

We would expect to see demonstrated that surface water is managed appropriately, and that any new system complies with the required total treatment levels as detailed within Ciria Suds Manual (2015) Part E, Section 26 and this should be demonstrated within the future drainage strategy report.

Climate Change Allowances

For the future design of a drainage strategy, please note that as of the 10th of May 2022, the Environment Agency's climate change allowances have been updated. As part of this update, revisions have been made to the 'Peak Rainfall Intensity Allowances' that are used in applying climate change percentages to new drainage schemes. The LLFA would now seek the 'upper end' allowance is designed for both the 30 (3.3%) and 100 (1%) year storm scenarios.

The latest information on the allowances and map can be found at the following link:
<https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>

Level of information advised for each planning stage

With regards to the level of drainage detail required at the planning stage please see the below table from our Drainage and Planning Policy:

Information required	Outline	Full	Reserved Matters	Discharge of Condition	Verification condition ¹¹
Identification of discharge destination					
Development information including location plan, site layout, and drainage schematic					
Surface water drainage strategy report or statement					
Calculation assumptions and results including impermeable areas, infiltration rates, network calculations and models					
Existing and proposed drainage arrangements			12		
Existing and proposed discharge rates					
Ground investigation reports/survey and soakage testing results					
Maintenance programs and access arrangements					13
As built drawings or tender construction drawings				14	
Exceedance plan ¹⁵					
Catchment plans					
Water quality index					
Watercourse condition and connectivity					
Proposed detailed drainage network plans and cross-sections including cover and invert levels, locations of flow controls (Critical Drainage Assets)					
Attenuation device details including cross-sections					
Landscape Plan					
Discharge agreements, consents and/or evidence of third-party agreement for discharge to their system					
Phasing plan					
Identification or designation of maintaining authority/ organisation					

- ¹¹ specific requirement for confirmation of drainage. Please see section 4.3.5
¹² as required, where not already demonstrated in the original application
¹³ require greater design detail than previous planning stage ¹⁴ Greatest amount of detail required
¹⁵ Specific for each critical drainage asset
¹⁶ Drawings of proposed construction
¹⁷ Includes conveyance, volume and depths

Figure 5: Table showing the Submission Requirements for stages of planning.

Recommendation on surface water management within the development

For an outline stage application ground investigation and soakage testing is not necessary but will be required at detailed design stage. As per the drainage hierarchy, we would actively pursue infiltration to be first considered. Whilst we understand that there are issues with contamination associated with this site it has not been demonstrated where these areas are and that they conflict with possible areas of infiltration.

As identified above, the underlying geology from BGS mapping identified this area to be of Upper Chalk and whilst we accept it may not be possible to utilise infiltration in areas of contamination we would expect at this stage for it to be considered. Until it has been categorically demonstrated that it is not possible to utilise infiltration we would request that an assumed rate of infiltration as per table 25.1 of the CIRIA SuDS Manual (2015) be used.

Having said this, the agreement of the Environment Agency will also be required for the use of infiltration to ground, particularly as this site is in a source protection zone, and for any remedial works required in association with contamination.

Subject to it being demonstrated that infiltration is not feasible we would accept an unrestricted outflow to the river Ebbsfleet dependant on it being demonstrated that tidal lock is not a concern. Due to this being a main river, if a connection is to be made in the future, the Environment Agency should be contacted to gauge whether a connection is permissible.

Further to this as this area is highlighted as being within both flood zones 2/3, it is our recommendation that the finished floor levels are raised above fluvial flood extents and further discussions of this required height should be confirmed with the Environment Agency.

Within Kent County Councils Drainage and Planning Policy Statement 2019, we ask that developments safeguard water quality through providing pollution controls on site which provide treatment prior to discharge to watercourses. We would expect to see demonstrated that surface water is managed appropriately, and that any new drainage system complies with the required total treatment levels as detailed within Ciria Suds Manual (2015) Part E section 26 and is detailed within the future drainage strategy report.

Kent County Council does not accept the infilling or culverting of existing ditches (except where essential to allow highways and/or other infrastructure to cross) and instead would promote retaining and enhancing these features where possible.

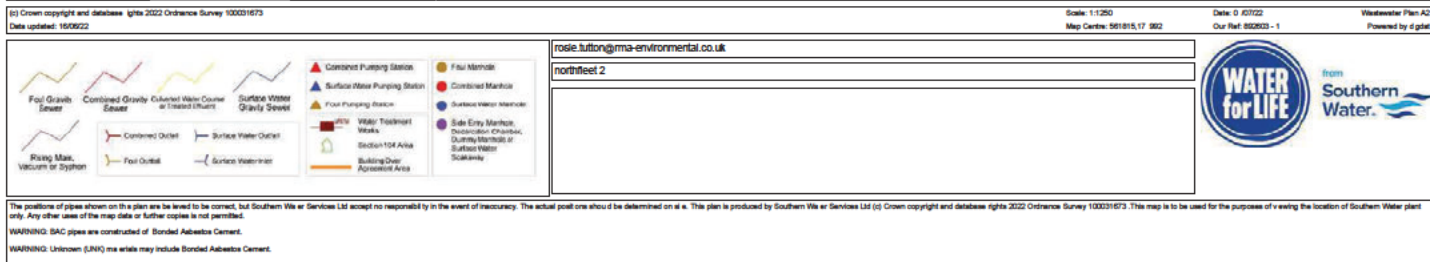
We support the provision of information to delineate drainage strategies and endeavour to respond to all enquiries. If this information raises further questions please do not hesitate to contact us. Depending upon the size and nature of your development other authorities may need to be consulted. Information and advice may also be needed from the Environment Agency, Internal Drainage Board or sewerage undertaker.

I trust this information assists with your enquiries.

Yours faithfully,

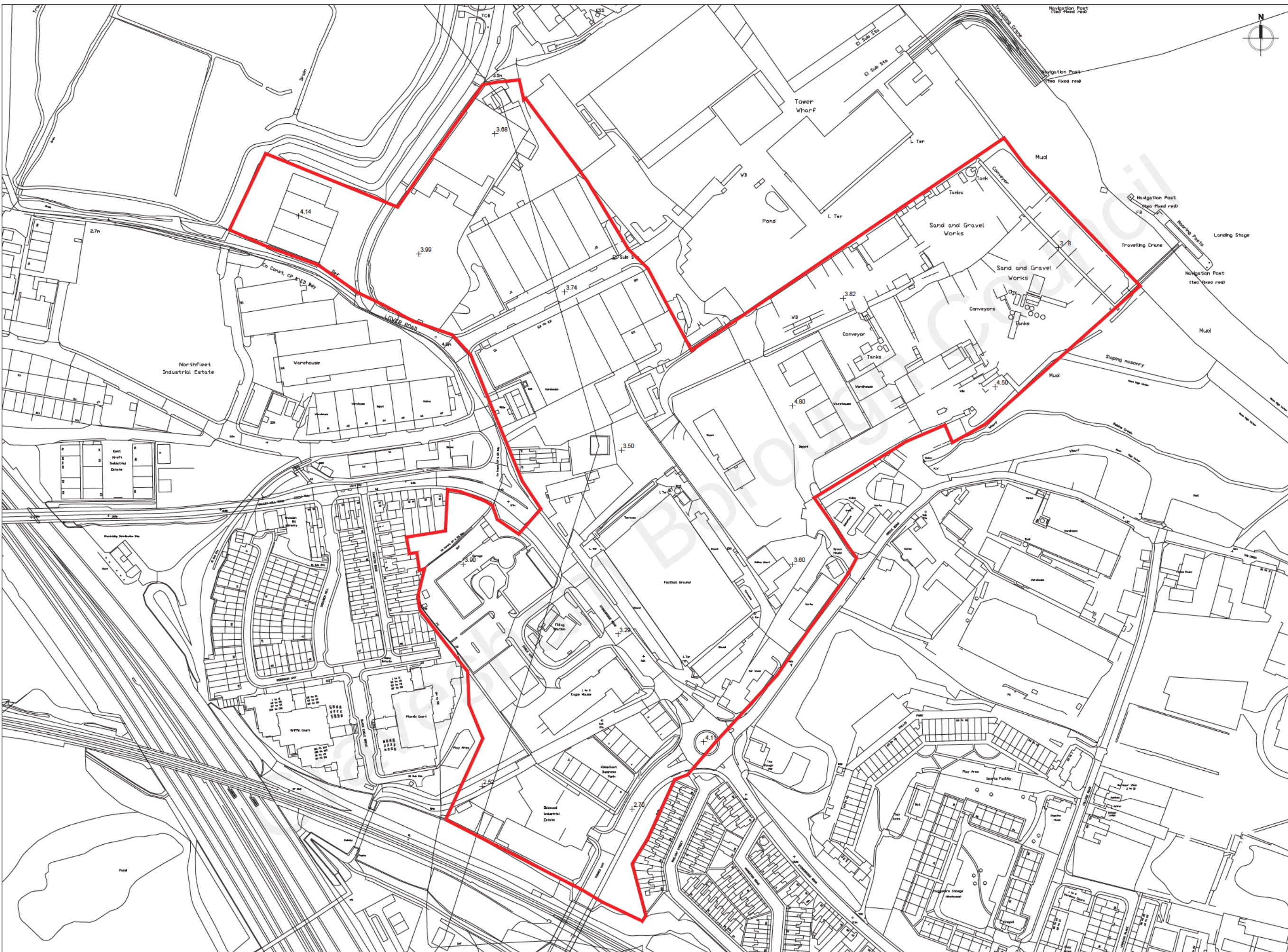
Emily Neale
Graduate Flood Risk Officer
Flood and Water Management

Appendix D: Southern Water Maps



Appendix E: Topographical Survey

Gravesham Borough Council



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NOTES:

DESIGN INTENT DRAWING

Project Stage: **DRAFT**

Client: _____

Project: **NORTHFLEET CENTRAL, GRAVESHAM, UK**

Drawing Title: **O.S. MAP**

Drawn	Checked	Rev	Date	By	Date
EB	EB	A0	As indicated	As indicated	06/05/22

Sheet No: **PE22040** Drawing No: **0001** Revision: **P01**

File Name: **PE22040-CWO-ZZ-ZZ-DR-A-0001**

Scale: **S3 Suitable for review and comment**

O.S. Map
1:1000

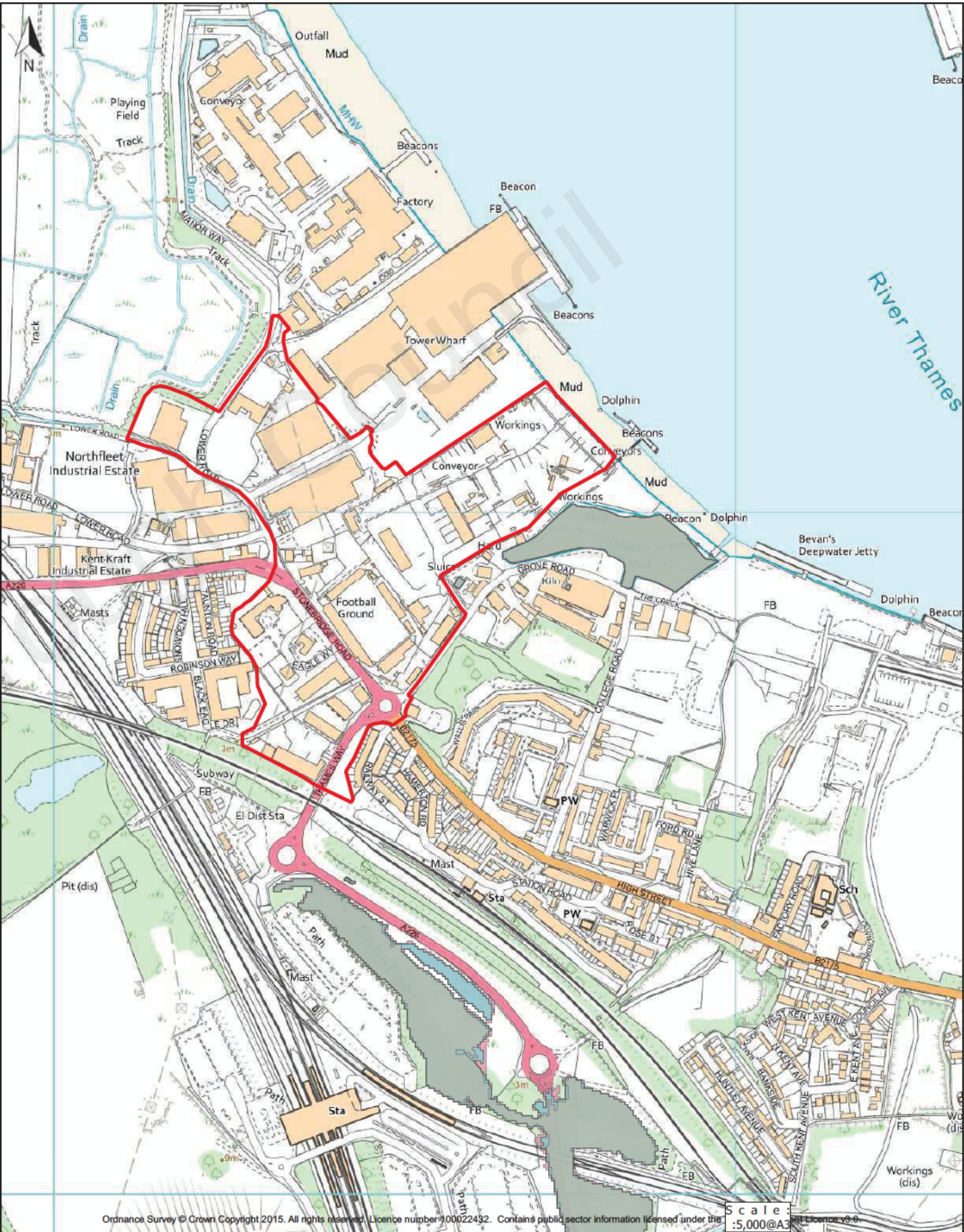
Metres
0 10m 20m 30m 40m 50m
Centimetres
0 1cm 2cm 3cm 4cm 5cm
SCALE: 1:1000

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Appendix F:
EA Flood Data



Key		Figure 1: EA's Fluvial Flood Extents			
Red Line Boundary		Client:			
1% AEP Flood Extent		Project:		Drawn	
1% AEP plus 70% Climate Change Flood Extent		Project No.: C2402		Checked	
0.1% AEP Flood Extent				MS	
				Date	
				2 / 09/2022	
				Scale	
				1:5,000@A3	

