Flood Risk Assessment

EXISTING PUBLIC HOUSE/HOTEL DEMOLITION FOR NEW PETROL FILLING STATION AND SHOPPING UNIT HOUGHTON ROAD THURNSCOE

for

Darwen Investment Limited

Report Number 4213

June 2022

Michael D Joyce Associates LLP
Geotechnical and Geoenvironmental Consultants
Charnock Court 6 South Parade Wakefield West Yorkshire WF1 1LR UK
T +44(0)1924 360458 **E** mdja@geoenvironmental.co.uk **W** www.geoenvironmental.co.uk

Flood Risk Assessment

EXISTING PUBLIC HOUSE/HOTEL DEMOLITION FOR NEW PETROL FILLING STATION AND SHOPPING UNIT, HOUGHTON ROAD, THURNSCOE

Contents

Figures

Appendices

1 INTRODUCTION

1.1 At the request of A.N. Architectural Design Limited, acting on behalf of Darwen Investment Limited, a Flood Risk Assessment (FRA) has been carried out at the Thurnscoe Hotel on Houghton Road in Thurnscoe. It is proposed to demolish the existing hotel building and construct a petrol filling station and retail unit.

1.2 The Flood Risk Assessment has been prepared in accordance with The National Planning Policy Framework (NPPF), which is the official document that regulates the assessment of flood risks and their appropriate mitigation measures in the planning process. To accompany the NPPF there is the "Technical Guidance to the National Planning Framework" document of March 2012. This replaces PPS25: Development and Flood Risk.

1.3 The National Planning Policy Framework sets strict tests to protect people and property from flooding which all local planning authorities are expected to follow. Where these tests are not met, national policy is clear that new development should not be allowed. The mains steps to be followed are set out below which, in summary, are designed to ensure that if there are better sites in terms of flood risk, or a proposed development cannot be made safe, it should not be permitted.

1.4 A site-specific flood risk assessment is required to assess the flood risk associated with the change of use proposals. The information provided in the flood risk assessment should be credible and fit for purpose. Site-specific flood risk assessments should always be proportionate to the degree of flood risk and make optimum use of information already available.

2 THE SITE

2.1 The existing hotel is located to the south side of Houghton Road in Thurnscoe, approximately 10km east of the centre of Barnsley. The Ordnance Survey National Grid Reference is 445460E, 405720N.

2.2 The site was inspected on 1st June 2022. The existing hotel has now closed. It comprises of one and two storey brick buildings surrounded by tarmac hardstanding. Surface water is currently discharged to a series of gullies. A culvert also crosses below the centre of the site, running in a roughly north – south direction.

2.3 The location is shown on figure 1 and the development proposals are shown on figure 2. It is proposed to demolish the existing hotel building and construct a petrol filling station. The western part of the site will be occupied by a retail unit. The pumps will be towards the central part of the site, with parking to the east. This will include electric vehicle charging points, and an area allocated for a telecoms mast. An electricity sub-station on the western boundary is to be retained.

View of front of hotel

View to rear of hotel

Area to east of hotel building

Area to east of hotel building

3 GEOLOGY AND HYDROGEOLOGY

3.1 According to the British Geological Survey's (BGS) GeoIndex mapping, is underlain by bedrock which comprises Undifferentiated mudstones, siltstones and sandstones of the Carboniferous Pennine Upper Coal Measures. The site does not lie within a Development High Risk Area as defined by the Coal Authority.

3.2 The aquifer within the superficial deposits and bedrock is designated as Secondary A. This is described as permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.

4 SITE SPECIFIC FLOOD RISK ASSESSMENT

Flooding from Rivers

4.1 The assessment is based on the Environment Agency's maps of flood risk zones. These cover all of England and Wales and map areas prone to flooding in terms of the following:

Zone 1 - Low Probability (Little or No Risk)

This zone comprises land assessed as having a less than 1 in 1000 annual probability of river or sea flooding in any year. There are no development constraints.

Zone 2 - Medium Probability (Low to Medium Risk)

This zone comprises land assessed as having between a 1 in 100 (1%) and 1 in 1000 (0.1%) annual probability of river flooding or between a 1 in 200 and 1 in 1000 annual probability of sea flooding in any year.

Zone 3a - High Probability (High Risk)

This zone and the site itself comprises land assessed as having a 1 in 100 or greater annual probability of river flooding or a 1 in 200 or greater annual probability of flooding from sea in any year.

Surface Water Flooding

The site is recorded to be at risk of surface water flooding.

High risk means that each year this area has a chance of flooding of greater than 3.3%. Flooding from surface water is difficult to predict as rainfall location and volume are difficult to forecast. In addition, local features can greatly affect the chance and severity of flooding. The map shows the flood level is predicted to be less than 300mm

Medium risk means that each year this area has a chance of flooding of between 1% and 3.3%. Flooding from surface water is difficult to predict as rainfall location and volume are difficult to forecast. In addition, local features can greatly affect the chance and severity of flooding. The map shows the flood level is predicted to be less than 300mm

Low risk means that each year this area has a chance of flooding of between 0.1% and 1%. Flooding from surface water is difficult to predict as rainfall location and volume are difficult to forecast. In addition, local features can greatly affect the chance and severity of flooding. The map shows the flood level is predicted to be between 300mm and 900mm.

Zone 3b - Functional Floodplain

This zone comprises land where water has to flow or be stored in times of flood. The annual probability that such land will flood will be 1 in 20 or greater.

4.2 The site is recorded as lying in Zone 1, and as such, there are no development constraints.

4.3 Enquiries have been made with the Environment Agency to determine whether it holds any information relevant to the proposals. Its full response is given in Appendix 1, but this only relates to flood data for rivers.

4.4 Based on the site lying in Zone 1 and "less vulnerable", the proposed development will be classified as "appropriate", as illustrated below.

Flood Vulnerability Zone	**Essential Infrastructure**	**Water Compatible Development**	**Highly Vulnerable**	**More Vulnerable**	**Less Vulnerable**
1	Appropriate	Appropriate	Appropriate	Appropriate	Appropriate
2	Appropriate	Appropriate	Exception test required	Appropriate	Appropriate
3a	Exception test required	Appropriate	Inappropriate	Exception Test required	Appropriate
3b	Exception test required	Appropriate	Inappropriate	Inappropriate	Inappropriate

Surface Water Flooding

4.5 According to the Environment Agency Flood Risk data, the site is at risk from surface water flooding. The following risk categories are applied;

4.6 Low risk means that the chance of flooding in any one year is between 0.1% and 1%, in other words, between 1 in 1,000 and 1 in 100.

4.7 Medium risk means the chance of flooding is between 1% and 3.3%, i.e. 1 in 30 and 1 in 100.

4.8 High risk is where the chance of flooding is greater than 3.3%.

4.9 The site is shown to lie within all three risk zones. In respect of low risk, the site is shown to have predicted surface water flooding of between 300mm and 900mm. In respect of medium risk and high risk, the predicted flood depth is somewhere below 300mm.

4.10 In summary, the site is considered to be at risk, with flooding to between 300mm and 900mm in depth.

4.11 However, it is important to note that the Environment Agency recognises that these are estimates only, and *states "flooding from surface water is difficult to predict as rainfall locations and volume are difficult to forecast. In addition, local features can greatly affect the chance and severity of flooding".*

4.12 Reference has also been made to Barnsley Metropolitan Borough Council's "Preliminary Flood Risk Assessment Report" dated July 2011. In respect of the Flood Map for Surface Water, the report refers back to the surface water mapping provided by the Environment Agency, and discussed above. The report does confirm that there has been no recorded surface water flooding in the past and no records of past sewer floods.

5 CONCLUSIONS AND RECOMMENDATIONS

5.1 This Flood Risk Assessment has been undertaken to provide the necessary risk information to support the proposed change of use. Based on the proposed use of the site being *'less vulnerable'*, the development is considered to be appropriate.

5.2 The site is identified as being at a theoretical risk of surface water flooding. According to the Environment Agency document "What is the Risk of Flooding from Surface Water Map (2019)", its maps *"cannot definitely show that an area of land or property is, or is not, at risk of surface water flooding, and the maps are not suitable for use at an individual property level".* It is also the case that there has been no historical surface water flooding. According to Government guidance, "Preparing a Flood Risk Assessment", the following would apply.

Water depth up to 300mm

The design of the building or development should keep water out as much as possible. You should use materials that have low permeability (materials that water cannot pass through, for example, impermeable concrete).

Water depth from 300mm to 600mm

The design of the building or development should keep water out (unless there are structural concerns) by:

- using materials with low permeability to at least 300mm

- using flood resilient materials (for example lime plaster) and design (for example raised electrical sockets)

- making sure there's access to all spaces to enable drying and cleaning

Water depth above 600mm

The design of the building or development should allow water to pass through the property to avoid structural damage by:

- using materials with low permeability to at least 300mm

- making it easy for water to drain away after flooding

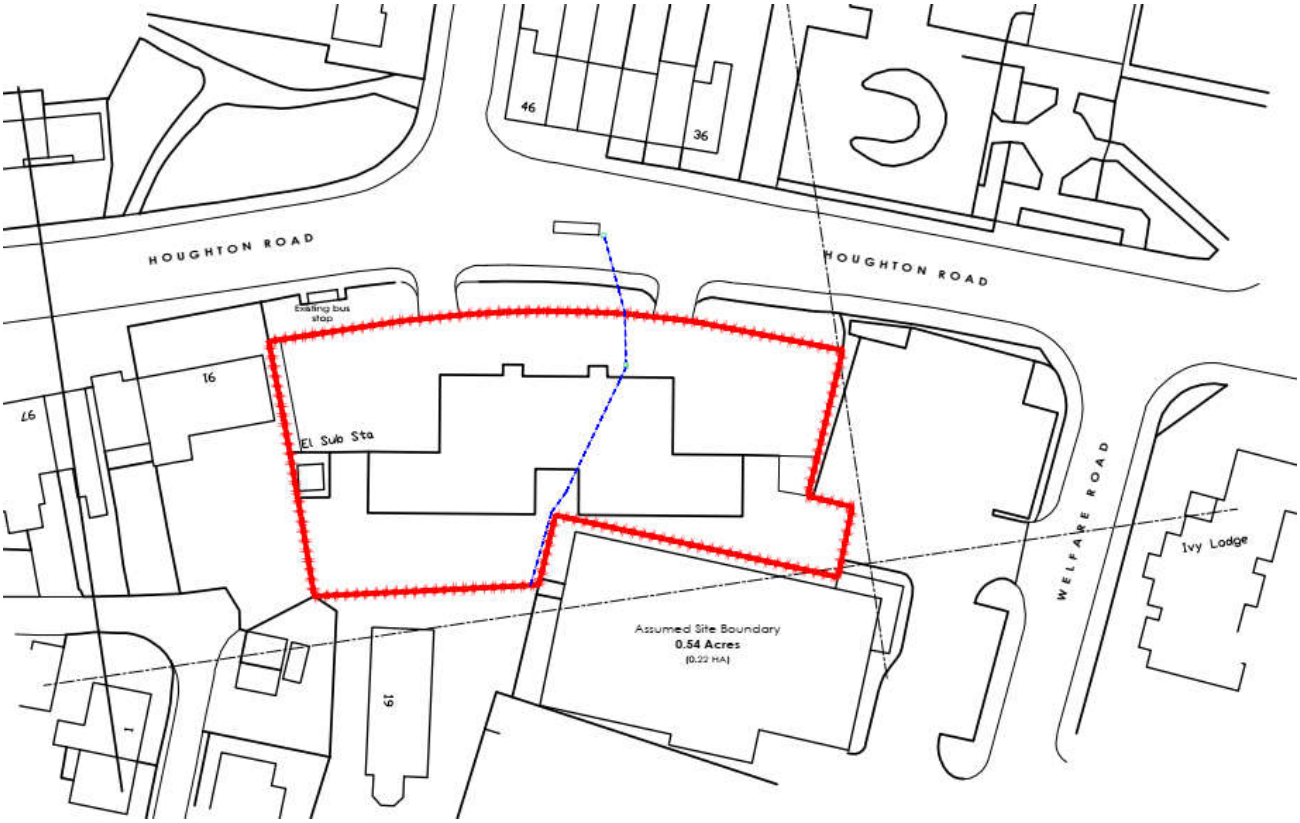
- making sure there's access to all spaces to enable drying and cleaning

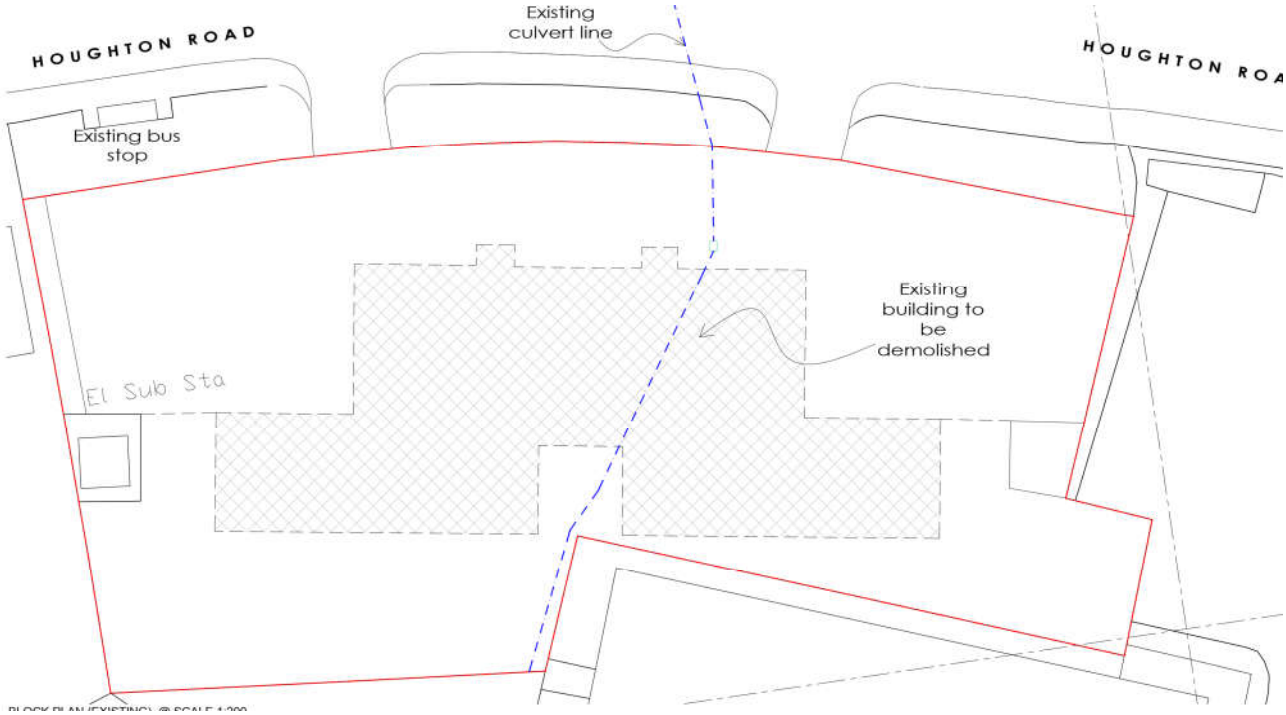
5.3 **In conclusion, the proposed development is considered to be appropriate. There is some uncertainty as to whether the site is at an actual risk of flooding from surface water, and if so to what depth. As such, it would be prudent to install flood resilience in the design.** The actual flood resilience features can be determined once specific elevations are known and in consultation with Building Control.

A D Joyce

BSc MSc ARSM CEng CGeol CEnv MICE FGS SiLC SQP

June 2022





Thurnscoe Hotel, Houghton Road, Thurnscoe

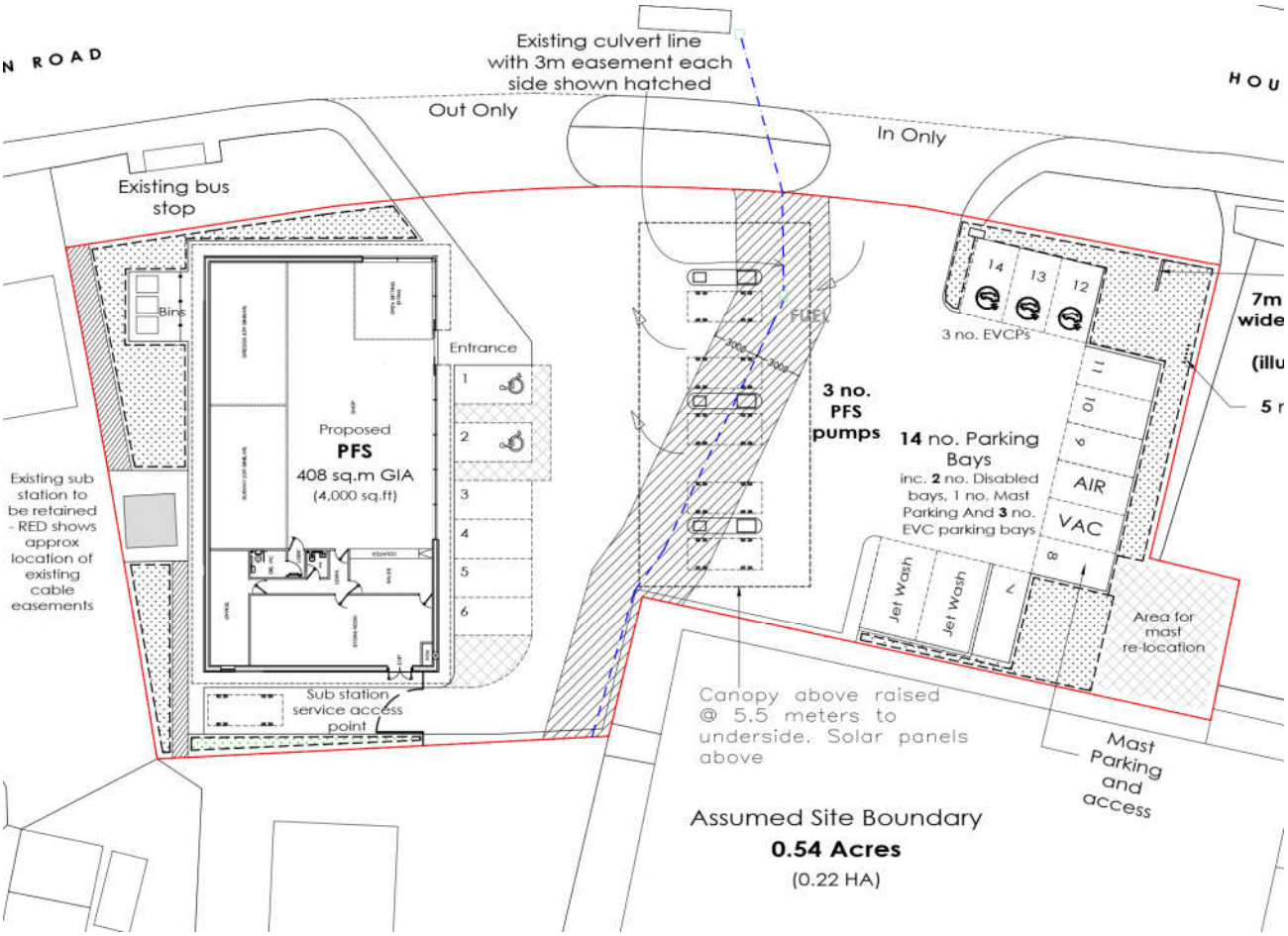
Site Location

Michael D Joyce Associates LLP

Geotechnical and Geoenvironmental Consultants

Scale: NTS

Figure: 1



Thurnscoe Hotel, Houghton Road, Thurnscoe

Site Plan and Development Proposals

Michael D Joyce Associates LLP

Geotechnical and Geoenvironmental Consultants

Scale: NTS

Figure: 2

APPENDIX 1

Environment Agency Flood Map for Planning

Flood map for planning

Your reference	Location (easting/northing)	Created
Flood map thurnscoe	**445460/405720**	**17 Jun 2022 12:50**

Your selected location is in flood zone 1, an area with a low probability of flooding.

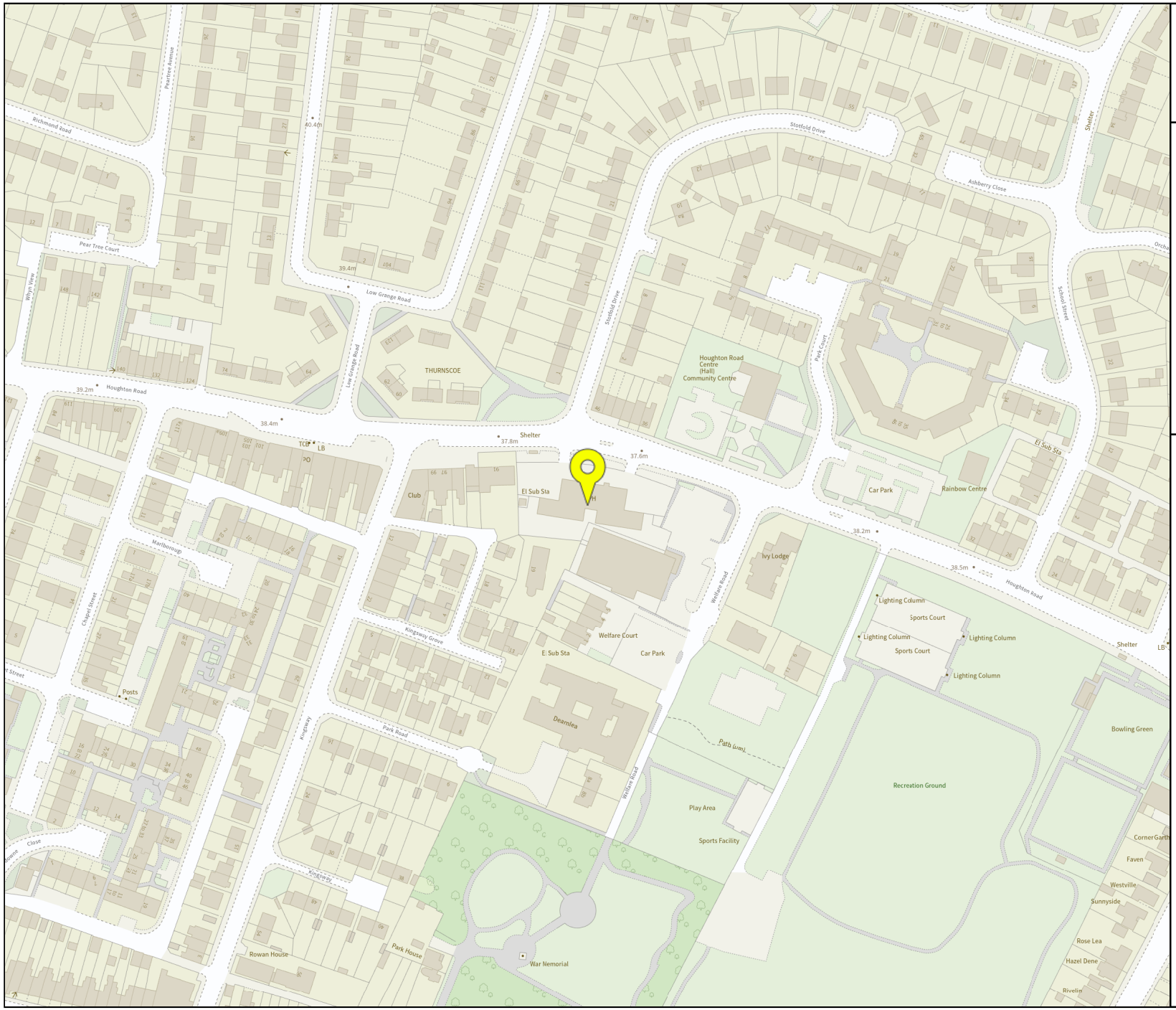
You will need to do a flood risk assessment if your site is **any of the following:**

- bigger that 1 hectare (ha)
- In an area with critical drainage problems as notified by the Environment Agency
- identified as being at increased flood risk in future by the local authority's strategic flood risk assessment
- at risk from other sources of flooding (such as surface water or reservoirs) and its development would increase the vulnerability of its use (such as constructing an office on an undeveloped site or converting a shop to a dwelling)

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.



Environment Agency

Flood map for planning

Your reference
Flood map thurnscoe

Location (easting/northing)
445460/405720

Scale
1:2500

Created
17 Jun 2022 12:50

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

0 20 40 60m

APPENDIX 2

Correspondence from the Environment Agency

Anthony Joyce

From: Elgood, Jasper <Jasper.Elgood@environment-agency.gov.uk>
Sent: 15 June 2022 15:18
To: mdja@geoenvironmental.co.uk
Subject: Your Enquiry: RFI/2022/264897
Attachments: Planning advice for developers.pdf; Node Point Map 264897.pdf; Supporting Information 264897.pdf; 2018 Middle and Lower Don Model Results 264897.pdf; Automated Data 264897.pdf

Our Ref: RFI/2022/264897

Dear Anthony,

RE: Provision of Product 4 for NGR 445463, 405723
Request for information under the Freedom of Information Act 2000 (FOIA) / Environmental Information Regulations 2004 (EIR)

Thank you for your enquiry which was received on 21/6/22.

The requested data is attached. Please also find attached a 'Supporting Information' document which should be read in conjunction with this data.

This information is provided subject to the Open Government Licence (here). Please read for details of permitted use.

Planning Advice
If you are using our data to inform a development proposal, we encourage you to contact our Sustainable Places team for pre-planning application advice. Their advice can help you solve key environmental issues early, reduce the chance of an objection, and help you design a more sustainable development for proposed planning applications. If you would like to take advantage of this service, our advisers will be able to provide further information and estimated costs for any detailed advice. Please contact our Sustainable Places Team by e-mail at sp-yorkshire@environment-agency.gov.uk for further information.

For general enquiries relating to your development or our role within the planning system, please refer to the attached 'Planning advice for developers' document.

I hope that we have correctly interpreted your request. We respond to requests for recorded information that we hold under the Freedom of Information Act 2000 (FOIA) and the associated Environmental Information Regulations 2004 (EIR).

If you are not satisfied with our response to your request for information you can contact us within 2 calendar months to ask for our decision to be reviewed.

If you require any further help, please do not hesitate to contact me.

Yours sincerely,
Jasper

Jasper Elgood
Enquiries Officer | Enquiries Team | C&E Department | Yorkshire Area
Environment Agency
Jasper.Elgood@environment-agency.gov.uk
Enquiries Team Tel | 020 847 48174

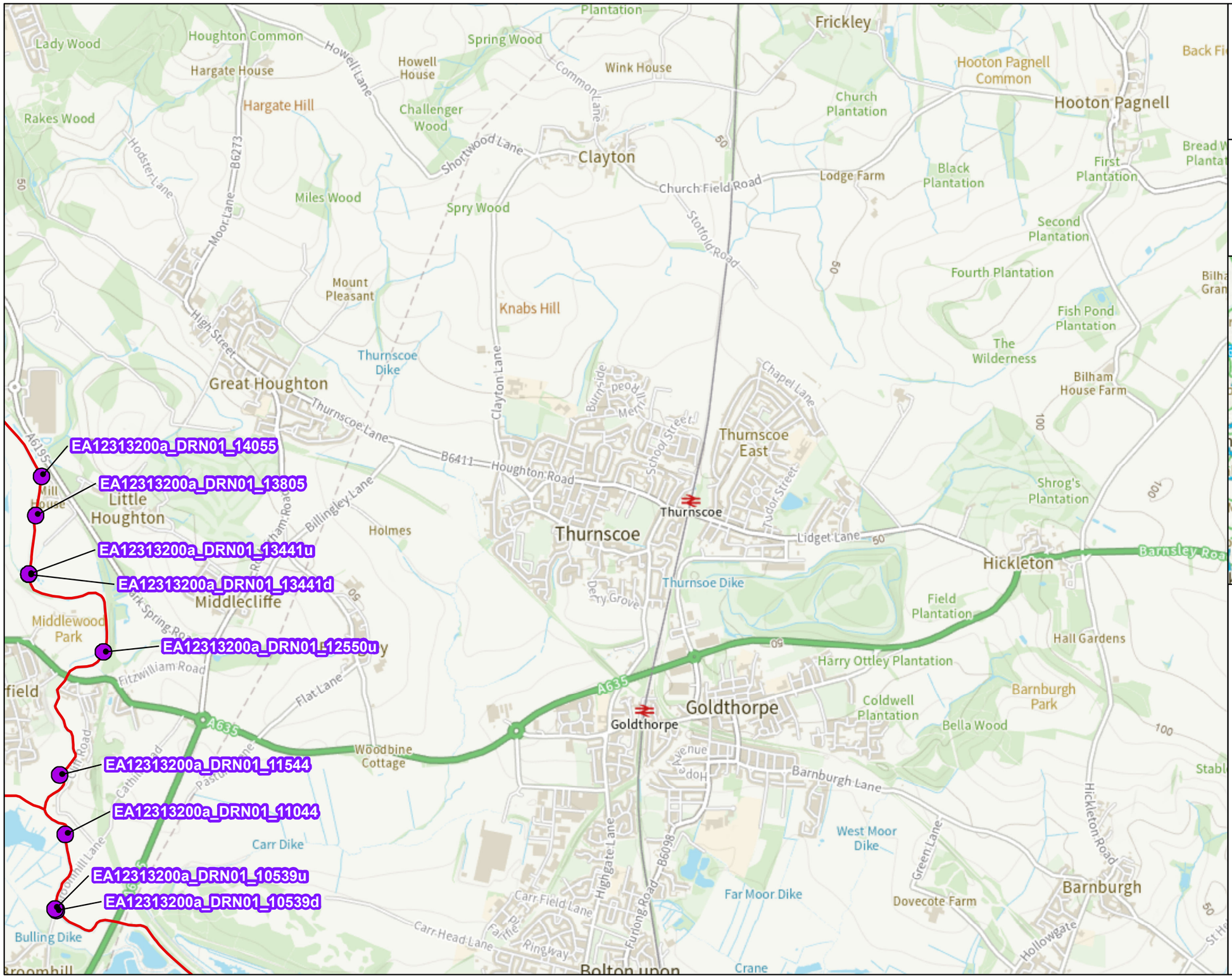
Enquiries Team Email | neyorkshire@environment-agency.gov.uk

2018 Middle and Lower Don Model Results: Don Dearne (Level - mAOD, Flow - m³s) RFI/2022/264897																								
	Defended																							
Node Point	Annual Exceedance Probability (AEP)																				Annual Exceedance Probability (AEP) plus Climate Change allowance					
	2		10		20		30		50		75		100		100+20%CC		100+30%CC		100+50%CC		200	200	1000	1000	1000+20%CC	1000+20%CC
	50% AEP (1 in 2)		10% AEP (1 in 10)		5% AEP (1 in 20)		3.33% AEP (1 in 30)		2% AEP (1 in 50)		1.33% AEP (1 in 75)		1% AEP (1 in 100)		1% AEP (1 in 100) +20% CC		1% AEP (1 in 100) +30% CC		1% AEP (1 in 100) +50% CC		0.5% AEP (1 in 200)		0.1% AEP (1 in 1000)		0.1% AEP (1 in 1000) +20% CC	
	Max Stage	Max Flows	Max Stage	Max Flows	Max Stage	Max Flows	Max Stage	Max Flows	Max Stage	Max Flows	Max Stage	Max Flows	Max Stage	Max Flows	Max Stage	Max Flows	Max Stage	Max Flows	Max Stage	Max Flows	Max Stage	Max Flows	Max Stage	Max Flows	Max Stage	Max Flows
EA12313200a_DRN01_10539d	20.93	37.27	21.52	62.6	21.66	69.67	21.74	73.46	21.81	77.11	22.36	111.37	22.59	130.13	23	149.35	23.2	153.04	23.54	159.19	23.23	154.26	23.9	161.14	24.25	166.45
EA12313200a_DRN01_10539u	20.94	37.27	21.54	62.6	21.69	69.67	21.77	73.46	21.84	77.11	22.42	111.37	22.69	130.13	23.1	149.35	23.29	153.04	23.62	159.19	23.32	154.26	23.94	161.14	24.3	166.45
EA12313200a_DRN01_13441d	24.18	26.86	24.46	38.04	24.63	44.55	24.8	51.67	25.36	84.85	25.59	100.91	26.05	130.28	26.29	149.78	26.42	160.74	26.66	184.18	26.39	157.94	27.01	219.07	27.45	263.33
EA12313200a_DRN01_12550u	23.45	26.08	23.83	30.56	24.16	30.95	24.37	29.2	24.88	33.24	25.07	37.64	25.43	49.98	25.61	57.98	25.7	62.61	25.88	72.92	25.68	61.58	26.15	89.77	26.53	114.52
EA12313200a_DRN01_11044	21.47	37.33	22.26	62.66	22.45	69.72	22.54	73.46	22.63	77.11	23.22	82.68	23.46	94.66	23.72	108.28	23.8	112.46	23.93	119.17	23.82	111.01	24.07	149.63	24.3	191.89
EA12313200a_DRN01_13805	26.82	26.87	27.06	41.28	27.15	55.2	27.36	62.7	27.86	88.15	27.94	100.16	27.99	115.54	27.99	132.14	27.99	145.01	28	164.07	28.01	141.77	28.03	184.46	28.03	208.68
EA12313200a_DRN01_14055	26.88	26.86	27.17	38.95	27.34	48.1	27.49	52.39	28.01	63.77	28.12	69.45	28.33	76.76	28.51	81.04	28.6	82.01	28.75	84.44	28.58	79.78	28.93	85.97	29.14	86.25
EA12313200a_DRN01_11544	21.79	26.12	22.58	38.51	22.74	52.78	22.82	61.07	23.16	91.64	23.36	108.45	23.57	153.99	23.82	176.83	23.9	186.97	24.03	209.37	23.91	183.61	24.17	238.35	24.4	278.08
EA12313200a_DRN01_13441u	24.18	26.86	24.46	35.91	24.63	41.01	24.8	47.82	25.36	81.14	25.59	97.31	26.05	126.95	26.29	146.59	26.42	157.63	26.66	181.23	26.39	154.82	27.01	216.35	27.45	260.93

2018 Middle and Lower Don Model Results: Don Dearne (Level - mAOD, Flow - m³s) RFI/2022/264897				
	Annual Exceedance Probability (AEP)			
Node Point	100		1000	
	1% AEP (1 in 100)		0.1% AEP (1 in 1000)	
	Max Stage	Max Flows	Max Stage	Max Flows
EA12313200a_DRN01_10539d	23.04	174.37	23.98	206.73
EA12313200a_DRN01_10539u	23.21	174.37	24.05	206.73
EA12313200a_DRN01_13441d	25.53	52.85	26.26	55.31
EA12313200a_DRN01_12550u	25.4	37.7	26.12	55.31
EA12313200a_DRN01_11044	23.56	83.52	24.11	145.84
EA12313200a_DRN01_13805	26.5	66.92	26.51	81.78
EA12313200a_DRN01_14055	27.13	42.17	27.38	46.39
EA12313200a_DRN01_11544	23.78	163.73	24.27	244.15
EA12313200a_DRN01_13441u	25.53	52.85	26.26	55.31

RFI/2022/264897 Node Point Map centred on 445463E 405723N

Date created: 14/06/2022



Environment Agency

www.environment-agency.gov.uk

Scale: 1:24,000

N W E S

when reproduced @ A3

LEGEND

- 2018 Middle and Lower Don Node Point
- Main River

Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506(Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

Assets

We have no record of flood defences helping to reduce flood risk in your area of interest.

Please note that information about high ground, structures (such as weirs, control gates or screens) and channels (culverts) are no longer given out in Product 4, unless specifically requested. If you'd like to see this data, please let us know.

Modelling

2018 Lower and Middle Don Mapping Study

See enclosed extracts from the Lower and Middle Don Mapping Study produced by JBA Consulting in 2018.
Extracts consist of;

- A table showing Defended modelled level (mAOD) and flow (m^3/s) data for the 50% (1 in 2), 10% (1 in 10), 5% (1 in 20), 3.33% (1 in 30), 2% (1 in 50), 1.33 % (1 in 75), 1% (1 in 100) , 0.5% (1 in 200) and 0.1% 1 in 1000 Annual Exceedance Probabilities (AEP).
- A table showing Defended and level (mAOD) and flow (m^3/s) data for the 1% (1 in 100) +20% CC, +30% CC and +50% CC, and 0.1% (1 in 1000) +20% Climate Change Annual Exceedance Probability (AEP).
- A table showing Undefended modelled level (mAOD) and flow (m^3/s) data for the 1% (1 in 100) and 0.1% 1 in 1000 Annual Exceedance Probabilities (AEP).
- A map showing node point locations.

The model report can be provided on request of a Product 5
Modelled output data is available (in GIS format) on request as a Product 6.
The model input data can be provided on request of a Product 7.

Climate Change

Updated guidance on how climate change could affect flood risk to new development - 'Flood risk assessments: climate change allowances' was published on gov.uk on 19 February 2016. You should confirm the flood risk vulnerability classification and lifetime of your proposed development in line with NPPF and apply the appropriate climate change allowances.

Bespoke Flood Risk Assessment (FRA) advice:

If the pre-application advice is required with regards the preparation of a site-specific Flood Risk Assessment, this can be requested via the Yorkshire Sustainable Places team (email: sp-yorkshire@environment-agency.gov.uk). Charges may apply for

any advice that is provided, this currently stands at £100 per hour per person. The .gov.uk pages provide a good starting point on what to include within a site-specific Flood Risk Assessment and can be accessed via https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications. A site-specific Flood Risk Assessment will need to consider flood risks from all sources, including those associated with defence failure (e.g. breach) and accounting for the predicted impacts as a result of climate change. Please contact the Sustainable Places team if you require advice on how to include these within a Flood Risk Assessment.

Other

Surface Water Map

Lead Local Flood Authorities (LLFA) are responsible for managing local flood risk from surface water flooding and groundwater flooding. You should check with the LLFA as they may have more up to date information regarding this type of flooding.

The Risk of Flooding from Surface Water Flood Map can be viewed and downloaded as a PDF file on GOV.UK by following this link: https://flood-warning-information.service.gov.uk/long-term-flood-risk

Surface Water Drainage

The Lead Local Flood Authority is the statutory consultee for planning matters relating to surface water drainage, therefore it is recommended they should be consulted separately regarding this.

Surface water discharge from new development should ideally 'mimic' the pre-development situation using a sustainable drainage system so that the flow and volume of water in watercourses is not increased.

A permit may be required, under the Environmental Permitting Regulations 2016 from the Environment Agency for any proposed works or structures in, under, over or within eight metres of a 'main river' (e.g. a new outfall). A permit is separate to and in addition to any planning permission granted. Further details and guidance are available on the GOV.UK website: https://www.gov.uk/guidance/flood-risk-activities-environmental-permits

Risk of Flooding from Reservoirs Map

Outlines and simplified depth and velocity maps can be viewed on our website:

https://flood-warning-information.service.gov.uk/long-term-flood-risk/#x=438988&y=406600&scale=2

Please, zoom into the location of interest, and then click on the inundated location for details. As a result a list of reservoirs will be provided with supporting information and a links to other data, such as estimated depths and speed of flooding, at the bottom of the result page.

A map of showing the outlines can also be provided on request.

Flood Warning

The site is not covered by a Flood Warning.

LIDAR Data

Please note that our LiDAR data is now available free of charge (Open Data) from http://environment.data.gov.uk/ds/survey/index.jsp#/survey (once zoomed to the relevant location the available LiDAR products will be listed below the map).

Two LIDAR products are available:

1. Tiled LIDAR data - The full tiled dataset consists of historic LIDAR data which has been gathered since 1998. For some areas we have carried out repeat surveys and data is available in a range of resolutions.
2. Composite LIDAR data - The composite dataset is derived from a combination of our full tiled dataset which has been merged and re-sampled to give the best possible spatial coverage.

Light Detection and Ranging (LIDAR) is an airborne mapping technique, which uses a laser to measure the distance between the aircraft and the ground. This technique results in the production of an accurate, cost-effective terrain model suitable for assessing flood risk and other environmental applications.

The Environment Agency owns two LIDAR systems, which are installed in a survey aircraft along with its other operational remote sensing instruments.

The aircraft is positioned and navigated using Global Positioning System (GPS) corrected to known ground reference points. The aircraft typically flies at a height of about 800 metres above ground level and a scanning mirror allows a swath width of about 600 metres to be surveyed during a flight.

The Rights & Responsibilities of a Riverside Owner

The owner of property adjacent to a watercourse is usually deemed to be the riparian owner and, as such, has both riparian rights and responsibilities with regard to the watercourse within their ownership.

For more information on Rights and Responsibilities of a riverside owner, you can visit our website at:

https://www.gov.uk/guidance/owning-a-watercourse

Ordnance Survey Data

Under the terms of our licence agreement with the Ordnance Survey, we are unable to supply the OS data. Under this agreement we can only supply OS data to consultants/contractors carrying out work on our behalf.

Planning advice for developers – FAQs

Introduction

Local planning authorities (LPAs) across Yorkshire are required to consult us on certain planning applications which affect flood risk, groundwater, waste, or water quality.

If your development falls into one of these categories, we'll be invited to comment on your planning application. Your LPA, when considering your application, will take our comments into account.

We've produced this guidance to summarise the environmental issues we're responsible for. The guidance forms part of our free advice service; if you require site-specific or face-to-face advice, we'll need to recover our costs through our charged advice service. Engaging with us early can help you identify the big issues, reduce the chances of subsequent delays and help you design a more sustainable and attractive development.

Development and flood risk

Is my development proposal at risk of flooding?

The flood map for planning shows where flooding from rivers and the sea may occur. Whilst this map isn't suitable for a detailed flood risk assessment, it'll show which flood zone your development is located within and therefore will indicate whether further assessment is needed. You should also refer to your LPA's strategic flood risk assessment which will provide additional local information on flood risk, including the location of functional floodplain and areas which are susceptible to other sources of flooding such as from surface water or reservoirs.

Will my application need to pass the sequential and exception tests?

Local planning authorities apply the sequential test to steer development towards areas at the lowest risk of flooding. If your proposal is located within flood zones 2 or 3, you should contact your LPA to discuss the sequential test **before** submitting your application. The LPA may require you to submit information with your application in support of the sequential test.

If the LPA confirm that the sequential test has ruled out steering the development to lower risk sites, the development may also need to pass the exception test by demonstrating that its sustainability benefits outweigh flood risk and that it can be made safe for its lifetime, through the production of a site-specific flood risk assessment. Planning practice guidance advises when an exception test will be required, which will depend on the vulnerability of the development and the flood zone it lies within.

Do I need to submit a flood risk assessment with my planning application?

You'll need to submit a flood risk assessment if your application lies within flood zones 2 or 3 or is over 1 hectare within flood zone 1. You'll also need to submit an assessment if your proposal could be affected by sources of flooding other than from rivers or the sea. For certain lower risk applications, we've provided 'flood risk standing advice' which enables local planning authorities to assess flood risk assessments without the need to consult us.

What information should I include in my flood risk assessment?

We recommend that you refer to the checklist for a site-specific flood risk assessment for detailed advice on what to include in your flood risk assessment. Alongside referring to your LPA's strategic flood risk assessment, you should contact your LPA to find out whether there are any development guidelines which are specific to your locality.

Can I undertake my own flood risk assessment?

Your FRA must be appropriate to the scale, nature and location of the development whilst being credible and fit-for-purpose. Whilst it's possible to undertake your own assessment, most applicants employ suitably experienced professionals. We're not able to recommend specific consultants, but a simple web search should help you source a competent individual or company.

Do I need to consider how climate change will affect my proposal's flood risk?

Yes, you should demonstrate how flood risk will be managed now and over the development's lifetime, taking climate change into account. Please refer to the following guidance when undertaking your flood risk assessment. In some cases we'll hold the climate change flood data you need. In others you'll need to undertake your own analysis to understand the impacts.

Where can I get modelled or historic flood levels from?

Email our Customers and Engagement team (neyorkshire@environment-agency.gov.uk) to find out whether we have any modelled or historic flood levels available for your development site. A list of the packages of information we're able to provide can be found under the 'get information to complete an assessment' section of the planning practice guidance. They'll aim to provide this information within 20 days. We no longer charge for providing this information.

The risk portrayed by your flood map doesn't seem to reflect the site's actual risk. How do I 'challenge' your flood map?

If you have evidence suggesting that our flood map is inaccurate, please contact our Customers and Engagement team (neyorkshire@environment-agency.gov.uk) who will provide you with any existing data we hold. To formally contest our flood zones, you'll need to submit supporting evidence, such as digital copies of a topographic survey or modelling for quality assurance purposes. Digital files of the proposed new flood zones in ArcMap or MapInfo format should also be supplied. Any new outline data you submit must conform to our flood zones policy, copies of which are available on request.

Whilst we'll usually be happy to review any topographical survey or model prior to the application being submitted, we would have to recover our costs for this work. In some cases where work to review and update our existing models is already underway, we may decline to consider a challenge.

As we have to be certain that the data which informs our flood map is fit-for-purpose, any revisions will need to meet stringent quality checks.

SURFACE WATER AND DRAINAGE

Who's responsible for managing surface water?

Lead local flood authorities are responsible for providing advice on the management of surface water resulting from new major development. Internal drainage boards, where established, have permissive powers to manage water levels within their drainage districts, so also play a key role in managing surface water.

Will I need to provide surface water storage and limit the discharge rate?

You should contact your lead local flood authority to discuss surface water discharge rates and storage requirements. Typically, they'll ask that your development does not increase run-off and limits the discharge to the existing greenfield run-off rate (usually 1.4l/s/ha if not calculated).

Do I need to install sustainable drainage systems?

Sustainable Drainage Systems (SuDS) should always be carefully considered in discussion with your lead local flood authority. A SuDS scheme can reduce flood risk, improve water quality, create better habitats for wildlife, and produce pleasant, more amenable places for people.

Infiltration drainage must not, however, pose a risk to groundwater quality. All infiltration SuDS must:

- Meet the groundwater protection criteria set out on GOV.UK
- Not be constructed in ground affected by contamination

Who should I contact about connecting my development to the mains sewer?

Talk to your water company about connecting to their sewerage system. Here are some contact details for water companies operating in the Yorkshire Environment Agency area:

Yorkshire Water	planningconsultation@yorkshirewater.co.uk
Northumbrian Water	developmentenquiries@nwl.co.uk
Severn Trent Water	new.connections@severntrent.co.uk

My development is a long way from the mains sewer. Can I install a 'non-mains' drainage system, such as a package treatment plant?

New development should connect to the public mains sewer wherever possible. Individual treatment plants can deteriorate local water quality and are more challenging to monitor and regulate. If you can't connect to the mains sewer, your planning submission should outline how you will deal with foul drainage discharge. You should include evidence as to why it is not possible to connect to the mains system, including details of any prohibitive costs. Please note that some 'non-mains' foul water drainage systems will require an environmental permit, irrespective of any planning approval.

OTHER ENVIRONMENTAL CONSIDERATIONS

What other environmental issues will you consider with my planning application?

Your planning application will need to demonstrate that any environmental risks can be managed, through design and construction, for the development's lifetime. Alongside flood risk, the key environmental risks we'll consider are:

- **Land Contamination**
  We're mainly interested in those sites where there is a risk of pollution to controlled waters. You should investigate any contamination to see whether the environmental risk or cost of clean-up (remediation) would hinder your proposal. If contamination is known or suspected, a desktop study, investigation, remediation and other works may be required to enable safe development. Our model procedures for the management of land contamination provide further information.

- **Pollution prevention**
  Your application should demonstrate how you'll minimise the risk of pollution from all aspects of your development, including construction and

operation phases. Groundwater can be vulnerable to pollution, as well as rivers and streams. Some areas (source protection zones and aquifers) are especially sensitive to pollutants as they typically supply public drinking water. To find out whether your development is located in an area sensitive to groundwater pollution, visit our interactive maps. Advice on groundwater protection can be found on GOV.UK

- **Fisheries, biodiversity, geomorphology and protected species**
  If your proposal is likely to affect the ecology of a main river, you'll need to carry out a risk assessment. This assessment should show that your development can proceed without demonstrable harm, and should propose mitigation, compensation or enhancements where required. A survey should be carried out if any protected species are thought to be nearby. If this survey confirms the presence of protected species or their habitat, measures should be taken to manage the development's risks. Natural England are the statutory consultee for other biodiversity-related matters. Further information on their remit can be found on GOV.UK

- **Water framework directive**
  If your proposal affects ground or surface waterbodies, you'll need to consider the Water Framework Directive (WFD) and the actions set out in the Humber River Basin Management Plan. You'll also need to submit a WFD Assessment demonstrating how the development will prevent deterioration and improve the waterbody's ecological status.

- **River buffer zone**
  Your development should ensure that an 8m strip of land (planted with locally appropriate, native species) is left undisturbed next to the bank of any main river. This 'river corridor' will improve habitat connectivity and will ensure we're able to access the bank for any future flood defence construction and maintenance.

- **Culverting**
  We're opposed to culverting. Culverts degrade watercourses' ecology and prevent the movement of wildlife and fish. As culverts can easily become blocked, they increase flood risk. They're also difficult to inspect and maintain. We may object to any planning applications involving culverting on a main river and may refuse to grant an environmental permit. Existing culverts should be removed and the river channel and bankside habitat reinstated to restore the ecological continuity of the river channel and its corridor.

Will I need any other Environment Agency permits for my development?

You might need an environmental permit if your development manages or produces waste or emissions that pollute the air, water or land or is work that affects a main river or a sea defence. The lead local flood authority is responsible for any consents relating to ordinary watercourses.

The Environmental Permitting Regulations (England and Wales) 2015 cover water discharges, groundwater activities, flood risk activities, radioactive substances, waste, mining waste and installations. They also include provision for a number of directives including batteries. Further information, including contact details for further permitting related enquiries, can be found here.

As planning and permitting decisions are often closely linked, we have issued detailed guidance for developments requiring planning permission and environmental permits. This guidance explains how, when responding to planning consultations that require environmental permits, we will advise of three possible positions:

- No major permitting concerns
- More detailed consideration is required and parallel tracking is recommended
- Don't proceed – unlikely to grant a permit.

PRE-APPLICATION ADVICE

Can you provide site-specific advice, review a submission document, or attend a site meeting before I submit my planning application?

We encourage you to seek pre-application advice as it can help you solve key environmental issues early, reduce the chance of an objection and help you design a more sustainable development. If you'd like to take advantage of this service, please email our Sustainable Places team so that we can provide further details and estimated costs.

Please note that any pre-application guidance we provide doesn't represent our final view in relation to any future planning application. We recommend that you seek your own expert advice prior to submitting your application.

Who should I contact for further information?

Yorkshire planning enquiries: sp-yorkshire@environment-agency.gov.uk

General enquiries: 03708 506 506

Environment Agency, Lateral, 8 City Walk, Leeds LS11 9AT
https://www.gov.uk/government/organisations/environment-agency

Michael D Joyce Associates LLP

Geotechnical and Geoenvironmental Consultants

Charnock Court 6 South Parade Wakefield West Yorkshire WF1 1LR

Tel: 01924 360458

Web: www.geoenvironmental.co.uk Email: mdja@geoenvironmental.co.uk