

2-Malgam Drive, Didsbury, Manchester, M20 5GN.

FLOOD RISK ASSESSMENT



A. Ul-Haq; I.Eng, MICE

28 January 2022

Status	Revision	Date	Issued By
First Issue	-	28 January 2022	AUH

Contents:

1. Introduction	2
2. Site Location	2
3. Development Proposals	3
4. Flood zone Allocation	3
5. Flood Zone Maps and Flood Defence Data	8
6. Flood History of the Property	10
7. Conclusion	10
8. Guidance for Property Owner/Occupier	11

Apendices:

Appendix A: Tables

1. Introduction:

The Flood Risk Assessment has been prepared in support of the planning application for a rear kitchen extension at 2 Malgam Drive, Didsbury, Manchester M20 5GN.

The Flood Risk Assessment has been prepared in accordance with the guidelines of Environment Agency.

2. Site Location:

The site is a semi-detached property that lies on the border of Manchester and Stockport, in Didsbury, a popular residential suburb of Manchester.

Grid Reference: SJ 84625 89560

Eastings/Northings: 384625/389560

Elevation: The site is located at 32.220m above ordinance datum.

The primary and high schools are located within walking distances. It has excellent transport links as the A34, M60 and M56 only a few minutes away. The River Mersey meanders around the site on three sides and is closest to the site on South side, where it is approximately 170 metres from the site.



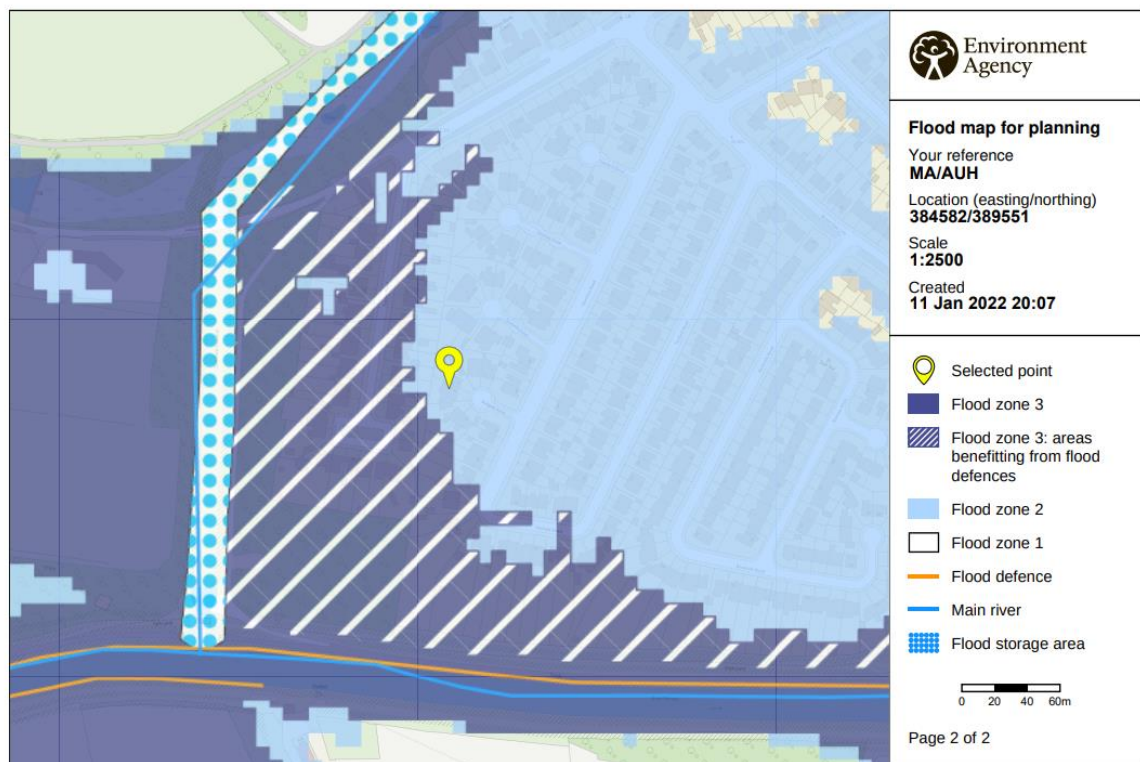
3. Development Proposals:

The development proposal is for a rear kitchen extension comprising a floor area of 5.60Sq.m.

4. Flood Zone Allocation:

According to Environment Agency's website, the site lies within flood zone 2 (rivers or the sea), an area with a medium probability of flooding. The figure-1 below shows the flood zones and flood defences within the proximity of the site.

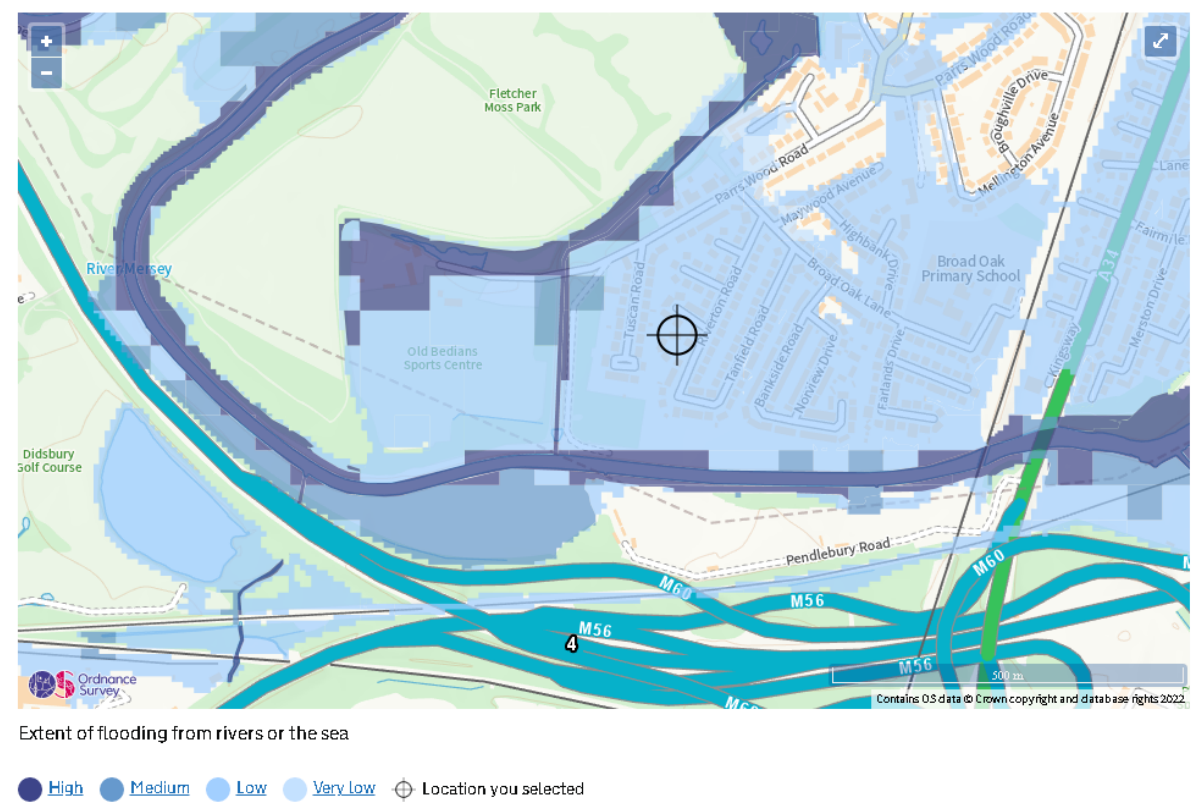
Fig-1



© Environment Agency copyright and / or database rights 2021. All rights reserved. © Crown Copyright and database right 2021. Ordnance Survey licence number 100024198.

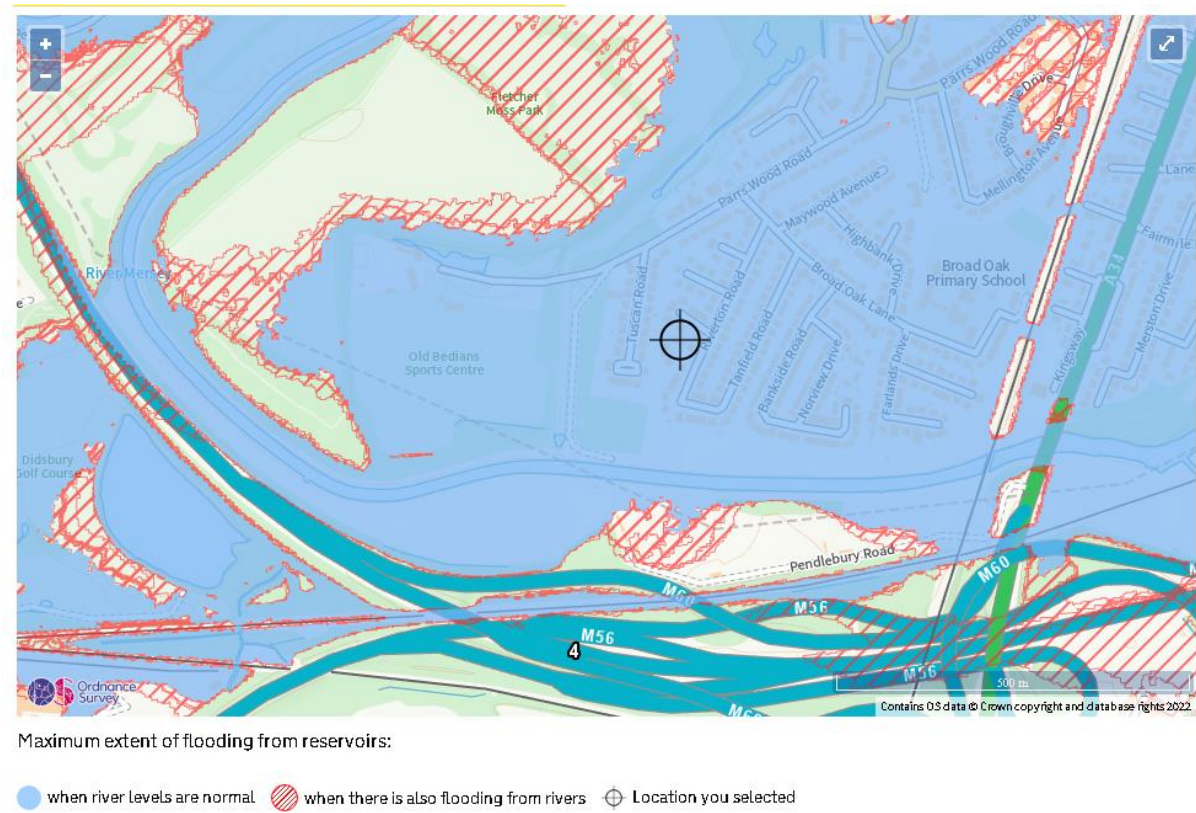
According to Environment Agency’s website, the site lies within flood zone 2 (rivers or the sea). An area with low risk of flooding from rivers and sea, see fig-2 below.

Fig-2



As per the information available on the Environment Agency’s website, the site may be impacted by flooding from reservoirs when the river levels are normal, see fig-3 below.

Fig-3



As per the information available on the Environment Agency's website, the site is at a risk of very low flooding from the surface water, see fig-4 below.

Fig-4



According to the Environment Agency’s website, the depth of water due to surface water flooding, in a low risk scenario, is nil, see fig-5 below.

Fig-5



5. Flood Zone Maps and Flood Defence Data:

The figures 6,7 and 8 below, received from the Environment Agency shows the flood defences in the area of the site and confirm that whilst the site is classed as within flood zone-2, the site actually is at very low risk of flooding.

The figure 8 confirms that the site doesn't have any history of flooding.

Fig-6

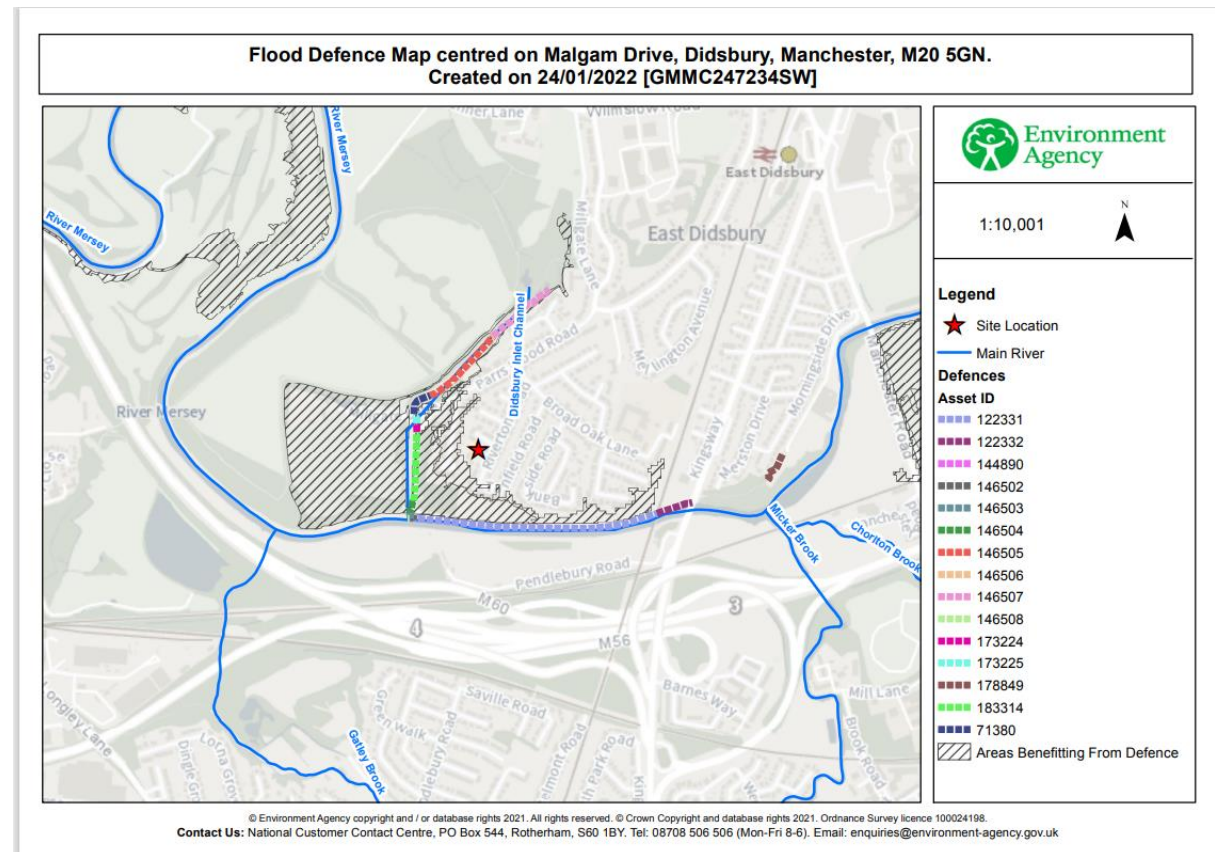


Fig-7

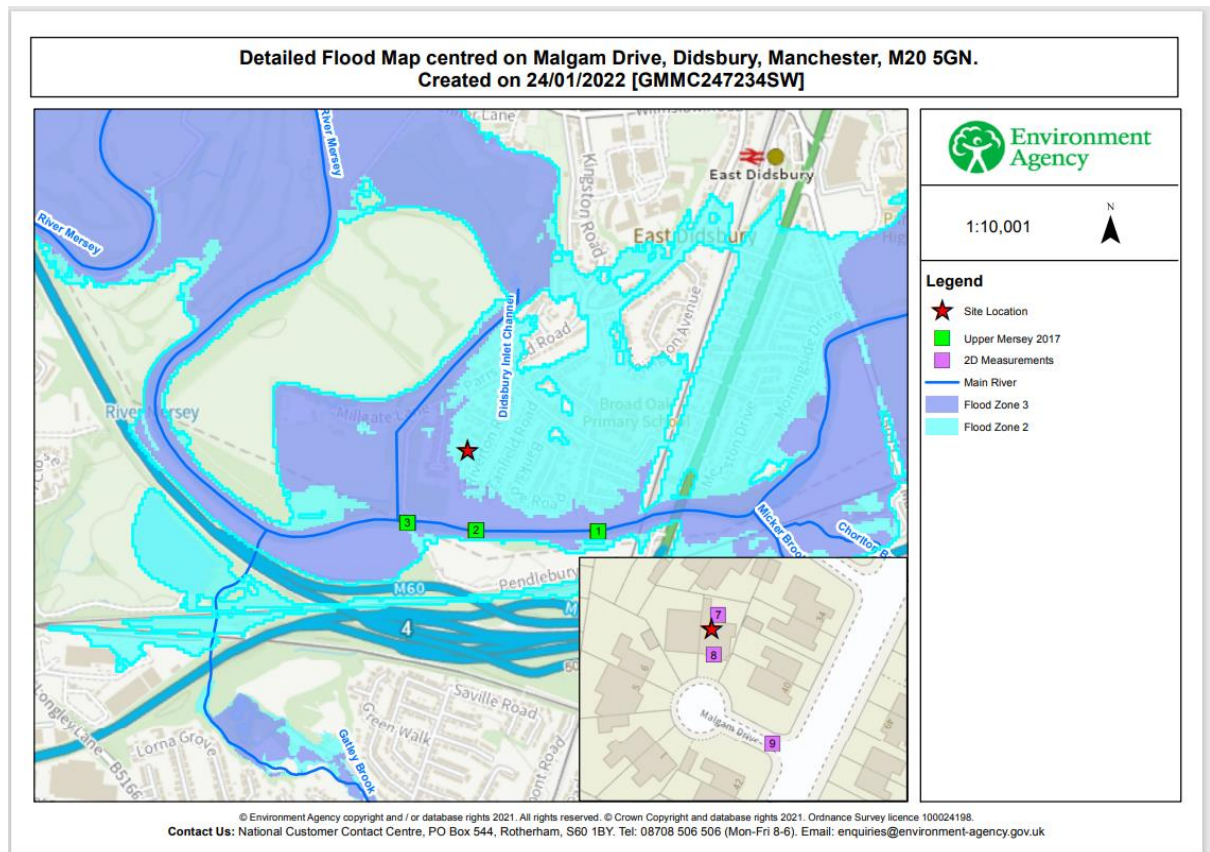
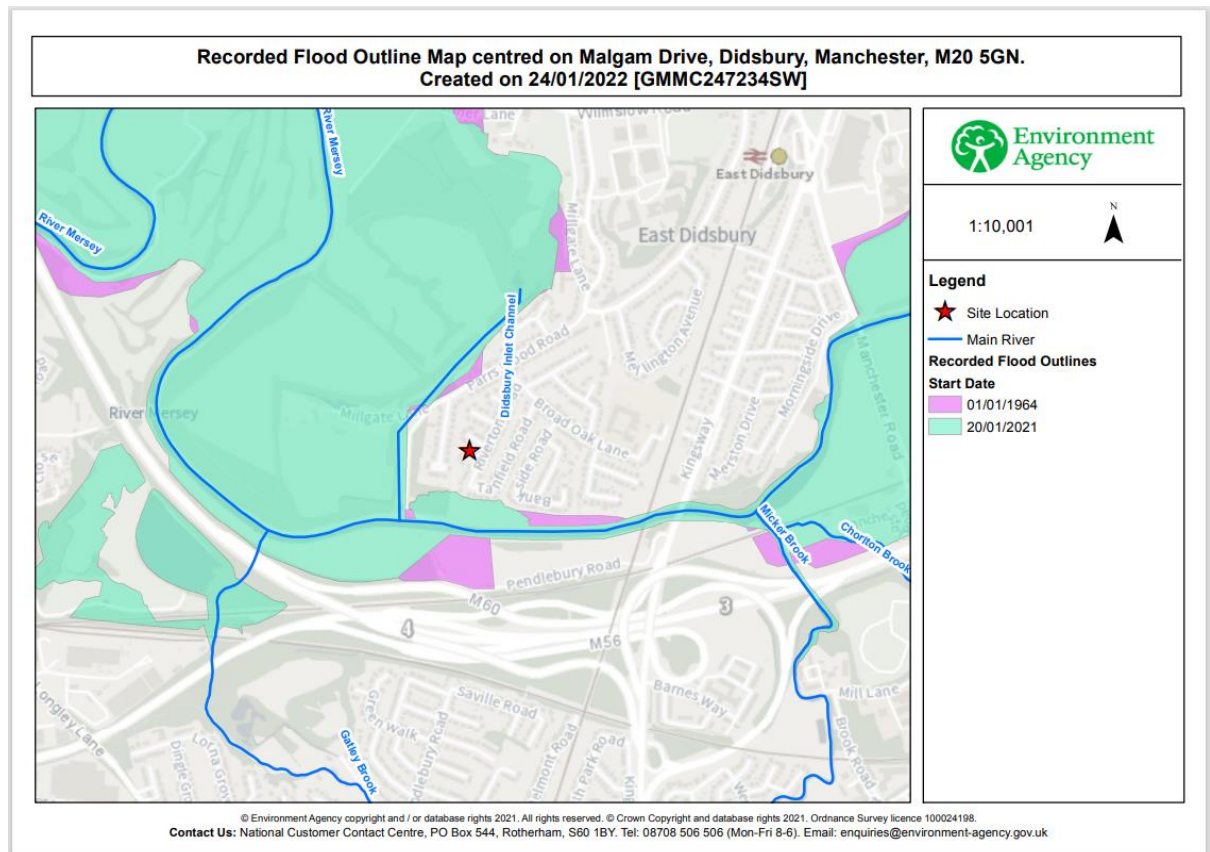


Fig-8



6. Flood History of the Property:

The Figure 8 above shows the flood history of the property. The property itself has not suffered from flooding.

The current owners of the property have occupied the property since 1995 and do not recall any flooding incidence.

However, in January 2021, when due to exceptionally wet weather, there was a danger that River Mersey may breach the flood defences, the residents of Magam Drive and the surrounding area were asked to vacate their properties were asked to vacate the property. Some residents of the area did vacate their properties whilst others didn't and remained in their houses. Fortunately, the River Mersey didn't breach the flood defences and the majority of the properties remained unaffected by the flooding.

7. Conclusion:

The information provided by the Environment Agency clearly demonstrates that the site is at very low risk of flooding.

The threshold level of the property is 32.220m AOD.

The tables provided by the Environment Agency, attached as Appendix A, show that at 1 in 100 years return period with 35% increase in flow and at 1% Annual Exceedence

Probability, the water level at the site would be 32.33/32.34m AOD. Which is 110 to 120mm higher than the threshold level.

However, the proposed extension is to the rear of the property, and there is no new door opening proposed in the new extension. Also, as it is a kitchen extension, all electrical sockets will be at a higher level.

However, for flood resistance measures proposed see section 8 below.

8. Guidance for property owner/occupier:

It is proposed that the following flood protection measure be undertaken;

- i. Any existing airbricks should be fitted with manually operated covers.
- ii. Any new airbricks should be anti-flood airbricks
- iii. Waterproof coating to be applied to all external walls to a height of 0.60m.
- iv. Sealant around all pipe/cable entry points.

The above measure will provide protection to the property against the probability of flooding from rivers at 1% AEP (1 in 100 year storm) with the 70% increase in flow. It will also provide protection to the property against the probability of flooding from rivers at 0.1% AEP (1 in 1000 years storm).

Appendix A:

				Downstream																		Upstream																	
Map Reference	Model Node Reference	Easting	Northing	Data	50 % AEP (1 in 2 year)	20 % AEP (1 in 5 year)	10 % AEP (1 in 10 year)	5 % AEP (1 in 20 year)	4 % AEP (1 in 25 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% increase in flow	1 % AEP (1 in 100 year) + 35% increase in flow	1 % AEP (1 in 100 year) + 70% increase in flow	0.5 % AEP (1 in 200 year)	0.1 % AEP (1 in 1000 year)	0.1 % AEP (1 in 1000 year) + 30% increase in flow	50 % AEP (1 in 2 year)	20 % AEP (1 in 5 year)	10 % AEP (1 in 10 year)	5 % AEP (1 in 20 year)	4 % AEP (1 in 25 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% increase in flow	1 % AEP (1 in 100 year) + 35% increase in flow	1 % AEP (1 in 100 year) + 70% increase in flow	0.5 % AEP (1 in 200 year)	0.1 % AEP (1 in 1000 year)	0.1 % AEP (1 in 1000 year) + 30% increase in flow							
1	en013_0243_MERSDA_409	384978	389290	Modelled Water Level (m aodN)	31.75	32.25	32.43	32.73	32.82	33.06	33.16	33.23	33.65	33.69	33.89	33.38	33.94	34.21	31.53	31.83	31.99	32.10	32.13	32.25	32.32	32.37	32.67	32.73	33.04	32.49	33.11	33.52							
				Modelled Flow (cumecs)	184.00	242.47	271.70	311.25	323.24	361.90	382.82	388.06	488.83	508.46	589.81	623.25	611.96	744.14	183.94	232.21	269.16	299.21	307.63	345.05	366.64	384.95	494.96	520.93	587.49	430.07	604.04	728.95							
2	en013_0243_MERSDA_3784	384646	389319	Modelled Water Level (m aodN)	31.54	32.04	32.18	32.50	32.58	32.81	32.90	32.97	33.34	33.37	33.50	33.14	33.53	33.69	31.29	31.60	31.74	31.84	31.86	31.96	32.02	32.06	32.32	32.39	32.75	32.84	33.30								
				Modelled Flow (cumecs)	134.13	245.20	271.68	309.44	323.54	361.93	381.06	396.79	488.07	508.13	589.18	622.81	611.28	738.07	179.53	234.69	262.15	274.69	282.15	315.05	333.85	348.88	443.18	457.27	523.03	388.92	537.56	644.42							
3	en013_0243_MERSHA_3613	384481	389324	Modelled Water Level (m aodN)	31.41	31.90	32.02	32.30	32.42	32.64	32.73	32.78	33.19	33.23	33.40	32.98	33.43	33.61	31.19	31.54	31.71	31.82	31.85	31.96	32.01	32.05	32.30	32.36	32.71	32.82	33.28								
				Modelled Flow (cumecs)	183.82	243.17	271.60	311.28	323.32	363.93	382.77	388.08	477.39	493.37	567.13	622.72	676.89	688.89	188.99	235.43	218.77	228.75	245.50	272.05	293.12	304.42	387.60	401.05	466.95	337.70	482.22	585.68							

		Undersized				Defensed			
Map Reference	Model Node Reference	Easting	Northing	Data	1 % AEP (1 in 100 year) + 30% increase in flow	1 % AEP (1 in 100 year) + 35% increase in flow	1 % AEP (1 in 100 year) + 70% increase in flow	0.5 % AEP (1 in 200 year)	0.1 % AEP (1 in 1000 year)
7	2D Measurements	386506	389568	Modelled Water Level (m aodN)	32.33	32.68	32.75	32.75	33.24
8		384605	389558	Modelled Water Level (m aodN)	32.34	32.68	32.77	33.25	32.34
9		384619	389536	Modelled Water Level (m aodN)	32.30	32.35	32.69	32.78	33.26

Model data taken from Upper Mersey 2017 Study
AEP - Annual Exceedance 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.

Flood Defence					
Start Date	Asset Type	Asset ID	Standard of Protection	Upstream Actual Crest Level (m aod)	Downstream Actual Crest Level (m aod)
05/01/2005	Embankment	122331	50	34.03	32.08
29/10/2012	Engineered High Ground	144890	75	30.33	30.49
29/10/2012	Engineered High Ground	146502	75	33.17	33.17
29/10/2012	Engineered High Ground	146503	75	33.17	33.17
29/10/2012	Engineered High Ground	146504	75	33.25	33.17
29/10/2012	Engineered High Ground	146505	75	28.63	29.22
29/10/2012	Engineered High Ground	146506	75	29.22	30.40
29/10/2012	Engineered High Ground	146507	75	30.40	29.59
05/01/2005	Wall	146508	100	32.81	32.81
29/10/2012	Embankment	171224	75	30.73	30.62
29/10/2012	Engineered High Ground	173225	75	30.34	30.52
29/10/2012	Engineered High Ground	183314	75	31.25	30.63
29/10/2012	Engineered High Ground	71380	75	30.52	29.63
05/01/2005	Embankment	122332	100	34.27	33.99
05/01/2005	Wall	178549	50	34.63	35.17

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
494856	Debbury	29/01/2021	29/01/2021	Main River	Other