % to front & side
Climate change allowance	30%

Using catchment descriptor information from the Flood Estimation Handbook V3 as input the WinDes Microdrainage software package (Institute of Hydrology Method 124) has been used to generate the the surface water discharge flow rates. Storm scenarios were run for both winter and summer profiles for the Q30 and Q100 events, for a range of durations between 15-1440 minutes.

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Cert No: 07/031019

From: Dodd, Matthew <Matthew.Dodd@uuplc.co.uk>
Sent: Thursday 22 July 2021 14:05
To: 'rayjboyle@hotmail.com' <rayjboyle@hotmail.com>
Cc: Wastewater Developer Services <WastewaterDeveloperServices@uuplc.co.uk>
Subject: RE: DE2777 FW: 4100245138 Pre-Development Enquiry for a new development adjoining Poplar Court, Moss Lane East, Manchester - WASTEWATER QUERY

Ray

We have carried out an assessment of your application which is based on the information provided; this pre development advice will be valid for 12 months

The infrastructure quote you have received is for Water and Wastewater.

Foul

Foul will be allowed to drain to the public combined sewer network. Our preferred point of discharge would be to the 525mm combined sewer in Quinney Crescent at an unrestricted rate.

Surface Water

Surface water from this site must drain to soak away or some other form of infiltration system but if ground conditions confirm that this is not a viable solution all surface water can drain to the 525mm combined sewer in Quinney Crescent at a maximum pass forward flow of 16.5 l/s.

Connection Application

Although we may discuss and agree discharge points & 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

<http://www.unitedutilities.com/connecting-public-sewer.aspx>

Sewer Adoption Agreement

You may wish to offer the proposed new sewers for adoption. United Utilities assess adoption application based on Sewers adoption 6th Edition and for any pumping stations our company addenda document. Please refer to link below to obtain further guidance and application pack:

<http://www.unitedutilities.com/sewer-adoption.aspx>

Please be aware that on site drainage must be designed in accordance with Building Regulations, National Planning Policy, Planning Conditions and local flood authority guidelines, we would recommend that you liaise and make suitable agreements with the relevant statutory bodies.

Regards

Matthew Dodd
Assistant Developer Engineer
Developer Services and Planning
Operational Services
United Utilities
T: 01925 679369 (internal 79369)
unitedutilities.com
