







Northenden Golf Course

Flood Risk Assessment

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Site Address: Northenden Golf Course, Palatine Road, Manchester, M224FR

Curtins
Merchant Exchange
17-19 Whitworth Street West
Manchester, M1 5WG
Tel: 0161 236 2394
www.curtins.com

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Author	*Signature*	*Date*
Oliver Timmins BSc (Hons) MSc GMICE Graduate Engineer		02 March 2020

Reviewed	*Signature*	*Date*
Carl Dawson HNC Civil Engineering, AMCIHT Senior Engineer		02 March 2020

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1.0 Introduction

1.1 Project Background

1.1.1 Curtins was appointed by TEP to provide a Flood Risk Assessment (FRA) for the installation of a telecommunications mast on a temporary basis (lifetime of approximately 12-24 months).

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

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

1.1.4 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 the impact the development may have elsewhere with regards to flooding,
- Consider design proposals to mitigate any potential risk of flooding determined to be present; and
- Consider foul & surface water drainage proposals for the proposed development.

1.2.3 The site is approximately 168m^2 and therefore smaller than 1ha however the site is positioned with a Flood Zone 3 area therefore a Flood Risk Assessment is required.

1.2.4 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.
- Strategic Flood Risk Assessment (SFRA) for Manchester City, Salford City and Trafford Councils. Dated April 2010.
- British Geological Survey (BGS).
- Lidar data for the site.

1.3 Proposed Development

1.3.1 The development is expected to comprise of a temporary telecommunications mast (with a lifetime of 12-24 months) and equipment cabinet and generator.

1.3.2 A site layout can be found in *Appendix A*.

2.0 Existing Site Details

2.1 History and Current Use

2.1.1 The site is located on Northenden Golf Course, Palatine Road, Manchester, M224FR, GR: 383438 391587.

2.1.2 The site is bound by a green open space and beyond this an embankment to the North, an embankment to the East and beyond this the River Mersey, open green space to the South and open green space to the West.

2.1.3 Figure 1 shows the site location.

Figure 1: Aerial Photograph (© Google 2020)



2.2 Existing Watercourses and Other Waterbodies

2.2.1 The River Mersey is shown to encircle the site. The Eastern boundary of the site is the closest to the River at approximately 20m. To the North the River is approximately 50m away, to the West the River is 160m away and to the South the River is 215m away.

2.2.2 The River Mersey is classified by the Environment Agency to be a 'Main River'. Therefore, an easement of 8m must be maintained from the top of bank.

2.2.3 According to the OS maps there are no other watercourses close to the site boundaries.

2.3 Existing Drainage

2.3.1 No information on existing drainage features was available at the time this report was written. However, it is assumed that there are no public sewers within the vicinity of the site.

2.3.2 No historical drainage records have been provided for the site.

2.4 Topography

2.4.1 A topographical survey was not carried out at the time this report was written however Lidar data has been accessed.

2.4.2 The data shows that the site sits at approximately 26.3m AOD.

2.4.3 The toe of the riverbank (adjacent to the site) is shown to sit at approximately 23.90m AOD.

2.4.4 In between the site and the toe of the riverbank appears to be two embankments. From the river's edge there appears to be an embankment approximately 2.8m high (26.69m AOD) which makes up the riverbank. This embankment then plateaus for 7m before there is another embankment. This second embankment is 8m wide and borders the Eastern edge of the site and is shown to be approximately 2.3m above the level of the site and 5m above the toe of the riverbank.

2.5 Geology

2.5.1 The British Geological Survey maps indicate that the superficial deposits of the site consist of Alluvium – Clay, Silt, Sand and Gravel. The bedrock of the site is shown on the BGS to be made up of Wilmslow Sandstone Formation (Sandstone).

2.5.2 The site is not shown on the government maps to be located within a Groundwater Source Protection Zone.

3.0 Development and Flood Risk

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

3.1.1 In February 2019, 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 seas (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 report is enclosed in *Appendix B,* and it can be seen that the site is within a Flood Zone 3.

3.2.3 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 proposal for the development site is likely to fall within the following category:

- Utility Infrastructure

3.3.2 Utility Infrastructure is classed as 'Essential Infrastructure' in the Flood Risk Vulnerability Classification (Table 2).

3.3.3 As the development is for a temporary telecommunications mast with a total site area of approximately 168m^2 it can be considered a minor development and therefore an exception and sequential test would not be required.

4.0 Hydrological Assessment

4.1 Sources of Flood Risk

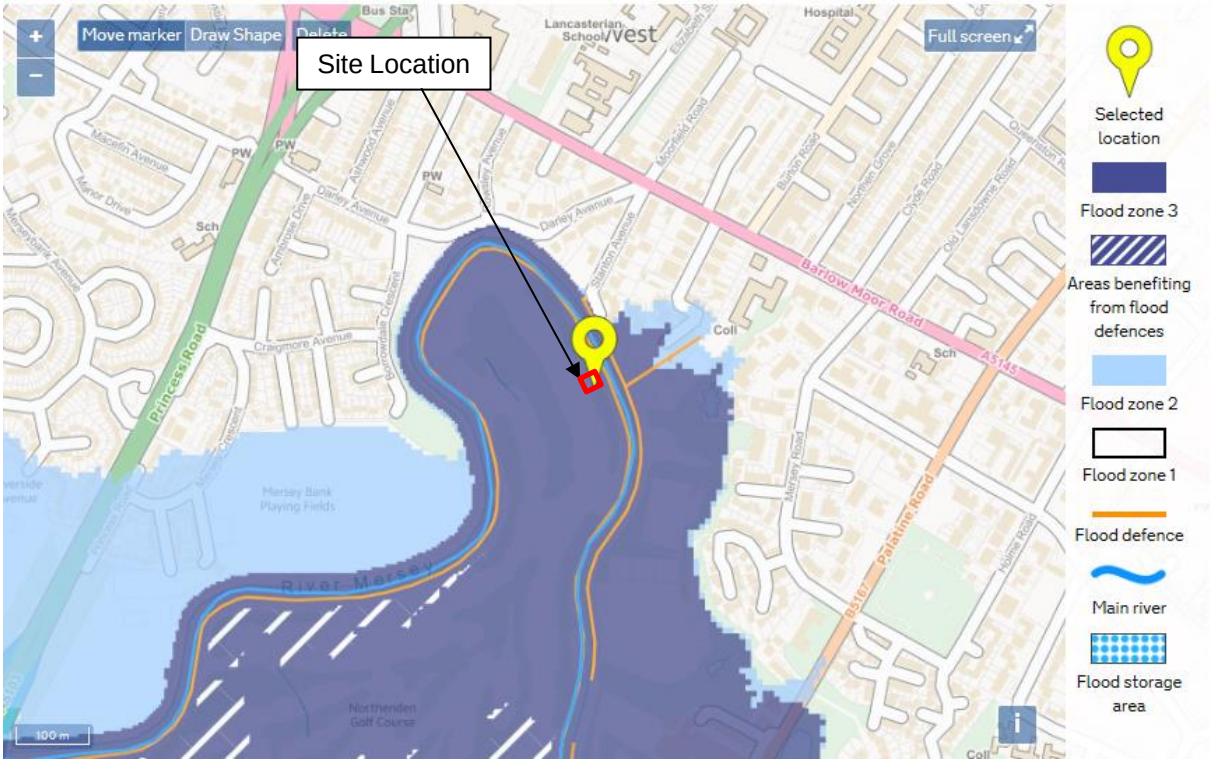
4.1.1 This study assesses the risk from different types of flooding to the development and the risk of flooding from the development, taking into consideration climate change, as well as how flood risks should be managed. The approach to assessing flood risk at the development site was informed by the 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 seas is indicated below in Figure 2, taken from the UK Government's Long-Term Flood Risk Information.

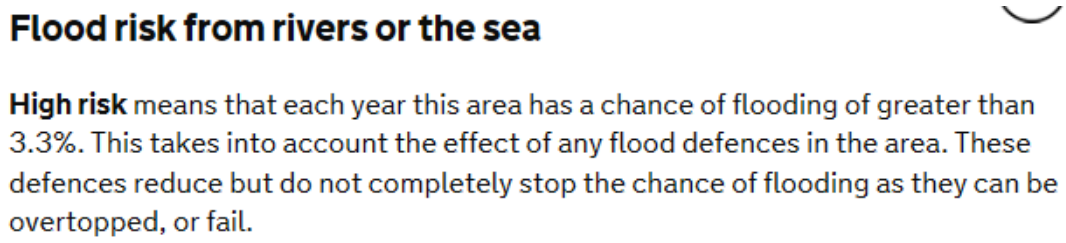
4.2.2 A copy of the EA Long Term Flood Risk Assessment Map can be seen in *Appendix B*.

Figure 2: Long Term Flood Risk Assessment Map – Flood Risk from Rivers or Sea (© Crown Copyright)



4.2.3 It can be seen in Figure 2 that the whole site area is within a Flood Zone 3 and therefore at a 'high' risk of fluvial flooding (see Figure 3).

Figure 3: Long Term Flood Risk Assessment (Detailed Information) – Flood Risk from Rivers or Sea (© Crown Copyright)



4.2.4 The site is not shown to be in an area which benefits from flood defences (according to the EA Flood maps).

4.2.5 The flood level data and mapping has been provided by the EA and is enclosed in *Appendix C.*

4.2.6 The Environment Agency released updated climate change allowances for peak river flows for catchments across the UK in February 2016 which should be applied to new developments.

4.2.7 Based on the site being classed as 'Essential Infrastructure' an addition of 0.48m (Upper) for climate change allowance should be applied to the flood event that most closely represents the lifetime of the development which is understood to be 1-2 years (this is based on the EA Climate Change Allowance guidance). The EA have not calculated the flood levels for the 1 in 2 year event therefore the 1 in 5 year event has been used as a basis of the assessment (as a worst case scenario).

4.2.8 The current site is defended by a known EA maintained flood defence. Therefore the 'defended' flood levels have been used in Table 4 (the EA have also confirmed that we should use the defended levels see *Appendix C*).

4.2.9 A summary of the flood levels derived from the EA data is presented in Table 4 and are also enclosed in *Appendix C*.

Table 4: Summary of Flood Levels (Defended)

Node	5 Year (1%)	5 Year +0.15m cc (Central)	5 Year +0.24m cc (Higher Central)	5 Year +0.48m cc (Upper)	Embankment Level (based on Lidar Data)
2	27.67	27.82	27.91	28.15	28.517
3	27.42	27.57	27.66	27.90	28.222

4.2.10 The table also identifies the flood defence level adjacent to the modelled node locations. This confirms that there are no locations adjacent to the site where the flood levels exceed the flood defence level during the 1 in 5-year event (including any climate change allowance factor).

4.2.11 This would therefore indicate that the development is at a low risk of flooding during its lifetime.

4.2.12 If the flood defence were to fail mitigation methods have been specified within section 5 to ensure that the risk of fluvial flooding to the site and to adjacent sites/structures are minimised.

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.

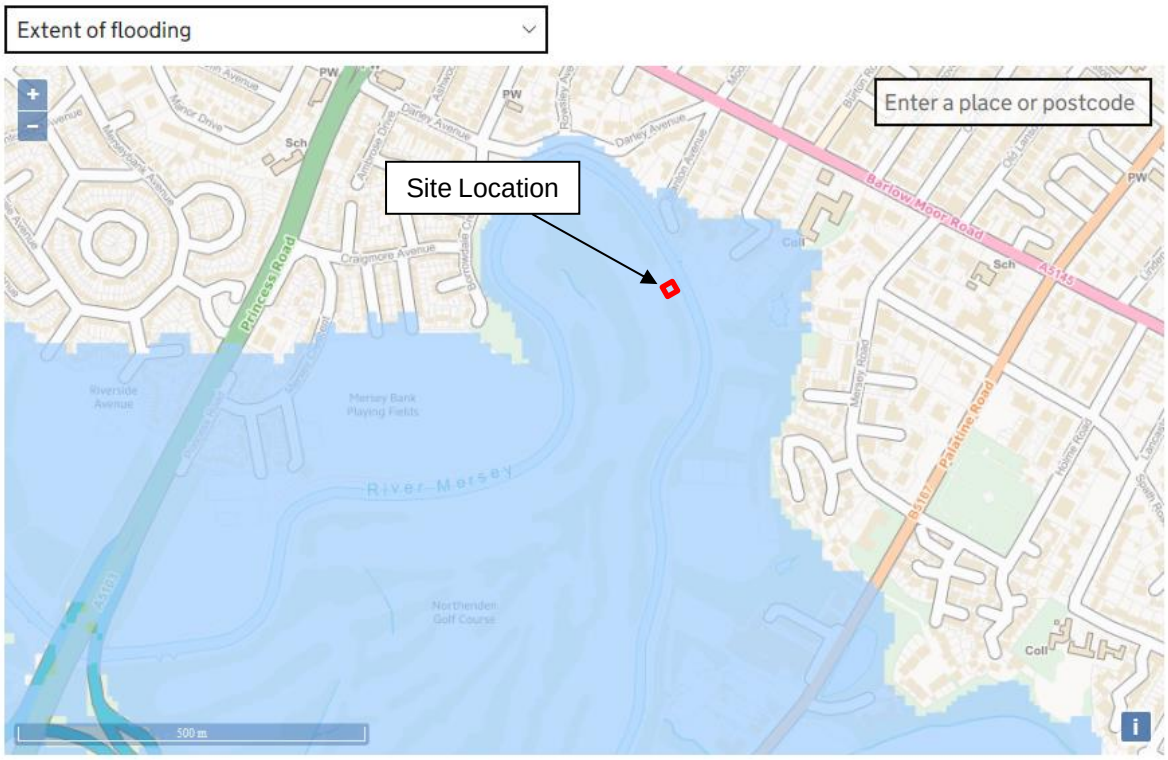
4.4 Reservoir Flooding

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 site is not located next to a reservoir.

4.4.3 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 (see Figure 4).

Figure 4: Long Term Flood Risk Assessment Map – Flood Risk from Reservoirs (© Crown Copyright)



4.4.4 The site is located within the extent of a reservoir flood risk according to Flood maps.

4.4.5 The government state that if a reservoir flood event were to occur '*even in the worst case scenario many areas shown as possibly being at risk of reservoir flooding would be expected to receive no more than a few centimetres of flood water' (www.gov.uk/government/news/reservoir-flood-maps-published).*

4.4.6 The only risk posed by reservoir flooding to the site is potenital damage to the mast. As the mast is proposed to be set into several 900mm x 900mm concrete blocks it is anticipated that a 'few centrimetres of flood water' would not cause extensive damage to the structure.

4.5 Canal Flooding

4.5.1 The site is not shown to be located near to a canal.

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 The Manchester City, Salford City and Trafford SFRA highlights that the site is within an area at risk of groundwater flooding.

4.6.2 Based on the current information it is assumed that the site could be at risk of groundwater flooding. Therefore, mitigation measures are proposed in section 5.

4.7 Public Sewers or Highway Drainage Flooding (Infrastructure Failure)

4.7.1 As noted in Section 2.3 it is assumed that there are no sewers located with the site boundary due to the site's location.

4.7.2 Therefore, the risk of flooding to the proposed development site from public sewers or highway drainage is considered as low.

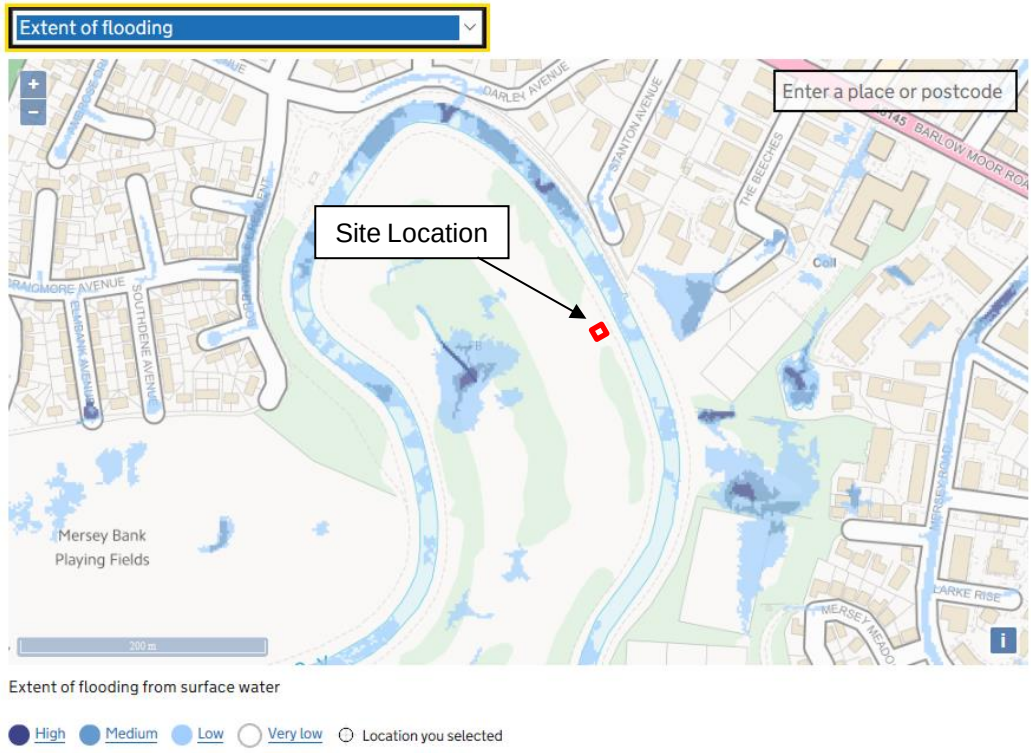
4.8 Surface Water Flooding to the site

4.8.1 Surface water flooding can be caused when rainwater during extreme rainfall events does not drain away through the normal drainage system or soak into the ground with flooding occurring, principally from manholes and gullies. Surcharging sewers can result in overland flows which if originating at a higher elevation than a development site can potentially pose a flood risk.

4.8.2 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.

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



4.8.3 The whole of the site is shown on Figure 5 to be within an area having a 'very low' risk of surface water flooding. This is likely to be due to the site and surrounding area being soft landscape.

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 Developers are responsible for ensuring that new development does not increase the flood risk elsewhere. Where new development is proposed, the proposed surface water drainage network shall be designed to not flood for the critical 1 in 30-year storm event and flood water generated up to the critical 1 in 100-year plus climate change storm event shall be constrained within areas on site so as not to cause damage to buildings, essential services or adjoining developments and services.

4.9.2 The development will add minor areas of hardstanding to the site. As these proposed hardstanding areas are so small it is unlikely to increase the sites overall run-off rate. Where additional run-off occurs this will drain into the soft landscaping on the site or the surrounding golf course.

4.9.3 Overall the surface water flooding from the site to surrounding areas is considered very low.

4.10 Historical Flooding

4.10.1 No historic records of flooding for the site were received at the time this report was written.

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:

- Fluvial Flooding
- Groundwater flooding
- Reservoir Flooding

5.0 Mitigation

5.1 Fluvial Flood Mitigation

5.1.1 The site is located within an area classified as Flood Zones 3. The extents of the flood zoning have been informed by the flood levels taken from the Environment Agency.

5.1.2 The 1 in 5 year event (including all allowances for climate change) does not exceed the level of the existing flood defence located next to the site therefore, the risk of the site flooding in this event is low.

Flood Compensation

5.1.3 While the site is within a Flood Zone 3, the levels shown in table 4 highlights that the existing flood defence will mitigate the site from the 1 in 5 year event plus climate change allowance.

5.1.4 The existing site compromises of open green space, the proposed development includes constructing a temporary telecommunications mast. The proposed development will slightly reduce the green areas of the site and may displace a small amount of flood water if the flood defence is breached/fails.

5.1.5 The small amount of displaced flood water would likely flow into the surrounding open golf course (to the North, South and West) and drain back to the watercourse.

5.1.6 The nearest property to the site is located 75m to the North East and is located the other side of the existing flood defence therefore, displacement of this flood water is not likely to increase the residual risk or structural damage to nearby properties.

5.1.7 On this basis flood compensation is not considered necessary.

Access and Egress

5.1.8 The site is not required to be constantly occupied. Therefore, in a great flood event sufficient notice should be given to allow for the site to not be manned at the time of the event.

5.1.9 Providing the above mitigation measures were imposed, the risk from fluvial flooding would therefore be considered to be low.

5.2 Groundwater Flood Mitigation

5.2.1 Groundwater flooding tends to be more persistent than other sources of flooding, typically lasting for weeks or months rather than hours or days. Groundwater flooding does not generally pose a significant risk to life due to the slow rate at which the water level rises; however, it can cause significant risk to property.

5.2.2 As the proposed development is a temporary telecommunications mast it is considered that even if ground water flooding was to occur on site the risks associated with this would not be significant. The

main risk posed would be damage to the structure. The structure however is held down by several 900mm x 900mm concrete blocks which should be sufficient in maintaining the structural integrity of the mast if groundwater flooding was to occur.

5.2.3 The proposed development is not likely to displace flood water caused by groundwater flooding this is due to the design of the structure. If flood water is displaced it would flow onto the surrounding open golf course and likely drain via infiltration.

5.2.4 The proposed development will have no impact on groundwater flooding to surrounding infrastructure.

5.2.5 Based on the above the risk posed from groundwater flooding would therefore be considered low post development.

5.3 Reservoir Flood Mitigation

5.3.1 All large reservoirs must be regularly inspected and supervised by reservoir panel engineers. Local Authorities are responsible for coordinating emergency plans for reservoir flooding and ensuring communities are well prepared. Local Authorities will work with other members of the Local Resilience Forum (LRF) to develop these plans.

5.3.2 The site will not have any occupiers therefore the only risk posed by reservoir flooding is damage to the telecommunications structure.

5.3.3 The mast is proposed to be set into several 900mm x 900mm concrete blocks and is constructed of a metal frame, it is anticipated that if reservoir flooding was to occur there would be no extensive damage to the mast as the water would be able to pass through the structure relatively freely.

5.3.4 The risk from reservoir flooding would therefore be considered low.

6.0 Drainage Design

6.1.1 No drainage infrastructure is proposed to be installed on the site. As the site is only marginally increasing impermeable areas it is proposed that the sites run-off rates will not increase significantly and will not increase the flood risk to adjacent areas.

6.1.2 It is proposed that the site drains as existing which is assumed to be via infiltration.

Appendix A

Site Layout

PROPOSED TEMP MBNL & CTIL EQUIPMENT

CABINET REF: FCOA CABINET FOR FLEXI & UCU MKII ON MOUNTING PLATE ON TIMBER RAILWAY SLEEPERS
DIMENSIONS: 770x770x1550 HIGH
MATERIAL: STEEL
COLOUR: GREY

CABINET REF: MK 4 LINK AC CABINET ON MOUNTING PLATE ON TIMBER RAILWAY SLEEPERS
DIMENSIONS: 600 x 500 x 1520 HIGH
MATERIAL: STEEL
COLOUR: GREY

CABINET REF: BTS3900A (STACKED) ON 200 PLINTH ON MOUNTING PLATE ON TIMBER RAILWAY SLEEPERS
DIMENSIONS: 600 x 480 x 1600 HIGH
MATERIAL: STEEL
COLOUR: GREY

CABINET REF: SAMO CABINET ON MOUNTING PLATE ON TIMBER RAILWAY SLEEPERS
DIMENSIONS: 750 x 600 x 2100 HIGH
MATERIAL: STEEL
COLOUR: GREY

CABINET REF: 2No BTS3900AL CABINETS ON MOUNTING PLATES ON TIMBER RAILWAY SLEEPERS
DIMENSIONS: 770 x 750 x 1725 HIGH
MATERIAL: STEEL
COLOUR: GREY

CABINET REF: CTIL ALIFABS METER CABINET WITH 4 WAY AC BOARD ON MOUNTING PLATE ON TIMBER RAILWAY SLEEPERS
DIMENSIONS: 655 x 255 x 1015 HIGH
MATERIAL: STEEL
COLOUR: GREY

30m HIGH TEMP TOWER ON CONCRETE BLOCKS (SUPPLIED BY TOWER MANUFACTURER)
FOR 6No ANTENNAS, 1No 300 DIA & 1No 600 DIA TRANSMISSION DISHES (DISHES INSTALLED BY OTHERS)

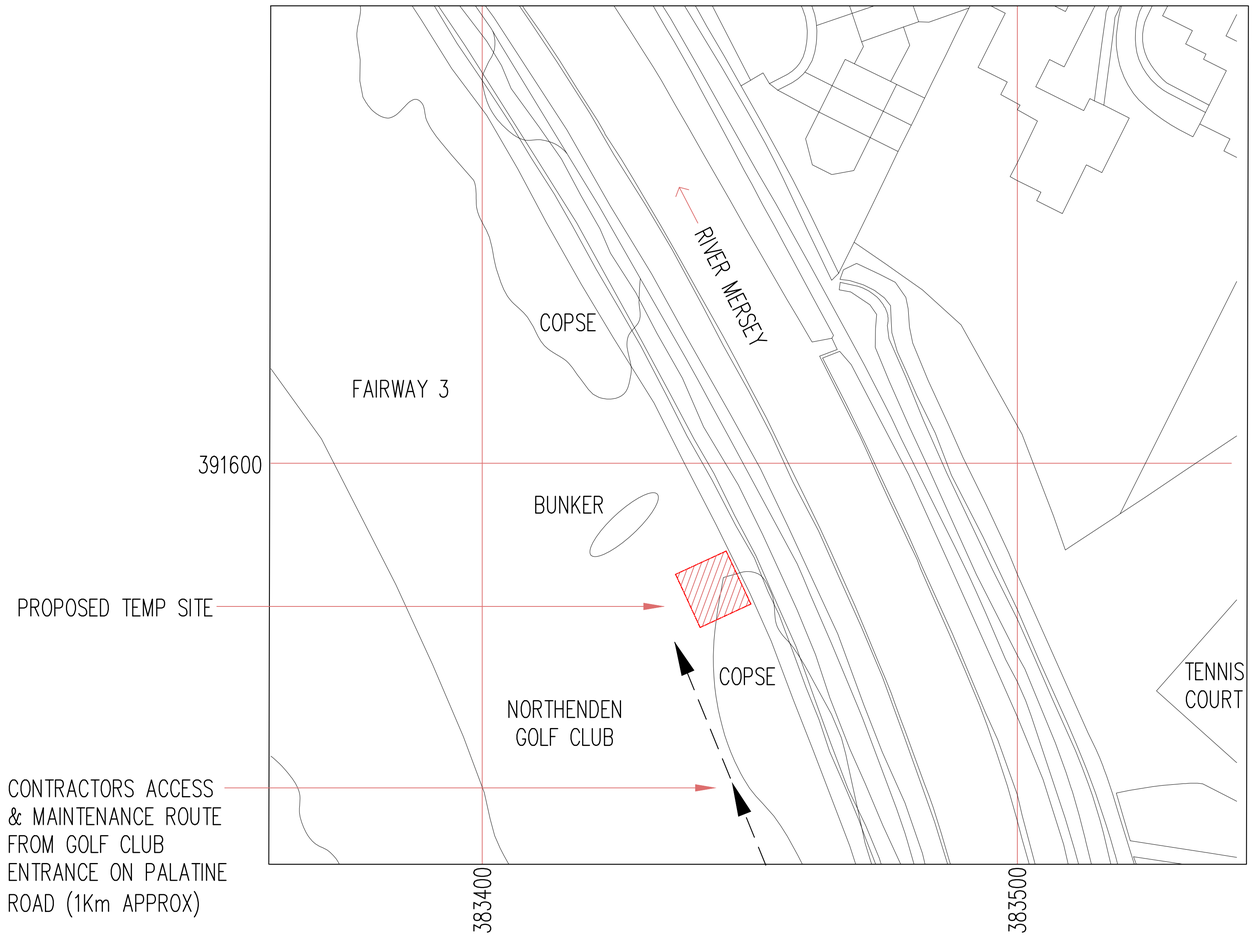
PROPOSED POWER TO TEMP SITE TO BE SUPPLIED BY POWER GENERATOR ON SITE.

PROPOSED WORKS

EQUIPMENT CABINETS INSTALLED ON 3No SUPPORT FRAMES FROM TIMBER RAILWAY SLEEPERS AND NEW TOWER INSTALLED ON ABOVE GROUND CONCRETE BLOCKS ON LEVEL SURFACE.
ANTENNAS AND MHA's INSTALLED ON TOWER AT HIGH LEVEL AND FEEDERS INSTALLED FROM ANTENNAS TO CABINETS.
EXISTING 2No DISEASED TREES TO BE REMOVED BY OTHERS.

EXCLUSION ZONES CONFORM TO THE ICNIRP REFERENCE LEVEL FOR LIMITED EXPOSURE TO MEMBERS OF THE GENERAL PUBLIC

A3



LOCATION PLAN

NGR E 383442
NGR N 391576

SCALE 1:1250

REPRODUCED FROM ORDNANCE SURVEY PROMAP DATA© CROWN COPYRIGHT 2017
LICENCE NUMBER 100020449

0m 10m 50m

DEPENDENCY	STATUS
Asbestos	N/A
Building Regulations	N/A
Fixit Form	N/A
Global Design Check	By Tower Manufacturer
ICNIRP Conformity	Complies to GSD008 Without Control
Underground Services	N/A
LOS Survey required ?	Yes
Structural Check	Completed on on cabinet fixing details

No.	Revision	Date	By	ckd
A5	CTIL DISH INFO & METER CAB ADDED	07/03/18	TM	PSH
A4	CTIL EQUIPMENT ADDED	23/02/18	TM	PSH
A3	TIMBER SLEEPER FIXING BOLT NOTE ADDED ON DRG 03	14/11/17	TM	PSH
A2	REVISED TO SUIT SP & ENGINEERS COMMENTS	10/11/17	TM	PSH
A1	PRELIMINARY ISSUE FOR COMMENT	06/11/17	TM	REM

MBNL
6 Anglo Office Park
67 White Lion Road
Amersham
HP7 9FB
Tel: 01494 762 923
Email: info@mbnl.co.uk

WHP Telecoms Ltd
St. James Business Centre,
Wilderspool Causeway, Warrington
WA4 6PS
Tel: 01925 424100 Fax: 01925 424101
e-mail: info@whptelecoms.com

Site Name & Address:
NORTHENDEN GOLF CLUB TEMP
NORTHENDEN GOLF CLUB, PALATINE ROAD, MANCHESTER M22 4FR

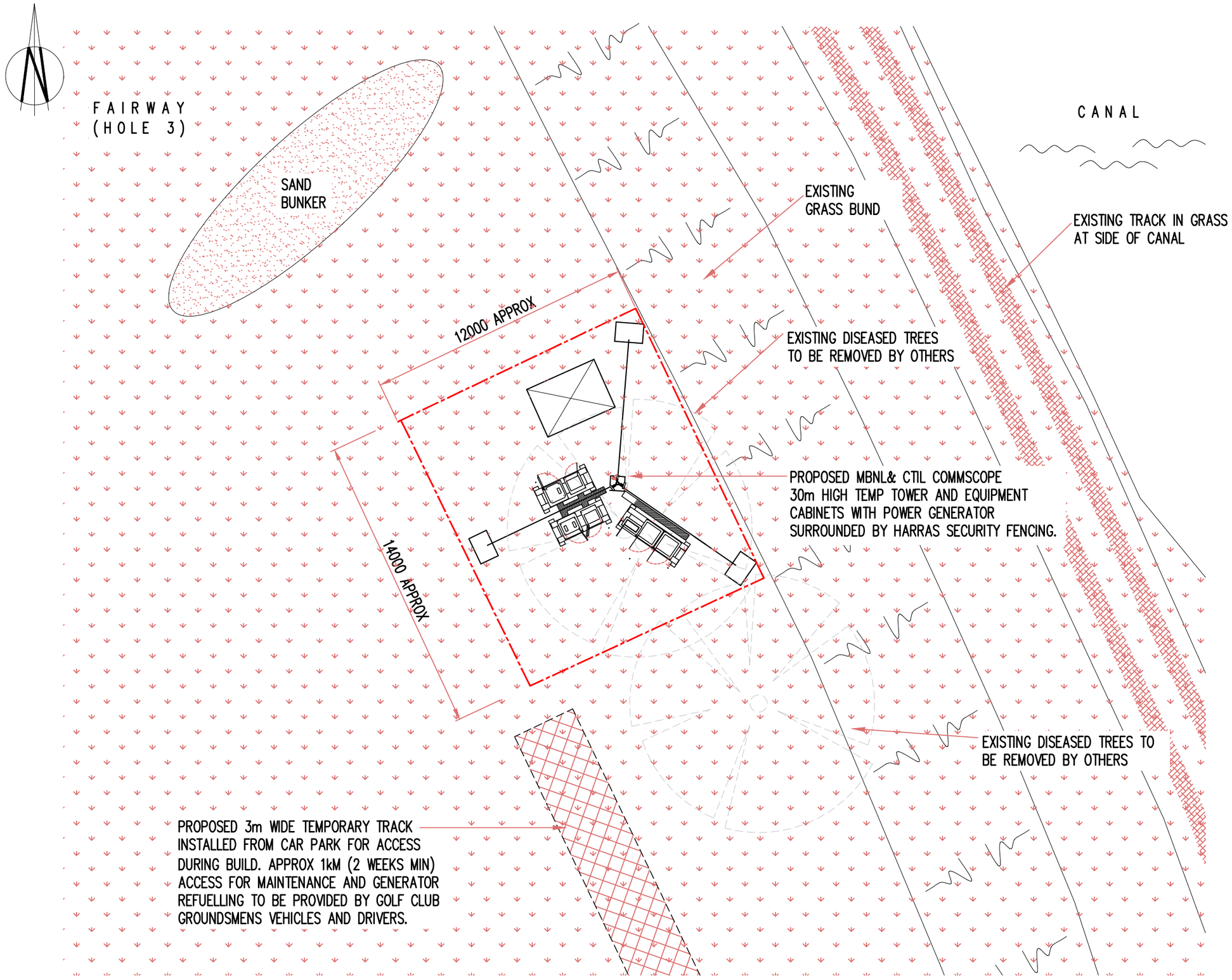
Title:
PROPOSED TELECOMMUNICATIONS TEMPORARY INSTALLATION SITE LOCATION

Purpose of Issue:
APPROVAL

Drawing No:
MAN400 – 01

Cell No: MAN400
MBNL ID: 37814

Issue:	Scale:		Ch'd:	Date:
A5	AS STATED		REM	03/11/17
	Drn: TM	Date: 30/10/17	App: PSH	Date: 06/11/17



SITE PLAN

0m 2m 10m

SCALE 1:200

A3

No.	Revision	Date	By	ckd
A5	CTIL DISH INFO & METER CAB ADDED	07/03/18	TM	PSH
A4	CTIL EQUIPMENT ADDED	23/02/18	TM	PSH
A3	TIMBER SLEEPER FIXING BOLT NOTE ADDED ON DRG 03	14/11/17	TM	PSH
A2	REVISED TO SUIT SP & ENGINEERS COMMENTS	10/11/17	TM	PSH
A1	PRELIMINARY ISSUE FOR COMMENT	06/11/17	TM	REM

MBNL

6 Anglo Office Park
67 White Lion Road
Amersham
HP7 9FB

Tel: 01494 762 923
Email: info@mbnl.co.uk

WHP Telecoms Ltd

St. James Business Centre,
Wilderspool Causeway, Warrington
WA4 6PS
Tel: 01925 424100 Fax: 01925 424101
e-mail: info@whptelecoms.com

Site Name & Address:

NORTHENDEN GOLF CLUB TEMP
NORTHENDEN GOLF CLUB, PALATINE
ROAD, MANCHESTER M22 4FR

Title:

PROPOSED TELECOMMUNICATIONS
TEMPORARY INSTALLATION
SITE LAYOUT

Purpose of Issue:

APPROVAL

Drawing No:

MAN400 – 02

Cell No:	MBNL ID:
MAN400	37814

Issue:	Scale:	Drn:	Date:	Ch'd:	App:	Date:
A5	AS STATED	TM	30/10/17	REM	PSH	03/11/17 06/11/17

Appendix B

Environment Agency Flood Map for Planning

Flood map for planning

Your reference	Location (easting/northing)	Created
northenden	**383436/391587**	**2 Mar 2020 15:55**

Your selected location is in flood zone 3, an area with a high probability of flooding.

This means:

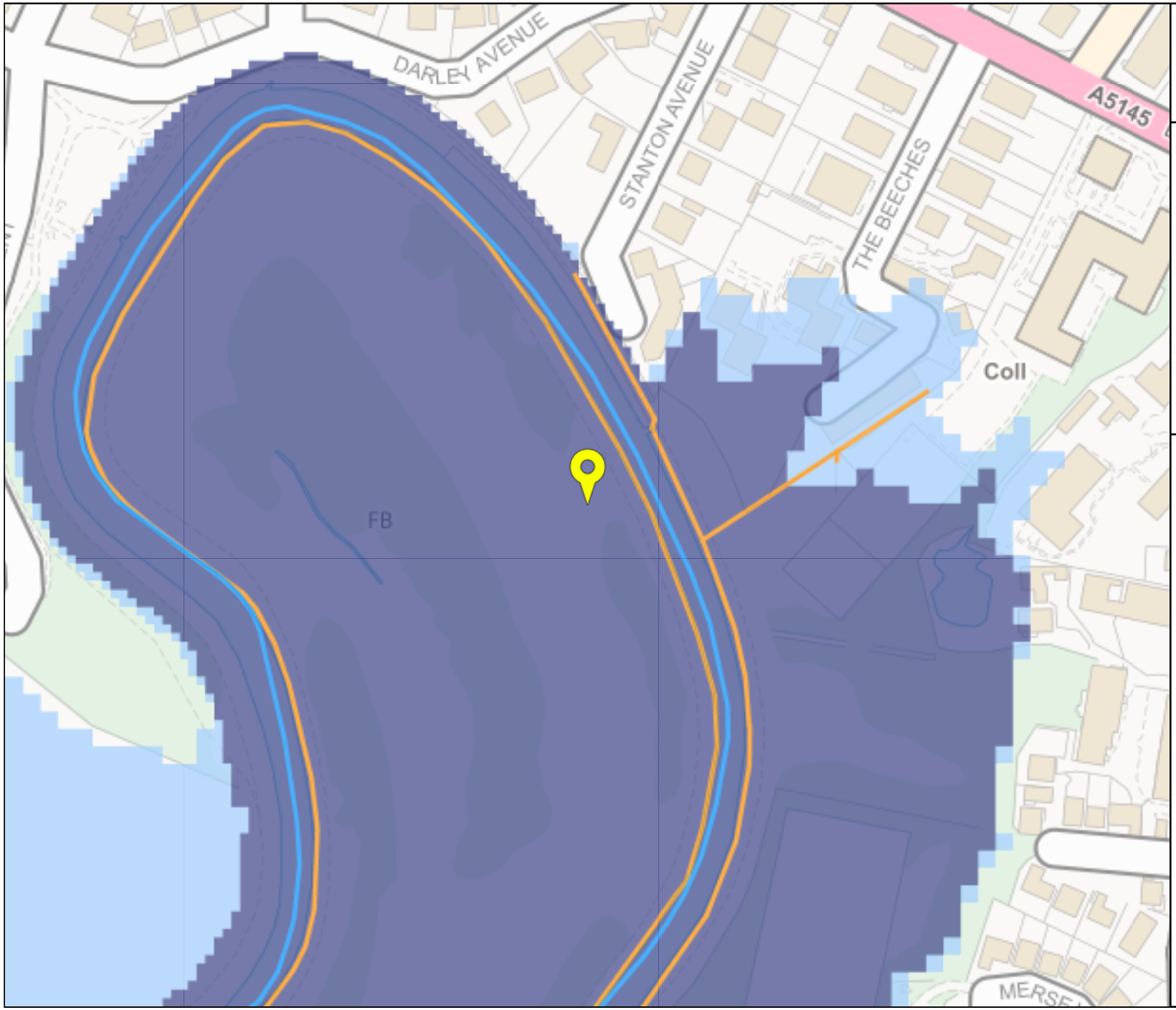
- you must complete a flood risk assessment for development in this area
- you should follow the Environment Agency's standing advice for carrying out a flood risk assessment (see www.gov.uk/guidance/flood-risk-assessment-standing-advice)

Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

The Open Government Licence sets out the terms and conditions for using government data. https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/



Environment Agency

Flood map for planning

Your reference
northenden

Location (easting/northing)
383436/391587

Scale
1:2500

Created
2 Mar 2020 15:55

- Selected point
- Flood zone 3
- Flood zone 3: areas benefitting from flood defences
- Flood zone 2
- Flood zone 1
- Flood defence
- Main river
- Flood storage area

0 20 40 60m

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Appendix C

Environment Agency Correspondence

Environment Agency Flood Levels

Environment Agency Node Locations Map

Curtins
Merchant Exchange 17-19 (Ground Floor to Second Floor) Whitworth Street West
Manchester
Manchester
M1 5WG

Our ref: SO/2020/120054/01-L01
Your ref: GMMC155507AB
Date: 02 March 2020

FAO: Oliver Timmins

Dear Mr Timmins

ENQUIRY - TEMPORARY TELECOMMUNICATIONS MAST LOCATED AT NORTHENDEN GOLF CLUB MANCHESTER, M224FR

Thank you for pre-application enquiry regarding the above development proposal. This referral was received in office on the 13th February 2020.

In order to provide this response, our flood risk team have reviewed the questions raised with your email dated the 5th February 2020 (10:49).

Environment Agency Commentary – Flood Risk

The Upper Mersey 2017 model has 2D levels available which we recommend that you obtain by contacting our customers and engagement team quoting reference GMMC155507AB. Our customer engagement team can be contacted via: GMMC Info Requests <InfoRequests.GMMC@environment-agency.gov.uk>.

Further to the above, we believe that the temporary mast in question may have already been erected as we are aware that pre-application advice has been sought regarding the erection of a permanent mobile phone mast in this location.

We would therefore recommend that you confirm the intended proposal at this location and the mast's design life to inform your choice of which return period is appropriate to consider flood risk mitigation measures and compensatory flood storage.

We would recommend that the defended levels are used to establish the mitigations measures and compensatory flood storage.

It is not for the Environment Agency to determine which return period should be used in this instance but we would inform you that the risk equation formula gives a 64% chance of being affected by a 20 year return period flood during a 20 years span or duration.

EA Charge Agreement Service

Should you wish us to review any technical documents or want further technical advice to, we may do this as part of our charged for planning advice service.

Further engagement will provide you with the opportunity to discuss and gain our views on potential options before formally submitting information as part of your planning application. It should also result in a better quality and more environmentally sensitive development.

As part of our charged for service we will provide a dedicated project manager to act as a single point of contact to help resolve any problems. We currently charge £100 per hour, plus VAT. We will provide you with an estimated cost for any further discussions or review of documents. The terms and conditions of our charged for service are available here.

Should you have any queries regarding this response, or if you would like more information on our planning advice service, including a cost estimate, then please do not hesitate to contact me.

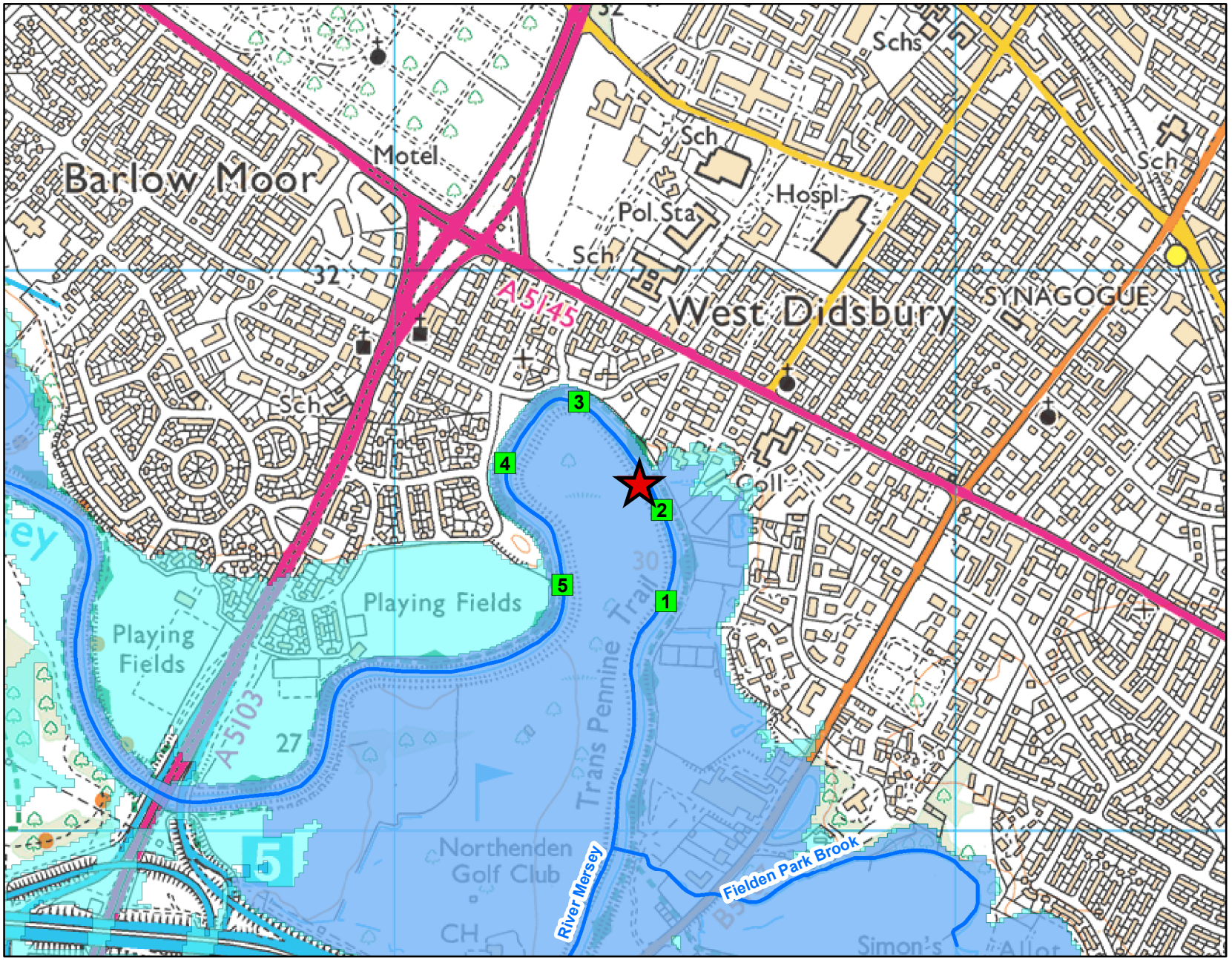
Yours sincerely

Mr Andy Davies
Sustainable Places Advisor

Direct dial 02077140640
Direct e-mail andy.davies1@environment-agency.gov.uk

End

Detailed Flood Map centred on Palatine Road, Manchester, M22 4FR. Created on 30/12/2019 [GMMC155507AB]



Environment Agency

1:10,001

N

Legend

- Site Location
- Model Measurements
- Main River
- Flood Zone 3
- Flood Zone 2

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Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 08708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

					Undefended													Defended												
Map Reference	Model Node Reference	Easting	Northing	Data	20 % AEP (1 in 5 year)	10 % AEP (1 in 10 year)	5 % AEP (1 in 20 year)	4 % AEP (1 in 25 year)	3.33 % AEP (1 in 30 year)	2 % AEP (1 in 50 year)	1.33 % AEP (1 in 75 year)	1 % AEP (1 in 100 year)	1 % AEP (1 in 100 year) + 30% Climate Change	1 % AEP (1 in 100 year) + 35% Climate Change	1 % AEP (1 in 100 year) + 70% Climate Change	0.5 % AEP (1 in 200 year)	0.1 % AEP (1 in 1000 year)	0.1 % AEP (1 in 1000 year) + 30yr Climate Change	20 % AEP (1 in 5 year)	10 % AEP (1 in 10 year)	5 % AEP (1 in 20 year)	4 % AEP (1 in 25 year)	3.33 % AEP (1 in 30 year)	2 % AEP (1 in 50 year)	1.33 % AEP (1 in 75 year)	1 % AEP (1 in 100 year)	1 % AEP (1 in 100 year) + 30% Climate Change	1 % AEP (1 in 100 year) + 35% Climate Change	1 % AEP (1 in 100 year) + 70% Climate Change	0.5 % AEP (1 in 200 year)	0.1 % AEP (1 in 1000 year)	0.1 % AEP (1 in 1000 year) + 30yr Climate Change
1	ea013_0243_MERS03_2587	383487	391411	Modelled Water Level (m aodN)	26.73	26.98	27.24	27.33	27.39	27.59	27.75	27.88	28.71	28.83	29.30	28.20	29.38	29.86	27.81	27.94	28.24	28.29	28.33	28.39	28.48	28.60	28.95	29.01	29.41	28.72	29.50	30.02
				Modelled Flow (cumecs)	110.24	111.69	115.39	120.11	124.08	138.30	147.11	152.56	180.00	190.06	190.90	164.62	194.15	201.12	233.13	247.26	279.60	285.63	289.53	297.06	307.61	326.36	386.10	391.67	419.45	340.02	422.54	428.58
2	ea013_0243_MERS03_2443	383478	391573	Modelled Water Level (m aodN)	26.73	26.99	27.25	27.34	27.41	27.61	27.77	27.88	28.68	28.81	29.30	28.19	29.38	29.86	27.67	27.81	28.10	28.16	28.19	28.26	28.34	28.46	28.76	28.85	29.40	28.55	29.50	29.97
				Modelled Flow (cumecs)	123.91	124.70	125.33	125.44	125.55	125.82	126.04	128.43	180.31	200.21	166.82	150.26	169.39	175.79	232.93	247.22	279.41	285.46	289.49	297.07	307.60	324.40	391.77	401.68	431.14	339.59	436.52	448.06
3	ea013_0243_MERS03_2196	383331	391765	Modelled Water Level (m aodN)	26.72	27.00	27.27	27.35	27.42	27.62	27.79	27.91	28.72	28.84	29.30	28.23	29.39	29.86	27.42	27.56	27.85	27.90	27.94	28.01	28.09	28.21	28.60	28.82	29.43	28.29	29.54	29.96
				Modelled Flow (cumecs)	123.81	124.70	125.41	125.57	125.67	126.06	126.22	126.49	127.52	127.61	150.95	126.89	152.21	154.90	232.95	247.19	279.41	285.52	289.43	297.06	307.45	324.25	383.03	391.23	414.12	338.18	418.10	429.62
4	ea013_0243_MERS03_1979	383200	391655	Modelled Water Level (m aodN)	26.70	27.00	27.26	27.35	27.42	27.62	27.78	27.91	28.72	28.81	29.30	28.23	29.38	29.85	27.24	27.38	27.68	27.73	27.77	27.84	27.92	28.04	28.58	28.81	29.43	28.13	29.53	29.96
				Modelled Flow (cumecs)	123.56	124.40	125.04	125.18	125.29	125.67	125.86	126.07	154.50	184.19	149.53	126.48	150.60	153.11	232.88	247.15	279.30	285.42	289.40	297.04	307.08	322.35	370.75	376.94	394.91	334.42	398.26	415.56
5	ea013_0243_MERS03_1735d	383302	391437	Modelled Water Level (m aodN)	26.65	26.97	27.24	27.33	27.40	27.60	27.77	27.90	28.72	28.83	29.29	28.22	29.37	29.84	26.85	26.98	27.27	27.33	27.37	27.43	27.51	27.63	28.49	28.73	29.40	27.72	29.51	29.93
				Modelled Flow (cumecs)	122.81	123.58	124.18	124.33	124.43	124.72	124.92	125.05	125.84	126.06	148.29	125.52	149.12	150.88	232.58	247.12	279.18	285.39	289.29	297.03	306.83	322.12	360.99	365.52	377.93	333.18	379.97	397.84

Model data taken from Upper Mersey 2017

AEP - Annual Exceedence Probability

m aodN - metres above ordnance datum Newlyn

cumecs - cubic metres per second

Notes: *Climate Change Scenario - 30%, 35% and 70% increases in flow calculated for the 2080's (2070 - 2115). Please see https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances for more information regarding the new climate change guidance. The location of the site and the type (vulnerability) of development determine the climate change allowances to consider in any flood risk assessment.

Recorded Flood Outlines

Flood Event Code	Name	Start Date	End Date	Source of Flooding	Cause of Flooding
18122	MERS	01/01/1964	02/01/1964	Unknown	Unknown

Flood Defences

Start Date	Asset Type	Asset ID	Standard of Protection	†Overall Condition Grade	Upstream Actual Crest Level (m aod)	Downstream Actual Crest Level (m aod)
01/01/2005	Embankment	120551	100	4	29.16	27.48

† Overall condition of the asset based on the (weighted) condition of each element of the latest inspection of the asset. See the attached document 'Visual Condition Grading of FCRM Assets' for interpretation of score given.

Our Locations

Birmingham
2 The Wharf
Bridge Street
Birmingham
B1 2JS
T. 0121 643 4694
birmingham@curtins.com

Bristol
Quayside
40-58 Hotwell Road
Bristol
BS8 4UQ
T. 0117 302 7560
bristol@curtins.com

Cardiff
3 Cwrt-y-Parc
Earlswood Road
Cardiff
CF14 5GH
T. 029 2068 0900
cardiff@curtins.com

Douglas
Varley House
29-31 Duke Street
Douglas
Isle of Man
IM1 2AZ
T. 01624 624 585
douglas@curtins.com

Dublin
39 Fitzwilliam Square
Dublin 2
Ireland
T. 00353 1 507 9447
dublin@curtins.com

Edinburgh
1a Belford Road
Edinburgh
EH4 3BL
T. 0131 225 2175
edinburgh@curtins.com

Glasgow
Queens House
29 St Vincent Place
Glasgow
G1 2DT
T. 0141 319 8777
glasgow@curtins.com

Kendal
28 Lowther Street
Kendal
Cumbria
LA9 4DH
T. 01539 724 823
kendal@curtins.com

Leeds
Rose Wharf
Ground Floor
Leeds
L29 8EE
T. 0113 274 8509
leeds@curtins.com

Liverpool
Curtin House
Columbus Quay
Riverside Drive
Liverpool
L3 4DB
T. 0151 726 2000
liverpool@curtins.com

London
40 Compton Street
London
EC1V 0BD
T. 020 7324 2240
london@curtins.com

Manchester
Merchant Exchange
17-19 Whitworth Street West
Manchester
M1 5WG
T. 0161 236 2394
manchester@curtins.com

Nottingham
56 The Ropewalk
Nottingham
NG1 5DW
T. 0115 941 5551
nottingham@curtins.com

Registered in England and Wales number: 2054159
Registered office: Curtin House, Columbus Quay, Riverside Drive, Liverpool L3 4DB