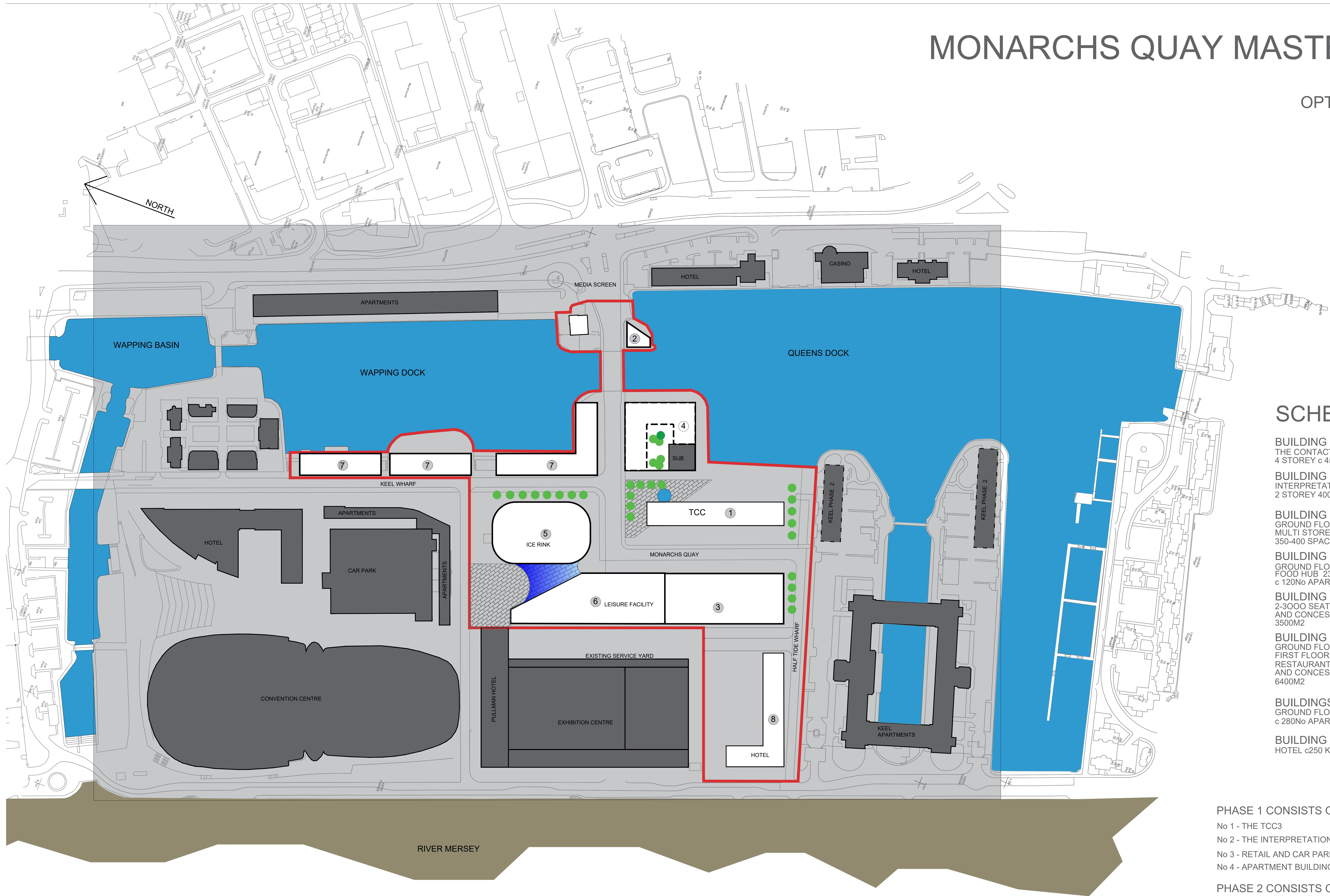


Appendix 1 – Proposed Site Layout

MONARCHS QUAY MASTERPLAN

1-1000@A0
OPTION - D REV- A



SCHEDULE

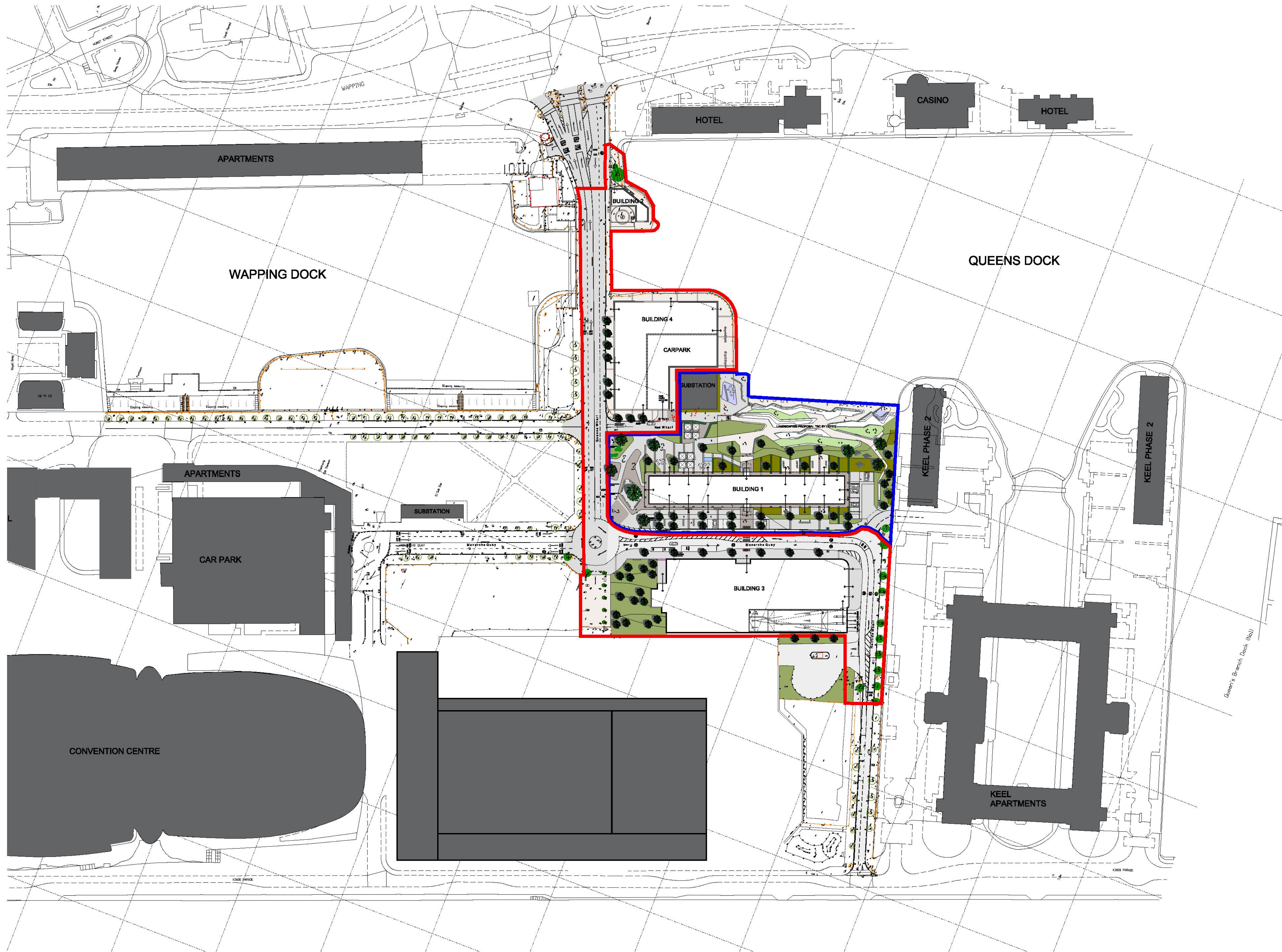
- BUILDING 1**
THE CONTACT CENTRE
4 STOREY c 4500M2
- BUILDING 2**
INTERPRETATION / OFFICE
2 STOREY 400M2
- BUILDING 3**
GROUND FLOOR RETAIL 2500M2
MULTI STOREY CARPARK
350-400 SPACES
- BUILDING 4**
GROUND FLOOR COMMERCIAL /
FOOD HUB 2300M2
c 120No APARTMENTS
- BUILDING 5**
2-3000 SEATER ICE RINK
AND CONCESSIONS
3500M2
- BUILDING 6**
GROUND FLOOR BOWLING ALLEY
FIRST FLOOR INTERACTIVE EXPERIENCE
RESTAURANTS, BARS AND EATERIES
AND CONCESSIONS
6400M2
- BUILDINGS 7**
GROUND FLOOR CAR PARK c 60 SPACES
c 280No APARTMENTS
- BUILDING 8**
HOTEL c250 KEYS

PHASE 1 CONSISTS OF BUILDINGS:

- No 1 - THE TCC3
- No 2 - THE INTERPRETATION CENTRE
- No 3 - RETAIL AND CAR PARK
- No 4 - APARTMENT BUILDING

PHASE 2 CONSISTS OF BUILDINGS:

- No 5 - THE ICE RINK
- No 6 - THE LEISURE FACILITY
- No 7 - WAPPING DOCK APARTMENTS
- No 8 - RIVER FRONT HOTEL





KEY

— APPLICATION SITE
15667 sq.m / 3.87 Acres / 1.57 Hectares

— PREVIOUS APPLICATION
ALREADY SUBMITTED

Appendix 2 – SFRA Extract and PFRA Mapping

Table 10: Incidences of sewer flooding

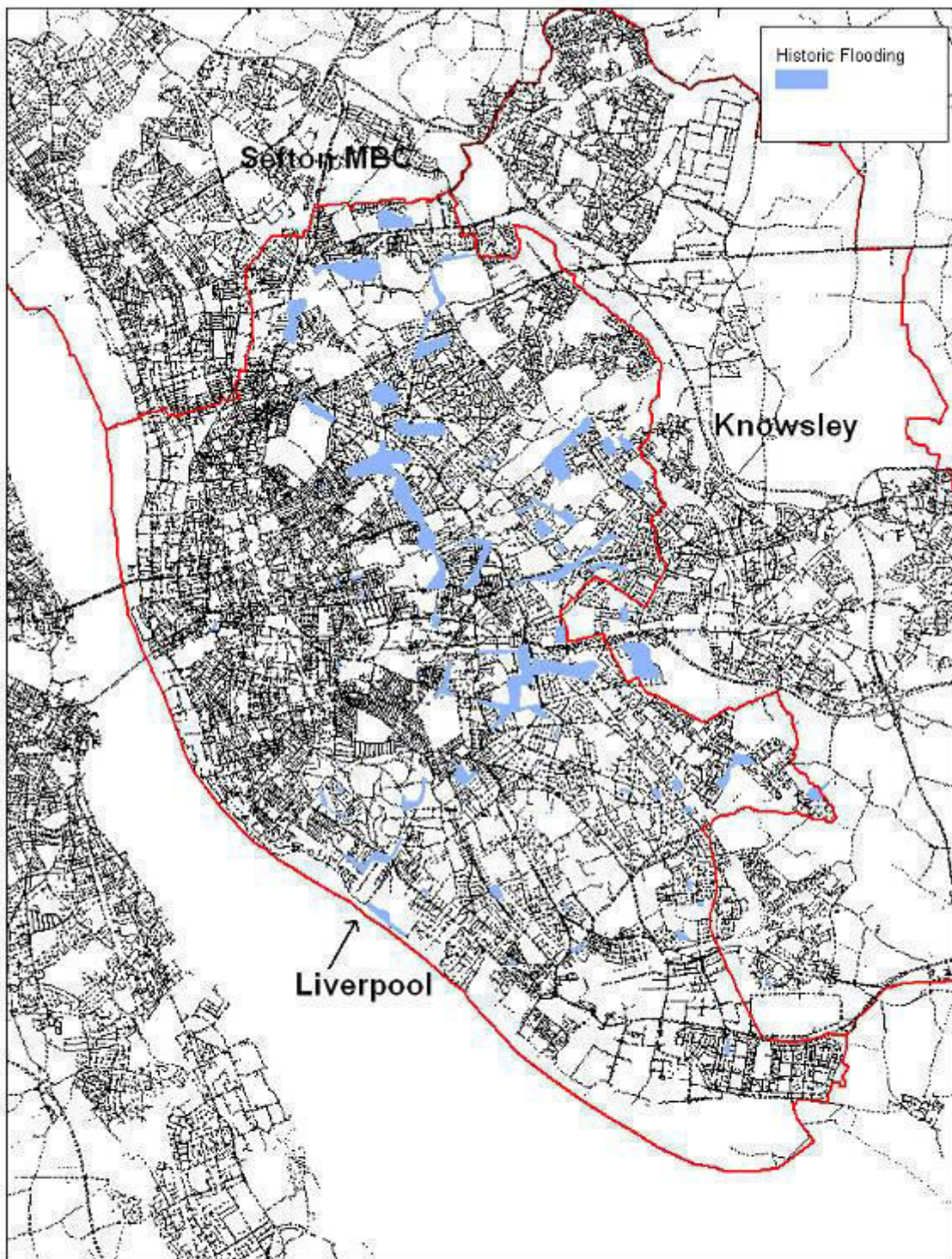
Postcode Area	Total Number of properties that have experienced flooding	Internal / External Incidence of flooding 			Postcode Area	Total Number of properties that have experienced flooding	Internal / External Incidence of flooding 		
		1 in 20	1 in 10	2 in 10			1 in 20	1 in 10	2 in 10
L12 6	66	27	39	0	L3 0	1	1	0	0
L12 9	12	11	1	0	L26 8	1	1	0	0
L4 2	12	12	0	0	L16 3	1	1	0	0
L18 8	11	11	0	0	L16 4	1	1	0	0
L18 1	10	10	0	0	L19 4	1	1	0	0
L25 5	9	9	0	0	L17 1	1	1	0	0
L27 5	7	7	0	0	L6 1	1	1	0	0
L15 6	7	7	0	0	L19 1	1	1	0	0
L14 8	4	4	0	0	L18 9	1	0	1	0
L19 0	3	3	0	0	L14 7	1	1	0	0
L25 9	3	3	0	0	L18 5	1	0	1	0
L4 3	3	3	0	0	L20 0	1	1	0	0
L15 7	3	2	1	0	L17 6	1	1	0	0
L19 6	2	2	0	0	L16 5	1	1	0	0
L14 3	2	0	1	1	L6 9	1	1	0	0
L25 3	2	2	0	0	L17 7	1	1	0	0
L16 7	2	1	0	1	L13 5	1	1	0	0
L14 4	2	2	0	0	L9 3	1	1	0	0
L13 7	2	2	0	0	L9 9	1	1	0	0
L9 2	2	2	0	0	L25 2	1	1	0	0
L8 3	2	2	0	0	L14 0	1	1	0	0
L20 8	2	2	0	0	L15 4	1	1	0	0
L11 1	2	2	0	0	L25 0	1	1	0	0
L20 9	2	1	0	1	L7 0	1	1	0	0
L36 5	2	2	0	0	L6 5	1	1	0	0
L26 5	1	1	0	0	L8 9	1	1	0	0
L10 1	1	0	1	0	L13 3	1	1	0	0
L8 8	1	1	0	0	L14 6	1	1	0	0
L4 4	1	1	0	0					

Summary of identified flood sources

(Refer to Map 9: Identified flood risk - Environment Agency flood risk zones, historical flooding areas, historical sewer flooding and condition of culverts)

- 5.56 Map 9 brings together maps 4, 5, 6, 7 and 8 showing all the identified flood risk areas and historically at risk areas. This summarises all the information regarding known flood risks and is used as the basis for the assessment in section 6.

Figure 4.2.2 Summary of past flooding





	Date: April 2011 Scale: N.T.S	
Historic Flooding Locations <small>This map is reproduced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the controller of Her Majesty's Stationery Office. Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings.</small>	Status: Final	 The City of Liverpool

Figure 5.2.1 Map of ‘locally agreed surface water information’

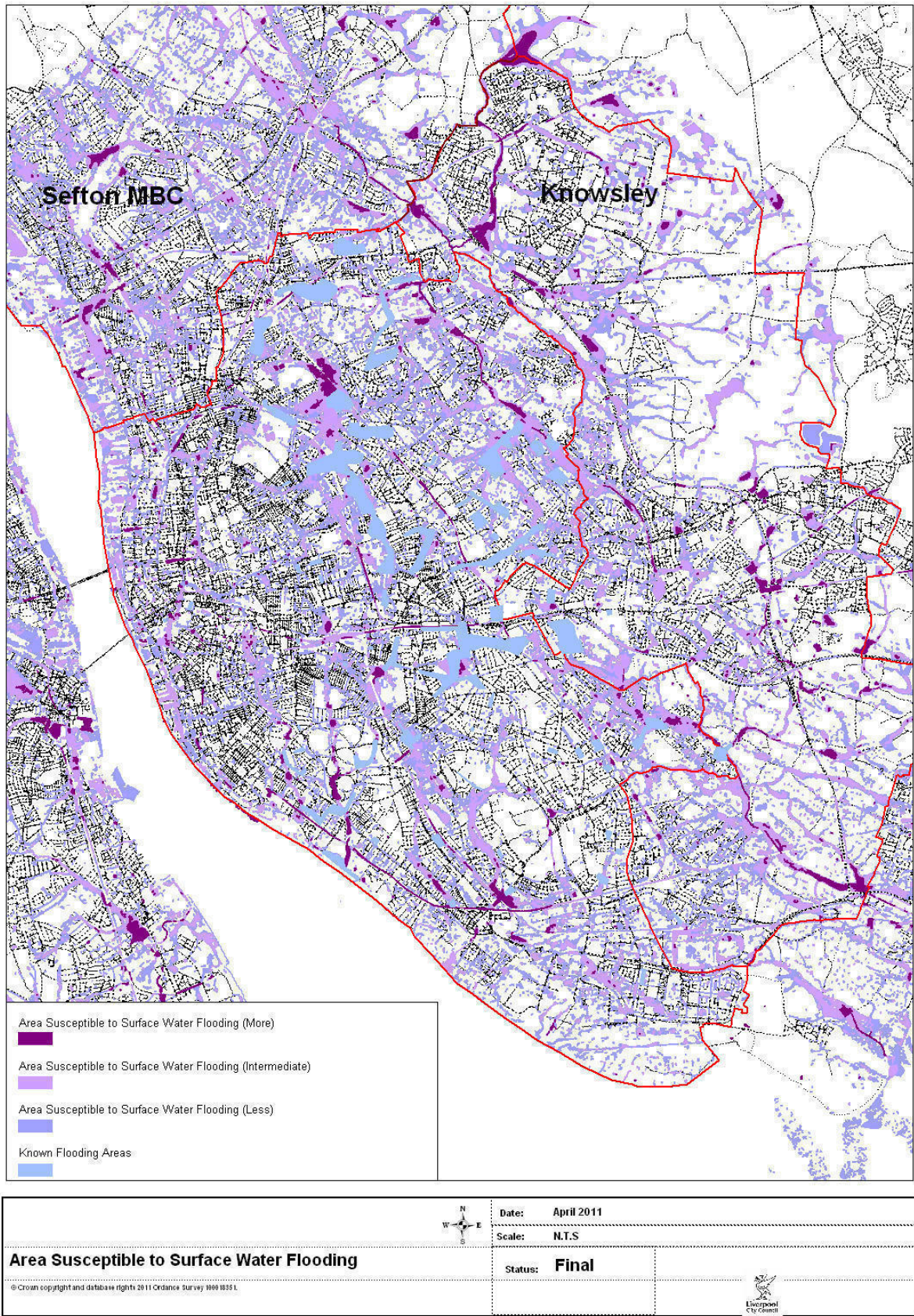


Figure 5.2.2 Areas Susceptible to Surface Water Flooding (AStSWF)

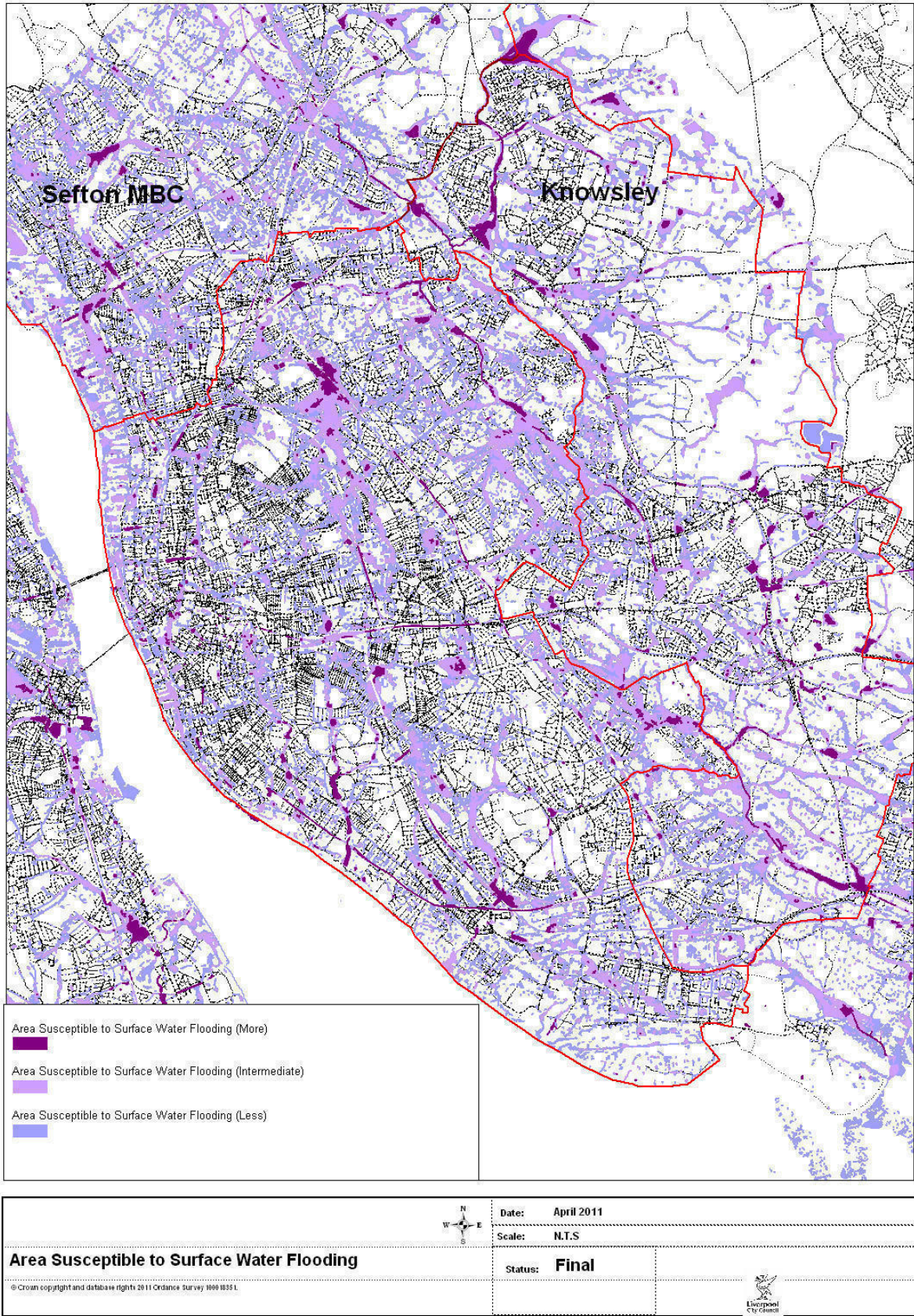


Figure 5.2.3 Areas Susceptible to Groundwater Flooding (AStGF)



Appendix 3 – Environment Agency Consultation

Richard Hughes

From: GMMC Info Requests <Inforequests.gmmc@environment-agency.gov.uk>
Sent: 02 March 2017 09:40
To: Richard Hughes
Subject: RE: GMMC32941AB Update attached from the Environment Agency

Dear Richard,

Our officer has advised that the supplied modelled flood levels from the Mersey 2016 study (inc climate change) would be acceptable, to define the flood risk to a development site, within a Flood Risk Assessment. However we do ask you to be aware that this data is still draft.

Kind regards,

Anne

Anne Ball

Customer and Engagement

Greater Manchester, Merseyside and Cheshire

Direct: Inforequests.GMMC@environment-agency.gov.uk

Office address: Richard Fairclough House, Knutsford Road, Latchford, Warrington, WA4 1HT

External: 020 302 51232

Internal: 51232

From: Richard Hughes [mailto:Richard.Hughes@enzygo.com]
Sent: 22 February 2017 14:34
To: GMMC Info Requests <Inforequests.gmmc@environment-agency.gov.uk>
Subject: RE: GMMC32941AB Update attached from the Environment Agency

Hi Anne,

Many thanks for your response below. Could you confirm that use of the supplied modelled flood levels from the Mersey 2016 study (inc climate change) would be acceptable, to define the flood risk to a development site, within a Flood Risk Assessment.

Regards

Richard

From: GMMC Info Requests [<mailto:Inforequests.gmmc@environment-agency.gov.uk>]
Sent: 17 January 2017 10:26
To: Richard Hughes <Richard.Hughes@enzygo.com>
Subject: RE: GMMC32941AB Update attached from the Environment Agency

Dear Richard,

Our officer has advised that the Product 4 provided includes the modelled levels and flows from the Mersey 2016 study, however, the flood zones are representative of the previous model. It is possible that the flood zones will change as part of the new model outputs. We hope to be able to offer these flood zones in a draft format in the near future, however, we are unable to say in which quarterly update the changes will be made available, at this time.

Kind regards,

Anne

Anne Ball

Customer and Engagement

Greater Manchester, Merseyside and Cheshire

Direct: Inforequests.GMMC@environment-agency.gov.uk

Office address: Richard Fairclough House, Knutsford Road, Latchford, Warrington, WA4 1HT

External: 020 302 51232

Internal: 51232

From: Richard Hughes [<mailto:Richard.Hughes@enzygo.com>]

Sent: 12 January 2017 14:14

To: GMMC Info Requests <Inforequests.gmmc@environment-agency.gov.uk>

Subject: RE: GMMC32941AB Response attached from the Environment Agency

Hi Anne,

Thankyou for providing the above info for Monarchs Quay, Liverpool. Could you please advise on whether the supplied modelled levels from the 2016 Mersey estuary study were used to derive the current EA floodmap.

Regards

Richard

From: GMMC Info Requests [<mailto:Inforequests.gmmc@environment-agency.gov.uk>]

Sent: 05 January 2017 09:57

To: Richard Hughes <Richard.Hughes@enzygo.com>

Subject: GMMC32941AB Response attached from the Environment Agency

Dear Richard,

Thank you for your enquiry which was received on 21/12/16.

We respond to requests under the Freedom of Information Act 2000 and Environmental Information Regulations 2004.

I enclose the Product 4 as requested.

Local Authorities are the lead regulators for contaminated land with respect to Human Health and hold historic records/reports on potential sources of land contamination and within their boroughs. We recommend that the enquirer contacts Liverpool Council Contaminated Land/Environmental Health Team to see if they hold any relevant information or concerns with respect to human health.

Infiltration methods on contaminated land carries groundwater pollution risks and may not work in areas with a high water table. Where the intention is to dispose to soakaway, this should be shown to work through an appropriate assessment carried out under Building Research Establishment (BRE) Digest 365 and usually no infiltration of surface water drainage into the ground is allowed on land affected by contamination.

Groundwater Flooding

The groundwater team do not hold records on groundwater flooding; groundwater flooding is the responsibility of the lead local flood authority. The Lead Local Flood Authority for your area is Liverpool Council.

Local authorities – new roles and responsibilities

<http://www.defra.gov.uk/environment/flooding/legislation/la-roles/>

Please refer to the [Open Government Licence](#) which explains the permitted use of this information.

Please get in touch if you have any further queries or contact us within two months if you'd like us to review the information we have sent.

We are committed to providing a professional customer service. Please help us understand more about what is important to you by completing our survey.

<http://www.smartsurvey.co.uk/s/EnvironmentAgencyCustomerSurvey/?a=GMMC>

Kind regards,

Anne Ball

Customer and Engagement Officer

Greater Manchester, Merseyside and Cheshire

Internal: 721 2937

External: 020 302 51232

Email: Inforequests.gmmc@environment-agency.gov.uk

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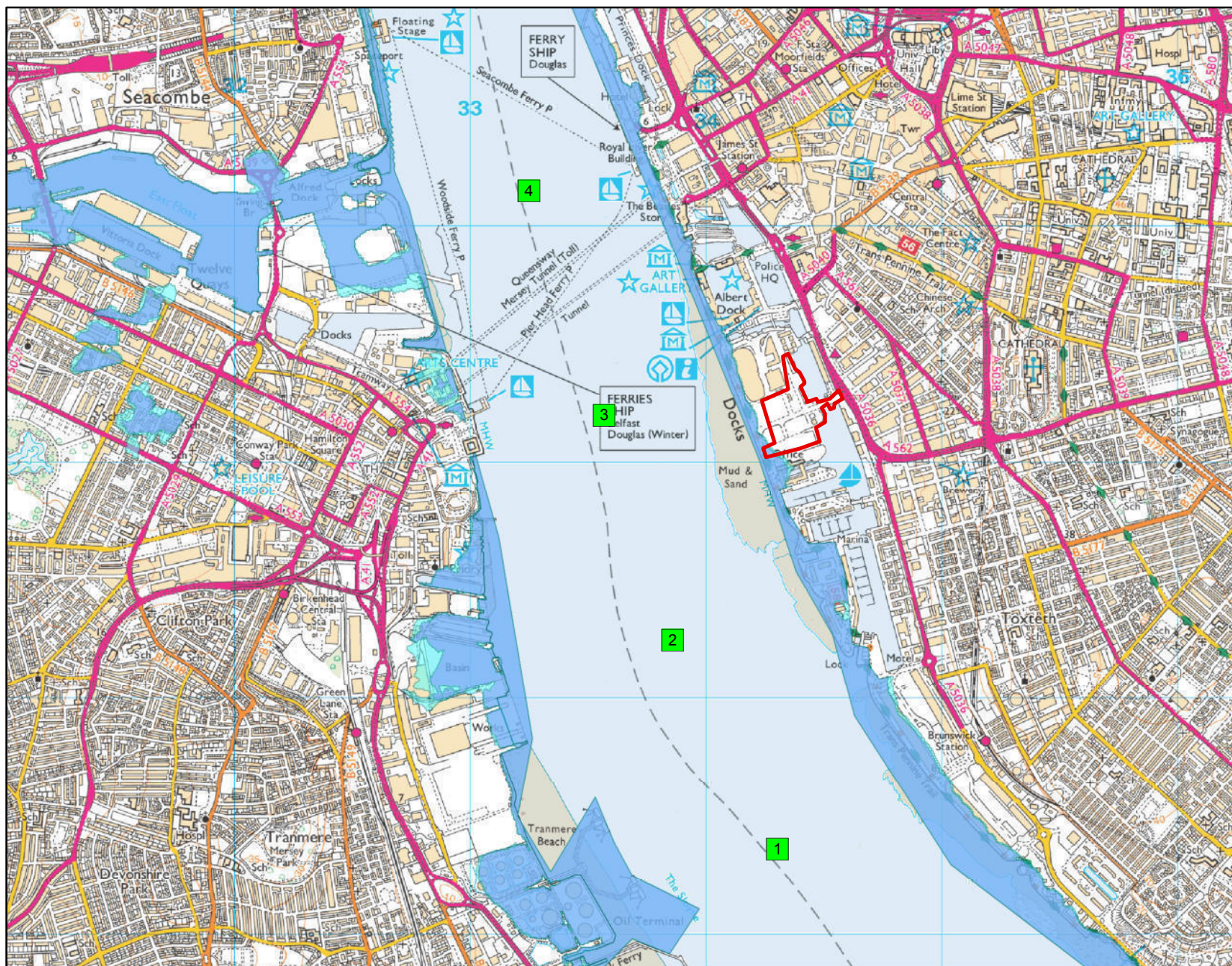
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Detailed Flood Map centred on Monarchs Quay, Liverpool. Created 03/01/2017 [GMMC32941AB]



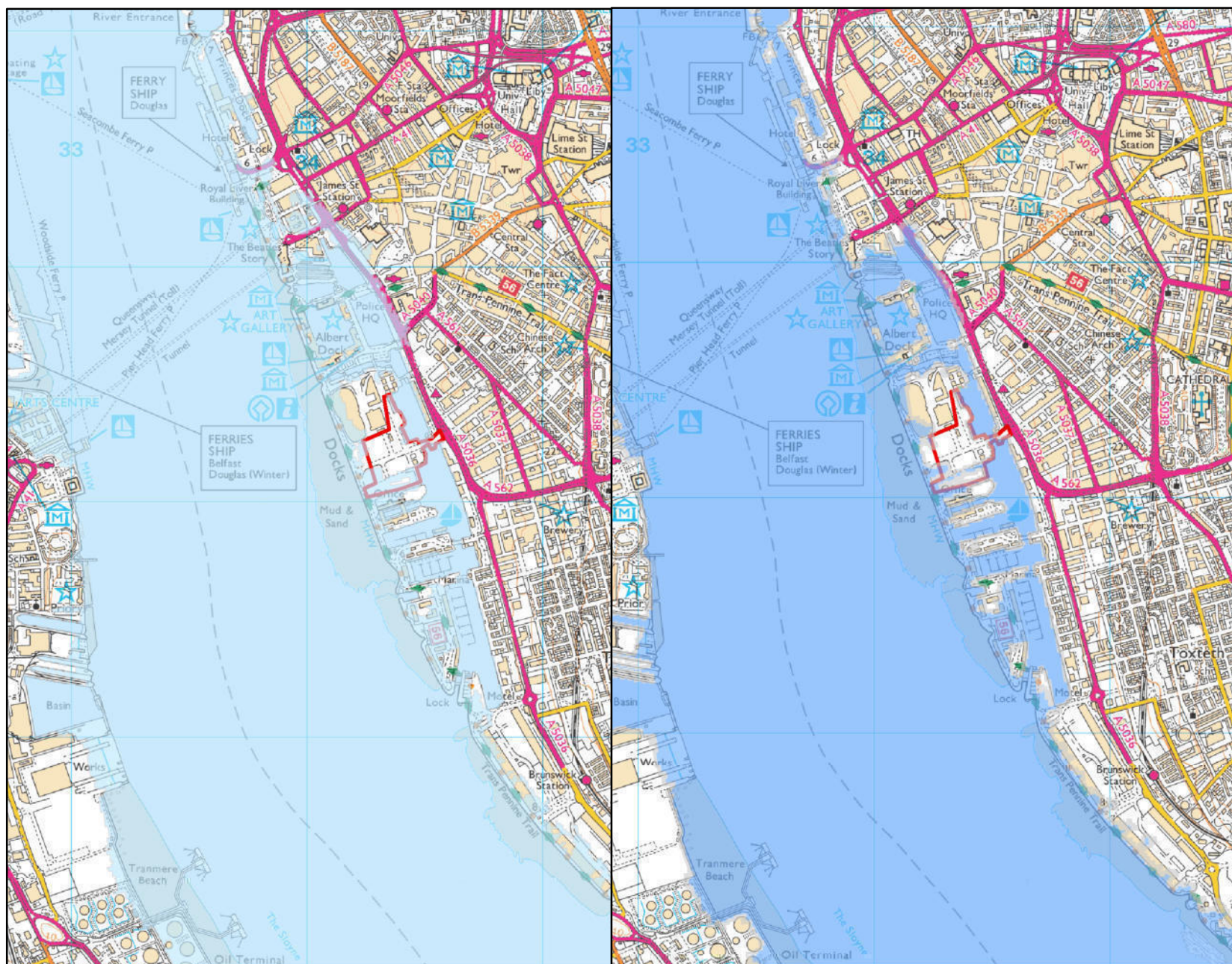
1:24,000



Legend

- Site_Location
- DRAFT_Model_Measurements
- Flood Zone 2
- Flood Zone 3

DRAFT Flood Outlines Map centred on Monarchs Quay, Liverpool. Created 11/07/2017 [GMMC32941AB]



1:24,000



Legend

- Site_Location
- DRAFT 1 in 200 year Outline
- DRAFT 1 in 1000 year Outline

Map Reference	Model Node Reference	Easting	Northing	Data	Undefended			Defended			
					1 % AEP (1 in 100 year)	0.5 % AEP (1 in 200 year)	0.1 % AEP (1 in 1000 year)	0.5 % AEP (1 in 200 year)	0.1 % AEP (1 in 1000 year)	0.5 % AEP (1 in 200 year) 2065 Climate Change Scenario	0.5% AEP (1 in 200year) 2115 Climate Change Scenario
1	MEST_8000	333850	388257	Modelled Water Level (m aodN)	6.53	6.65	6.84	6.71	6.84	6.93	7.35
2	MEST_7000	334304	387357	Modelled Water Level (m aodN)	6.47	6.57	6.78	6.65	6.78	6.88	7.28
3	MEST_6000	334878	386626	Modelled Water Level (m aodN)	6.40	6.50	6.72	6.58	6.72	6.82	7.21
4	MEST_5000	333245	390150	Modelled Water Level (m aodN)	6.33	6.42	6.66	6.42	6.65	6.75	7.14

Model data taken from Mersey Estuary 2016 Study

Notes:

AEP - Annual Exceedence Probability

m aodN - metres above ordnance datum Newlyn

cumeecs - cubic metres per second

*The impact of climate change was assessed by simulating a 200-year event including an increase in predicted sea-level rise up to the year 2065 and 2115. The new climate change guidance is available at <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>. The location of the site and the type (vulnerability) of development determine the climate change allowances to consider in any flood risk assessment.

Appendix 4 – Liverpool City Council (LLFA) Consultation

Richard Hughes

From: Jackson, David <David.Jackson3@amey.co.uk>
Sent: 19 January 2017 12:59
To: Richard Hughes
Subject: RE: MONARCH QUAY - DRAINAGE INFORMATION

Richard

Whilst there will be no increase in impermeable area as this is new development it will be required to follow the guidance set out in the document previously provided so in this case the maximum discharge will be based on the 1:2 year run off from the existing impermeable area. However if the development had a direct discharge to either the River Mersey or Queens or Wapping dock then this will not apply and unrestricted discharge will be acceptable

If your proposed drainage connects to an existing surface water drainage system that in turn discharges to River Mersey or Queens or Wapping dock then this may be viewed the same as above depending on certain factors. There would need to be a high degree of confidence that any flows for the 1:100yr event with allowance for 30% climate change would not cause any flooding to properties connected to the upstream drainage network which will be dependent on the detailed drainage design and details of the existing network being connected to.

I would be happy to comment further when the existing network details are known and there is a proposal for your drainage design.

Thanks

DAVE JACKSON
Engineer | Consulting
Amey

t: 0151 498 6825 | m: 0780 9313978 e: david.jackson3@amey.co.uk
Unit 6 | Matchworks | 142 Speke Road | Garston | Liverpool | L19 2PH



From: Richard Hughes [mailto:Richard.Hughes@enzygo.com]
Sent: 13 January 2017 13:54
To: Jackson, David
Subject: RE: MONARCH QUAY - DRAINAGE INFORMATION

Hello David,

Many thanks for responding my initial request.

I am currently trying to find out more information regarding existing drainage within the site, based on the fact that significant areas are currently hardstanding and must have some form of drainage network. I note below that you say the LLFA hold no information regarding drainage within the site. I have contacted United utilities, who have provided me with a sewer asset plan, but it provides little detail with regards to existing drainage and outfall locations.

If the proposed development was shown to not increase impermeable area that drains to a surface water receptor, would the LLFA accept connection to the existing drainage network.

With regards to discharge volumes, would the LLFA permit free discharge to the tidal river Mersey.

With regards to discharge to the docks, I have contacted the Canal and Rivers trust, who I understand operate the docks to the south of pier head. Do the LLFA have a view upon discharge to the Queens and Wapping docks? Although the docks are located within the tidal Mersey, they are maintained at a level through control structures , and as such do not fluctuate with Mersey tidal levels. Would the docks be classed as tidal, and as such allow free discharge (subject to your answer to the above point).

Kind Regards

Richard

From: Jackson, David [<mailto:David.Jackson3@amey.co.uk>]
Sent: 09 January 2017 10:16
To: Richard Hughes <Richard.Hughes@enzygo.com>
Subject: MONARCH QUAY - DRAINAGE INFORMATION

Richard

Please find below information in response to your request for information dated 22/12/16 regarding drainage information on the above development

The site has no history of flooding and is subject to no notable flooding from the predicted 1:30yr & 1:200yr flooding models. There are no watercourses (culverted, open and historic) shown on our records that cross or are close to the site and the area is not susceptible to high ground water levels.

Liverpool City Council do not hold any information for drainage within the site however United Utilities will have records for any adopted sewers and they should be contacted directly for this information.

Please find attached a guidance note for the requirements of surface water drainage related to planning applications, which hopefully will provide the information you require to prepare the drainage design

This is classed as a major development and for your information I have attached the relevant part of the Non Statutory Technical Standards for Sustainable Drainage: Practice Guide, which has been produced by DEFRA as a supporting document to NPPF, on which the requirements (where applicable) for a planning application for major development with regards to surface water drainage are shown.

Many thanks

DAVE JACKSON

Engineer | Consulting

Amey

t: 0151 498 6825 | m: 0780 9313978 | e: david.jackson3@amey.co.uk

Unit 3 | Matchworks | 142 Speke Road | Garston | Liverpool | L19 2PH



Richard Hughes

From: Scott McLean
Sent: 15 August 2017 17:14
To: peter.norton@ypgdevelopments.co.uk
Cc: Richard Hughes; Emily Roberts
Subject: RE: Monarchs Quay

Peter

Also do you have a drainage strategy/design for the site area, it appears the foul and surface water drains for the area have been installed with the roads but we have no details regarding what they have been designed for and what limitation have been placed on them.

regards

Scott McLean
Principal Engineer - Drainage



Enzygo Ltd,
Samuel House
5 Fox Valley Way
Stocksbridge
Sheffield
S36 2AA

Offices in Bristol, Sheffield and Manchester

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Tel: +44 (0) 7872 461357

Email: scott.mclean@enzygo.com

Web: www.enzygo.com

Registered Office: Stag House, The Chipping, Wotton under Edge, GL12 7AD
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From: Emily Roberts [mailto:Emily.Roberts@knightfrank.com]
Sent: 14 August 2017 16:48
To: peter.norton@ypgdevelopments.co.uk
Cc: Richard Hughes <Richard.Hughes@enzygo.com>; Scott McLean <scott.mclean@enzygo.com>
Subject: Monarchs Quay

Hi Peter

Scott at Enzygo (cc'd) has queried if we have a copy of the services plans for Monarchs Quay to inform the drainage strategy?

Many thanks.

Kind regards

Emily



Knight Frank
One Marsden Street
Manchester
M2 1HW
United Kingdom

T: +44 161 838 7782

S: +44 161 833 0023

M: +44 7467 915810

PA: +44 161 838 7753 - Vicky Shepherd

emily.roberts@knightfrank.com

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Richard Hughes

From: Scott McLean
Sent: 15 August 2017 09:53
To: David.Jackson3@amey.co.uk; Paul.Vertigen@liverpool.gov.uk
Cc: Richard Hughes; Emily Roberts
Subject: RE: Monarchs Quay / Kings Dock, Liverpool - Environmental Impact Assessment Scoping Opinion (Drainage)

David/Paul

Emily Roberts at Knight Frank has given me your details to clarify information on the Monarchs Quay Development site for the drainage system.

Looking at the newly constructed roads and drainage built it all appears to be an adoptable SW/FW system connected to the UU sewers on the quay side, can you please confirm/supply:

- A services plan (DWG) for all the newly built roads and drains connecting through this corner, has it been designed to collect the FW/SW from the development sites, if so where are the connecting tails for each site? How big are they? etc.
- Where is this drainage catchment collecting from, outside this development area
- Do we have any other services/ducting limiting development?
- What has the surface water system here been designed for? has it been designed to accept unlimited discharges from each development or attenuated discharges (if so at what rate, do we need to allow for surcharged outfalls etc.)
- What has the foul water system here been designed for, has it been designed to accept unlimited discharges from each development

regards

Scott McLean
Principal Engineer - Drainage



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Registered in England & Wales registered number: 06525159 VAT number: 931520846



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From: Emily Roberts [mailto:Emily.Roberts@knightfrank.com]
Sent: 14 August 2017 16:49
To: Scott McLean <scott.mclean@enzygo.com>
Cc: Richard Hughes <Richard.Hughes@enzygo.com>
Subject: FW: Monarchs Quay / Kings Dock, Liverpool - Environmental Impact Assessment Scoping Opinion (Drainage)

Hi Scott

Further to our call last week, please find below the drainage engineer at LCCs contact details.

Kind regards

Emily


Emily Roberts
Senior Planner

Knight Frank
One Marsden Street
Manchester
M2 1HW
United Kingdom

T: +44 161 838 7782
S: +44 161 833 0023
M: +44 7467 915810
PA: +44 161 838 7753 - Vicky Shepherd

emily.roberts@knightfrank.com
KnightFrank.com

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From: Jackson, David [mailto:David.Jackson3@amey.co.uk]
Sent: 21 July 2017 14:00
To: Vertigen, Paul <Paul.Vertigen@liverpool.gov.uk>
Subject: Fw: Monarchs Quay / Kings Dock, Liverpool - Environmental Impact Assessment Scoping Opinion

Paul

I have looked through the Scoping Report and in general do not have any issues with it. The critical items for the surface water drainage are all referred to in the report as requiring further consideration and consultation with the LLFA which is acceptable.

Thanks

DAVE JACKSON

Engineer | Consulting

Amey

t: 0151 498 6825 | m: 0780 9313978 | e: david.jackson3@amey.co.uk

Unit 3 | Matchworks | 142 Speke Road | Garston | Liverpool | L19 2PH



From: Ajibade, Janet
Sent: 10 July 2017 11:13
To: Jackson, David
Subject: FW: Monarchs Quay / Kings Dock, Liverpool - Environmental Impact Assessment Scoping Opinion

Thanks

From: Transportation
Sent: 16 June 2017 11:12
To: 'david.jackson@amey.co.uk'
Subject: FW: Monarchs Quay / Kings Dock, Liverpool - Environmental Impact Assessment Scoping Opinion

Thanks

Janet Ajibade | Technical Business Support
Liverpool City Council | Cunard Building | Water Street | Liverpool | L3 1DS
T: 0151 233 0279 | E: janet.ajibade@liverpool.gov.uk
Postal address:
Liverpool City Council | Municipal Buildings | Dale Street | Liverpool | L2 2DH



From: Vertigen, Paul
Sent: 15 June 2017 09:51
To: 'measdconsultations@sefton.gov.uk' ; 'e-nwest@HistoricEngland.org.uk' ; 'helen.telfer@environment-agency.gov.uk' ; 'consultations@naturalengland.org.uk' ; 'planning.liaison@uuplc.co.uk' ; Transportation
Subject: Monarchs Quay / Kings Dock, Liverpool - Environmental Impact Assessment Scoping Opinion

Dear All

Pre-application discussions are ongoing with a potential developer (YPG Developments Ltd) in relation to the proposed development of a mixed use scheme at Kings Dock / Monarch's Quay, Liverpool. The scheme you were asked to comment upon in February this year has been amended and a further request for a Screening Opinion on the amended masterplan has been submitted by the developer with a view to submitting a hybrid planning application for a mixed use scheme on the site later in the year.

The developer has concluded that an EIA is required and a Scoping Report to set out the content of an possible Environmental Statement has been provided for the Council's review and comment in accordance with the Environmental Impact Assessment (EIA) 2017 Regulations.

The site comprises an area of 5.5ha and currently includes access roads, surface car parking and associated landscaped areas. The site falls within a designated mixed use area and is the subject of a revised Masterplan has been produced which shows the following mixes of uses proposed on the site:

- Building 1 – Commercial Block occupied by TCC - 4 Storey (c.4,500 sq.m.) – to be submitted in full
- Building 2 – Interpretation Centre / Office - 2 Storey (c. 400- 500sq.m.) – to be submitted in full
- Building 3 – Ground Floor Retail (c. 2,500 sq. m.) and Multistorey car park (350-400 spaces) – to be submitted in full
- Building 4 – Ground Floor Commercial / Food Hub (c. 2,300 sq. m.) and Apartments (120 no.) – to be submitted in full
- Building 5 – Ice Rink (2000-3000 seats) and concessions (c. 3,500 sq. m) – to be submitted in outline
- Building 6 – Ground Floor Bowling Alley / First Floor Restaurants, Bars (c. 6,400 sq. m) – to be submitted in outline
- Building 7 – Ground Floor Car Park (60 spaces) / Apartments (280 no.) – to be submitted in outline
- Building 8 – Hotel (250 rooms)– to be submitted in outline

Screening

As an Urban Development Project on a site which exceeds 0.5ha the proposed development is considered to fall within Schedule 2 of the Regulations. As such, the Local Planning Authority must now determine as to whether this is EIA development with regard to Schedule 3 of the Regulations. It is acknowledged that the site is urbanised and previously developed, however, the substantial quantum of development is on a significantly greater scale than the previous use and also of a markedly different nature. The site is located inside the Buffer Zone of the World Heritage Site and both the LPA and developer have agreed that the development has the potential to have significant impacts upon the historic character and setting of Liverpool's World Heritage Site, and key views into and out of this area. Therefore, given the scale of the development it is considered that the proposal is likely to require an EIA given that it exceeds the relevant thresholds and criteria, set out in Schedule 3 of the 'EIA Regulations'

Scoping

Knight Frank have provided the attached EIA Scoping Report and covering letter, which sets out what they consider should be included within an Environmental Statement to be submitted in conjunction with a planning application for this development. In accordance with the EIA Regulations, Liverpool City Council, as Local Planning Authority,

needs to advise if we are satisfied with the approach and information to be provided in the Environmental Statement and adopt a formal scoping opinion, on the basis of advice from statutory consultees.

The revised Scoping Report that Knight Frank have provided looks sufficiently comprehensive, and provides an explanation as to why aspects of the environment have been scoped out as being insignificant.

To assist with the formal 'scoping opinion', I would appreciate it if you could check through the attached document and get back to me with any comments/advice, preferably within the next 14 days if possible. If you have any questions or need more time to consider the submission, please don't hesitate to contact me.

Many Thanks,

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Richard Hughes

From: Richard Hughes
Sent: 23 August 2017 15:36
To: Richard Hughes
Subject: FW: Monarchs Quay / Kings Dock, Liverpool - Environmental Impact Assessment Scoping Opinion (Drainage)

From: Jackson, David [<mailto:David.Jackson3@amey.co.uk>]
Sent: 23 August 2017 09:05
To: Emily Roberts <Emily.Roberts@knightfrank.com>
Subject: Re: Monarchs Quay / Kings Dock, Liverpool - Environmental Impact Assessment Scoping Opinion (Drainage)

Emily

Please find my responses (in red) to the enquiries in your e mail 15/08/17.

- A services plan (DWG) for all the newly built roads and drains connecting through this corner, has it been designed to collect the FW/SW from the development sites, if so where are the connecting tails for each site? How big are they? etc.
The highways are un-adopted so Liverpool City Council has no records for these. Please refer to my responses to Richard Hughes (Enzygo) 09/01/17 & 19/01/17 regarding the drainage information
- Where is this drainage catchment collecting from, outside this development area
Liverpool City Council has no information regarding the drainage catchment of the area
- Do we have any other services/ducting limiting development?
This is something that Liverpool City Council do not have records for. The individual utilities suppliers should be contacted for this information
- What has the surface water system here been designed for? has it been designed to accept unlimited discharges from each development or attenuated discharges (if so at what rate, do we need to allow for surcharged outfalls etc.)
Please refer to my responses to Richard Hughes (Enzygo) 09/01/17 & 19/01/17 regarding the drainage information
- What has the foul water system here been designed for, has it been designed to accept unlimited discharges from each development.
Please refer to my response to Richard Hughes (Enzygo) 09/01/17 & 19/01/17 regarding the drainage information

I trust this is of assistance

Thanks

DAVE JACKSON

Engineer | Consulting

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LCC GREENFIELD / BROWNFIELD SITES SURFACE WATER MANAGEMENT GUIDANCE

If the site has previously been developed it should be demonstrated that the drainage system is still operational for it to be classed as brownfield. Information should be obtained on the system, e.g. pipe diameters, levels, gradients, lengths, hydraulic controls, etc. These details should be used, along with the contributing area characteristics of the site, to set up a drainage model (or to inform another assessment method) in order to evaluate the peak flow rates at the outfalls from the existing site for the design return period events. The maximum allowed flow from the site should then be derived using the 1:2yr critical rainfall event with a 30% reduction applied to offer improvement.

The limiting discharge figure for the proposed development should be used in the design of the drainage system for the minimum requirement that flows for up to the 1:30yr critical rainfall event are retained within the system and that for the 1:100yr+30% climate change allowance, critical rainfall event there will be no flooding to any buildings and any excess volumes of water will be retained on site.

Notwithstanding the above, the existing site drainage constraints will also be taken into account when agreeing any discharge limits and the proposed flow should not exceed existing pipe capacity. For example if the existing site outfall was a 150mm dia pipe, irrespective of the area being drained, it would have a maximum flow capacity which may be lower than any proposed flows calculated using the above criteria, assuming a free discharge. Therefore discharge to the existing drainage system from the development would be effectively increased from the existing situation which is contrary to Environment Agency and National Planning Policy Framework guidance for flood risk and surface water management.

Where records of the previously developed system are not available and system characteristics cannot otherwise be determined, or if the drainage system is broken or blocked (or no longer operational), then the run-off characteristics should be defined as greenfield.

If a site is classed as greenfield the flow rates from the development will be limited to the equivalent greenfield run off rates. For example the flow rate from the development for the 1:30yr critical rainfall event should not exceed the greenfield run off rate for the site for the 1:30 year rainfall event, likewise for the 1:2 & 1:100 year scenarios. A minimum flow of 5 l/s can be used when the greenfield run off rate falls below 5 l/s.

It should be noted that this discharge figure will satisfy planning requirements but the applicant should consult United Utilities to determine if they have any discharge restrictions, which could be more restrictive.

For all developments over 1ha a FRA (Flood Risk Assessment) will be required which should be based on the requirements as detailed in Environment Agency (Greater Manchester, Merseyside & Cheshire) Local Planning Standing Advice and NPPF guidance. The detail and

technical complexity of a FRA will reflect the scale, nature and location of the development. Where available, reference should be made to the Strategic Flood Risk Assessment (SFRA) for locally specific guidance and information.

The following list sets out key information that should be submitted within a FRA for developments

- A location plan that includes geographical features, street names and identifies the catchment, watercourses or other bodies of water in the vicinity.
- A plan of the site showing existing site; development proposals; and identification of any structures (e.g. embankments), which may influence local flood flow overland or in any watercourses (e.g. culverts) present on the site.
- Site levels of both existing and proposed. Reference to Ordnance Datum, may be required where details of context of the site to its surroundings is needed.
- Details of the existing surface water drainage arrangements on site (if any) and the receptor e.g. soakaway, sewer, canal, watercourse etc.
- Proposals for surface water management that aims to not increase, and where practicable reduce the rate of runoff from the site as a result of the development
- Information about the surface water disposal measures already in place and estimates of the rates of run-off generated by the surfaces drained.
- An assessment of the volume of surface water run-off likely to be generated from the proposed development and confirmation of how any excess volumes would be retained within the development.
- Information regarding how the proposed drainage design will perform under the increased frequency and intensity of rainfall that is predicted as a result of climate change (30% for residential development & 20% for non- residential).
- Information about other potential sources of flooding, if any, that may affect the site e.g. streams, surface water run-off, sewers, groundwater, reservoirs, canals and other artificial sources or any combination of these; including details on how these sources of flooding will be managed safely within the development proposal.

It should be noted that the above list is not exhaustive but provides a framework for the FRA to be prepared.

For developments less than 1 ha a FRA will not be required but a drainage design statement should be provided proportional to the scale of the development and follow the same design principles with regards to the calculating the maximum design flow rates for the site.

In line with NPPF (National Planning Policy Framework) the development of a site should look towards the use of SUDS techniques as a method of reducing the run off from the site, as a result of the development. Government policy strongly encourages a hierarchical approach to the use of sustainable drainage systems in new developments and infiltration methods for private drainage should be used where possible.

For residential developments greater than 0.5 ha and where the floor space of any building is greater than 1000m² ground Investigations should be carried out to BRE 365 to determine if infiltration drainage methods are practicable and suitable for the sites. A soils report including ground percolation test results and recommendations will need to be submitted within the drainage design statement or FRA, for approval, although any detailed soakaway design information is not required at this stage. If this proves that infiltration drainage is not a viable option, then a positive piped system of surface water run off disposal will need to be provided.

Any soakaway design and the sub ground strata of the sloping site areas shall be considered so as not to cause flooding to any adjoining third party land.

For developments containing prospectively adoptable surface water sewers the following document published by United Utilities should be referred to for guidance related to SUDS

[http://www.unitedutilities.com/documents/7010b_S104_Guide_adoption_sewers_2016 WEB_ACC.pdf](http://www.unitedutilities.com/documents/7010b_S104_Guide_adoption_sewers_2016_WEB_ACC.pdf)