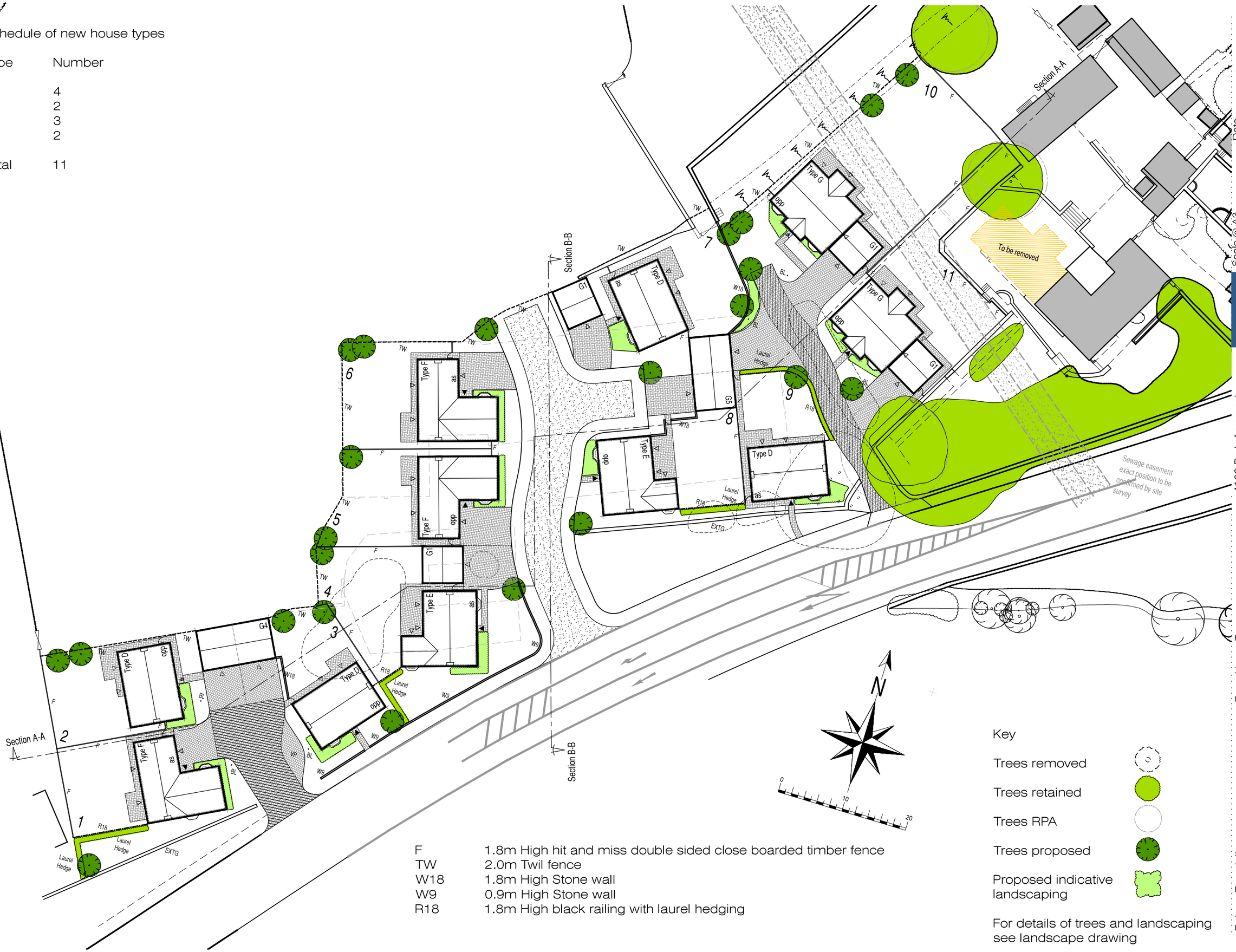
APPENDIX B
Development Proposals

Schedule of new house types

Type	Number
D	4
E	2
F	3
G	2
Total	11



F 1.8m High hit and miss double sided close boarded timber fence
TW 2.0m Twil fence
W18 1.8m High Stone wall
W9 0.9m High Stone wall
R18 1.8m High black railing with laurel hedging

Key

- Trees removed
- Trees retained
- Trees RPA
- Trees proposed
- Proposed indicative landscaping

For details of trees and landscaping see landscape drawing

Rev	Date	Description
J	13/10/15	Trees added - vp added to plot 3
K	22/10/15	plots 7-8-9 repositioned
L	22/10/15	plots 10&11 garages repositioned
M	28/10/15	General site revisions
N	03/11/15	Bollard lighting added
P	04/11/15	W14 replace with W9 - plots 1-2-3 road revised Hedges moved to outside of R18 Plot 10 repositioned

House Type

Drawing Title: Proposed Site Plan

Site: Barnsley Road, Penistone

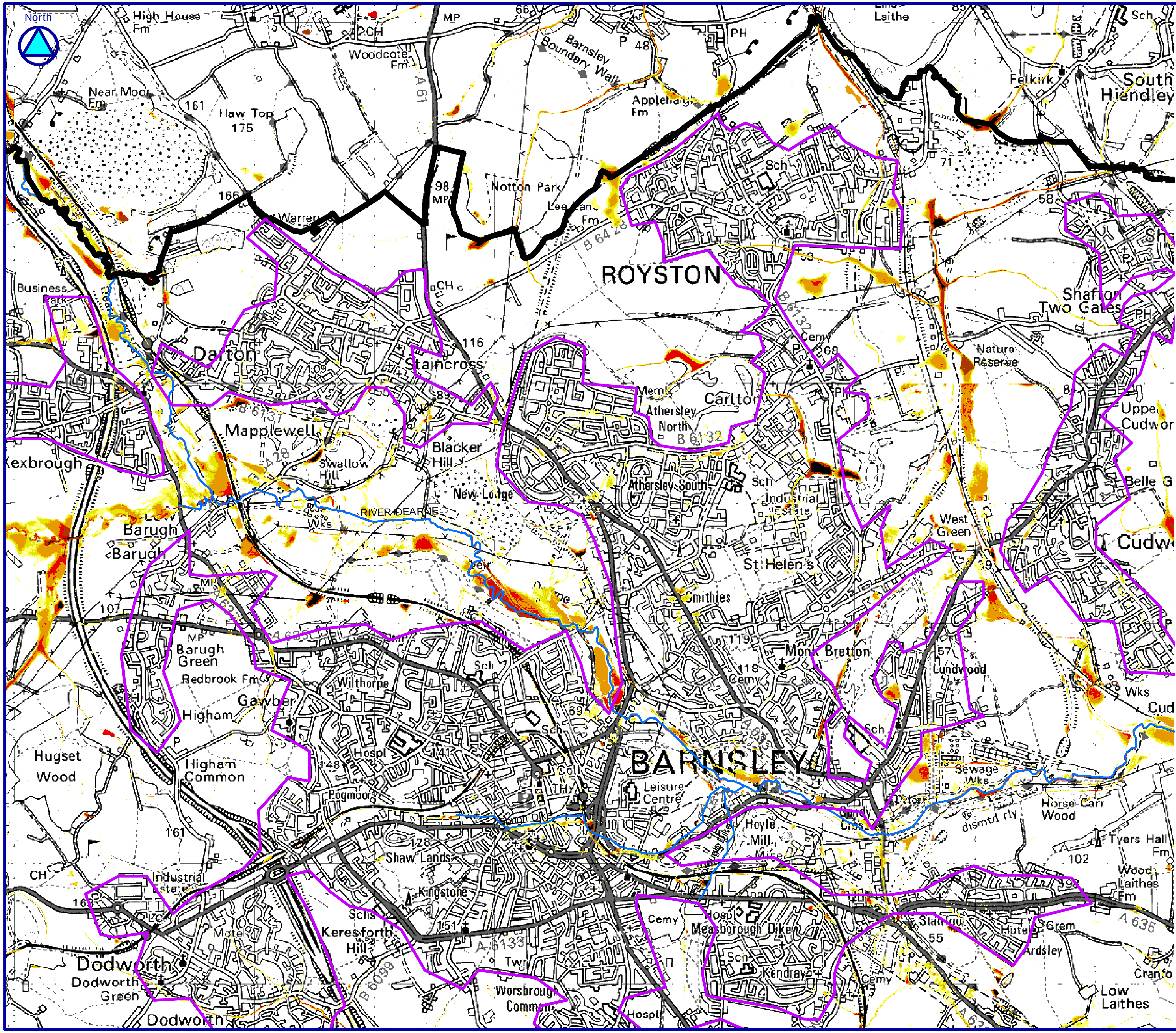
Scale @ A3: 1:500 | Date: 14/04/15

Drawn: MF | Checked:

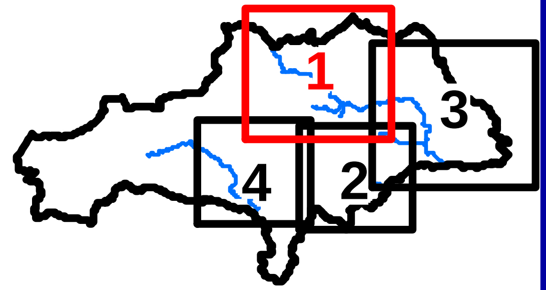
Drawing No.: PS-001 | Rev. P

duchy homes
4100 Park Approach
Thorpe Park
Leeds
LS15 8GB
0113 3970437
www.duchyhomes.co.uk

APPENDIX C
PFRA & SFRA Maps



KEYPLAN



LEGEND

1:30,809

Barnsley MBC Boundary

Urban Areas

Main River

Surface Water Flooding

Flood Depth (m)

0.15 - 0.3

0.3 - 0.5

0.5 - 1

1 - 1.5

1 - 2

> 2

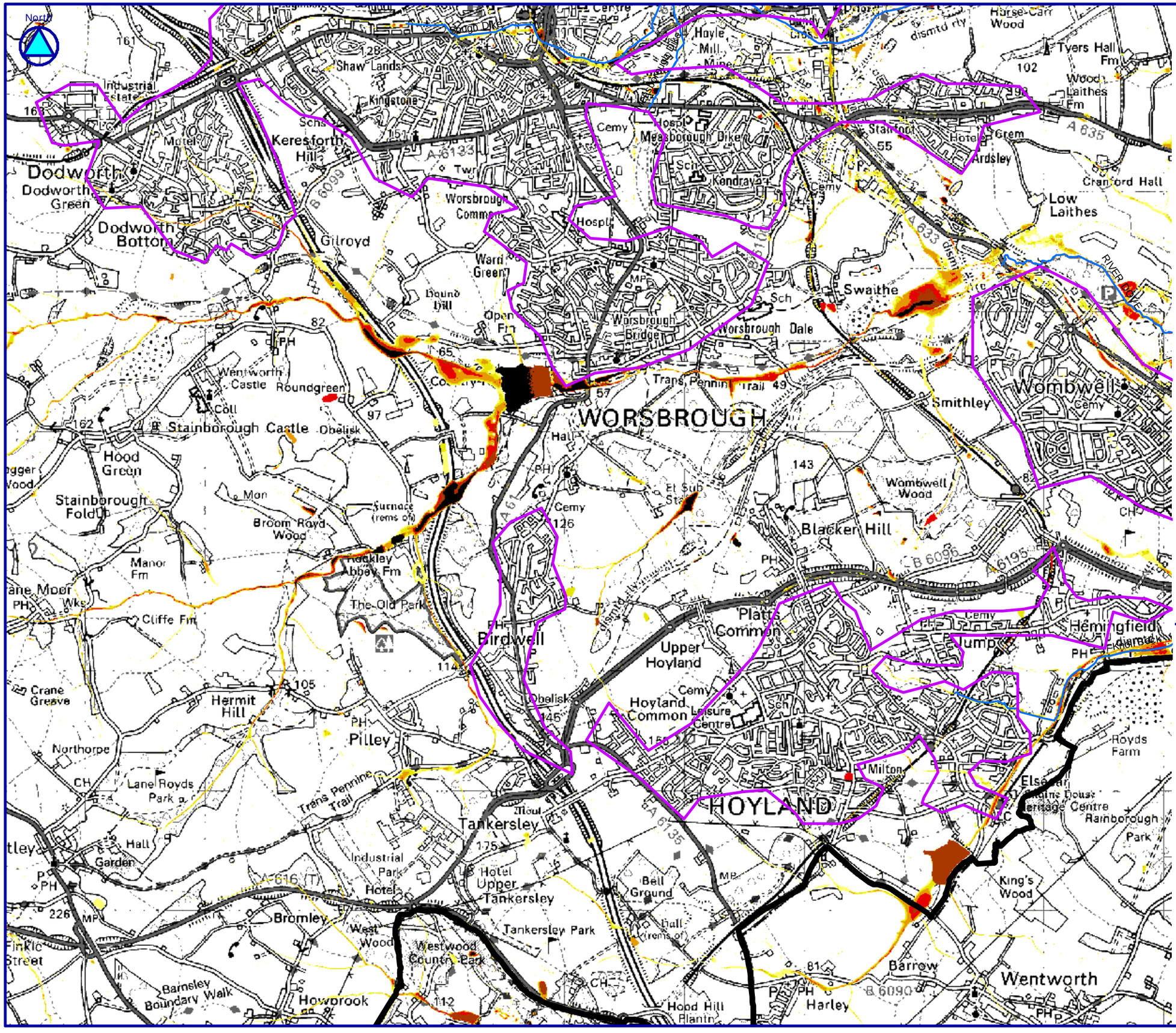
Note:
Please see Section 5.8 of the SFRA
for further details.

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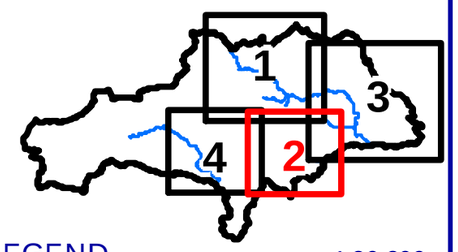
jba CONSULTING

MAP C - 1

PLUVIAL FLOODING CAUSED BY 100YEAR RAINSTORM



KEYPLAN



LEGEND

1:30,809

- Barnsley MBC Boundary
- Urban Areas
- Main River

Surface Water Flooding

Flood Depth (m)

- 0.15 - 0.3
- 0.3 - 0.5
- 0.5 - 1
- 1 - 1.5
- 1 - 2
- > 2

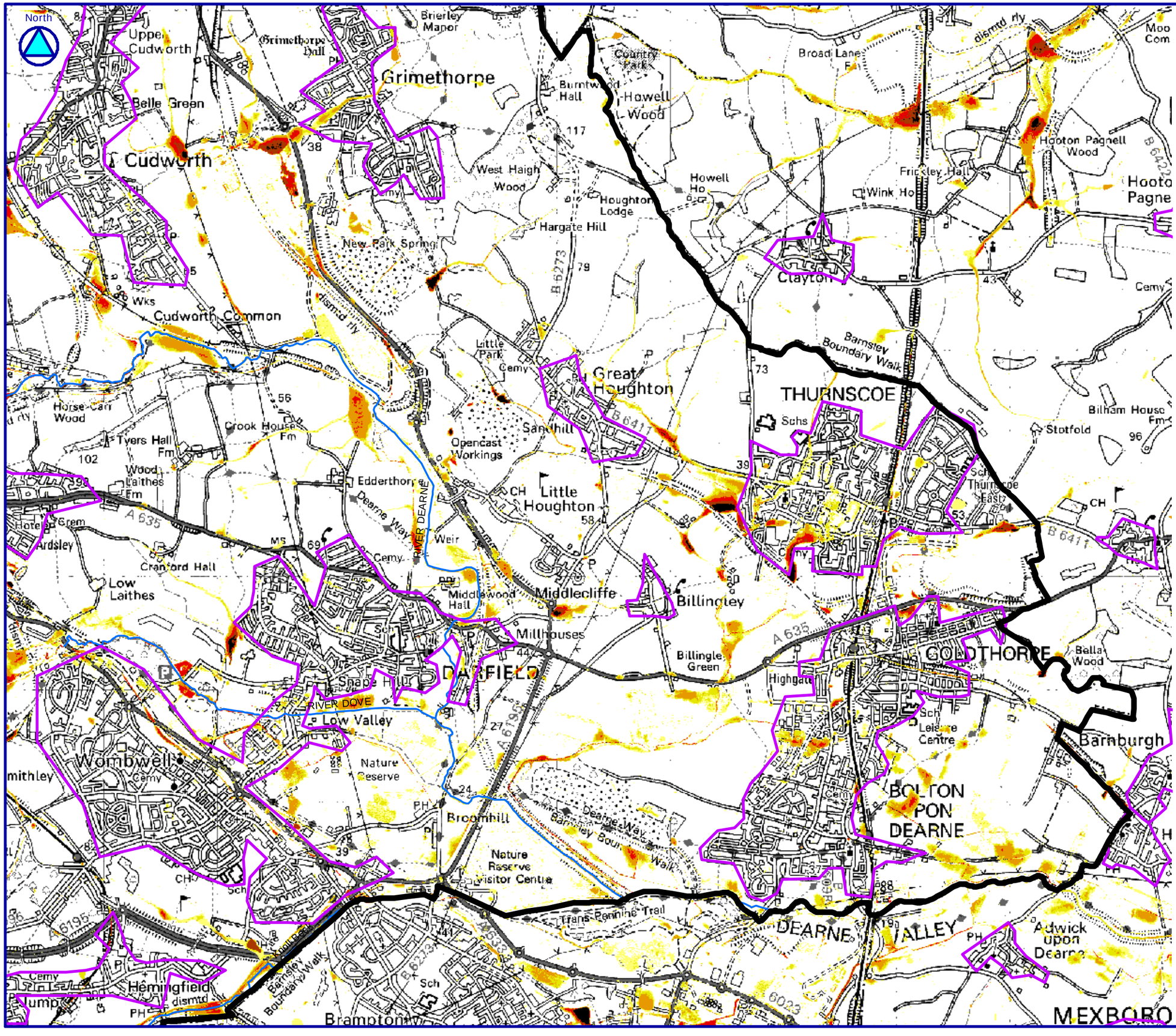
Note:
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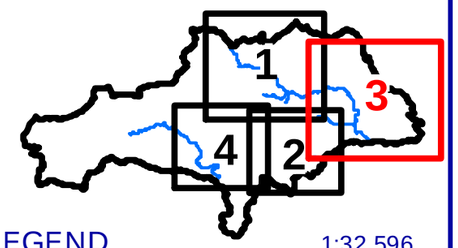
jba CONSULTING

MAP C - 2

PLUVIAL FLOODING CAUSED BY 100YEAR RAINSTORM



KEYPLAN



LEGEND 1:32,596

- Barnsley MBC Boundary
- Urban Areas
- Main River

Surface Water Flooding

Flood Depth (m)

- 0.15 - 0.3
- 0.3 - 0.5
- 0.5 - 1
- 1 - 1.5
- 1 - 2
- > 2

Note:
Please see Section 5.8 of the SFRA for further details.

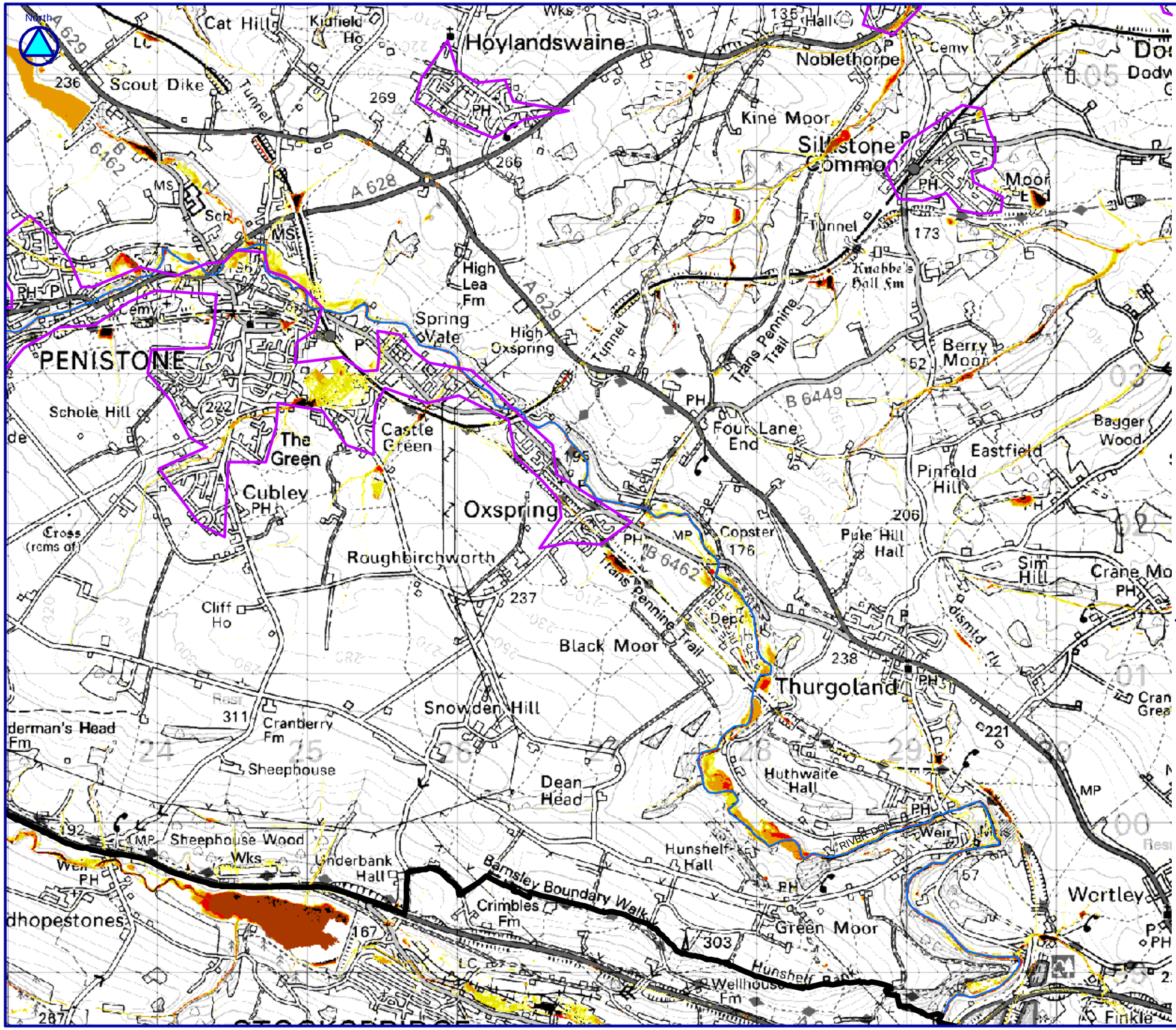
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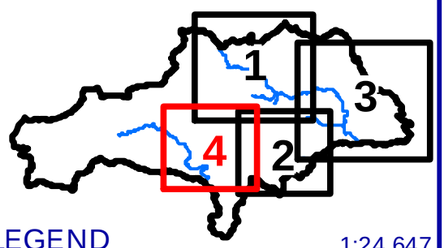


MAP C - 3

PLUVIAL FLOODING CAUSED BY 100YEAR RAINSTORM



KEYPLAN



LEGEND

1:24,647

- Barnsley MBC Boundary
- Urban Areas
- Main River

Surface Water Flooding

Flood Depth (m)

- 0.15 - 0.3
- 0.3 - 0.5
- 0.5 - 1
- 1 - 1.5
- 1 - 2
- > 2

Note:
Please see Section 5.8 of the SFRA for further details.

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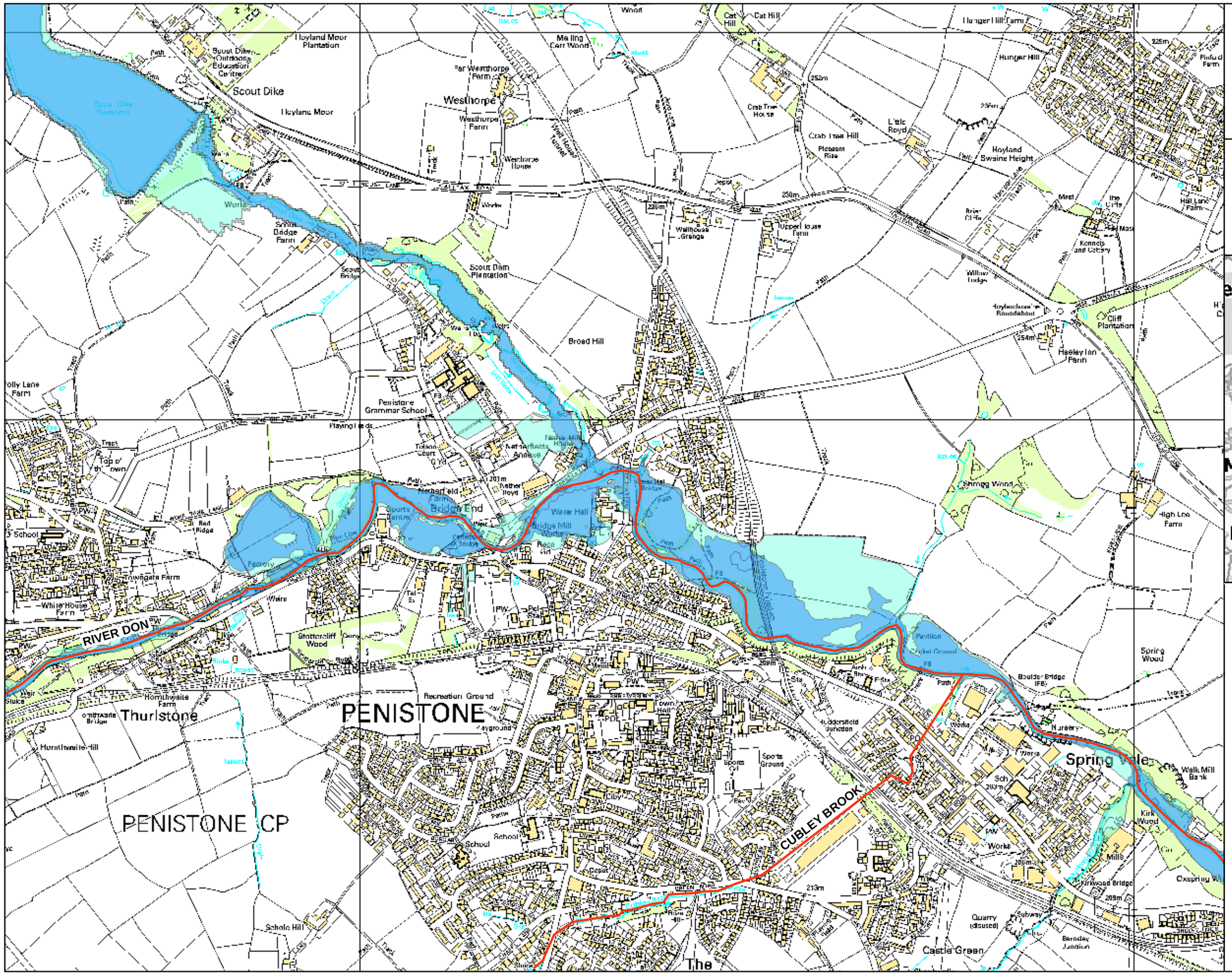
jba CONSULTING

MAP C - 4

PLUVIAL FLOODING CAUSED BY 100YEAR RAINSTORM

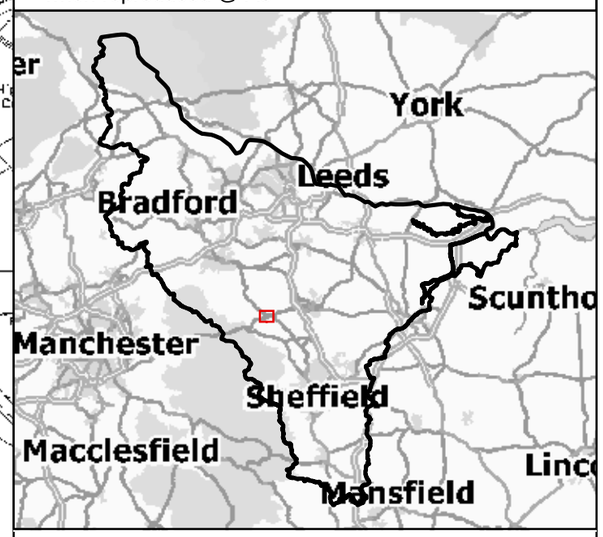
APPENDIX D
Environment Agency Data

Flood Map centred at 424659 403823- Date Created: 08/05/2012 [Ref: 22023]



www.environment-agency.gov.uk

Scale: 1:10,000 when reproduced @ A3



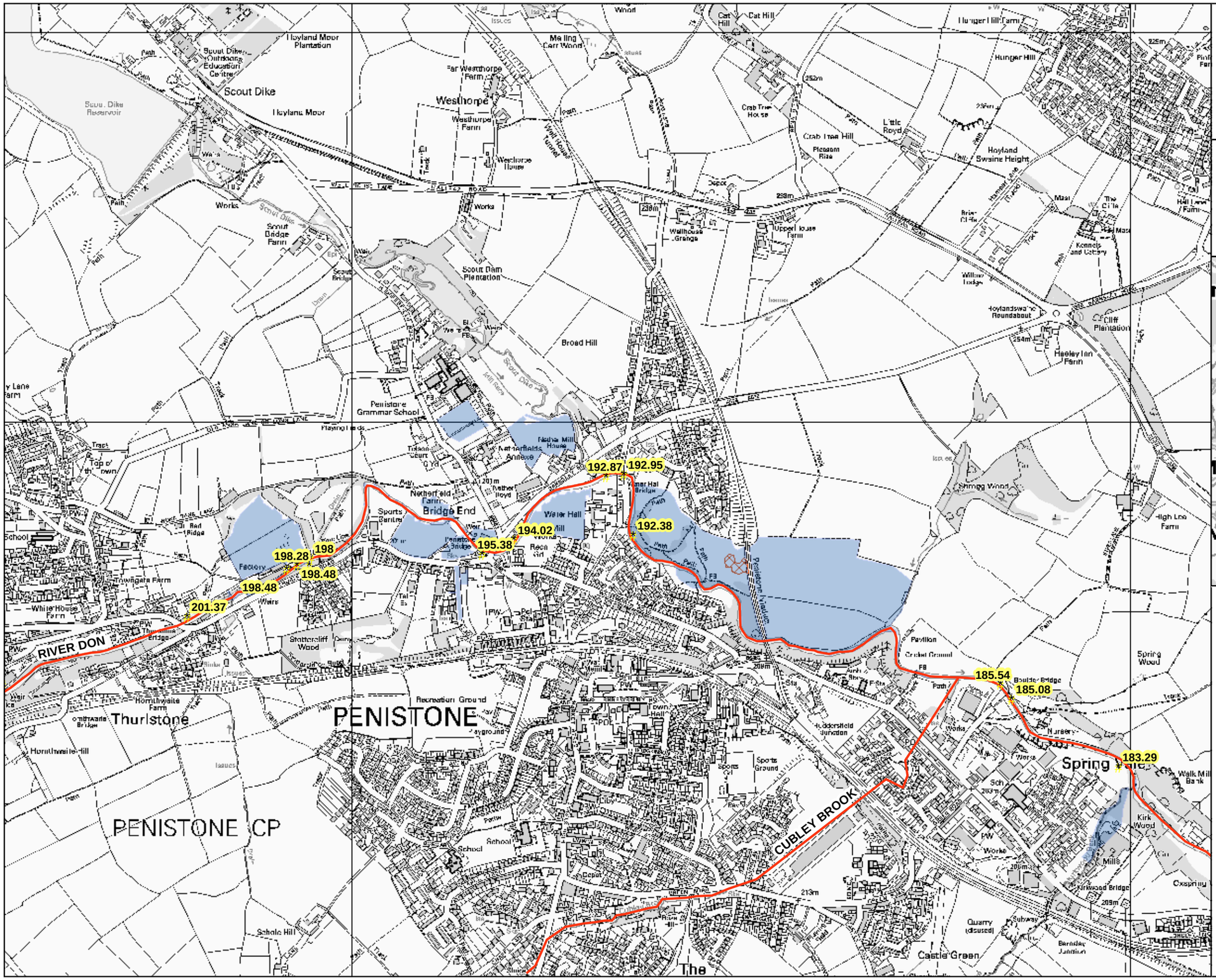
LEGEND

- Main River
- Flood Map Flood Defences
- Areas Benefitting From Flood Defences
- Flood Storage Areas
- Flood Zone 3 (FZ3)
- Flood Zone 2 (FZ2)

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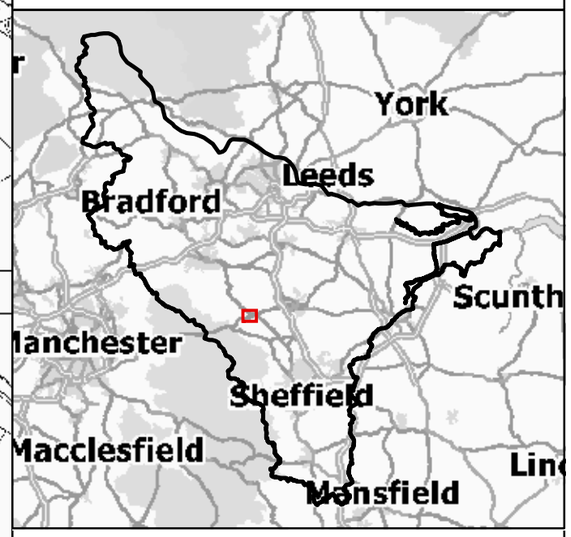
Flood History Map centred at 424659 403823 - dated:10/05/2012 [Ref: 22023]



www.environment-agency.gov.uk

Scale: 1:10,000

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Flood Extents

Legend

- Main River
- Autumn 2000 Flood Event Flood Level (m)
- Autumn 2000 Flood Event Flood Extent
- 2007 Flood Events Flood Extent

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Layer: **Flood Event Outline By Date**

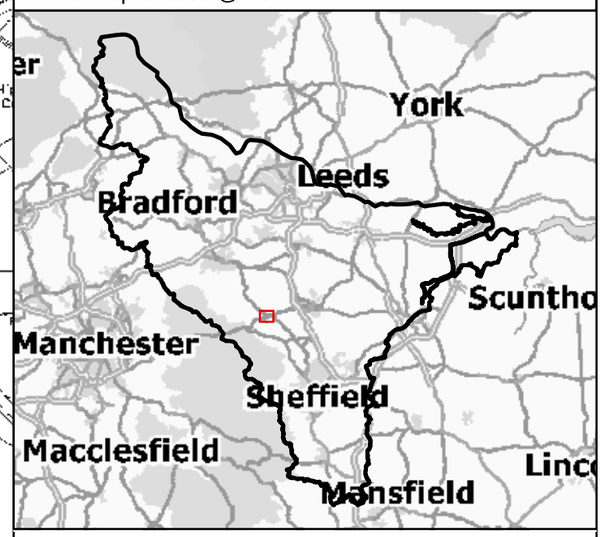
Flood Event Group Code	Outline Code	Name	Comments	Start Date	End Date	Estimated Return Period	Source Of Boundary	Source Of Flooding	Cause Of Flooding	Fluvial	Tidal	Coastal	No. Residential Properties Flooded	No. Comm Prope Flood
12311	32	2007 River Don Penistone		15/06/2007	30/06/2007		Local Authority	main river	channel capacity exceeded (no raised defences)	1	0	0		

Asset Location Map centred at 424659 403823- Date Created: 08/05/2012[Ref: 22023]

www.environment-agency.gov.uk

Scale: 1:10,000

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LEGEND

- Asset
- Main River

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AssetReference	AssetType	AssetDescription	AssetLocation	Bank	Maintainer	Design Standard	Overall Condition	Actual Upstream Crest Level	Actual Downstream Crest Level
1231302521801R01	maintained channel	Open Channel	Bullhouse Lane -Thurgoland to Bower Hill Penistone	right	private	No Data	2	No Data	No Data
1231302521801L01	maintained channel	Open Channel and High Ground	Penistone Road Bridge to Bower Hill /Oxspring Road Bridge	left	private	No Data	2	No Data	No Data
1231302521801L03	maintained channel	Open Channel and high ground	Bullhouse Br - Manchester Rd to Penistone Rd Bridge	left	private	No Data	2	No Data	No Data
1231302521801L02	maintained channel	MASONRY WALL WITH CONCRETE CAP	u/s of and PENISTONE BRIDGE	left	private	No Data	2	195.63	195.63
1231302521801B01	non-flood defence structure	WEIR	PENISTONE BRIDGE. NORTH OF PENISTONE	both	private	No Data	3	No Data	No Data

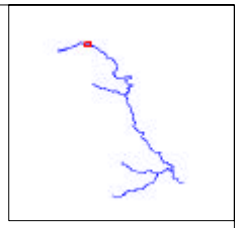
Environment Agency - North East Region
Upper Don Flood Warning Improvements
ISIS Hydraulic Model Summary Sheet

Location Plan



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Cross Section References



River: RIVER DON

Reach: REACH 18

Chainage: 27269

Section Type: BRIDGE, SECTION, SPILL

OS NGR: SE 24894 03589

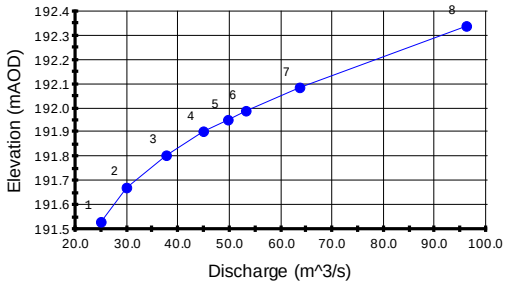
Survey Dwg Ref: N/A

Photograph Ref: DON18_27269us.JPG

Next
Section d/s: 27269d
Section u/s: 27363



Rating Curve



Number represents model profile number

Summary of Results

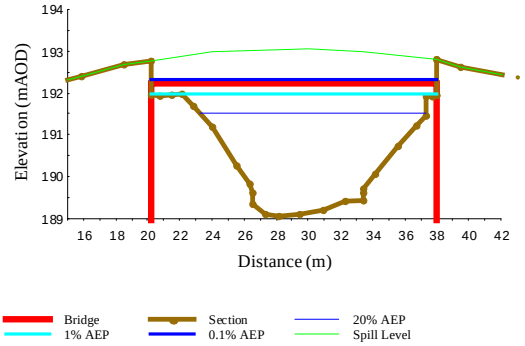
Profile No	AEP (%)	Flow (m^3/s)	Water Level (mAOD)	Velocity (m/s)
1	20.0	25.0	191.531	1.08
2	10.0	30.0	191.674	1.08
3	4.0	37.7	191.806	1.08
4	2.0	44.9	191.905	1.08
5	1.3	49.7	191.953	1.08
6	1.0	53.2	191.989	1.08
7	0.5	63.6	192.085	1.08
8	0.1	96.0	192.338	1.08

Level of Left Bank 191.989 mAOD

Level of Right Bank 191.938 mAOD

AEP: Annual Exceedance Probability = 1/T, where T = Return Period (Years)

Cross Section Profile



RIVER DON: REACH 18: CROSS SECTION NUMBER 27269u

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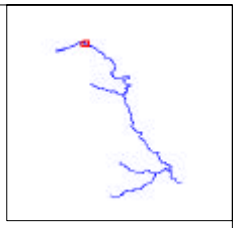
Environment Agency - North East Region
Upper Don Flood Warning Improvements
ISIS Hydraulic Model Summary Sheet

Location Plan



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Cross Section References



River: RIVER DON

Reach: REACH 18

Chainage: 27363

Section Type: SECTION

OS NGR: SE 24819 03643

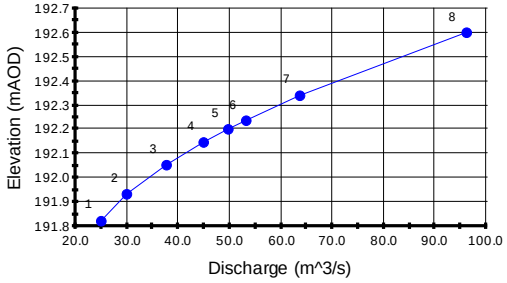
Survey Dwg Ref: N/A

Photograph Ref: DON18_27363.JPG

Next
Section d/s: 27269u
Section u/s: 27521d



Rating Curve



Number represents model profile number

Summary of Results

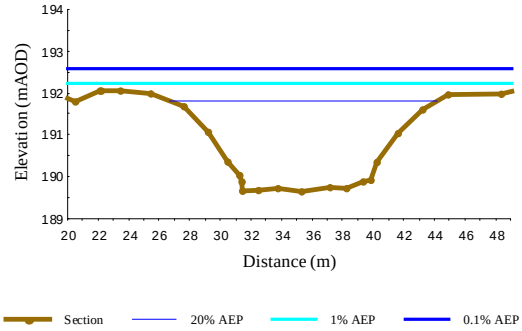
Profile No	AEP (%)	Flow (m^3/s)	Water Level (mAOD)	Velocity (m/s)
1	20.0	25.0	191.824	1.04
2	10.0	30.0	191.936	1.04
3	4.0	37.7	192.055	1.04
4	2.0	44.9	192.149	1.04
5	1.3	49.7	192.202	1.04
6	1.0	53.2	192.238	1.04
7	0.5	63.6	192.341	1.04
8	0.1	96.0	192.600	1.04

Level of Left Bank 191.998 mAOD

Level of Right Bank 191.975 mAOD

AEP: Annual Exceedance Probability = 1/T, where T = Return Period (Years)

Cross Section Profile



RIVER DON: REACH 18: CROSS SECTION NUMBER 27363

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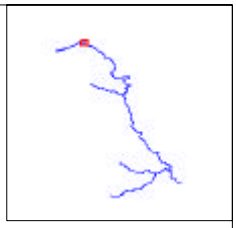
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Cross Section References



River: RIVER DON

Reach: REACH 18

Chainage: 27521

Section Type: BRIDGE, SECTION, SPILL

OS NGR: SE 24721 03734

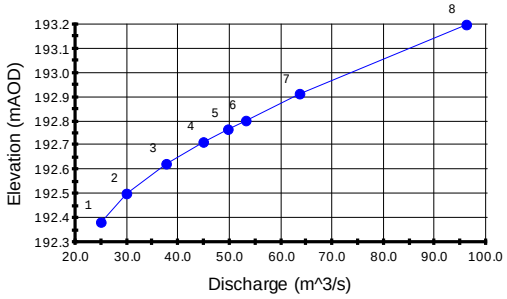
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Next
Section d/s: 27521d
Section u/s: 27678d



Rating Curve



Number represents model profile number

Summary of Results

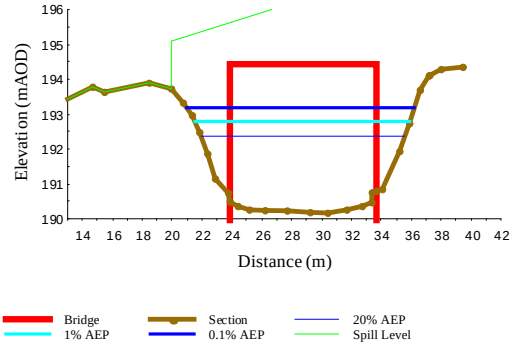
Profile No	AEP (%)	Flow (m^3/s)	Water Level (mAOD)	Velocity (m/s)
1	20.0	25.1	192.384	1.03
2	10.0	30.0	192.502	1.03
3	4.0	37.8	192.625	1.03
4	2.0	44.9	192.714	1.03
5	1.3	49.7	192.767	1.03
6	1.0	53.2	192.803	1.03
7	0.5	63.6	192.913	1.03
8	0.1	96.0	193.197	1.03

Level of Left Bank 193.909 mAOD

Level of Right Bank 194.293 mAOD

AEP: Annual Exceedance Probability = 1/T, where T = Return Period (Years)

Cross Section Profile



RIVER DON: REACH 18: CROSS SECTION NUMBER 27521u

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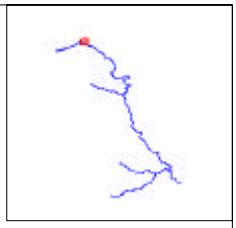
Environment Agency - North East Region
Upper Don Flood Warning Improvements
ISIS Hydraulic Model Summary Sheet

Location Plan



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Cross Section References



River: RIVER DON

Reach: REACH 18

Chainage: 27678

Section Type: BRIDGE, SECTION, SPILL

OS NGR: SE 24686 03864

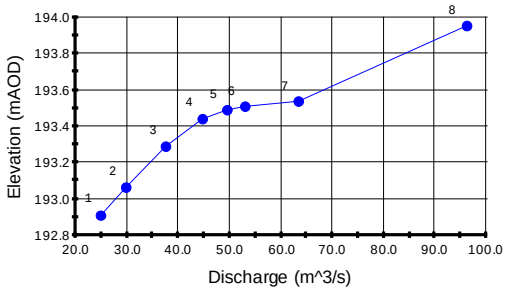
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Section u/s: 27718d



Rating Curve



Number represents model profile number

Summary of Results

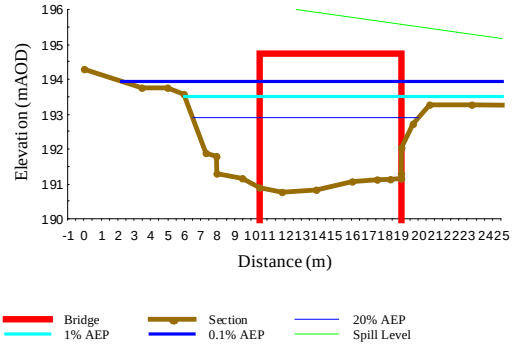
Profile No	AEP (%)	Flow (m^3/s)	Water Level (mAOD)	Velocity (m/s)
1	20.0	24.9	192.912	1.12
2	10.0	29.9	193.067	1.17
3	4.0	37.6	193.292	1.17
4	2.0	44.7	193.442	1.17
5	1.3	49.5	193.492	1.17
6	1.0	53.0	193.511	1.18
7	0.5	63.4	193.538	1.18
8	0.1	96.0	193.952	1.20

Level of Left Bank 193.764 mAOD

Level of Right Bank 193.282 mAOD

AEP: Annual Exceedance Probability = 1/T, where T = Return Period (Years)

Cross Section Profile



RIVER DON: REACH 18: CROSS SECTION NUMBER 27678u

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Location Plan



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Cross Section References



River: RIVER DON

Reach: REACH 18

Chainage: 27718

Section Type: SECTION

OS NGR: SE 24646 03860

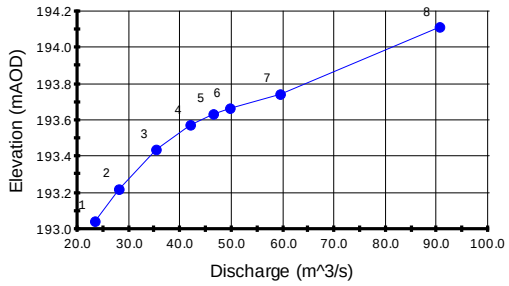
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Photograph Ref: N/A

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Section d/s: 27718d
Section u/s: 27870

No Photograph Available

Rating Curve



Number represents model profile number

Summary of Results

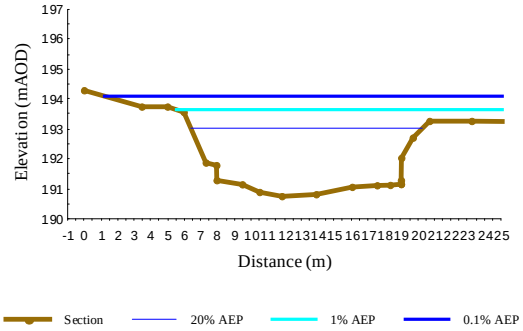
Profile No	AEP (%)	Flow (m^3/s)	Water Level (mAOD)	Velocity (m/s)
1	20.0	23.5	193.046	0.96
2	10.0	28.1	193.223	0.96
3	4.0	35.4	193.440	0.96
4	2.0	42.0	193.576	0.96
5	1.3	46.5	193.635	0.96
6	1.0	49.7	193.666	0.96
7	0.5	59.4	193.743	0.96
8	0.1	90.4	194.112	0.97

Level of Left Bank 193.764 mAOD

Level of Right Bank 193.282 mAOD

AEP: Annual Exceedance Probability = 1/T, where T = Return Period (Years)

Cross Section Profile



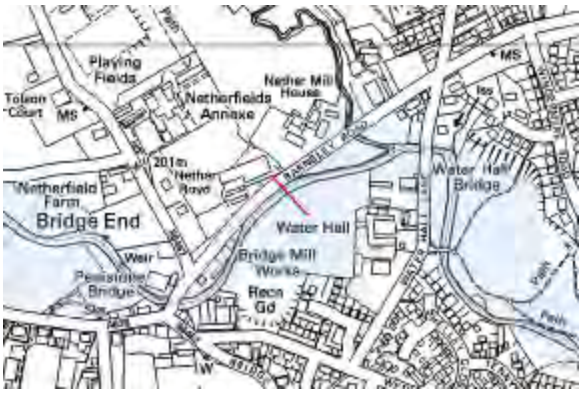
RIVER DON: REACH 18: CROSS SECTION NUMBER 27718u

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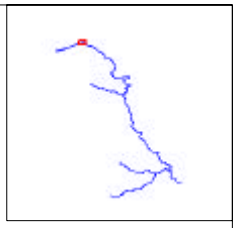
Environment Agency - North East Region
Upper Don Flood Warning Improvements
ISIS Hydraulic Model Summary Sheet

Location Plan



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Cross Section References



River: RIVER DON

Reach: REACH 18

Chainage: 27870

Section Type: SECTION

OS NGR: SE 24514 03802

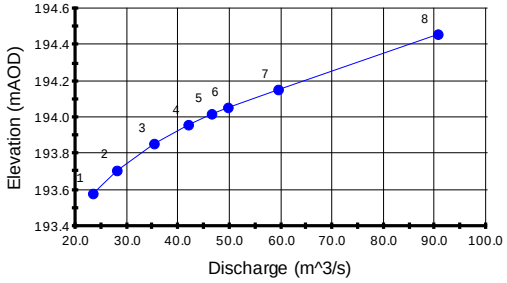
Survey Dwg Ref: N/A

Photograph Ref: DON18_27870.JPG

Next
Section d/s: 27718u
Section u/s: 28100d



Rating Curve



Number represents model profile number

Summary of Results

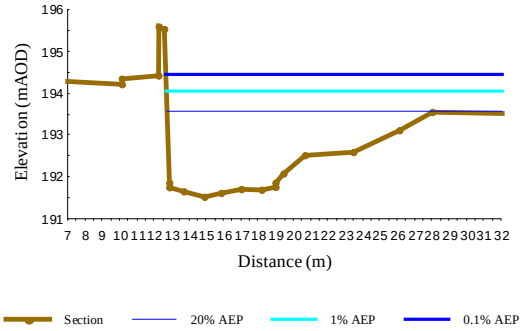
Profile No	AEP (%)	Flow (m^3/s)	Water Level (mAOD)	Velocity (m/s)
1	20.0	23.5	193.582	1.32
2	10.0	28.1	193.709	1.32
3	4.0	35.4	193.856	1.32
4	2.0	42.0	193.959	1.32
5	1.3	46.5	194.019	1.32
6	1.0	49.7	194.054	1.32
7	0.5	59.4	194.152	1.32
8	0.1	90.4	194.457	1.32

Level of Left Bank 195.528 mAOD

Level of Right Bank 193.557 mAOD

AEP: Annual Exceedance Probability = 1/T, where T = Return Period (Years)

Cross Section Profile



RIVER DON: REACH 18: CROSS SECTION NUMBER 27870

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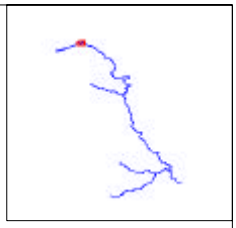
Environment Agency - North East Region
Upper Don Flood Warning Improvements
ISIS Hydraulic Model Summary Sheet

Location Plan



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Cross Section References



River: RIVER DON

Reach: REACH 18

Chainage: 28100

Section Type: BRIDGE, SECTION, SPILL

OS NGR: SE 24356 03673

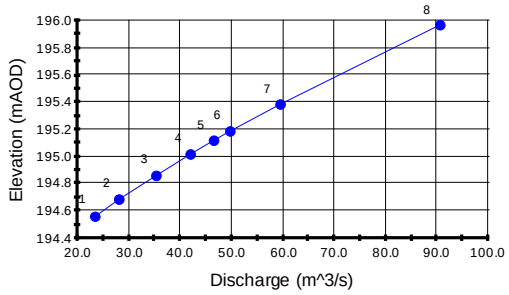
Survey Dwg Ref: N/A

Photograph Ref: DON18_28100us.JPG

Next
Section d/s: 28100d
Section u/s: 28180d



Rating Curve



Number represents model profile number

Summary of Results

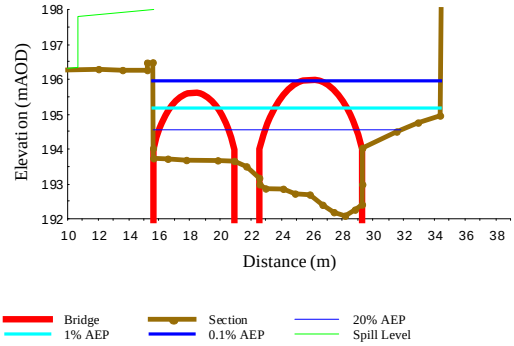
Profile No	AEP (%)	Flow (m^3/s)	Water Level (mAOD)	Velocity (m/s)
1	20.0	23.5	194.564	1.16
2	10.0	28.1	194.690	1.26
3	4.0	35.4	194.862	1.40
4	2.0	42.0	195.019	1.49
5	1.3	46.5	195.121	1.54
6	1.0	49.7	195.188	1.58
7	0.5	59.4	195.384	1.69
8	0.1	90.4	195.966	1.84

Level of Left Bank 196.485 mAOD

Level of Right Bank 198.765 mAOD

AEP: Annual Exceedance Probability = 1/T, where T = Return Period (Years)

Cross Section Profile



RIVER DON: REACH 18: CROSS SECTION NUMBER 28100u

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Print Date: 16/03/2007

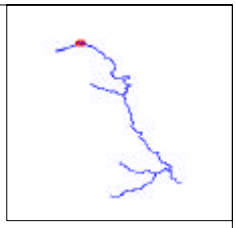
Environment Agency - North East Region
Upper Don Flood Warning Improvements
ISIS Hydraulic Model Summary Sheet

Location Plan



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Cross Section References



River: RIVER DON

Reach: REACH 18

Chainage: 28180

Section Type: SECTION, SPILL

OS NGR: SE 24293 03714

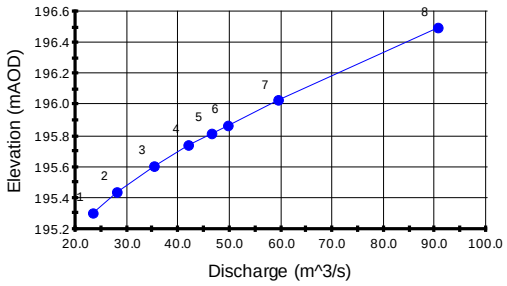
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Photograph Ref: DON18_28180us.JPG

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Section u/s: 28338



Rating Curve



Number represents model profile number

Summary of Results

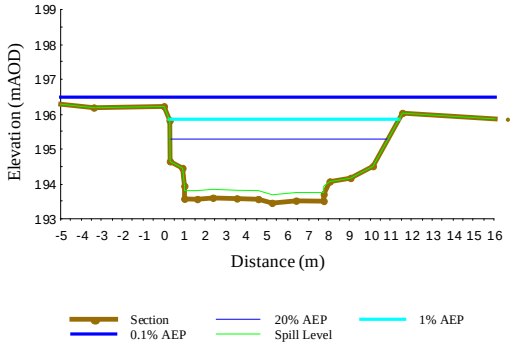
Profile No	AEP (%)	Flow (m^3/s)	Water Level (mAOD)	Velocity (m/s)
1	20.0	23.5	195.306	1.56
2	10.0	28.1	195.441	1.58
3	4.0	35.4	195.608	1.57
4	2.0	42.0	195.742	1.58
5	1.3	46.5	195.816	1.58
6	1.0	49.7	195.867	1.57
7	0.5	59.4	196.030	1.57
8	0.1	90.4	196.493	1.58

Level of Left Bank 196.235 mAOD

Level of Right Bank 196.045 mAOD

AEP: Annual Exceedance Probability = 1/T, where T = Return Period (Years)

Cross Section Profile



RIVER DON: REACH 18: CROSS SECTION NUMBER 28180u

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Print Date: 16/03/2007

APPENDIX E
Yorkshire Water
Asset Records

YORKSHIRE WATER

PROTECTION OF MAINS AND SERVICES

1. The position of Yorkshire Water Services Ltd (YWS) apparatus shown on the existing mains record drawing(s) indicates the ***general*** position and nature of our apparatus and the accuracy of this information cannot be guaranteed. Any damage to YWS apparatus as a result of your works may have serious consequences and you will be held responsible for all costs incurred. Prior to commencing major works, the exact location of apparatus must be determined on site, if necessary by excavating trial holes. The actual position of such apparatus and that of service pipes which have not been indicated must be established on site by contacting the Customer Helpline (0845 124 24 24) for water and (0845 124 24 29) for sewerage.

2. The public sewer network is lawfully retained in its existing position and the sewerage undertaker is entitled to have it remain so without any disturbance. The provisions of section 159 of the Water Industry Act 1991 provides that the sewerage undertaker may "inspect, maintain, adjust, repair or alter" the network. Those rights are given to enable the sewerage undertaker to perform its statutory duties. Any development of the land or any other action that unacceptably hindered the exercise of those rights would be unlawful.

3. Ground levels over existing YWS apparatus are to be maintained. Sewers in highways will ***generally*** be laid to give 1200mm of cover from finished ground level working to kerb races, other permanent identification of the limits of the road or to an agreed line and level. Substantial increases or decreases to this 1200mm depth of cover will result in the sewer being re-laid at your expense.

4. If surface levels are to be decreased / increased significantly the effects on existing water supply apparatus will be carefully considered and if any alterations are necessary, the costs of the alterations will be recharged to you in full. Outlets on fire hydrants must be no more than 300mm below the new levels and all surface boxes must be adjusted as part of the scheme.

5. To enable future repair works to be carried out without hindrance; any pipe, cable, duct, etc. installed parallel to a water main or service pipe should not be installed directly over or within 300mm of a water main or service pipe or 1000mm of a waste water asset. Where a pipe, cable, duct, etc. crosses a main or service it should preferably cross perpendicular or at an angle of no less than 45° and with a minimum clearance of 150mm. These requirements apply to activities within an existing highway and are relevant to the installation of pipes, cables, ducts, etc. up to and including 250mm in diameter. Necessary protection measures for installations greater than 250mm in diameter and/or in private land will need to be agreed on an individual basis. Installations within a new development site must comply with the National Joint Utilities Group publication Volume 2: NJUG Guidelines On The Positioning Of Underground Utilities Apparatus For New Development Sites.

6. All excavation works near to YW apparatus should be by hand digging only.

7. Backfilling with a suitable material to a minimum 300mm above YW apparatus is required.

8. Adequate support must be provided where any works pass under YW apparatus.

9. Jointing chambers, lighting columns and other structures must be installed in such a way that future repair or maintenance works to YW apparatus will not be hindered.

10. Apparatus such as; railings, sign posts, etc. must not be placed in such a way that they prevent access to or full operation of controlling valves, hydrants or similar apparatus. YWS surface boxes must not be covered or buried. Any adjustment, alteration or replacement of manhole covers must be agreed on site prior to the commencement of the works with a YWS Inspector who may be contacted via our Call Centre on 0845 124 24 29.

11. Explosives shall not be used within 100 metres of any Yorkshire Water Services apparatus or installations.

12. Vibrating plant should not be used directly over any apparatus. Movement or operation by vehicles or heavy plant is not to be permitted in the immediate vicinity of YWS plant or apparatus unless there has been prior consultation and, if necessary, adequate protection provided without cost to YWS.

13. ***Under no circumstances*** should thrust boring or similar trenchless techniques commence until the actual position of the Company's mains/services along the proposed route have been confirmed by trial holes.

14. Any alterations to the highway should be notified following the procedures outlined in the New Road and Street Works Act 1991 Code of Practice; Measures Necessary Where Apparatus Is Affected By Major Works (Diversionary Works).

15. You will be held responsible for any damage or loss to YWS apparatus during and after completion of work, caused by yourselves, your servant or agent. Any damage caused or observed to YWS plant or apparatus should be immediately reported to YWS. Should YW incur any costs as a result of non-compliance with the above, all costs will be rechargeable in full.

16. You should ensure that nothing is done on the site to prejudice the safety or operation of YWS employees, plant or apparatus.

17. In accordance with the New Roads and Street Works Act 1991, Chapter 22, Part 3, Section 80. The location of any identified YW asset "*which is not marked, or is wrongly marked, on the records made available* " should be communicated back to Yorkshire Water. The location of the apparatus should be identified on copies of the supplied plans which should be returned to Yorkshire Water (Asset Records Team) with photographic supporting evidence where possible.

18. The Government has decided that responsibility for private sewers serving two or more properties and lateral drains (the

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Western House, Halifax Road, Bradford BD6 2SZ. Registered in England and Wales No. 2366682

safe-move
A part of YorkshireWater

section of pipe beyond the boundary of a single property, connecting it to the public sewer) will be transferred to the water companies on Oct 1 2011. Private pumping stations will also transfer during the period 1 October 2011 – 1 Oct 2016. Records of these assets may not yet be shown on the existing mains record drawing(s). If you encounter any of these assets you must inform Yorkshire Water Services Ltd (YWS).

19. Please note that the information supplied on the enclosed plans is reproduced from Ordnance Survey material with the permission of the Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office, © Crown Copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings. Licence Number 1000019559.

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A part of YorkshireWater

Sewer Legend


Combined Sewer


S24 Combined Sewer


Surface Water Sewer


S24 Surface Water Sewer


Foul Sewer


S24 Foul Sewer


Section 104 Sewer

Public Rising Main


Pumping Station


Abandoned Sewer



Public Sewage
Treatment Works


Syphon Sewer &
Vacuum Sewer

\+ Property Identifier

Water Legend

Water Main 4" and below

Water Main 4" and above

Raw Water Main

Private Water Main


Fire Hydrant


Pumping Station

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A part of YorkshireWater

Bump Hall
Nether Mill House
FB
199.9m
AIR SCOURED
ASSUMED COA
80ft OF PVC LAID IN DUCT
Stone
Vale Cottage
Issues
Torside
The Gambit
Watersmeet
FB
Water Hall Bridge
201.2m
194.8m
BARNSLEY ROAD
Depot
4ins AC SURVEYED AT THIS POINT SEP 11
River Don
Nether Royd
Sunnymede
196.9m
END
El Sub Sta
Bridge Mill Works
A 628
204.5
MS
LB
Wordsworth Court
WATER HALL LANE
Path

Water Network features are not shown above a scale of 1:50,000

424336 : 403733	Map Name : SE2403NW	Title	Partial Key Water mains up to 4" in diameter Water mains over 4" in diameter Raw water mains Private water mains
YorkshireWater	Yorkshire Water, PO Box 500, Halifax Road, Bradford BD6 2LZ Contact Name : Ms H Webster Contact Tel :	Notes	The position and depths of apparatus shown on this plan are approximate only. The exact positions and depths should be obtained by excavation trial holes. Scale : 1:1250
		(Ody) COPYRIGHT STATEMENTS: Reproduced by permission of Ordnance Survey on behalf of HMSO © Crown copyright and database 2004. All rights reserved Ordnance Survey Licence number 100019559	Drg No : Maris No : Date Req : 26/10/2012, 11:35:39 Date Gen : 26/10/2012, 11:35:40 Source : Water Network Enquiry

UPN: Undefined Originator: H Webster, Safe Move,

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safe-move
A part of YorkshireWater

Nether Mill House
FB
Bump Hall
199.9m
Vale Cottage
LB
MS
A 628
204.5
Issues
Torside
The Gambit
Stone
Watersmeet
FB
Water Hall Bridge
201.2m
194.8m
BARNSLEY ROAD
River Don
Depot
Nether Royd
Sunnymede
196.9m
END
El Sub Sta
Bridge Mill Works
B 6462
A 628
Wordsworth Court
WATER HALL LANE
Path

424336 : 403733	Map Name : SE2403NW	Title	Partial Key Foul Sewer = F Combined Sewer = C Surface Water Sewer = SW Trade Sewer = TD Partially Separate = PS
YorkshireWater Yorkshire Water, PO Box 500, Halifax Road, Bradford BD6 2LZ Contact Name : Ms H Webster Contact Tel :		Notes	This plan is furnished as a general guide only and no warranty as to its correctness is given or implied. This plan must not be relied upon in the event of excavations or other works made in the vicinity of public sewers. No house or property connection
		(Ody) COPYRIGHT STATEMENTS: Reproduced by permission of Ordnance Survey on behalf of HMSO © Crown copyright and database 2004. All rights reserved Ordnance Survey Licence number 100019559	Date Req : 26/10/2012, 11:35:50 Source : Sewer Network Enquiry
			Date Gen : 26/10/2012, 11:35:51

UPN: Undefined Originator: H Webster, Safe Move,

APPENDIX F
Existing Surface Water Runoff Calculations:
Modified Rational Method

Modified Rational Method

Length (m)	58	m
Area (ha)	0.276	Ha
Max Height	195.9	mAOD
Min Height	194.6	mAOD
DeltaH	1.3	
Slope (%)	2.24	
Te (mins)	10.23	mins
ARF	0.998	
SAAR	1252.000	mm
UCWI	132	mm
PIMP	100.0	%
SOIL	0.44	
Percentage Runoff PR	83.50	
DEEPSTOR	0.48	

Cv	0.83496
Cr	1.3

Peak 1 in 2 yr runoff	21.3	l/s

Return Period	flood	2	years
Pre Development	Rainfall	2	years

Rainfall Duration (hours)	Rainfall Duration (days)	Rainfall Depth (mm)	Effective Depth (mm)	Rainfall Intensity (mm/hr)	FLOW (l/s)	FLOW (l/s/ha)
0.17	0.007	4.3485	4.720	25.579	21.280	77.187
0.250	0.010	5.43	5.894	21.280	17.704	64.215
0.500	0.021	7.90	8.575	15.800	13.145	47.677
0.750	0.031	9.73	10.561	12.973	10.793	39.148
1.000	0.042	11.24	12.200	11.240	9.351	33.917
1.250	0.052	12.54	13.612	10.032	8.346	30.272
1.500	0.063	13.71	14.881	9.140	7.604	27.580
1.750	0.073	14.76	16.021	8.434	7.017	25.451
2.000	0.083	15.74	17.085	7.870	6.547	23.748
2.250	0.094	16.65	18.073	7.400	6.156	22.330
2.500	0.104	17.5	18.995	7.000	5.824	21.123
2.750	0.115	18.31	19.875	6.658	5.539	20.091
3.000	0.125	19.07	20.699	6.357	5.288	19.182

Modified Rational Method

Length (m)	58	m
Area (ha)	0.276	Ha
Max Height	195.9	mAOD
Min Height	194.6	mAOD
DeltaH	1.3	
Slope (%)	2.24	
Te (mins)	10.23	mins
ARF	0.998	
SAAR	1252.000	mm
UCWI	132	mm
PIMP	100.0	%
SOIL	0.44	
Percentage Runoff PR	83.50	
DEEPSTOR	0.48	

Cv	0.83496
Cr	1.3

Peak 1 in 30 yr runoff	61.8	l/s

Return Period	flood	30	years
Pre Development	Rainfall	50	years

Rainfall Duration (hours)	Rainfall Duration (days)	Rainfall Depth (mm)	Effective Depth (mm)	Rainfall Intensity (mm/hr)	FLOW (l/s)	FLOW (l/s/ha)
0.17	0.007	12.6249	13.704	74.264	61.783	224.095
0.250	0.010	15.29	16.596	61.160	50.881	184.553
0.500	0.021	21.04	22.838	42.080	35.008	126.978
0.750	0.031	25.08	27.223	33.440	27.820	100.907
1.000	0.042	28.3	30.718	28.300	23.544	85.397
1.250	0.052	31.03	33.681	24.824	20.652	74.908
1.500	0.063	33.42	36.276	22.280	18.536	67.231
1.750	0.073	35.56	38.599	20.320	16.905	61.317
2.000	0.083	37.50	40.704	18.750	15.599	56.579
2.250	0.094	39.3	42.658	17.467	14.531	52.706
2.500	0.104	40.96	44.460	16.384	13.630	49.439
2.750	0.115	42.52	46.153	15.462	12.863	46.657
3.000	0.125	43.99	47.749	14.663	12.199	44.247

Modified Rational Method

Length (m)	58	m
Area (ha)	0.276	Ha
Max Height	195.9	mAOD
Min Height	194.6	mAOD
DeltaH	1.3	
Slope (%)	2.24	
Te (mins)	10.23	mins
ARF	0.998	
SAAR	1252.000	mm
UCWI	132	mm
PIMP	100.0	%
SOIL	0.44	
Percentage Runoff PR	83.50	
DEEPSTOR	0.48	
Cv	0.83496	
Cr	1.3	

Peak 1 in 100 yr runoff	94.9	l/s	

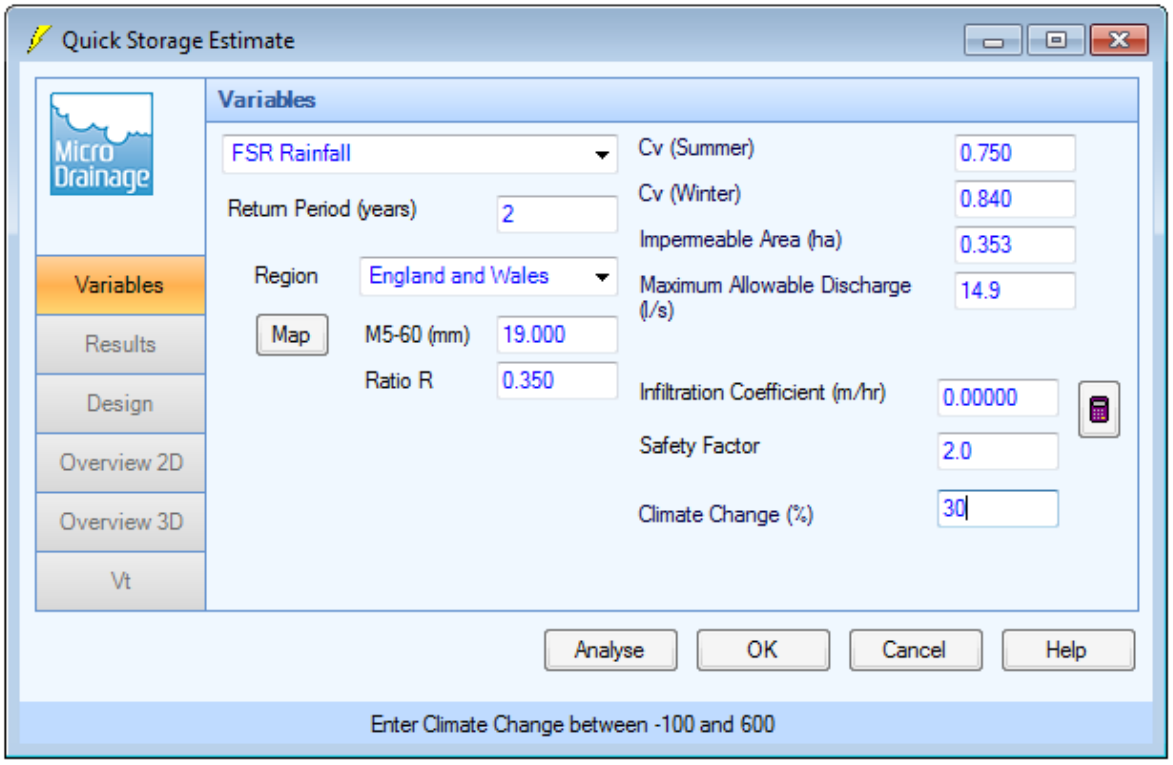
Return Period	flood	100	years
Pre Development	Rainfall	140	years

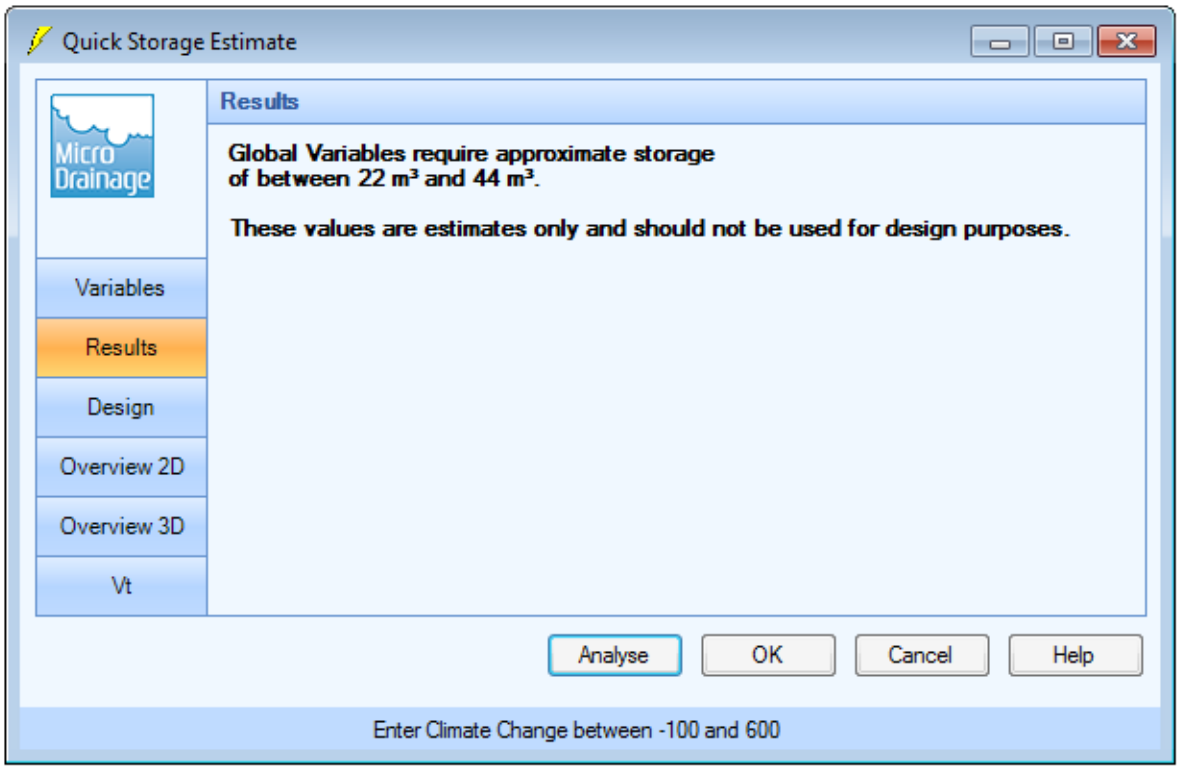
Rainfall Duration (hours)	Rainfall Duration (days)	Rainfall Depth (mm)	Effective Depth (mm)	Rainfall Intensity (mm/hr)	FLOW (l/s)	FLOW (l/s/ha)
0.17	0.007	19.3967	21.054	114.098	94.923	344.297
0.250	0.010	23.2	25.182	92.800	77.204	280.028
0.500	0.021	31.21	33.877	62.420	51.930	188.355
0.750	0.031	36.72	39.858	48.960	40.732	147.739
1.000	0.042	41.06	44.568	41.060	34.159	123.900
1.250	0.052	44.70	48.520	35.760	29.750	107.907
1.500	0.063	47.85	51.939	31.900	26.539	96.260
1.750	0.073	50.67	55.000	28.954	24.088	87.371
2.000	0.083	53.21	57.757	26.605	22.134	80.282
2.250	0.094	55.54	60.286	24.684	20.536	74.486
2.500	0.104	57.7	62.630	23.080	19.201	69.645
2.750	0.115	59.71	64.812	21.713	18.064	65.519
3.000	0.125	61.6	66.864	20.533	17.082	61.960

APPENDIX G
Indicative Attenuation Volume Calculations

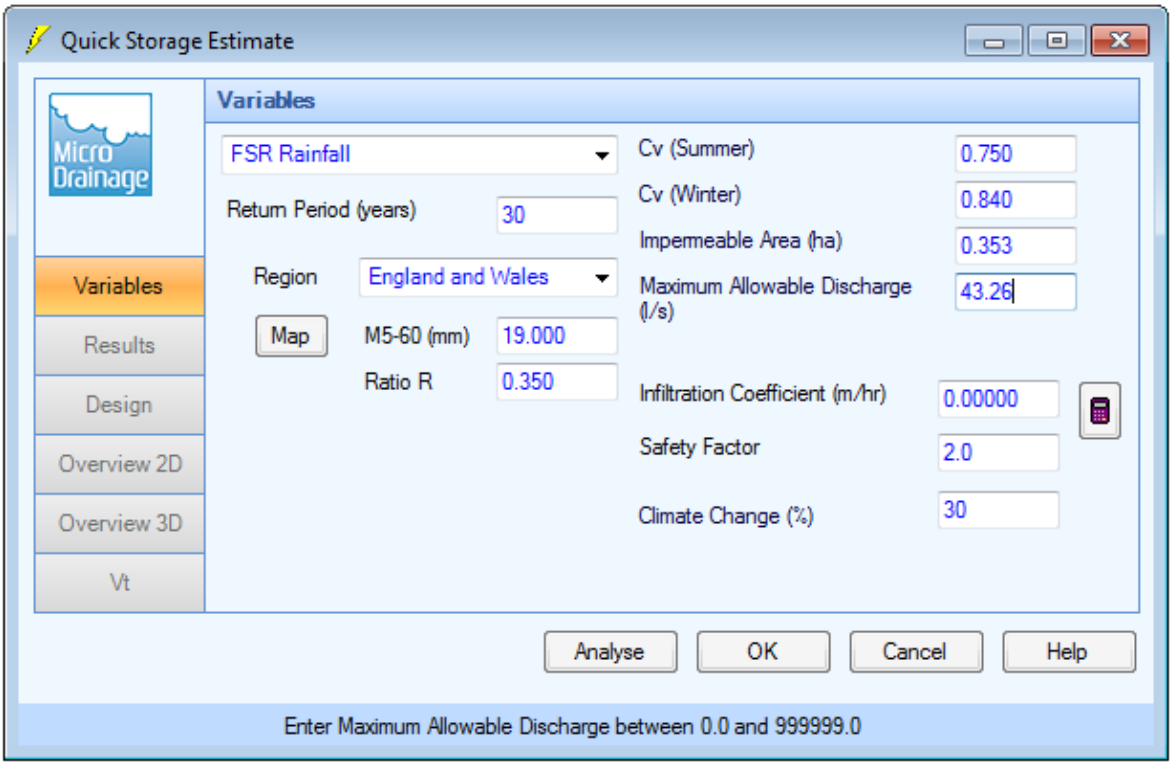
Indicative Attenuation

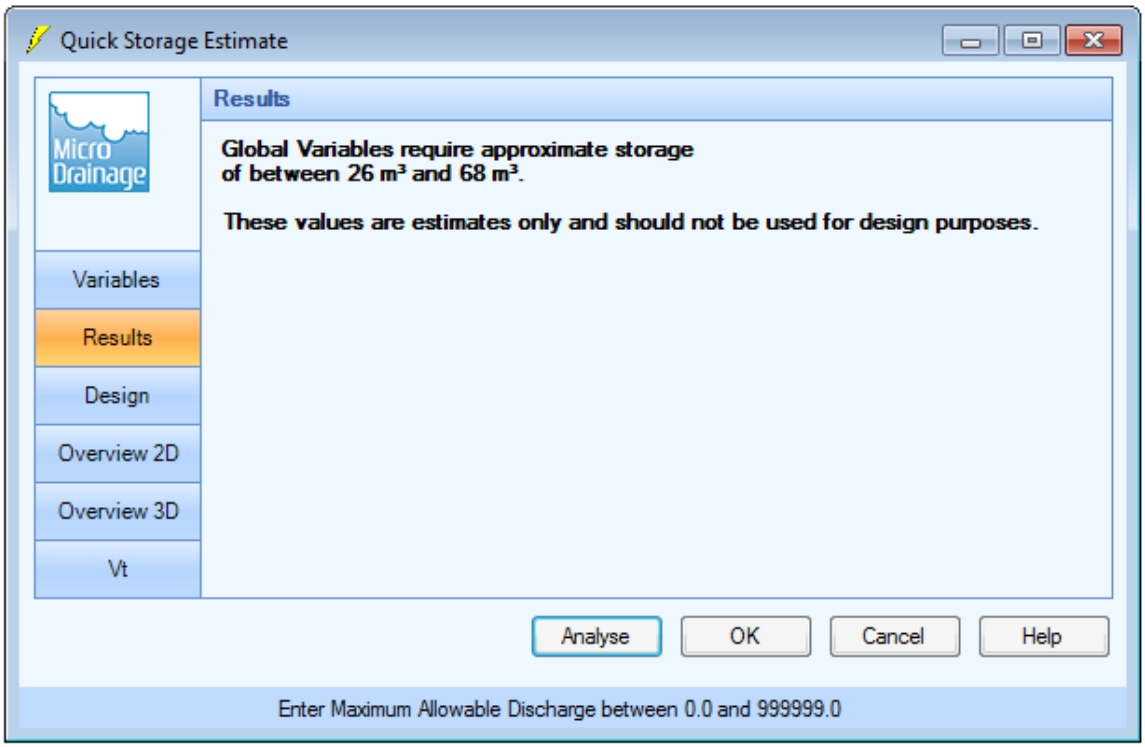
1 in 2 Year plus 30% Climate Change



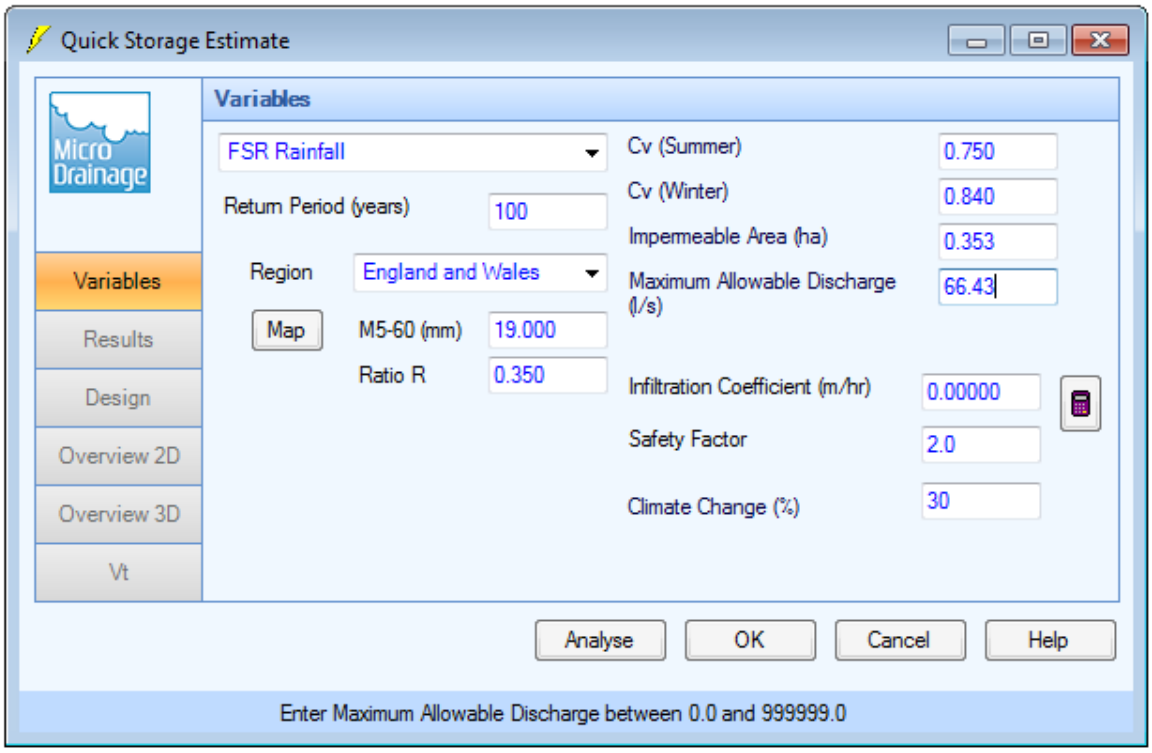


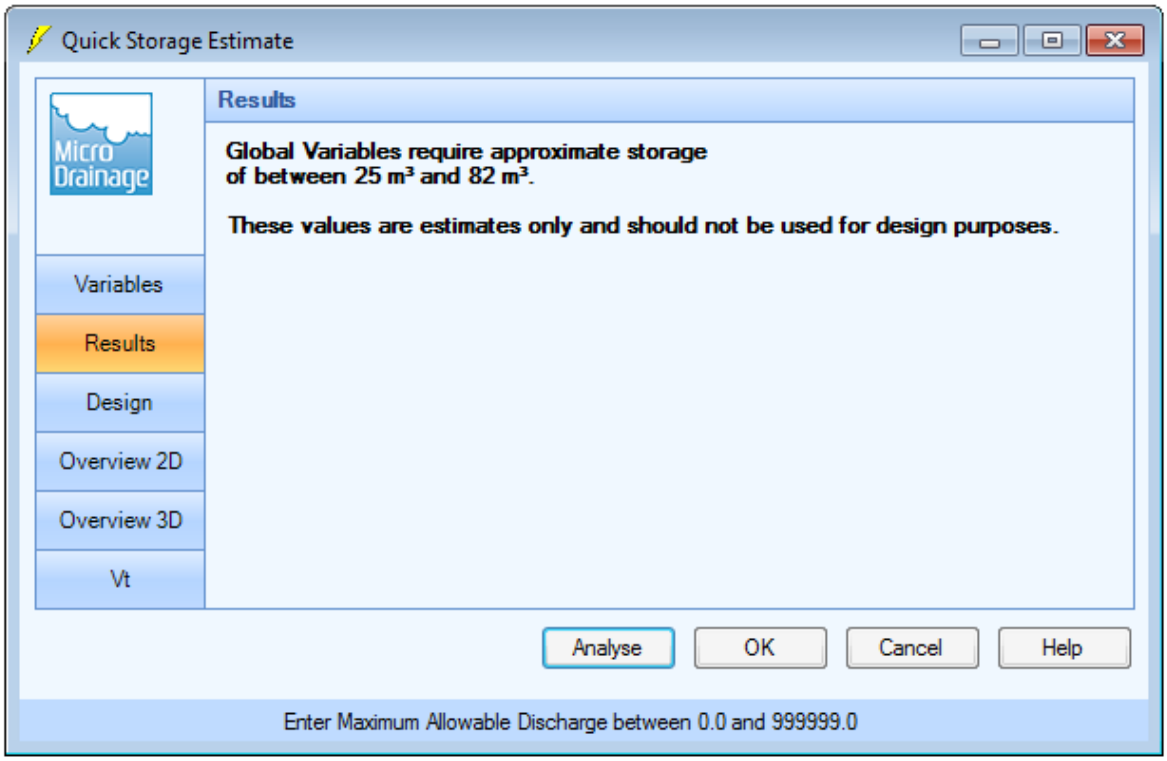
1 in 30 Year plus 30% Climate Change





1 in 100 year plus 30% Climate Change





APPENDIX H
Environment Agency Guidance:
Personal Flood Plan

Environment Agency



Prepare your property for flooding

A guide for householders and small businesses

We are the Environment Agency. It's our job to look after your environment and make it a better place – for you, and for future generations.

Your environment is the air you breathe, the water you drink and the ground you walk on. Working with business, Government and society as a whole, we are making your environment cleaner and healthier.

The Environment Agency. Out there, making your environment a better place.

Published by:

Environment Agency

Rio House
Waterside Drive, Aztec West
Almondsbury, Bristol BS32 4UD
Tel: 0870 8506 506
Email: enquiries@environment–agency.gov.uk
www.environment–agency.gov.uk

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October 2009

Over 5.5 million properties in England and Wales are at risk of flooding from rivers, the sea or surface water. That's one in six, which means there's a high chance one of these properties is your home or business.

It pays to prepare for flooding.

If your home or business is flooded it can be costly, not just in terms of money and time but also inconvenience and heartache.

While it's impossible to completely flood-proof a property, there are lots of things you can do to reduce the damage flooding can cause.

The key is to act now so you're prepared if there's a flood in your area.

Am I at risk of flooding?

You need to find out. It could save you money, help you protect yourself and your property – maybe even save your life.

Even if your home or business is not directly at risk of flooding from rivers or the sea, you could still be affected by surface or groundwater flooding.

Visit our website www.environment-agency.gov.uk or call Floodline on 0845 988 1188 to see if your property or business is at risk and for other useful flood information.

Now you understand the risk, here's what you can do.

Protect your property and possessions

Whether you rent or own your home or business premises, there are many things you can do to help yourself. Some are simple and temporary while others involve permanent structural work.

You can also make improvements so that even if flood water enters your property it causes less damage, so drying-out and cleaning up is faster and easier. This means you could move back home or open for business far more quickly.

The most important thing is to prepare now by buying and installing flood products in advance.

Don't wait until flooding looks likely as you won't have time to buy or put the measures in place.

Try to keep flood water out:

• **Doors:** buy purpose-built flood boards that can be installed when flooding is imminent. You can also raise door thresholds.

• **Walls and floors:** raise damp-proof brick courses. Sealing floors ('tanking') can prevent water rising through the ground.

• **Air bricks:** buy specially designed covers that are easy to place over ventilation bricks.

• **Drains and pipes:** fit non-return valves to drains and water inlet and outlet pipes.

...but accept that flood water might get in.

In the case of bigger floods this actually needs to happen otherwise the weight of the water outside might cause the building to collapse. Here are some things you can do to reduce the damage floodwater might cause inside:

•**Shelving:** put irreplaceable or valuable items on high-mounted shelves.

• **Home entertainment:** fix your audio-visual equipment, for example your TV and hi-fi, to the wall about 1.5 metres above floor level.

• **Skirting:** fit water-resistant skirting boards, or varnish them.

• **Pump:** fit a pump in a basement or under-floor void to extract flood water.

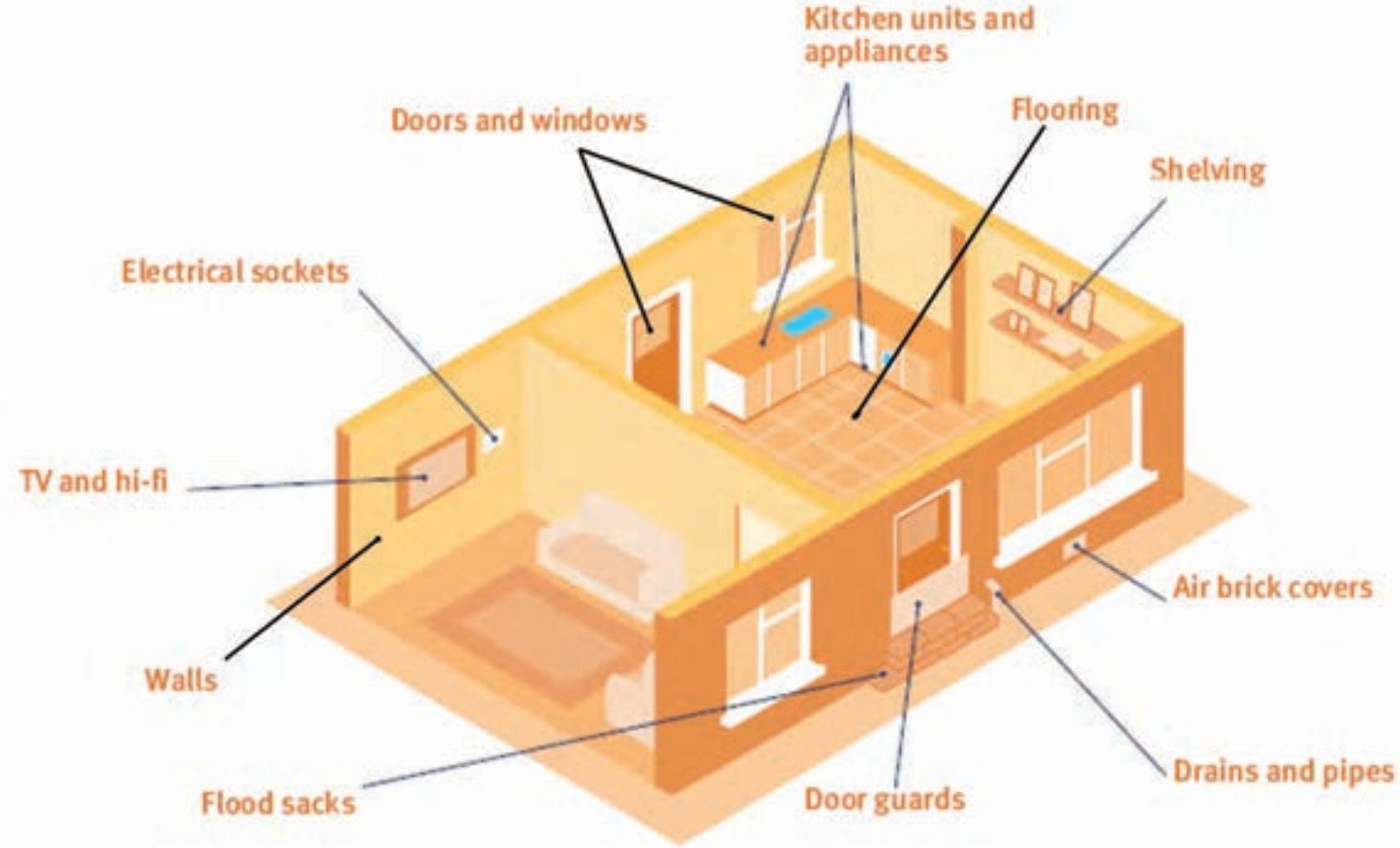
• **Walls:** dry-line. Use horizontal plasterboard, or lime-based plaster instead of gypsum. Get a special draining system for cavity walls.

• **Flooring:** lay tiles with rugs rather than fitted carpets, which often need to be replaced after a flood.

• **Doors and windows:** install synthetic or waxed windows and doors, or varnish.

• **Kitchen and bathroom:** use water-resistant materials such as stainless steel, plastic or solid wood rather than chipboard. Where possible raise fridges and appliances on plinths.

• **Electricals:** raise electrical sockets, fuse boxes, controls and wiring to at least 1.5 metres above floor level. If rewiring, bring cables down the wall to the raised socket so that cabling isn't affected.


Kitchen units and appliances
Doors and windows
Flooring
Shelving
Electrical sockets
TV and hi-fi
Air brick covers
Walls
Drains and pipes
Flood sacks
Door guards

How much will it cost?

Making your property resilient to floodwater will limit the distress and damage caused by flooding, which means less costly repairs and less time out of your home or business premises.

The cost of purchasing and installing products to keep floodwater out of your property will depend on the size of your property and the type of flood you want to protect against.

For example, according to the ABI, to protect your property against shallow flash floods could cost between £2,000 - £6,000.

To keep water out during periods of prolonged flooding will take bigger changes and could cost between £20,000 -£40,000.

Buying products

There is a variety of products that you can purchase. A comprehensive list of these can be found in 'The Blue Pages' directory on the National Flood Forum's website www.floodforum.org.uk.

The Blue Pages is an independent directory of products, builders, suppliers and insurers. It's designed to provide information on all aspects of flood protection and resilience products.

Quality check

When you buy a flood product check it's been properly tested and is up to the job – it should display the BSI Kitemark or equivalent accreditation for the national quality standard PAS 1188.

The British Standards Institution (BSI) maintains a list of all manufacturers of flood protection products that have been tested and achieved Kitemark accreditation. See www.kitemark.com

The Flood Protection Association represents manufacturers and designers of flood defence products. See www.floodprotectionassoc.co.uk

Insurance

Check your buildings and contents insurance policies to see what cover they provide for flood damage.

If you make changes to your property so it's more resilient to flooding make sure you let your insurance company know as this this might result in a reduction in excess charges or premiums depending on your insurer.

For more information about resilient repair contact the Association of British Insurers www.abi.org.uk.

Sign up for warnings

Knowing when to put temporary flood protection measures in place is crucial. Our free Floodline Warnings Direct service can tell you when to do this by sending you a warning by phone, text and email.

Sign up for Floodline Warnings Direct online at www.environment-agency.gov.uk or call Floodline on 0845 988 1188.

Professional advice

If you're going to make permanent changes to protect your property against flooding, we strongly recommended that you seek professional advice from a building surveyor, architect or other professional. You could contact:

Royal Institution of Chartered Surveyors (RICS). See www.rics.org

Royal Institute of British Architects (RIBA). See www.architecture.com

Where can I get more information?

If you would like to get a better understanding of flooding, see our web site or call Floodline on 0845 988 1188.

Don't forget to sign up to our free 24 hour Floodline Warnings Direct service.

We have information offering you practical advice on what to do before, during and after a flood. It's available in PDF, print, CD and MP3 file. You can download them from our website or order them from Floodline.

Contact your local authority to find out if flood protection grants are available for your property.



Would you like to find out more about us, or about your environment?

Then call us on
08708 506 506 (Mon–Fri 8–6)

Approximate call costs: 8p plus 6p per minute (standard landline).
Please note charges will vary across telephone providers.

email
enquiries@environment–agency.gov.uk
or visit our website
www.environment–agency.gov.uk

incident hotline 0800 80 70 60 (24hrs)
floodline 0845 988 1188

GEHO1009BRDL-E-P

Personal flood plan

Name

Environment Agency

Are you signed up to receive flood warnings? ☐
If not call Floodline on 0845 988 1188 to see if your area receives free flood warnings.

Let us know when you've completed your flood plan by calling Floodline on **0845 988 1188.** This will help us learn more about how people are preparing for flooding.

General contact list	Company name	Contact name	Telephone
Floodline	Environment Agency		0845 988 1188
Electricity provider			
Gas provider			
Water company			
Telephone provider			
Insurance company and policy number			
Local council			
Local radio station			
Travel/weather info			

Key locations

Service cut-off	Description of location
Electricity	
Gas	
Water	

Who can help/who can you help?

Relationship	Name	Contact details	How can they/you help?
Relative			
Friend or neighbour			

Be prepared for flooding. Act now

Personal flood plan

What can I do NOW?

Environment Agency

- Put important documents out of flood risk and protect in polythene ☐
- Look at the best way of stopping floodwater entering your property ☐
- Find out where you can get sandbags ☐
- Identify what you would need to take with you if you had to leave your home ☐
- Check your insurance covers you for flooding ☐
- Make a flood plan and prepare a flood kit ☐
- Identify who can help you/ who you can help ☐
- Understand the flood warning codes ☐

What can you do if a flood is expected in your area?

Actions	Location
Home	
• Move furniture and electrical items to safety	
• Put flood boards, polythene and sandbags in place	
• Make a list now of what you can move away from the risk	
• Turn off electricity, water and gas supplies	
• Roll up carpets and rugs	
• Unless you have time to remove them hang curtains over rods	
• Move sentimental items to safety	
• Put important documents in polythene bags and move to safety	
Garden and outside	
• Move your car out of the flood risk area	
• Move any large or loose items or weigh them down	
Business	
• Move important documents, computers and stock	
• Alert staff and request their help	
• Farmers move animals and livestock to safety	
Evacuation - Prepare a flood kit in advance	
• Inform your family or friends that you may need to leave your home	
• Get your flood kit together and include a torch, warm and waterproof clothing, water, food, medication, toys for children and pets, rubber gloves and wellingtons	

There are a range of flood protection products on the market to help you protect your property from flood damage. A directory of these is available from the **National Flood Forum** at **www.bluepages.org.uk**

Be prepared for flooding. Act now

APPENDIX I
Historic Borehole Logs & Soilscape Map

SE20SW 67

HOLST & CO. LTD.

SITE INVESTIGATION DEPT

PARKSIDE LANE

LEEDS LS11 5SX.

Contract No. SI 0997/E2475 Borehole No. 3

Location Penistone Grammar School, Sports Hall. Ground Level

Client WEST RIDING COUNTY ARCHITECT Date 10/3/73 2416 0403

BOREHOLE LOG

STRATA	Legend	Depth below Ground Level	Thickness of Strata	Type of Sample	c lb/in²	φ deg	m.c %	γ lb/cu.ft	N
Topsoil with fill		1'0	1'0						
Highly weathered brown fragmented SILTSTONE with occasional clay filled fissures		4'6	3'6	3'0					50
Weathered brown fragmented SILTSTONE		8'0	3'6	5'0					62
Weathered brown SILTSTONE		11'0	3'0	10'0					112 for 110*

Water Struck at None Encountered Maximum Observed Water Level

Undisturbed Sample
Disturbed Sample o
Water Sample ∧
Penetration Test I

c = Cohesion
φ = Angle of Internal Friction
m.c = Moisture Content
γ = Bulk Density
N = Standard Penetration Value

Water levels are subject to seasonal or tidal variation and should not be taken as constant

HOLST & CO. LTD.

SITE INVESTIGATION DEPT

PARKSIDE LANE

LEEDS LS11 5SX.

SE 20 SW 31
2430 0289

Contract No. S10870/F2412 Borehole No. 6

Location Penistone - St. Johns C. E. School Ground Level

Client WEST RIDING COUNTY ARCHITECT Date

BOREHOLE LOG

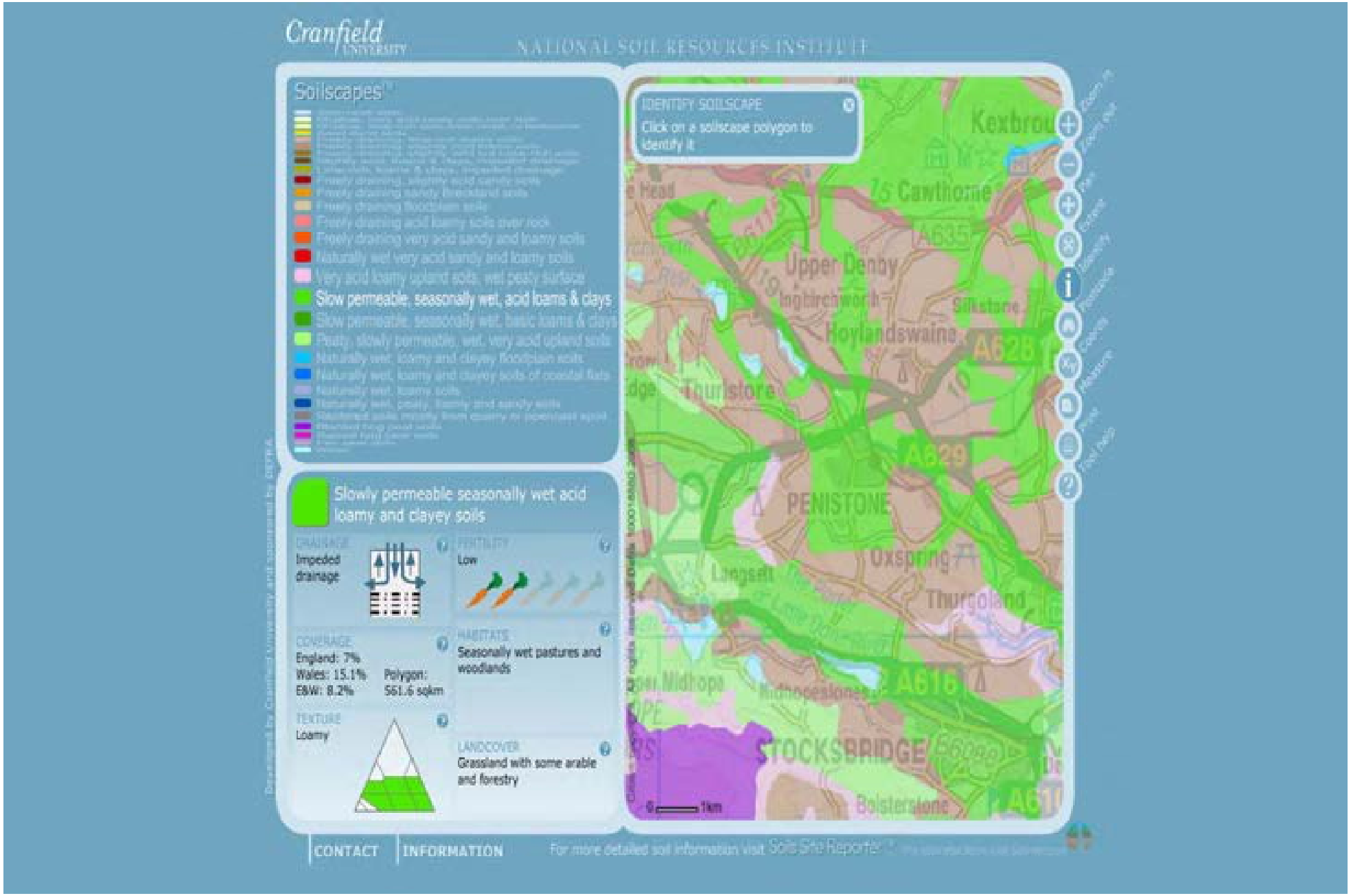
STRATA	Legend	Depth below Ground Level	Thickness of Strata	Type of Sample	c lb/in²	ø deg	m.c %	y lb/cu. ft.	N
TOPSOIL		9"	9"						
Firm brown mottled silty stoney CLAY		3'0"	2'3"	1'6"	10.0	0	22.8	130	
Stiff brown mottled shaley CLAY (weathered mudstone)		6'6"	3'6"	5'0"	16.0	19	17.7	134	
Weathered brown MUDSTONE with siltstone bands		9'6"	3'0"	8'6"					156

Water Struck at None encountered Maximum Observed Water Level

Undisturbed Sample ::
Disturbed Sample o
Water Sample Δ
Penetration Test I

c = Cohesion
ø = Angle of Internal Friction
m.c = Moisture Content
y = Bulk Density
N = Standard Penetration Value

Water levels are subject to seasonal or tidal variation and should not be taken as constant


Cranfield UNIVERSITY
NATIONAL SOIL RESOURCES INSTITUTE
Soilscapes
Slow permeable, seasonally wet, acid loams & clays
IDENTIFY SOILSCAPE
Click on a soilscape polygon to identify it
Slowly permeable seasonally wet acid loamy and clayey soils
DRAINAGE
Impeded drainage
FERTILITY
Low
COVERAGE
England: 7%
Wales: 15.1%
E&W: 8.2%
Polygon: 561.6 sqkm
HABITATS
Seasonally wet pastures and woodlands
TEXTURE
Loamy
LANDCOVER
Grassland with some arable and forestry
Kexbrough
Cawthorne
Upper Denby
Ingbirchworth
Silkstone
Hoylandswaine
Tourlstone
PENISTONE
Oxspring
Langsett
Thurgoland
Midhope
STOCKSBRIDGE
Bolsterstone
A635
A628
A629
A616
A61
0 1km
CONTACT
INFORMATION
For more detailed soil information visit Soils Site Reports

APPENDIX J
SUDs Planner Results

SUDS Planner

Results

Ordered By Total

	Quick Rank View	Hydrological	Land Use	Site Features	Total	Community and Environment	Economics and Maintenance
Pervious Pavements	(1, 4, 5)	28 (1st)	15 (11th)	43 (4th)	86 (1st)	16 (4th)	22 (5th)
Online / Offline Storage	(1, 1, 8)	18 (10th)	23 (1st)	45 (1st)	86 (1st)	20 (1st)	20 (8th)
Green Roofs	(3, 9, 2)	26 (2nd)	9 (13th)	45 (1st)	80 (3rd)	14 (9th)	24 (2nd)
Filtration Techniques	(4, 4, 13)	16 (12th)	18 (5th)	45 (1st)	79 (4th)	16 (4th)	14 (13th)
Filter Drains	(5, 4, 11)	20 (8th)	17 (7th)	37 (6th)	74 (5th)	16 (4th)	18 (11th)
Wet Ponds	(5, 9, 1)	24 (3rd)	21 (2nd)	29 (10th)	74 (5th)	14 (9th)	26 (1st)
Stormwater Wetlands	(5, 9, 5)	22 (6th)	21 (2nd)	31 (9th)	74 (5th)	14 (9th)	22 (5th)
Grassed Swales	(5, 4, 5)	22 (6th)	17 (7th)	35 (8th)	74 (5th)	16 (4th)	22 (5th)
Bioretention Area	(9, 2, 11)	18 (10th)	18 (5th)	37 (6th)	73 (9th)	18 (2nd)	18 (11th)
Dry Detention	(10, 12, 2)	20 (8th)	21 (2nd)	29 (10th)	70 (10th)	12 (12th)	24 (2nd)
Infiltration Trench / Soakaway	(11, 4, 8)	24 (3rd)	16 (10th)	29 (10th)	69 (11th)	16 (4th)	20 (8th)
Grassed Filter Strip	(12, 2, 2)	12 (13th)	17 (7th)	39 (5th)	68 (12th)	18 (2nd)	24 (2nd)
Infiltration Basin	(13, 12, 8)	24 (3rd)	14 (12th)	21 (13th)	59 (13th)	12 (12th)	20 (8th)

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