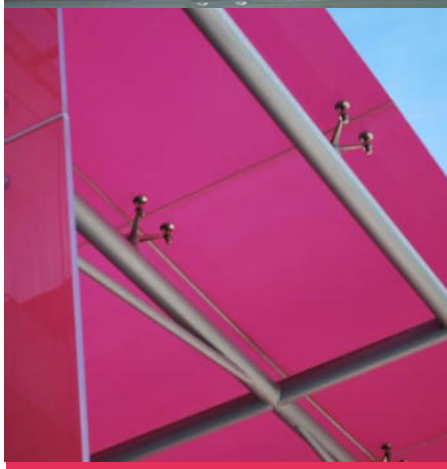








Hammerstone Road Depot, Manchester

Flood Risk Assessment and Drainage Strategy

Curtins Ref: HRD-CUR-00-XX-RP-C-100

Revision: P02

Issue Date: 07 July 2023

Client Name: Morgan Sindall

Site Address: Hammerstone Road Depot Gorton Manchester M18 8EQ

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Control Sheet

Rev	Description	Issued by	Checked	Date
P01	Issued for comments	ATL	MW	19/06/23
P02	Report Updated	ATL	MW	07/07/23

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Lead Local Flood Authority Correspondence

United Utilities Correspondence

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1.0 Introduction

1.1 Project Background

1.1.1 Curtins was appointed by Morgan Sindall to provide a Flood Risk Assessment (FRA) and Drainage Strategy for Hammerstone Road Depot, Manchester, M18 8EQ, National Grid Reference 388216E, 396834N.

1.1.2 The report provides information on the nature of flood risk at the site and follows Government guidance regarding development and flood risk.

1.1.3 The report is based on currently available information and preliminary discussions.

1.1.4 Proposals contained or forming part of this report represent the design intent and may be subject to alteration or adjustment in completing the detailed design for this project. Where such adjustments are undertaken as part of the detailed design and are deemed a material deviation from the intent contained in this document, prior approval shall be obtained from the relevant authority in advance of commencing such works.

1.1.5 Where the proposed works to which this report refers are undertaken more than twelve months following the issue of this report, Curtins shall reserve the right to re-validate the findings and conclusions by undertaking appropriate further investigations at no cost to Curtins.

1.2 Scope of Assessment

1.2.1 The assessment is to be undertaken in accordance with the standing advice and requirements of the Environment Agency (EA) for Flood Risk Assessments as outlined in the Communities and Local Governments Planning Policy Guidance to the National Planning Policy Framework (NPPF).

1.2.2 The assessment will:

- Investigate all potential risks of flooding to the site,
- Consider design proposals to mitigate any potential risk of flooding
- Consider the environmental impact of the proposed development in relation to flooding
- Consider foul & surface water drainage proposals for the proposed development.

1.2.3 The total site area is approximately 3.7 hectares and following scrutiny of the Environment Agency flood maps it has been identified that the majority of the site lies within Flood Zone 1, a localised area in the south west of the site, and a small area of the existing building in the north west is located within Flood Zone 2. The site area is in excess of 1 ha and therefore Flood Risk Assessment is required to support a planning application to consider the management of surface water run-off.

1.2.4 In April 2015, the Government made changes to the National Planning Policy Framework which made Sustainable Urban Drainage Systems (SuDS) a material consideration in the determination of planning applications for 'major' developments.

1.2.5 A Drainage Strategy will therefore be required as part of the Planning Application for the development, as the site is considered to be 'major' development by the Town and Country Planning Order 2015.

1.2.6 This Flood Risk Assessment and Drainage Strategy reviews the following information:

- Environment Agency flood maps for rivers and sea flooding.
- UK Government Flood Warning Information Service maps for surface water flooding and reservoir flooding.
- Manchester City, Salford City and Trafford Councils Level 1 Hybrid Strategic Flood Risk Assessment (SFRA) published in March 2010.
- Level 1 Strategic Rood Risk Assessment for Greater Manchester- Updated March 2019
- Manchester City, Salford City and Trafford Councils Level 2 Hybrid SFRA, User Guide, Final, dated May 2010.
- Manchester City, Salford City and Trafford Councils Level 2 Hybrid Strategic Flood Risk Assessment (SFRA) published in March 2011.
- Manchester City Council SuDS Requirements for New Developments.
- United Utilities Public Sewer Records Extract dated May 2018.
- Topographical Survey by Survey & Engineering Projects June 2018
- GPR Survey by Survey & Engineering Projects December 2018
- CCTV survey by SEP 11/12/2018
- Additional CCTV survey by SEP 26/08/2020 &12/01/22
- Curtins 068065-CUR-00-XX-RP-GE-001-V01_Phase 1 Desk Study_Hammerstone Road Depot Proposed Development 03.08.2018
- Curtins 068065-CUR-00-XX-RP-GE-002-V01_Phase 2 Site Investigation 17.04.2019

1.2.7 The development is expected to comprise the following:

- refurbishment of the existing building,
- new vehicle washdown area
- demolition of the existing building within the southern area of the site and creation a new lower car park
- demolition of Coca Cola building and creation of parking bays on the existing slab
- creation of access road on existing soft landscape
- demolition of 2 smaller buildings, existing building slabs to be retained.
- Resurfacing of existing retained external areas

The Proposed Site Layout and Pre & Post Developmental Area Designations are enclosed in *Appendix A.*

2.0 Existing Site Details

2.1 History and Current Use

2.1.1 The site is located at Hammerstone Road, Gorton, which is approximately 4.9km the south-east of Manchester City Centre.

2.1.2 The site is considered to be a brownfield site and comprises of several buildings for industrial use with associated parking. Currently occupied by Delta Containers, Manchester Library Service and Manchester Trading Standard Service (see Figure 1).

2.1.3 The site is bounded by Gorton Lane to the south, Hammerstone Road to the east, Preston Street to the west and railway tracks to the north. The site is accessed from Hammerstone Road.

Figure 1: Aerial Photograph (© Google 2018)



2.2 Existing Watercourses and Other Waterbodies

2.2.1 No above ground watercourses have been identified within the proposed sites or immediately adjacent to the sites.

2.2.2 The ordinary watercourse Corn Brook runs through the site. The UU records indicates Corn Brook is culverted below and it is located in the northern area of the site. The Corn Brook runs from east to west direction. The Corn Brook location has been interpolated between MH1 and UU 3803, based on the GRP and CCTV surveys. The northern watercourse requires to be fully surveyed within site boundary.

2.2.3 United Utilities records indicate a 670mm brick private surface water sewer running from the east to west in the southern part of the site. The surface water pipe identified is a culverted watercourse. Based on records, the watercourse is located partially within the south-eastern part of the site, crossing below the existing retaining brick wall and running in the public footway. Based on UU records, the watercourse invert level is 60.22 AOD which is 1.40mbgl. The UU 1704 manhole has been lifted and the southern watercourse partially surveyed. The CCTV survey was abandoned due to debris, however, based on information received, it appears that the downstream pipe from 1704 is within the public footway. The upstream pipe has not been fully surveyed and it is uncertain how far encroaches to the site.

2.2.4 The Ashton Canal is located approximately 2.2 km north from the site.

2.3 Existing Drainage

2.3.1 The public sewer records indicate that there are no public sewers located within the site boundary. The public sewer records have been obtained for the development site, and are enclosed in *Appendix B*.

2.3.2 The public sewer records indicate that the following public sewers are located within the vicinity of the site:

- a 900 mm combined water sewer within Gorton Road, which flows from the east to west.
- a 225 mm combined water sewer within Preston Street, which is connected to 900mm sewer within Gorton Lane
- a 375mm foul water sewer and 300mm surface water sewer with Hammerstone Road, the sewers run towards Gorton Lane in southerly direction. Foul water connects to combined drainage within Gortin Road.

2.3.3 There are further public sewers identified on the public sewer records within the wider vicinity of the site, but these are not considered relevant to the scheme.

2.3.4 A GPR& CCTV survey has been carried out for the site and is enclosed in Appendix C. There are various private surface and foul water drains located within the site.

2.3.5 For existing drainage condition and location refer to drawing *068065-CUR-XX-00-DR-C-92-611-Retaned and Abandoned Drainage and HRD-CUR-XX-00-DR-C-92-621 Existing Catchment Plan* included within Appendix F.

2.4 Topography

2.4.1 A topographical survey has been carried out to the proposed site, and is enclosed in *Appendix C*.

2.4.2 The north and central area of the site is sloping from the north from a level of 64.62m AOD to the south to a level of 64.38 mAOD. There is the existing building in the edge of central and southern central area

and steps to provide access southern area at level 62.45 mAOD. The south part of the site sloping from east to west, with general fall 1:57.

2.5 Geology

2.5.1 068065-CUR-00-XX-RP-GE-002-V01_Phase 2 Site Investigation Hammerstone Road Depot report indicates that made ground is underlain by Glacial Till (Secondary Undifferentiated Aquifer) and the Chester Pebble Beds Formation (Principal Aquifer). A summary of ground conditions are shown below.

Figure 2- Summary of Ground conditions (table 5.1 SI report)

Stratum	Depth to top of strata m bgl	Thickness (m)		Description
		Min	Max	
MADE GROUND	0.00	1.00	5.00	ASPHALT and/or, CONCRETE surface cover and sub-base *underlain by* Light brown/ brown/ dark brown/ black gravelly fine to coarse SAND with rare to occasional cobbles, and very soft to soft greyish brown gravelly slightly sandy CLAY. Soft to firm brown, grey or black sandy slightly gravelly CLAY. Anthropogenic fragments included brick, concrete, ash, clinker, wood, plastic, metal, glass, slag, slate, tile, pottery, coal and sandstone.
SUPERFICIAL DEPOSITS (Glacial Till)**	1.00 - 5.00	0.05*	8.40*	Very soft to firm soft brown with grey mottling sandy slightly gravelly CLAY with localised pockets of organic rich clay. Stiff and very stiff brown and dark brown with occasional grey mottling slightly sandy gravelly CLAY.

* *Min/max proven thickness*
** *Thickness not proven in this investigation*

2.5.2 Groundwater strikes during the investigation were noted in the Till in two cable percussive boreholes (CP03 4.00m andCP02A 4.90m bgl), and in Made Ground in WS01 (4.30m bgl). Post investigation groundwater monitoring showed groundwater levels to vary from 1.17m(WS17)– being recorded as dry.

Figure 3 Ground water monitoring results (table 5.6 a, 5.6b SI report)

Exploratory Hole Location Ref.	Water Strikes During Site Works		Water Strike Details
	Strike Depth (m bgl)	Strata	
CP02A	4.90	TILL	Seepage
CP03	4.00	TILL	Seepage
WS01	4.30	MADE GROUND	Seepage

Exploratory Hole Location Ref.	Monitored Water Levels Post Site Works	
	Installation Strata	Depth (m bgl)
WS02	MADE GROUND	2.80 – 2.86
WS03	MADE GROUND	2.69 – 2.70
WS04	MADE GROUND	Dry
WS06B	MADE GROUND	1.80 – 1.84
WS16	MADE GROUND	1.84 – 2.46
WS17	GLACIAL TILL	1.17 – 1.90

Exploratory Hole Location Ref.	Monitored Water Levels Post Site Works	
	Installation Strata	Depth (m bgl)
CP01	GLACIAL TILL	3.90 – 4.72
CP02A	GLACIAL TILL	3.90 – 4.01
CP03	GLACIAL TILL	2.90 – 4.70
CP04	MADE GROUND and CLAY	2.92 – 3.40

2.5.3 The site is not located within a Groundwater Source Protection Zone.

2.5.4 There are asbestos fibres in made ground. Sulphate and benzopyrene were recorded in groundwater. The clay will act as a barrier preventing the downward migration of contaminants to the underlying Principal Aquifer. Furthermore, no potable groundwater abstractions are located within 1km of the site. As such, the risks presented to the underlying Principal Aquifer is Low

2.5.5 For borehole records refer to *Appendix D*.

3.0 Development and Flood Risk

3.1 National Planning Policy Framework (NPPF) and Planning Practice Guidance

3.1.1 In July 2018 the Department of Communities and Local Government published the National Planning Policy Framework document (NPPF) and the Planning Practice Guidance was published in March 2014 which provides guidance on how flood risk should be assessed during the planning and development process.

Table 1: (Extract from Planning Practice Guidance) Flood Zone Classifications

These Flood Zones refer to the probability of river and sea flooding, ignoring the presence of defences. They are shown on the Environment Agency's Flood Map for Planning (Rivers and Sea), available on the Environment Agency's web site, as indicated in the table below.

Flood Zone	Definition
Zone 1 Low Probability	Land having a less than 1 in 1,000 annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map – all land outside Zones 2 and 3)
Zone 2 Medium Probability	Land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding; or Land having between a 1 in 200 and 1 in 1,000 annual probability of sea flooding. (Land shown in light blue on the Flood Map)
Zone 3a High Probability	Land having a 1 in 100 or greater annual probability of river flooding; or Land having a 1 in 200 or greater annual probability of sea flooding. (Land shown in dark blue on the Flood Map)
Zone 3b The Functional Floodplain	**This zone comprises land where water has to flow or be stored in times of flood.** 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. (Not separately distinguished from Zone 3a on the Flood Map)

Table 2: (Extract from Planning Practice Guidance) Flood Risk Vulnerability Classification

Essential Infrastructure • 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.
Highly Vulnerable • Police and ambulance stations; fire stations and command centres; 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. (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').
More Vulnerable • 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, 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.

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: (Extract from Planning Practice Guidance) Flood Risk Vulnerability and Flood Zone Compatibility

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

Key:

✓ Development is appropriate

✗ Development should not be permitted.

Notes to table 3:

- This table does not show the application of the Sequential Test which should be applied first to guide development to Flood Zone 1, then Zone 2, and then Zone 3; nor does it reflect the need to avoid flood risk from sources other than rivers and the sea;
- The Sequential and Exception Tests do not need to be applied to minor developments and changes of use, except for a change of use to a caravan, camping or chalet site, or to a mobile home or park home site;
- Some developments may contain different elements of vulnerability and the highest vulnerability category should be used, unless the development is considered in its component parts.

† In Flood Zone 3a essential infrastructure should be designed and constructed to remain operational and safe in times of flood.

* In Flood Zone 3b (functional floodplain) essential infrastructure that has to be there and has passed the Exception Test, and water-compatible uses, 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.

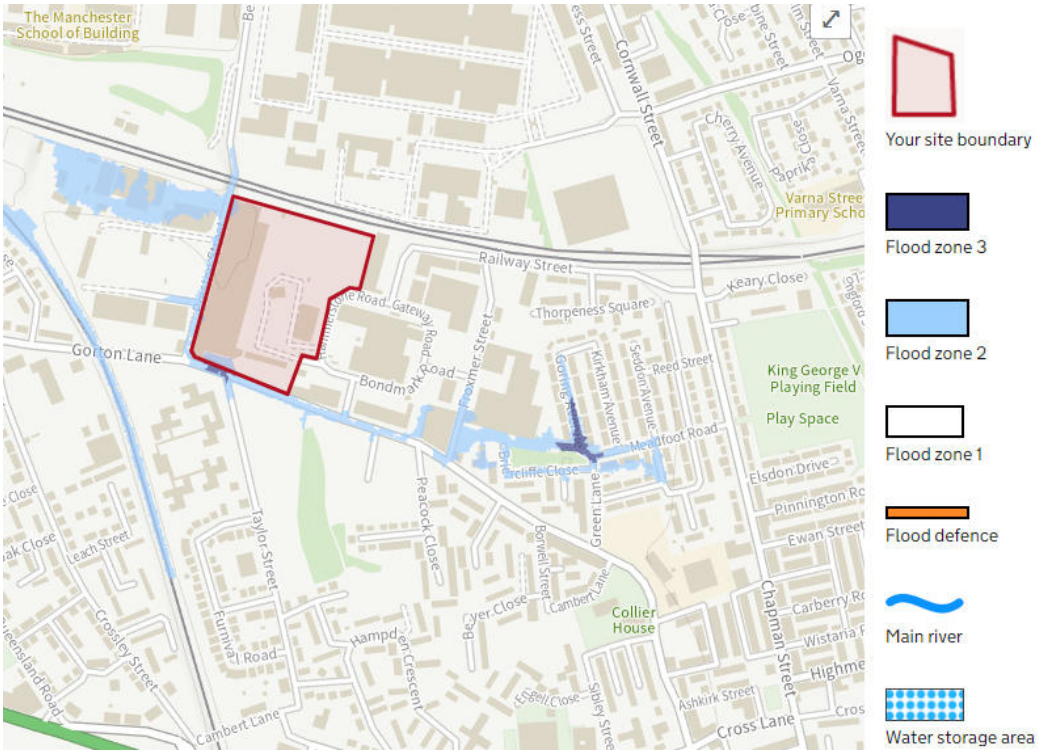
3.2 Site Specific NPPF Flood Risk Categorisation

3.2.1 To assess the NPPF flood risk classification for the site, the first step was to inspect the UK Government web based 'Flood Map for Planning' which is used to inform planning of a site's Flood Zone(s) and the probability of flooding from rivers or sea (not taking into account the presence of flood defences or climate change). However, the web based 'Long Term Flood Risk Assessment for Locations in England' should also be used to identify the long-term flood risks from rivers and seas, surface water and reservoirs.

3.2.2 The Flood Map for Planning is shown below in Figure 4, and it can be seen that the majority of the pre-development site is located within an area classified as Flood Zone1 (low probability of flooding from rivers or sea).

3.2.3 A localised area in the south west of the site, and a small area of the existing building in the north west is located within Flood Zone 2

Figure 4: Flood Map for Planning (© Crown Copyright)



3.2.4 Further site-specific review of the flood risk to the site is provided in section 4.

3.3 Site Specific Flood Zone Compatibility

3.3.1 The proposals for the development site are likely to fall within the following category:

- Less vulnerable - general industry storage and distribution.

3.4 Sequential Test

Developments classified as less vulnerable within Zone 1 and Zone 2 therefore the sequential test is not required.

4.0 Hydrological Assessment

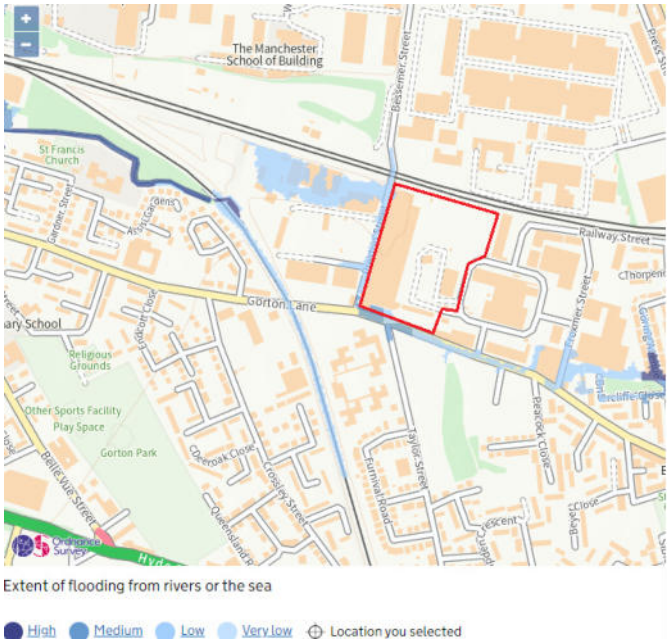
4.1 Sources of Flood Risk

4.1.1 This study assesses the risk from different types of flooding to the development and the risk of flooding from the development, taking into consideration climate change, as well as how flood risks should be managed. The approach to assessing flood risk at the development site was informed by the requirements of NPPF in conjunction with the client and Environment Agency requirements.

4.2 Fluvial Flooding (Rivers and Streams)

4.2.1 Flooding to the site from rivers and sea is indicated in Figure 5, taken from the UK Government's Long-Term Flood Risk Information.

Figure 5: Long Term Flood Risk Assessment Map – Flood Risk from Rivers or Sea (© Crown Copyright)



4.2.2 The detailed flood risk information taken from the UK Government Long Term Flood Risk Assessment website indicates that the area within the existing site is at 'Very Low' residual risk from fluvial flooding.

4.2.3 A localised area in the south west of the site is indicated as medium and high risk, however based on UU records southern watercourse is located within the public footway. There is no manhole for the culverted watercourse on the site, and the access manhole to the watercourse is within the highway land. There is a high retaining wall between the public footway and the site, the public footway slopes to the road, therefore it is highly unlikely that in case of a culverted watercourse flooding water will flow towards the site. It will flow towards the street and the lowest point within the street.

4.2.4 The adjacent low flood risk within Preston Street is likely to be associated with the culverted Corn Brook. The flooding may occur from the culverted Corn Brook manholes. There is a small area of the existing building in the north west shown within low risk, as there is no entrance to the building from that side and the public footway slopes towards the street, the risk is assets as very low.

4.2.5 Based on the above fluvial flooding is considered as very low.

4.3 Tidal Flooding (Coastal or Estuarine)

4.3.1 There is currently no flood risk identified on the Environment Agency flood maps for the site and it is therefore regarded to be at low risk from tidal flooding.

4.4 Reservoir Flooding

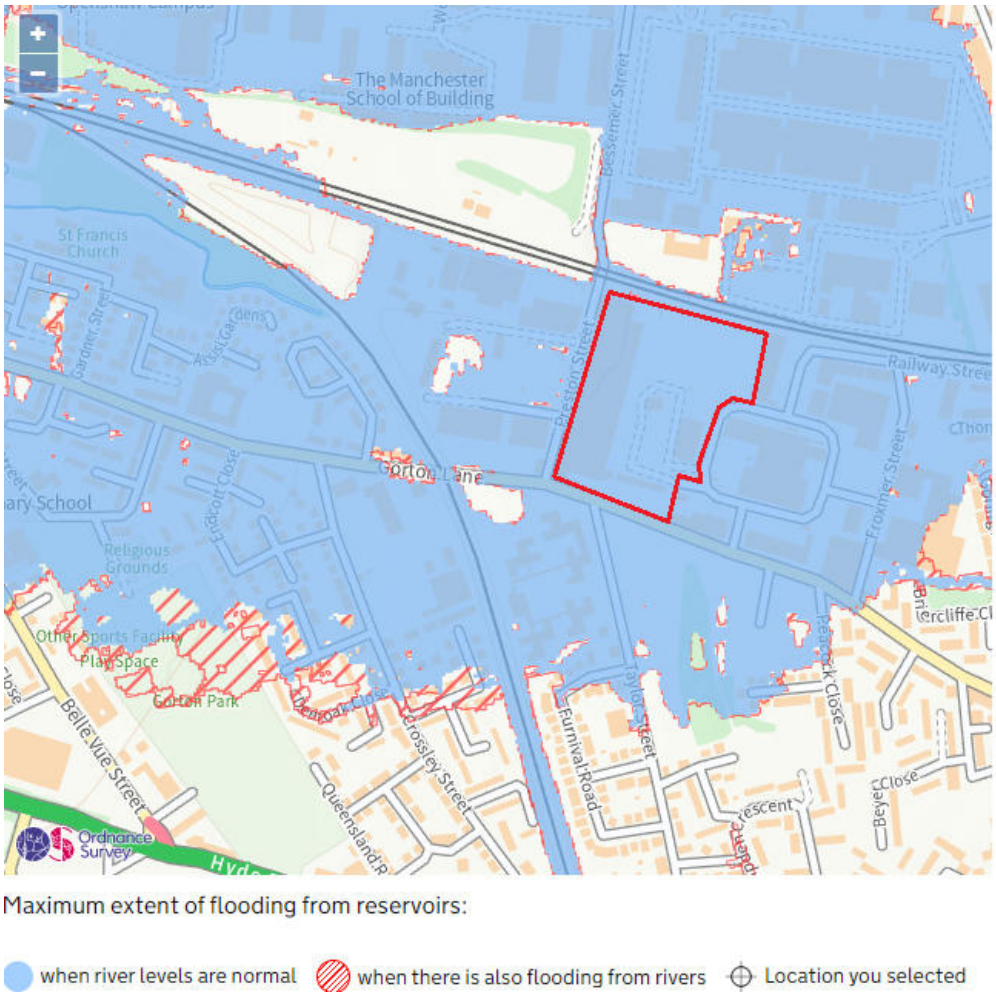
4.4.1 Reservoir flooding is extremely unlikely to happen and there has been no loss of life in the UK from reservoir flooding since 1925. The Environment Agency is the enforcement authority and ensures that reservoirs are inspected regularly and essential safety work is carried out.

4.4.2 The Long-Term Flood Risk Assessment (Flood Risk from Reservoirs) map shows the largest area that might be flooded if a reservoir were to fail and release the water it holds. Since this is a prediction of a worst-case scenario, it is a very low risk that a reservoir flood would be this large.

4.4.3 Manchester City Council is responsible for coordinating emergency plans for reservoir flooding and ensuring communities are well prepared. The building occupiers should have an emergency procedure in the unlikely event that the reservoir fails. This would include considering where you would go to safety and be ready to follow the advice of emergency services.

4.4.4 Providing maintenance is carried out by United Utilities, the risk from reservoir flooding would therefore be considered low risk.

Figure 6: Long Term Flood Risk Assessment Map – Flood Risk from Reservoirs (© Crown Copyright)



4.5 Canal Flooding

4.5.1 The nearest canal to the site is the Ashton Canal which is located approximately 2.2 km north of the site.

4.5.2 The canals are identified in the SFRA as not generally posing a direct flood risk as they are a controlled water body. Therefore, the residual risk of canal flooding is usually associated with lower probability events such as overtopping and/or the breaching of embankments.

4.5.3 Given the above information, it is considered that there is a low risk of canal flooding to the site.

4.6 Groundwater Flooding

4.6.1 Based on the Site investigation, groundwater occurred in CP03-4mbgl (approx. 60.47AOD), WS01 - 4.30mbgl (60.03AOD), which are located in the existing depot building. The highest groundwater post investigation level is in WS17- 1.17mbgl approx. 63.52 AOD which is located in the east north corner.

4.6.2 As the existing levels will in the majority of the site stay as existing, minor amendments will be within the washdown area and there is no basement proposed, ground water flooding risk is considered to be very low.

4.7 Public Sewers

4.7.1 There is no public sewer within the site.

4.7.2 United Utilities and Manchester City Council have not provided any records of flooding to the site or the vicinity.

4.7.3 Providing United Utilities and Manchester City Council maintain their drainage assets in the vicinity of the site, the risk of flooding to the proposed development site from public sewers is considered as low.

4.8 Surface Water Flooding to the site

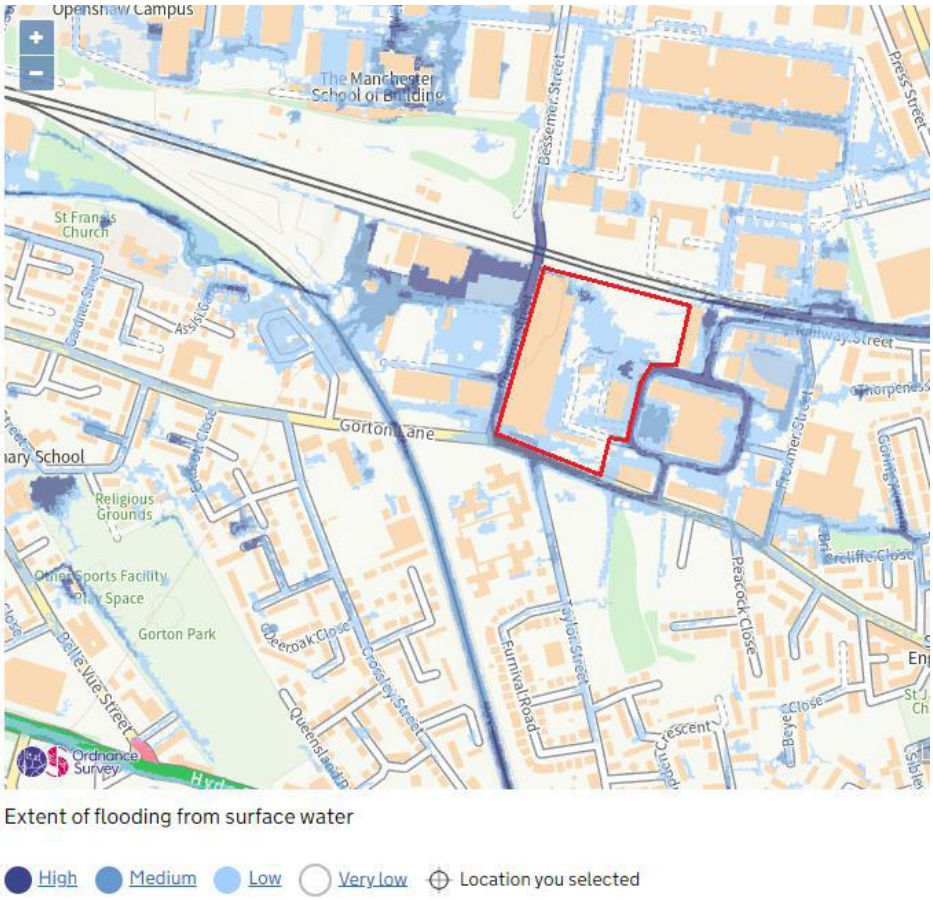
4.8.1 From the UK Government's Flood Risk from Surface Water (extent of flooding) map;

- Where a site is located in a dark blue shaded zone, this indicates that the site is at high risk of flooding, where flooding occurs as a result of rainfall with a greater than 1 in 30 (3.3%) chance in any given year.
- Where a site is located in a mid-blue shaded zone, this indicates that the site is at medium risk of flooding, where flooding occurs as a result of rainfall of between 1 in 100 (1%) and 1 in 30 (3.3%) chance in any given year.
- Where a site is located in a light blue shaded zone, this indicates that the site is at low risk of flooding, where flooding occurs as a result of rainfall of between 1 in 1000 (0.1%) and 1 in 100 (1%) chance in any given year.
- Where a site is located in a clear (unshaded) area; this indicates that the site is at very low risk of flooding, where flooding occurs as a result of rainfall with less than 1 in 1000 (0.1%) chance in any given year.

4.8.2 Based on Figure 7 there is a high risk of surface water flooding within adjacent highways which is likely to be caused by surcharging public sewers. The site levels slope towards the adjacent roads and the surface water flooding within the highway do not extend into the site.

4.8.3 It is recommended that these levels should be maintained, in order that the surface water flood risk to the site shall not be increased. It is assumed that the surface water drainage outside of the site boundary will be subject to the relevant landowner's regular drainage maintenance schedule.

Figure 7: Risk of Flooding from Surface Water - Extent of Flooding



4.8.4 Considering the above information, the risk of surface water flooding to the site is generally considered very low.

4.9 Surface Water Flooding from the site

4.9.1 Surface water flooding can be caused when rainwater during extreme rainfall events does not drain away through the normal drainage system and because of the existing hardstand surface can't soak into the ground. The private drainage might not have sufficient capacity causing flooding occurring, principally from manholes and gullies.

4.9.2 The new drainage systems have been designed to prevent from flooding for 1 in 100+45% Climate change. There is no risk for surface water flooding from the site.

4.9.3 The proposed surface drainage has been described within section 5 of this report.

4.10 Existing drainage pre and post development flooding

4.10.1 The existing drainage has been modelled up to 1 in 100 year storm events. The existing drainage flooding predevelopment and post-development extent has been indicated on the drawings included in Appendix I.

4.10.2 Post-development flooding volumes overall have decreased, as some impermeable areas have been connected to new surface water drainage: lower car park, existing building roof.

4.10.3 As the existing levels within the external ground floor yard area (besides the washdown area) will not change, the post-development flooding extent from the existing retained drainage in that area will be similar as predevelopment.

4.10.4 The flooding from the existing drainage is retained within the site boundary and does not flow to adjacent land.

4.10.5 There is existing flooding near existing manhole MH16. The flooding volume has decreased by 7m^3 from pre-development to post-development. As it is a low risk the water will flow towards the existing building the mitigation measures have been indicated in section 4.12

4.11 Summary of Flood Risk

4.11.1 From the evidence collated and subsequent negotiations the main types of flooding that may apply to the proposed development site are as follows:

- Existing drainage post development flooding

4.12 Mitigation of surface water flooding to the building

4.12.1 The following typical flood resilient measures are suggested

a) Higher FFL within existing building should be considered in that location.

b) Void air vents placed either above the predicted flood level or fitted with automatic covers that close in contact with water.

c) Placing of sensitive power and data equipment above the predicted flood level.

d) Internal electrics and communication services fed from ceiling level rather than floor level.

e) Electrical supply meter and consumer unit should where possible be fitted above the flood level. Where the supply meter and consumer unit are fitted above the flood level, good practice would be to separate all electrical services within the flood level from services that would not be above the flood level- this would allow light, heat and power until normality has been returned.

f) All electrical services affected must be inspected and pass as safe for use by a qualified accredited electrician.

g) All electrical ring mains serving the ground floor or flood area shall be passed through plastic conduits to socket level. This will allow affected cable to be replaced at minimum cost.

h) In the event of a flood, the gas service shall be isolated at the emergency isolation control valve and only be turned on following a complete inspection by a Corgi registered engineer.

i) Gas and oil fired boilers and associated pumps and control should preferably be installed above the maximum expected flood level. Fittings that have been immersed by flood water should be inspected by a qualified engineer registered by Gas Safe.

j) All hot water storage vessels to be installed above flood level.

k) Incoming cold water mains to be fitted with a double check valve directly after the mains stop cock. In the event of flooding, water taps should not be used until told to do so by the local water authority.

l) Demountable flood barriers and/or doors fitted at flush threshold access points both to the building and entrances.

m) Water resistant coating to be used on walls up to 500mm above flood water level.

n) Internal finishes to walls within the flood zone can have either the following;

- Sand/Cement render base coat with water resistant additive, finished with a lime base plaster. This method allows the finishes to remain however requires additional time to dry.
- Horizontally lined plasterboard on dabs, finished with a lime based plaster. This method allows for the damaged areas to be cut out and replaced. This helps the drying out process and reduces the amount of time the property is unoccupied.

o) Ceramic tiles to kitchens and toilets.

p) Fixings and furniture to be of galvanized steel/stainless steel – copper or brass mild steel to be only used above flood water level.

q) Timber stud walls to be only used above flood level.

r) Ground floor construction to be solid screed or rigid insulation boards with low water absorption laid on polythene membrane.

s) Wooden windows and doors should be treated with an oil base or water proof stain prior to installation to ensure all surface areas are sealed. Where possible use UPVC or powder coated aluminium windows and doors.

t) Wood skirting boards should be used where below flood water depth and with glue fixings as the skirting boards will need to be removed to allow walls to dry out after a flood event. All surface areas of skirting and door frames, liners and architrave shall be fully sealed prior to fixing.

4.12.2 The above measures are considered relatively simple techniques to provide extra protection for the proposed development if required.

5.0 Climate change (Rainfall)

5.1.1 In May 2022, the Environment Agency released updated climate change allowances by Management Catchment for peak rainfall intensities which should be applied to new developments. Figure 8 demonstrates the climate change allowances with central and upper end allowances being considered.

5.1.2 Based on the nature of the development, a lifespan of 60 years is anticipated (as defined by the current requirement for commercial development). Therefore, the potential climate change allowance in the Irwell Catchment for the 2070s ranges between 30% for the central allowance and 45% for the upper end allowance. Manchester LLFA requires 45% climate change be considered for the site.

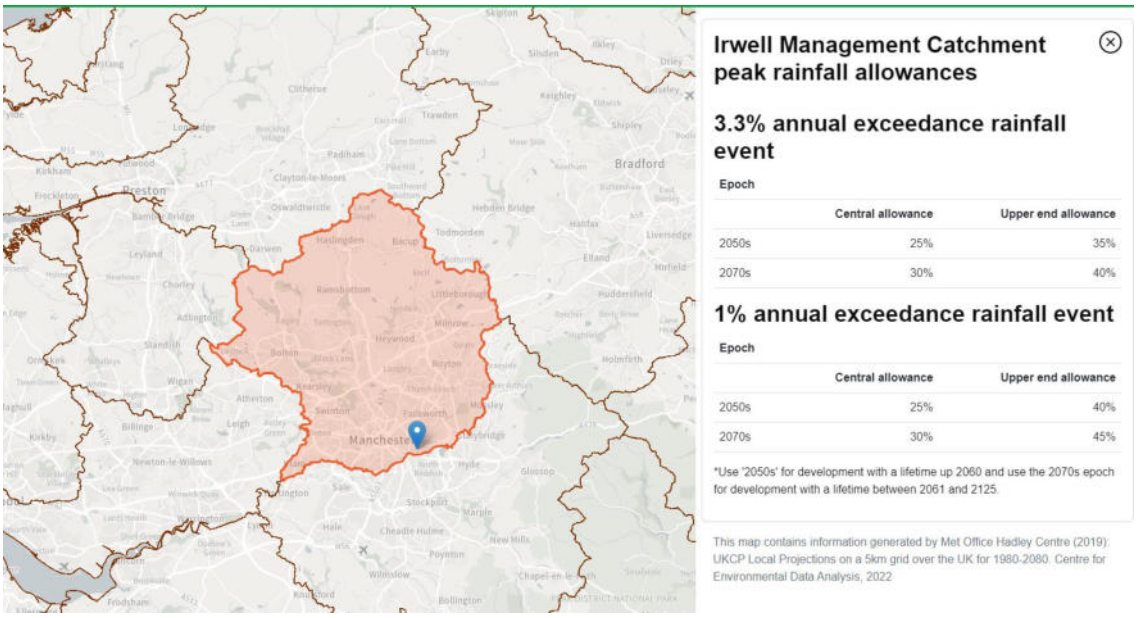


Figure 8: Irwell Catchment Management Catchment peak rainfall allowances

6.0 Drainage Strategy

6.1 Existing Drainage

6.1.1 The existing public sewer has been described within section 2.3.

6.1.2 A GPR and CCTV survey has been carried out for the site and is enclosed in *Appendix C*. There are various private surface and foul water drains.

6.1.3 Summary of findings:

- *The location and condition of existing 670mm brick surface water sewer in south and 750mm culverted Corn Brook in the north of the site.*

North 750mm culverted Corn Brook

- The position of culverted Corn Brook between has been estimated based on the location of UU 3803 and MH1. The CCTV was carried out upstream from MH1 towards the site boundary only.
- The CCTV reports indicate that part of the culverted watercourse has been surveyed from MH1 and MH6, however survey was abandoned due to debris/ obstacles.
- The culverted watercourse downstream from MH6 was heavily silted. UU 1902 is buried and a survey could not be carried out from UU1902 upstream towards MH6.

As the owner of the site is responsible for the maintenance and operation of the culverted watercourse within the site, under the terms of riparian ownership, during construction the culverted watercourse should be cleaned, surveyed where currently it is not accessible, and repaired if necessary.

Existing 670mm culverted watercourse in south

- Based on UU records, the watercourse invert level is 60.22 AOD which is 1.40mbgl. The UU 1704 manhole has been lifted and the southern watercourse partially surveyed. The CCTV survey has been abandoned due to debris however based on however, based on information received, it appears that the downstream pipe from 1704 is within the public footway. The upstream pipe has not been fully surveyed and it is uncertain how far encroaches to the site.

As the owner of the site is responsible for the maintenance and operation of the culverted watercourse within the site, under the terms of riparian ownership, during construction the culverted watercourse should be cleaned, surveyed where currently it is not accessible, and repaired if necessary.

- The CCTV survey confirmed that the majority of the existing depot building discharges surface water to the 900mm brick combined water sewer within Gorton Lane
- The size and condition of the existing private network,
  - The CCTV survey confirmed there are 2 combined connections from the site; one to UU 2801 (connection EB2) and a second to UU2708 (connection EB3) foul water sewer located within Hammerstone Road.
  - There is a 300mm combined connection from the lower ground floor car park, and the majority of the existing depot building, to the 900mm dia UU combined sewer within Gorton Lane (the existing connection labelled EC). The part of the ground floor external area seems to discharge in that direction, is subject to further survey.
  - It is unknown where the existing depot building RWPs from Preston Street discharge to.
  - The north part of the existing depot building and north part of the yard discharges surface water to Corn Brook, connections EA1 to EA6

- The majority of the yard discharges surface water directly to the watercourse: there is an existing petrol interceptor in the middle of the site which takes flows from the existing refueling area.

6.1.4 For existing drainage condition and location refer to drawing *068065-CUR-XX-00-DR-C-92-611-Retaned and Abandoned Drainage and HRD-CUR-XX-00-DR-C-92-621 Existing Catchment Plan* included within Appendix F.

6.1.5 As the majority of external drainage will be retained the additional CCTV survey is required to confirm all retained pipes condition.

6.2 Proposed Foul Water Drainage

6.2.1 A separate foul water drainage has been proposed for the new toilets within the existing depot building. The new foul water drainage will be connected to the existing MH44 within the lower ground and discharged to the existing combined sewer within Gorton Lane via the existing connection.

6.2.2 It is proposed that the new foul water drainage from the gatehouse will be connected to the private existing FW1B located near the site entrance, south site boundary which connects to the foul water public sewer within Hammerstone Road.

6.2.3 The new foul water drainage has been proposed, refer to *068065-CUR-XX-00-DR-C-92-600-PROPOSED DRAINAGE* within *Appendix F*.

6.2.4 Surface water from Washdown area will be discharged to the foul water sewer in Hammerstone Road, reusing the existing connection to UU2801. United Utilities have requested to limit the surface water rate from the above areas to 5l/s. Therefore, an attenuation tank with flow control has been provided.

6.2.5 A trade effluence licence is required for surface water from Washdown area

6.2.6 Correspondence with UU is included within *Appendix E*.

6.2.7 Any new connection to the public sewer network will be subject to a Section 106 Agreement with United Utilities.

6.3 Proposed Surface Water Drainage

6.3.1 Any new development site drainage should be designed in accordance with current best practice to provide adequate capacity not to flood for the critical 1 in 30-year storm event and flood water generated for up to the critical 1 in 100-year plus climate change storm event shall be constrained within the areas on site so not to cause damage to buildings, essential services or adjoining developments and services.

6.3.2 In following the standard hierarchy of drainage solutions, consideration should first be given to the discharge of surface water runoff by sustainable methods such as infiltration.

Infiltration

6.3.3 Due to the ground condition presence of clay, contaminants the infiltration methods are not feasible for the site.

Watercourse

Existing building roof

6.3.4 A new siphonic roof system has been proposed for the existing depot building. The new siphon roof system will discharge surface water to the proposed gravity below ground drainage within the ground floor external area. The new tank and a new connection to the northern watercourse will be provided. The roof areas which previously discharged to the south combined sewer within Gortone Lane, will be reduced to Qbar and existing areas being reduced by 50% and restricted to the 1 in 30 year storm event. The proposed surface water flow from the roof to the northern watercourse will be limited to 18.1 l/s for storm events. The proposal has been agreed with LLFA. Correspondence has been included in Appendix E.

6.3.5 The attenuation tank will provide storage for storm events up to 1 in 100+45 %Climate change. The tank will be supplied with equipment which supplies rainwater to the Washdown area to clean vehicles.

6.3.6 As the direct connection is proposed to the culverted watercourse through a new manhole, land drain consent will be required.

Lower ground car park

6.3.7 The upstream run from manhole 1704 of the southern culverted watercourse location could not be confirmed. The culverted watercourse is at 1.4mbgl(60.22 AOD) within the public footway, which means the connection should be at 0.88mbgl (60.74 AOD). Based on current standards, the connection should be soffit to soffit when a smaller pipe is connected to a larger pipe. Therefore, the connection invert to invert is not recommended, as the connection will always be surcharged.

6.3.8 The existing retaining wall underside of the foundation is expected to be 0.60mbgl (61.02 AOD), which means that if surface water from the site is laid with minimum slope the soffit of the pipe will be in close proximity to the underside of the existing foundation.

6.3.9 The existing retaining wall is clearly in a state of disrepair, and as such any work carried out to the wall may affect the ongoing structural integrity of the wall itself. This may extend beyond the localised works required to form any new connection. Coupled with this, there is the ongoing maintenance of the pipe work between the site and the culvert which must be considered; any settlement to the wall at a critical drainage location could damage the pipe and affect the performance of the overall drainage system to the wider site.

6.3.10 Based on the above, the lower ground floor car park will reuse the existing connection to the combined water sewer. The approach has been agreed with United Utilities. Correspondence has been included in *Appendix E*.

The proposed surface water has been restricted to 50% reduction of the existing 1 in 1-year storm event to all storm events. The flows have been restricted as shown in figure 9 within the report. The proposed flow has been agreed with United Utilities.

6.3.11 The attenuation within the lower car park area has been provided within a cellular attenuation tank.

6.3.12 As it is an industrial area, and the lower ground car park slopes steeply, this will not allow attenuation of the surface water within the permeable pavement. Due to the steep slopes, surface water will run over the surface to the lowest point and is unlikely that runoff will infiltrate through permeable pavement joints. Therefore, permeable pavement has not been proposed. The proposed levels plan is included within *Appendix F*.

6.3.13 A S106 (Ref EC5754), was approved in May 2022. This has subsequently been extended. A copy of the apporval notice and confirmation of the extension are included in Appendix E.

Cocacola building slab and external additional impermeable area

6.3.14 The existing Coca Cola building will be demolished and the existing slab retained. It is intended that the retained slab will drian to the existing drainage adjaecnt to the building. Under the current application, the existing slab will not be used for vehicular access. Therefore, there is no requirement for a Petrol Interceptor to be installed for this area.

6.3.15 A new section of road near the washdown area is proposed in the existing soft landscaping area, therefore, additional impermeable area requires to be captured, flow limited and storage is provided.

6.3.16 Both areas have been limited to greenfield rate and discharge to private surface water drainage which discharges to the watercourse.

6.3.17 The attenuation tank has been proposed to provide storage for 1 in 100+45%Climate change.

Washdown area

Foul water sewer

6.3.18 There is no cover above the Washdown area. As the surface water from the area can't be collected separately to sewages from washing vehicles, the area will discharge surface water to foul water sewer with Hammerstone Road. The flow will be limited to 5 l/s as agreed with United Utilities and the attenuation tank will be provided to provide storage for storm event 1 in 100+45% Climate change.

The surface water calculations have been included within *Appendix G* and the proposed drainage included in *Appendix F*.

Figure 9.Summary of the proposed catchments and flow.

PROPOSED CATCHMENTS MAXIMUM FLOW RATES					
CATCHMENT REF	AREA (Ha)	CALCULATION METHOD	FLOW RATE - 1:1 YEAR STORM EVENT	FLOW RATE - 1:30 YEAR STORM EVENT	FLOW RATE - 1:100 YEAR + 40% CC STORM EVENT
PA1 & PA2 (BUILDING)	0.260	50% BROWNFIELD: BASED ON MODIFIED RATIONAL METHOD	5.5 (50% OF 11)	13 (50% OF 26)	17 (50% OF 34)
PA3 (BUILIDNG)	0.783	GREENFIELD RUN-OFF	5.1	5.1	5.1
CATCHMENT PA1-3 TOTAL	1.043	LIMITED TO 30-YEAR STORM EVENT, AS AGREED WITH LLFA	18.1	18.1	18.1
CATCHMENT PA4 (DEMOLISHED BUILDING SLABS)	0.175	GREENFIELD RUN-OFF (INCREASED TO 5 l/s MIN FLOW TO AVOID BLOCKAGES)	5.0	5.0	5.0
CATCHMENT PB (WASHDOWN)	0.120	AS AGREED WITH UNITED UTILITIES (FOUL CONNECTION)	5.0	5.0	5.0
CATCHMENT PC (LOWR GROUND CP)	0.332	50% BROWNFIELD OF THE EXISTING 1-YEAR STORM EVENT AREA EC (25%)	7.0	7.0	7.0

The proposed drainage strategy has been shown on HRD-CUR-XX-00-DR-C-92-600 Proposed Drainage included in *Appendix F.*

Existing retained drainage

6.3.19 As the existing external ground floor surface will be resurfaced only. The majority of the existing drainage will be retained and repaired.

6.3.20 There are 2 small buildings which will be demolished but the existing slab will be retained. As the impermeable area will not increase therefore the area will discharge as existing. The slab will be resurfaced and falls created to an adjacent gully.

6.4 Pollution control

6.4.1 Surface water run-off from hard paved areas at risk of contamination should receive water quality treatment. Commercial delivery/service access is considered low hazard in terms of contamination. Figure 10 illustrates the pollution hazard indices for different land use classifications from The CIRIA SuDS Manual C753 (2015).

Figure 10: Pollution Hazard indices for land use classification (Table 26.2 the CIRIA SuDS manual

TABLE 26.2 Pollution hazard indices for different land use classifications

Land use	Pollution hazard level	Total suspended solids (TSS)	Metals	Hydro-carbons
Residential roofs	Very low	0.2	0.2	0.05
Other roofs (typically commercial/ industrial roofs)	Low	0.3	0.2 (up to 0.8 where there is potential for metals to leach from the roof)	0.05
Individual property driveways, residential car parks, low traffic roads (eg cul de sacs, homezones and general access roads) and non-residential car parking with infrequent change (eg schools, offices) ie < 300 traffic movements/day	Low	0.5	0.4	0.4
Commercial yard and delivery areas, non-residential car parking with frequent change (eg hospitals, retail), all roads except low traffic roads and trunk roads/motorways[1]	Medium	0.7	0.6	0.7
Sites with heavy pollution (eg haulage yards, lorry parks, highly frequented lorry approaches to industrial estates, waste sites), sites where chemicals and fuels (other than domestic fuel oil) are to be delivered, handled, stored, used or manufactured; industrial sites; trunk roads and motorways[1]	High	0.8[2]	0.8[2]	0.9[2]

Figure 11: Indicative SuDS mitigation indices (Table 26.3 the CIRIA SuDS manual 2015)

TABLE 26.3 Indicative SuDS mitigation indices for discharges to surface waters

	Mitigation indices[1]		
Type of SuDS component	TSS	Metals	Hydrocarbons
Filter strip	0.4	0.4	0.5
Filter drain	0.4[2]	0.4	0.4
Swale	0.5	0.6	0.6
Bioretention system	0.8	0.8	0.8
Permeable pavement	0.7	0.6	0.7
Detention basin	0.5	0.5	0.6
Pond[4]	0.7[3]	0.7	0.5
Wetland	0.8[3]	0.8	0.8
Proprietary treatment systems[5,6]	These must demonstrate that they can address each of the contaminant types to acceptable levels for frequent events up to approximately the 1 in 1 year return period event, for inflow concentrations relevant to the contributing drainage area.		

Notes

1 SuDS components only deliver these indices if they follow design guidance with respect to hydraulics and treatment set out in the relevant technical component chapters.

2 Filter drains can remove coarse sediments, but their use for this purpose will have significant implications with respect to maintenance requirements, and this should be taken into account in the design and Maintenance Plan.

3 Ponds and wetlands can remove coarse sediments, but their use for this purpose will have significant implications with respect to the maintenance requirements and amenity value of the system. Sediment should normally be removed upstream, unless they are specifically designed to retain sediment in a separate part of the component, where it cannot easily migrate to the main body of water.

4 Where a wetland is not specifically designed to provide significantly enhanced treatment, it should be considered as having the same mitigation indices as a pond.

5 See Chapter 14 for approaches to demonstrate product performance. A British Water/Environment Agency assessment code of practice is currently under development that will allow manufacturers to complete an agreed test protocol for systems intended to treat contaminated surface water runoff. Full details can be found at: **http://tinyurl.com/qf7yuj7**

6 SEPA only considers proprietary treatment systems as appropriate in exceptional circumstances where other types of SuDS component are not practicable. Proprietary treatment systems may also be considered appropriate for existing sites that are causing pollution where there is a requirement to retrofit treatment. SEPA (2014) also provides a flowchart with a summary of checks on suitability of a proprietary system.

6.4.2 The selection of treatment should ensure that the SuDS mitigation component index (Figure 11) exceeds the pollution hazard index (Figure 10). Where two stages of treatment are required, the second

stage of treatment should account for reduced performance due to lower inflows; therefore 0.7 (mitigation index) should be used.

6.4.3 Due to the urbanized character of the site petrol interceptor will be proposed as follow to provide sufficient water quality treatment.

- Petrol interceptor for the ground floor car park created on the previous Cocoala building and an additional impermeable area
- Petrol interceptor for the lower parking
- Washdown/ silt separator for Washdown area

The existing petrol interceptor will be retained as it serves external retained areas around existing fuel tank.

The proposal will be sufficient for the developed areas.

7.0 Risk

7.1.1 The culverted watercourse within the boundary should be fully surveyed and repaired. As the owner of the site is responsible for the maintenance and operation of the culverted watercourse within the site, under the terms of riparian ownership, during construction the culverted watercourse should be cleaned, surveyed where currently it is not accessible, and repaired if necessary.

7.1.2 Proposed surface water discharge rates and surface water strategy for each outfall subject for LLFA approval.

7.1.3 Surface water from Washdown area will be connected to UU foul water sewer subject to a trade effluent discharge consent.

8.0 Conclusion

8.1.1 The majority of the site is located within Zone 1, a localised area in the south west of the site, and a small area of the existing building in the north west is located within Flood Zone 2

8.1.2 There is low risk of flooding from: river, seas, reservoir, groundwater. There are no records of sewer flooding within the adjacent area. The surface water flooding from the existing drainage decreased from predevelopment to post-development. However, mitigation methods should be used for the existing refurbished building.

8.1.3 The drainage has been designed according to MCC &n EA standards.

Appendix A

Proposed Site Layout

Pre & Post Developmental Area Designations



General Notes

Do not scale from this drawing. Only work to written dimensions.

All site dimensions shall be verified by the Contractor on site prior to commencing any works.

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MORGAN SINDALL

⚠ Hazard Identification		
ref	hazard	date
H01	Falls from height	17.11.21
H02	Existing asbestos roof sheeting	17.11.21
H03	Existing lead based paint to structure	17.11.21
H04	Works in proximity to the railway	17.11.21
H05	Rooflights are non-fragile but not trafficable	17.11.21

- Manchester City Shared Admn / Welfare
- Manchester City & BIFFA Shared Admin / Welfare Parking
- MCC Storage / Independent Users
- MCC Storage / Independent Users Parking
- BIFFA
- BIFFA Parking
- Winter Maintenance
- Winter Maintenance Parking
- Planning Boundary
- Demolitions

Site Area = 3.80 Hectares (2.47 Acres)

Car Parking Numbers:

250 - Approx. existing spaces

364 - Indicated on FRA sketch18021_SK03_E with decked car park (stage 2 sign off)

Refer to plan for current numbers

Refer to drawing HRD-FRA-ZZ-XX-DR-A-90-0206 for vehicle dimensions

Rev.	Description	Date	ISS	APP
C04	Tree positions co-ordinated with drawing HRD-AJM-00-XX-DR-L-5211, lighting columns added	2022.11.04	AT	AT
C03	Line of existing culvert easement to the north of the site plan updated	2022.07.25	AT	AT
C02	Lower car park reconfigured to align with existing retaining wall position, condenser compounds annotated, 4no. car parking spaces added adjacent to secure cycle store	2022.07.13	AT	AT
C01	Construction Issue	2022.05.31	SH	AT

Scale **As indicated @ A1**
Status **PD - Published Document (Construction)**
Drawn By **JB**
Checked By **AT**
Date **01.09.20**

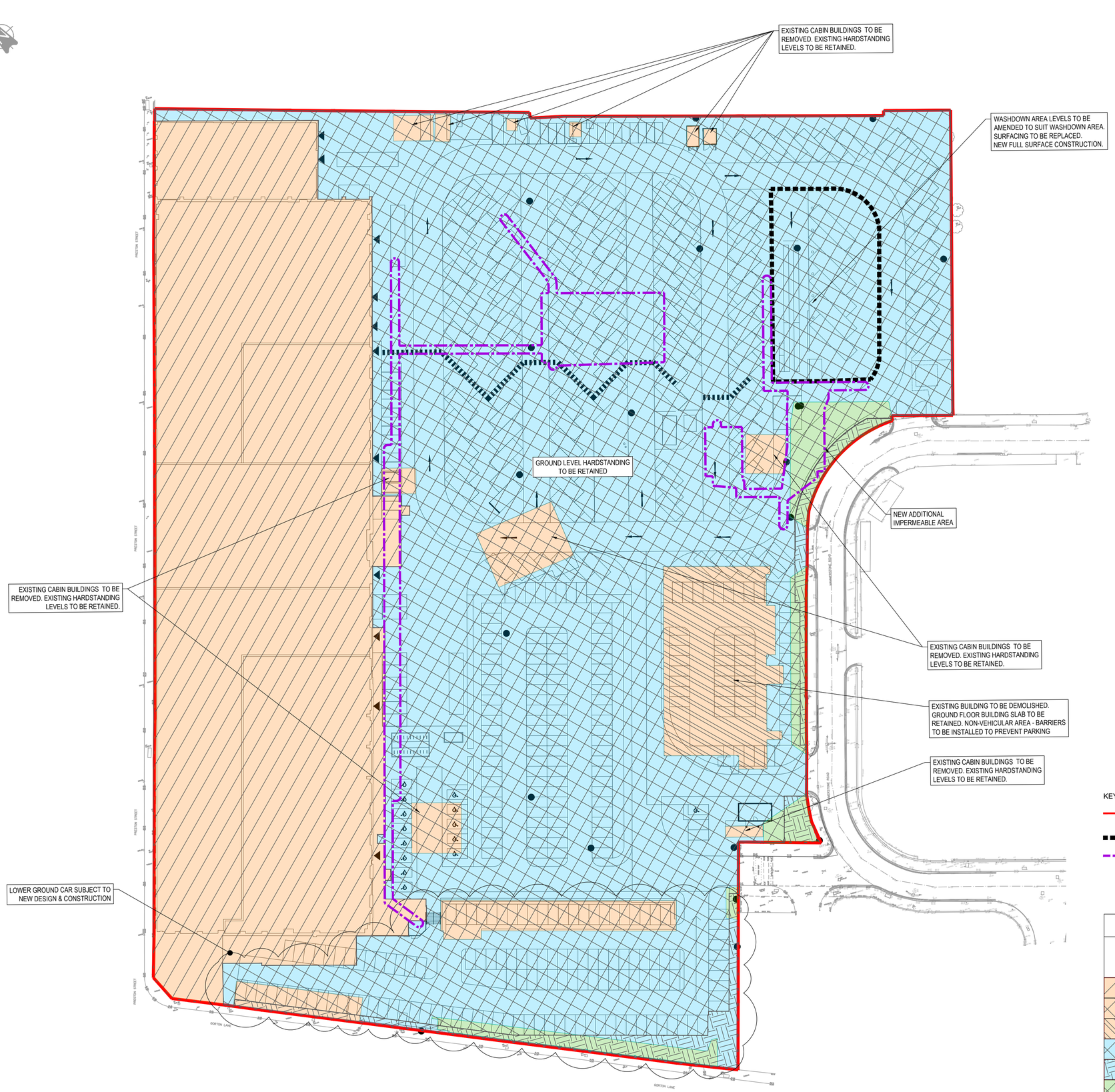
Client:
Morgan Sindall

Project:
18021 Hammerstone Road Manchester

Sheet Name:
Proposed Site Plan GA

Project No. Orig. Zone Level Type Role Cls Dwg No. Rev
HRD-FRA-00-XX-DR-A-90-0200 **C04**

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DRAWING BASED ON:

- TOPOGRAPHICAL SURVEY BY SEP S15724-T
- GPR SURVEY BY SEP S17480-U DEC 2018 JUNE 2018
- CCTV SURVEY BY SEP DRAINAGE SURVEYS LTD DEC 2018 AND AUG 2020
- UU RECORDS UUPS-ORD-76950
- PROPOSED SITE PLAN HRD-FRA-00-XX-SK-A-90-9006-C02

GENERAL NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
2. DO NOT SCALE THIS DRAWING. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWING SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY. ALL DIMENSIONS MUST BE CHECKED/VERIFIED ON SITE.
3. FOR GENERAL NOTES REFER TO DRAWING.

KEY:

- SITE BOUNDARY BASED ON HRD-FRA-00-XX-DR-A-90-0200
- PROPOSED WASHDOWN AREA
- INDICATIVE EXCAVATION EXTENTS FOR PROPOSED DRAINAGE. TO BE CONSTRUCTED BACK TO EXISTING LEVELS.

PRE/ POST DEVELOPMENT AREA DESIGNATIONS

HATCH	PRE-DEVELOPMENT DESIGNATION	POST DEVELOPMENT DESIGNATION
	BUILDING	BUILDING
	BUILDING	HARDSTANDING
	BUILDING	HARDSTANDING (NON-VEHICULAR ONLY)
	HARDSTANDING	HARDSTANDING
	HARDSTANDING	LANDSCAPING
	LANDSCAPING	HARDSTANDING
	LANDSCAPING	LANDSCAPING

Rev:	Description:	Date:	By:	Chkd:
P02	ISSUED FOR COMMENTS	22.06.23	ATL	MW
P01	ISSUED FOR COMMENTS	16.06.23	KS	MW

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Birmingham • Bristol • Cambridge • Cardiff • Douglas • Dublin • Edinburgh • Glasgow • Kendal • Leeds • Liverpool • London • Manchester • Nottingham

Status: PRELIMINARY

Project: HAMMERSTONE ROAD

Drg Title: PRE & POST DEVELOPMENT AREA DESIGNATIONS

Project No:	Size:	Date:	Drawn By:	Designed By:	Checked By:
068065	A1	14.06.23	KS	ATL	MW
	Scale: 1:500				

Project Code:	Originator:	Zone:	Level:	Type:	Discipline:	Category / Number:	Rev:
HDR	- CUR -	XX -	00 -	DR -	C -	92-620	- P02

\\mafs02\Projects\068001 - 069000\068065 - Hammerstone Road Depot\0IMS 4 Production\4B Models & Drawings_Civil-C\CADnew planning application\

Appendix B

United Utilities Public Sewer Records

How to contact us:

United Utilities Water Limited
Property Searches
Haweswater House
Lingley Mere Business Park
Great Sankey
Warrington
WA5 3LP

Telephone: 0370 7510101

E-mail: propertysearches@uuplc.co.uk

Curtins Consulting Ltd

51-55
Tithebarn Street,
Liverpool,
L2 2SB

FAO:

Your Ref: 068065 Hammerstone Road M18 8EQ
Our Ref: UUPS-ORD-76950
Date: 21/12/2018

Dear Sirs

Location: Hammerstone Road

I acknowledge with thanks your request dated 19/12/2018 for information on the location of our services.

Please find enclosed plans showing the approximate position of United Utilities' 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 United Utilities' 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 contact us .

Yours Faithfully,

Karen McCormack
Property Searches Manager

United Utilities Water Limited
Registered In England & Wales No. 2366678
Registered Office Haweswater House, Lingley Mere Business Park,
Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP

TERMS AND CONDITIONS - WASTEWATER AND 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:

- 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.
- 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.
- In particular, the position and depth of any UUWL apparatus shown on the Map are approximate only. 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.

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