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**Withington Community Hospital
CDC Scheme**

CCS Project No: HE-014

for

**Manchester University NHS
Foundation Trust & BAM**



Manchester University
NHS Foundation Trust



Flood Risk Assessment

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Table of Contents

1	Introduction	1
2	Planning Policies and Guidance	2
2.1	National Planning Policy Framework (NPPF) and National Planning Practice Guidance (NPPG)	2
2.2	Flood and Water Management Act.....	2
2.3	Manchester Local Development Framework – Core Strategy Development Plan	2
3	Site Setting and Description	4
3.1	Site Location	4
3.2	Existing Site and Topography.....	4
3.3	Proposed Development	4
3.4	Ground Conditions.....	4
3.5	Waterbody / Rivers / Canals.....	5
3.6	On-Site Drainage and Public Sewers	5
4	Sources of Flooding	6
4.1	Fluvial Flooding.....	6
4.2	Coastal Flooding.....	6
4.3	Pluvial Flooding	6
4.4	Groundwater Flooding	6
4.5	Flooding from Drains and Sewers	6
4.6	Canals, Reservoirs and Other Artificial Sources	6
5	Sourced Data	7
5.1	Environment Agency Flood Maps for Planning	7
5.2	Landmark Envirocheck Data Maps.....	8

5.3	Manchester City, Salford City and Trafford Councils Level 2 SFRA	9
6	Probability of Flooding	10
6.1	Fluvial Flooding - Probability: Low	10
6.2	Pluvial Flooding - Probability: Low	10
6.3	Ground Water Flooding - Probability: Low	11
6.4	Flooding from Drains and Sewers - Probability: Low	11
6.5	Canals, Reservoirs and Other Artificial Sources - Probability: Low	11
7	Flood Risks and Vulnerability	12
7.1	Flood Zones	12
7.2	Flood Risk Vulnerability Classification	13
8	Flood Flows and Safe Access / Egress	15
8.1	Flood Flows and Displacement	15
8.2	Safe Access and Egress	15
9	Surface Water Management	16
9.1	Surface Water Management Principles	16
9.2	Surface Water Management Strategy	18
10	Residual Risk	20
11	Flood Risk Assessment Conclusion / Summary	21
Appendix A	- Topographical Survey Plan	22
Appendix B	- Proposed Site Plan	23
Appendix C	- Ground Investigation Data	24
Appendix D	- OS Water Network Map	25
Appendix E	- United Utilities Asset Plan	26
Appendix F	- Landmark Envirocheck Flood Map Data	27

Table of Figures

Figure 1 - EA Fluvial Flood Zone Map.....	7
Figure 2 - EA Fluvial Flood Probability Map.....	7
Figure 3 - EA Pluvial Flood Probability Map.....	8
Figure 4 - EA Extents of Flooding from Reservoirs Map	8

Table of Tables

Table 1 - Flood Zone Definitions	12
Table 2 - Flood Zone Vulnerability Classification	13

1 Introduction

This flood risk assessment has been prepared by CCS Consulting in support of a full planning application for a new Endoscopy & Cardiorespiratory Development building at Withington Community Hospital, Manchester, M20 2LR (hereafter referred to as the 'Site').

This flood risk assessment has been prepared in accordance with the latest National and local planning policies, regulations, and relevant design guidance, which include:

National Planning Policy Framework (NPPF), December 2023, Paragraphs 159-169.

National Planning Practice Guidance (NPPG) ('Flood Risk and Coastal Change' section), released in March 2014 and updated in August 2022.

Environment Agency and Department for Environment, Food and Rural Affairs guidance.

Environment Agency and JBA Consulting via Landmark Envirocheck data Service.

And local policies including:

Manchester City, Salford City and Trafford Councils Level 1 SFRA (May 2010).

Manchester City, Salford City and Trafford Councils Level 2 SFRA (March 2011).

Manchester City Council – Local Flood Risk Management Strategy (March 2014).

Manchester Local Development Framework – Core Strategy Development Plan (July 2012).

The Environment Agency and Manchester City Council need to be satisfied that the granting of planning permission will address the risk of flooding to the Site, and that the proposals will not in turn increase the risk of flooding to neighbouring land and property.

This flood risk assessment has therefore been prepared to identify and evaluate the various possible sources of flood risk to which the Site might be subjected to; to identify any mitigation, protection or compensation measures deemed necessary or feasible; and to manage the surface water so it is sustainable, and does not increase the probability of flooding within, or near the Site.

2 Planning Policies and Guidance

2.1 National Planning Policy Framework (NPPF) and National Planning Practice Guidance (NPPG)

The NPPF (December 2023) sets out the Government's planning policies for England and how these should be applied. It provides a framework within which locally prepared plans for housing and other development can be produced. This document is used to form this surface water management report, with particular attention to Paragraphs 159 to 169.

NPPF Paragraphs 159 to 169 provide guidance for planning and flood risk, where are plans should apply a sequential, risk-based approach to the location of development taking into account current and future impacts of climate change; to ensure that flood risk is not increased elsewhere due to the development; and to incorporate sustainable drainage systems.

2.2 Flood and Water Management Act

The Flood and Water Management Act takes forward some of the proposals from three previous strategy documents published by the UK Government - Future Water (2008), Making Space for Water (2008) and the UK Government's response to the Sir Michael Pitt's Review of the summer 2007 floods. In doing so it gives the EA a strategic overview role for flood risk and gives local authorities responsibility for preparing and putting in place strategies for managing flood risk from groundwater, surface water and ordinary watercourses in their areas.

2.3 Manchester Local Development Framework – Core Strategy Development Plan

Relevant Policy EN 08 state:

'All new development will be expected to be adaptable to climate change in terms of the design, layout, siting, and function of both buildings and associated external spaces. In achieving developments which are adaptable to climate change'

Relevant Policy EN 14 state:

'In line with the risk-based sequential approach contained within PPS25, development should be directed away from sites at the greatest risk of flooding, and towards sites with little or no risk of flooding; this should take account of all sources of flooding identified in the Manchester-Salford-Trafford Strategic Flood Risk Assessment (SFRA).

In addition to the requirements for site-specific Flood Risk Assessments (FRAs) set out in PPS25, an appropriate FRA will also be required for all development proposals, including changes of use, on sites greater than 0.5ha within Critical Drainage Areas (CDAs) and Canal Hazard Zones identified in the SFRA.

The City of Manchester contains many sections of rivers which are culverted or 'hidden'; where these are indicated in the SFRA beneath the proposed development site, further investigation will be required and the development proposal should take this into account; where feasible and appropriate development should seek to open up culverted/hidden rivers to reduce the associated flood risk and danger of collapse, taking advantage of opportunities to enhance biodiversity and Green Infrastructure'.

3 Site Setting and Description

3.1 Site Location

The Site is part of Withington Community Hospital and is in residential area of West Didsbury, which is approximately 1.5km south-west of Mauldeth Road station, approximately 1km west of Brennage station, and is bound by existing hospital car parking and building leading to Nell Lane the north, Burton Road to the east, Fielden Road to the south, and hospital buildings leading onto Elizabeth Slinger Road to the west.

The address of the site is Withington Community Hospital, Manchester, M20 2LR, with co-ordinates for the centre of the site being, Easting: 383735, Northing: 392005.

3.2 Existing Site and Topography

As detailed on the topographical survey in Appendix A, the Site is currently undeveloped and consists of trees, shrubs, and grassed areas, and therefore is deemed to be greenfield. The site has a general fall from the centre towards the Site boundary, where the levels range from approximately 34.24m AOD to approximately 32.49m AOD.

3.3 Proposed Development

The proposal is shown on the development plans in Appendix B, with a full description of the Site being stated by the Architect. In brief, and in relation to this surface water management report, the proposed development is to build a new hospital building to the centre of the Site, with an access road to the south and west, car parking to the centre / west, and soft-landscaping areas around the site boundary and adjacent to the car park.

3.4 Ground Conditions

The ground conditions can be determined by the British Geological Survey (BGS) website, where it shows the Site to have superficial deposits of Glaciofluvial deposits (sands and gravels) over bedrock consisting of Wilmslow Sandstone Formation (sandstone).

The BGS website also shows borehole log data adjacent to the Site in Burton Road (see Appendix C), which shows made ground to a depth of 2.20m, over coarse sand to a depth of 3.90m, over clay. The borehole also indicates ground water level rising in the coarse sand layers up to 3.00m bgl.

3.5 Waterbody / Rivers / Canals

There are no known waterbodies, rivers, or canals near to the Site. As detailed on the OS Water Lines Network Map in Appendix D, the nearest waterbodies are the river Mersey approximately 250m to the south, and Platt Brook approximately 2.5 km to the north.

3.6 On-Site Drainage and Public Sewers

As detailed on the United Utilities asset plan in Appendix D, there is an 825 x 1200mm surface water sewer in Burton Road (west of site), a 525mm diameter combined water sewer in Burton Road (west of site), and a 300mm diameter combined water sewer in Fielden Road (south of site).

As the Site is undeveloped it is believed that there are no drainage networks within the development / site boundary. The topographical survey however identifies existing foul and surface water networks serving the existing hospital building to the north. In particular, and relevant to this report, the topographical survey shows a 225mm diameter surface water network which is believed to discharge to the surface water sewer in Burton Road.

4 Sources of Flooding

In accordance with the NPPF, flood risk must be assessed for all sources of flooding and development of the Site should be carried out in such a way as to mitigate any potential flood risk to both the Site and third parties and their property. This section identifies all possible sources of flooding.

4.1 Fluvial Flooding

Fluvial flooding results from watercourses / rivers surcharging and flooding the surrounding areas.

4.2 Coastal Flooding

Coastal flooding results from high tides from the sea.

4.3 Pluvial Flooding

'Pluvial' flooding is that which results from rainfall generated overland flow before the run-off enters any watercourse, drain or sewer. It is more often linked to high intensity rainfall events (typically in excess of 30mm per hour). However, it can also result from lower intensity rainfall or melting snow where the ground is saturated, frozen, developed or has low permeability. This results in overland flow and ponding in depressions in the topography. In urban areas 'pluvial' flows are likely to follow the routes of highways and other surface connectivity to low spots where flooding can occur. In some cases, it can deviate from this route into adjacent developments via dropped kerbs (either for access to driveways or disability access).

4.4 Groundwater Flooding

Groundwater flooding is caused by the emergence of water from sub-surface permeable strata. Fluctuations in the groundwater table can cause flooding should the table rise above the existing ground level. Groundwater flooding events tend to have long durations, lasting days, or weeks.

4.5 Flooding from Drains and Sewers

Flooding from drains and sewers is caused when the capacity of the drains and sewers is exceeded and will result in flooding from the manholes.

4.6 Canals, Reservoirs and Other Artificial Sources

Flooding from canals, reservoirs and artificial sources is caused when the capacity of the sources is exceeded, or if there is, an infrastructure failure.

5 Sourced Data

Data from the Environment Agency; local strategic flood risk assessments; and information from other parties are to be studies to establish which sources of flooding are at the Site.

5.1 Environment Agency Flood Maps for Planning

The EA fluvial flood zone map shown in Figure 1, indicates that the Site is in Flood Zone 1 (land having a less than 1 in 1,000 annual probability of river flooding).

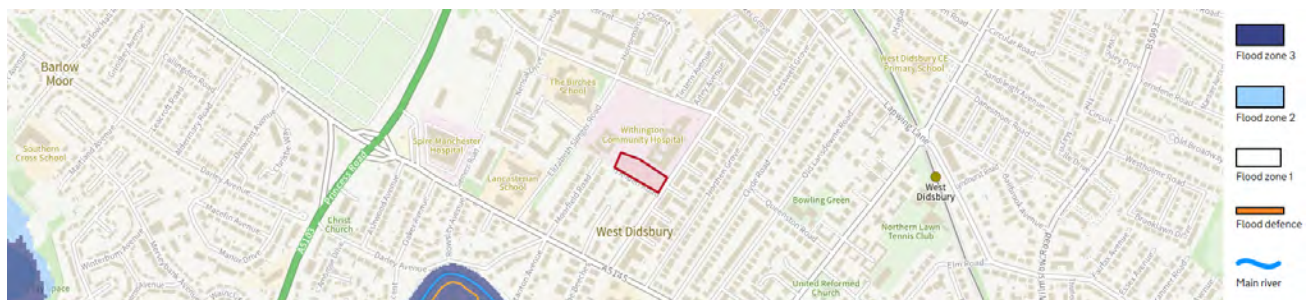


Figure 1 - EA Fluvial Flood Zone Map

The EA fluvial flood probability map shown in Figure 2, indicates the Site has a better than very low probability of fluvial flooding.



Figure 2 - EA Fluvial Flood Probability Map

The EA pluvial flood probability map shown in Figure 3, indicates the Site has a very low probability of pluvial flooding. There is an isolated low probability pluvial flood area to the north of the site, but this is outside the Site boundary, and is caused by ponding due to a depression in the ground.

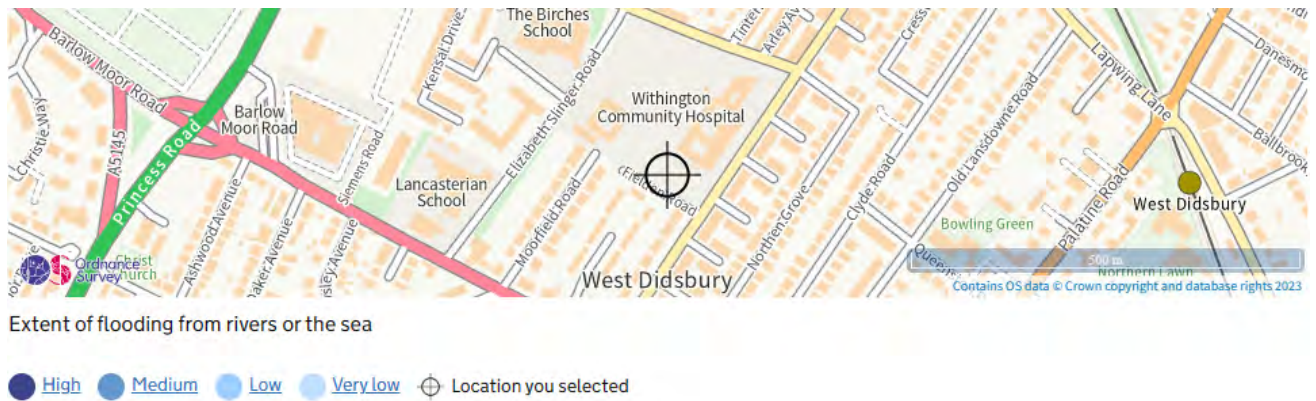


Figure 3 - EA Pluvial Flood Probability Map

The Extents of Flooding from Reservoirs Map in Figure 4 indicates that the Site is not in a flooding area when river levels are normal, or when there is also flooding from rivers.

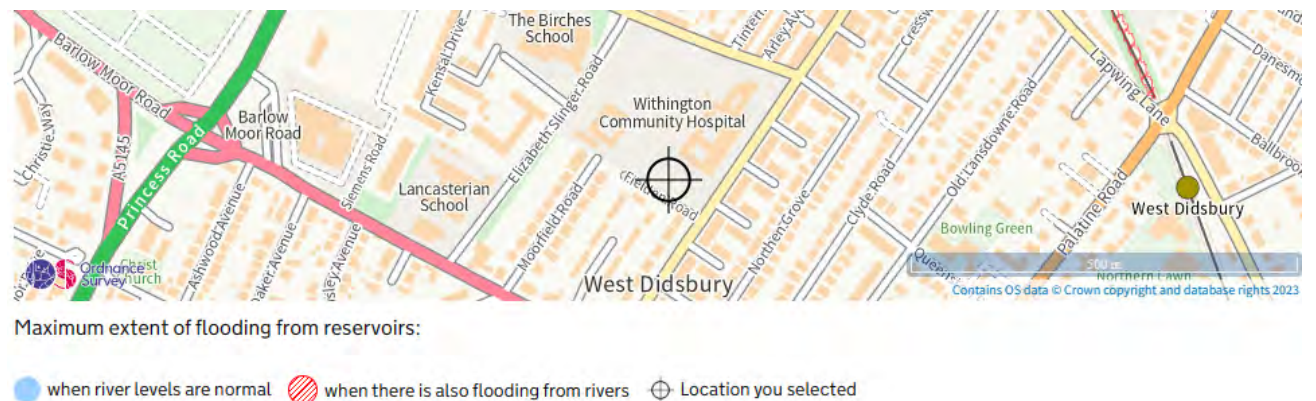


Figure 4 - EA Extents of Flooding from Reservoirs Map

5.2 Landmark Envirocheck Data Maps

Refer to Appendix F for Landmark Envirocheck flood map data. The data shown on the maps have been sourced from studies by JBA Consulting, the EA and NRW. The summary of each of the maps are as follows:

Flood Zone Map

The EA/NRW flood data map, also indicates that all the Site lies within Flood Zone 1 – low probability.

Pluvial, Fluvial and Coastal Flooding

The Envirocheck (JBA) 75-year to 1000-year return period flood map indicates that there is no pluvial, fluvial, or coastal flooding within the Site boundary.

Surface Water / Pluvial Flooding

The EA 30-year to 1000-year return period flood map indicates that there is no surface water / pluvial flooding in the Site boundary.

Ground Water

The BGS flood data map indicates that there is limited potential for groundwater flooding to occur at the Site, and the ESI groundwater flood map indicates that there is a negligible risk of ground water flooding at the Site.

Canal Failure

The Envirocheck (JBA) canal failure map indicates that the Site is in a canal flood coverage but will not be in an area of flooding if the event of a canal failure.

Historic Flood Map

The Envirocheck historic flood map indicates that there has been no history of flooding from any source at the Site.

5.3 Manchester City, Salford City and Trafford Councils Level 2 SFRA

Manchester City, Salford City and Trafford Councils Level 2 SFRA has identified the site to be in a Critical Drainage Area.

6 Probability of Flooding

Now that the extents of the sources of flooding are known from the above data, an assessment is to be made of the probability of flooding from each of the sources.

6.1 Fluvial Flooding - Probability: Low

The flood data maps indicate that the overall Site is in Flood Zone 1 (land having a less than 1 in 1,000 annual probability of river flooding).

The EA fluvial flood probability map shown in Figure 2, indicates the Site has a better than very low probability of fluvial flooding.

The JBA maps indicate that there is no fluvial or coastal flooding within Site area up to the 1000-year return period.

Therefore, as the flood maps indicate the Site to be in Flood Zone 1 and indicate no flooding up to the 1000-year return period, the probability of fluvial / coastal flooding is deemed to be low.

6.2 Pluvial Flooding - Probability: Low

The EA pluvial flood probability map shown in Figure 3, indicates the Site has a very low probability of pluvial flooding. There is an isolated low probability pluvial flood area to the north of the site, but this outside the Site boundary, and is caused by ponding due to a depression in the ground.

The Envirocheck (JBA) 75-year to 1000-year return period flood map indicates that there is no pluvial flooding within the Site boundary.

The EA 30-year to 1000-year return period flood map indicates that there is no surface water / pluvial flooding in the Site boundary.

Manchester City, Salford City and Trafford Councils Level 2 SFRA has identified the site to be in a Critical Drainage Area.

Therefore, based on the EA and JBA flood map data, there is a low probability of flooding, with the SFRA indicating the Site to be in a critical drainage area.

The probability of pluvial flooding at the Site will still be low, but with onus being on the management of the Site surface water run-off to ensure the risk of flooding to areas within the Site and near to the Site are reduced.

6.3 Ground Water Flooding - Probability: Low

The BGS flood data map indicates that there is limited potential for groundwater flooding to occur,

The ESI groundwater flood map indicates that there is a negligible risk of ground water flooding at the Site.

Therefore, based on the flood map data, the probability of groundwater flooding at the Site is deemed to be low.

6.4 Flooding from Drains and Sewers - Probability: Low

There is an 825 x 1200mm surface water sewer in Burton Road (west of site), a 525mm diameter combined water sewer in Burton Road (west of site), and a 300mm diameter combined water sewer in Fielden Road (south of site). There has been no history of flooding from the sewers, within the Site being higher than road / manhole cover levels.

Therefore, the flood water will not flow towards the Site, with the probability of flooding from drains and sewers for the Site is deemed to be low.

6.5 Canals, Reservoirs and Other Artificial Sources - Probability: Low

There are no known canals, reservoirs, or artificial sources near the development Site. The Extents of Flooding from Reservoirs Map in Figure 4, indicates that the Site is not in a flooding area; The Envirocheck (JBA) canal failure map indicates that the development Site is in the canal coverage area, but is not in a canal failure area; There has also been no history of flooding from any sources, and therefore, based on the assessed data, the risk of flooding from canals, reservoirs or artificial sources is deemed to be low.

7 Flood Risks and Vulnerability

Paragraphs 077 to 078 of the NPPG are relevant to the assessment of flood vulnerability and appropriate development of the Site. These paragraphs describe the different flood zones, flood risk vulnerability classifications, as well as flood zone 'compatibility' (appropriate development in flood zone).

7.1 Flood Zones

NPPG Paragraph 078, Table 1 indicates that the flood zones are:

Table 1 - Flood Zone Definitions

Flood Zone	Definition
Zone 1 Low Probability	Land having a less than 0.1% annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map for Planning – all land outside Zones 2, 3a and 3b)
Zone 2 Medium Probability	Land having between a 1% and 0.1% annual probability of river flooding; or land having between a 0.5% and 0.1% annual probability of sea flooding. (Land shown in light blue on the Flood Map)
Zone 3a High Probability	Land having a 1% or greater annual probability of river flooding; or Land having a 0.5% or greater annual probability of sea. (Land shown in dark blue on the Flood Map)
Zone 3b The Functional Floodplain	<p>This zone comprises land where water from rivers or the sea must flow or be stored in times of flood. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. Functional floodplain will normally comprise:</p> <ul style="list-style-type: none"> • land having a 3.3% or greater annual probability of flooding, with any existing flood risk management infrastructure operating effectively; or • land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as 0.1% annual probability of flooding). <p>Local planning authorities should identify in their Strategic Flood Risk</p>

	<p>Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency.</p> <p>(Not separately distinguished from Zone 3a on the Flood Map)</p>
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The EA flood map data has identified that the Site to be in Flood Zone 1.

7.2 Flood Risk Vulnerability Classification

NPPG Paragraph 077 refers to NPPF Annex 3. Annex 3 describes the flood risk vulnerability classifications as:

Table 2 - Flood Zone Vulnerability Classification

Flood Risk Vulnerability Classification
<p>Essential Infrastructure</p> <p>Essential transport infrastructure (including mass evacuation routes) which should 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>
<p>Highly Vulnerable</p> <p>Police and ambulance stations; fire stations and command centers; telecommunications installations required to be operational during flooding; Emergency dispersal points; Basement dwellings; Caravans, mobile homes and park homes intended for permanent residential use; Installations requiring hazardous substances consent.</p>
<p>More Vulnerable</p> <p>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.</p>

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, cafes and hot food takeaways; offices; general industry, storage and distribution; non-residential institutions not included in the 'More Vulnerable' class; 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; car parks.

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 Defense 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.

8 Flood Flows and Safe Access / Egress

To ensure that the Site is safe for its lifetime, an analysis of any flood flow displacement and safe access and egress routes are as follows:

8.1 Flood Flows and Displacement

The new building with the Site is in Flood Zone 1, and therefore, will not affect fluvial flood flows or displace fluvial flood water to neighbouring land or property.

The assessed flood maps indicate that there is no pluvial flooding with no overland pluvial flood flows from outside the Site boundary. Therefore, the new building will not affect pluvial flood flows or displace pluvial flood water to neighbouring land or property.

8.2 Safe Access and Egress

The flood data maps indicates that there is no flooding in the Site, or in the roads to the east and south of the Site during the 1000-year return period.

Safe egress and access can therefore be gained to and from the Site from the surrounding road.

9 Surface Water Management

As the Site is in a critical drainage area, and to ensure the Site does not increase flood risk to areas within or near the Site boundary, the surface water run-off is to be managed.

Refer to CCS Consulting – Surface Water Management Report (April 2024) for full surface water management details.

A summary of the surface water management, as set out in the report is as follows:

9.1 Surface Water Management Principles

The surface water for the Site is to be managed so that it adheres to the current national regulations and local authority requirements.

Run-Off Destination

Surface water run-off is to discharge to one or more of the following in the order of priority shown:

- Discharge into the ground (infiltration).
- Discharge to a surface water body.
- Discharge to a surface water sewer, highway drain or other drain.
- Discharge to combined sewer.

Design Principles

The design principles for the surface water management of the development will be to:

- Ensure that people, property, and critical infrastructure are protected from flooding.
- Ensure that the development does not increase flood risk off site.
- Ensure that SuDS can be economically maintained for the development.

Peak Surface Water Flow

DEFRA Non-Statutory Technical Standards for Sustainable Drainage Systems states:

S2 For greenfield developments, the peak runoff rate from the development to any highway drain, sewer, or surface water body for the 1 in 1 year rainfall event and the 1 in 100-year rainfall event should never exceed the peak greenfield runoff rate for the same event.

Volume Control

DEFRA National Non-statutory technical standards for sustainable drainage systems states:

S4 Where reasonably practicable, for greenfield development, the runoff volume from the development to any highway drain, sewer, or surface water body in the 1 in 100-year, 6-hour rainfall event should never exceed the greenfield runoff volume for the same event.

S6 Where it is not reasonably practicable to constrain the volume of runoff to any drain, sewer, or surface water body in accordance with S4 or S5 above, the runoff volume must be discharged at a rate that does not adversely affect flood risk.

Flood Risk within Development

DEFRA National Non-statutory technical standards for sustainable drainage systems states:

'S7 The drainage system must be designed so that, unless an area is designated to hold and/or convey water as part of the design, flooding does not occur on any part of the site for a 1 in 30-year rainfall event.

S8 The drainage system must be designed so that, unless an area is designated to hold and/or convey water as part of the design, flooding does not occur during a 1 in 100-year rainfall event in any part of: a building (including a basement); or in any utility plant susceptible to water (e.g. pumping station or electricity substation) within the development.

S9 The design of the site must ensure that, so far as is reasonably practicable, flows resulting from rainfall in excess of a 1 in 100-year rainfall event are managed in exceedance routes that minimise the risks to people and property'.

Pollution / Water Quality

The SuDS design for the development site will ensure that the quality of any receiving water body is not adversely affected and preferably enhanced in accordance with Ciria SuDS Manual C753, Chapter 4.

Designing for Exceedance

The development site design will be such that when SuDS features fail or are exceeded, exceedance flows do not cause flooding of properties on or off site. This is achieved by completely containing the surface water within the drainage system (including areas designed to hold or convey water) for all events up to a 1 in 30-year event. The design of the site ensures that flows from rainfall more than a 1 in 100-year rainfall event are managed in exceedance routes that avoid risk to people and property both on and off site.

9.2 Surface Water Management Strategy

The surface water management strategy for the Site, based on the principles stated above are as follows:

SuDS Principles and Discharge Destination

The feasible SuDS methods being permeable paving, filter drains, swale / shallow ponds, cellular units and a flow control chamber, and the surface water destination being to a surface water sewer via an existing drainage network.

Peak Flow Control

The post development run-off rates will be an increase of the 1-year greenfield rate, but the equivalent to the 30-year greenfield rate, and a 6% reduction of the 1000-year greenfield rate. Therefore, as the greenfield rates for extreme storms have not been exceeded, the discharge rates are deemed to be acceptable, as they will meet the requirements set out in the Non-Statutory Technical Standards for Sustainable Drainage Systems.

Volume Control

The post development surface water run-off volume will be a 13% reduction of the greenfield volume for the same storm event and duration. Therefore, the discharge volume is deemed to be acceptable, as it meets the requirements set out in the Non-Statutory Technical Standards for Sustainable Drainage Systems.

Flood Risk within the Development

With the SuDS methods and attenuation volumes, no flooding will occur for all storms up to and including the 100-year + 40% storm event.

Maintenance

The management and maintenance of the surface water drainage networks and SuDS features will be by estate management of the clinical site, where the maintenance of the drainage and SuDS will form part of the overall site management / landscaping / gardening.

Surface Water Design Exceedance

In the unlikely event of an extreme storm greater than 100-year + 40% climate change, or poor maintenance of the SuDS features and / or pipework, potential flooding of the drainage network could

occur. Surface water flow paths to follow existing and proposed ground topography, where water will flow towards the development boundaries, and into Burton and Fielden Road.

Flood water will flow away from the proposed building and will not flow directly towards existing dwellings / properties outside the development boundary. The flood water within the roads will be contained due to the road having a gradient (water to flow along road) and upstand kerbs.

Water Quality

The level of water treatment is to be assessed against the details set out in Ciria SuDS Manual C753. Chapter 26 sets out the Pollution Hazard Indices for different land classifications, and how to calculate that against the SuDS mitigation indices to show suitable levels of treatment. The mitigation indices are greater than the pollution hazard index, and therefore suitable water quality is achieved.

Construction Environment Management Plan

All existing drainage networks within the development area are to be maintained during construction. The pipe network, cellular units, and flow control chamber are to be the first part of the drainage network to be built. This will ensure that the surface water discharge is suitably restricted without pollutants or flooding.

10 Residual Risk

It is difficult to completely guard against flooding since extreme events greater than the design standard event are always possible, however, there are practicable ways to minimise the risk such as by allowing a freeboard (safety margin) and by using suitable construction and management techniques.

This flood risk assessment has been prepared in accordance with the NPPF, Local Planning Policy and the NPPG. Any recommendations regarding floor levels are based on the relevant British Standards (BS8533), the standing advice provided by the EA or based on common practice.

CCS Consulting Ltd do not warrant that the advice in this report will guarantee the availability of flood insurance either now or in the future.

The owner/occupier of the buildings will be required to carry out maintenance on any SuDS devices within the Site boundary. It will be the owner's /occupier's responsibility to regular upkeep the drainage network on Site throughout the lifetime of the development to ensure that flood risk on and off Site is managed effectively.

11 Flood Risk Assessment Conclusion / Summary

Based the assessed flood data for the Site, the probability of flooding from all sources to the Site is deemed to be low.

No flood water flows will be affected, and no flood water will be displaced.

Safe access and egress can be gained to and from the proposed building up to the 1000-year return period.

The surface water will be managed using SuDS methods to control the water at source, reduce pollutants, and to reduce the risk of flooding to areas within or near the Site.

In terms flood risk the development is deemed to be acceptable.

Appendix A - Topographical Survey Plan

Appendix B - Proposed Site Plan



Ground Floor GA Plan
1:100

GENERAL NOTES:
DAY Architectural Ltd accepts no responsibility for any costs, losses or claims whatsoever arising from these drawings, specifications and related documents unless there is full compliance with the Client or any authorised user of the following:
1. All boundaries, dimensions and levels are to be checked on site before construction and any discrepancies reported to the Architect / Designer.
2. Particular care should be taken to ensure that any discrepancies with site or other information is to be advised to the Architect / Designer and / or approval is to be sought before the implementation of the detail.
3. Block and site plans are reproduced under license from the Ordnance Survey.
4. Do not scale this drawing.
5. For the purposes of coordination, all relevant parties must check this information prior to implementation and report any discrepancies to the Architect / Designer.

P3	STAGE 2 ISSUE
P2	Issued for Information
P1	Issued for Information
REV	DESCRIPTION

28.03.24	MA
22.03.24	MA
19.03.24	MA
DATE	REV BY

CLIENT	Manchester University Hospital NHS Foundation Trust
PROJECT	CDC - Cardiorespiratory, Withington Community Hospital

DRAWING	Proposed Site Plan
SCALE	1:100 @ A0
PROJECT	1342-22
CLIENT REF	22162
DRAWN BY	MA
CHECKED BY	SOB
ORIGIN	VOLUME
DAY	WCH127
LEVEL	00
TYPE	DR
ROLE	A
NUMBER	02002
REVISION	P3
SUBMITTAL	INFORMATION

DAY

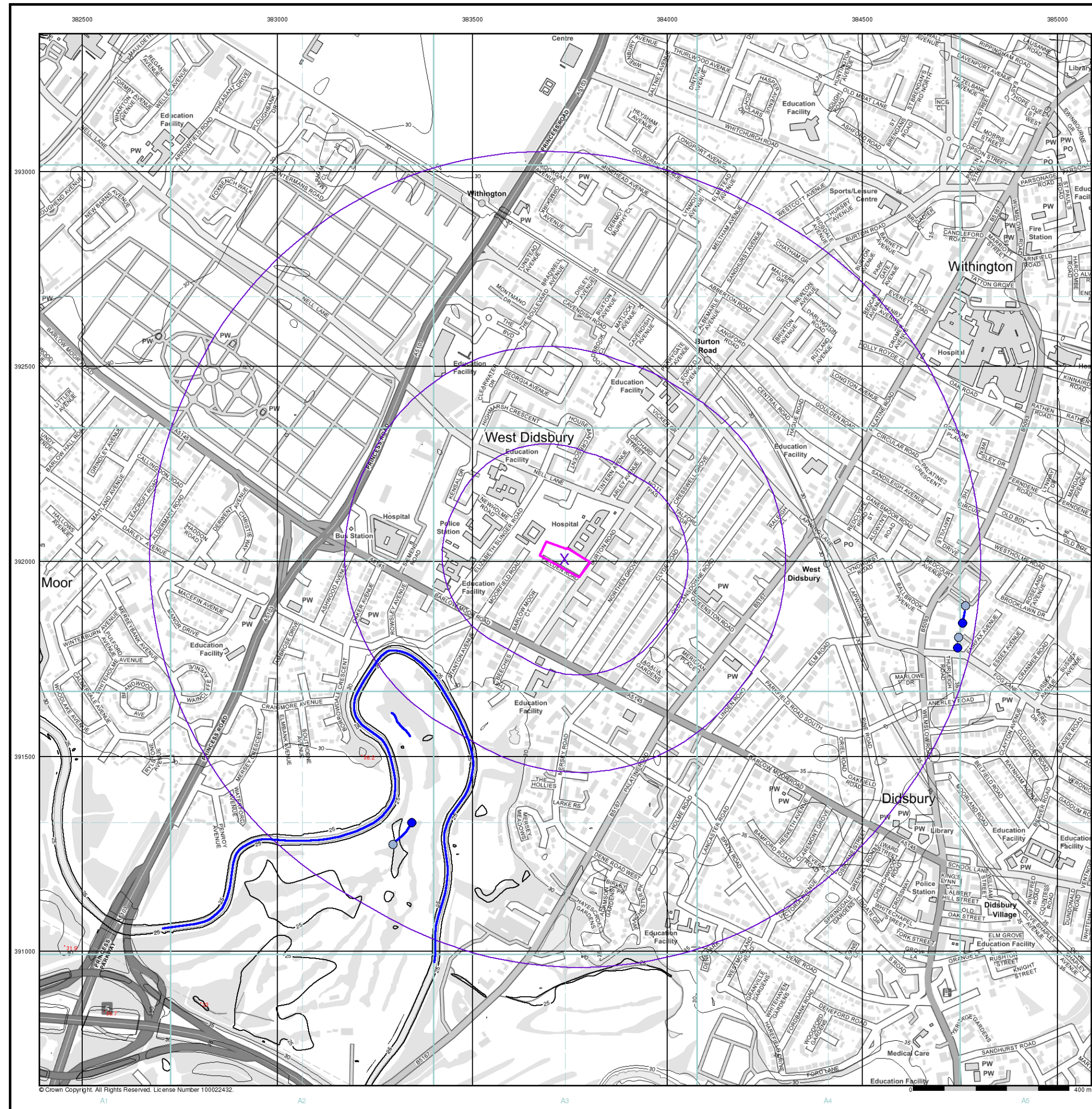
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Appendix C - Ground Investigation Data

5789542654
8383 9203

M/c 5931

Appendix D - OS Water Network Map



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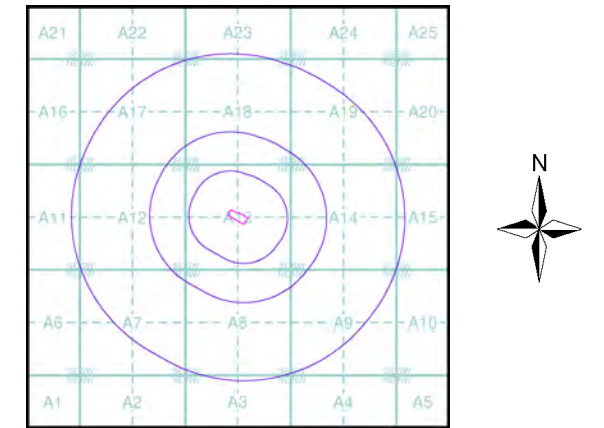
OS Water Network Lines Map (1:10,000)

- General**
- Specified Site
 - Specified Buffer(s)
 - Bearing Reference Point

- OS Water Network Data**
- | | |
|--------------|-------------------------|
| Canal | Drain |
| Reservoir | Other |
| Foreshore | Lake |
| Marsh | Transfer |
| Tidal River | Lock Or Flight Of Locks |
| Inland River | Sea |
| Junction | Source |
| Outlet | Other |
| Pseudo | |

- Contours (height in meters)**
- Standard Contour 105 100 95
- Master Contour 100 95
- Spot Height 167.3
- MLW Mean Low Water
- MHW Mean High Water

OS Water Network Map - Slice A



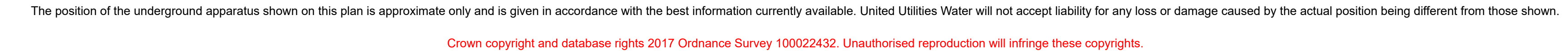
- Order Details**
- Order Number: 309147548_1_1
- Customer Ref: 900 - Withington
- National Grid Reference: 383740, 392010
- Slice: A
- Site Area (Ha): 0.57
- Search Buffer (m): 1000

- Site Details**
- Site at 383740, 392010

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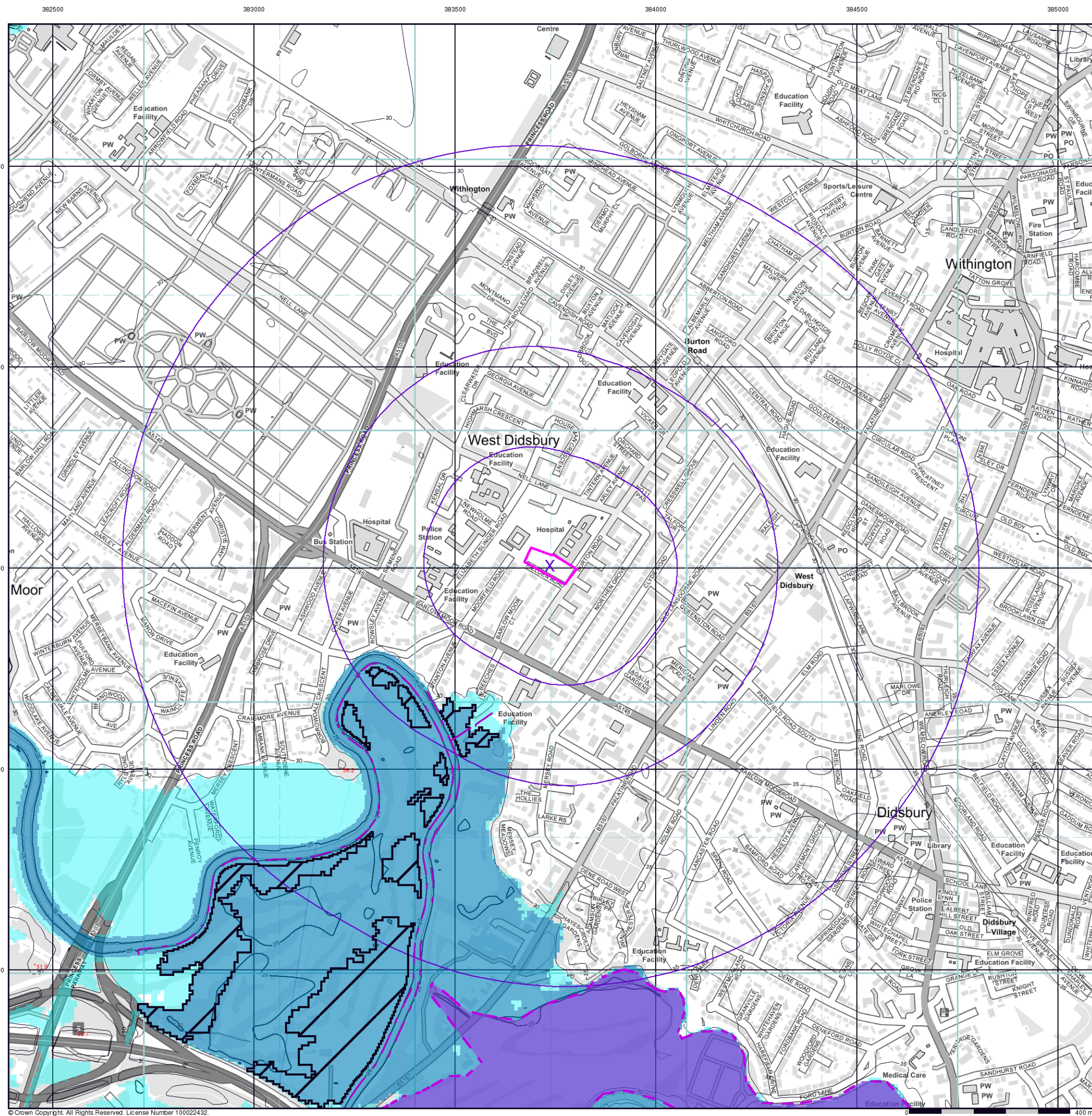
Appendix E - United Utilities Asset Plan



<p>1. <i>What is the purpose of this study?</i></p> <p>2. <i>What are the research objectives?</i></p> <p>3. <i>What is the research methodology?</i></p> <p>4. <i>What are the results of the study?</i></p> <p>5. <i>What are the conclusions of the study?</i></p>	<p>6. <i>What are the limitations of the study?</i></p> <p>7. <i>What are the implications of the study?</i></p> <p>8. <i>What are the future research directions?</i></p> <p>9. <i>What are the contributions of the study?</i></p> <p>10. <i>What are the key findings of the study?</i></p>
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**SEWER
RECORDS**

Appendix F - Landmark Envirocheck Flood Map Data



EA/NRW Flood Data Map (1:10,000)

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

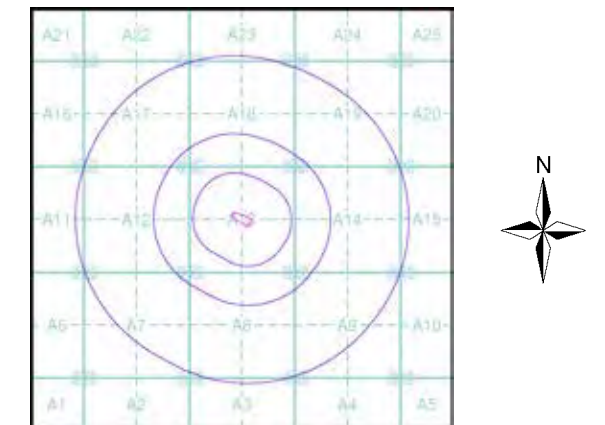
Flood Data

- Extreme Flooding from Rivers or Sea without Defences (Zone 2)
- Flooding from Rivers or Sea without Defences (Zone 3)
- Area Benefiting from Flood Defence
- Flood Water Storage Areas
- Flood Defence

Contours (height in metres)

- Standard Contour 105 — MLW — Mean Low Water
- Master Contour 100 — MHW — Mean High Water
- Spot Height 167.8

EA/NRW Flood Data Map - Slice A

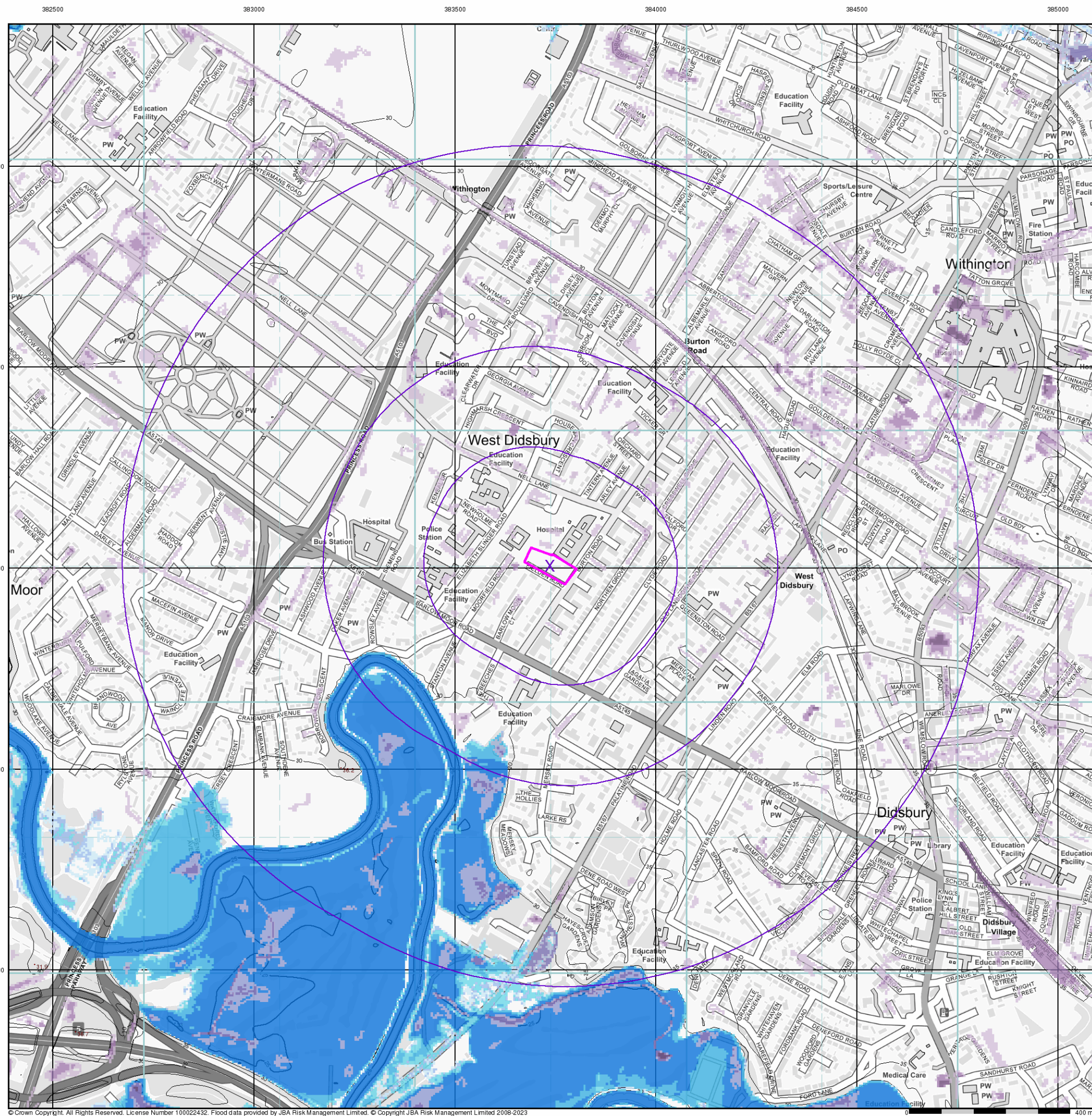


Order Details

Order Number: 309147548_1_1
Customer Ref: 900 - Withington
National Grid Reference: 383740, 392010
Slice: A
Site Area (Ha): 0.57
Search Buffer (m): 1000

Site Details

Site at 383740, 392010



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JBA 75 Year Return Flood Map (Undefended) (1:10,000)

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

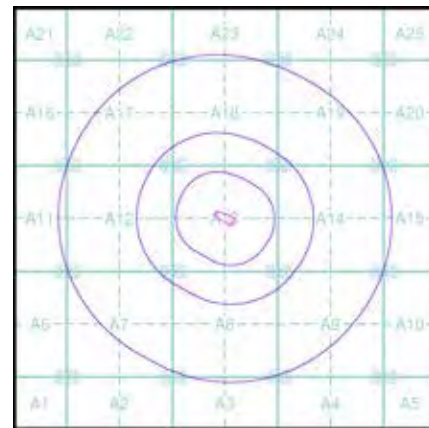
Modelled Flood Depth

Pluvial Depth	Fluvial Depth	Coastal Depth
0.1m	0.01m - 0.05m	0.01m - 0.05m
0.1m - 0.3m	0.05m - 0.1m	0.05m - 0.1m
0.3m - 1m	0.1m - 0.3m	0.1m - 0.3m
>1m	0.3m - 1m	0.3m - 1m
	>1m	>1m

Contours (height in metres)

- Standard Contour: 105, 100, 95
- Master Contour: 105, 100, 95
- Spot Height: 167.8
- MLW: Mean Low Water
- MHW: Mean High Water

JBA 75 Year Return Flood Map (Undefended) - Slice A



Order Details

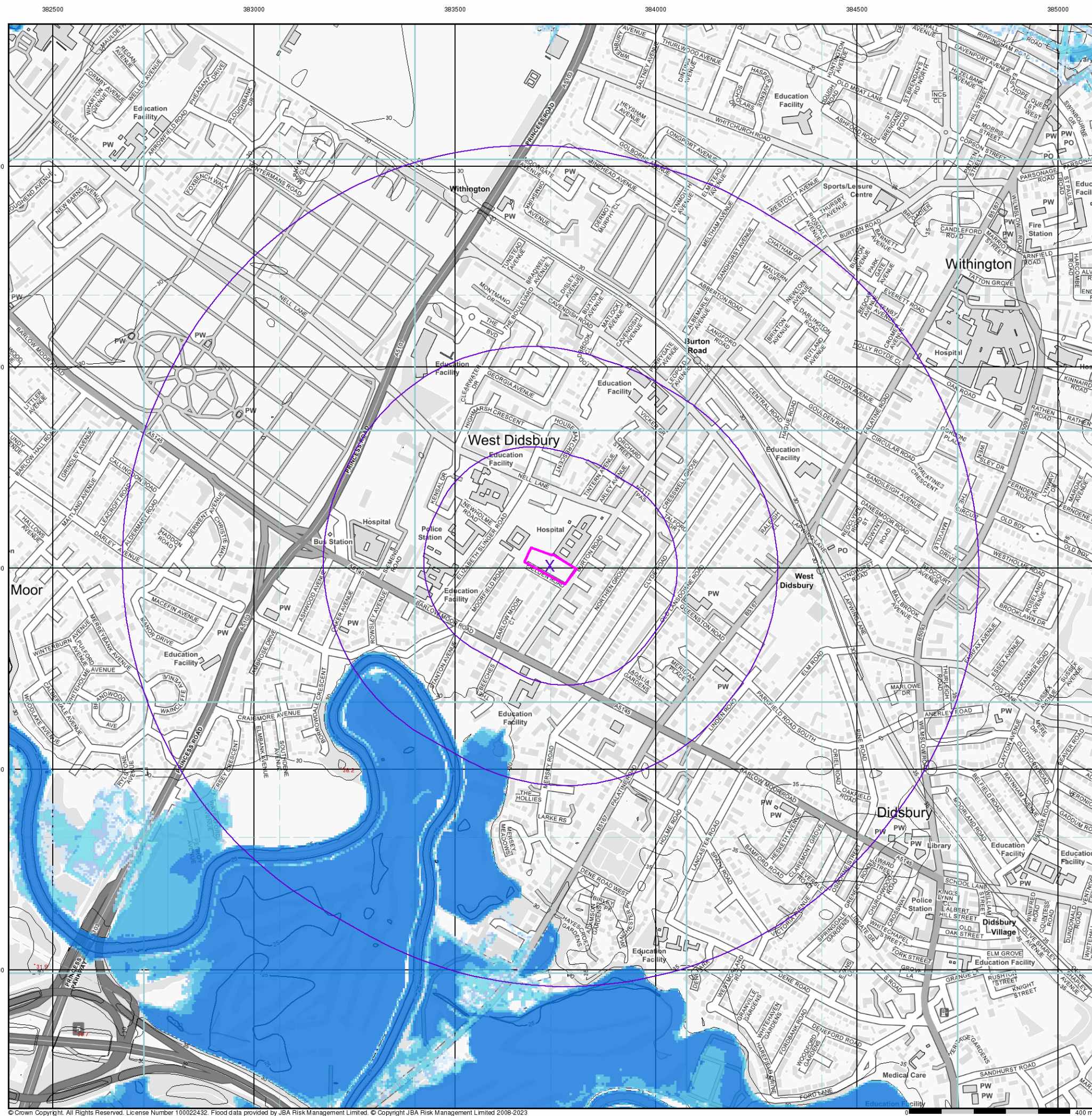
Order Number: 309147548_1_1
Customer Ref: 900 - Withington
National Grid Reference: 383740, 392010
Slice: A
Site Area (Ha): 0.57
Search Buffer (m): 1000

Site Details

Site at 383740, 392010

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JBA 100 Year Return Flood Map (Undefended) (1:10,000)

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

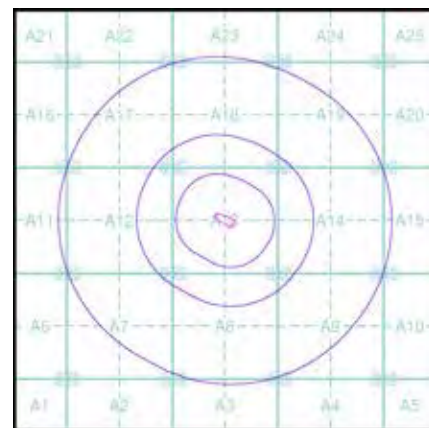
Modelled Flood Depth

Fluvial Depth	Coastal Depth
0.01m - 0.05m	0.01m - 0.05m
0.05m - 0.1m	0.05m - 0.1m
0.1m - 0.3m	0.1m - 0.3m
0.3m - 1m	0.3m - 1m
>1m	>1m

Contours (height in metres)

- Standard Contour 105 100 95
- Master Contour 100 95
- Spot Height 167.8
- MLW Mean Low Water
- MHW Mean High Water

JBA 100 Year Return Flood Map (Undefended) - Slice A

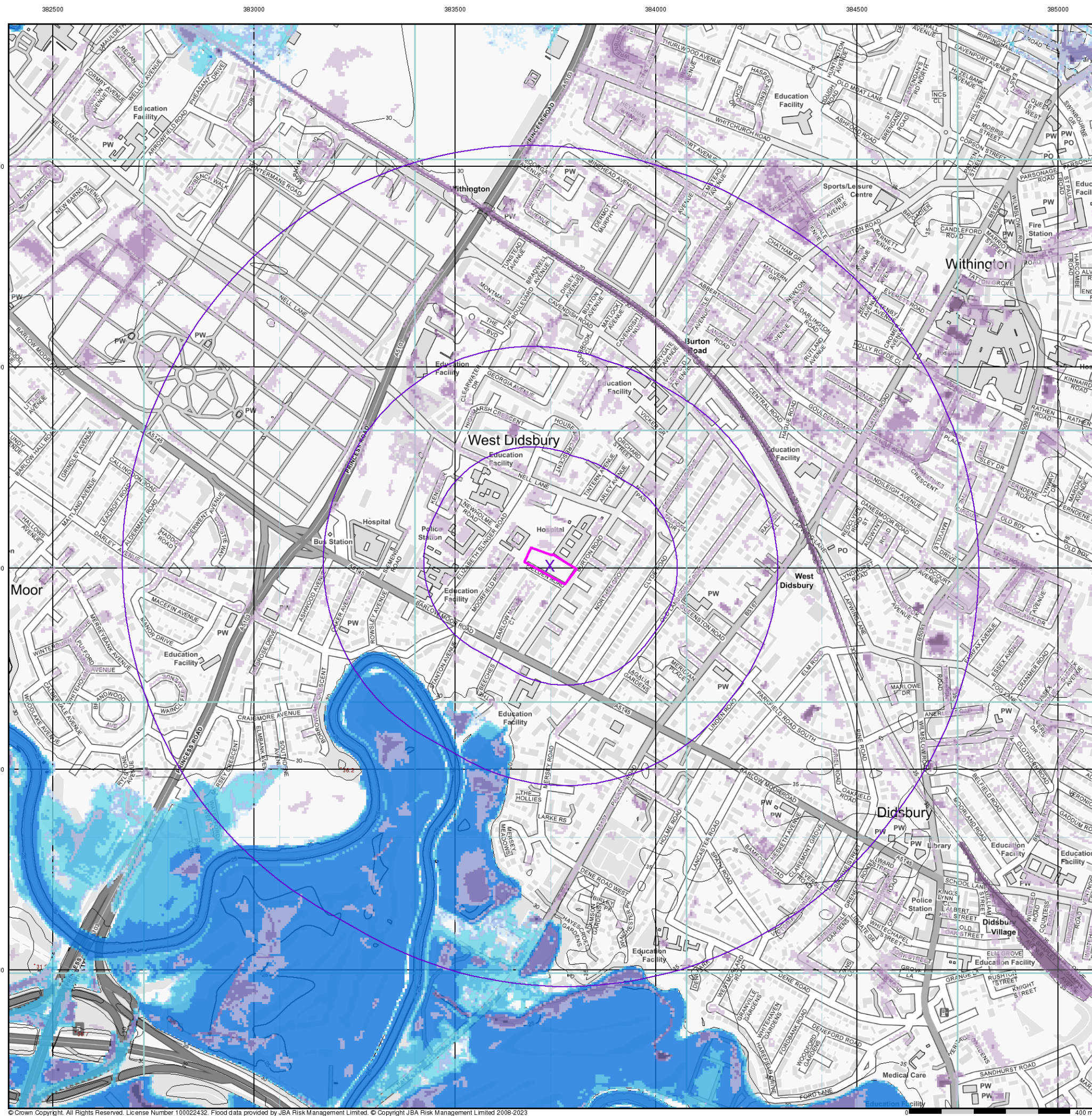


Order Details

Order Number: 309147548_1_1
Customer Ref: 900 - Withington
National Grid Reference: 383740, 392010
Slice: A
Site Area (Ha): 0.57
Search Buffer (m): 1000

Site Details

Site at 383740, 392010



JBA 200 Year Return Flood Map (Undefended) (1:10,000)

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

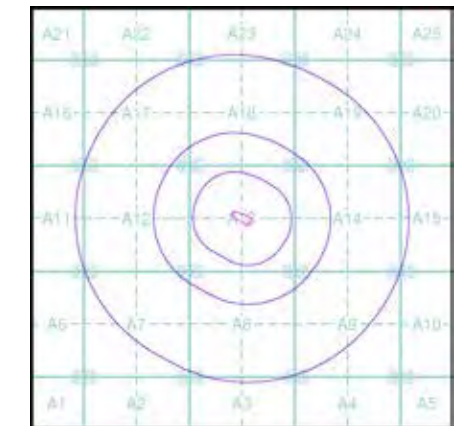
Modelled Flood Depth

Pluvial Depth	Fluvial Depth	Coastal Depth
0.1m	0.01m - 0.05m	0.01m - 0.05m
0.1m - 0.3m	0.05m - 0.1m	0.05m - 0.1m
0.3m - 1m	0.1m - 0.3m	0.1m - 0.3m
>1m	0.3m - 1m	0.3m - 1m
	>1m	>1m

Contours (height in metres)

- Standard Contour 105 100 95
- Master Contour
- Spot Height 167.8
- MLW Mean Low Water
- MHW Mean High Water

JBA 200 Year Return Flood Map (Undefended) - Slice A



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Site Details

Site at 383740, 392010