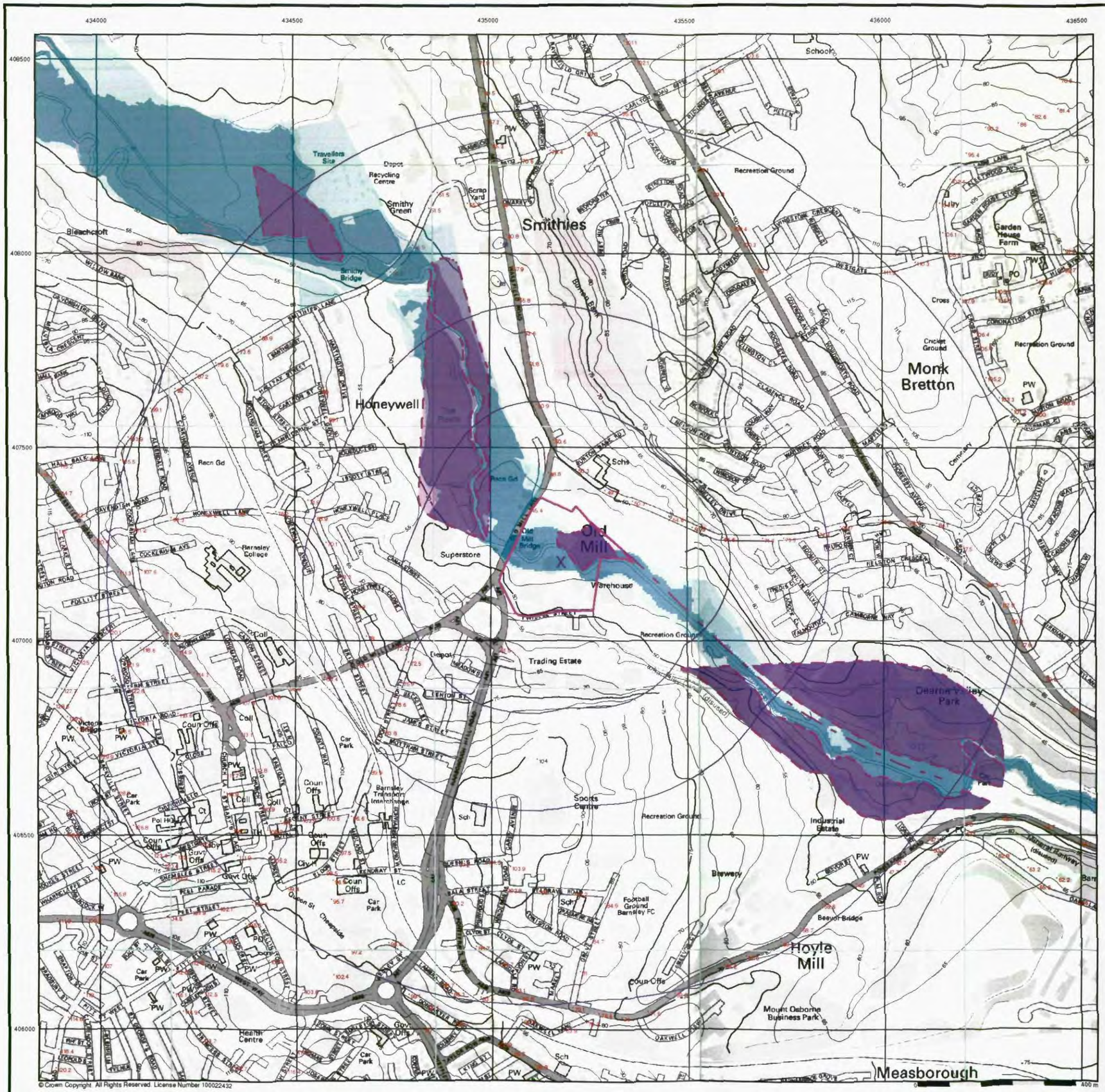
Appendix B4 Envirocheck Flood Screening Report



Envirocheck® Flood

EA Flood Data Map (1:10,000)

General

- Specified Site
- Specified Buffer(s)
- X Bearing Reference Point

Environment Agency Flood Data

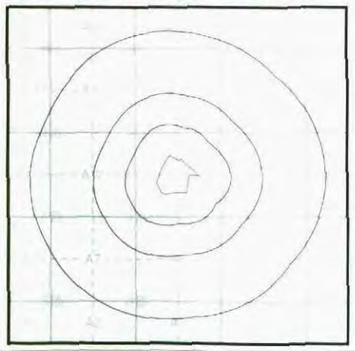
- Extreme Flooding from Rivers or Sea without Defences (Zone 2)
- Flooding from Rivers or Sea without Defences (Zone 3)
- Area Benefiting from Flood Defence
- Flood Water Storage Areas
- Flood Defence

Contours (height in metres)

Standard Contour — 105 — 100 — 95 — *167.8 Spot Height

Index Contour — *45.8 Air Height

EA Flood Data Map - Slice A



N

Order Details

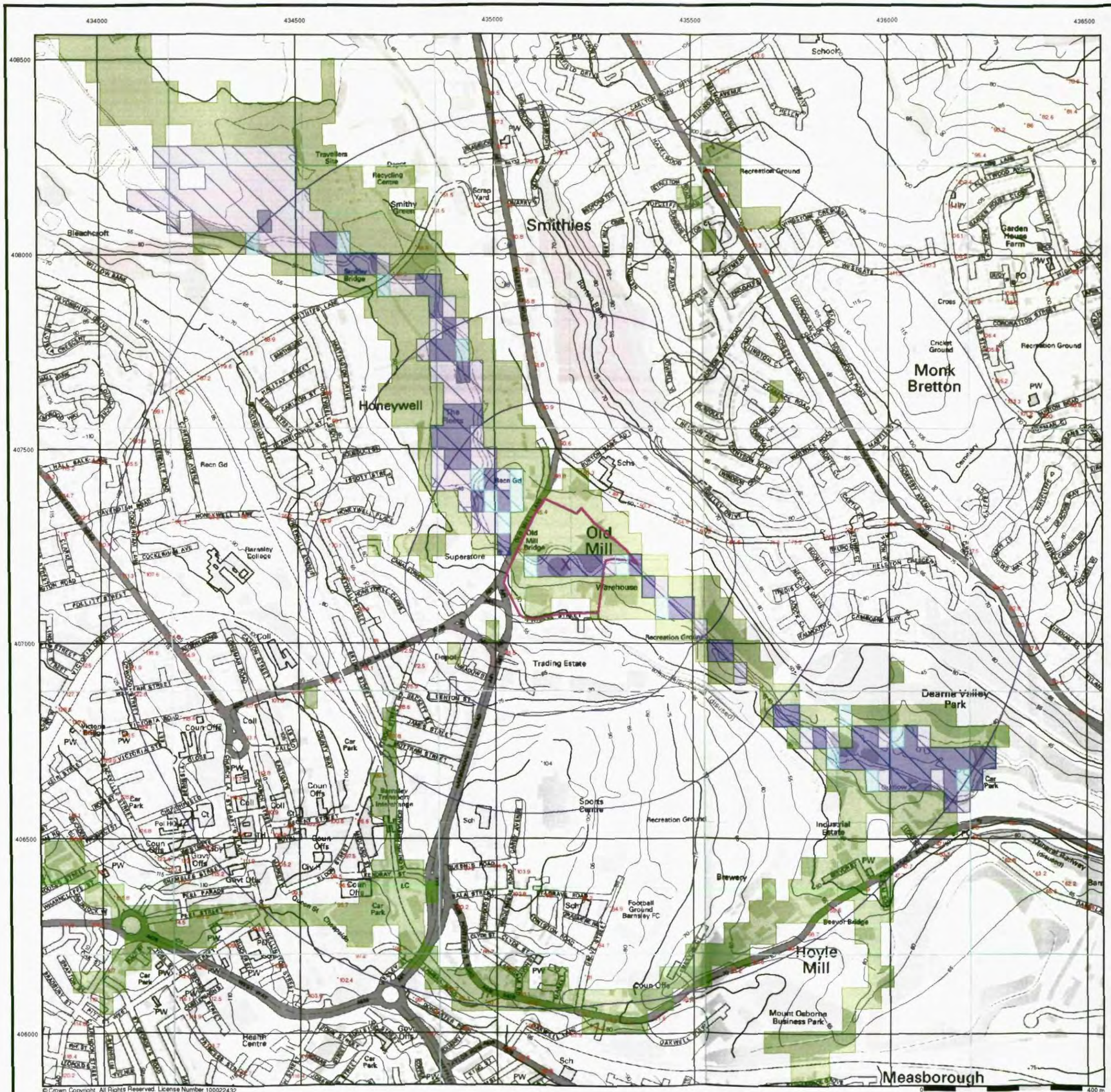
Order Number:	35726945_1_1
Customer Ref:	11171504-IF1
National Grid Reference:	435180, 407200
Slice:	A
Site Area (Ha):	6.12
Search Buffer (m):	1000

Site Details

Old Mill Lane, BARNSLEY, South Yorkshire

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Envirocheck® Flood

RMS 75 year Return Flood Map (1:10,000)

General

- Specified Site
- Specified Buffer(s)
- X Bearing Reference Point

RMS 75 year Return Flood Data

Flood Depth (mm)	Flood Type: Defended Flood	Flood Type: Undefended Flood	Pluvial & Minor River Flood (flood depth n/a)
0 - 200			
201 - 500			
501 - 2000			
2001 +			

Contours (height in metres)

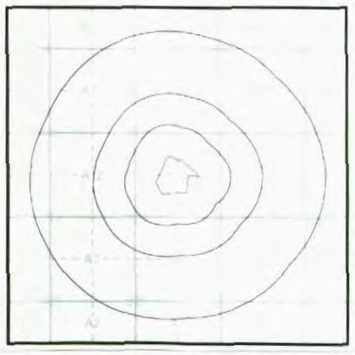
Standard Contour — 105 — 100 — 95

Index Contour

167.3 Spot Height

45.8 Air Height

RMS 75 year Return Flood Map - Slice A



N

Order Details

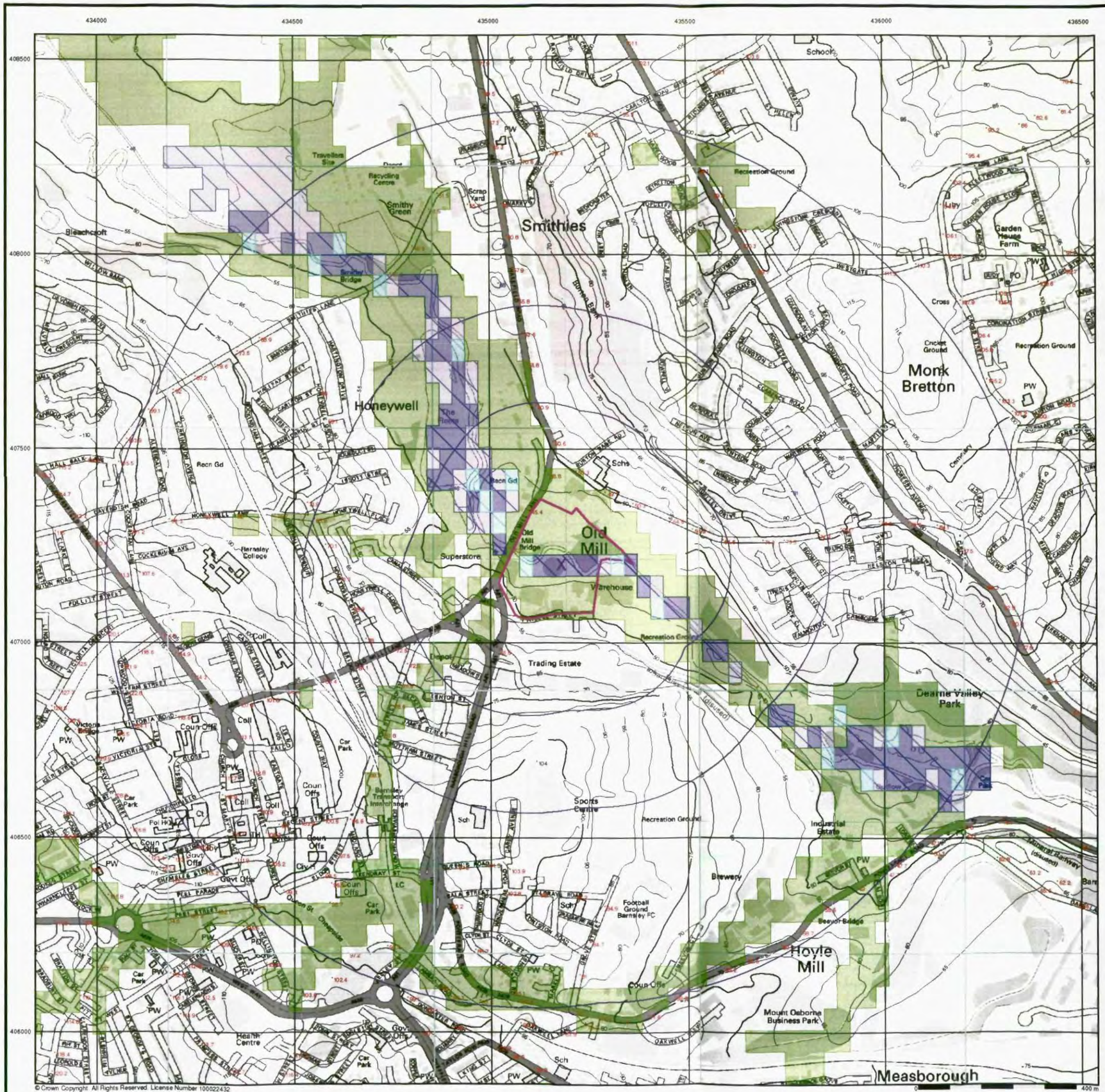
Order Number:	35726945_1_1
Customer Ref:	11171504-IF1
National Grid Reference:	435180, 407200
Slice:	A
Site Area (Ha):	6.12
Search Buffer (m):	1000

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Envirocheck® Flood

RMS 100 year Return Flood Map (1:10,000)

General

- Specified Site
- Specified Buffer(s)
- X Bearing Reference Point

RMS 100 year Return Flood Data

Flood Depth (mm)	Flood Type: Defended Flood	Flood Type: Undefended Flood	Pluvial & Minor River Flood (flood depth n/a)
0 - 200			
201 - 500			
501 - 2000			
2001 +			

Contours (height in metres)

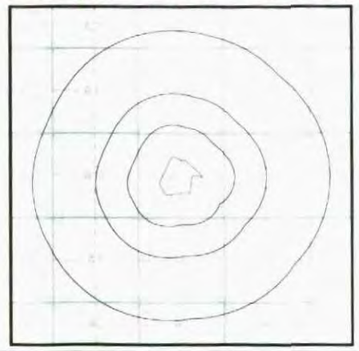
Standard Contour — 105 — 100 — 95

Index Contour

167.3 Spot Height

45.8 Air Height

RMS 100 year Return Flood Map - Slice A



N

Order Details

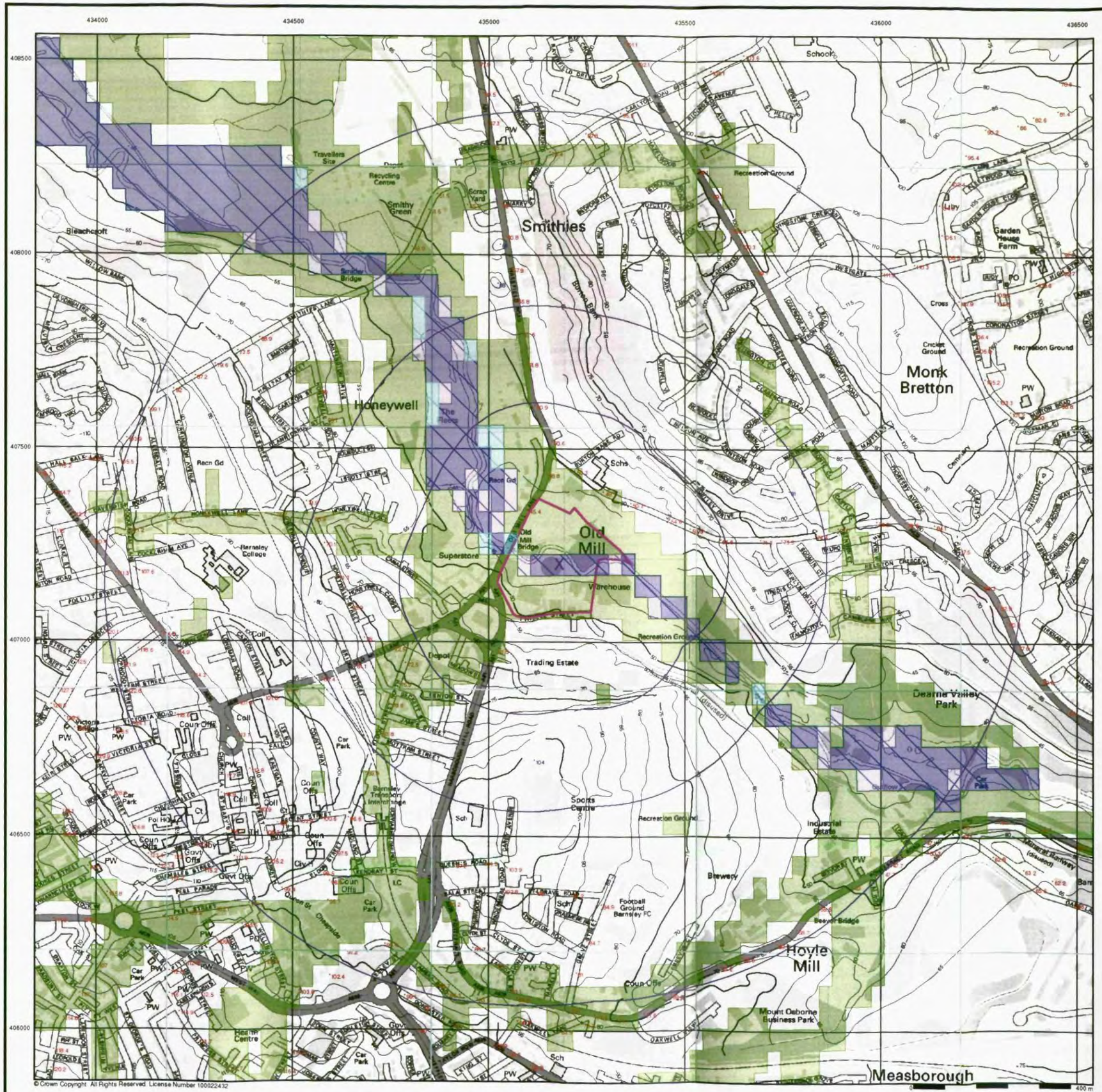
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Customer Ref:	11171504-IF1
National Grid Reference:	435180, 407200
Slice:	A
Site Area (Ha):	6.12
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Envirocheck® Flood

RMS 1000 year Return Flood Map (1:10,000)

General

- Specified Site
- Specified Buffer(s)
- X Bearing Reference Point

RMS 1000 year Return Flood Data

Flood Depth (mm)	Flood Type: Defended Flood	Flood Type: Undefended Flood	Pluvial & Minor River Flood (flood depth n/a)
0 - 200			
201 - 500			
501 - 2000			
2001 +			

Contours (height in metres)

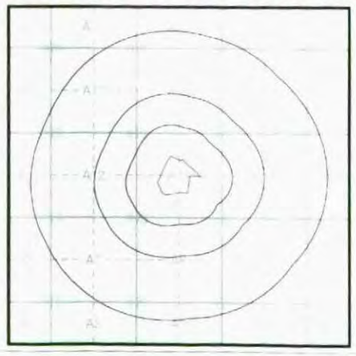
Standard Contour — 105 — 100 — 95

Index Contour

167.3 Spot Height

45.8 Air Height

RMS 1000 year Return Flood Map - Slice A



N

Order Details

Order Number:	35726945_1_1
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National Grid Reference:	435180, 407200
Slice:	A
Site Area (Ha):	6.12
Search Buffer (m):	1000

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Envirocheck® Flood

EA Detailed River Network Map (1:10,000)

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID

EA Detailed River Network Data

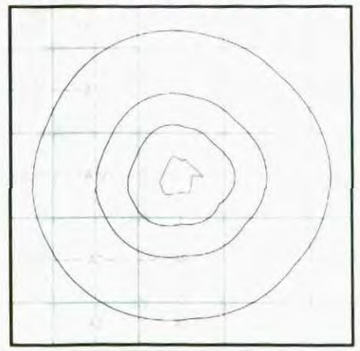
- Primary River
- Secondary River
- Tertiary River
- Canal
- Canal Tunnel
- Undefined River
- Lake/Reservoir
- Extended Culvert (greater than 50m)
- Underground River (inferred)
- Underground River (local knowledge)
- Downstream of High Water Mark
- Downstream of Seaward Extension
- Not assigned River feature
- Source
- Junction
- Sink
- Non-interactive Node
- Offline Drainage Feature
- Not assigned River feature
- Pseudo Node (general)
- Pseudo Node (High Water Mark)
- Pseudo Node (OS MasterMap polygon boundary)

Contours (height in metres)

Standard Contour — 105 — 100 — 95
Index Contour

167.3 Spot Height
45.8 Air Height

EA Detailed River Network Map - Slice A



N

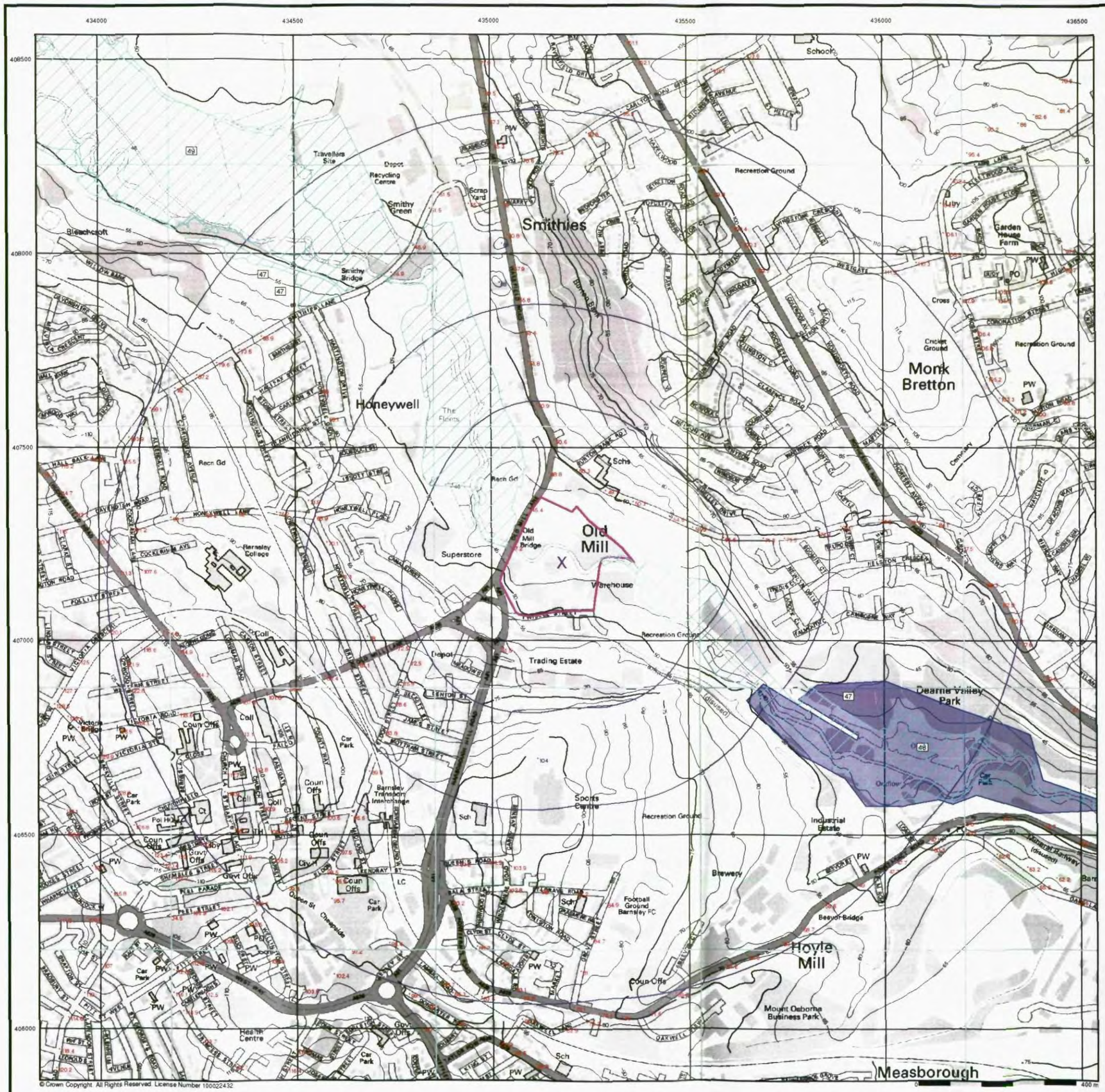
Order Details

Order Number:	35726945_1_1
Customer Ref:	11171504-IF1
National Grid Reference:	435180, 407200
Slice:	A
Site Area (Ha):	6.12
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Envirocheck® Flood

EA Historic Flood Map (1:10,000)

General

- Specified Site
- Specified Buffer(s)
- X Bearing Reference Point
- Map ID

EA Historic Flood Events Data

- Channel Capacity Exceeded (no raised defences)
- Groundwater/High Water Table
- Local Drainage/Surface Water
- Mechanical Failure
- Obstruction/Blockage - Bridge
- Obstruction/Blockage - Channel
- Obstruction/Blockage - Culvert
- Obstruction/Blockage - Debris Screen
- Operational Failure/ Breach of Defence
- Other
- Overtopping of Defences
- Unknown

- Historical Flood Liabilities

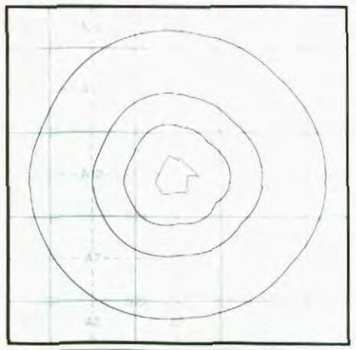
Contours (height in metres)

Standard Contour — 105 — 100 — 95 — Index Contour

167.3 Spot Height

45.8 Air Height

EA Historic Flood Map - Slice A



N

Order Details

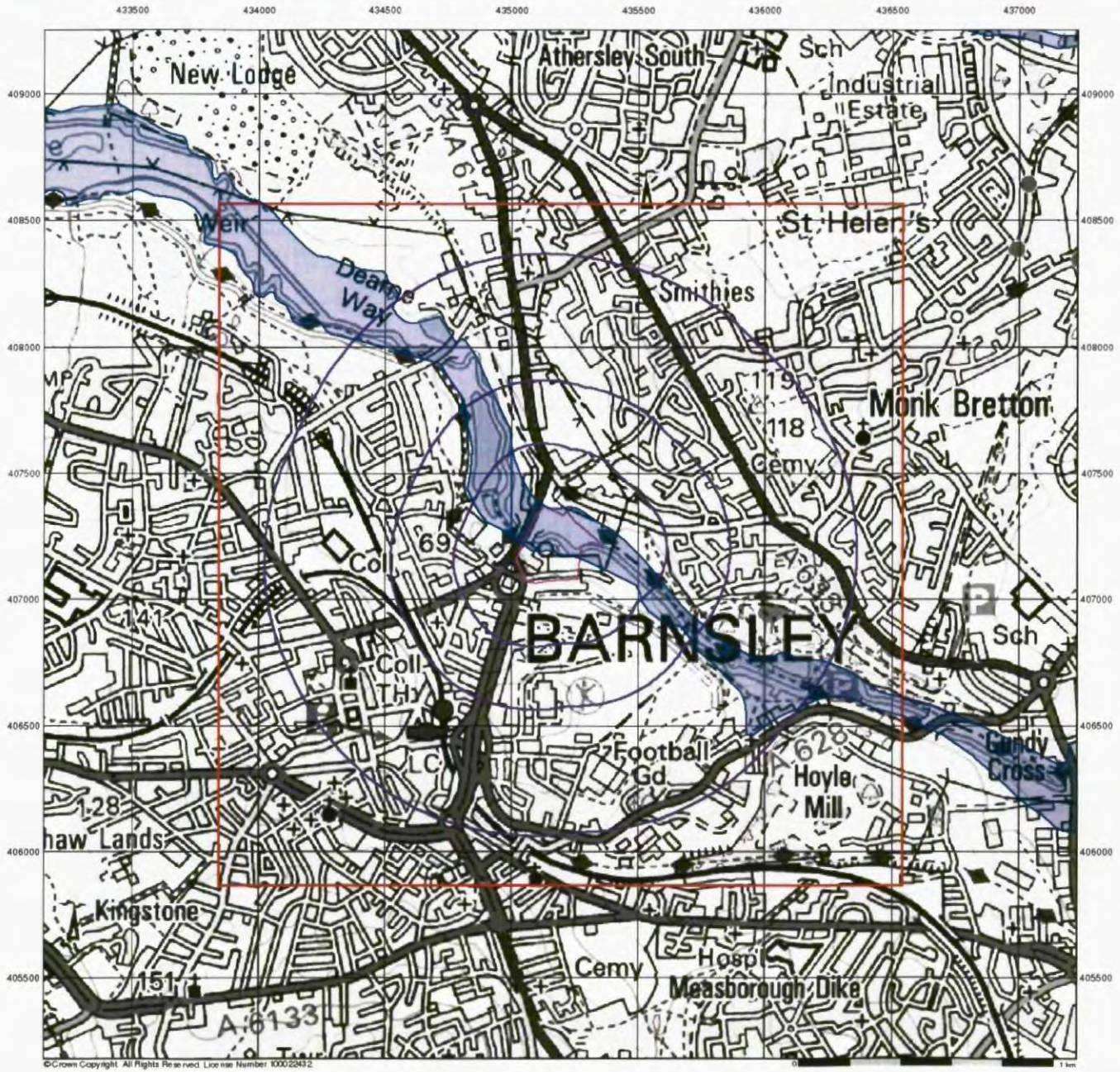
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Customer Ref:	11171504-IF1
National Grid Reference:	435180, 407200
Slice:	A
Site Area (Ha):	6.12
Search Buffer (m):	1000

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Envirocheck® Flood

BGS Flood Data (1:50,000)

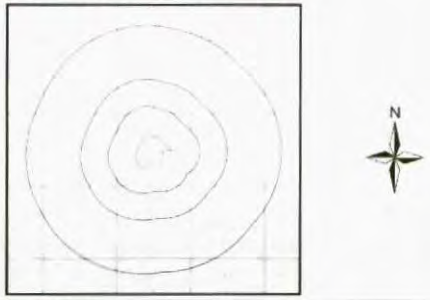
General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

BGS Geological Indicators of Flooding

- Coastal
- Inland
- Bodies of Water

BGS Flood Data Map - Slice A

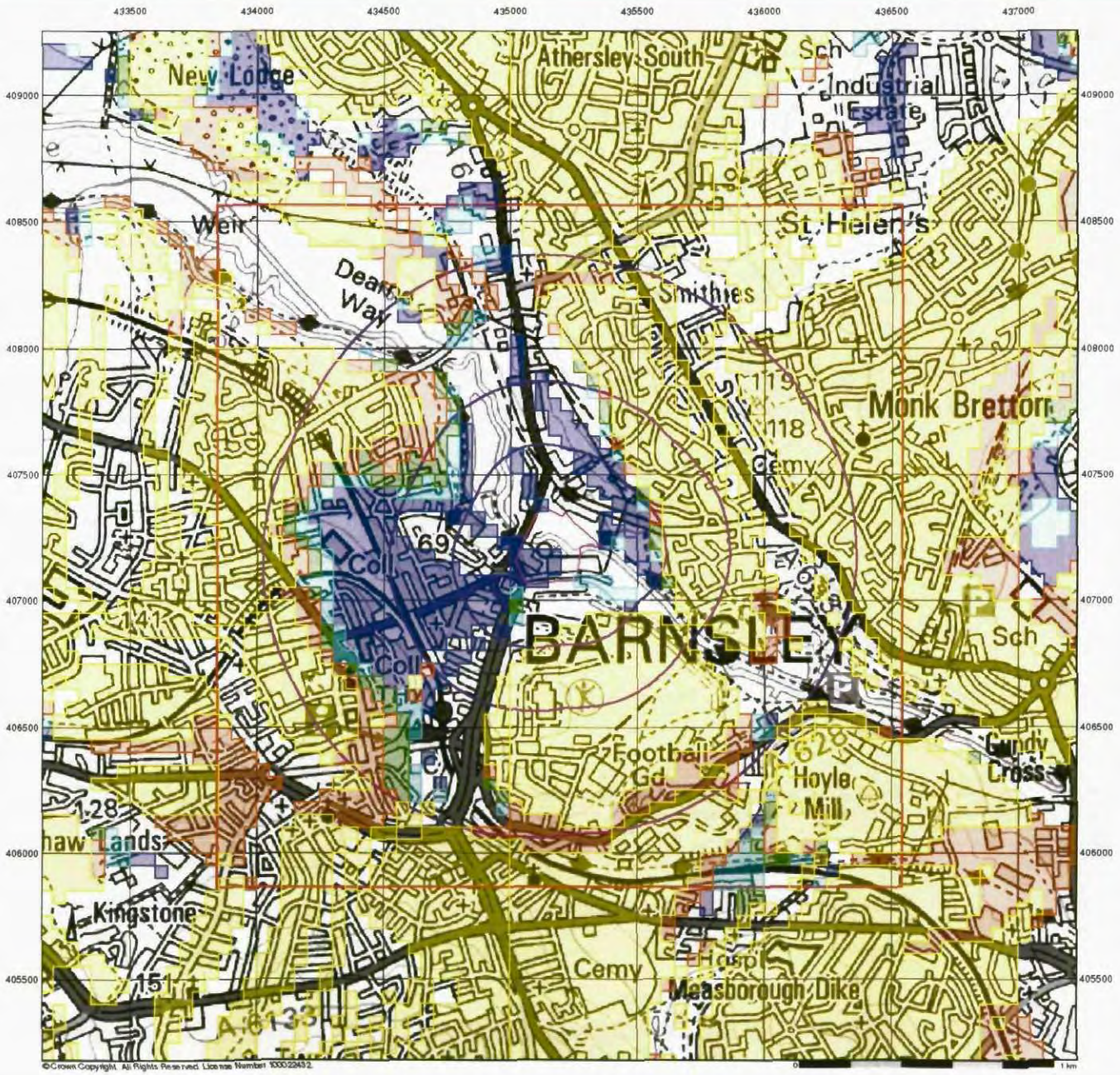


Order Details

Order Number:	35726945_1_1
Customer Ref:	11171504-IF1
National Grid Reference:	435180, 407200
Slice:	A
Site Area (Ha):	6.12
Search Buffer (m):	1000

Site Details

Old Mill Lane, BARNSLEY, South Yorkshire



Envirocheck® Flood

BGS Flood Data (1:50,000)

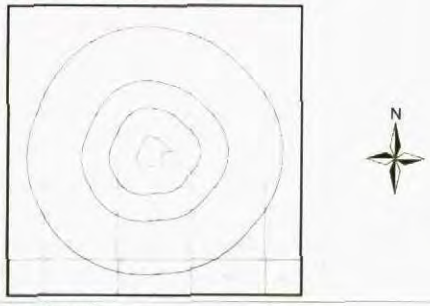
General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

BGS Groundwater Flooding Susceptibility

- High Susceptibility
- Moderately High Susceptibility
- Moderate Susceptibility
- Low Susceptibility
- Negligible Susceptibility

BGS Flood Data Map - Slice A



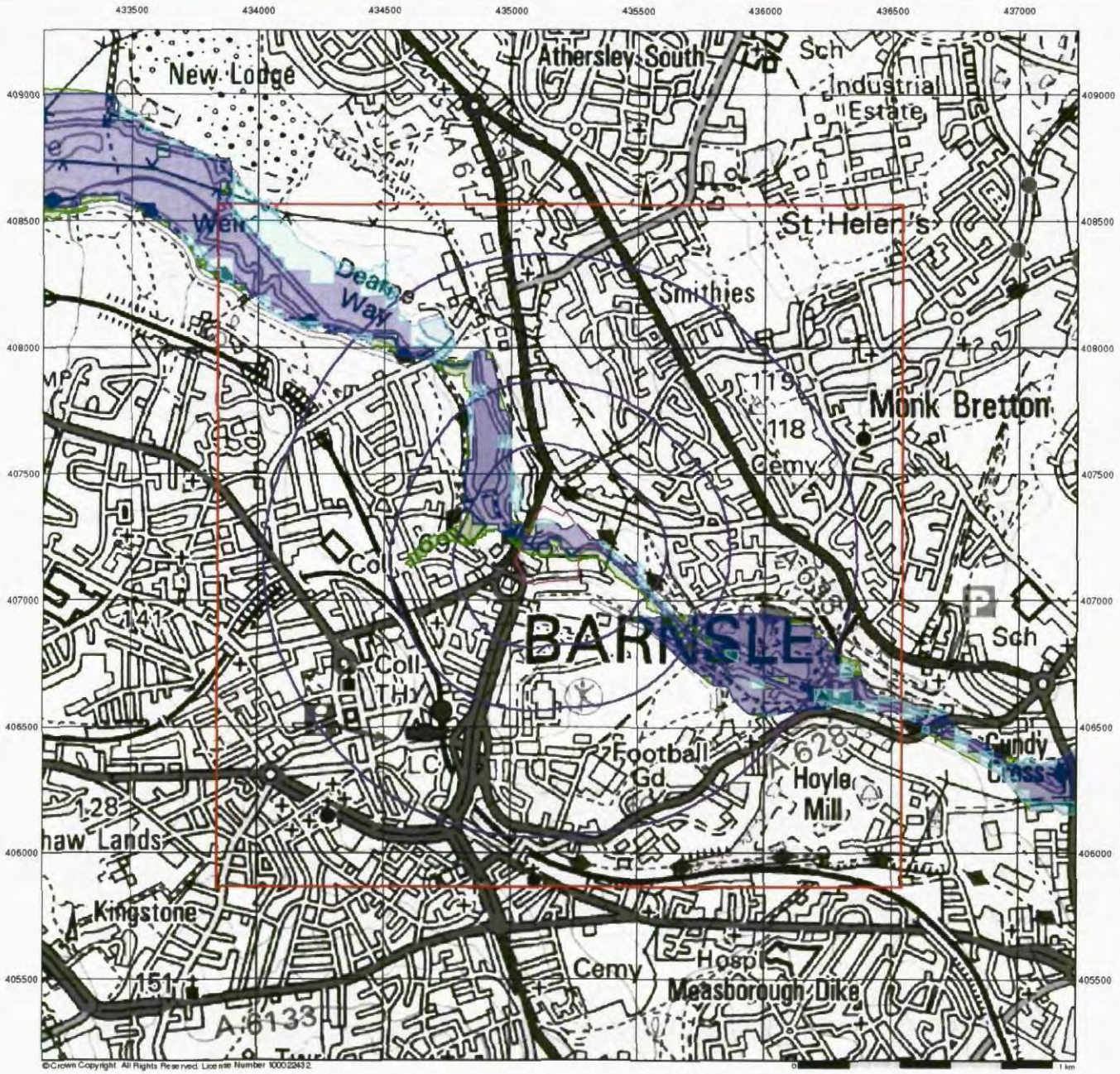
Order Details

Order Number:	35726945_1_1
Customer Ref:	11171504-IF1
National Grid Reference:	435180, 407200
Slice:	A
Site Area (Ha):	6.12
Search Buffer (m):	1000

Site Details

Old Mill Lane, BARNSLEY, South Yorkshire

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Web www.envirocheck.co.uk



Envirocheck® Flood

EA NaFRA Data (1:50,000)

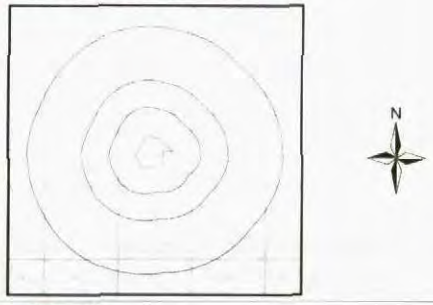
General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

National Flood Risk Assessment (NaFRA)

- Significant Risk
- Moderate Risk
- Low Risk
- No Result

EA NaFRA Data Map - Slice A



Order Details

Order Number:	35726945_1_1
Customer Ref:	11171504-IF1
National Grid Reference:	435180, 407200
Slice:	A
Site Area (Ha):	6.12
Search Buffer (m):	1000

Site Details

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Appendix C Proposed Masterplan

Appendix C1 Proposal Site Layout

Appendix D Site Specific Flood Calculations

Appendix D1 Compensatory Flood Storage Calculations



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DIFFERENCE

WSP

Old Mill Lane, Barnsley
Drainage Strategy Report
Peel holdings Limited

June 2012

QM

Issue/revision	Issue 1	Revision 1	Revision 2	Revision 3
Remarks	DRAFT	Rev 1 - Draft		
Date	October 2011	June 2012		
Prepared by	S Hamilton	T Morley		
Signature				
Checked by	T Morley	T Morley		
Signature				
Authorised by	T Morley	T Morley		
Signature				
Project number	11171504-IF1			
File reference	S:\OLD MILL LANE, BARNSLEY\TEXT\REPORTS\DRAINAGE\120620 REV1 OLD MILL LANE DRAINAGE.DOCX			

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Contents

EXECUTIVE SUMMARY		**1**
1	**Introduction**	**2**
2	**Existing Site**	**3**
3	**Proposed Development**	**5**
4	**Local Planning Policy and Requirements**	**6**
5	**Proposed Foul Water Drainage**	**9**
6	**Proposed Surface Water Drainage**	**10**
7	**Conclusion**	**12**

Appendix A **Site Location Plan**
Appendix B **Consultation Responses**
Appendix C **Development Masterplan**
Appendix D **Concept Drainage Calculations**

Executive Summary

This report provides a conceptual drainage strategy for a proposed retail foodstore development to the east of Old Mill Lane and to the north of Twibell Street, Barnsley.

Yorkshire Water have confirmed that significant sewer diversionary works would have to be undertaken and that the site would be developed with separate foul and surface water drainage systems.

Yorkshire Water have confirmed that foul flows should discharge to the public combined sewers recorded crossing / within the site.

Surface water run-off from the proposed development will be reduced by 30% in line with Barnsley Council and Environment Agency requirements.

Attenuation storage will be provided to ensure no surface flooding for up to the 1 in 30 year return period design storm and no flooding of properties for up to the 1 in 100 year plus climate change return period design storm. Flows will be retained on site for up to the 1 in 100 plus climate change return period design storm.

To mimic the existing catchment, a SUDS management train will be incorporated in series to incrementally reduce pollution, flow rates and volumes.

The extent of these areas and the interaction of the proposed and existing drainage systems and the existing watercourses would be modelled in detail at the detailed design stage.

The exact arrangement of the proposed drainage and SUDS features will be subject to the detailed design and final layout of the proposed development.

1 Introduction

1.1 APPOINTMENT AND BRIEF

1.1.1 Peel Holdings Limited commissioned WSP to provide a Drainage Strategy Report for a proposed retail foodstore development to the east of Old Mill Lane and to the north of Twibell Street, Barnsley.

1.2 OBJECTIVE OF THE STUDY

1.2.1 The objective of the strategy is to provide information and present proposals on the following:

- The existing surface water and foul water drainage systems within and in the vicinity of the site;
- Drainage constraints imposed by the regulatory bodies, including the Environment Agency, Yorkshire Water and Leeds City Council;
- A proposed surface water drainage strategy;
- A proposed foul water drainage strategy.

1.2.2 A separate Flood Risk Assessment has been produced to accompany this Drainage Strategy Report (WSP, 2012).

1.3 STUDY METHODOLOGY

1.3.1 The study consisted of a desk assessment study of historic information, data research, consultation with regulatory bodies and outline calculations. Preliminary hydraulic analysis and design has been undertaken using the Wallingford Procedure and WinDes drainage design and modelling software.

1.3.2 A site walkover was undertaken in September 2011 to identify the existing drainage features within and in the vicinity of the site.

1.4 LIMITATIONS

1.4.1 The drainage strategy provides outline, concept proposals that set down the design parameters, volumetric and hydraulic requirements for the future detailed design of the scheme. The strategy has taken into account the technical feasibility of the drainage proposals based on information available at the time of the study.

1.4.2 The drainage strategy has been developed where possible following the requirements of NPPF and Sewers for Adoption (6th Edition).

1.4.3 This report is based on the interpretation and assessment of data provided by third parties. WSP cannot be held responsible for the accuracy of the third party data and the conclusions and findings of this report may change if the data is amended or updated after the date of consultation.

2 Existing Site

2.1 SITE LOCATION

2.1.1 The site is located in Barnsley, South Yorkshire, approximately 0.7 km northeast of Barnsley Railway Station.

2.1.2 An approximate postcode for the site is S71 1DL and OS grid reference is SE351072.

2.1.3 A site location plan can be found in Appendix B1 of this report.

2.2 SITE DESCRIPTION

2.2.1 Table 2.1 (below) describes the general site characteristics.

2.2.2 Site photographs are provided in Appendix B2 of this report.

2.2.3 A topographic survey of the site is located within Appendix B3 of this report.

Table 2.1: Characteristics of the Site

Area		The site occupies an area of approximately 6 ha.
General Topography		Site levels generally slope down towards the River Dearne. South of the river, levels range from approximately 50 m AOD adjacent to Twibell Street in the south to approximately 44 m AOD along the River Dearne. North of the river existing ground levels are approximately 44 to 45 m AOD.
Existing Surfacing		The site is currently a mixture of buildings, hardstanding and greenfield areas.
Current Use		The site currently comprises an existing retail park containing existing retail warehouses (including Comet, MFI, Howdens and Powerhouse) as well as a depot/cash and carry. A decommissioned gas holder is also present on the site. To the north of the river, the site comprises a cleared depot site and an area of Scrubland.
Boundaries	**North**	Retail Unit.
	East	Scrubland.
	South	Twibell Street.
	West	Old Mill Lane.

2.2.4 Barnsley Council is currently on site developing the new link road (quality bus corridor) connecting Burton Road and Old Mill Lane from which access to the new retail development will be taken.

2.3 GEOLOGY

2.3.1 Aquifer designation has been obtained from the Environment Agency Website. The bedrock is classified as a Secondary A Aquifer. These include a wide range of rock layers or drift deposits with an equally wide range of water permeability and storage. Secondary A Aquifers are permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases form an important source of base flow to rivers

2.3.2 The Environment Agency have defined Source Protection Zones (SPZs) for 2000 groundwater sources such as wells, boreholes and springs used for public drinking water supply. These zones show the risk of contamination from any activities that might cause pollution in the area. The closer the activity, the greater the risk. There are three main zones (inner, outer and total catchment) and a fourth zone of special interest. The site is not located within a Groundwater Source Protection Zone.

2.4 HISTORICAL LAND USES

2.4.1 The earliest historical map reviewed (1852) indicates that the site was not developed. By the late 1800's the Old Mill Gasworks was located on site.

2.5 EXISTING DRAINAGE

2.5.1 The majority of the site is currently impermeable. It is assumed that the existing hard standing areas connect into the private drainage on site which connects into public sewer network and / or culverted watercourses within the site boundary. A CCTV connectivity survey will be undertaken at the detailed design stage.

2.5.2 WSP have obtained record drawings from Yorkshire Water for the site (Appendix B). The record drawings indicate the following public sewers south of the River within the site boundary:

- 450 mm diameter surface water sewer flowing west to east along Twibell Street and then north towards the River Dearne along the eastern boundary of the site;
- 225 mm combined sewer flowing from west to east along Twibell Street;
- 300 mm combined sewer flowing north along the eastern boundary of the site and connecting into the 750 mm combined sewer running west to east;
- 1200 mm surface water sewer connecting into the culverted watercourse;
- Combined sewer overflow adjacent to the A61 road bridge;
- Combined sewer overflow to the west of the gas holder;
- 300 mm combined public sewer flowing south along the A61. This increases in size to 750 mm and then 1200 mm and flows from west to east across the site. After the CSO, the size increases from 375 mm to 750 mm diameter.

3 Proposed Development

3.1 DEVELOPMENT DESCRIPTION

3.1.1 A new-build large format superstore with associated car paring and servicing on the site to the south of the River Dearne is proposed. Access to the store (for both customers and service vehicles) is proposed via a new road bridge over the river from a spur to the Wickes roundabout of the new Quality Bus Corridor.

3.1.2 A petrol filling station linked to the foodstore is proposed to the north of the river. Access to the PFS will be taken from the new link road (Quality Bus Corridor).

3.1.3 A small retail unit (574 sqm) is proposed to the south of the river (and the north of the foodstore). This is intended as a kiosk for leisure/recreation associated with the river corridor.

3.1.4 A third retail unit of 1,961 sqm with associated parking and service access is proposed to the north of the river (and the new link road). This unit comprises a reconfiguration of extant planning permission for a retail warehouse (obtained by National Grid). Service and customer access for this unit is to be taken from the Wickes arm of the new roundabout provided as part of the quality bus corridor (as a minor amendment to the original site layout to align the development more effectively to the Quality Bus Corridor).

3.1.5 Landscaping is proposed along the river in order to improve the river corridor and create a community park. As such the development will bring significant improvements to the river corridor and improving connectivity and amenity access along the Dearne Valley.

3.2 DEVELOPMENT CONSTRAINTS

3.2.1 Yorkshire Water have confirmed that the sewers that currently cross the site will need to be diverted and that they would need to undertake a diversionary works feasibility assessment.

3.2.2 The Environment Agency have confirmed that as the River Dearne is classed as main river, any development with 8 m from the top of bank will require consent from them.

4 Local Planning Policy and Requirements

4.1 FLOOD AND WATER MANAGEMENT ACT 2010

4.1.1 The Flood and Water Management Act 2010 received Royal Assent on 8th April 2010. This Act provides duties on the Environment Agency, Local Authorities, developers and other bodies to manage flood risks. The Act has significant planning and design implications for developments.

4.1.2 The main areas affecting developments are:

The Lead Local Flood Authority (LLFA) is to adopt sustainable urban drainage systems (SUDS). The LLFA may be either a Unitary or County Council;

- Approval fees and non-performance bonds are to be standardised;
- A National Standard for SUDS design, construction, maintenance and operation is to be issued. This guidance will emphasise the preference for surface SUDS features and the need to provide green corridors into the masterplan;

Changes to the rights to connect to sewers will restrict automatic connection rights to approved SUDS schemes constructed to the new national SUDS standard respectively;

There will be two options for the SUDS approval process. Either directly to the SUDS Approval Body or as a combined application to the Planning Authority as part of the Planning Application.

4.1.3 It should be noted that these standards and procedures are being reviewed by the respective regulatory bodies and third parties against the requirements imposed by the Flood and Water Management Act 2010. The information provided in this report may change when associated Regulations have been issued in order to implement the full scope of the Act.

4.1.4 This drainage strategy has been prepared in consultation with regulatory bodies and third parties. The views, advice and recommendations provided by the regulatory bodies and third parties represent their current standards and procedures.

Barnsley Unitary Development Plan

4.1.5 The Unitary Development Plan (UDP) is the statutory development plan for the borough along with the Barnsley Education Sites Development Plan Document.

4.1.6 It considers how much development is required in the borough, where it is best located and how it should be designed and contains planning policies on a wide range of matters including, housing, the environment, transport, leisure and economic and community uses. The UDP will eventually be replaced by the Local Development Framework (LDF).

4.1.7 In addition to the UDP, Barnsley Council have published Flood Risk and Development UDP Supplementary Planning Guidance 29 (2003) which provides information for potential development in flood risk areas.

Barnsley Local Development Framework, Core Strategy, Publication (February 2010)

4.1.8 Under the terms of the Planning and Compulsory Purchase Act 2004 each council is required to prepare a Local Development Framework (LDF) to replace its existing UDP.

4.1.9 In the Core Strategy, policies relevant to flood risk include:

CSP 3 Sustainable Drainage Systems (SuDS)

- All development will be expected to use Sustainable drainage systems (SuDS). Only in exceptional circumstances, where it can be demonstrated that all types of SuDS are impractical, will other drainage management systems be permitted;
- Planning applications must include an assessment to show that SuDS will work and be maintained. Measures should be taken to avoid water contamination and safeguard groundwater supply;
- Developers will be required to contribute to the maintenance of SuDS.

CSP 4 Flood Risk

4.1.10 The extent and impact of flooding will be reduced by:

- Not permitting new development where it would be at an unacceptable risk of flooding or would give rise to flooding elsewhere;
- Requiring developers with proposals in Flood Zones 2 and 3 to provide evidence of the sequential test;
- Requiring site-specific Flood Risk Assessments (FRAs) for proposals over 1 hectare in Flood Zone 1 and all development proposals in Flood Zones 2 and 3;
- Requiring proposals over 1000 m^2 floor space or 0.4 hectares in Flood Zone 1 to demonstrate how the proposal will make a positive contribution to reducing or managing flood risk;
- Requiring all development proposals on Brownfield sites to reduce surface water run-off by at least 30% and development on Greenfield sites to maintain or reduce existing run-off rates;
- Requiring development proposals to use Sustainable Urban Drainage Systems (SuDS) in accordance with policy CSP 3;
- Not culverting or building over watercourses and encouraging the removal of existing culverts wherever practicable;
- Using flood resilient design in areas of high flood risk.

Barnsley Strategic Flood Risk Assessment (JBA, September 2010)

4.1.11 The purpose of the Level 1 Strategic Flood Risk Assessment (SFRA) was to identify and analyse current and future broad scale flooding issues for proposed development allocation sites/areas in Barnsley Metropolitan Borough Council and provide support for further assessment and sequential testing of proposed development allocations.

4.1.12 The key objectives of the SFRA were to:

- Provide strategic flood risk guidance and advice to planners and developers to help them better understand flood risk and planning related issues, both generally and for specific locations across the study area;
- Investigate and identify the extent and severity of flood risk to the area. This assessment will help councils/Local Planning Authorities (LPAs) to strike an appropriate balance of various sustainable development drivers and factors whilst wherever possible, sequentially steering development away from areas at highest risk;
- Help LPAs to identify specific locations where further and more detailed flood risk data and assessment work is required as part of a Level 2 SFRA, prior to the allocation of specific developments;
- Provide data and guidance in the application of the Sequential and Exception Tests for LPAs to assess specific development sites;
- Supplement current policy guidelines by providing guidance on flood risk assessment requirements and a risk based approach to development considerations. This is to help ensure that areas allocated for development can be developed in a safe and sustainable manner and is aimed at both councils and developers;
- Contribute to the council's Strategic Environmental Assessment (SEA) and LDF. The SEA will be used to inform the council's Sustainability Appraisal (SA), which will aid the selection of suitable land allocations; and
- Be used as a reference document to which all parties involved in planning and flood risk can reliably turn to for initial advice.

Barnsley Water Cycle Study and Surface Water Management Plan

4.1.13 Barnsley Council have confirmed that they do not currently have a Water Cycle Study or Surface Water Management Plan.

5 Proposed Foul Water Drainage

5.1 INTRODUCTION

5.1.1 Consultation with Yorkshire Water has been undertaken regarding the foul water drainage proposals and responses are included in Appendix B.

5.1.2 The foul water drainage strategy has been based on an adoptable sewer system and should be designed and constructed in accordance with current regulations, Sewers for Adoption 6th Edition and Yorkshire Water requirements.

5.1.3 Yorkshire Water have stated that development of the site should take place with separate systems for foul and surface water drainage. The separate system should extend to the public sewer network.

5.2 EXISTING FOUL WATER DRAINAGE SYSTEMS

5.2.1 A number of public sewers cross the site. These are described in section 2.5 of this report.

5.3 PROPOSED FOUL WATER DRAINAGE

Drainage Parameters and Philosophy

5.3.1 Foul Dry Weather Flows (DWF) have been estimated based on the requirements in Sewers for Adoption 6th Edition and typical flow figure guidelines for commercial land uses.

5.3.2 The estimated DWF for the proposed development is 0.8 l/s.

5.3.3 Yorkshire Water have confirmed that foul flows should discharge to the public combined sewers recorded crossing / within the site.

5.4 GRAVITY OR PUMPED SEWERAGE SYSTEMS

5.4.1 Due to the topography of the site it is envisaged that foul flows from site would drain by gravity.

5.5 FOUL DRAINAGE ADOPTION STRATEGY

5.5.1 It is assumed that the infrastructure on site will remain private.

6 Proposed Surface Water Drainage

6.1 INTRODUCTION

6.1.1 Consultation with Yorkshire Water, the Environment Agency and Barnsley Council has been undertaken regarding the surface water drainage proposals. Responses are included in Appendix B.

6.2 EXISTING SURFACE WATER SYSTEMS

6.2.1 Section 2.5 of this report describes the existing drainage infrastructure on site.

6.2.2 Using the modified rational method and a rainfall intensity 50 mm/hour, the entire site currently generates approximately 700 l/s. A CCTV connectivity survey will be undertaken at the detailed design stage to prove existing discharge locations.

6.3 SURFACE WATER – PROPOSED

6.3.1 Through consultation with the Environment Agency and Barnsley Council, it is understood that the drainage requirements for the proposed retail unit north of the river has been incorporated into the drainage design of the road scheme that is currently under construction.

6.3.2 Therefore, this proposed surface water strategy relates to the south of the river only.

Restricted runoff rate

6.3.3 Surface water runoff from the proposed development will be restricted in line with Environment Agency and Barnsley Council restrictions.

6.3.4 Existing runoff from the southern portion of the site is approximately 420 l/s. A reduction of 30% would result in an allowable discharge rate of 295 l/s.

Attenuation Storage

6.3.5 The attenuation storage will be provided to ensure no surface flooding for up to the 1 in 30 year return period design storm and no flooding of properties for up to the 1 in 100 year plus climate change return period design storm. Flows will be retained on site for up to the 1 in 100 plus climate change return period design storm.

6.3.6 Preliminary calculations indicate the following total storage requirements for the proposed development:

Assumed restricted flow	295 l/s
100 year plus climate change storage volume	1050 m^3

6.4 SUDS PROVISION

6.4.1 Detailed site investigation would be undertaken at the detailed design stage, which would assess infiltration rates and underlying ground conditions. Where viable, infiltration SUDs would be provided.

6.4.2 Where this is not viable, non-infiltration SUDS elements would be incorporated – which typically would include permeable paving in parking areas and localised swales and filter strips / trenches – which would provide additional attenuation, slow down run-off and provide treatment.

6.4.3 To mimic the existing catchment a SUDS management train will be incorporated. This will use drainage techniques in series to incrementally reduce pollution, flow rates and volumes.

6.4.4 A hierarchical approach to the SUDS system will be incorporated as follows:

- Prevention – use of local soakaways where layout and ground conditions permit;
- Source Control – control of run-off near its source through the use of soakaways (subject to ground conditions), permeable pavements for exposed car parking areas;

  Site Control – management of water local to the plot development through the use of swales, filter strips and trenches and where site conditions and layout allow attenuation basins;
- Regional Control – the use of attenuation basins prior to restricted discharge to a local watercourse.

6.4.5 The exact configuration and nature of the SUDS and drainage systems would be determined at the detailed design stage.

6.5 SUDS AND DRAINAGE ADOPTION STRATEGY

6.5.1 It is currently envisaged that all infrastructure on site will remain private.

6.6 LAND DRAINAGE

6.6.1 As the site is currently developed, land drainage should not be an issue. The existing culvert to the south of the river will be diverted.

6.7 CONSTRUCTION STAGE

6.7.1 Attenuation storage and filtration features should be incorporated during the construction stage to deal with any increased run-off from topsoil stripped land and suspended solids within the run-off.

6.7.2 The type and configuration of the drainage systems during construction would be subject to the proposed phasing and areas of development. However consideration should be given to utilising the areas for permanent drainage and SUDS strategy features for run-off control during construction.

7 Conclusion

7.1 SUMMARY

7.1.1 This report provides a conceptual drainage strategy for a proposed retail foodstore development to the east of Old Mill Lane and to the north of Twibell Street, Barnsley.

7.1.2 Yorkshire Water have confirmed that significant sewer diversionary works would have to be undertaken and that the site would be developed with separate foul and surface water drainage systems.

7.1.3 Yorkshire Water have confirmed that foul flows should discharge to the public combined sewers recorded crossing / within the site.

7.1.4 Surface water run-off from the proposed development will continue to discharge into the River Dearne with a 30% reduction in line with Barnsley Council and Environment Agency requirements.

7.1.5 Attenuation storage will be provided to ensure no surface flooding for up to the 1 in 30 year return period design storm and no flooding of properties for up to the 1 in 100 year plus climate change return period design storm. Flows will be retained on site for up to the 1 in 100 plus climate change return period design storm.

7.1.6 To mimic the existing catchment, a SUDS management train will be incorporated in series to incrementally reduce pollution, flow rates and volumes.

7.1.7 The extent of these areas and the interaction of the proposed and existing drainage systems and the existing watercourses would be modelled in detail at the detailed design stage.

7.1.8 The exact arrangement of the proposed drainage and SUDS features will be subject to the detailed design and final layout of the proposed development.

7.2 CONCLUSION

7.2.1 Foul and surface water drainage can be provided for the proposed development that is in line with national and local planning policy. In addition, it will meet the requirements of the regulatory drainage and flood risk bodies and provide a strategy in accordance with best practice design policy and guidance with regard to SUDS provision and climate change requirements.

Appendices, Figures & Tables

Appendix A Site Location Plan


KEY
Site Boundary
The Fleets
Wakefield Rd
Old Mill Ln
Burton Bank Rd
Burton Rd
Tennyson Rd
Shelley Dr
Rockingham St
Honeywell Ln
Honeywell Pl
Honeywell Grove
Honeywell St
Honeywell Close
Aqueduct St
Issott St
Greenhill Ave
Harborough Hill Rd
Twibell St
Wharf St
A61
A635
Meadow St
Denton St
Dryden Rd
Bridge St
Eldon St N
Vernon St
Beckett St
James St
Caxton St
Carlton St
Clarrtcarde St
Stone St
Clarence Rd
Norfolk Close
Nelson Ave
Cornwall Close
Gainsborough Way
Warwick Rd
Rotherham Rd
Truro Ct
Helston Crescent
Tredis Close
Laidock Close
Trewan Ct
Camborne
Newlyn Dr
Bodmin Ct
Falmouth Close
Map data ©2011 Tele Atlas, Imagery ©2011 DigitalGlobe, Infoterra Ltd & Bluesky, GeoEye, The GeoInformation Group, TerraMetrics
WSP
TITLE
OLD MILL LANE, BARNSLEY
FIGURE No
SITE LOCATION PLAN

Appendix B Consultation Responses

Hamilton, Sarah

From: Atkins , Wayne <WayneAtkins@barnsley.gov.uk>
Sent: 16 August 2011 09:57
To: Hamilton, Sarah
Cc: Bell , Derek
Subject: RE: Old Mill Lane, Barnsley
Attachments: Old Mill Lane.pdf

Sarah

The attached PDF shows the approximate location of culverted watercourses crossing your site which must be protected during your works. The exact location of the apparatus should be determined on site prior to commencement of any works. A 6 metre easement will be required for any watercourses crossing the site.

It is believed a colony of Bats roosts within the culvert coming from a northerly direction therefore an ecological survey will be required.

Records of public sewers in the area are held by Yorkshire Water who should be consulted.

There are no records of flooding from the culvereted watercourses shown on the attached plan. Please consult Yorkshire Water regarding flooding from Public sewers and the Environment Agency regarding flooding from the River Dearne.

I assume the site is to discharge to the River Dearne, therefore please consult the Environment Agency regarding discharge rates.

The Council has a generic Corporate Flood Plan for the management of internal services in response to flooding events but has no specific flood plan for this site.

For information regarding emergency arrangements and guidelines available for development sites within potential flood risk areas please speak to the Environment Agency as this area is partly within the Environment Agency designated flood zone for the River Dearne.

Regards

Wayne Atkins
Senior Engineer - Drainage, Policy and Programming
Barnsley Metropolitan Borough Council
Highways and Engineering
Network Management
Westgate Plaza 1
PO Box 603
S70 9FA
Telephone: 01226 772182
Fax: 01226 772196
E-mail: wayneatkins@barnsley.gov.uk

From: Bell , Derek
Sent: 12 August 2011 14:12
To: Atkins , Wayne
Subject: FW: Old Mill Lane, Barnsley

Wayne,

Haven't you dealt with this one already ...??

Cheers ~ Derek

From: Hamilton, Sarah [mailto:Sarah.Hamilton@WSPGroup.com]
Sent: 12 August 2011 13:41
To: Bell , Derek
Subject: Old Mill Lane, Barnsley

Hi Derek,

I have been passed on your contact details by Rob McCarthy.

WSP has been commissioned to undertake a Flood Risk Assessment for a site off Old Mill Lane, Barnsley. Current plans are to redevelop the site as a large foodstore and associated petrol station together with 2 smaller retail units.

Please can you inform me of the following:

- Whether you have any plans of culverted watercourses / drainage in the immediate vicinity of the site;
- Whether you have any historic flooding records in the vicinity of the site (either from watercourses, drainage or highways);
- Whether you have any specific policies in relation to drainage from new developments;
- Whether the Council already has an existing Flood Plan that incorporates emergency procedures for the site if it were to flood?
- What emergency arrangements you would expect to be in place in terms of flooding at this site e.g. flood warning, signage, flood plan for the proposed store;
- Whether you have any guidelines available for development sites within potential flood risk areas.

Any advice would be greatly appreciated.

Kind regards,

Sarah

Sarah Hamilton
Senior Engineer, Property & Development

Three White Rose Office Park, Millshaw Park Lane, Leeds LS11 0DL.
Tel: +44(0)113 395 6243
Fax: +44(0)113 395 6201
Website: www.wspgroup.co.uk

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Environmental Advisor of the Year 201

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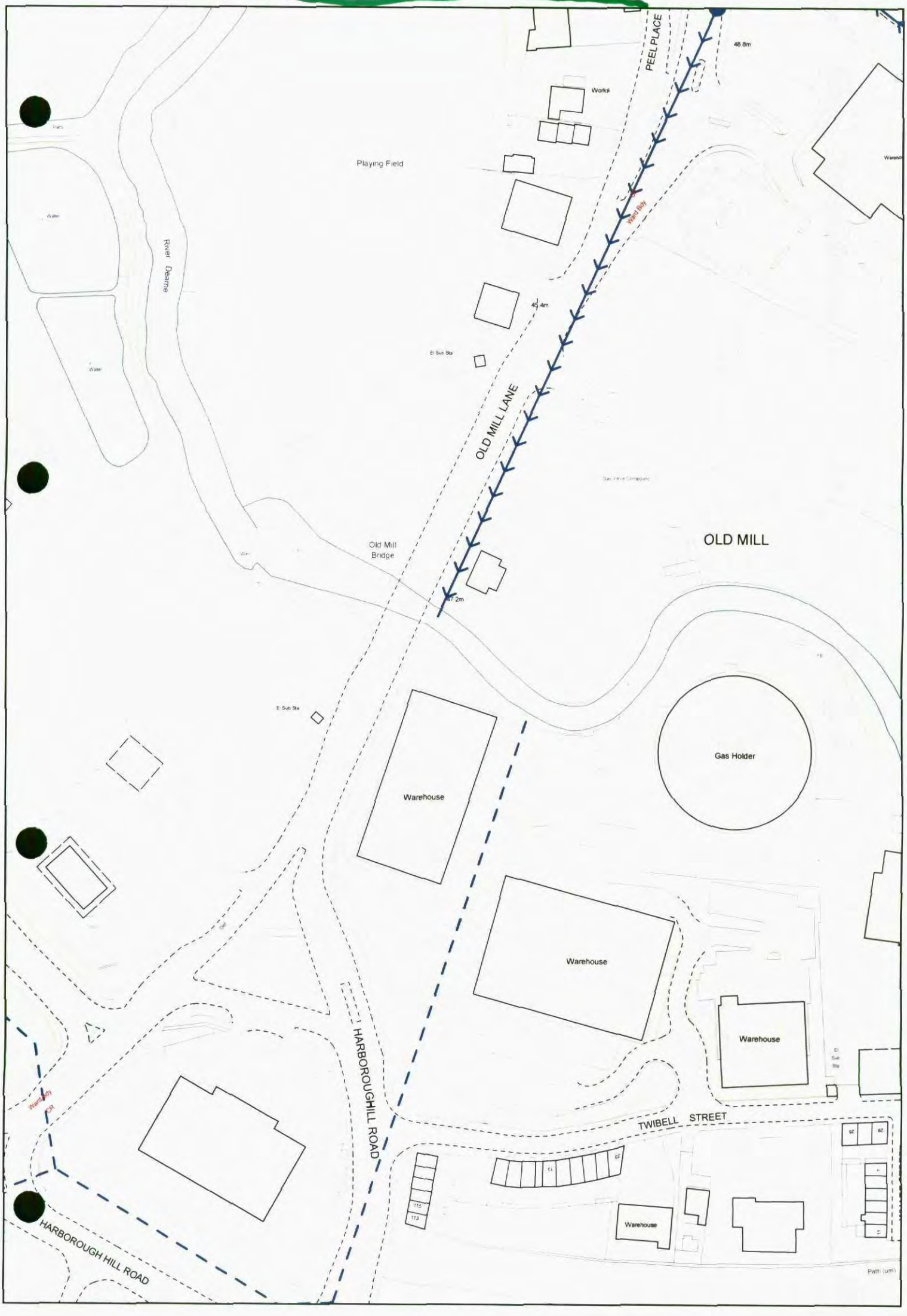
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PEEL PLACE
48.8m
Works
Playing Field
River Dearne
Water
Water
Ward Bdy
45.4m
El Sub Sta
OLD MILL LANE
Old Mill
Bridge
OLD MILL
41.2m
El Sub Sta
Gas Holder
Warehouse
Warehouse
Warehouse
Warehouse
HARBOROUGH HILL ROAD
HARBOROUGHILL ROAD
TWIBELL STREET
Ward Bdy
Path (um)

creating a better place

Environment Agency

Sarah Hamilton
WSP Group
Three White Rose Office Park
Millshaw Park Lane
Leeds
LS11 0DL

Our ref: RFI/2011/17472
Your ref:

Date: 4 July 2011

RECEIVED

Dear Sarah

Provision of Product 4 for Old Mill Lane, Barnsley

Thank you for your request of 10 June 2011 to use Environment Agency data, Product 4, in the development of the above site. The information is attached.

If you have requested this information to help inform a development proposal, then you should note the detail in the attached advisory text on the use of Environment Agency Information for Flood Risk Assessments / Flood Consequence Assessments.

Supporting Information

Flood Zone

- *Please can you confirm what flood zone the site lies within?*
- *Whether or not the flood zones will be updated in the near future.*

Please see the enclosed extract from the Flood Map.

The Flood Map provides information on flooding from rivers and the sea for England and Wales. The Flood Map also has information on flood defences and the areas benefiting from those flood defences.

The Flood Map shows the following:

1. Flood Zone 3 (dark blue area on the enclosed map): natural flood plain area that could be affected by flooding from rivers and/or the sea – not taking into account the presence of any flood defences
   - For flooding from rivers the map indicates the extent of a flood with a 1% (1 in 100) chance of happening each year;
   - For flooding from the sea the map shows the extent of a flood with a 0.5% (1 in 200) chance of happening each year.

2. Flood Zone 2 (light blue area): natural flood plain area that could be affected by flooding from rivers and/or the sea – not taking into account the presence of any flood defences.

- Indicates the extent of a flood with a 0.1% (1 in 1000) chance of happening each year.

3. Flood defences built in the last five years to protect against river floods with a 1% (1 in 100) chance of happening each year, together with some natural or constructed entities which retain, store or channel water and which may protect against smaller floods.

4. Areas benefiting from flood defences - areas that benefit from the flood defences shown, in the event of a river flood with a 1% (1 in 100) chance of happening each year, or a flood from the sea with a 0.5% (1 in 200) chance of happening each year. If the defences were not there, these areas would flood.

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.

The responsibility for general maintenance and repair of the watercourse and its banks rests with the riparian owner. For more information on Rights and Responsibilities of a riverside owner, you can visit our website at: www.environment-agency.gov.uk and click on 'Flood', 'How can I be prepared?, 'Guidance for riverside property owners' and download the 'Living on the Edge' booklet.

Alternatively type the following address into your web browser:
http://www.environment-agency.gov.uk/homeandleisure/floods/31626.aspx

Flood Zones

Under Planning Policy Statement 25 Development and Flood Risk (PPS25) land is divided into three zones with regard to flood risk.

Zone 1, little or no risk, this is land outside the 1 in 1000 year flood plain, land deemed to be safe from flooding in the event of a flood with a 0.1% probability of occurring in any one year.

Zone 2, medium risk; land between the 1 in 1000 and 1 in 100 year fluvial (1 in 200 year tidal) flood plain. Between 0.1% and 1.0% (0.5%) probability of occurring in any one year.

Zone 3, high risk, land within the 1 in 100 year fluvial (1 in 200 year tidal) flood plain, at risk in the event of a flood with a 1.0% (0.5%) probability of occurring in any in year.

These zones do not take account of any flood defences that may exist as these could be overtopped or breached by a more severe flood event than designed for or maintained against.

Site Assessment;

From the supplied plan the site lies within flood zones 1, 2 & 3 on the Environment Agency Flood Map. The attached map confirms this.

Surface Water

There should be no increase in surface water runoff from the new development.PPS25 recognises that the management of flood risk is not simply restricted to flood plains and that a catchment-wide approach should be employed.

If the existing site is shown to drain to a watercourse, then surface water runoff should be attenuated to provide a 30% reduction in the final surface water discharge from the site when compared with the existing site outflow prior to redevelopment. However, if the site does not drain to a watercourse or public sewer at present, then flows must be attenuated to a maximum of 5 l/s/ha, equivalent to the Greenfield runoff rate.

Where surface water runoff drains to a public sewer, further advice on acceptable discharge rates should be sought from the Local water Authority.

Any balancing facility should be designed to accommodate a 1 in 30 year flow from the site below ground and a 1 in 100 year flow retained within the site (including an allowance for climate change), without causing ay flooding to buildings.

There are alternatives to conventional storage for the control of surface water run-off that are favoured by the Environment Agency where ground conditions are suitable. Sustainable Urban Drainage techniques (SUDs) tackle surface water run-off problems at source using features such as soakaways, permeable pavements, grassed swales, infiltration trenches, ponds and wetlands to attenuate flood peak flows, produce water quality improvements and environmental enhancements. The Environment Agency seeks to promote the use of SUDs techniques to this site and the expects the developer of the site to submit detailed investigations such that the use of SUD's has been fully explored.

More information on SUDs can be found at: http://www.ciria.org.uk/suds/

For information on Green Roofs in particular, please visit: www.thegreenroofcentre.co.uk

Further Questions

We would prefer a clear span bridge rather than any pier in the channel with the deck soffit at 1 in 100 + climate change with a minimum 600mm freeboard. You would need to take into account erosion/scour protection.

If you wish to discuss the site with the engineer dealing with the Barnsley area Lesley Slaney can be contacted on (0113) 213 4779.

Watercourses

- *Details of any watercourses / culverted watercourses in the vicinity and who is responsible for their maintenance;*
- *Minimum set back distances from any watercourse and governing statute / byelaw.*

The watercourse in the vicinity of the site is on the outer perimeter known as the River Dearne. Classified as 'main river' therefore the Water Resources Act 1991, and the Yorkshire Land Drainage Byelaws 1980 will both apply. Briefly, these state that there shall be no development (including tipping, fencing, etc.) within 8 metres of the top of the bank, or the landward toe of a flood defence structure, without the prior written consent of the Agency. If such development is proposed, then an application with full details must be submitted for consent.

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. The responsibility for general maintenance and repair of the watercourse and its banks rests with the riparian owner.

For more information on Rights and Responsibilities of a riverside owner, you can visit our website at: www.environment-agency.gov.uk and follow the links to 'Flood' then 'Living on the Edge'.

I have attached a link to flood risk standing advice which may be of some help to you to look at for advice on what to do when submitting a planning application and for guidance http://www.environment-agency.gov.uk/research/planning/82587.aspx .

Hydraulic Modelling

- *Whether or not any hydraulic modelling would be required to accompany a PPS 25 FRA and if so, provide some guidance on the level of modelling required (e.g. 1D or 2D);*
- *Does modelling or any other evidence indicate that flood waters can come out of bank upstream / downstream from the site and flood the site by overland flow?*
- *Whether or not hydraulic modelling will be updated in the near future.*

Modelling

Due to this site being located in close proximity to the join between 2 different mapping studies (the 2010 Dearne study and the 2004 Don study which includes the lower Dearne) we have included both sets of data. Both of these studies area modelled without defences.

Flood Modelling - River Don

The River Don Catchment Flood Model was completed by Jeremy Benn Associates in May 2004. See enclosed the ISIS Hydraulic Model Summary Sheets showing modelled water levels and flows for 5 different annual probabilities and additional results for the 0.5% annual probabilities.

2010 River Dearne Flood Risk Mapping

The River Dearne Flood Risk Mapping Study was completed by Halcrow in May 2010. Please see attached table showing water levels and flows for 8 different annual probabilities as well as a location map of model nodes.

Climate Change

See attached appendix B, from the department for Communities and Local Government's PPS 25 (Planning Policy Statement), for Development and Flood Risk.

Flood Defences / Other Structures

- *Details of any flood defences in the area including standard of protection, condition, type and who is responsible for maintenance;*
- *Details of any proposals for any future flood alleviation scheme that could affect the site and if so, provide details and timescales;*
- *Details of any other man-made structures / sources of flood risk that could affect the site.*

Assets

There are no formal flood defences or structures in this area that contribute towards reducing flood risk.

LIDAR Data

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.

To get a license for the data you will need to contact our Science Group, stating the area you are interested in (preferably an OS Grid Reference, or a map with the area outlined). There may be a charge for this data.

Low resolution Data is returned as an ASCII grid, which can easily be converted to a surface model for use in most GIS applications, and is provided in 2km x 2km tiles, at a resolution of 2m.

High resolution Data is also returned as an ASCII grid, in 0.5km x 0.5km tiles, at a resolution between 0.125 and 0.5m.

For current catalogue of coverage see: http://www.geomatics-group.co.uk/GeoCMS/order.aspx

To obtain the data and license agreement, please contact:

Environment Agency Geomatics
Phoenix House
Lower Bristol Road
Bath BA2 9ES
Tel: 01225 487658
Fax: 01225 487643

E-mail: archived-lidardata@environment-agency.gov.uk
Or visit the website at www.geomatics-group.co.uk

Previous flooding records

- *Any previous flooding records and if so dates, source, depth, extent and any further detail.*

To the best of our knowledge there is no known flood history for this site. However, in close proximity to this location we do have some flood history available (see enclosed map).

Water causing flooding can come from different places, for example from rivers or the sea; surface water (i.e. rainwater flowing over or accumulating on the ground before it is able to enter rivers or the drainage system); overflowing or backing up of sewers or drainage systems which have been overwhelmed or from groundwater rising up from underground aquifers.

Currently the Environment Agency can only supply flood risk data relating to the risk of flooding from rivers or the sea. However you should be aware that in recent years, there has been an increase in flood damage caused by surface water flooding or drainage systems that have been overwhelmed. Local Authorities and/or Water Companies may be able to provide some knowledge on the risk of flooding from sources other than rivers and the sea and we are working with these organisations to improve knowledge and understanding of surface water flooding.

Groundwater

- *Details of any groundwater levels in the vicinity of the site;*
- *Whether or not the site lies within a Groundwater Source Protection Zone;*
- *Details of any groundwater flooding issues in the area.*

We have no information relating to groundwater levels or groundwater flooding for this area.

Details of the location of Source Protection Zones and areas of Groundwater Vulnerability are available on our website under the Groundwater section of our online interactive mapping tool 'What's in your backyard' available at the following address.

http://www.environment-agency.gov.uk/homeandleisure/37793.aspx

Information relating to how Groundwater Vulnerability and Source Protection Zones are determined is available at the following online addresses.

Source Protection Zones:
http://www.environment-agency.gov.uk/homeandleisure/37833.aspx

Groundwater Vulnerability:
http://www.environment-agency.gov.uk/homeandleisure/117020.aspx

Reservoir Flood Risk

- *Whether or not the site is located within an area susceptible to reservoir flooding, and provide a copy of the Reservoir Flood Map to confirm this.*

In respect to Reservoir flood risk, please refer to the "Risk of Flooding from Reservoirs" map on our website at the following location: http://maps.environment-agency.gov.uk/wiyby/wiybyController?topic=reservoir&layerGroups=default&lang=_e&ep=map&scale=3&x=531500&y=181500

If you require any further assistance, please refer to the contacts available on the website.

Surface Water

- *Whether or not the site is located within an area susceptible to flooding from surface water and provide a copy of the Surface Water Flood Map;*
- *Details of any restrictions associated with the drainage of surface water from the site;*
- *Whether or not the site is located within a critical drainage area.*

Flood Map for Surface Water

Our new surface water flood map and provides a general indication of areas that may be at risk of surface water flooding. It takes broad account of underground drainage and typical storms which are likely to cause flooding, but these are only typical national figures and are not appropriate everywhere. The map indicates two depths of flooding: greater than 0.1m deep, and greater than 0.3m deep.

For more information about how surface water flood risk is managed in your area, please contact your local authority.

Mitigation

- Details of minimum finished floor levels and freeboard;
- Whether or not the site lies within an EA flood warning area;
- Whether or not there is any local guidance on emergency planning in terms of flooding, such as access and egress arrangements;
- Whether or not the EA would expect a flood plan to be developed and detail the level of information required within it;
- Whether or not compensatory flood storage would be required. If so, please can you confirm that the flood volume occupied by existing buildings on site (that are to be demolished) can be used to offset the flood volume occupied by the proposed buildings;
- Detail the level of flood resilient construction required.

Finished Flood Levels

Setting the ground floor level above site ground level will provide a measure of protection against any flooding. Where available we would recommend that flood levels be set 600mm above the 1 in 100 year event with an allowance for climate change made.

From our records the side does not lie in an EA flood warning area.

Policy

- *Details of any EA flood risk strategy / management documents that cover the site e.g. CFMP, RBMP, SMP, FRM Strategy;*
- *Whether there is a local EA policy in terms of climate change allowances;*

Details of our flood risk strategy/management documents that cover the site such as CFMP, RBMP, SMP, FRM Strategy are all available from our website. I have attached a link to our website www.environment-agency.gov.uk .

Sequential / Exceptions Test

- *Please can you confirm that the Sequential / Exceptions Test is not required?*

Guidance on when and how to apply the Sequential and Exception Test is set out in national planning policy statement PPS25: Development and Flood Risk and its accompanying Practice Guide. These documents may be downloaded from the Communities and Local Government website using the following link

http://www.communities.gov.uk/planningandbuilding/planningsystem/planningpolicy/planningpolicystatements/ .

We would also advise you to discuss Sequential and Exception Test requirements with the relevant local planning authority.

This information is provided subject to the enclosed notice, which you should read.

If you have any queries or would like to discuss the content of this letter further please do not hesitate to contact us on the number below.

Yours sincerely

C Beech

Cheryl Beech
External Relations Team
Direct Dial 0113 2134732
Email neyorkshire@environment-agency.gov.uk

Days of work - Mon to Thurs

Environment Agency
Phoenix House
Global Avenue
Leeds LS11 8PG

Part of the Environment Agency's Yorkshire and North East Region

Encs Detailed FRA/FCA Map on disk

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Environment Agency

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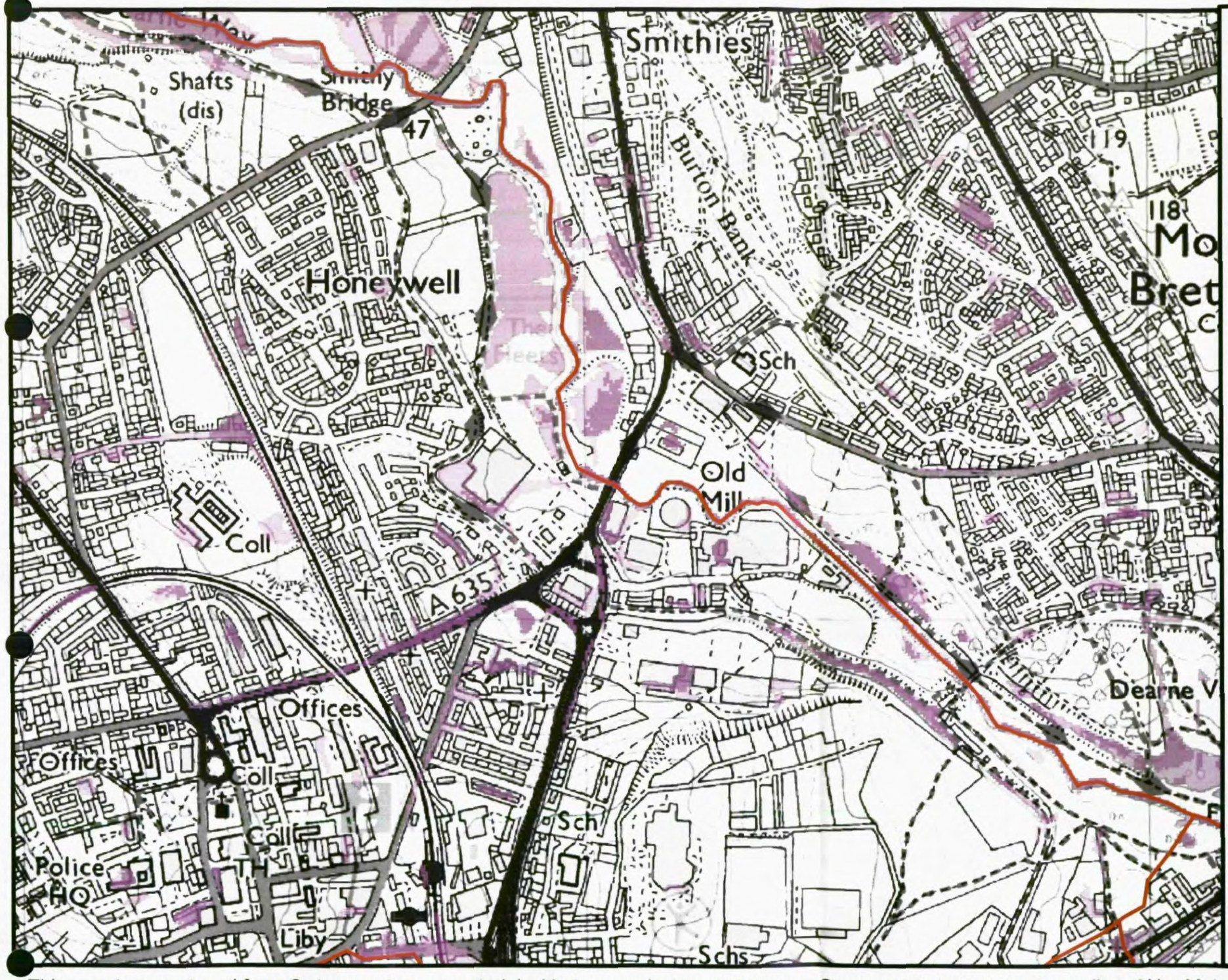
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Flood Map for Surface Water

Environment Agency
Asiantaeth yr Amgylchedd



Note - this map provides a general indication of the broad areas that may be at risk of surface water flooding. It is taken from a national assessment which takes broad account of drainage and typical storms which are likely to cause flooding, but these will vary locally and are therefore not appropriate everywhere.

Important

- This information may be useful to help inform emergency & spatial planning and general awareness of surface water flood risk.
- It is not suitable for use at an individual property scale due to the method used.
- The information should not be interpreted as stating that the location you are interested in will or won't actually flood, but simply that it is in or not in an area shown at risk on the maps.
- As there are various sources of surface water information available, you should contact your local authority to ask them what surface water information best represents local conditions.

Flood depths from rainfall with a 1 in 200 chance of occuring in any given year

- Rivers - Main Network (NE)
- FMfSW_200yr
- FMfSW_200yr_Deep

1:10,000

Data produced 2010.

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YorkshireWater

RECEIVED
(22 AUG 2011)

Yorkshire Water Services
Developer Services
Sewerage Technical Team
PO BOX 52
Bradford
BD3 7AY

Tel: 0845 120 8482
Fax: (01274) 372 834

Email:
Planning.Sewerage@yorkshirewater.co.uk

For telephone enquiries ring:

Kashif Khan on (0845)120 8482

WSP Development Limited
Three White Rose Office Park
Millshaw Park Lane
LEEDS
LS11 0DL

For the attention of Ms Sarah Hamilton

Your Ref:
Our Ref: M004912

18th August 2011

Dear Madam,

Old Mill Lane, Barnsley - Pre-Planning Sewerage Enquiry - J621829

Thank you for your enquiry received 2nd August 2011. Our charge of £157.05 (plus VAT) will be added to your account with us, reference WSP041. You will receive an invoice for your account in due course. Please find enclosed a complimentary extract from the Statutory Sewer Map. This indicates the recorded position of the public sewers. The following comments reflect our view, with regard to the public sewer network only, based on a 'desk top' study of the site:

There are 300 mm, 375 mm, 450 mm, 750 mm, 1200 mm diameter public combined sewers and a 450 mm diameter public surface water sewer recorded crossing/within the site.
No buildings are to be erected within 3 (three) metres of the 300/375/450 mm diameter public sewers, 5 metres of the 750 mm diameter public sewers and 6.5 (six and a half) metres of the 1200 mm diameter public sewers. Trees should not be planted within 5 (five) metres of these public sewers. It may not be acceptable to raise or lower ground levels over the sewers, nor to restrict access to the manholes on the sewers. If you wish to have these sewers diverted under Section 185 of the Water Industry Act 1991 an application should be made in writing. To discuss this matter, please telephone 0845 120 84 82.

There is a combined sewage overflow and an outfall to watercourse, under the control of Yorkshire Water, located near to/within the site. Vehicular access, including with large tankers, could be required at any time.

Development of the site should take place with separate systems for foul and surface water drainage. The separate system should extend to the public sewer.

Foul water domestic waste should discharge to the public combined sewers recorded crossing/within the site.

The developer's attention is drawn to Requirement H3 of the Building Regulations 2000. This establishes a preferred hierarchy for surface water disposal. Consideration should firstly be given to discharge to soakaway, infiltration system and watercourse in that priority order.

Sustainable Drainage Systems (SUDS), for example the use of soakaways and/or permeable hardstanding etc., may be a suitable solution for surface water disposal appropriate in this situation. You are advised to seek comments on the suitability of SUDS in this instance from the appropriate authorities.

INVESTING IN VOLUNTEERS FOR EMPLOYERS
CUSTOMER SERVICE EXCELLENCE CSE

Where appropriate, soakaways, swales and infiltration trenches (SUDS) may be adopted as part of the public sewer network. For general conditions for the adoption of SUDS please see the attached sheet. Further information may be seen in the DEFRA publication 'Interim Code of Practice for Sustainable Drainage Systems' (ISBN 0-86017-904-4). If the developer is considering adoption of SUDS they should contact our Developer Services Team on 0845 120 84 82.

The local public sewer network does not have capacity to accept any discharge of surface water from the proposal site. The developer is advised to contact the Environment Agency/local Land Drainage Authority with a view to establishing a suitable watercourse for discharge.

It is understood that a watercourse is located within/adjacent to the site. This appears to be the obvious place for surface water disposal.

Please note further restrictions on surface water disposal from the site may be imposed by other parties. You are strongly advised to seek advice/comments from the Environment Agency/Land Drainage Authority, with regard to surface water disposal from the site.

Surface water run-off from areas of vehicular parking and/or hardstanding etc. must pass through an oil, petrol and grit interceptor/separator of adequate design before any discharge to the public sewer network. Roof water should not pass through the traditional 'stage' or full retention type of interceptor/separator.

It is imperative, however that surface water run-off from the forecourt of petrol stations, areas used for the delivery of fuel, areas used for and immediately adjacent to vehicle washing facilities and/or other similar areas where detergent is likely to be used is not discharged to any public surface water sewer network. Surface water from such areas must pass through an oil, petrol and grit interceptor/separator of adequate design before discharge to the public foul or combined sewer network. A trade effluent consent - that may be conditional and, amongst other things, place a restriction on the rate of discharge to public sewer - may be required for such discharges. The developer is advised to contact Yorkshire Water's Industrial Waste Section (telephone 0845 1242424) about any such proposal.

It is good drainage practice for any interceptor/separator to be located upstream of any on-site balancing, storage or other means of flow attenuation that may be required.

Prospectively adoptable sewers and pumping stations must be designed and constructed in accordance with the WRc publication "Sewers for Adoption - a design and construction guide for developers" 6th Edition as supplemented by Yorkshire Water's requirements, pursuant to an agreement under Section 104 of the Water Industry Act 1991. An application to enter into a Section 104 agreement must be made in writing prior to any works commencing on site. Please contact our Developer Services Team (telephone 0845 120 84 82) for further information.

The public sewer network is for domestic sewage purposes. This generally means foul water for domestic purposes and, where a suitable surface water or combined sewer is available, surface water from the roofs of buildings together with surface water from paved areas of land appurtenant to those buildings. Land and highway drainage have no right of connection to the public sewer network. Highway drainage, however, may be accepted under certain circumstances; for instance, if SUDS are not a viable option and there is no highway drain available and if capacity is available within the public sewer network. In this event, the developer will be required to enter into a formal agreement with Yorkshire Water Services under Section 115 Water Industry Act 1991 to discharge non-domestic flows into the public sewer network.

No land drainage to be connected/discharged to public sewer.

Any new connection to an existing public sewer will require the approval of Yorkshire Water. You may obtain an application form from our website (www.yorkshirewater.com) or by telephoning 0845 120 84 82.

There are no properties in the vicinity of the site on the DG 5 (sewer flooding) Register, and there are no reported incidents of sewer flooding in the area on the YW operations database.

All the above comments are based upon the information and records available at the present time.

The information contained in this letter together with that shown on any extract from the Statutory Sewer Map that may be enclosed is believed to be correct and is supplied in good faith. Please note that capacity in the public sewer network is not reserved for specific future development. It is used up on a 'first come, first served' basis. You should visit the site and establish the line and level of any public sewers affecting your proposals before the commencement of any design work.

Yours faithfully

Developer Services Team

River Dearne
Water
(PH)
45.4m
OLD MILL LANE
BM
46.13m
Gas Valve Compound
Depot
OLD MILL
Weir
Old Mill
Bridge
Ward Bdy
CR
47.2m
El Sub Sta
FB
Gasholder
River Dearne
Warehouse
Warehouse
Depot
Warehouse
Warehouse
Depot
Tanks
El
Sub
Sta
CANAL STREET
Ward Bdy
CR
OLD MILL LANE
HARBOROUGHHILL ROAD
TWIBELL STREET
WHARF STREET
EAMING VIEW
Sinks
Warehouse
115
113

Yorkshire Water Services
Developer Services
Sewerage Technical Team
PO BOX 52
Bradford
BD3 7AY

Tel: 0845 120 8482
Fax: (01274) 372 834
Email: Planning.Sewerage@yorkshirewater.co.uk
For telephone enquiries ring: Kashif Khan on (0845)120 8482

Your Ref:
Our Ref: M004912

17th October 2011

Dear Madam,

Old Mill Lane, Barnsley - Pre-Planning Sewerage Enquiry - J621829

Further to your email dated 3rd October 2011:

The diversion will be conditioned at outline planning stage and undertaken during detailed design.

Yours faithfully

Developer Services Team

Appendix C Development Masterplan

Appendix D Concept Drainage Calculations

Project			Status	
OLD MILL LANE, BARNSLEY			Final	
Date JUNE 2012 By CJS Checked TXM	**Job no.** **1117 1504**	**Section** DEVELOPMENT	**Sheet no.**	**Rev** A

Rev	Date	Details	
A	21/06/12	INITIAL ISSUE	

Tel 0113 395 6200

Fax 0113 395 6201

Part

SURFACE WATER DRAINAGE CALCULATIONS

Strategy:

Surface water drainage is required to manage and control run-off from the proposed development.

The principle is to restrict flows and provide attenuation storage for up to the 1 in 100 year plus climate change event.

The discharge rate for the proposed development will be restricted to the existing discharge rate minus 30%.

Design Assumptions:

- Existing site impermeable areas are based on the topographical survey, drawing no. 11806/1, produced by Malcolm Hughes Land Surveyors in August 2008.
- Proposed site impermeable areas are based on drawing no. MH403-SK43, produced by Bate & Taylor Architects in May 2011.
- It is assumed at this stage that no infiltration is possible due to the made ground at the site.
- All drainage calculations are based on FSR rainfall data

Allowable Discharge Calculations:

1. Determine the existing discharge rate;

Based on the topographical survey, the existing impermeable areas total 3.02ha for the southern portion of the site. Using the modified rational method, assuming an intensity of 50mm/hour, the existing discharge rate is as follows;

Existing Discharge Rate = 50mm/hour x 2.78 x 3.02ha
= **420 l/s**

2. Calculate the proposed discharge rate;

The proposed discharge rate will be restricted to the existing discharge rate minus 30%;

Proposed Discharge Rate = 420 l/s – (0.3 x 420 l/s)
= **295 l/s**

Attenuation Storage Calculations:

The WinDes "Quick Storage Estimate" function was used to calculate the approximate attenuation volume needed to be stored for the southern proportion for the site. Based on the proposed masterplan, the proposed impermeable areas total 3.20ha. The following are the variables used for the volume estimates as well as the results obtained.

Quick Storage Estimate Variables

M5-60 = 19.0mm
Ratio R = 0.359
Cv (Summer) = 0.75
Cv (Winter) = 0.84
Area = 3.20ha



Project			Status	
OLD MILL LANE, BARNSLEY			Final	
Date JUNE 2012 By CJS Checked TXM	Job no. **1117 1504**	Section DEVELOPMENT	Sheet no.	Rev A

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SURFACE WATER DRAINAGE CALCULATIONS

Quick Storage Estimate Results

