

PPI Liverpool Cancer Centre

Flood Risk Assessment and Drainage Strategy

April 2017



FAIRHURST

CONTROL SHEET

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Prepared by	J. Cook	<i>J Cook</i>	13/4/17
Reviewed by	J Middleton	<i>J Middleton</i>	13/4/17
Approved by	S. Dickie	<i>S Dickie</i>	13-4-17

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Notes:

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Contents

1	Introduction	3
2	Legislative Framework.....	3
3	Development Site	11
4	Sources of Flood Risk Information.....	13
5	Potential Sources of Flood Risk.....	17
6	Surface Water Drainage	18
7	Foul water drainage.....	19
8	Development Potential	20
9	Conclusions.....	21

Appendix A: Topographical Survey

Appendix B: Site Master Plan

Appendix C: United Utilities – Sewer Flooding Records

Appendix D: Liverpool City Council Historic Flooding – to be forwarded on receipt

Appendix E: United Utilities – Sewer Plans

1 INTRODUCTION

Fairhurst were appointed by Proton Partners International Ltd (PPI) to undertake a Flood Risk Assessment (FRA) and Drainage Strategy for a proposed Cancer Centre development on the former Archbishop Blanch School, Mason Street, Edge Hill, Liverpool. The proposed development location is shown in Figure 1.

The aim of this FRA and Drainage Strategy report is to evaluate the current proposals with regard to flood risk and drainage, and identify potential flood risk to and from the development site. Fairhurst have carried out the following:

- i. Assessment of the development potential of the site with regards to flood risk in line with the National Planning Policy Framework (NPPF) and Flood Risk and Coastal Change Planning Practice Guidance (PPG).
- ii. An assessment of the surface water runoff.
- iii. An assessment of the foul water flows

The proposals, which are part of a wider scheme, are for the construction of a Cancer Care and Proton Beam Therapy Centre with associated access roads and car parking on 0.5ha of existing greenfield land at Edge Hill, Liverpool.



Figure 1 - Site location

2 LEGISLATIVE FRAMEWORK

2.1 National planning policy

One of the key aims of the National Planning Policy Framework (NPPF), Flood Risk and Coastal Change and Planning Policy Guidance (PPG) is to ensure that flood risk is taken into account at all stages in the planning process to avoid inappropriate development in areas at risk of flooding, and to direct development away from areas at highest risk. Where new development is, exceptionally, necessary in such areas, policy aims to make it safe without increasing flood risk elsewhere and where possible, reducing flood risk overall.

A risk-based approach should be adopted at all levels of planning. Applying the source pathway-receptor model to planning for development in areas of flood risk requires:

- a strategic approach which avoids adding to the causes or “sources” of flood risk, by such means as avoiding inappropriate development in flood risk areas and minimising run-off from new development onto adjacent and other downstream property, and into the river systems;
- managing flood “pathways” to reduce the likelihood of flooding by ensuring that the design and location of the development maximises the use of SuDS, and takes account of its susceptibility to flooding, the performance and processes of river/coastal systems and appropriate flood defence infrastructure, and of the likely routes and storage of floodwater, and its influence on flood risk downstream; and
- reducing the adverse consequences of flooding on the “receptors” (i.e. people, property, infrastructure, habitats and statutory sites) by avoiding inappropriate development in areas at risk of flooding.

Flood risk assessment should be carried out to the appropriate degree at all levels of the planning process, to assess the risks of all forms of flooding to and from development taking climate change into account. A sequential risk-based approach should be applied to determining the suitability of land for development in flood risk areas.

In areas at risk of river or sea flooding, preference should be given to locating new development in Flood Zone 1. If there is no reasonably available site in Flood Zone 1, the flood vulnerability of the proposed development can be taken into account in locating development in Flood Zone 2 and then Flood Zone 3. Within each Flood Zone new development should be directed to sites at the lowest probability of flooding from all sources.

Flood risk has been categorised as High, Medium and Low based on the probability of inundation. Extracts from Tables 1, 2 and 3 of the Flood Risk and Coastal Change PPG are provided below, which highlights the likely response to planning applications within each Flood Zone. Residential development is categorised as “more vulnerable” and therefore should only take place within Flood Zones 1 or 2.

Table 1 - Extract from the Flood Risk and Coastal Change Planning Practice Guidance

<p>Zone 1 Low Probability</p> <p>Definition This zone comprises land assessed as having a less than 1 in 1000 annual probability of river or sea flooding in any year (<0.1%).</p> <p>Appropriate uses All uses of land are appropriate in this zone.</p> <p>Flood risk assessment requirements For development proposals on sites comprising one hectare or above the vulnerability to flooding from other sources as well as from river and sea flooding, and the potential to increase flood risk elsewhere through the addition of hard surfaces and the effect of the new development on surface water run-off, should be incorporated in a flood risk assessment. This need only be brief unless the factors above or other local considerations require particular attention.</p> <p>Policy aims In this zone, developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area and beyond through the layout and form of the development, and the appropriate application of sustainable drainage systems.</p>
<p>Zone 2 Medium Probability</p> <p>Definition This zone comprises land assessed as having between a 1 in 100 and 1 in 1000 annual probability of river flooding (1% – 0.1%) or between a 1 in 200 and 1 in 1000 annual probability of sea flooding (0.5% – 0.1%) in any year.</p> <p>Appropriate uses Essential infrastructure and the water-compatible, less vulnerable and more vulnerable uses, as set out in table 2, are appropriate in this zone. The highly vulnerable uses are <i>only</i> appropriate in this zone if the Exception Test is passed.</p> <p>Flood risk assessment requirements All development proposals in this zone should be accompanied by a flood risk assessment.</p> <p>Policy aims In this zone, developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area through the layout and form of the development, and the appropriate application of sustainable drainage techniques.</p>
<p>Zone 3a High Probability</p> <p>Definition This zone comprises land assessed as having a 1 in 100 or greater annual probability of river flooding (>1%) or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year.</p> <p>Appropriate uses The water-compatible and less vulnerable uses of land (table 2) are appropriate in this zone. The highly vulnerable uses should not be permitted in this zone.</p> <p>The more vulnerable uses and essential infrastructure should only be permitted in this zone if the Exception Test is passed. Essential infrastructure permitted in this zone should be designed and constructed to remain operational and safe for users in times of flood.</p> <p>Flood risk assessment requirements</p>

All development proposals in this zone should be accompanied by a flood risk assessment.

Zone 3a (cont.)

Policy aims

In this zone, developers and local authorities should seek opportunities to:

- reduce the overall level of flood risk in the area through the layout and form of the development and the appropriate application of sustainable drainage techniques;
- relocate existing development to land in zones with a lower probability of flooding; and
- create space for flooding to occur by restoring functional floodplain and flood flow pathways and by identifying, allocating and safeguarding open space for flood storage.

Zone 3b The Functional Floodplain

Definition

Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. But land which would flood with an annual probability of 1 in 20 (5%) or greater in any year, or is designed to flood in an extreme (0.1%) flood, should provide a starting point for consideration and discussions to identify the functional floodplain.

Appropriate uses

Only the water-compatible uses and the essential infrastructure listed in Table 2 that has to be there should be permitted in this zone. It should be designed and constructed to:

- remain operational and safe for users in times of flood;
- result in no net loss of floodplain storage;
- not impede water flows; and
- not increase flood risk elsewhere.

Essential infrastructure in this zone should pass the Exception Test.

Flood risk assessment requirements

All development proposals in this zone should be accompanied by a flood risk assessment.

Policy aims

In this zone, developers and local authorities should seek opportunities to:

- reduce the overall level of flood risk in the area through the layout and form of the development and the appropriate application of sustainable drainage techniques; and
- relocate existing development to land with a lower probability of flooding.

Where required an exception test must be passed in order for developments of that nature to be justified within the Flood Zone. For the Exception Test to be passed the following must be demonstrated:

- a) it must be demonstrated that the development provides wider sustainability benefits to the community that outweigh flood risk, informed by a SFRA where one has been prepared.

- b) the development should be on developable, previously-developed land or, if it is not there are no reasonable alternative sites on developable previously-developed land; and
- c) a FRA must demonstrate that the development will be safe, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.

Table 2: Flood risk vulnerability classification from the Flood Risk and Coastal Change Planning Practice Guidance

<p>Essential infrastructure</p> <ul style="list-style-type: none"> • Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk. • Essential utility infrastructure which has to be located in a flood risk area for operational reasons, including electricity generating power stations and grid and primary substations; and water treatment works that need to remain operational in times of flood. • Wind turbines
<p>Highly vulnerable</p> <ul style="list-style-type: none"> • Police stations, ambulance stations and fire stations and command centres and telecommunications installations required to be operational during flooding. • Emergency dispersal points. • Basement dwellings. • Caravans, mobile homes and park homes intended for permanent residential use³. • Installations requiring hazardous substances consent. (Where there is a demonstrable need to locate such installations for bulk storage of materials with port or other similar facilities, or such installations with energy infrastructure or carbon capture and storage installations, that require coastal or water-side locations, or need to be located in other high flood risk areas, in these instances the facilities should be classified as “essential infrastructure”).
<p>More vulnerable</p> <ul style="list-style-type: none"> • Hospitals. • Residential institutions such as residential care homes, children’s homes, social services homes, prisons and hostels. • Buildings used for dwelling houses, student halls of residence, drinking establishments, nightclubs and hotels. • Non-residential uses for health services, nurseries and educational establishments. • Landfill and sites used for waste management facilities for hazardous waste. • Sites used for holiday or short-let caravans and camping, subject to a specific warning

and evacuation plan.

Less vulnerable

- Police, ambulance and fire stations which are not required to be operational during flooding.
- Buildings used for shops, financial, professional and other services,
- restaurants and cafes, hot food takeaways, offices, general industry, storage and distribution, non–residential institutions not included in “more vulnerable”, and assembly and leisure.
- Land and buildings used for agriculture and forestry.
- Waste treatment (except landfill and hazardous waste facilities).
- Minerals working and processing (except for sand and gravel working).
- Water treatment works which do not need to remain operational during times of flood.
- Sewage treatment works (if adequate measures to control pollution and manage sewage during flooding events are in place).

Water-compatible development

- Flood control infrastructure.
- Water transmission infrastructure and pumping stations.
- Sewage transmission infrastructure and pumping stations.
- Sand and gravel working.
- Docks, marinas and wharves.
- Navigation facilities.
- Ministry of Defence defence installations.
- Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location.
- Water-based recreation (**excluding sleeping accommodation**).
- Lifeguard and coastguard stations.
- Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms.
- Essential ancillary sleeping or residential accommodation for staff required by uses in this category, subject to a **specific warning and evacuation plan**.

Table 3: Flood risk vulnerability and flood zone ‘compatibility’

Flood risk vulnerability classification (see table 2)		Essential infrastructure	Water compatible	Highly vulnerable	More vulnerable	Less vulnerable
Flood zone (see table 1)	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	✓	Exception Test required	✓	✓
	Zone 3a	Exception Test required	✓	✗	Exception Test required	✓
	Zone 3b functional floodplain	Exception Test required	✓	✗	✗	✗

Extract from the Flood Risk and Coastal Change Planning Practice Guidance

Key:

- ✓ Development is appropriate.
- ✗ Development should not be permitted.

2.2 LOCAL PLAN

The Draft Liverpool Local Plan was published in September 2016 and includes the following policies on flood risk and drainage issues:

Policy R3 Flood Risk and Water Management

Flood risk will be reduced, water efficiency measures will be promoted, and water quality will be protected and enhanced through the following mechanisms:

1. All proposals for development must follow the sequential approach to determining the suitability of land for development, directing new development to areas at the lowest risk of flooding and where necessary apply the exception test, as outlined in national planning policy.
2. Developers will be required to demonstrate, where necessary, through an appropriate Flood Risk Assessment (FRA) at the planning application stage, that development proposals will not increase flood risk on site or elsewhere, and should seek to reduce the risk of flooding. New development will be required to include or contribute to flood mitigation, compensation and/or protection measures, where necessary, to manage flood risk associated with or caused by

the development. Unless appropriate alleviation or mitigation measures are carried out, planning permission will not be granted for development which would:

- a. Be at direct unacceptable risk from flooding from all sources including flooding due to, or exacerbated by, rising groundwater
 - b. Be likely to increase the risk of flooding
 - c. Cause loss of access to watercourses for future maintenance
 - d. Result in an adverse impact on the water environment due to additional surface water run-off, or
 - e. Have adverse effects upon the integrity of tidal and fluvial defences.
3. All works in, under, over or adjacent to water courses, waterbodies or the coast must be approved by the Environment Agency's Environmental Appraisal Procedure. Culverting and diversion will not be permitted except to enable reasonable access over a watercourse.
4. Development proposals should comply with the Water Framework Directive by contributing to the North West River Basin Management Plan and Mersey Estuary Management Plan objectives, by not adversely affecting water quality and should where possible seek to improve water quality unless it can be demonstrated that this would not be technically feasible.
5. The drainage of new development shall be designed to reduce surface water run-off rates to include the implementation of Sustainable Drainage Systems (SUDS) which should be the preferred method, unless it can be demonstrated that it is not technically feasible or viable. Proposals for major developments should assess the incorporation of a sustainable drainage scheme into the development at the earliest site-planning stage.
6. Proposals within areas of infrastructure capacity and/or water supply constraint should demonstrate that there is adequate wastewater infrastructure and water supply capacity to serve the development or adequate provision can be made available.

3 DEVELOPMENT SITE

3.1 Existing Site Conditions – General Background

The development is located to the east of Liverpool, north of Edge Hill. The approximate National Grid Reference for the site is SJ363903, and approximate Postcode is L7 3EN.

The site is bound to the west by the demolished buildings of Archbishop Blanch School with Smithdown Lane and Grove Street/A5048 comprising residential blocks associated with University of Liverpool to the far west. The land to the east comprises primarily residential properties with some small industrial units including a scrap yard to the south of the site. A railway cutting is located 125m to the south, and runs from Edge Hill station to Liverpool Lime Street.

The site covers an area of approximately 0.5ha. The site predominantly comprises hardstanding associated with the tennis court and yards of the former school.

3.2 Topography

Ground levels within the site are generally flat lying, with an upper terrace in the north and a lower level in the south. Highest levels within the site are 64m AOD in the north east corner and the lowest is 57.12m AOD in the south west. A small hill with steps intersects the site associated with the former school yard and tennis court being separated into two plateaus. A topographic survey undertaken by L&M Survey Services for the project is presented in Drawing 118180/9002, Appendix A.

3.2 Existing Watercourses

There are no existing open watercourses within the development site, the nearest is the River Mersey located approximately 2.5km to the west of the site. There are no other surface water features within the vicinity of the site.

3.3 Proposed Development

The proposed area is part of a wider scheme and the master plan for the site layout is outlined in Appendix B. The current proposals are for the construction of a 2 story cancer care centre to include; Proton Therapy Suite, MRI Station, patient areas, consultation rooms, administration areas and plant and maintenance infrastructure.

3.4 Historic Features

Historic mapping for the area has been examined from 1849 to 1970 in order to identify changes in land use on the site and throughout the catchment which may be relevant to flood risk.

In 1849 a road is shown through the centre of the site from east to west. There are also residential buildings onsite, to the north and south of the road. By 1890 the site is entirely covered in housing developments. On the 1927 historic maps the site is shown to still be

occupied by residential housing units although there are some commercial/industrial buildings shown onsite, such as a Drill Hall to the south, where the current day scrap yard is present. Other buildings include a Motoring Engineering Work, furniture factory and warehouses throughout the proposed development.

By 1965 the site was occupied by Paddington Comprehensive School and is shown to have the same building footprint as Archbishop Blanch School which was recently demolished in 2015/2016.

4 SOURCES OF FLOOD RISK INFORMATION

4.1 Environment Agency

The Environment Agency (EA) Flood Map shows the development site to be within Flood Zone 1 (Low Probability of flooding), as shown in Figure 2. This is outside of the area which is at risk from extreme fluvial or tidal flooding. The site is therefore not at risk from inundation in a 1 in 1000 year event or 0.1% Annual Exceedance Probability event (AEP) or events with a 1% AEP (1 in 100 year).

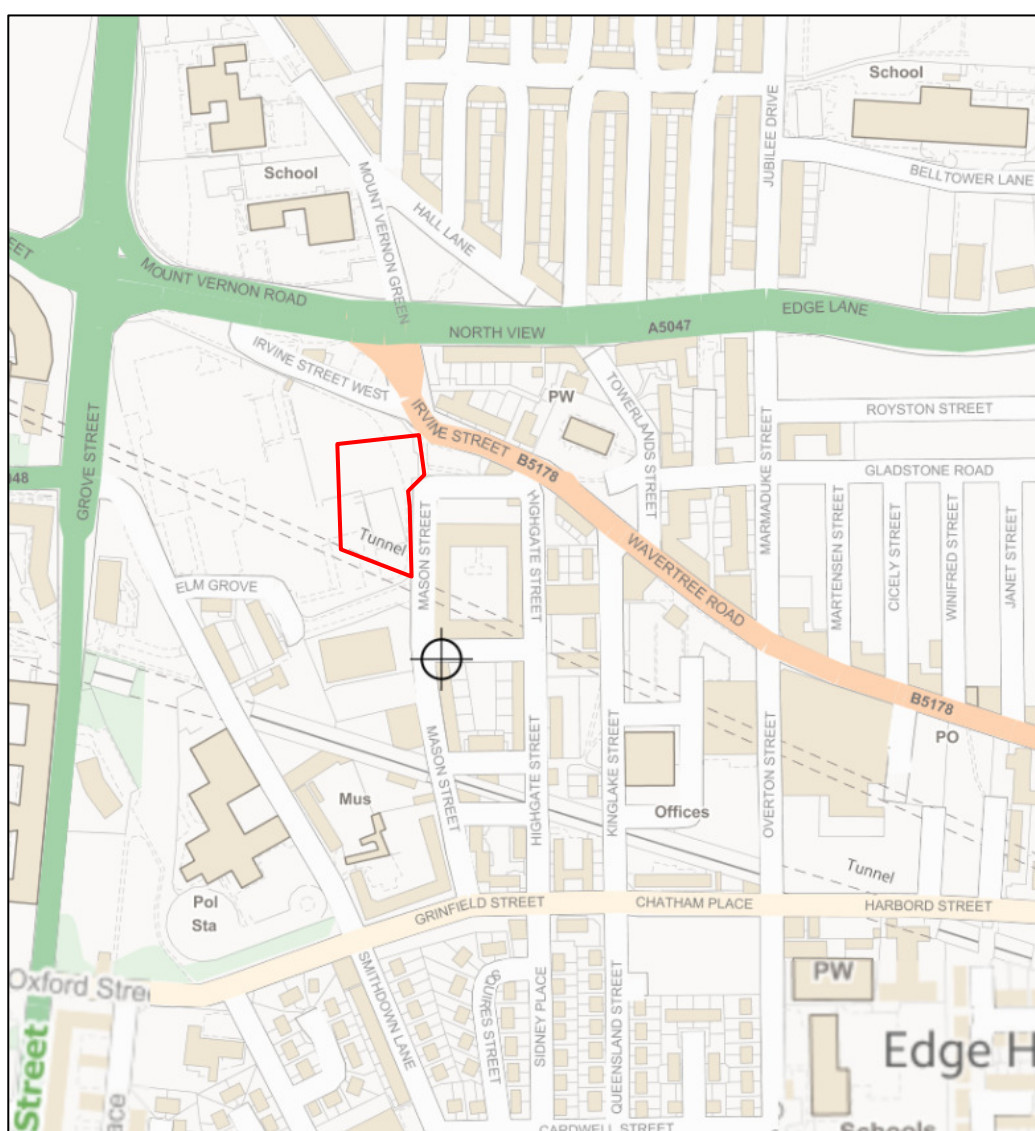


Figure 2 - Environment Agency Flood Map.

- = Flooding from river or sea without defences during a 1 in 100 year event.
- = Additional flooding during an extreme event (1 in 1000 year event)
- = Location of development

The online maps also show that there is a small risk from surface water flooding within the site boundary (see Figure 3). There is a small area of 'low risk' located to the west of the site. This area of 'low risk' extends from the western boundary towards the centre of the site. The EA Flood Maps indicate that this area of surface water flooding will have depths of below 300mm and velocities of above than 0.25m/s. The high velocity is likely to be due to the change in levels from higher ground to the west to lower ground towards the east as mentioned in Section 3.2. The surface water flooding that is shown within the site could be exaggerated by the Digital Elevation Model. The Digital Elevation Model will pick up low lying ground and indicate that it is at risk of flooding, it does not take into account the drainage from any other features such as roads and other developments. Any low lying ground will be engineered so that post development surface water flooding is not an issue within the site boundary.

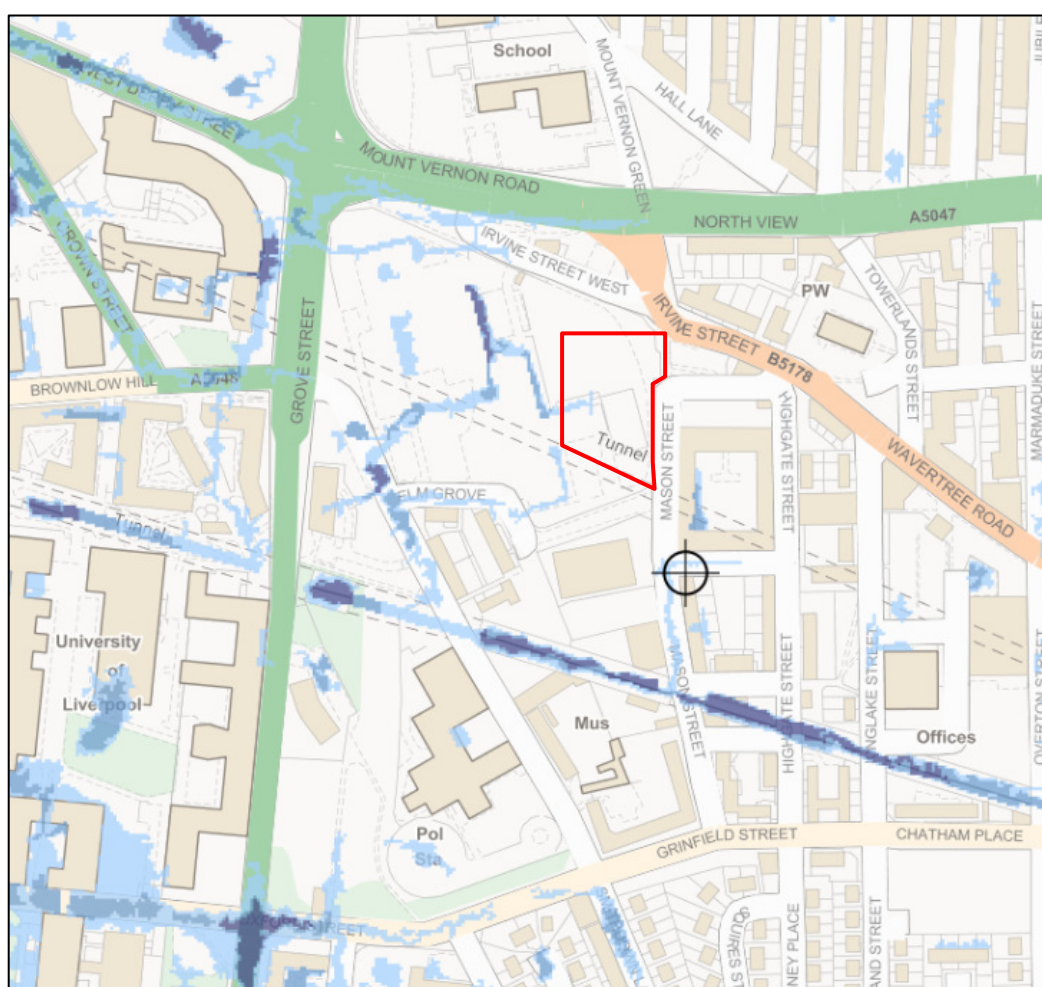


Figure 3 - Extract from EA surface water flood map.

Risk of Surface Water Flooding:

 High	 Low
 Medium	 Very Low

4.2 Strategic Flood Risk Assessment

The Liverpool City Council Strategic Flood Risk Assessment (SFRA) was published in January 2008. The SFRA has been examined and found not to include specific information relative to the development site. As the development is within Flood Zone 1 the SFRA does not state any specific requirements.

The SFRA states that, *'All development proposals in Liverpool should consider the following:*

- 1. The impact of the development on surface water run-off through surface water runoff assessment*
- 2. Incorporating Sustainable Drainage methods (SuDS), where possible*
- 3. A consideration of the impact of the development on the identified flood risk issues and a consideration of other potential flood risk – including all sources – tidal, river, streams, ditches, sewers, groundwater, overland surface water flow or any combination of these*
- 4. The application of the sequential and exception test of PPS25*
- 5. The potential risk from groundwater.'*

With regards to SuDS the SFRA states that, *'PPS25 states that "the surface water arrangements for any development site should be such that the volumes and peak flow rates of surface water leaving a developed site are no greater than the rates prior to the proposed development, unless specific off-site arrangements are made and result in the same net effect"*.

Climate change is commented on in Section 5.84 of the SFRA, stating the percentage increase that should be applied to new developments depending on the lifetime of the development (Table 4).

Table 4- SFRA Table B.2. Climate Change Allowances for new developments

Recommended national precautionary sensitivity ranges for peak rainfall intensities, peak river flows, offshore wind speeds and wave heights				
Parameter	1990 - 2025	2025 - 2055	2055 - 2085	2085 - 2115
Peak rainfall intensity	+5%	+10%	+20%	+30%
Peak river flow	+10%	+20%		
Offshore wind speed	+5%		+10%	
Extreme wave height	+5%		+10%	

4.3 Water Company

United Utilities, the sewerage operator in the region, is required by OFWAT to maintain a register of flooding incidents due to hydraulic capacity problems on the sewerage network. The DG5 register is a record of locations where customers have reported flooding from the sewerage network due to hydraulic capacity problems. Properties are placed on the register following investigations to determine the cause and risk of flooding. Properties are then placed on the appropriate register depending on the risk - not the number of occurrences of flooding.

United Utilities have been contacted and confirm that they are aware of sewer flooding incidents in the vicinity of the site. If required, mitigation measures will be implemented as part of the development design to reduce the potential risk from sewer flooding. Such measures may include engineering overland flow routes through the site so that post development flooding from sewers is not an issue within the site boundary, this will be resolved at the detail design stage. A copy of their response can be found in Appendix C.

4.4 Local Authority

The Local Council for Edge Hill is Liverpool City Council (LCC). The SuDS Officer for LCC has been contacted and confirmed that there have been no records of historic flooding events within the site boundary. A copy of their response will be forwarded upon receipt.

5 POTENTIAL SOURCES OF FLOOD RISK

5.1 Fluvial

Extreme fluvial flood events have the potential to cause rapid inundation of properties whilst posing a threat to the welfare of occupants and potentially preventing emergency access to properties and essential infrastructure.

There are no open watercourses within the development site and the EA Flood Maps show the site not to be at risk of inundation from a watercourse, putting the site in Flood Zone 1. The River Mersey is approximately 60m lower in ground elevation and it is anticipated that the watercourse will not impact the proposed site if the River Mersey were to overtop. Consequently, the site is not considered to be at risk of fluvial flooding.

5.2 Infrastructure Failure

The failure of conveyance infrastructure such as culverts or bridges could increase the risk of flooding at the site. There are no bridges or culverts within the vicinity of the site which could pose a risk to the development.

5.3 Overland Flow

The land to the south and west of the site falls away from the site boundary. Therefore overland flows are not expected to impact the site from these areas. From the north and east of the site the land falls towards the site boundary. However it is anticipated that Irvine Street West located to the north and Mason Street located to the east will intercept any overland flows and discharge them into the highway drainage before flows could impact the site.

Mitigation measures will be implemented as part of the development design to reduce the potential risk from overland flows. Any residual risk from overland flows can be mitigated by setting development finished floor and external ground levels to route water around and away from the properties. This will be undertaken such that any potential flood risk to existing properties will not be exacerbated post development.

5.4 Sewer Flooding

The United Utilities (UU) Sewer Plan (Appendix E) does not show adopted sewers within the site boundary. The nearest adopted sewers are located to the east of the site within Mason Street and to the south within the former school grounds, leading to Elm Grove.

6 SURFACE WATER DRAINAGE

The site is part of a wider scheme and a separate detailed drainage layout is being undertaken in addition to a wider Flood Risk Assessment. With regards to the proposed site, the surface water discharge rate is unrestricted from plot 6 on the Master Plan (Appendix B), into the wider drainage network.

The wider drainage network will take into account any standards that have been set from the local authority such as the reduction in surface water discharge for new developments. Therefore surface water from the proposed site will be freely discharged into the wider scheme.

6.1 Proposed Surface Water Drainage

The wider scheme's Flood Risk Assessment will detail the proposed surface water drainage design.

With regards to surface water attenuation, the drainage design for the wider system allows for attenuation for the entire scheme. This is understood to be in the form of oversized pipes and attenuation tanks. The attenuation layout will be detailed in the Flood Risk Assessment for the wider scheme.

7 FOUL WATER DRAINAGE

Foul flows from the proposed development have been considered as part of the wider scheme. Preliminary discussions have been had with United Utilities and the basic principle has been agreed and will be outlined in the wider Flood Risk Assessment.

8 DEVELOPMENT POTENTIAL

The proposed development is within Flood Zone 1 (Low Probability). No detailed Sequential Test is therefore required to identify sites of lower risk. This is in line with the information set out in the Flood Risk and Coastal Change Planning Practice Guidance.

The proposed development can be classified as “More Vulnerable” according to Table 2 of the Flood Risk and Coastal Change Planning Practice Guidance. From Table 3 in the Practice Guidance, the proposed development is suitable for this site, therefore the Sequential Test is considered to be satisfied and no Exception Test is required.

9 CONCLUSIONS

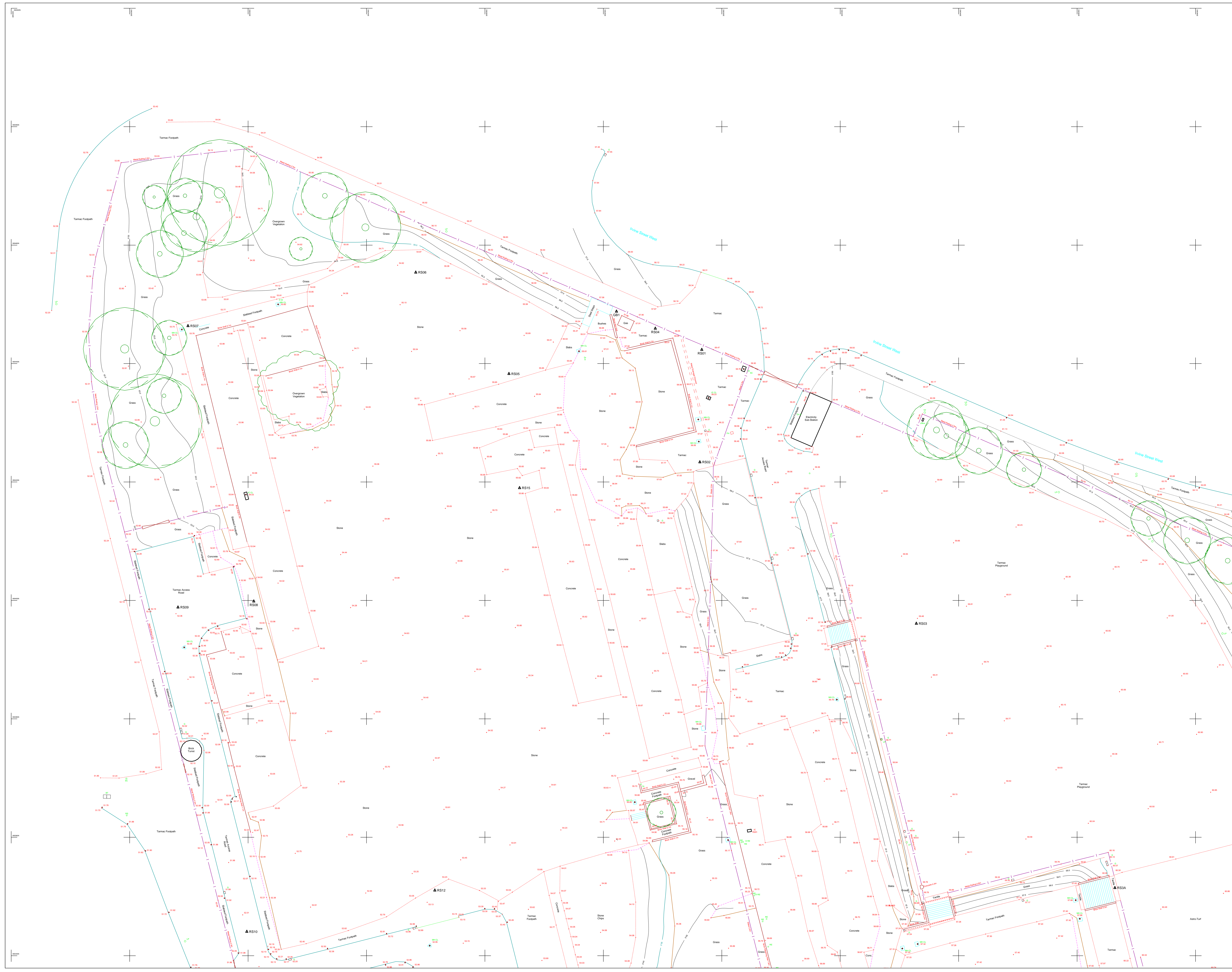
This Flood Risk Assessment and Drainage Strategy for the proposed development at Edge Hill, Liverpool, has been prepared in accordance with the NPPF and the Flood Risk and Coastal Change Planning Practice Guidance. The development site is not within the Environment Agency's indicative flood envelopes and is therefore classified as being within Flood Zone 1. Based on the compatibility of developments within each Flood Zone, set out within the Planning Practice Guidance, the site is suitable for all types of developments.

The proposed site is part of a wider development scheme. The proposed scheme is 'plot 6' on the overall master plan. A Flood Risk Assessment for the wider scheme will be produced and is anticipated to take into account the overall discharge rates from the entire site and provide attenuation for the entire. Therefore the discharge rate from plot 6 – the proposed site, is unrestricted into the wider network serving the entire site.

Attenuation is understood to be a mixture of oversized pipes and attenuation tanks to store the required volume for a 1 in 100year event plus an allowance for Climate Change. All aspects of the design are outlined in the wider scheme Flood Risk Assessment.

Appendix A

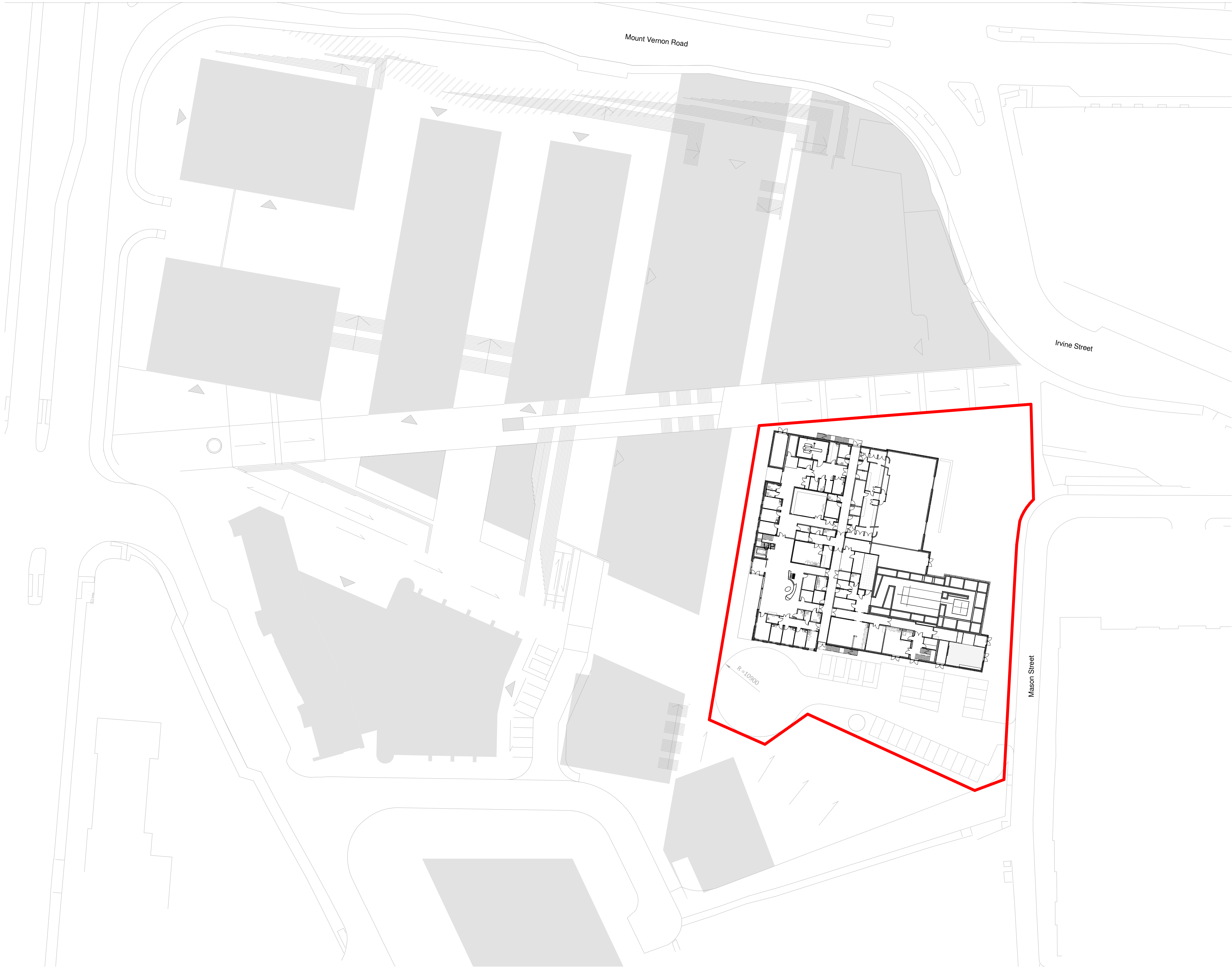
Topographical Survey

[illegible]

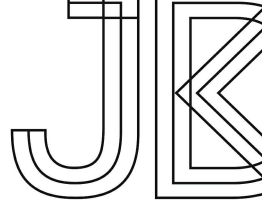
[illegible]

Appendix B

Proposed Master Plan



- NOTES:
1. DO NOT SCALE from the drawing
 2. Further dimensions required to be requested from the project technical team
 3. Report discrepancies to JDDK project team immediately.
 4. This model file contains the following consultants model files:-

REV	ISSUED BY	DATE	DESCRIPTION
REVISION LOG			
		<div>JDDK Architects</div> <div>Millmount Ponteland Road Newcastle upon Tyne NE5 3AL</div> <div>t. 0191 286 0811 f. 0191 286 3870 e. millmount@jddk.co.uk jddk.co.uk</div>	
CLIENT			
PPI			
PROJECT TITLE			
PPI Liverpool Cancer Centre			
TITLE			
Proposed Site Plan			
MAIN CONTRACTOR			
QUANTITY SURVEYOR		M&E CONSULTANT Desco	
STRUCTURAL CONSULTANT Fairhurst		OTHER CONSULTANT	
DRAWING No. 3746-JDDK-A-11102		REV	
JDDK INTERNAL REF: 3746		JDDK REF NO:	111.02
SCALE: 1 : 500 @ A1		ISSUE DATE:	03/30/17
DRAWN BY: OM		CHECKED BY:	KT
STATUS:	PURPOSE OF ISSUE:		

Appendix C

United Utilities – Sewer Flooding Records

To be forwarded upon receipt

Jenny Cook

From: King, Susan <susan.king@uuplc.co.uk>
Sent: 13 April 2017 11:07
To: Jenny Cook
Subject: FW: 118180 - Edge Hill. Liverpool. Historic Flooding

Dear Sir/Madam

I can confirm that there are recorded historical sewer flooding issues within the vicinity of the proposed development site, however we have a record of flooding incidents in the surrounding area.

Please note that United Utilities Water plc (UUW) can only record and check flooding events which are reported to us and we have to comply with our Regulators instructions on the qualification of flooding events to place on the 'at risk' register.

Also, this does not include any sewer flooding events caused by blockages or collapses which are the result of third party actions, natural events or other actions over which UUW has no control and not a facet of sewer capacity.

Should you require any further information please do not hesitate to contact me.

Thanks sue



If you have received a great service today why not tell us?

Visit: unitedutilities.com/wow

Sue King

Developer Services Assistant
Developer Services and Planning
Operations Services
United Utilities
T: 01925 679413 (internal 79413)
unitedutilities.com

Please note that as from the 1 April 2017 the fee for the administration of a Building Over Agreement will be £273.00 (this fee is none vatable) <http://www.unitedutilities.com/build-over-sewer.aspx>).

Please send postal applications to the following address:

**Wastewater Developer Services and Planning, 1st Floor Windermere House, Lingley Mere Business Park,
Lingley Green Ave, Great Sankey, Warrington WA5 3LP**

Any applications sent to Gatewarth Industrial Estate will result in delays in your application.

From: Jenny Cook [<mailto:jenny.cook@fairhurst.co.uk>]

Sent: 04 April 2017 09:55

To: Planning Liaison <Planning.Liaison@uuplc.co.uk>

Subject: 118180 - Edge Hill. Liverpool. Historic Flooding

Dear Sir/ Madam,

I write with regards to a proposed development at land on the former Archbishop Blanch School, Edge Hill, Liverpool. We are currently writing a Flood Risk and Drainage Strategy for the site and would like to know if United Utilities are aware of any flooding issues within the site boundary.

The site details are as follows:

Former Archbishop Blanch School
West of Mason Street
South of Irvine Street West
Edge Hill
Liverpool
L7 3EN

OS X:336383 Y:390372

LR: SJ363903

The location of the site is also indicated by the red outline on the attached plan.

Regards

Jenny

Jenny Cook
Graduate Engineer

FAIRHURST

engineering solutions, delivering results

1 Arngrove Court,
Barrack Road,
Newcastle upon Tyne, NE4 6DB
Tel: 0191 221 0505
Email: jenny.cook@fairhurst.co.uk Website: www.fairhurst.co.uk

RICS NE Award Winners 2014 – Commercial
LABC NE Awards Winners 2014 - Commercial
CECA NE Project of the Decade Award Winners 2013
RTPI NE Award Winners 2013 - Urban Design

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Appendix D

Liverpool City Council – Historic Flooding

To be forwarded upon receipt

Appendix E

United Utilities – Sewer Plans

Fairhurst & Partners

**1 Arngrove Court
Barrack Road
Newcastle
NE4 6DB**

FAO: John Cartin

Dear Sirs

Location: 118180 PPI LIVERPOOL

I acknowledge with thanks your request dated 03/04/17 for information on the location of our services.

Please find enclosed plans showing the approximate position of our apparatus known to be in the vicinity of this site.

The enclosed plans are being provided to you subject to the United Utilities terms and conditions for both the wastewater and water distribution plans which are shown attached.

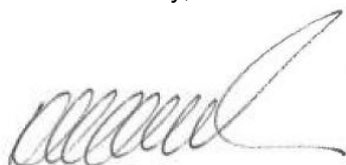
If you are planning works anywhere in the North West, please read our access statement before you start work to check how it will affect our network.

<http://www.unitedutilities.com/work-near-asset.aspx>.

I trust the above meets with your requirements and look forward to hearing from you should you need anything further.

If you have any queries regarding this matter please telephone us on 0370 7510101.

Yours Faithfully,



Karen McCormack
Property Searches Manager

United Utilities Water Limited

Property Searches
Ground Floor Grasmere House
Lingley Mere Business Park
Great Sankey
Warrington
WA5 3LP
DX 715568 Warrington
Telephone 0370 751 0101

Property.searches@uuplc.co.uk

Your Ref: 118180 PPI LIVERPOOL
Our Ref: 1282093
Date: 5/4/2017

TERMS AND CONDITIONS - WASTERWATER & WATER DISTRIBUTION PLANS

These provisions apply to the public sewerage, water distribution and telemetry systems (including sewers which are the subject of an agreement under Section 104 of the Water Industry Act 1991 and mains installed in accordance with the agreement for the self-construction of water mains) (UUWL apparatus) of United Utilities Water Limited "(UUWL)".

TERMS AND CONDITIONS:

1. This Map and any information supplied with it is issued subject to the provisions contained below, to the exclusion of all others and no party relies upon any representation, warranty, collateral contract or other assurance of any person (whether party to this agreement or not) that is not set out in this agreement or the documents referred to in it.
2. This Map and any information supplied with it is provided for general guidance only and no representation, undertaking or warranty as to its accuracy, completeness or being up to date is given or implied.
3. In particular, the position and depth of any UUWL apparatus shown on the Map are approximate only and given in accordance with the best information available. The nature of the relevant system and/or its actual position may be different from that shown on the plan and UUWL is not liable for any damage caused by incorrect information provided save as stated in section 199 of the Water Industry Act 1991. UUWL strongly recommends that a comprehensive survey is undertaken in addition to reviewing this Map to determine and ensure the precise location of any UUWL apparatus. The exact location, positions and depths should be obtained by excavation trial holes.
4. The location and position of private drains, private sewers and service pipes to properties are not normally shown on this Map but their presence must be anticipated and accounted for and you are strongly advised to carry out your own further enquiries and investigations in order to locate the same.
5. The position and depth of UUWL apparatus is subject to change and therefore this Map is issued subject to any removal or change in location of the same. The onus is entirely upon you to confirm whether any changes to the Map have been made subsequent to issue and prior to any works being carried out.
6. This Map and any information shown on it or provided with it must not be relied upon in the event of any development, construction or other works (including but not limited to any excavations) in the vicinity of UUWL apparatus or for the purpose of determining the suitability of a point of connection to the sewerage or other distribution systems.
7. No person or legal entity, including any company shall be relieved from any liability howsoever and whensoever arising for any damage caused to UUWL apparatus by reason of the actual position and/or depths of UUWL apparatus being different from those shown on the Map and any information supplied with it.
8. If any provision contained herein is or becomes legally invalid or unenforceable, it will be taken to be severed from the remaining provisions which shall be unaffected and continue in full force and affect.
9. This agreement shall be governed by English law and all parties submit to the exclusive jurisdiction of the English courts, save that nothing will prevent UUWL from bringing proceedings in any other competent jurisdiction, whether concurrently or otherwise.

Extract from Map of Public Sewers

The position of the 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 will not accept liability for any loss or damage caused by the actual position being different from those shown. Crown copyright and database rights [2016] Ordnance Survey 100022432.

United Utilities Water Limited 2014
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118180 PPI LIVERPOOL

Printed By: Property Searches Date: 05/04/2017

DO NOT SCALE
Approximate Scale: 1:2500



Wastewater Symbolology

Combined Foul Surface Overflow

				Manhole
				Manhole, side entry
				Public sewer
				Private sewer
				S104 sewer
				Rising main, public
				Rising main, private
				Rising main, S104
				Highway drain, private
				Screen chamber
				Discharge point
				Outfall
				Control kiosk
				Sludge main

Abandoned pipe

	Public sewer
	Rising main
	Private sewer
	Sludge main

Manhole function

FO	Foul
SW	Surface Water
CO	Combined
OV	Overflow

Sewer shape

CI	Circular	SQ	Square
EG	Egg	TR	Trapezoidal
OV	Oval	AR	Arch
FT	Flat top	BA	Barrel
RE	Rectangular	HO	Horse shoe

Sewer material

AC	Asbestos cement	DI	Ductile iron
BR	Brick	VC	Vitrified clay
CO	Concrete	PP	Polypropylene
CSB	Concrete segment	PF	Pitched fibre
CSU	Concrete segment	MA	Masonry, coursed
CC	Concrete box culverted	MA	Masonry, random
PSC	Plastic	RP	Reinforced plastic
GR	Glass reinforced	CI	Cast iron
GRP	Glass reinforced	SI	Spun iron
PVC	Polyvinyl chloride	ST	Steel
PE	Polyethelene	U	Unspecified

			WW pumping :
			Inspection cha
			Extent of surve
			Head of syste
			Soakaway
			Rodding eye
			Lamp hole
			T junction/sadc
			Gully
			Air valve
			Non return valv
			Sewer overflow
			Cascade
			Flow meter
			Hatch box
			Hydrobrake
			Inlet
			Bifurcation
			Catchpit
			Oil interceptor
			Penstock
			Summit
			Valve
			Valve chamber
			Washout cham
			Drop shaft
			WW treatment
			Septic tank
			Vent column
			Network storag
			Orifice plate
			Vortex chambe
			Penstock chan

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