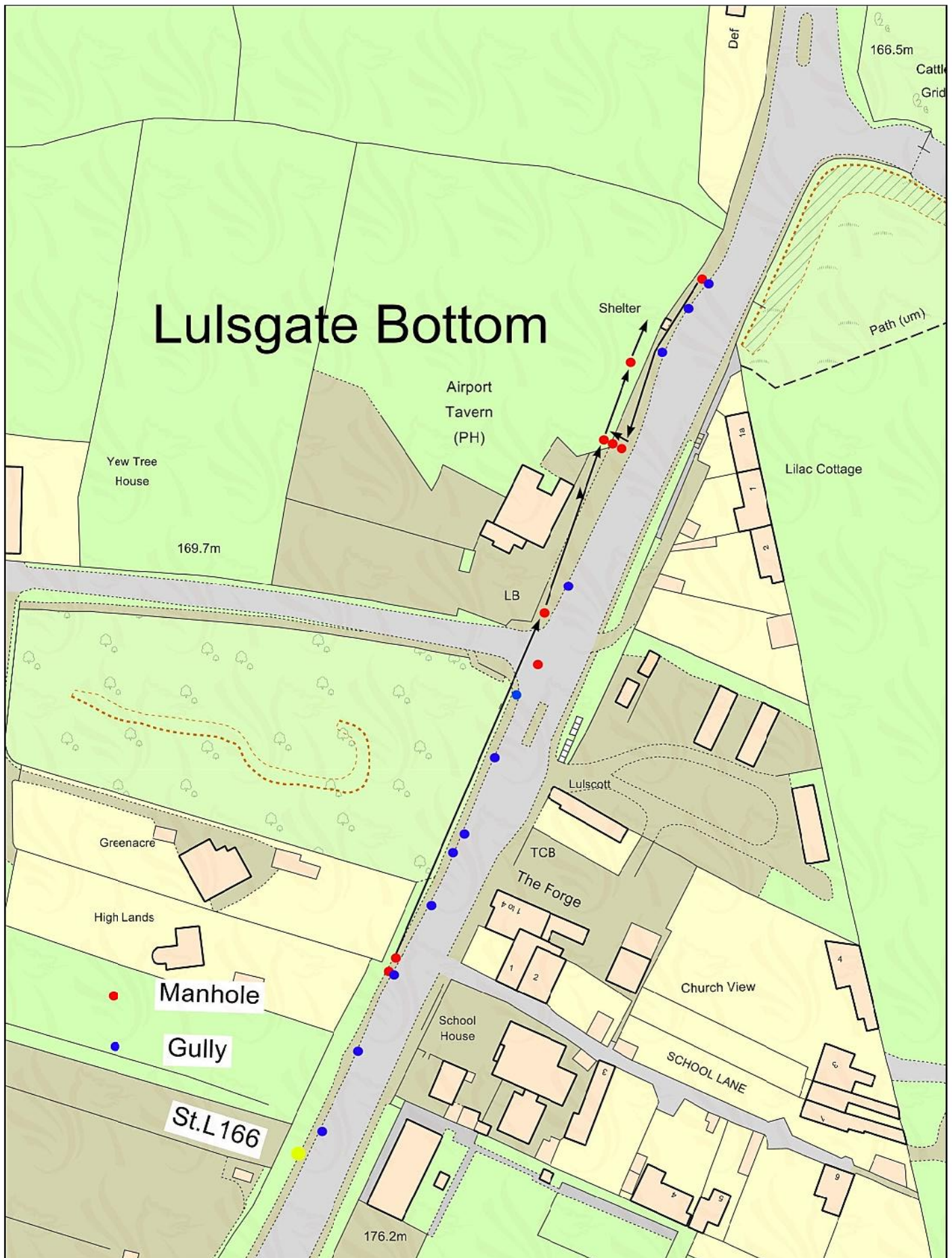


Appendix E C-TAS Drainage Strategy (A38 highway improvements)

Lulsgate Bottom



Airfield Tavern. A38



Scale: 1:800
 Drawn by: Terry
 Bridgwood
 Date: 01 October 2018
 Time: 14:34:40



Bristol Airport

A38 Junction Improvements

Proposed Drainage Strategy



October 2018

Date: 01.10.2018
Document No.: C1124-RP-A-PHD-001
Version: 1.0



Contents

Approval Log 3

Introduction 4

Existing Site Drainage..... 4

Site Topography 5

Ground Conditions 5

Proposed Development 5

Drainage Proposals 5

Further Development 6

List of Appendices 7

Approval Log

document number: C1124-RP-A-PHD-001			
date:	01.10.2018	version:	1.0
author:	LD	signed:	
role:	Project Engineer	date:	01.10.2018
reviewer:	JAE	signed:	
role:	Senior Project Engineer	date:	01.10.2018
approver:	HSB	signed:	
role:	Director	date:	01.10.2018

date	Changes	version	author

Introduction

C-TAS have been appointed by Bristol International Airport to assist the design of a proposed expansion of the facilities to accommodate 12 Million Passengers Per Annum (MPPA). As part of these works there is a requirement to provide a Flood Risk Assessment (FRA) to support the planning application.

This report is to provide a drainage strategy to inform the FRA prepared by others. The assessment is based on limited design information as to the existing drainage system and the local topography. While an initial discussion has been undertaken with the local authority, information on the current system and operation is still awaited. In the absence of data related directly to this site, data from the adjacent site (Bristol City Airport) outlined in Hydrock report (BAE-HYD-XX-XX-RP-D-50001) has been used with respect to ground infiltration rates with respect to the calculation undertaken herein.

Publicly available information such as aerial maps, street view, BGS website and EA LIDAR information have been reviewed in preparation of this statement. During the preparation of this report a number of other options are also available, however, this report looks at an option based on storage/infiltration which aligns with the current strategy used for the A38 and indeed the Bristol City Airport. The final design is subject to intrusive survey work required to validate the design and discussions with the LPA.

Existing Site Drainage

The existing A38 Airport Road surface water run-off is collected by means of upstand kerbs and road gullies. Based on the drawing 074271-CS-BA-ZZZ-DSP-CE-060002-AB1 issued as part of the North Somerset Council (Appendix D) response to the existing services enquiry, it is assumed the surface water runoff is conveyed by a below ground drainage network. The outfall is a soakaway located outside the Airport Tavern.

It is noted that there is a history of flooding in the Airport Tavern area which may have been due to lack of soakaway maintenance or insufficient capacity. It has been reported that the severity and likelihood of flooding has lessened since 2014 when the most recent improvement works took place.

Considering the site topography and discharge method may explain why there is historic issue with surface water flooding in the Airport Tavern area. It would be recommended to carry out infiltration testing to prove infiltration rates in the area as well as survey of the existing soakaway.

Date: 01.10.2018
Document No.: C1124-RP-A-PHD-001
Version: 1.0
Page 4 of 7

Site Topography

The existing site falls from north-east (172.56m) to the low point outside the Airport Tavern (165.55m) at a gradient of approx 1:18 and from south-west (178.21) to the Airport Tavern at approx. 1:15. EA LIDAR information is not available for this area.

Ground Conditions

The BGS website shows a borehole (ST56NW42) approx. 650m east of the A38, the extract shows limestone up to 174' (53m) below the existing ground level which has a potential for infiltration into the ground.

The infiltration rate is assumed at 5.13×10^{-5} m/s based on drainage report prepared by Hydrock for the Bristol Airport expansion. It is anticipated that further intrusive SI will take place for the A38 widening in order to validate the calculation.

Proposed Development

Improvements are proposed to the A38 between the main airport roundabout junction and the local junction with West Lane. These improvements include the widening of the road and the creation of two lanes over this length. There are also improvements to the traffic signal control including the addition of new signals on West Lane. This report relates to the preliminary design of the surface water drainage reviewing the design options available to undertake the proposed changes.

Drainage Proposals

Greenfield runoff rates were estimated based on the FSR rainfall, the catchment area of 8656m² and rainfall parameters as below. The greenfield runoff rates and existing run-off rates are shown in appendix A. The runoff rate from the existing catchment was calculated using the Wallingford Procedure for 2, 30 and 100yrs return period and storm duration of 60min.

The existing catchment area and widening catchment area are shown in Appendix B. The existing road catchment contributing to the existing soakaway is approx. 8656m² and the proposed widening catchment is 3267m². The proposed widening continues into the Bristol Airport car park, the extents of the catchment assessed are as shown in Appendix B and drawing C1124-SK-A38-010 – Appendix C.

Rainfall parameters for this site based on uksuds.com

M5-60	– 20.0mm	Soil	- 0.1 (0.15 in MicroDrainage)
R	- 0.3	Region	- 8
SAAR	- 972mm		

Date: 01.10.2018
Document No.: C1124-RP-A-PHD-001
Version: 1.0
Page 5 of 7

The proposed road widening would contribute approx. 3267m² of additional impermeable catchment which may exceed the capacity of the existing soakaway. However, considering the ground conditions, current discharge destination and discharge hierarchy, infiltration shall be considered as primary destination for surface water disposal.

The area south of Downside Road and west of the A38 is believed to be a historic quarry area. It is proposed to divert part of the existing drainage network serving the A38 south of the Downside Road and direct the discharge into the proposed infiltration structure located in the old quarry. This will reduce the catchment area contributing to the existing soakaway as below

Assumed existing catchment discharging into the existing soakaway – 8656m²

Reduced catchment discharging into the existing soakaway post widening - 7083m²

The remaining post-development catchment (approx. 4840m²) area will be diverted into to the proposed infiltration structure. The surface water runoff from the carriageway is proposed to be collected by means of upstand kerbs and gullies to match the existing.

Based on the previous site investigations carried out for the Bristol Airport expansion, it is assumed the soil infiltration rate is 5.13×10^{-5} m/s. The infiltration structure should be designed not to flood at 1 in 30yrs storm and to limit flooding at 1 in 100yrs + 40%CC. Considering the site topography it is recommended to design the infiltration structure not to flood at 1 in 100yrs + 40%CC. The preliminary calculation show that an infiltration structure approx. 340m² in footprint and providing approx. 260m³ storage should meet this criteria. To avoid the risk of flooding, a site specific infiltration test must be undertaken as this will affect the required storage capacity required.

Proposed drainage strategy and the infiltration structure calculations are presented in Appendix E.

It is assumed the proposed drainage will be adopted by the local highway authorities, therefore proposed infiltration structure should be accessible for maintenance, e.g. highway land or an agreement between highway authority and the land owner.

Further Development

In order to continue the design further, topographical surveys of the site together with the existing drainage both in terms of layout as well as condition (this may have been subject to change in the previous improvement scheme) will need to be completed. The size, capacity and condition of the existing soakaway forms a key component of this design and therefore requires validation prior to proceeding to the next stage. Intrusive geotechnical and infiltration testing will also be required. Following the results of the surveys and investigations we will be able to advise on the feasibility of the proposed drainage solution and further details in terms of type and size of the possible infiltration structure.

Date: 01.10.2018
Document No.: C1124-RP-A-PHD-001
Version: 1.0
Page 6 of 7

Based on the available data and the historic drainage strategy for the surface water on this site and generally for Bristol City Airport, the proposal in this report support the continued adoption of this strategy. It must be acknowledged the final design relies on further investigatory work to be undertaken in order to validate the proposal in this report.

This proposal assumes that the existing soak-away meets modern day requirement in performance and surface water quality management and the solution proposed offers betterment for its future performance. Again, this assumption will need to be validated to ensure existing and future pollution control measures are met.

List of Appendices

Appendix A – Greenfield and existing runoff rate calculations

Appendix B – Existing and proposed catchment layout

Appendix C – A38 Junction Improvements – Option 10

Appendix D – A38 Improvements Bristol Airport – As-Built drawings 2014

Appendix E – Proposed surface water drainage strategy and calculations

APPENDIX A

Rural Runoff Calculator

Micro Drainage

ICP SUDS

ICP SUDS Input (FSR Method)

Return Period (Years)

Area (ha)

SAAR (mm)

Soil

Growth Curve

Partly Urbanised Catchment (QBAR)

Urban

Region

Results

QBAR rural (l/s)

QBAR urban (l/s)

Return Period Flood

	Region	QBAR (l/s)	Q (2yrs) (l/s)	Q (1 yrs) (l/s)	Q (30 yrs) (l/s)	Q (100 yrs) (l/s)
IH 124	Region 1	0.5	0.5	0.4	1.0	1.3
ICP SUDS	Region 2	0.5	0.5	0.4	1.0	1.4
ADAS 345	Region 3	0.5	0.5	0.4	0.9	1.1
FEH	Region 4	0.5	0.5	0.4	1.0	1.3
ReFH2	Region 5	0.5	0.5	0.4	1.2	1.8
	Region 6/Region 7	0.5	0.5	0.4	1.2	1.6
Greenfield Volume	Region 8	0.5	0.5	0.4	1.0	1.2
Greenfield Volume (ReFH2)	Region 9	0.5	0.5	0.5	0.9	1.1
	Region 10	0.5	0.5	0.4	0.9	1.1

OK Cancel Help

Enter Return Period between 1 and 1000

 	Project A38 Airport Road, Bristol				Job no.	
	Calcs for Existing runoff rates 2yr				Start page no./Revision 1	
	Calcs by L. Dyl	Calcs date 01/10/2018	Checked by	Checked date	Approved by	Approved date

DESIGN RAINFALL

In accordance with the Wallingford Procedure

Tedds calculation version 2.0.00

Design rainfall intensity

Location of catchment area	Bristol
Storm duration	D = 1 hr
Return period	Period = 2 yr
Ratio 60 min to 2 day rainfall of 5 yr return period	r = 0.300
5-year return period rainfall of 60 minutes duration	M5_60min = 20.0 mm
Increase of rainfall intensity due to global warming	p _{climate} = 0 %
Factor Z1 (Wallingford procedure)	Z1 = 1.00
Rainfall for 1hr storm with 5 year return period	M5_1hr _i = Z1 × M5_60min = 20.0 mm
Factor Z2 (Wallingford procedure)	Z2 = 0.81
Rainfall for 1hr storm with 2 year return period	M2_1hr = Z2 × M5_1hr _i = 16.2 mm
Design rainfall intensity	I _{max} = M2_1hr / D = 16.2 mm/hr

Maximum surface water runoff

Catchment area	A _{catch} = 8656 m ²
Percentage of area that is impermeable	p = 100 %
Maximum surface water runoff	Q _{max} = A _{catch} × p × I _{max} = 39.0 l/s

 	Project A38 Airport Road, Bristol				Job no.	
	Calcs for Existing runoff rates 30yr				Start page no./Revision 1	
	Calcs by L. Dyl	Calcs date 01/10/2018	Checked by	Checked date	Approved by	Approved date

DESIGN RAINFALL

In accordance with the Wallingford Procedure

Tedds calculation version 2.0.00

Design rainfall intensity

Location of catchment area	Bristol
Storm duration	D = 1 hr
Return period	Period = 30 yr
Ratio 60 min to 2 day rainfall of 5 yr return period	r = 0.300
5-year return period rainfall of 60 minutes duration	M5_60min = 20.0 mm
Increase of rainfall intensity due to global warming	p _{climate} = 0 %
Factor Z1 (Wallingford procedure)	Z1 = 1.00
Rainfall for 1hr storm with 5 year return period	M5_1hr _i = Z1 × M5_60min = 20.0 mm
Factor Z2 (Wallingford procedure)	Z2 = 1.54
Rainfall for 1hr storm with 30 year return period	M30_1hr = Z2 × M5_1hr _i = 30.9 mm
Design rainfall intensity	I _{max} = M30_1hr / D = 30.9 mm/hr

Maximum surface water runoff

Catchment area	A _{catch} = 8656 m ²
Percentage of area that is impermeable	p = 100 %
Maximum surface water runoff	Q _{max} = A _{catch} × p × I _{max} = 74.2 l/s

 	Project A38 Airport Road, Bristol				Job no.	
	Calcs for Existing runoff rates 100yr+40%CC				Start page no./Revision 1	
	Calcs by L. Dyl	Calcs date 01/10/2018	Checked by	Checked date	Approved by	Approved date

DESIGN RAINFALL

In accordance with the Wallingford Procedure

Tedds calculation version 2.0.00

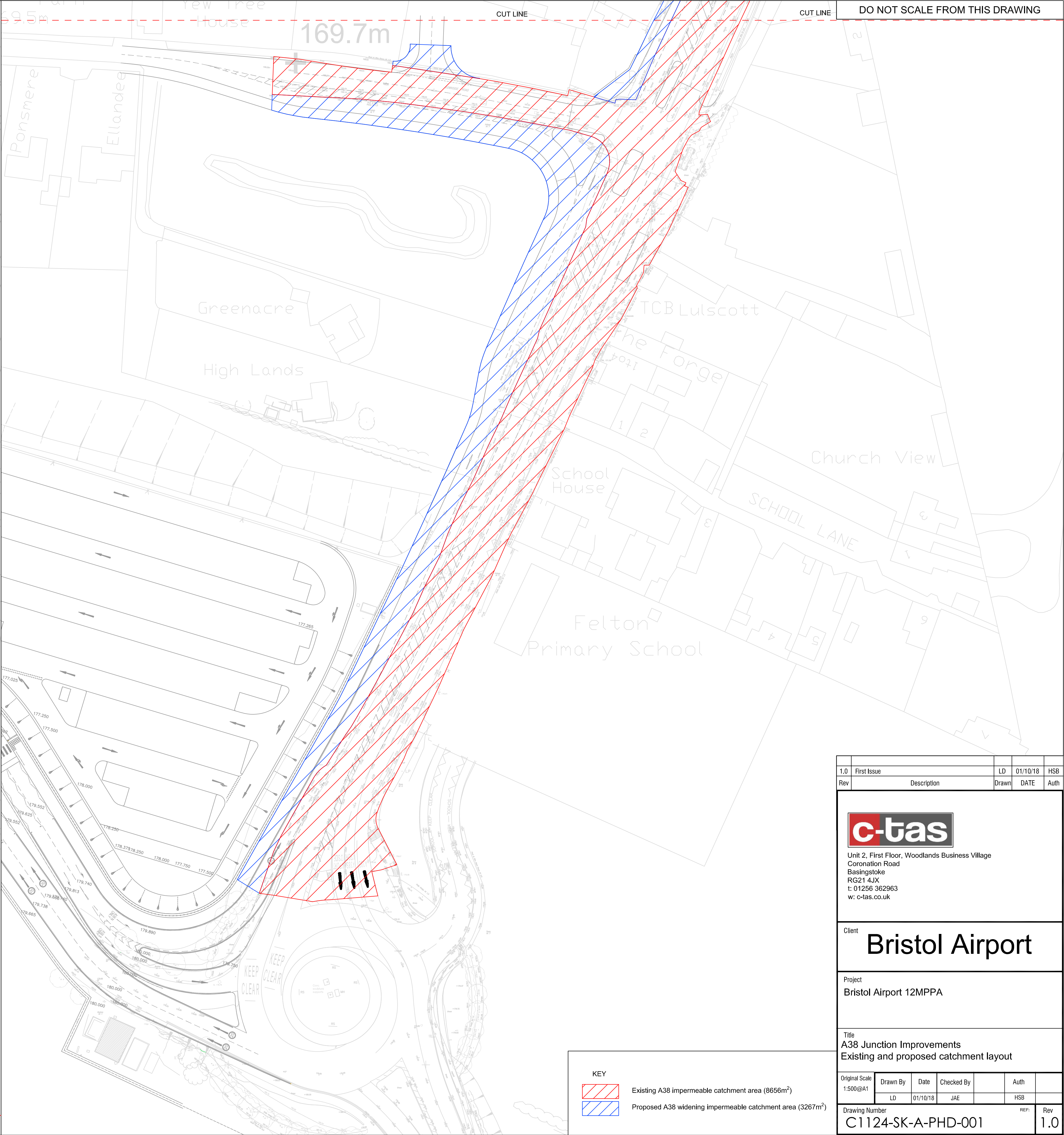
Design rainfall intensity

Location of catchment area	Bristol
Storm duration	D = 1 hr
Return period	Period = 100 yr
Ratio 60 min to 2 day rainfall of 5 yr return period	r = 0.300
5-year return period rainfall of 60 minutes duration	M5_60min = 20.0 mm
Increase of rainfall intensity due to global warming	p _{climate} = 40 %
Factor Z1 (Wallingford procedure)	Z1 = 1.00
Rainfall for 1hr storm with 5 year return period	M5_1hr _i = Z1 × M5_60min × (1 + p _{climate}) = 28.0 mm
Factor Z2 (Wallingford procedure)	Z2 = 1.99
Rainfall for 1hr storm with 100 year return period	M100_1hr = Z2 × M5_1hr _i = 55.6 mm
Design rainfall intensity	I _{max} = M100_1hr / D = 55.6 mm/hr

Maximum surface water runoff

Catchment area	A _{catch} = 8656 m ²
Percentage of area that is impermeable	p = 100 %
Maximum surface water runoff	Q _{max} = A _{catch} × p × I _{max} = 133.7 l/s

APPENDIX B



1.0	First Issue	LD	01/10/18	HSB
Rev	Description	Drawn	DATE	Auth

Unit 2, First Floor, Woodlands Business Village
Coronation Road
Basingstoke
RG21 4JX
t: 01256 362963
w: c-tas.co.uk

Client

Bristol Airport

Project

Bristol Airport 12MPPA

Title

A38 Junction Improvements
Existing and proposed catchment layout

Original Scale 1:500@A1	Drawn By LD	Date 01/10/18	Checked By JAE	Auth HSB	
----------------------------	----------------	------------------	-------------------	-------------	--

Drawing Number

C1124-SK-A-PHD-001

REF.

Rev

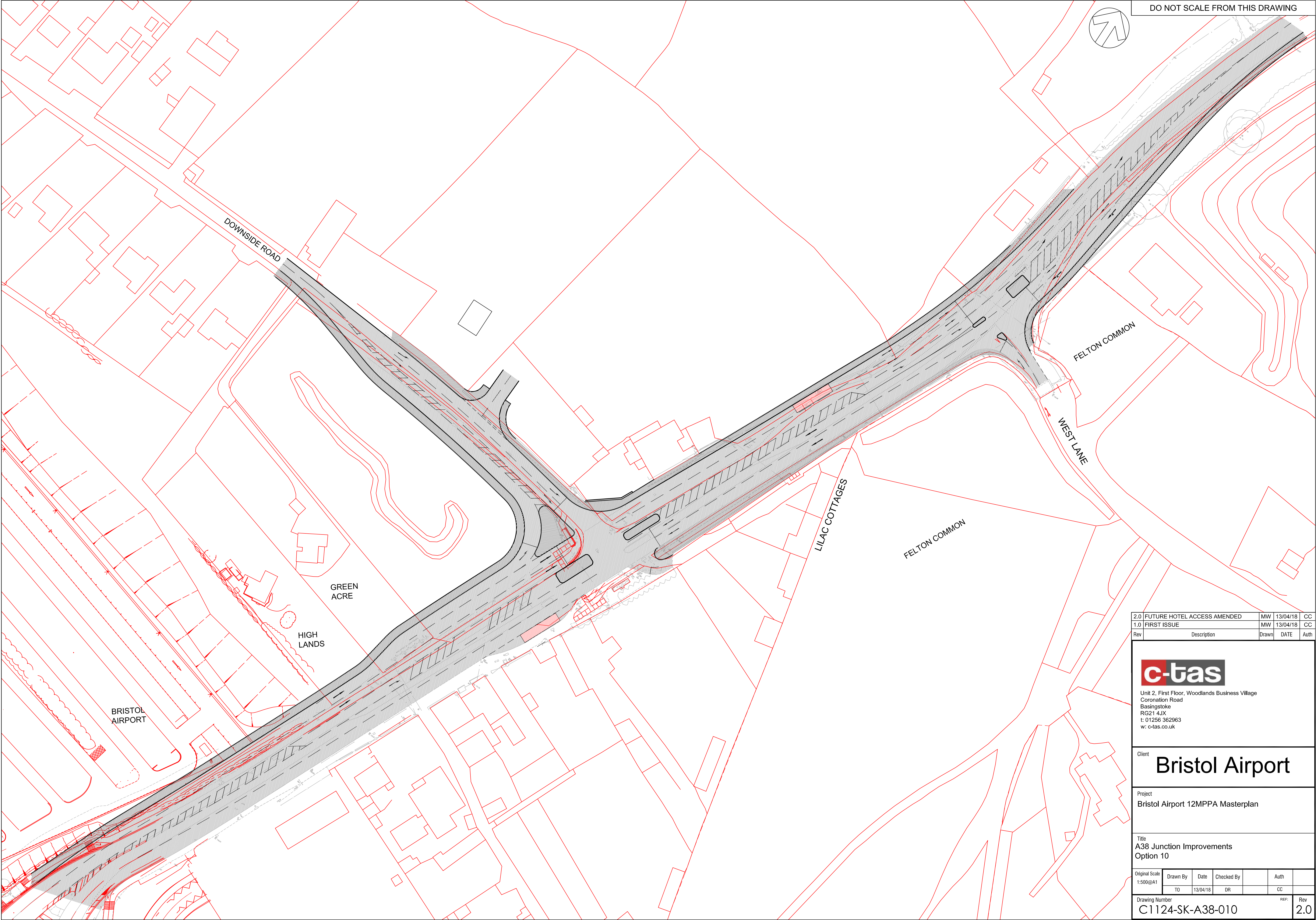
1.0

KEY

Existing A38 impermeable catchment area (8656m²)

Proposed A38 widening impermeable catchment area (3267m²)

APPENDIX C



DO NOT SCALE FROM THIS DRAWING

2.0	FUTURE HOTEL ACCESS AMENDED	MW	13/04/18	CC
1.0	FIRST ISSUE	MW	13/04/18	CC

Rev	Description	Drawn	DATE	Auth
-----	-------------	-------	------	------



Unit 2, First Floor, Woodlands Business Village
Coronation Road
Basingstoke
RG21 4JX
t: 01256 362963
w: c-tas.co.uk

Client
Bristol Airport

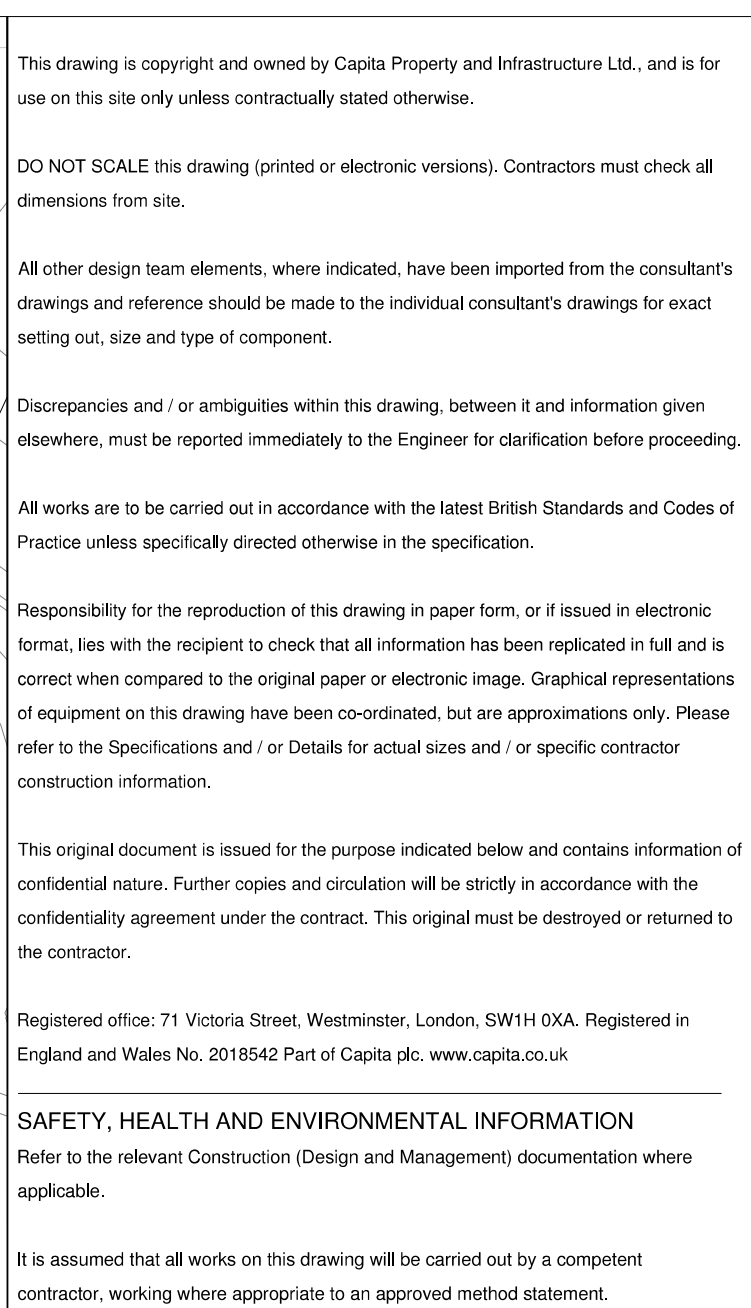
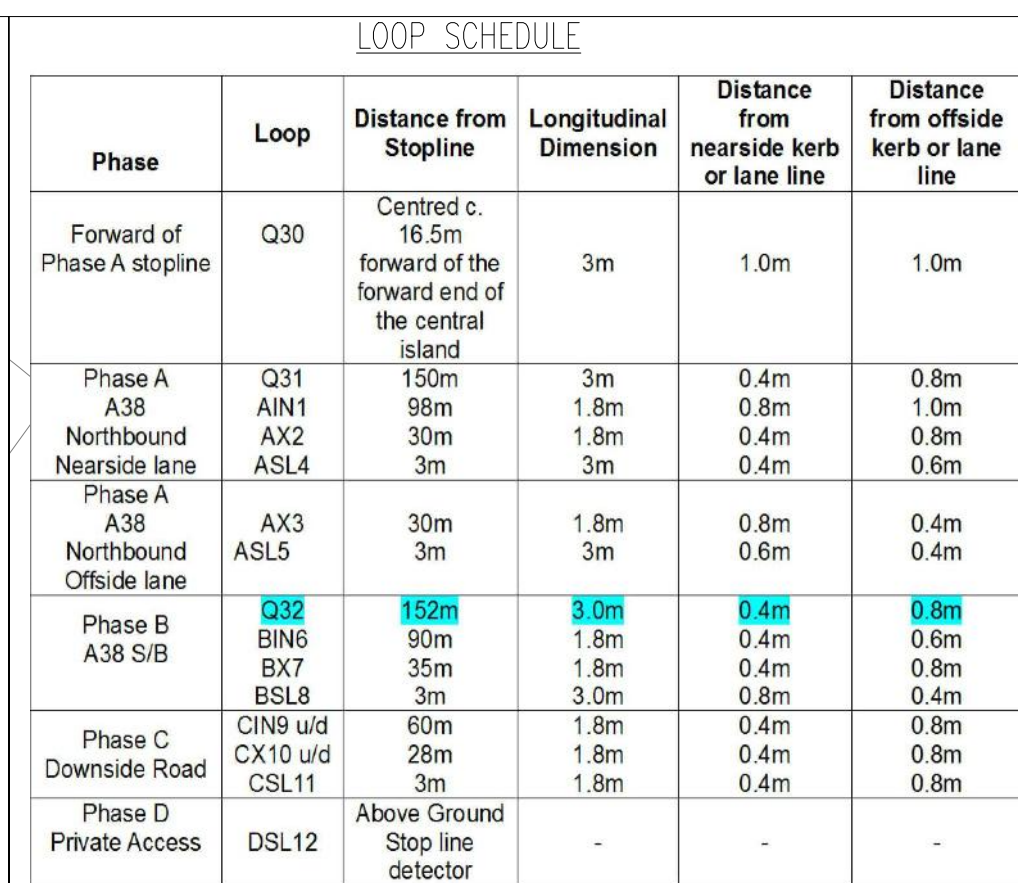
Project
Bristol Airport 12MPPA Masterplan

Title
A38 Junction Improvements
Option 10

Original Scale 1:500@A1	Drawn By TO	Date 13/04/18	Checked By DR	Auth CC	
----------------------------	----------------	------------------	------------------	------------	--

Drawing Number C1124-SK-A38-010	REF.	Rev 2.0
------------------------------------	------	------------

APPENDIX D



AB1	AS BUILT ISSUE FOLLOWING ADDITIONAL LOOP & ISLAND EXTENSION SUMMER 2016	AR	SCC	-	12.08.16
AB	AS BUILT ISSUE	AR	SCC	-	25.01.16
Rev	Description	By	Chk	App	Date
	Purpose of Issue		Status		
AS BUILT		-			

Client

 Bristol Airport
Amazing journeys start here

Project

A38 IMPROVEMENTS
BRISTOL AIRPORT

Drawing

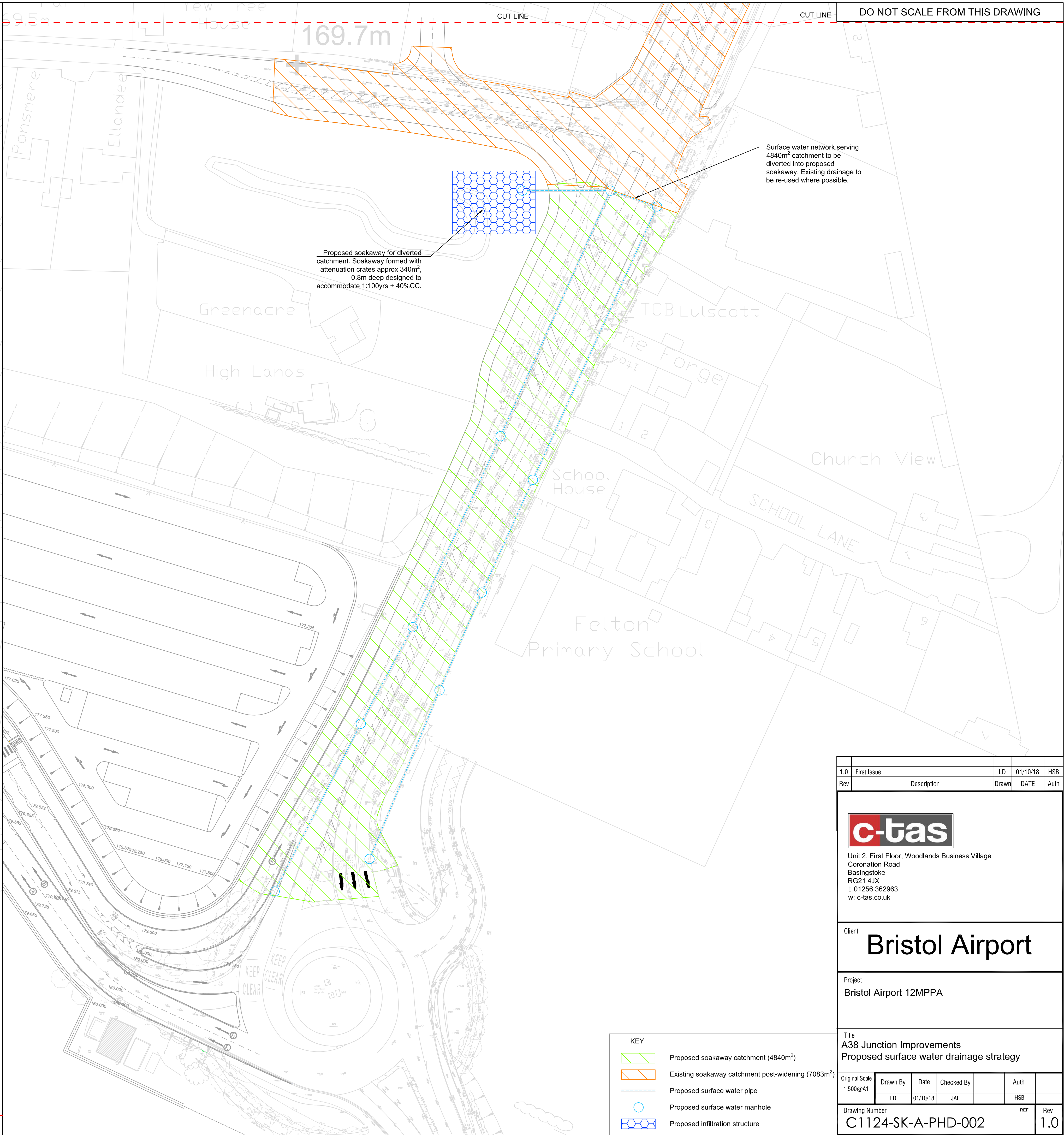
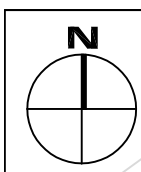
DOWNSIDE / WEST LANE
SIGNAL CONTROLLED
JUNCTION

Scale @ A1	Drawn	Checked	Approved
1:500	AR	SCC	-

Project No.	Date
CS/74271	25.05.14
Drawing Identifier (Avanti format - www.constructionexcellence.org.uk) project origin zone level file type role number revision	
074271-CS-BA-ZZZ-DSP-CE-060002-AB1	

CAPITA
Property and infrastructure
T +44 (0)1275 840840 F +44 (0)1275 840830
Quays Office Park, Conference Avenue, Portishead, Bristol BS20 7LZ
Capita Property and Infrastructure Ltd. www.capita.co.uk/infrastructure

APPENDIX E



1.0	First Issue				LD	01/10/18	HSB
Rev	Description				Drawn	DATE	Auth
 Unit 2, First Floor, Woodlands Business Village Coronation Road Basingstoke RG21 4JX t: 01256 362963 w: c-tas.co.uk							
Client Bristol Airport							
Project Bristol Airport 12MPPA							
Title A38 Junction Improvements Proposed surface water drainage strategy							
Original Scale 1:500@A1	Drawn By	Date	Checked By		Auth		
	LD	01/10/18	JAE		HSB		
Drawing Number						REF:	Rev
C1124-SK-A-PHD-002							1.0

Skanska Technology Limited				Page 1																																																																																																																																																																																																																			
Maple Cross House Maple Cross Rickmansworth WD2 9SW		A38 Airport Road Soakaway for the diverted catchment																																																																																																																																																																																																																					
Date 01/10/2018 File diverted catchment calc...		Designed by LD Checked by																																																																																																																																																																																																																					
CADS		Source Control 2018.1																																																																																																																																																																																																																					
<u>Summary of Results for 30 year Return Period</u> Half Drain Time : 107 minutes. <table><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr><tr><td>15 min Summer</td><td>167.669</td><td>0.169</td><td>8.6</td><td>53.9</td><td>O K</td></tr><tr><td>30 min Summer</td><td>167.724</td><td>0.224</td><td>8.6</td><td>71.5</td><td>O K</td></tr><tr><td>60 min Summer</td><td>167.771</td><td>0.271</td><td>8.6</td><td>86.5</td><td>O K</td></tr><tr><td>120 min Summer</td><td>167.794</td><td>0.294</td><td>8.6</td><td>93.9</td><td>O K</td></tr><tr><td>180 min Summer</td><td>167.795</td><td>0.295</td><td>8.6</td><td>94.1</td><td>O K</td></tr><tr><td>240 min Summer</td><td>167.790</td><td>0.290</td><td>8.6</td><td>92.6</td><td>O K</td></tr><tr><td>360 min Summer</td><td>167.774</td><td>0.274</td><td>8.6</td><td>87.5</td><td>O K</td></tr><tr><td>480 min Summer</td><td>167.755</td><td>0.255</td><td>8.6</td><td>81.4</td><td>O K</td></tr><tr><td>600 min Summer</td><td>167.735</td><td>0.235</td><td>8.6</td><td>74.9</td><td>O K</td></tr><tr><td>720 min Summer</td><td>167.715</td><td>0.215</td><td>8.6</td><td>68.5</td><td>O K</td></tr><tr><td>960 min Summer</td><td>167.677</td><td>0.177</td><td>8.6</td><td>56.4</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>167.614</td><td>0.114</td><td>8.6</td><td>36.4</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>167.560</td><td>0.060</td><td>8.6</td><td>19.1</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>167.545</td><td>0.045</td><td>7.8</td><td>14.4</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>167.534</td><td>0.034</td><td>5.9</td><td>10.9</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>167.528</td><td>0.028</td><td>4.8</td><td>8.8</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>167.524</td><td>0.024</td><td>4.1</td><td>7.5</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>167.521</td><td>0.021</td><td>3.6</td><td>6.5</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>167.519</td><td>0.019</td><td>3.2</td><td>5.9</td><td>O K</td></tr><tr><td>15 min Winter</td><td>167.692</td><td>0.192</td><td>8.6</td><td>61.2</td><td>O K</td></tr></table> <table><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Time-Peak (mins)</th></tr><tr><td>15 min Summer</td><td>68.992</td><td>0.0</td><td>23</td></tr><tr><td>30 min Summer</td><td>47.082</td><td>0.0</td><td>36</td></tr><tr><td>60 min Summer</td><td>30.811</td><td>0.0</td><td>62</td></tr><tr><td>120 min Summer</td><td>19.530</td><td>0.0</td><td>104</td></tr><tr><td>180 min Summer</td><td>14.749</td><td>0.0</td><td>138</td></tr><tr><td>240 min Summer</td><td>12.050</td><td>0.0</td><td>172</td></tr><tr><td>360 min Summer</td><td>9.053</td><td>0.0</td><td>240</td></tr><tr><td>480 min Summer</td><td>7.379</td><td>0.0</td><td>308</td></tr><tr><td>600 min Summer</td><td>6.291</td><td>0.0</td><td>376</td></tr><tr><td>720 min Summer</td><td>5.520</td><td>0.0</td><td>440</td></tr><tr><td>960 min Summer</td><td>4.488</td><td>0.0</td><td>566</td></tr><tr><td>1440 min Summer</td><td>3.346</td><td>0.0</td><td>802</td></tr><tr><td>2160 min Summer</td><td>2.490</td><td>0.0</td><td>1128</td></tr><tr><td>2880 min Summer</td><td>2.017</td><td>0.0</td><td>1472</td></tr><tr><td>4320 min Summer</td><td>1.499</td><td>0.0</td><td>2204</td></tr><tr><td>5760 min Summer</td><td>1.215</td><td>0.0</td><td>2936</td></tr><tr><td>7200 min Summer</td><td>1.032</td><td>0.0</td><td>3664</td></tr><tr><td>8640 min Summer</td><td>0.904</td><td>0.0</td><td>4400</td></tr><tr><td>10080 min Summer</td><td>0.808</td><td>0.0</td><td>5080</td></tr><tr><td>15 min Winter</td><td>68.992</td><td>0.0</td><td>24</td></tr></table>						Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	15 min Summer	167.669	0.169	8.6	53.9	O K	30 min Summer	167.724	0.224	8.6	71.5	O K	60 min Summer	167.771	0.271	8.6	86.5	O K	120 min Summer	167.794	0.294	8.6	93.9	O K	180 min Summer	167.795	0.295	8.6	94.1	O K	240 min Summer	167.790	0.290	8.6	92.6	O K	360 min Summer	167.774	0.274	8.6	87.5	O K	480 min Summer	167.755	0.255	8.6	81.4	O K	600 min Summer	167.735	0.235	8.6	74.9	O K	720 min Summer	167.715	0.215	8.6	68.5	O K	960 min Summer	167.677	0.177	8.6	56.4	O K	1440 min Summer	167.614	0.114	8.6	36.4	O K	2160 min Summer	167.560	0.060	8.6	19.1	O K	2880 min Summer	167.545	0.045	7.8	14.4	O K	4320 min Summer	167.534	0.034	5.9	10.9	O K	5760 min Summer	167.528	0.028	4.8	8.8	O K	7200 min Summer	167.524	0.024	4.1	7.5	O K	8640 min Summer	167.521	0.021	3.6	6.5	O K	10080 min Summer	167.519	0.019	3.2	5.9	O K	15 min Winter	167.692	0.192	8.6	61.2	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	68.992	0.0	23	30 min Summer	47.082	0.0	36	60 min Summer	30.811	0.0	62	120 min Summer	19.530	0.0	104	180 min Summer	14.749	0.0	138	240 min Summer	12.050	0.0	172	360 min Summer	9.053	0.0	240	480 min Summer	7.379	0.0	308	600 min Summer	6.291	0.0	376	720 min Summer	5.520	0.0	440	960 min Summer	4.488	0.0	566	1440 min Summer	3.346	0.0	802	2160 min Summer	2.490	0.0	1128	2880 min Summer	2.017	0.0	1472	4320 min Summer	1.499	0.0	2204	5760 min Summer	1.215	0.0	2936	7200 min Summer	1.032	0.0	3664	8640 min Summer	0.904	0.0	4400	10080 min Summer	0.808	0.0	5080	15 min Winter	68.992	0.0	24
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status																																																																																																																																																																																																																		
15 min Summer	167.669	0.169	8.6	53.9	O K																																																																																																																																																																																																																		
30 min Summer	167.724	0.224	8.6	71.5	O K																																																																																																																																																																																																																		
60 min Summer	167.771	0.271	8.6	86.5	O K																																																																																																																																																																																																																		
120 min Summer	167.794	0.294	8.6	93.9	O K																																																																																																																																																																																																																		
180 min Summer	167.795	0.295	8.6	94.1	O K																																																																																																																																																																																																																		
240 min Summer	167.790	0.290	8.6	92.6	O K																																																																																																																																																																																																																		
360 min Summer	167.774	0.274	8.6	87.5	O K																																																																																																																																																																																																																		
480 min Summer	167.755	0.255	8.6	81.4	O K																																																																																																																																																																																																																		
600 min Summer	167.735	0.235	8.6	74.9	O K																																																																																																																																																																																																																		
720 min Summer	167.715	0.215	8.6	68.5	O K																																																																																																																																																																																																																		
960 min Summer	167.677	0.177	8.6	56.4	O K																																																																																																																																																																																																																		
1440 min Summer	167.614	0.114	8.6	36.4	O K																																																																																																																																																																																																																		
2160 min Summer	167.560	0.060	8.6	19.1	O K																																																																																																																																																																																																																		
2880 min Summer	167.545	0.045	7.8	14.4	O K																																																																																																																																																																																																																		
4320 min Summer	167.534	0.034	5.9	10.9	O K																																																																																																																																																																																																																		
5760 min Summer	167.528	0.028	4.8	8.8	O K																																																																																																																																																																																																																		
7200 min Summer	167.524	0.024	4.1	7.5	O K																																																																																																																																																																																																																		
8640 min Summer	167.521	0.021	3.6	6.5	O K																																																																																																																																																																																																																		
10080 min Summer	167.519	0.019	3.2	5.9	O K																																																																																																																																																																																																																		
15 min Winter	167.692	0.192	8.6	61.2	O K																																																																																																																																																																																																																		
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)																																																																																																																																																																																																																				
15 min Summer	68.992	0.0	23																																																																																																																																																																																																																				
30 min Summer	47.082	0.0	36																																																																																																																																																																																																																				
60 min Summer	30.811	0.0	62																																																																																																																																																																																																																				
120 min Summer	19.530	0.0	104																																																																																																																																																																																																																				
180 min Summer	14.749	0.0	138																																																																																																																																																																																																																				
240 min Summer	12.050	0.0	172																																																																																																																																																																																																																				
360 min Summer	9.053	0.0	240																																																																																																																																																																																																																				
480 min Summer	7.379	0.0	308																																																																																																																																																																																																																				
600 min Summer	6.291	0.0	376																																																																																																																																																																																																																				
720 min Summer	5.520	0.0	440																																																																																																																																																																																																																				
960 min Summer	4.488	0.0	566																																																																																																																																																																																																																				
1440 min Summer	3.346	0.0	802																																																																																																																																																																																																																				
2160 min Summer	2.490	0.0	1128																																																																																																																																																																																																																				
2880 min Summer	2.017	0.0	1472																																																																																																																																																																																																																				
4320 min Summer	1.499	0.0	2204																																																																																																																																																																																																																				
5760 min Summer	1.215	0.0	2936																																																																																																																																																																																																																				
7200 min Summer	1.032	0.0	3664																																																																																																																																																																																																																				
8640 min Summer	0.904	0.0	4400																																																																																																																																																																																																																				
10080 min Summer	0.808	0.0	5080																																																																																																																																																																																																																				
15 min Winter	68.992	0.0	24																																																																																																																																																																																																																				
©1982-2018 Innovyze																																																																																																																																																																																																																							

Skanska Technology Limited				Page 2																																																																																																																																																																																															
Maple Cross House Maple Cross Rickmansworth WD2 9SW		A38 Airport Road Soakaway for the diverted catchment																																																																																																																																																																																																	
Date 01/10/2018 File diverted catchment calc...		Designed by LD Checked by																																																																																																																																																																																																	
CADS		Source Control 2018.1																																																																																																																																																																																																	
<u>Summary of Results for 30 year Return Period</u> <table><thead><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr></thead><tbody><tr><td>30 min Winter</td><td>167.755</td><td>0.255</td><td></td><td>81.5</td><td>O K</td></tr><tr><td>60 min Winter</td><td>167.812</td><td>0.312</td><td></td><td>99.5</td><td>O K</td></tr><tr><td>120 min Winter</td><td>167.842</td><td>0.342</td><td></td><td>109.3</td><td>O K</td></tr><tr><td>180 min Winter</td><td>167.841</td><td>0.341</td><td></td><td>108.8</td><td>O K</td></tr><tr><td>240 min Winter</td><td>167.832</td><td>0.332</td><td></td><td>106.1</td><td>O K</td></tr><tr><td>360 min Winter</td><td>167.805</td><td>0.305</td><td></td><td>97.5</td><td>O K</td></tr><tr><td>480 min Winter</td><td>167.773</td><td>0.273</td><td></td><td>87.2</td><td>O K</td></tr><tr><td>600 min Winter</td><td>167.740</td><td>0.240</td><td></td><td>76.6</td><td>O K</td></tr><tr><td>720 min Winter</td><td>167.707</td><td>0.207</td><td></td><td>66.2</td><td>O K</td></tr><tr><td>960 min Winter</td><td>167.648</td><td>0.148</td><td></td><td>47.2</td><td>O K</td></tr><tr><td>1440 min Winter</td><td>167.564</td><td>0.064</td><td></td><td>20.4</td><td>O K</td></tr><tr><td>2160 min Winter</td><td>167.541</td><td>0.041</td><td></td><td>13.1</td><td>O K</td></tr><tr><td>2880 min Winter</td><td>167.533</td><td>0.033</td><td></td><td>10.6</td><td>O K</td></tr><tr><td>4320 min Winter</td><td>167.525</td><td>0.025</td><td></td><td>7.9</td><td>O K</td></tr><tr><td>5760 min Winter</td><td>167.520</td><td>0.020</td><td></td><td>6.4</td><td>O K</td></tr><tr><td>7200 min Winter</td><td>167.517</td><td>0.017</td><td></td><td>5.4</td><td>O K</td></tr><tr><td>8640 min Winter</td><td>167.515</td><td>0.015</td><td></td><td>4.8</td><td>O K</td></tr><tr><td>10080 min Winter</td><td>167.514</td><td>0.014</td><td></td><td>4.3</td><td>O K</td></tr></tbody></table> <table><thead><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Time-Peak (mins)</th></tr></thead><tbody><tr><td>30 min Winter</td><td>47.082</td><td>0.0</td><td>37</td></tr><tr><td>60 min Winter</td><td>30.811</td><td>0.0</td><td>64</td></tr><tr><td>120 min Winter</td><td>19.530</td><td>0.0</td><td>116</td></tr><tr><td>180 min Winter</td><td>14.749</td><td>0.0</td><td>148</td></tr><tr><td>240 min Winter</td><td>12.050</td><td>0.0</td><td>186</td></tr><tr><td>360 min Winter</td><td>9.053</td><td>0.0</td><td>262</td></tr><tr><td>480 min Winter</td><td>7.379</td><td>0.0</td><td>334</td></tr><tr><td>600 min Winter</td><td>6.291</td><td>0.0</td><td>404</td></tr><tr><td>720 min Winter</td><td>5.520</td><td>0.0</td><td>470</td></tr><tr><td>960 min Winter</td><td>4.488</td><td>0.0</td><td>596</td></tr><tr><td>1440 min Winter</td><td>3.346</td><td>0.0</td><td>798</td></tr><tr><td>2160 min Winter</td><td>2.490</td><td>0.0</td><td>1120</td></tr><tr><td>2880 min Winter</td><td>2.017</td><td>0.0</td><td>1476</td></tr><tr><td>4320 min Winter</td><td>1.499</td><td>0.0</td><td>2208</td></tr><tr><td>5760 min Winter</td><td>1.215</td><td>0.0</td><td>2936</td></tr><tr><td>7200 min Winter</td><td>1.032</td><td>0.0</td><td>3672</td></tr><tr><td>8640 min Winter</td><td>0.904</td><td>0.0</td><td>4416</td></tr><tr><td>10080 min Winter</td><td>0.808</td><td>0.0</td><td>5104</td></tr></tbody></table>						Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	30 min Winter	167.755	0.255		81.5	O K	60 min Winter	167.812	0.312		99.5	O K	120 min Winter	167.842	0.342		109.3	O K	180 min Winter	167.841	0.341		108.8	O K	240 min Winter	167.832	0.332		106.1	O K	360 min Winter	167.805	0.305		97.5	O K	480 min Winter	167.773	0.273		87.2	O K	600 min Winter	167.740	0.240		76.6	O K	720 min Winter	167.707	0.207		66.2	O K	960 min Winter	167.648	0.148		47.2	O K	1440 min Winter	167.564	0.064		20.4	O K	2160 min Winter	167.541	0.041		13.1	O K	2880 min Winter	167.533	0.033		10.6	O K	4320 min Winter	167.525	0.025		7.9	O K	5760 min Winter	167.520	0.020		6.4	O K	7200 min Winter	167.517	0.017		5.4	O K	8640 min Winter	167.515	0.015		4.8	O K	10080 min Winter	167.514	0.014		4.3	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	30 min Winter	47.082	0.0	37	60 min Winter	30.811	0.0	64	120 min Winter	19.530	0.0	116	180 min Winter	14.749	0.0	148	240 min Winter	12.050	0.0	186	360 min Winter	9.053	0.0	262	480 min Winter	7.379	0.0	334	600 min Winter	6.291	0.0	404	720 min Winter	5.520	0.0	470	960 min Winter	4.488	0.0	596	1440 min Winter	3.346	0.0	798	2160 min Winter	2.490	0.0	1120	2880 min Winter	2.017	0.0	1476	4320 min Winter	1.499	0.0	2208	5760 min Winter	1.215	0.0	2936	7200 min Winter	1.032	0.0	3672	8640 min Winter	0.904	0.0	4416	10080 min Winter	0.808	0.0	5104
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status																																																																																																																																																																																														
30 min Winter	167.755	0.255		81.5	O K																																																																																																																																																																																														
60 min Winter	167.812	0.312		99.5	O K																																																																																																																																																																																														
120 min Winter	167.842	0.342		109.3	O K																																																																																																																																																																																														
180 min Winter	167.841	0.341		108.8	O K																																																																																																																																																																																														
240 min Winter	167.832	0.332		106.1	O K																																																																																																																																																																																														
360 min Winter	167.805	0.305		97.5	O K																																																																																																																																																																																														
480 min Winter	167.773	0.273		87.2	O K																																																																																																																																																																																														
600 min Winter	167.740	0.240		76.6	O K																																																																																																																																																																																														
720 min Winter	167.707	0.207		66.2	O K																																																																																																																																																																																														
960 min Winter	167.648	0.148		47.2	O K																																																																																																																																																																																														
1440 min Winter	167.564	0.064		20.4	O K																																																																																																																																																																																														
2160 min Winter	167.541	0.041		13.1	O K																																																																																																																																																																																														
2880 min Winter	167.533	0.033		10.6	O K																																																																																																																																																																																														
4320 min Winter	167.525	0.025		7.9	O K																																																																																																																																																																																														
5760 min Winter	167.520	0.020		6.4	O K																																																																																																																																																																																														
7200 min Winter	167.517	0.017		5.4	O K																																																																																																																																																																																														
8640 min Winter	167.515	0.015		4.8	O K																																																																																																																																																																																														
10080 min Winter	167.514	0.014		4.3	O K																																																																																																																																																																																														
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)																																																																																																																																																																																																
30 min Winter	47.082	0.0	37																																																																																																																																																																																																
60 min Winter	30.811	0.0	64																																																																																																																																																																																																
120 min Winter	19.530	0.0	116																																																																																																																																																																																																
180 min Winter	14.749	0.0	148																																																																																																																																																																																																
240 min Winter	12.050	0.0	186																																																																																																																																																																																																
360 min Winter	9.053	0.0	262																																																																																																																																																																																																
480 min Winter	7.379	0.0	334																																																																																																																																																																																																
600 min Winter	6.291	0.0	404																																																																																																																																																																																																
720 min Winter	5.520	0.0	470																																																																																																																																																																																																
960 min Winter	4.488	0.0	596																																																																																																																																																																																																
1440 min Winter	3.346	0.0	798																																																																																																																																																																																																
2160 min Winter	2.490	0.0	1120																																																																																																																																																																																																
2880 min Winter	2.017	0.0	1476																																																																																																																																																																																																
4320 min Winter	1.499	0.0	2208																																																																																																																																																																																																
5760 min Winter	1.215	0.0	2936																																																																																																																																																																																																
7200 min Winter	1.032	0.0	3672																																																																																																																																																																																																
8640 min Winter	0.904	0.0	4416																																																																																																																																																																																																
10080 min Winter	0.808	0.0	5104																																																																																																																																																																																																
©1982-2018 Innovyze																																																																																																																																																																																																			

Skanska Technology Limited		Page 3
Maple Cross House Maple Cross Rickmansworth WD2 9SW	A38 Airport Road Soakaway for the diverted catchment	
Date 01/10/2018 File diverted catchment calc...	Designed by LD Checked by	
CADS	Source Control 2018.1	

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	30	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	20.000	Shortest Storm (mins)	15
Ratio R	0.300	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+0

Time Area Diagram

Total Area (ha) 0.485

Time (mins) Area			Time (mins) Area			Time (mins) Area		
From:	To:	(ha)	From:	To:	(ha)	From:	To:	(ha)
0	4	0.162	4	8	0.161	8	12	0.161

Skanska Technology Limited		Page 4
Maple Cross House Maple Cross Rickmansworth WD2 9SW	A38 Airport Road Soakaway for the diverted catchment	
Date 01/10/2018 File diverted catchment calc...	Designed by LD Checked by	
CADS Source Control 2018.1		

Model Details

Storage is Online Cover Level (m) 168.800

Cellular Storage Structure

Invert Level (m) 167.500 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.18468 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.18468

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	336.0	336.0	0.801	0.0	336.0
0.800	336.0	336.0			

©1982-2018 Innovyze

Skanska Technology Limited					Page 1																																																																																																																																																																																																																			
Maple Cross House Maple Cross Rickmansworth WD2 9SW			A38 Airport Road Soakaway for the diverted catchment																																																																																																																																																																																																																					
Date 01/10/2018 File diverted catchment calc...			Designed by LD Checked by																																																																																																																																																																																																																					
CADS			Source Control 2018.1																																																																																																																																																																																																																					
Summary of Results for 100 year Return Period (+40%) Half Drain Time : 242 minutes. <table><thead><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr></thead><tbody><tr><td>15 min Summer</td><td>167.825</td><td>0.325</td><td>8.6</td><td>103.6</td><td>O K</td></tr><tr><td>30 min Summer</td><td>167.941</td><td>0.441</td><td>8.6</td><td>140.6</td><td>O K</td></tr><tr><td>60 min Summer</td><td>168.054</td><td>0.554</td><td>8.6</td><td>176.9</td><td>O K</td></tr><tr><td>120 min Summer</td><td>168.141</td><td>0.641</td><td>8.6</td><td>204.7</td><td>O K</td></tr><tr><td>180 min Summer</td><td>168.160</td><td>0.660</td><td>8.6</td><td>210.6</td><td>O K</td></tr><tr><td>240 min Summer</td><td>168.158</td><td>0.658</td><td>8.6</td><td>209.9</td><td>O K</td></tr><tr><td>360 min Summer</td><td>168.144</td><td>0.644</td><td>8.6</td><td>205.6</td><td>O K</td></tr><tr><td>480 min Summer</td><td>168.126</td><td>0.626</td><td>8.6</td><td>199.8</td><td>O K</td></tr><tr><td>600 min Summer</td><td>168.105</td><td>0.605</td><td>8.6</td><td>193.1</td><td>O K</td></tr><tr><td>720 min Summer</td><td>168.083</td><td>0.583</td><td>8.6</td><td>186.0</td><td>O K</td></tr><tr><td>960 min Summer</td><td>168.036</td><td>0.536</td><td>8.6</td><td>170.9</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>167.940</td><td>0.440</td><td>8.6</td><td>140.4</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>167.809</td><td>0.309</td><td>8.6</td><td>98.7</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>167.704</td><td>0.204</td><td>8.6</td><td>65.2</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>167.579</td><td>0.079</td><td>8.6</td><td>25.2</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>167.547</td><td>0.047</td><td>8.1</td><td>14.9</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>167.539</td><td>0.039</td><td>6.8</td><td>12.6</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>167.534</td><td>0.034</td><td>5.9</td><td>11.0</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>167.531</td><td>0.031</td><td>5.3</td><td>9.7</td><td>O K</td></tr><tr><td>15 min Winter</td><td>167.867</td><td>0.367</td><td>8.6</td><td>117.1</td><td>O K</td></tr></tbody></table> <table><thead><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Time-Peak (mins)</th></tr></thead><tbody><tr><td>15 min Summer</td><td>124.925</td><td>0.0</td><td>25</td></tr><tr><td>30 min Summer</td><td>86.152</td><td>0.0</td><td>39</td></tr><tr><td>60 min Summer</td><td>56.713</td><td>0.0</td><td>66</td></tr><tr><td>120 min Summer</td><td>35.885</td><td>0.0</td><td>124</td></tr><tr><td>180 min Summer</td><td>26.921</td><td>0.0</td><td>180</td></tr><tr><td>240 min Summer</td><td>21.875</td><td>0.0</td><td>214</td></tr><tr><td>360 min Summer</td><td>16.309</td><td>0.0</td><td>278</td></tr><tr><td>480 min Summer</td><td>13.215</td><td>0.0</td><td>344</td></tr><tr><td>600 min Summer</td><td>11.214</td><td>0.0</td><td>412</td></tr><tr><td>720 min Summer</td><td>9.799</td><td>0.0</td><td>482</td></tr><tr><td>960 min Summer</td><td>7.911</td><td>0.0</td><td>618</td></tr><tr><td>1440 min Summer</td><td>5.836</td><td>0.0</td><td>882</td></tr><tr><td>2160 min Summer</td><td>4.293</td><td>0.0</td><td>1260</td></tr><tr><td>2880 min Summer</td><td>3.447</td><td>0.0</td><td>1612</td></tr><tr><td>4320 min Summer</td><td>2.530</td><td>0.0</td><td>2256</td></tr><tr><td>5760 min Summer</td><td>2.033</td><td>0.0</td><td>2936</td></tr><tr><td>7200 min Summer</td><td>1.717</td><td>0.0</td><td>3672</td></tr><tr><td>8640 min Summer</td><td>1.496</td><td>0.0</td><td>4400</td></tr><tr><td>10080 min Summer</td><td>1.332</td><td>0.0</td><td>5136</td></tr><tr><td>15 min Winter</td><td>124.925</td><td>0.0</td><td>25</td></tr></tbody></table>							Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	15 min Summer	167.825	0.325	8.6	103.6	O K	30 min Summer	167.941	0.441	8.6	140.6	O K	60 min Summer	168.054	0.554	8.6	176.9	O K	120 min Summer	168.141	0.641	8.6	204.7	O K	180 min Summer	168.160	0.660	8.6	210.6	O K	240 min Summer	168.158	0.658	8.6	209.9	O K	360 min Summer	168.144	0.644	8.6	205.6	O K	480 min Summer	168.126	0.626	8.6	199.8	O K	600 min Summer	168.105	0.605	8.6	193.1	O K	720 min Summer	168.083	0.583	8.6	186.0	O K	960 min Summer	168.036	0.536	8.6	170.9	O K	1440 min Summer	167.940	0.440	8.6	140.4	O K	2160 min Summer	167.809	0.309	8.6	98.7	O K	2880 min Summer	167.704	0.204	8.6	65.2	O K	4320 min Summer	167.579	0.079	8.6	25.2	O K	5760 min Summer	167.547	0.047	8.1	14.9	O K	7200 min Summer	167.539	0.039	6.8	12.6	O K	8640 min Summer	167.534	0.034	5.9	11.0	O K	10080 min Summer	167.531	0.031	5.3	9.7	O K	15 min Winter	167.867	0.367	8.6	117.1	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	124.925	0.0	25	30 min Summer	86.152	0.0	39	60 min Summer	56.713	0.0	66	120 min Summer	35.885	0.0	124	180 min Summer	26.921	0.0	180	240 min Summer	21.875	0.0	214	360 min Summer	16.309	0.0	278	480 min Summer	13.215	0.0	344	600 min Summer	11.214	0.0	412	720 min Summer	9.799	0.0	482	960 min Summer	7.911	0.0	618	1440 min Summer	5.836	0.0	882	2160 min Summer	4.293	0.0	1260	2880 min Summer	3.447	0.0	1612	4320 min Summer	2.530	0.0	2256	5760 min Summer	2.033	0.0	2936	7200 min Summer	1.717	0.0	3672	8640 min Summer	1.496	0.0	4400	10080 min Summer	1.332	0.0	5136	15 min Winter	124.925	0.0	25
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status																																																																																																																																																																																																																			
15 min Summer	167.825	0.325	8.6	103.6	O K																																																																																																																																																																																																																			
30 min Summer	167.941	0.441	8.6	140.6	O K																																																																																																																																																																																																																			
60 min Summer	168.054	0.554	8.6	176.9	O K																																																																																																																																																																																																																			
120 min Summer	168.141	0.641	8.6	204.7	O K																																																																																																																																																																																																																			
180 min Summer	168.160	0.660	8.6	210.6	O K																																																																																																																																																																																																																			
240 min Summer	168.158	0.658	8.6	209.9	O K																																																																																																																																																																																																																			
360 min Summer	168.144	0.644	8.6	205.6	O K																																																																																																																																																																																																																			
480 min Summer	168.126	0.626	8.6	199.8	O K																																																																																																																																																																																																																			
600 min Summer	168.105	0.605	8.6	193.1	O K																																																																																																																																																																																																																			
720 min Summer	168.083	0.583	8.6	186.0	O K																																																																																																																																																																																																																			
960 min Summer	168.036	0.536	8.6	170.9	O K																																																																																																																																																																																																																			
1440 min Summer	167.940	0.440	8.6	140.4	O K																																																																																																																																																																																																																			
2160 min Summer	167.809	0.309	8.6	98.7	O K																																																																																																																																																																																																																			
2880 min Summer	167.704	0.204	8.6	65.2	O K																																																																																																																																																																																																																			
4320 min Summer	167.579	0.079	8.6	25.2	O K																																																																																																																																																																																																																			
5760 min Summer	167.547	0.047	8.1	14.9	O K																																																																																																																																																																																																																			
7200 min Summer	167.539	0.039	6.8	12.6	O K																																																																																																																																																																																																																			
8640 min Summer	167.534	0.034	5.9	11.0	O K																																																																																																																																																																																																																			
10080 min Summer	167.531	0.031	5.3	9.7	O K																																																																																																																																																																																																																			
15 min Winter	167.867	0.367	8.6	117.1	O K																																																																																																																																																																																																																			
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)																																																																																																																																																																																																																					
15 min Summer	124.925	0.0	25																																																																																																																																																																																																																					
30 min Summer	86.152	0.0	39																																																																																																																																																																																																																					
60 min Summer	56.713	0.0	66																																																																																																																																																																																																																					
120 min Summer	35.885	0.0	124																																																																																																																																																																																																																					
180 min Summer	26.921	0.0	180																																																																																																																																																																																																																					
240 min Summer	21.875	0.0	214																																																																																																																																																																																																																					
360 min Summer	16.309	0.0	278																																																																																																																																																																																																																					
480 min Summer	13.215	0.0	344																																																																																																																																																																																																																					
600 min Summer	11.214	0.0	412																																																																																																																																																																																																																					
720 min Summer	9.799	0.0	482																																																																																																																																																																																																																					
960 min Summer	7.911	0.0	618																																																																																																																																																																																																																					
1440 min Summer	5.836	0.0	882																																																																																																																																																																																																																					
2160 min Summer	4.293	0.0	1260																																																																																																																																																																																																																					
2880 min Summer	3.447	0.0	1612																																																																																																																																																																																																																					
4320 min Summer	2.530	0.0	2256																																																																																																																																																																																																																					
5760 min Summer	2.033	0.0	2936																																																																																																																																																																																																																					
7200 min Summer	1.717	0.0	3672																																																																																																																																																																																																																					
8640 min Summer	1.496	0.0	4400																																																																																																																																																																																																																					
10080 min Summer	1.332	0.0	5136																																																																																																																																																																																																																					
15 min Winter	124.925	0.0	25																																																																																																																																																																																																																					
©1982-2018 Innovyze																																																																																																																																																																																																																								

Skanska Technology Limited				Page 2	
Maple Cross House Maple Cross Rickmansworth WD2 9SW		A38 Airport Road Soakaway for the diverted catchment			
Date 01/10/2018 File diverted catchment calc...		Designed by LD Checked by			
CADS		Source Control 2018.1			
<u>Summary of Results for 100 year Return Period (+40%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	167.999	0.499		8.6 159.3	O K
60 min Winter	168.132	0.632		8.6 201.9	O K
120 min Winter	168.241	0.741		8.6 236.5	O K
180 min Winter	168.272	0.772		8.6 246.6	O K
240 min Winter	168.276	0.776		8.6 247.8	O K
360 min Winter	168.255	0.755		8.6 241.0	O K
480 min Winter	168.229	0.729		8.6 232.7	O K
600 min Winter	168.197	0.697		8.6 222.4	O K
720 min Winter	168.161	0.661		8.6 211.0	O K
960 min Winter	168.085	0.585		8.6 186.8	O K
1440 min Winter	167.933	0.433		8.6 138.2	O K
2160 min Winter	167.735	0.235		8.6 75.1	O K
2880 min Winter	167.597	0.097		8.6 31.1	O K
4320 min Winter	167.542	0.042		7.2 13.4	O K
5760 min Winter	167.534	0.034		5.8 10.7	O K
7200 min Winter	167.529	0.029		5.0 9.1	O K
8640 min Winter	167.525	0.025		4.3 7.9	O K
10080 min Winter	167.522	0.022		3.8 7.0	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	86.152	0.0	39		
60 min Winter	56.713	0.0	66		
120 min Winter	35.885	0.0	122		
180 min Winter	26.921	0.0	178		
240 min Winter	21.875	0.0	232		
360 min Winter	16.309	0.0	298		
480 min Winter	13.215	0.0	372		
600 min Winter	11.214	0.0	450		
720 min Winter	9.799	0.0	526		
960 min Winter	7.911	0.0	672		
1440 min Winter	5.836	0.0	946		
2160 min Winter	4.293	0.0	1316		
2880 min Winter	3.447	0.0	1616		
4320 min Winter	2.530	0.0	2208		
5760 min Winter	2.033	0.0	2864		
7200 min Winter	1.717	0.0	3600		
8640 min Winter	1.496	0.0	4408		
10080 min Winter	1.332	0.0	4984		
©1982-2018 Innovyze					

Skanska Technology Limited		Page 3
Maple Cross House Maple Cross Rickmansworth WD2 9SW	A38 Airport Road Soakaway for the diverted catchment	
Date 01/10/2018 File diverted catchment calc...	Designed by LD Checked by	
CADS	Source Control 2018.1	

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	20.000	Shortest Storm (mins)	15
Ratio R	0.300	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.485

Time (mins)	Area	Time (mins)	Area	Time (mins)	Area
From:	To:	From:	To:	From:	To:
	(ha)		(ha)		(ha)
0	4 0.162	4	8 0.161	8	12 0.161

Skanska Technology Limited		Page 4
Maple Cross House Maple Cross Rickmansworth WD2 9SW	A38 Airport Road Soakaway for the diverted catchment	
Date 01/10/2018 File diverted catchment calc...	Designed by LD Checked by	
CADS Source Control 2018.1		

Model Details

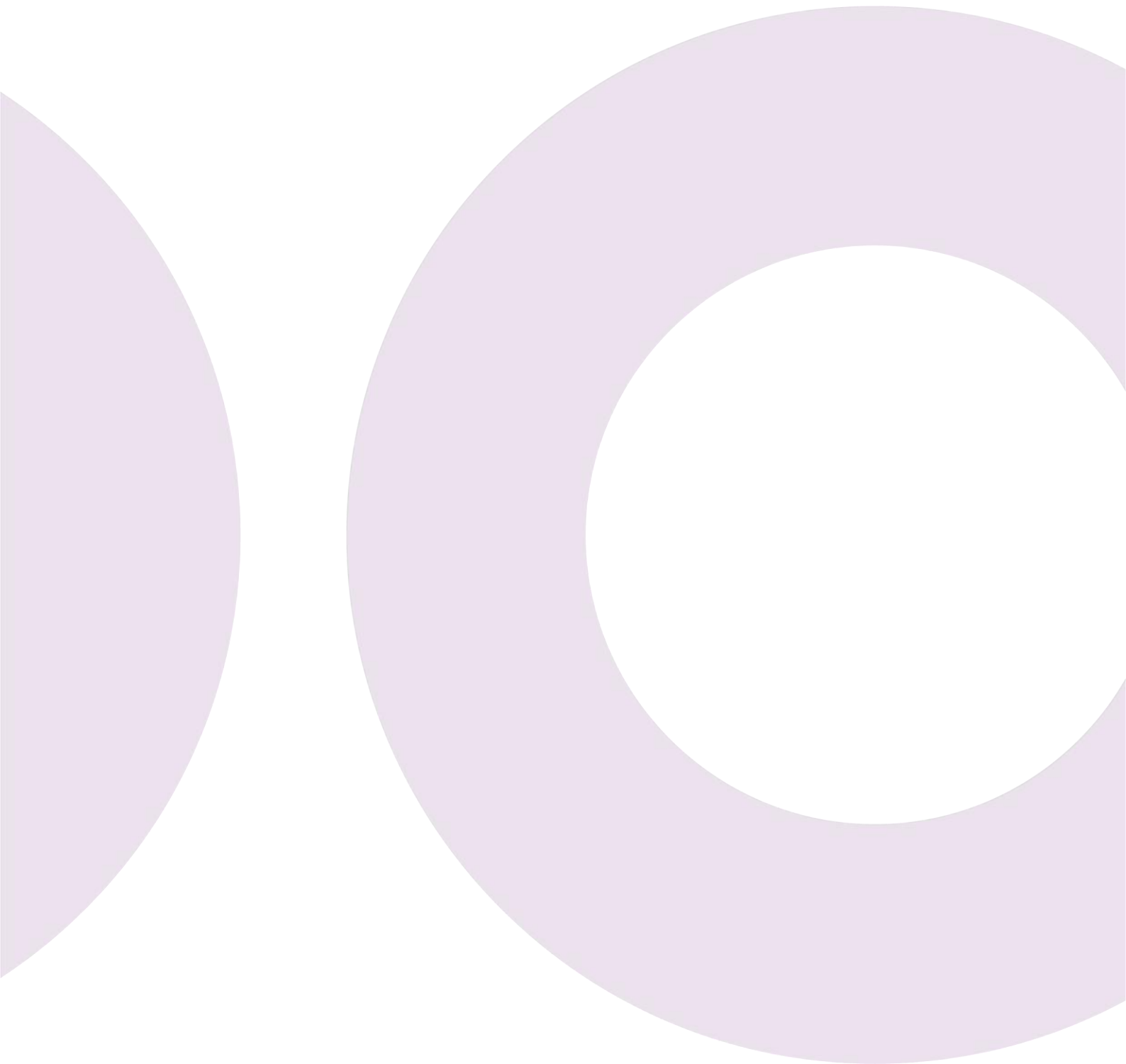
Storage is Online Cover Level (m) 168.800

Cellular Storage Structure

Invert Level (m) 167.500 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.18468 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.18468

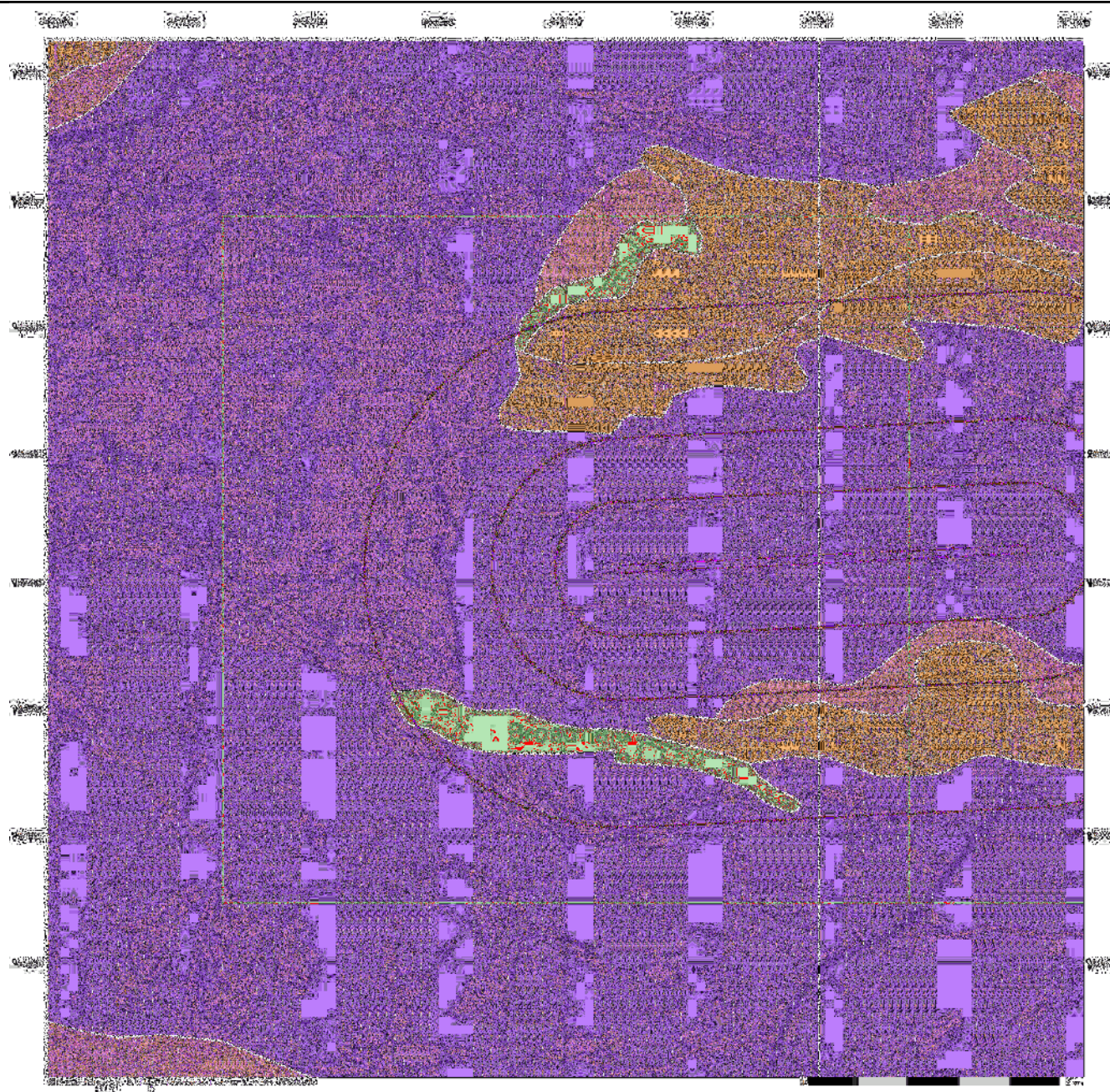
Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	336.0	336.0	0.801	0.0	336.0
0.800	336.0	336.0			

©1982-2018 Innovyze



Appendix 12B

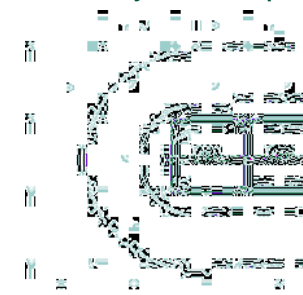
Envirocheck Report



Groundwater Vulnerability



Site Sensitivity Context Map - Slice A



Order Details

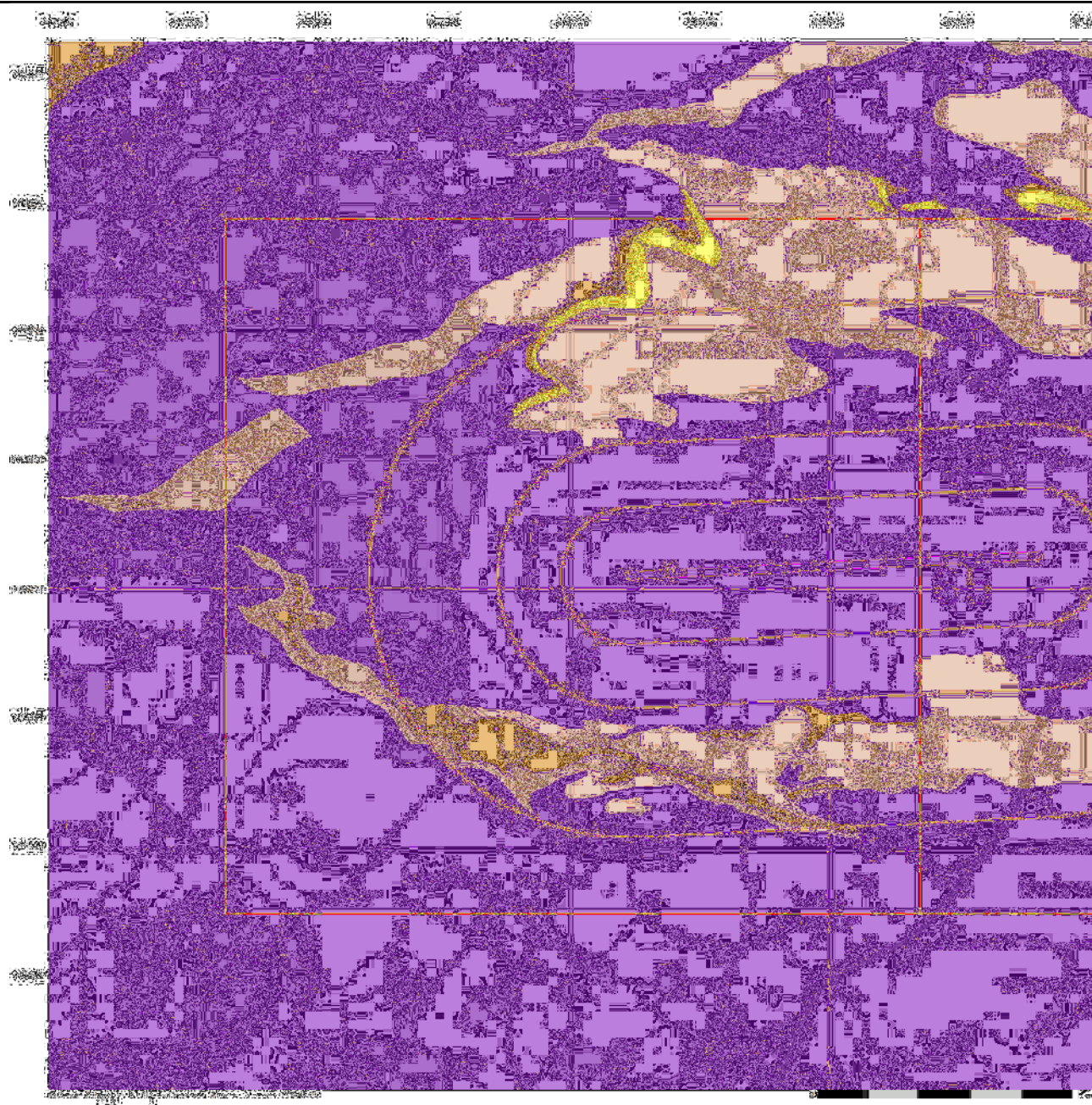
Order Number: 128842570_1_1
 Customer Ref: 38970
 National Grid Reference: 349380, 165060
 Slice: A
 Site Area (Ha): 4.82
 Search Buffer (m): 1000

Site Details

Bristol International Airport, North Side Road, FELTON, BS48 3DY



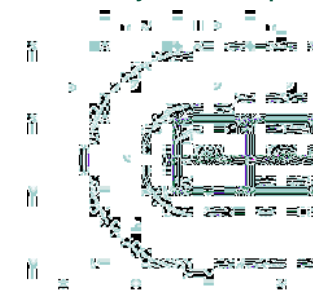
Tel: 0844 844 9952
 Fax: 0844 844 9951
 Web: www.envirocheck.co.uk



Bedrock Aquifer Designation



Site Sensitivity Context Map - Slice A



Order Details

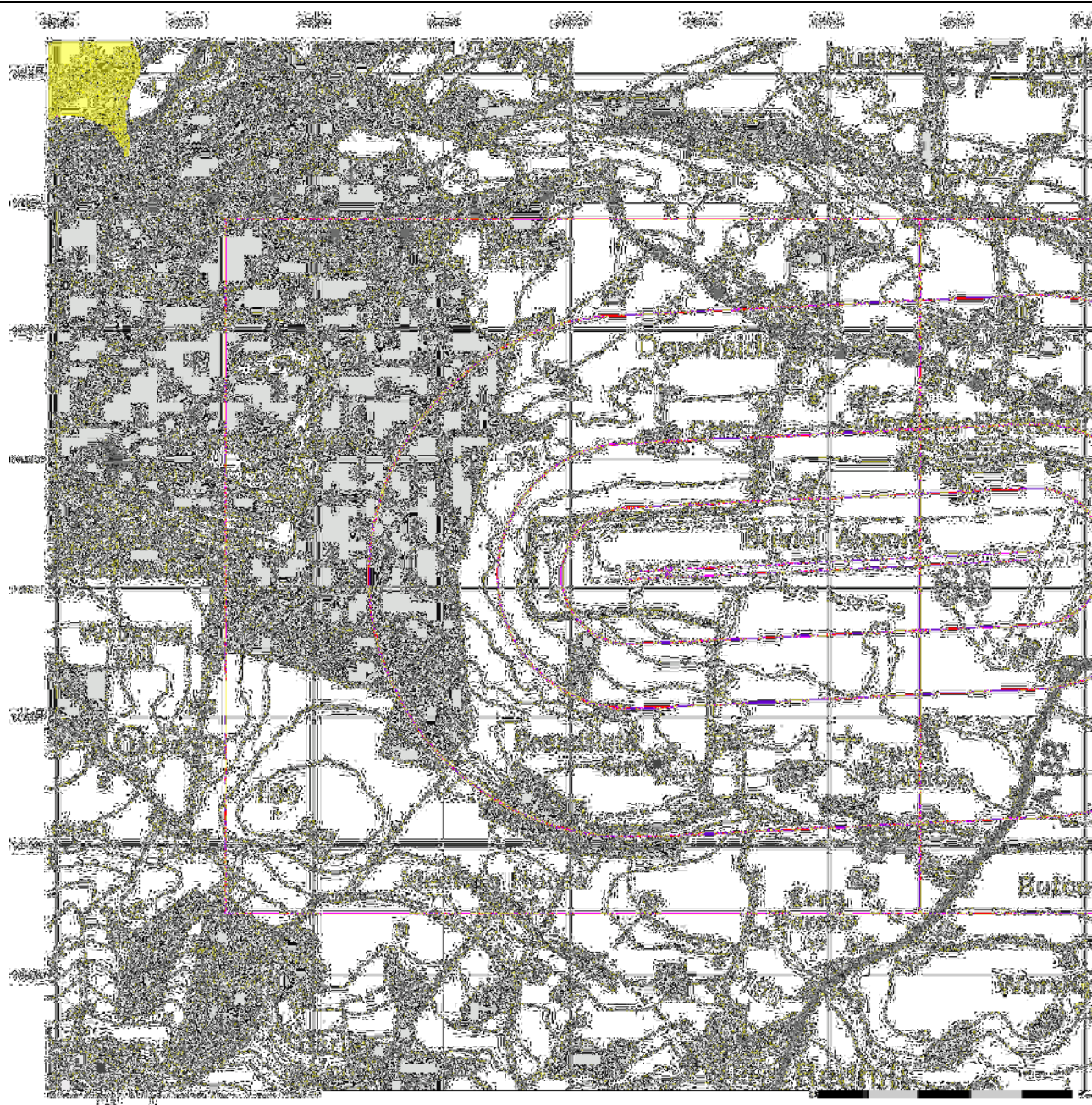
Order Number:	128842570_1_1
Customer Ref:	38970
National Grid Reference:	349380, 165060
Slice:	A
Site Area (Ha):	4.82
Search Buffer (m):	1000

Site Details

Bristol International Airport, North Side Road, FELTON, BS48 3DY



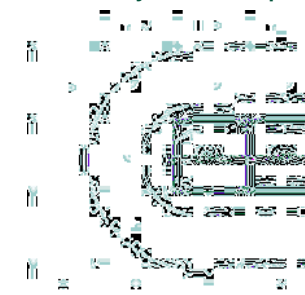
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



Superficial Aquifer Designation



Site Sensitivity Context Map - Slice A



Order Details

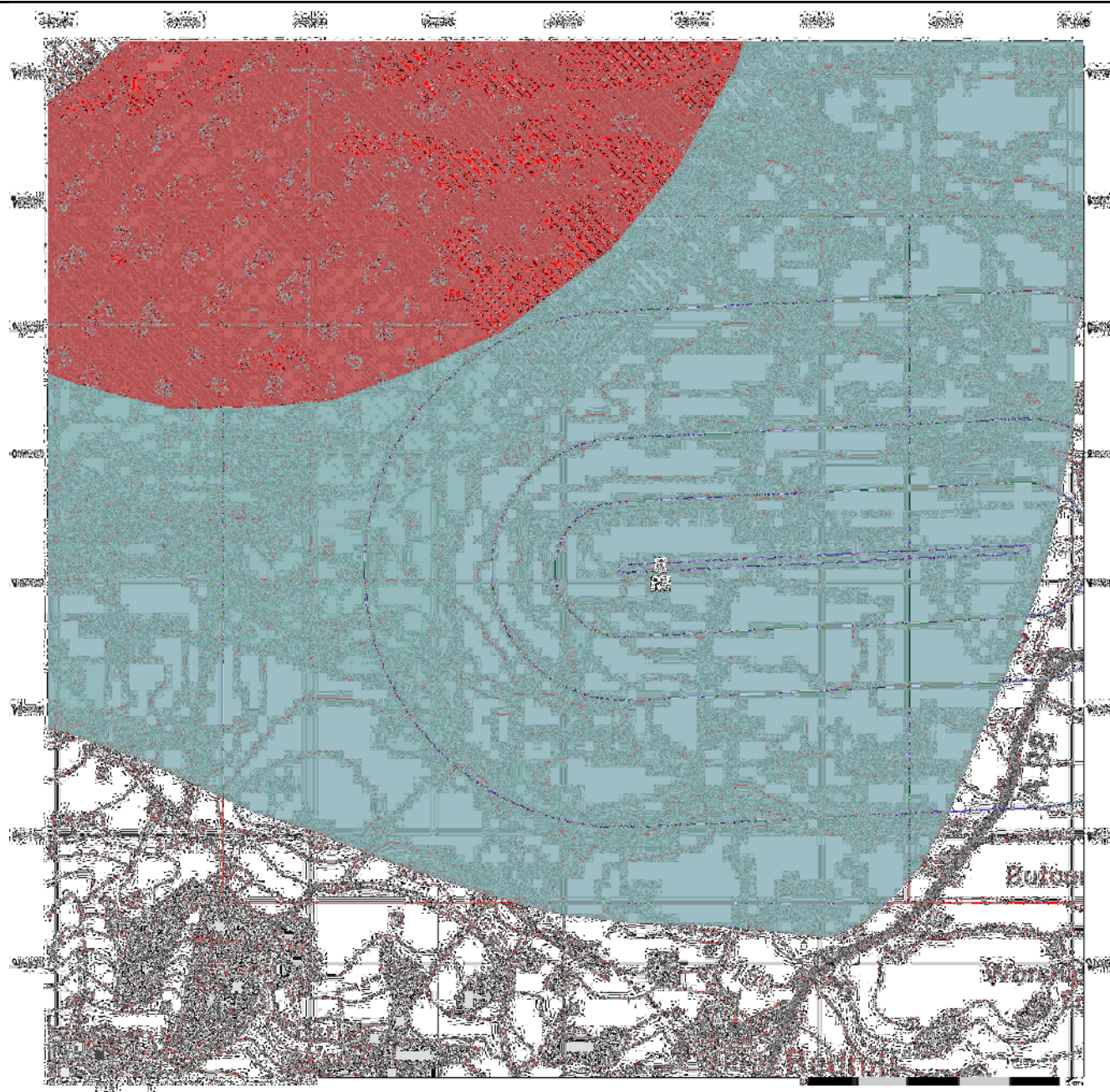
Order Number: 128842570_1_1
 Customer Ref: 38970
 National Grid Reference: 349380, 165060
 Slice: A
 Site Area (Ha): 4.82
 Search Buffer (m): 1000

Site Details

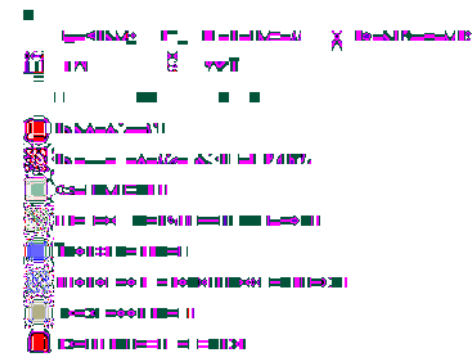
Bristol International Airport, North Side Road, FELTON, BS48 3DY



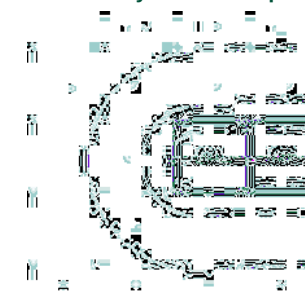
Tel: 0844 844 9952
 Fax: 0844 844 9951
 Web: www.envirocheck.co.uk



Source Protection Zones



Site Sensitivity Context Map - Slice A



Order Details

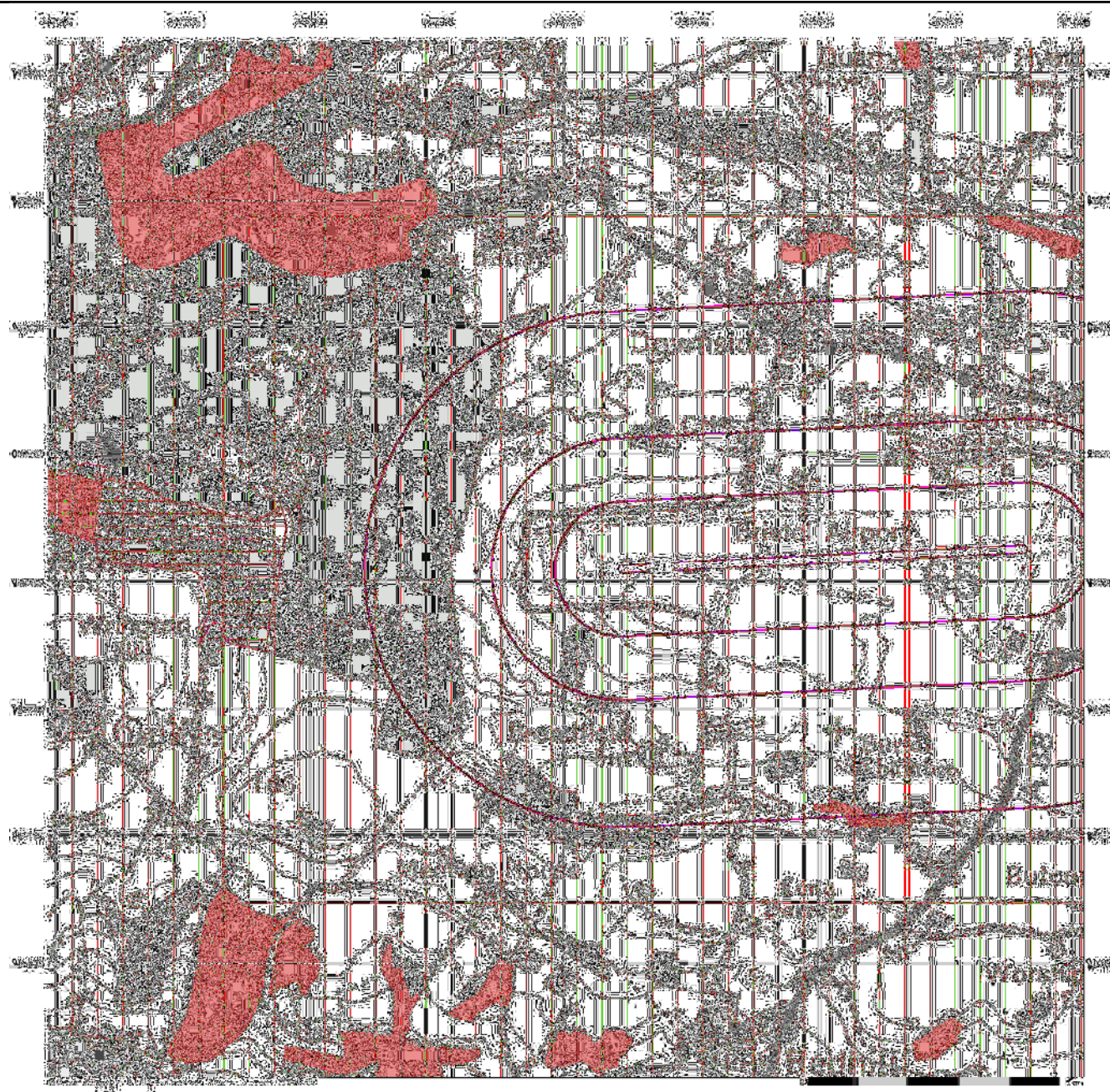
Order Number: 128842570_1_1
 Customer Ref: 38970
 National Grid Reference: 349380, 165060
 Slice: A
 Site Area (Ha): 4.82
 Search Buffer (m): 1000

Site Details

Bristol International Airport, North Side Road, FELTON, BS48 3DY



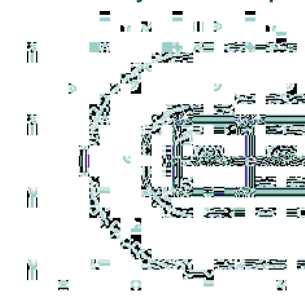
Tel: 0844 844 9952
 Fax: 0844 844 9951
 Web: www.envirocheck.co.uk



Sensitive Land Uses



Site Sensitivity Context Map - Slice A



Order Details

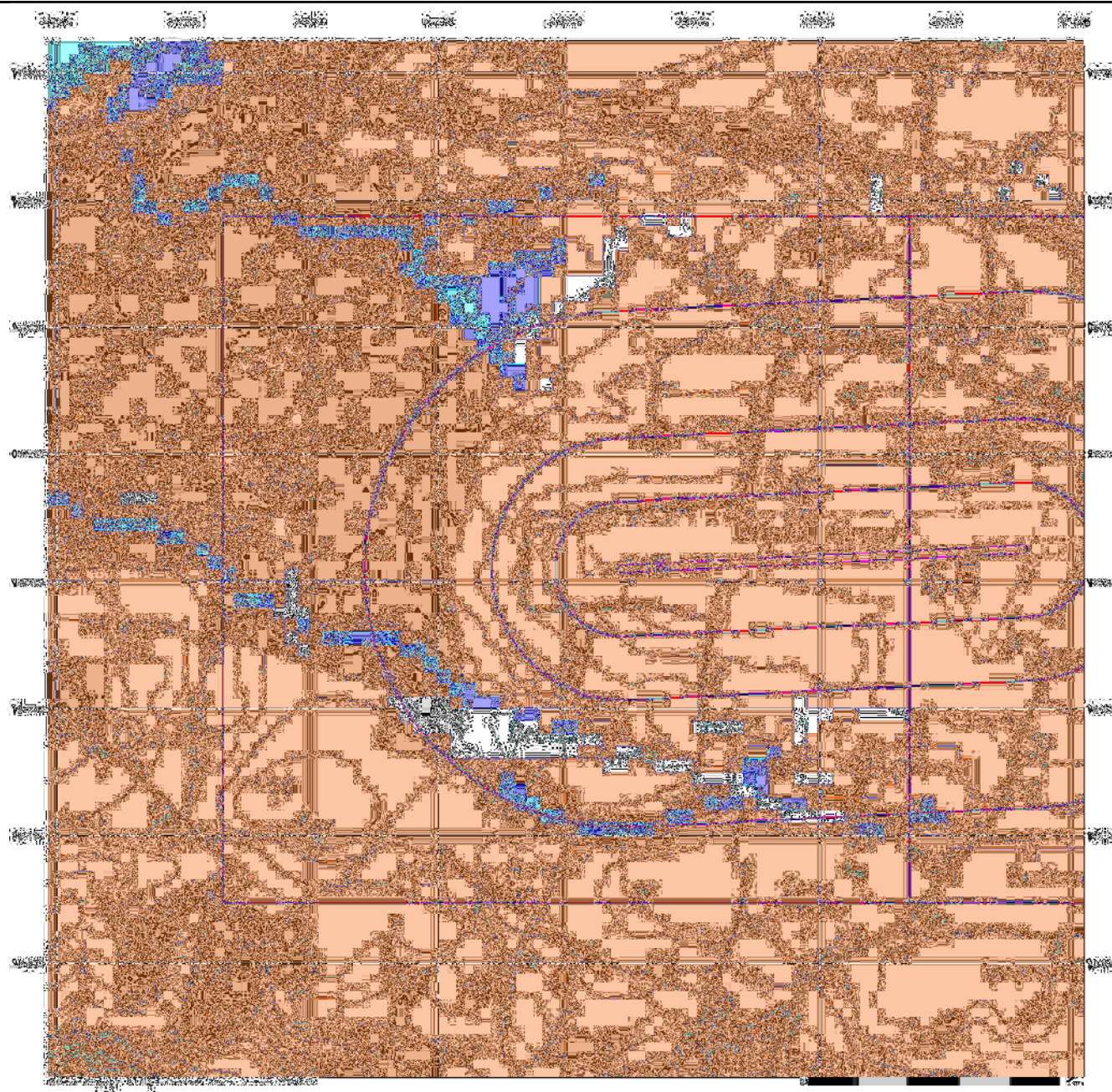
Order Number: 128842570_1_1
 Customer Ref: 38970
 National Grid Reference: 349380, 165060
 Slice: A
 Site Area (Ha): 4.82
 Search Buffer (m): 1000

Site Details

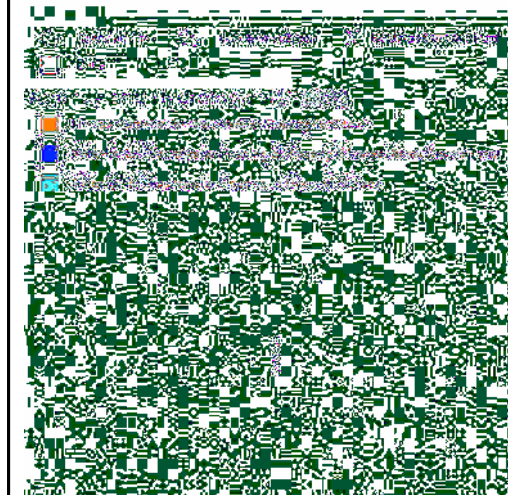
Bristol International Airport, North Side Road, FELTON, BS48 3DY



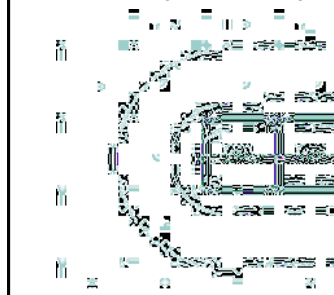
Tel: 0844 844 9952
 Fax: 0844 844 9951
 Web: www.envirocheck.co.uk



BGS Flood GFS Data



Site Sensitivity Context Map - Slice A



Order Details

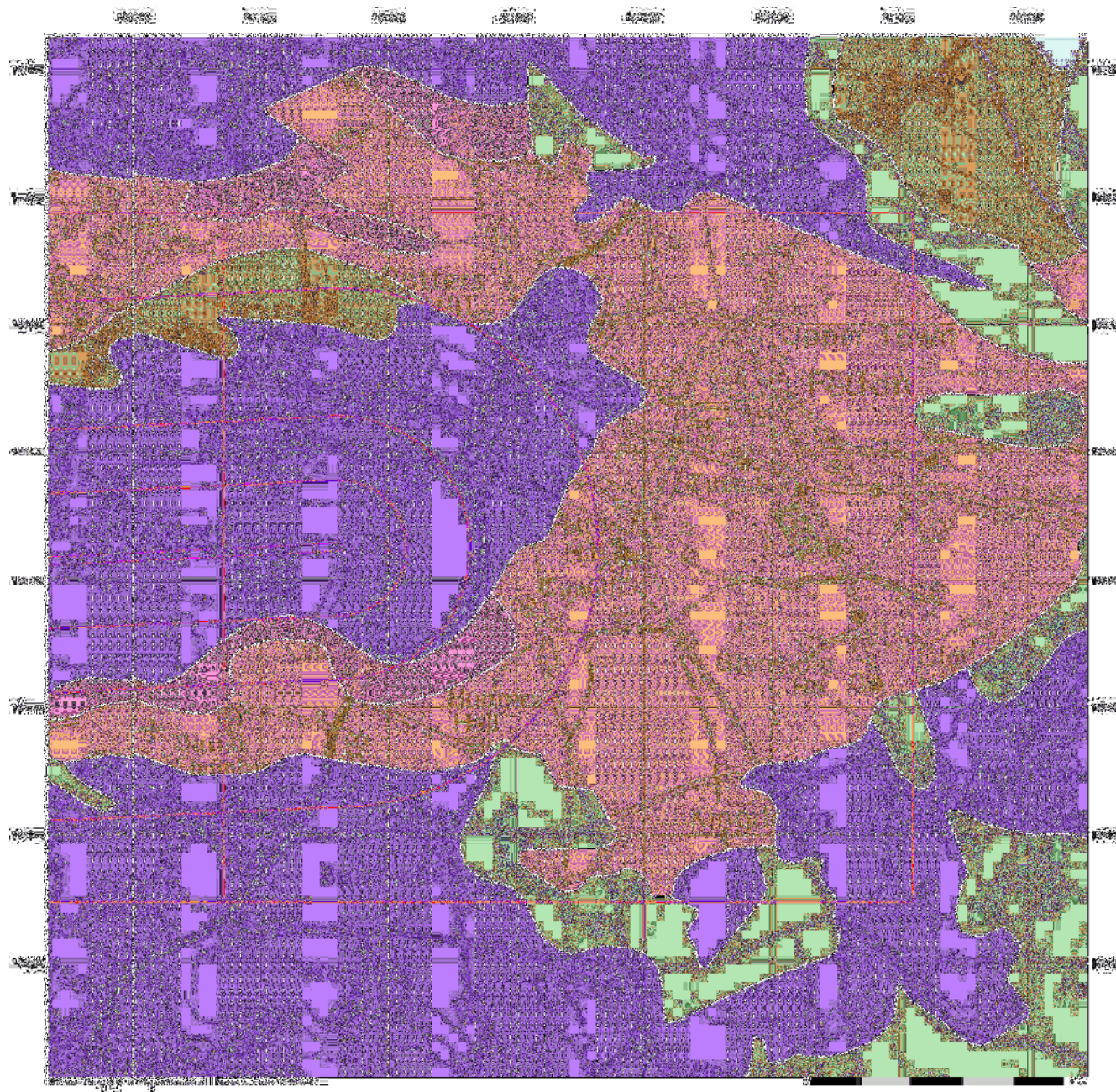
Order Number: 128842570_1_1
 Customer Ref: 38970
 National Grid Reference: 349380, 165060
 Slice: A
 Site Area (Ha): 4.82
 Search Buffer (m): 1000

Site Details

Bristol International Airport, North Side Road, FELTON, BS48 3DY



Tel: 0844 844 9952
 Fax: 0844 844 9951
 Web: www.envirocheck.co.uk



Groundwater Vulnerability



Site Sensitivity Context Map - Slice B



Order Details

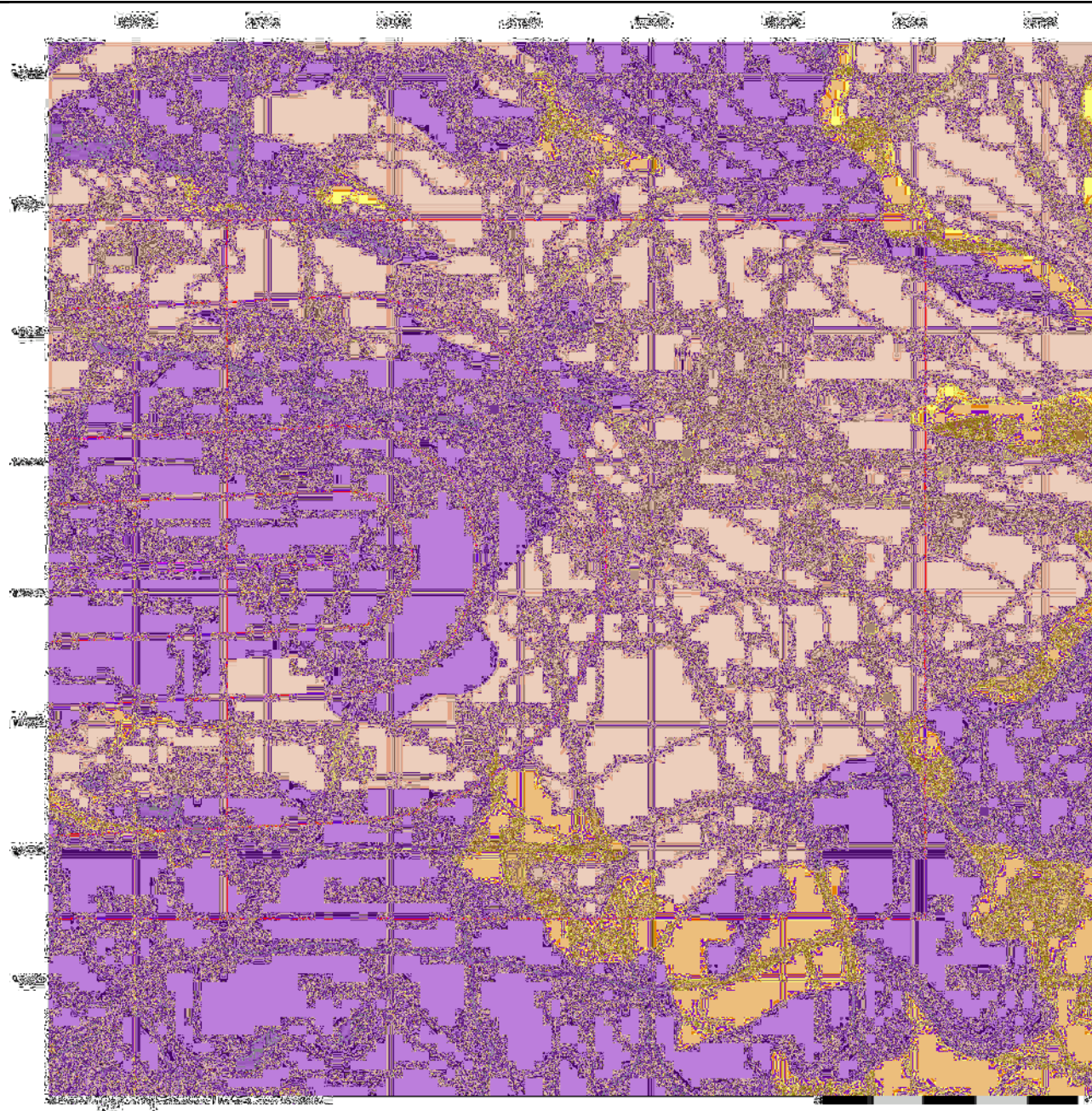
Order Number: 128842570_1_1
 Customer Ref: 38970
 National Grid Reference: 351000, 165120
 Slice: B
 Site Area (Ha): 4.82
 Search Buffer (m): 1000

Site Details

Bristol International Airport, North Side Road, FELTON, BS48 3DY



Tel: 0844 844 9952
 Fax: 0844 844 9951
 Web: www.envirocheck.co.uk



Bedrock Aquifer Designation



Site Sensitivity Context Map - Slice B



Order Details

Order Number:	128842570_1_1
Customer Ref:	38970
National Grid Reference:	351000, 165120
Slice:	B
Site Area (Ha):	4.82
Search Buffer (m):	1000

Site Details

Bristol International Airport, North Side Road, FELTON, BS48 3DY



Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



Superficial Aquifer Designation



Site Sensitivity Context Map - Slice B



Order Details

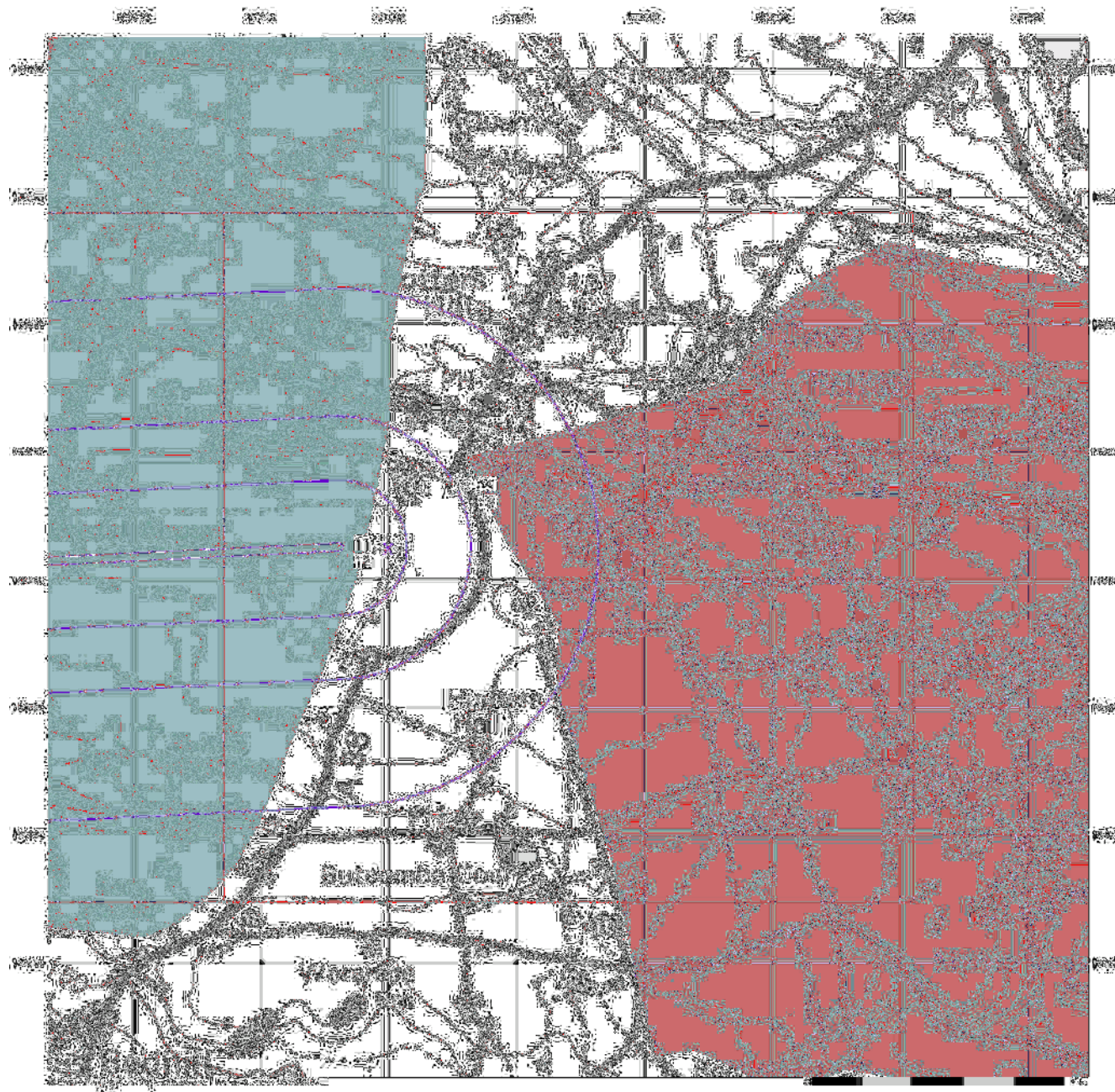
Order Number: 128842570_1_1
 Customer Ref: 38970
 National Grid Reference: 351000, 165120
 Slice: B
 Site Area (Ha): 4.82
 Search Buffer (m): 1000

Site Details

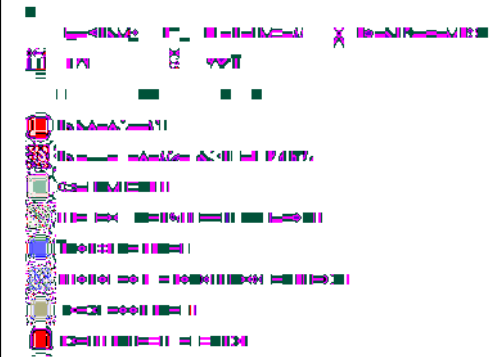
Bristol International Airport, North Side Road, FELTON, BS48 3DY



Tel: 0844 844 9952
 Fax: 0844 844 9951
 Web: www.envirocheck.co.uk



Source Protection Zones



Site Sensitivity Context Map - Slice B



Order Details

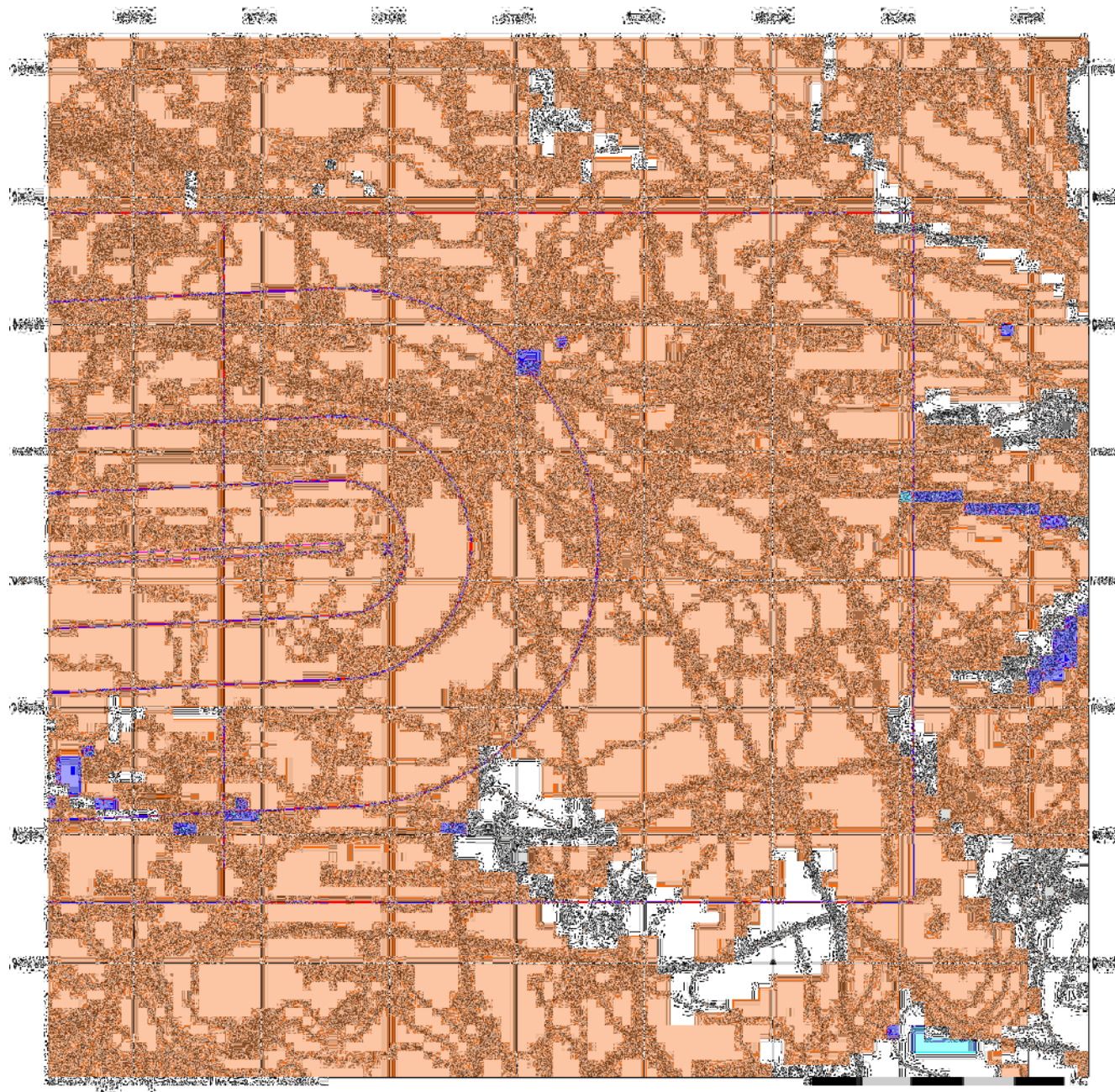
Order Number: 128842570_1_1
 Customer Ref: 38970
 National Grid Reference: 351000, 165120
 Slice: B
 Site Area (Ha): 4.82
 Search Buffer (m): 1000

Site Details

Bristol International Airport, North Side Road, FELTON, BS48 3DY



Tel: 0844 844 9952
 Fax: 0844 844 9951
 Web: www.envirocheck.co.uk



BGS Flood GFS Data



Site Sensitivity Context Map - Slice B



Order Details

Order Number: 128842570_1_1
 Customer Ref: 38970
 National Grid Reference: 351000, 165120
 Slice: B
 Site Area (Ha): 4.82
 Search Buffer (m): 1000

Site Details

Bristol International Airport, North Side Road, FELTON, BS48 3DY



Tel: 0844 844 9952
 Fax: 0844 844 9951
 Web: www.envirocheck.co.uk

Appendix 12C

WFD Classifications

Table 0.C1 Kenn-Source to Kenn Moor SSSI WFD classifications and objectives (EA (Cycle 2), 2015, 2016)

Classification Item	2015 Cycle 2	2016 Cycle 2	Objectives
Ecological	Good	Good	Good by 2015
Biological quality elements	Good	Good	Good by 2015
Macrophytes and Phytobenthos combined	Good	Good	Good by 2015
Invertebrates	High	High	Good by 2015
Hydromorphological Supporting Elements	Supports Good	Supports Good	Supports Good by 2015
Hydrological Regime	Does Not Support Good	Does Not Support Good	Does Not Support Good (unfavourable balance of costs and benefits)
Morphology	Supports Good	Supports Good	-
Physico-chemical quality elements	Good	Good	Good by 2015
Ammonia (Phys-Chem)	High	High	Good by 2015
Dissolved oxygen	High	Good	Good by 2015
pH	High	High	Good by 2015
Phosphate	Good	Good	Good by 2015
Temperature	High	High	Good by 2015
Specific pollutants	-	-	-
Chemical	Good	Good	Good by 2015
Priority substances	Does not require assessment	Does not require assessment	Does not require assessment
Priority hazardous substances	Does not require assessment	Does not require assessment	Does not require assessment

" - " indicates no detail provided on the Catchment Data Explorer website

Table 0.C2 Kenn Moor SSSI WFD classifications and objectives (EA (Cycle 2), 2015, 2016)

Classification Item	2015 Cycle 2	2016 Cycle 2	Objectives
Ecological	Moderate	Moderate	Good by 2021
Supporting elements (surface water)	Moderate	Moderate	Good by 2021
Mitigation Measures Assessment	Moderate or Less	Moderate or Less	Good by 2021
Biological quality elements	Poor	Poor	Good by 2021
Fish	Poor	Poor	Good by 2021
Invertebrates	High	High	Good by 2015
Hydromorphological Supporting Elements	Supports Good	Supports Good	Supports Good by 2015
Hydrological Regime	Supports Good	Supports Good	Supports Good by 2015
Physico-chemical quality elements	Good	Good	Good by 2015
Ammonia (Phys-Chem)	High	High	Good by 2015
Dissolved oxygen	Good	Good	Good by 2015
pH	High	High	Good by 2015
Phosphate	High	High	Good by 2015
Temperature	High	High	Good by 2015
Specific pollutants	High	High	High by 2015
Chemical	Good	Good	Good by 2015
Priority substances	Does not require assessment	Does not require assessment	Does not require assessment
Priority hazardous substances	Good	Good	Good by 2015

" - " indicates no detail provided on the Catchment Data Explorer website.

Table 0.C3 Winford Brook – source to confluence with River Chew WFD classifications and objectives (EA (Cycle 2), 2015, 2016)

Classification Item	2015 Cycle 2	2016 Cycle 2	Objectives
Ecological	Poor	Poor	Good by 2027 (disproportionate burdens)
Biological quality elements	Poor	Poor	Good by 2027 (disproportionate burdens)
Fish	Poor	Poor	Good by 2027 (disproportionate burdens)
Invertebrates	High	High	Good by 2015
Hydromorphological Supporting Elements	Supports Good	Supports Good	Supports Good by 2015
Hydrological Regime	Supports Good	Does Not Support Good	Supports Good by 2015
Morphology	Supports Good	Supports Good	-
Physico-chemical quality elements	Good	Good	Good by 2015
Ammonia (Phys-Chem)	High	High	Good by 2015
Dissolved oxygen	High	High	Good by 2015
pH	High	High	Good by 2015
Phosphate	Good	Good	Good by 2015
Temperature	High	Good	Good by 2015
Specific pollutants	-	-	-
Chemical	Good	Good	Good by 2015
Priority substances	Does not require assessment	Does not require assessment	-
Priority hazardous substances	Does not require assessment	Does not require assessment	-

" - " indicates no detail provided on the Catchment Data Explorer website.

Appendix 12D

Bristol Airport Chemical and Biological Data

PTCODE	MATERIAL	Date	Time	SAMPNO	PURPOSE
61400270	2AZZ	24/10/2007	940	491131	MS
61400270	2AZZ	14/11/2007	1100	504745	MS
61400270	2AZZ	23/11/2007	1022	505738	MS
61400270	2AZZ	30/11/2007	1114	511932	MS
61400270	2AZZ	10/12/2007	1101	523392	MS
61400270	2AZZ	17/12/2007	1152	524820	MS
61400270	2AZZ	02/01/2008	1540	539627	MS
61400270	2AZZ	04/02/2008	1033	568436	MS
61400270	2AZZ	07/03/2008	1038	592594	MS
61400270	2AZZ	07/04/2008	1003	625846	MS
61400270	2AZZ	20/05/2008	1435	665966	MS
61400270	2AZZ	15/07/2008	1416	729071	MS
61400270	2AZZ	31/07/2008	1120	735688	MS
61400270	2AZZ	19/08/2008	1150	755479	MS
61400270	2AZZ	15/10/2008	1122	815713	MS
61400270	2AZZ	13/11/2008	1108	792498	MS
61400270	2AZZ	27/11/2008	1116	847247	MS
61400270	2AZZ	09/12/2008	1141	874466	MS
61400270	2AZZ	15/01/2009	1526	895881	MS
61400270	2AZZ	16/02/2009	1355	916833	MS
61400270	2AZZ	12/03/2009	1317	939870	MS
61400270	2AZZ	15/05/2009	1247	957996	MS
61400270	2AZZ	21/05/2009	1239	997382	MS
61400270	2AZZ	19/06/2009	1201	19924	MS
61400270	2AZZ	15/07/2009	1047	47039	MS
61400270	2AZZ	09/09/2009	844	74030	MS
61400270	2AZZ	28/09/2009	1120	100884	MS
61400270	2AZZ	21/10/2009	1146	129224	MS
61400270	2AZZ	13/11/2009	956	154760	MS
61400270	2AZZ	14/12/2009	948	172605	MS
61400270	2AZZ	21/01/2010	1150	205816	MS
61400270	2AZZ	17/02/2010	1125	227278	MS
61400270	2AZZ	12/03/2010	1109	245617	MS
61400270	2AZZ	19/04/2010	1037	271000	MS
61400270	2AZZ	14/05/2010	1252	294356	MS
61400270	2AZZ	02/06/2010	1152	317328	MS
61400270	2AZZ	05/07/2010	1334	341416	MS
61400270	2AZZ	18/08/2010	1034	368981	MS
61400270	2AZZ	21/09/2010	1021	391814	MS
61400270	2AZZ	20/10/2010	1154	420402	MS
61400270	2AZZ	16/11/2010	1155	441255	MS
61400270	2AZZ	06/12/2010	1222	459212	MS
61400270	2AZZ	10/02/2011	1122	489825	MS
61400270	2AZZ	03/03/2011	1045	509174	MS
61400270	2AZZ	23/03/2011	1033	527907	MS
61400270	2AZZ	18/04/2011	1057	551271	MS
61400270	2AZZ	26/05/2011	1131	578424	MS
61400270	2AZZ	29/06/2011	1007	598398	MS

61400270 2AZZ	26/07/2011	1026	624681 MS
61400270 2AZZ	24/08/2011	1016	652558 MS
61400270 2AZZ	21/09/2011	1014	680720 MS
61400270 2AZZ	26/10/2011	1002	713291 MS
61400270 2AZZ	15/11/2011	1018	738074 MS
61400270 2AZZ	06/12/2011	1020	761427 MS
61400270 2AZZ	04/01/2012	1159	799661 MS
61400270 2AZZ	31/01/2012	1142	830757 MS
61400270 2AZZ	28/02/2012	1033	854907 MS
61400270 2AZZ	26/04/2012	1007	881306 MS
61400270 2AZZ	04/05/2012	911	909326 MS
61400270 2AZZ	20/06/2012	1239	942487 MS
61400270 2AZZ	09/07/2012	904	976305 MS
61400270 2AZZ	24/07/2012	1346	8613 MS
61400270 2AZZ	28/08/2012	1210	70841 MS
61400270 2AZZ	27/09/2012	1046	100611 MS
61400270 2AZZ	01/11/2012	852	167504 MS
61400270 2AZZ	28/11/2012	1417	196726 MS
61400270 2AZZ	09/01/2013	902	237626 MS
61400270 2AZZ	05/02/2013	1324	264410 MS
61400270 2AZZ	13/03/2013	1043	285754 MS
61400270 2AZZ	04/04/2013	857	314651 MS
61400270 2AZZ	14/05/2013	1414	347404 MS
61400270 2AZZ	06/06/2013	946	379982 MS
61400270 2AZZ	18/07/2013	950	434075 MS
61400270 2AZZ	05/08/2013	1425	496734 MS
61400270 2AZZ	04/09/2013	1126	523688 MS
61400270 2AZZ	18/10/2013	859	567367 MS
61400270 2AZZ	31/10/2013	1113	590192 MS
61400270 2AZZ	03/12/2013	1021	646746 MS
61400270 2AZZ	08/01/2014	1031	679252 MS
61400270 2AZZ	28/04/2014	1349	755897 MS
61400270 2AZZ	02/07/2014	1337	866811 MS
61400270 2AZZ	16/10/2014	927	971012 MS
61400270 2AZZ	05/02/2015	941	70131 MS
61400270 2AZZ	20/05/2015	949	229373 MS
61400270 2AZZ	01/09/2015	1117	305222 MS
61400270 2AZZ	10/11/2015	1108	377060 MS
61400270 2AZZ	04/03/2016	1116	461913 MS
61400270 2AZZ	06/06/2016	1222	568901 MS
61400270 2AZZ	12/09/2016	1301	647684 MS
61400270 2AZZ	01/12/2016	1256	741692 MS
61400270 2AZZ	12/01/2017	1212	767834 MS
61400270 2AZZ	18/04/2017	1111	838333 MS
E8200200 2AZZ	09/01/2013	1349	237969 MS
E8200200 2AZZ	06/02/2013	856	264721 MS
E8200200 2AZZ	19/02/2013	1243	286054 MS
E8200200 2AZZ	21/03/2013	1315	315001 MS
E8200200 2AZZ	19/04/2013	848	347713 MS

E8200200	2AZZ	04/06/2013	923	380276	MS
E8200200	2AZZ	01/07/2013	1243	434425	MS
E8200200	2AZZ	05/08/2013	846	484748	MS
E8200200	2AZZ	02/09/2013	916	523993	MS
E8200200	2AZZ	07/10/2013	917	567710	MS
E8200200	2AZZ	30/10/2013	958	590479	MS
E8200200	2AZZ	26/11/2013	937	647015	MS
E8200200	2AZZ	07/01/2014	933	679559	MS
E8200200	2AZZ	04/02/2014	915	699978	MS
E8200200	2AZZ	04/03/2014	1025	730150	MS
E8200200	2AZZ	07/04/2014	1033	756182	MS
E8200200	2AZZ	01/07/2014	1234	867085	MS
E8200200	2AZZ	21/10/2014	952	971275	MS
E8200200	2AZZ	05/02/2015	1018	70348	MS
E8200200	2AZZ	22/05/2015	954	229597	MS
E8200200	2AZZ	21/08/2015	912	305441	MS
E8200200	2AZZ	17/11/2015	923	377353	MS
E8200200	2AZZ	11/03/2016	1108	462196	MS
E8200200	2AZZ	08/06/2016	946	569206	MS
E8200200	2AZZ	19/09/2016	1318	647913	MS
E8200200	2AZZ	12/12/2016	1226	741971	MS
E8200200	2AZZ	11/01/2017	1343	768169	MS
E8200450	2AZZ	10/01/2000	1215	45477	MS
E8200450	2AZZ	04/02/2000	1055	51898	MS
E8200450	2AZZ	28/02/2000	1355	56697	MS
E8200450	2AZZ	13/04/2000	1400	66863	MS
E8200450	2AZZ	23/05/2000	1040	76105	MS
E8200450	2AZZ	19/06/2000	1425	82669	MS
E8200450	2AZZ	24/08/2000	1240	101969	MS
E8200450	2AZZ	27/09/2000	1310	110520	MS
E8200450	2AZZ	31/10/2000	1305	118807	MS
E8200450	2AZZ	01/12/2000	1410	128823	MS
E8200450	2AZZ	27/12/2000	1010	133562	MS
E8200450	2AZZ	07/02/2001	1240	140212	MS
E8200450	2AZZ	25/02/2001	1515	144631	MS
E8200450	2AZZ	20/08/2001	910	203589	MS
E8200450	2AZZ	18/10/2001	1320	226751	MS
E8200450	2AZZ	24/10/2001	1000	229092	MS
E8200450	2AZZ	13/11/2001	1340	236186	MS
E8200450	2AZZ	31/12/2001	1405	251956	MS
E8200450	2AZZ	19/02/2002	1230	268402	MS
E8200450	2AZZ	03/04/2002	1505	282660	MS
E8200450	2AZZ	25/07/2002	1408	326328	MS
E8200450	2AZZ	17/09/2002	1428	350219	MS
E8200450	2AZZ	16/10/2002	1407	361615	MS
E8200450	2AZZ	21/10/2002	1401	362995	MS
E8200450	2AZZ	15/11/2002	1405	374134	MS
E8200450	2AZZ	25/11/2002	1455	377402	MS
E8200450	2AZZ	12/02/2003	1405	400977	MS

E8200450	2AZZ	27/02/2003	1200	406241 MS
E8200450	2AZZ	31/03/2003	1300	416125 MS
E8200450	2AZZ	21/05/2003	1400	433979 MS
E8200450	2AZZ	11/06/2003	850	442635 MS
E8200450	2AZZ	15/07/2003	900	457713 MS
E8200450	2AZZ	12/08/2003	840	469864 MS
E8200450	2AZZ	11/09/2003	905	482074 MS
E8200450	2AZZ	06/10/2003	900	491725 MS
E8200450	2AZZ	25/11/2003	905	510939 MS
E8200450	2AZZ	05/01/2004	930	521811 MS
E8200450	2AZZ	03/02/2004	1345	531986 MS
E8200450	2AZZ	05/03/2004	950	541923 MS
E8200450	2AZZ	02/04/2004	930	552108 MS
E8200450	2AZZ	27/04/2004	910	560124 MS
E8200450	2AZZ	20/05/2004	950	569702 MS
E8200450	2AZZ	23/06/2004	950	583669 MS
E8200450	2AZZ	26/07/2004	915	597372 MS
E8200450	2AZZ	02/09/2004	1245	613872 MS
E8200450	2AZZ	21/10/2004	1105	636419 MS
E8200450	2AZZ	18/11/2004	1310	646440 MS
E8200450	2AZZ	10/12/2004	1140	655777 MS
E8200450	2AZZ	14/01/2005	1120	664213 MS
E8200450	2AZZ	01/03/2005	1340	681026 MS
E8200450	2AZZ	22/03/2005	1223	688663 MS
E8200450	2AZZ	26/04/2005	1250	699758 MS
E8200450	2AZZ	03/06/2005	1213	715337 MS
E8200450	2AZZ	29/06/2005	1255	726866 MS
E8200450	2AZZ	26/07/2005	1035	739350 MS
E8200450	2AZZ	05/09/2005	1205	758032 MS
E8200450	2AZZ	27/09/2005	1340	767525 MS
E8200450	2AZZ	08/11/2005	1630	783512 MS
E8200450	2AZZ	07/12/2005	1235	795710 MS
E8200450	2AZZ	13/12/2005	1625	798444 MS
E8200450	2AZZ	31/01/2006	1340	811364 MS
E8200450	2AZZ	10/03/2006	1155	825901 MS
E8200450	2AZZ	29/03/2006	1345	832052 MS
E8200450	2AZZ	04/05/2006	1130	844146 MS
E8200450	2AZZ	31/05/2006	1115	854075 MS
E8200450	2AZZ	28/06/2006	1235	16489 MS
E8200450	2AZZ	24/07/2006	1155	37621 MS
E8200450	2AZZ	23/08/2006	1310	72685 MS
E8200450	2AZZ	08/09/2006	1210	90085 MS
E8200450	2AZZ	25/10/2006	1310	129800 MS
E8200450	2AZZ	20/11/2006	1200	158487 MS
E8200450	2AZZ	08/12/2006	1335	182937 MS
E8200450	2AZZ	23/01/2007	1321	219484 MS
E8200450	2AZZ	28/02/2007	1505	246670 MS
E8200450	2AZZ	19/04/2007	1216	296755 MS
E8200450	2AZZ	31/07/2007	1430	394367 MS

E8200450	2AZZ	16/08/2007	1133	419435	MS
E8200450	2AZZ	18/09/2007	1047	444703	MS
E8200450	2AZZ	12/10/2007	1159	465496	MS
E8200450	2AZZ	23/10/2007	1210	485571	MS
E8200450	2AZZ	13/11/2007	1135	502441	MS
E8200450	2AZZ	20/11/2007	1101	505671	MS
E8200450	2AZZ	27/11/2007	1150	510582	MS
E8200450	2AZZ	03/12/2007	1007	515627	MS
E8200450	2AZZ	04/01/2008	1050	539786	MS
E8200450	2AZZ	17/01/2008	1004	550903	MS
E8200450	2AZZ	19/02/2008	1205	584299	MS
E8200450	2AZZ	31/03/2008	1230	612503	MS
E8200450	2AZZ	19/05/2008	1139	665952	MS
E8200450	2AZZ	04/07/2008	1149	701671	MS
E8200450	2AZZ	14/07/2008	1226	739842	MS
E8200450	2AZZ	08/08/2008	1100	755319	MS
E8200450	2AZZ	06/11/2008	1432	815462	MS
E8200450	2AZZ	19/11/2008	1137	847133	MS
E8200450	2AZZ	01/12/2008	1211	869029	MS
E8200450	2AZZ	09/12/2008	1246	888518	MS
E8200450	2AZZ	07/01/2009	1219	895564	MS
E8200450	2AZZ	17/02/2009	1205	916663	MS
E8200450	2AZZ	13/03/2009	1218	939702	MS
E8200450	2AZZ	16/04/2009	1222	957824	MS
E8200450	2AZZ	14/05/2009	1132	997212	MS
E8200450	2AZZ	18/06/2009	1224	19790	MS
E8200450	2AZZ	16/07/2009	1222	46734	MS
E8200450	2AZZ	04/09/2009	1137	73896	MS
E8200450	2AZZ	22/09/2009	1154	100751	MS
E8200450	2AZZ	12/10/2009	1233	128805	MS
E8200450	2AZZ	10/11/2009	1204	154625	MS
E8200450	2AZZ	10/12/2009	1302	172449	MS
E8200450	2AZZ	27/01/2010	1233	205452	MS
E8200450	2AZZ	23/03/2010	1222	245499	MS
E8200450	2AZZ	16/04/2010	925	227161	MS
E8200450	2AZZ	23/04/2010	1053	270715	MS
E8200450	2AZZ	06/05/2010	1444	294256	MS
E8200450	2AZZ	27/05/2010	1050	317207	MS
E8200450	2AZZ	29/06/2010	939	341112	MS
E8200450	2AZZ	09/08/2010	958	368832	MS
E8200450	2AZZ	09/09/2010	1258	391674	MS
E8200450	2AZZ	05/10/2010	922	420038	MS
E8200450	2AZZ	26/10/2010	1143	441121	MS
E8200450	2AZZ	18/11/2010	1227	459077	MS
E8200450	2AZZ	07/01/2011	1335	489522	MS
E8200450	2AZZ	15/02/2011	1015	508963	MS
E8200450	2AZZ	08/03/2011	819	527724	MS
E8200450	2AZZ	30/03/2011	853	551056	MS
E8200450	2AZZ	04/05/2011	841	578267	MS

E8200450	2AZZ	22/06/2011	834	598201 MS
E8200450	2AZZ	07/07/2011	833	624418 MS
E8200450	2AZZ	29/07/2011	850	652443 MS
E8200450	2AZZ	25/08/2011	834	680559 MS
E8200450	2AZZ	22/09/2011	858	712988 MS
E8200450	2AZZ	18/10/2011	856	737873 MS
E8200450	2AZZ	11/11/2011	840	737880 MS
E8200450	2AZZ	10/01/2012	1118	799287 MS
E8200450	2AZZ	01/02/2012	908	830649 MS
E8200450	2AZZ	06/03/2012	1338	854835 MS
E8200450	2AZZ	30/03/2012	901	881094 MS
E8200450	2AZZ	02/05/2012	909	909214 MS
E8200450	2AZZ	19/06/2012	1209	942383 MS
E8200450	2AZZ	03/07/2012	1224	976076 MS
E8200450	2AZZ	26/07/2012	831	8482 MS
E8200450	2AZZ	23/08/2012	825	70750 MS
E8200450	2AZZ	27/09/2012	905	100263 MS
E8200450	2AZZ	24/10/2012	1143	167420 MS
E8200450	2AZZ	13/11/2012	743	179325 MS
E8200450	2AZZ	27/11/2012	1251	196660 MS
E8200450	2AZZ	09/01/2013	1415	237260 MS
E8200450	2AZZ	06/02/2013	847	264321 MS
E8200450	2AZZ	19/02/2013	1252	285668 MS
E8200450	2AZZ	21/03/2013	1329	314473 MS
E8200450	2AZZ	07/05/2013	850	347301 MS
E8200450	2AZZ	04/06/2013	910	379892 MS
E8200450	2AZZ	01/07/2013	1212	433867 MS
E8200450	2AZZ	05/08/2013	833	484367 MS
E8200450	2AZZ	06/09/2013	1047	523601 MS
E8200450	2AZZ	04/10/2013	838	567081 MS
E8200450	2AZZ	30/10/2013	945	590057 MS
E8200450	2AZZ	26/11/2013	923	646638 MS
E8200450	2AZZ	07/01/2014	925	679080 MS
E8200450	2AZZ	04/02/2014	906	699560 MS
E8200450	2AZZ	04/03/2014	1010	729728 MS
E8200450	2AZZ	07/04/2014	1015	755746 MS
E8200450	2AZZ	08/05/2014	911	773000 MS
E8200450	2AZZ	05/06/2014	1013	841831 MS
E8200450	2AZZ	01/07/2014	1154	866678 MS
E8200450	2AZZ	20/08/2014	1455	924601 MS
E8200450	2AZZ	17/09/2014	952	944174 MS
E8200450	2AZZ	25/09/2014	1103	969942 MS
E8200450	2AZZ	01/10/2014	1320	944173 MS
E8200450	2AZZ	08/10/2014	1546	970853 MS
E8200450	2AZZ	21/10/2014	940	970854 MS
E8200450	2AZZ	03/11/2014	1342	997747 MS
E8200450	2AZZ	02/12/2014	947	27509 MS
E8200450	2AZZ	12/01/2015	1130	51165 MS
E8200450	2AZZ	05/02/2015	958	69989 MS

E8200450 2AZZ	16/03/2015	1128	91834 MS
E8200450 2AZZ	10/04/2015	1036	207241 MS
E8200450 2AZZ	22/05/2015	1015	229260 MS
E8200450 2AZZ	15/06/2015	1211	257099 MS
E8200450 2AZZ	07/07/2015	1359	282345 MS
E8200450 2AZZ	21/08/2015	934	305114 MS
E8200450 2AZZ	16/09/2015	1111	332478 MS
E8200450 2AZZ	28/10/2015	1034	357604 MS
E8200450 2AZZ	17/11/2015	943	376925 MS
E8200450 2AZZ	07/12/2015	1324	398221 MS
E8200450 2AZZ	15/01/2016	1007	422052 MS
E8200450 2AZZ	05/02/2016	1007	437877 MS
E8200450 2AZZ	11/03/2016	1136	461777 MS
E8200450 2AZZ	05/04/2016	1321	481813 MS
E8200450 2AZZ	05/05/2016	1310	545524 MS
E8200450 2AZZ	08/06/2016	1006	568768 MS
E8200450 2AZZ	12/07/2016	1030	592462 MS
E8200450 2AZZ	01/08/2016	1049	625106 MS
E8200450 2AZZ	19/09/2016	1336	647518 MS
E8200450 2AZZ	27/10/2016	913	672456 MS
E8200450 2AZZ	14/11/2016	1050	725301 MS
E8200450 2AZZ	12/12/2016	1250	741567 MS
E8200450 2AZZ	11/01/2017	1357	767682 MS
E8200450 2AZZ	21/02/2017	1355	784809 MS
E8200450 2AZZ	17/03/2017	1419	809778 MS
E8200450 2AZZ	22/05/2017	1122	838187 MS
E8200450 2AZZ	06/06/2017	1037	899689 MS
E8200450 2AZZ	04/07/2017	939	922181 MS
E8200450 2AZZ	04/10/2017	1347	992804 MS
E8200450 2AZZ	20/11/2017	1401	12202 MS
E8200450 2AZZ	12/12/2017	1407	27121 MS
E8200450 2AZZ	17/01/2018	1000	50420 MS
E8200450 2AZZ	27/02/2018	1329	70220 MS
E8200450 2AZZ	22/03/2018	1244	91294 MS
E8200450 2AZZ	02/05/2018	1134	134345 MS
E8200450 2AZZ	05/06/2018	1043	155725 MS

PTNAME	NGR	0061: pH, I0062: Conc0076: Tem
WINFORD BROOK AT THE BATCH	ST578236:	8.19 8.03
WINFORD BROOK AT THE BATCH	ST578236:	8.25 7.85
WINFORD BROOK AT THE BATCH	ST578236:	8.3 7.1
WINFORD BROOK AT THE BATCH	ST578236:	8.35 9.2
WINFORD BROOK AT THE BATCH	ST578236:	8.26 8
WINFORD BROOK AT THE BATCH	ST578236:	8.29 4.4
WINFORD BROOK AT THE BATCH	ST578236:	8.18 6.98
WINFORD BROOK AT THE BATCH	ST578236:	8.41 6.7
WINFORD BROOK AT THE BATCH	ST578236:	8.41 8.2
WINFORD BROOK AT THE BATCH	ST578236:	8.49 8.3
WINFORD BROOK AT THE BATCH	ST578236:	8.32 12.8
WINFORD BROOK AT THE BATCH	ST578236:	8.26 15.56
WINFORD BROOK AT THE BATCH	ST578236:	8.08 16.72
WINFORD BROOK AT THE BATCH	ST578236:	8.11 14.95
WINFORD BROOK AT THE BATCH	ST578236:	8.42 13.51
WINFORD BROOK AT THE BATCH	ST578236:	8.12 8.69
WINFORD BROOK AT THE BATCH	ST578236:	8.1 8.51
WINFORD BROOK AT THE BATCH	ST578236:	8.1 5.89
WINFORD BROOK AT THE BATCH	ST578236:	8.26 7.36
WINFORD BROOK AT THE BATCH	ST578236:	8.17 8.08
WINFORD BROOK AT THE BATCH	ST578236:	8.38 9.58
WINFORD BROOK AT THE BATCH	ST578236:	8.14 12.9
WINFORD BROOK AT THE BATCH	ST578236:	8.03 13.79
WINFORD BROOK AT THE BATCH	ST578236:	7.89 15.15
WINFORD BROOK AT THE BATCH	ST578236:	8.23 16.87
WINFORD BROOK AT THE BATCH	ST578236:	8.04 15.08
WINFORD BROOK AT THE BATCH	ST578236:	8.15 14.09
WINFORD BROOK AT THE BATCH	ST578236:	8.17 10.7
WINFORD BROOK AT THE BATCH	ST578236:	7.9 9.76
WINFORD BROOK AT THE BATCH	ST578236:	8.04 6.98
WINFORD BROOK AT THE BATCH	ST578236:	8.17 6.35
WINFORD BROOK AT THE BATCH	ST578236:	8.32 5.97
WINFORD BROOK AT THE BATCH	ST578236:	8.27 5.74
WINFORD BROOK AT THE BATCH	ST578236:	8.23 10.57
WINFORD BROOK AT THE BATCH	ST578236:	8.3 10.72
WINFORD BROOK AT THE BATCH	ST578236:	8.32 14.44
WINFORD BROOK AT THE BATCH	ST578236:	8.33 17.57
WINFORD BROOK AT THE BATCH	ST578236:	8.17 16.61
WINFORD BROOK AT THE BATCH	ST578236:	8.03 14.27
WINFORD BROOK AT THE BATCH	ST578236:	7.74 9.05
WINFORD BROOK AT THE BATCH	ST578236:	8.1 6.95
WINFORD BROOK AT THE BATCH	ST578236:	7.66 2.52
WINFORD BROOK AT THE BATCH	ST578236:	8.3 8.3
WINFORD BROOK AT THE BATCH	ST578236:	8.3 5.2
WINFORD BROOK AT THE BATCH	ST578236:	8.09 9.11
WINFORD BROOK AT THE BATCH	ST578236:	8.11 11.21
WINFORD BROOK AT THE BATCH	ST578236:	8.2 13.9
WINFORD BROOK AT THE BATCH	ST578236:	8.02 15.56

WINFORD BROOK AT THE BATCH	ST578236	7.65	15.83
WINFORD BROOK AT THE BATCH	ST578236	8.34	14.72
WINFORD BROOK AT THE BATCH	ST578236	8.21	13.6
WINFORD BROOK AT THE BATCH	ST578236	8.13	9.5
WINFORD BROOK AT THE BATCH	ST578236	8.19	10.1
WINFORD BROOK AT THE BATCH	ST578236	8.3	6
WINFORD BROOK AT THE BATCH	ST578236	7.92	7.9
WINFORD BROOK AT THE BATCH	ST578236	8.16	4.6
WINFORD BROOK AT THE BATCH	ST578236	8.39	9.4
WINFORD BROOK AT THE BATCH	ST578236	8.03	10.4
WINFORD BROOK AT THE BATCH	ST578236	8.11	10.1
WINFORD BROOK AT THE BATCH	ST578236	8.3	14.9
WINFORD BROOK AT THE BATCH	ST578236	7.95	14.5
WINFORD BROOK AT THE BATCH	ST578236	8.24	17
WINFORD BROOK AT THE BATCH	ST578236	8.08	15.4
WINFORD BROOK AT THE BATCH	ST578236	8.17	12.7
WINFORD BROOK AT THE BATCH	ST578236	8.2	9.6
WINFORD BROOK AT THE BATCH	ST578236	8.16	8.2
WINFORD BROOK AT THE BATCH	ST578236	8.11	9.5
WINFORD BROOK AT THE BATCH	ST578236	8.25	7
WINFORD BROOK AT THE BATCH	ST578236	8.29	5.2
WINFORD BROOK AT THE BATCH	ST578236	8.09	5.3
WINFORD BROOK AT THE BATCH	ST578236	8.34	11.3
WINFORD BROOK AT THE BATCH	ST578236	8.22	14.4
WINFORD BROOK AT THE BATCH	ST578236	8.26	19
WINFORD BROOK AT THE BATCH	ST578236	8.13	17.9
WINFORD BROOK AT THE BATCH	ST578236	8.2	16.4
WINFORD BROOK AT THE BATCH	ST578236	8.06	12
WINFORD BROOK AT THE BATCH	ST578236	7.97	11.2
WINFORD BROOK AT THE BATCH	ST578236	8.16	6.7
WINFORD BROOK AT THE BATCH	ST578236	8.01	8.1
WINFORD BROOK AT THE BATCH	ST578236	8.19	11.4
WINFORD BROOK AT THE BATCH	ST578236	8.33	16.3
WINFORD BROOK AT THE BATCH	ST578236	8.19	11.2
WINFORD BROOK AT THE BATCH	ST578236	8.38	4.2
WINFORD BROOK AT THE BATCH	ST578236	8.23	11.9
WINFORD BROOK AT THE BATCH	ST578236	8.19	14.6
WINFORD BROOK AT THE BATCH	ST578236	8.22	12.6
WINFORD BROOK AT THE BATCH	ST578236	8.29	7
WINFORD BROOK AT THE BATCH	ST578236	8.19	17
WINFORD BROOK AT THE BATCH	ST578236	8.24	16.4
WINFORD BROOK AT THE BATCH	ST578236	8.1	3.9
WINFORD BROOK AT THE BATCH	ST578236	8.29	6.6
WINFORD BROOK AT THE BATCH	ST578236	8.21	10.7
KENN R CHELVEY	ST462006	7.83	9.6
KENN R CHELVEY	ST462006	7.49	7
KENN R CHELVEY	ST462006	7.64	8
KENN R CHELVEY	ST462006	7.88	7.8
KENN R CHELVEY	ST462006	7.6	9.6

KENN R CHELVEY	ST4620068	7.82	13.6
KENN R CHELVEY	ST4620068	8.04	17.5
KENN R CHELVEY	ST4620068	7.47	17.6
KENN R CHELVEY	ST4620068	7.47	14.9
KENN R CHELVEY	ST4620068	7.77	12.9
KENN R CHELVEY	ST4620068	7.75	10.1
KENN R CHELVEY	ST4620068	7.64	5.8
KENN R CHELVEY	ST4620068	7.6	8.2
KENN R CHELVEY	ST4620068	7.48	7.1
KENN R CHELVEY	ST4620068	7.68	8.5
KENN R CHELVEY	ST4620068	7.53	11.6
KENN R CHELVEY	ST4620068	7.95	17.9
KENN R CHELVEY	ST4620068	8.08	12.4
KENN R CHELVEY	ST4620068	7.67	6
KENN R CHELVEY	ST4620068	7.72	13.6
KENN R CHELVEY	ST4620068	7.55	18
KENN R CHELVEY	ST4620068	7.5	11.9
KENN R CHELVEY	ST4620068	7.62	8.9
KENN R CHELVEY	ST4620068	7.65	16.4
KENN R CHELVEY	ST4620068	7.88	16.2
KENN R CHELVEY	ST4620068	7.6	9.6
KENN R CHELVEY	ST4620068	7.84	8.7
R. KENN U/S CONF WITH NEW BLIND YEC	ST4356768	7.7	6.8
R. KENN U/S CONF WITH NEW BLIND YEC	ST4356768	7.7	9.6
R. KENN U/S CONF WITH NEW BLIND YEC	ST4356768	7.63	9.7
R. KENN U/S CONF WITH NEW BLIND YEC	ST4356768	7.55	8.6
R. KENN U/S CONF WITH NEW BLIND YEC	ST4356768	7.65	12.7
R. KENN U/S CONF WITH NEW BLIND YEC	ST4356768	7.7	21.1
R. KENN U/S CONF WITH NEW BLIND YEC	ST4356768	7.65	16.5
R. KENN U/S CONF WITH NEW BLIND YEC	ST4356768	7.7	14.5
R. KENN U/S CONF WITH NEW BLIND YEC	ST4356768	7.55	11
R. KENN U/S CONF WITH NEW BLIND YEC	ST4356768	7.65	12
R. KENN U/S CONF WITH NEW BLIND YEC	ST4356768	7.65	5.9
R. KENN U/S CONF WITH NEW BLIND YEC	ST4356768	7.6	9
R. KENN U/S CONF WITH NEW BLIND YEC	ST4356768	7.75	8.6
R. KENN U/S CONF WITH NEW BLIND YEC	ST4356768	7.38	15.41
R. KENN U/S CONF WITH NEW BLIND YEC	ST4356768	7.94	16.4
R. KENN U/S CONF WITH NEW BLIND YEC	ST4356768	7.81	13.12
R. KENN U/S CONF WITH NEW BLIND YEC	ST4356768	7.57	9.51
R. KENN U/S CONF WITH NEW BLIND YEC	ST4356768	7.89	5.87
R. KENN U/S CONF WITH NEW BLIND YEC	ST4356768	7.68	9.21
R. KENN U/S CONF WITH NEW BLIND YEC	ST4356768	7.77	12.96
R. KENN U/S CONF WITH NEW BLIND YEC	ST4356768	7.64	14.97
R. KENN U/S CONF WITH NEW BLIND YEC	ST4356768	7.5	13.7
R. KENN U/S CONF WITH NEW BLIND YEC	ST4356768	7.24	11.1
R. KENN U/S CONF WITH NEW BLIND YEC	ST4356768	7.23	11.2
R. KENN U/S CONF WITH NEW BLIND YEC	ST4356768	7.71	11.5
R. KENN U/S CONF WITH NEW BLIND YEC	ST4356768	7.57	10.02
R. KENN U/S CONF WITH NEW BLIND YEC	ST4356768	7.58	8.1

R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.53	9.9
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.37	11.6
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.72	13.3
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.87	17.1
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.82	21.79
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.4	20.79
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.41	15.05
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.33	11.07
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.31	7.75
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.1	8.73
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.61	12.05
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.29	9.09
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.4	11.24
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.18	13.66
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.35	16.8
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.26	15.33
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.26	18.3
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.31	17
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.3	12.16
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.8	14.22
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.31	12.16
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.67	11.41
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.87	7.55
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	8.17	12.14
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.63	15.44
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.65	14.61
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.58	19.28
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.7	17.66
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.79	18.23
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.7	15.47
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.55	12.56
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.68	7.3
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	8.36	8.28
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.73	6.2
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.72	8.1
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.63	11.3
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.59	16.1
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.51	13.7
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.43	15.5
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.63	21.5
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.73	17.5
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.69	18.1
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.35	12.2
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.37	9.3
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.55	8.9
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.53	7.2
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.67	9.6
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.49	14
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.5	14.8

R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.5	15.3
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.72	13
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.56	13.2
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.53	9.6
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.61	8.6
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.56	7.6
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.39	9.3
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.35	8.4
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.65	7.59
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.73	8.24
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.68	6.4
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.65	11.2
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.74	14.5
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.75	17.18
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.59	17.46
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.44	17.9
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.5	10.86
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.54	10.23
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.66	6.53
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.26	7.18
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.54	5.34
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.46	8.87
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.63	10.07
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.46	12.84
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	8.6	13.52
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.38	16.77
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.76	18.16
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.82	14.26
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.65	14.82
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.52	12.96
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.35	9
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.6	10.49
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.55	6.46
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.51	9.14
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.33	10.38
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.62	11.98
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.48	13.73
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.67	17.35
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.71	19.44
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.56	17.02
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.72	16.44
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.27	13.25
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.28	8.72
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.51	9.28
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.58	6.49
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	6.79	7.1
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.54	5.2
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.46	10.65
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.67	12.87

R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.2	15.6
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.34	15.96
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.01	18.68
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.8	15.24
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.5	14.2
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.69	11.5
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.46	12.4
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.59	10.5
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.15	4.1
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.72	10.2
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.37	11.8
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.24	11.2
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.6	15.3
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.25	14.5
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.34	16.2
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.23	14.4
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.24	12.9
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	8.17	12.2
R. KENN U/S CONF WITH NEW BLIND YEC ST4356769533		
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.43	8.6
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.77	9.8
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.38	7.6
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.59	8.4
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.79	7.7
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.38	14.7
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.65	16
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	8.04	17.9
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.38	17.9
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.72	17.4
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.49	15.8
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.4	10.6
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.51	6
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.53	8.8
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.34	7.3
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.66	8.5
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.5	12
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.9	12.7
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.48	12.9
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.58	16.4
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.61	15.6
R. KENN U/S CONF WITH NEW BLIND YEC ST4356769533		
R. KENN U/S CONF WITH NEW BLIND YEC ST4356769533		
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.49	15.3
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.9	12.6
R. KENN U/S CONF WITH NEW BLIND YEC ST4356769533		
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.68	11.7
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.35	9.3
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.82	9.5
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.51	6.4

R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.34	8.7
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.43	12.3
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.8	14.6
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.57	16.4
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.62	18.4
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.53	16.6
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.56	13.5
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.5	10.8
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.45	11.7
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.53	12.1
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.58	7
R. KENN U/S CONF WITH NEW BLIND YEC ST4356769533		
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.51	9.2
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.46	11.5
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.64	14.1
R. KENN U/S CONF WITH NEW BLIND YEC ST4356769533		
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.68	17.2
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.97	18
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.73	16.5
R. KENN U/S CONF WITH NEW BLIND YEC ST4356769533		
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.29	8.8
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.42	9
R. KENN U/S CONF WITH NEW BLIND YEC ST4356769533		
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.82	10.6
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.92	10.4
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.69	15.7
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.61	14
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.41	17.8
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.6	13
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.17	9.7
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.43	5.2
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.66	6.2
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.74	6.5
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.67	8.9
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.65	11.2
R. KENN U/S CONF WITH NEW BLIND YEC ST435676!	7.52	16.6

0077: Con 0085: BOC 0111: Amn 0116: N O 0117: Nitra 0118: Nitrit 0119: NH3 0135: Sld

603	2.1	0.034	3.35	3.33	0.0235	0.00054	13.8
631	1.3	<0.03	3.3	3.29	0.0133	<0.00047	<3
587	1.5	0.075	3.43	3.41	0.0225	0.00111	11.1
663 <1		0.041	3.28	3.25	0.0317	0.00071	9.2
543 <1		0.064	2.69	2.68	0.0129	0.00101	19.1
649 <1		0.053	3.62	3.61	0.0106	0.00064	4.9
645 <1		0.034	3.33	3.32	0.0108	0.0005	5.9
614		0.075	3.58	3.57	0.0112	0.00107	30.3
651		0.044	3.98	3.96	0.0187	0.0007	52.4
560	<0.03		3.65	3.64	0.0071	<0.00048	4.3
567	<0.03		3.36	3.34	0.0177	<0.00067	<3
605		0.044	2.94	2.91	0.0318	0.0012	3.9
602		0.089	2.89	2.84	0.047	0.00265	<3
625		0.053	2.29	2.26	0.0256	0.00139	5.8
649	<0.03		3.43	3.42	0.0148	<0.00071	8.3
627		0.053	2.55	2.54	0.0091	0.00088	9.5
651		0.066	3.49	3.48	0.0097	0.00108	6.5
663		0.043	3.1	3.09	0.0085	0.00058	6.5
648		0.076	3.42	3.41	0.0135	0.00114	9.7
665	<0.03		3	3	0.005	<0.00048	7
631		0.035	3.09	3.08	0.0074	0.00062	6.7
596		0.056	3.59	3.55	0.0428	0.00126	3.3
590		0.072	3.19	3.12	0.0713	0.00173	6.7
600		0.031	2.82	2.79	0.0271	0.00064	3.6
568	<0.03		2.46	2.45	0.0146	<0.0009	3.3
569	<0.03		2.35	2.34	0.0119	<0.00079	4.3
560	<0.03		2.22	2.2	0.0217	<0.00074	<3
527	<0.03		2.16	2.14	0.0202	<0.00058	28.6
566		0.311	2.32	2.26	0.0572	0.00444	5.9
622		0.054	2.49	2.48	0.01	0.00079	5
597		0.066	2.8	2.79	0.0078	0.00092	20.3
635	<0.03		3.62	3.61	0.0059	<0.00041	9.47
636	<0.03		3.46	3.45	0.0058	<0.0004	20.8
586	<0.03		3.08	3.07	0.0079	<0.00057	6.83
	<0.03				0.0138	<0.00058	6.1
	<0.03				0.0183	<0.00076	5.43
		0.035			0.0285	0.00111	14.1
	<0.03				0.0157	<0.00089	<3
	<0.03				0.0139	<0.00075	<3
	<0.03				0.0119	<0.00028	6.68
	<0.03				0.0121	<0.00044	4.37
		0.057			0.0172	0.00028	7.2
	<0.03				0.0087	<0.00048	9.2
	<0.03				0.0054	<0.00038	7.47
	<0.03				0.0064	<0.00051	5.1
	<0.03				0.0088	<0.0006	3.62
	<0.03				0.0203	<0.00073	4.67
	<0.03				0.0249	<0.00082	<3

	<0.03			0.0159	<0.00038	<3
	0.041			0.0578	0.00106	5.07
	0.038			0.024	0.0009	6.63
	<0.03			0.0127	<0.00053	12
	<0.03			0.0134	<0.00055	5.98
	<0.03			0.0074	<0.00041	6.55
	0.046			0.0072	0.0006	47.7
	<0.03			0.0054	<0.00037	4.5
	<0.03			0.0047	<0.00052	3
	<0.03			0.013	<0.00056	18.2
	0.066			0.0102	0.00121	9.62
	<0.03			0.0251	<0.00078	<3
	0.05			0.0187	0.00113	8.17
	0.038			0.0256	0.00115	3.88
	0.51			0.0788	0.0138	14.2
	0.068			0.015	0.00151	11.6
	0.281			0.0274	0.00498	9.48
	0.041			0.0073	0.00066	5.52
	0.184			0.0213	0.00324	4.2
	0.085			0.0116	0.00124	6.15
654	<0.03	3.63	3.62	0.0069	<0.00038	6.5
	<0.03			0.0057	<0.00039	3.62
	<0.03			0.0205	<0.0006	7.17
625	0.049	3.01	2.97	0.0418	0.00123	4.57
	0.032			0.0235	0.00112	5.2
	0.088			0.0782	0.00285	5.65
574	0.038	1.74	1.71	0.0281	0.0011	5.3
	<0.03			0.0129	<0.00063	19.5
	<0.03			0.0139	<0.00056	29.4
671	0.038	2.71	2.69	0.021	0.00054	4.45
450	0.043	1.54	1.53	0.0066	0.00068	
545	0.123	2.23	2.21	0.023	0.00249	
627	<0.03	2.5	2.47	0.026	<0.00087	
576	0.036	3.07	3.05	0.0164	0.00072	
674	<0.03	3.1	3.09	0.0052	<0.00036	
594	0.055	2.61	2.58	0.0286	0.00115	
581	0.039	1.35	1.33	0.0206	0.001	
649	0.055	1.53	1.5	0.0266	0.00121	
637	<0.03	2.6	2.59	0.0067	<0.00044	
594	0.034	2.47	2.44	0.0311	0.00103	
536	0.042	1.69	1.66	0.0282	0.00122	
662	0.06	2.39	2.38	0.0094	0.0007	
670	<0.03	2.53	2.52	0.0076	<0.00043	
590	<0.03	2.71	2.7	0.0092	<0.00058	
670	0.071	4.2	4.18	0.0192	0.00086	
667	0.085	4.35	4.34	0.0132	0.00039	
674	0.05	4.08	4.07	0.0092	0.00035	
670	0.086	3.73	3.72	0.0088	0.00102	
632	0.055	3.24	3.23	0.0128	0.00039	

598		0.071	2.49	2.46	0.0342	0.00112	
529		0.051	1.88	1.83	0.0464	0.00161	
433		0.032	0.67	0.654	0.0156	0.00031	
445		<0.03	0.34	0.336	0.0042	<0.00024	
552		<0.03	2.01	1.98	0.0305	<0.0004	
615		0.203	6.16	6.13	0.0289	0.00211	
680		0.132	3.95	3.92	0.0344	0.00078	
447		0.273	3.24	3.22	0.0213	0.00175	
588		0.065	3.89	3.88	0.0115	0.00029	
594		0.045	3.54	3.53	0.0094	0.00035	
640		0.306	3.08	3.03	0.0453	0.00216	
605		0.032	2.59	2.55	0.0441	0.00093	
620		0.088	3.52	3.43	0.0894	0.00191	
682		0.133	4.6	4.58	0.0166	0.00085	
598		0.093	2.52	2.44	0.0794	0.00117	
505		0.341	1.22	1.15	0.0696	0.00403	
609		0.722	4.27	4.2	0.0694	0.00485	
636		0.058	3.74	3.73	0.0097	0.00041	
607		<0.03	2.65	2.58	0.0702	<0.0004	
572		0.042	1.53	1.47	0.061	0.00092	
647		0.118	4.23	4.19	0.0368	0.00084	
662		0.202	4.51	4.48	0.0333	0.00233	
	1.2	0.08	6.1	6.09	0.0132	0.0006	16.8
	1.1	0.093	5.83	5.82	0.0131	0.0008	21.1
	2.2	0.124	4.44	4.43	0.0133	0.001	39.9
	1.7	0.1	5.32	5.3	0.0236	0.0006	11.4
<1	<0.03		5.38	5.36	0.0164	<0.0003	<3
<1	<0.03		5.2	5.17	0.032	<0.0006	<3
<1	<0.03		4.6	4.58	0.0231	<0.0004	<3
	3.8	0.176	2.35	2.29	0.0588	0.0023	<3
	2.7	0.21	3.14	3.11	0.0324	0.0015	35.6
	1.4	0.118	4.96	4.93	0.0319	0.0011	15.2
	1.2	0.067	5.48	5.46	0.0153	0.0004	7.5
	1.1	0.107	5	4.98	0.0171	0.0007	29.8
	1.6	0.043	5.45	5.44	0.0063	0.0004	14.3
<1	<0.03		4.52	4.48	0.0402	<0.0002	7.2
	1.7	0.085	3.71	3.65	0.0582	0.0022	6.3
	2.4	0.283	4.57	4.49	0.0818	0.0042	<3
	1.6	0.045	6.78	6.71	0.0695	0.0003	5
	1.6	0.154	5.4	5.39	0.0103	0.0016	8
	2.4	0.184	4.05	4.02	0.0323	0.0015	12
	5.2	<0.03	3.35	3.33	0.025	<0.0004	7.5
	1.3	<0.03	4.67	4.65	0.0208	<0.0003	<3
	1.7	0.04	4.29	4.26	0.0322	0.0003	5.4
	2.8	0.24	5.09	5.03	0.0648	0.0008	8.9
	1.3	0.229	5.13	5.09	0.0419	0.0008	36.8
	1.2	0.122	5.13	5.1	0.0266	0.00129	22.1
<1		0.116	5.18	5.16	0.0182	0.0008	14.6
	1.6	0.166	5.01	4.99	0.016	0.00101	22.5

	<1	0.131	5.24	5.22	0.0183	0.00081	22.6
	1.2	0.055	4.9	4.89	0.0132	0.00027	4.2
	2.6	0.061	3.1	3.08	0.0212	0.00075	13.2
	4.2	0.048	2.86	2.84	0.0241	0.0011	14.8
	4.6	<0.03	<0.2	<0.192	<0.008	<0.00086	11
	1.7	0.047	2.89	2.85	0.0382	0.00049	7.7
	1.1	0.031	2.98	2.97	0.0146	0.00021	<3
	<1	0.204	3.09	3.06	0.032	0.00087	<3
	<1	0.101	3.94	3.87	0.0713	0.00032	<3
	<1	0.206	5.97	5.94	0.0258	0.00044	9.8
	1.3	0.138	6.06	6.04	0.0241	0.00121	36.6
	<1	0.101	5.48	5.47	0.015	0.00034	3.8
	1.4	<0.03	4.97	4.96	0.0147	<0.00015	<3
	1.4	0.193	4.34	4.32	0.0228	0.00071	<3
	<1	<0.03	4.06	4.04	0.0214	<0.00021	<3
	2	0.055	1.95	1.9	0.0484	0.00028	<3
	2.7	0.056	1.14	1.11	0.0311	0.00035	9.4
	4.2	<0.03	2.01	1.97	0.0365	<0.00019	<3
	2.2	0.509	4.62	4.55	0.0695	0.00221	9.9
	1.1	0.251	4.52	4.48	0.0426	0.00397	8.6
	1.4	0.29	4.83	4.8	0.0301	0.00129	6.9
	1.39	0.285	5.28	5.26	0.02	0.00272	10.1
	1.34	0.074	5.2	5.19	0.0072	0.00084	6.3
	<1	0.07	4.4	4.39	0.0112	0.00149	<3
	1.11	0.1	4.15	4.13	0.0172	0.00118	<3
	1.7	0.075	3.2	3.16	0.0356	0.00087	3.3
	1.88	0.423	2.09	1.98	0.107	0.00589	4
	<1	0.108	2.36	2.31	0.0484	0.00175	3.5
	1.37	0.034	2.3	2.28	0.0209	0.0007	4.2
	<1	0.084	3.18	3.14	0.0411	0.00116	3.7
	<1	0.163	5.51	5.47	0.0396	0.00129	12.3
	<1	0.134	5.97	5.95	0.0192	0.00097	12.2
	<1	0.104	5.52	5.5	0.0151	0.00167	19
	1.3	0.151	5.29	5.28	0.0094	0.00113	4.7
	1.5	0.23	4.97	4.95	0.0165	0.00193	9.9
	1.3	0.085	4.11	4.1	0.015	0.00074	5
	1.1	0.047	4.04	4.02	0.0169	0.00053	3.6
	<1	0.057	4.66	4.63	0.0265	0.00045	<3
	1.8	0.179	3.44	3.38	0.0632	0.00134	3.7
	<1	<0.03	2.77	2.72	0.0471	<0.00055	<3
	2	<0.03	2.38	2.37	0.0143	<0.00051	7.7
	<1	0.038	2.19	2.17	0.0236	0.00062	5.9
	<1	0.142	2.68	2.63	0.0506	0.00069	4
	<1	0.186	6.01	5.95	0.0645	0.00077	4.6
	<1	0.137	5.95	5.91	0.0391	0.00083	10
	<1	0.083	6.25	6.24	0.013	0.00042	11.9
654	<1	0.114	5.15	5.13	0.0161	0.00095	20.7
693	1.5	<0.03	4.05	4.04	0.014	<0.00023	<3
679	<1	0.085	4.18	4.15	0.0252	0.00071	3.2

653 <1		0.03	4.04	4.02	0.0239	0.00026 <3	
694 <1		<0.03	3.96	3.94	0.0153	<0.00036	4.6
690 <1		<0.03	3.41	3.39	0.0157	<0.00025 <3	
694	1.8	0.117	3.71	3.69	0.0241	0.00071	3.2
700	1.1	0.058	3.81	3.78	0.0274	0.00039	3.7
706 <1		0.094	3.74	3.71	0.0286	0.00053	3
693 <1		0.176	4.25	4.2	0.0462	0.00076	4.2
576	1.6	0.222	5	4.96	0.0382	0.00082	16.8
692	1.4	0.09	5.2	5.18	0.0171	0.00062	23.3
624		0.114	5.66	5.64	0.0168	0.00099	25.9
696		0.156	5.41	5.4	0.0104	0.00105	10.6
679		0.047	5.15	5.14	0.0085	0.00042	10.2
689		<0.03	3.88	3.86	0.0222	<0.00042 <3	
650		0.042	3.16	3.12	0.0448	0.00074 <3	
646		0.061	3.13	3.09	0.0383	0.00076 <3	
637		0.045	2.91	2.88	0.0306	0.00041 <3	
680		0.139	4.84	4.8	0.0354	0.00087	4.6
696		0.121	4.72	4.69	0.0254	0.00079	5.3
708		0.094	4.99	4.97	0.0156	0.00061	6.4
676		0.287	4.52	4.5	0.0219	0.00078	6.4
718		0.146	4.8	4.79	0.0115	0.00066	49.8
721		0.064	5.21	5.2	0.008	0.00031	9.5
684		0.082	4.69	4.68	0.011	0.00065 <3	
684		<0.03	4.21	4.2	0.0116	<0.0002	4
681		<0.03	3.43	3.41	0.0163	<0.00071	3.4
652		<0.03	2.17	2.15	0.0209	<0.00022	8.1
630		<0.03	1.97	1.94	0.026	<0.00058	6.7
669		<0.03	3.26	3.22	0.042	<0.0005 <3	
674		0.069	2.59	2.55	0.0417	0.00081 <3	
676		0.04	3.01	2.98	0.0254	0.0003 <3	
686		0.203	4.31	4.27	0.0394	0.00078	4
657		0.109	4.8	4.78	0.019	0.00083	15.8
674		0.104	5.33	5.32	0.0112	0.00052	15.6
684		0.101	4.14	4.13	0.0125	0.00057	5.08
684		0.038	4.31	4.3	0.0081	0.00015	3.03
678		<0.03	4.24	4.23	0.0083	<0.00027 <3	
671		<0.03	3.83	3.82	0.0141	<0.00022	3.5
670		<0.03	2.88	2.85	0.0317	<0.00044	5.32
656		0.034	2.06	2.03	0.029	0.00064	4.15
630		0.039	2.32	2.29	0.029	0.00044 <3	
662		<0.03	3.02	3	0.0209	<0.00047 <3	
638		0.146	4.08	4.05	0.0338	0.00064	5
692		0.181	3.5	3.47	0.0313	0.00058 <3	
696		0.22	4.46	4.42	0.0426	0.00125	7.2
717		0.143	4.68	4.65	0.0253	0.00077	9.12
688		0.119	4.69	4.67	0.0181	0.00011	11.1
715		0.07	5.02	5.01	0.0106	0.00031	6.85
701		<0.03	3.95	3.94	0.0112	<0.00017	5.05
659		<0.03	2.69	2.67	0.0188	<0.00032	3.35

605	<0.03	1.96	1.94	0.0213	<0.00013	<3	
679	0.15	2.45	2.42	0.0275	0.00095		4.33
669	0.048	2.56	2.54	0.0188	0.00017	<3	
657	<0.03	2.35	2.33	0.0157	<0.00051	<3	
645	0.041	2.49	2.47	0.0244	0.00033	<3	
697	0.121	2.7	2.67	0.031	0.00122		4.22
714	0.144	3.27	3.23	0.0384	0.00092	<3	
697	0.147	5.5	5.48	0.0232	0.00109		24.7
709	0.117	4.93	4.92	0.0143	0.0002		45.8
690	0.057	4.33	4.32	0.0122	0.00056		21
698	<0.03	4.19	4.18	0.0099	<0.00015	<3	
575	0.124	4.27	4.25	0.025	0.00044		21.8
697	<0.03	3.89	3.84	0.0456	<0.00033	<3	
594	0.103	2.87	2.83	0.041	0.00047		12.7
708	<0.03	4.07	4.05	0.0222	<0.00019	<3	
684	0.048	3.88	3.86	0.022	0.00021		6.22
502	0.187	2.57	2.54	0.0313	0.00075		6.9
469	0.108	4.38	4.35	0.0319	0.00231		5.18
604	0.182	3.97	3.95	0.025	0.00082		23.3
704	0.109	4.46	4.44	0.0191	0.00116		27.7
536	0.073	4.54	4.53	0.0111	0.00027		11.3
706	0.094	4.21	4.2	0.0094	0.0006		15.8
626	0.07	3.83	3.82	0.0079	0.00067		11.5
678	0.033	3	2.99	0.0101	0.00021		5.38
690	<0.03	2.74	2.72	0.0172	<0.00038		7.82
653	<0.03	2.04	2.02	0.0177	<0.00097		19.4
658	<0.03	1.7	1.67	0.0263	<0.00024		3.85
674	<0.03	2.23	2.22	0.0114	<0.0005	<3	
694	0.05	2.56	2.53	0.0346	0.00044		3.12
653	0.251	5.5	5.43	0.0702	0.00122		6.6
716	0.098	3.91	3.88	0.0262	0.00044		11
621	0.461	4.21	4.18	0.0321	0.00264		
648	0.127	4.03	4.01	0.0165	0.00042		
653	0.057	3.66	3.65	0.0082	0.00043		
689	0.05	3.47	3.45	0.0211	0.00034		
666	0.031	3.15	3.13	0.0237	0.00055		
661	<0.03	3.08	3.05	0.0339	<0.00021		
697	0.051	2.88	2.85	0.0252	0.00057		
683	0.133	2.68	2.65	0.0309	0.00151		
706	0.063	2.81	2.75	0.0565	0.00053		
642	<0.03	2.33	2.31	0.0201	<0.00053		
702	<0.03	3.15	3.11	0.0435	<0.0003		
703	0.175	4.15	4.12	0.03	0.00069		
679	0.137	4.51	4.49	0.0226	0.0016		
715	0.106	4.55	4.54	0.0122	0.00048		

689	0.094	4.47	4.46	0.0108	0.00035
698	<0.03	3.64	3.63	0.0094	<0.00018
672	<0.03	2.67	2.65	0.0213	<0.00049
683	0.033	2.34	2.3	0.0366	0.00036
649	<0.03	1.46	1.43	0.0344	<0.00043
659	0.031	1.78	1.75	0.0266	0.00032
678	0.117	2.79	2.76	0.0306	0.00102
681	0.055	2.17	2.14	0.0328	0.00034
710	0.331	3.12	3.05	0.0685	0.00196
697	0.11	3.77	3.72	0.0526	0.0008
685	0.1	4.44	4.42	0.0166	0.00056
681	0.092	3.92	3.91	0.0111	0.00052
685	<0.03	3.7	3.69	0.0113	<0.00018
681	<0.03	3.23	3.22	0.0103	<0.00033
670	<0.03	1.97	1.94	0.0323	<0.00045
676	<0.03	1.65	1.63	0.0241	<0.00092
685	0.033	2.02	2	0.02	0.00053
687	0.094	2.59	2.56	0.0319	0.00031
683	0.127	4.04	4.01	0.0286	0.00057
696	0.08	4.18	4.16	0.0175	0.00101
690	0.055	3.96	3.94	0.0176	0.00086
664	<0.03	2.3	2.28	0.0199	<0.00041
663	0.048	2	1.97	0.0311	0.00048
664	0.066	1.86	1.81	0.0471	0.00056
697	<0.03	2.59	2.57	0.0222	<0.00027
704	0.141	3.34	3.31	0.0264	0.00038
699	0.235	5.26	5.23	0.0275	0.00082
700	0.057	4.83	4.82	0.0131	0.00036
719	0.068	4.47	4.46	0.0091	0.00053
702	0.063	4.64	4.63	0.0098	0.0005
697	<0.03	3.82	3.81	0.0111	<0.00027
696	<0.03	2.68	2.65	0.03	<0.0003

0158: Hrc 0162: Alky 0163: Hdn: 0164: Hdn: 0180: Orth 0211: Pota 0235: Mg F 0237: Mag

260	0.028
287	0.024
236	0.08
281	0.045
228	0.125
292	0.043
294	0.053
262	0.074
277	0.024
271	<0.02
234	<0.02
255	0.059
239	0.064
281	0.073
286	0.034
282	0.075
288	0.045
286	0.054
274	0.074
307	0.04
282	0.039
267	<0.02
244	0.043
273	0.034
235	0.03
244	0.027
235	<0.02
245	0.026
241	0.158
287	0.074
264	0.063
291	0.027
284	0.023
264	<0.02

295	0.024
253	0.029
234	0.089
294	0.041
181	0.129
229	0.079
272	0.047
233	0.023
286	0.035
262	<0.01
245	0.029
278	0.064
264	0.058
253	0.015
230	0.071
287	0.054
286	0.048
252	<0.01
279	0.062
271	0.053
276	0.036
281	0.05
265	<0.02

	237			<0.02		
	190			0.068		
	161			0.097		
	157			0.033		
	219			0.049		
	217			0.128		
	267			0.062		
	168			0.203		
	235			0.058		
	247			0.055		
	262			0.063		
	235			0.067		
	237			0.127		
	274			0.055		
	239			0.038		
	194			0.099		
	222			0.302		
	253			0.062		
	236			0.084		
	233			0.172		
	250			0.097		
	260			0.108		
356		302.5	53.71	0.033		13.1
367		310	56.99	0.032		13.9
301	242	255	45.92	0.057	11	11.2
311	265	265	45.92	0.045		11.2
357	291	302.5	54.94	0.011		13.4
357	289			0.01	13.4	14
358	292			0.022		14.8
358	270			0.149		16
223	168			0.136		8.88
333	272			0.06		11.7
358	297			0.031		12.9
330	291			0.045		12.3
363	292			0.025		13.5
349	292			0.035		13.3
352	271			0.371	3.92	16.3
326	259			0.21	9.35	16
401	283			0.125	4.83	22.3
366	304			0.034		14.3
291	232			0.144	5.68	16.8
342	249			0.021		20.1
361	307			<0.02	2.04	13.7
370	311			<0.02	2.25	14.7
231	95			0.24		8.31
332	268			0.06	4.38	12.1
308	249			0.09	4.32	11.1
343	284			0.05		12.4
359	297			0.06	2.85	13.3

367	308	0.04	2.54		14
360	303	0.03		14.6	14.1
317	276	0.04	3.09		14
344	269	<0.02	2.36		14.3
280	239	<0.02		16.1	15.7
345	287	<0.02	2.48		14.7
360	311	<0.02	2.11		14.7
356	320	<0.02		14.3	14.4
351	287	0.06	3.37		13.8
342	272	0.05	3.27		12.8
	258	0.07	3.55		
	295	0.03		14.2	
	288	<0.02	2.52		
	282	0.02	2.86		
	295	<0.02		14	
	269	<0.02	2.47		
	260	<0.02	3.06		
	269	<0.02		14.1	
	235	0.155	7.06		
	282	0.059	2.91		
	290	0.037		13.5	
	267	0.046	3.21		
	268	<0.02	2.37		
	284	<0.02		14.8	
	282	<0.02	2.46		
	285	<0.02	2.13		
	262	<0.02		14.3	
	280	<0.02	2.03		
	267	<0.02	1.8		
	282	<0.02		14.7	
	234	0.059	4.29		
	248	0.041	3.38		
	278	0.035		12.8	
	289	0.024	2.52		
	252	0.043	3.73		
	276	0.033		13	
	274	<0.02	2.34		
	281	0.032	2.73		
	268	0.03		12.1	
	287	<0.02	1.87		
		<0.02			
		<0.02		13.2	
		0.045			
		0.057			
		0.063		11.7	
	299	0.043			
	241	0.055			
	300	<0.02			
	284	0.032			

281	<0.02
326	<0.02
304	<0.02
298	0.029
300	0.024
285	0.027
289	0.046
194	0.14
298	<0.02
250	0.066
300	0.035
304	0.021
274	<0.02
271	<0.02
282	0.037
282	0.036
301	0.038
286	0.048
291	0.03
277	0.07
309	0.025
292	0.03
314	0.04
298	<0.02
301	<0.02
283	<0.02
271	<0.02
287	<0.02
287	<0.02
301	0.022
282	0.047
270	0.049
278	0.035
284	0.035
296	<0.02
295	<0.02
292	<0.02
295	<0.02
290	<0.02
267	0.027
283	0.023
247	0.073
282	0.047
275	0.06
276	0.036
288	0.042
301	0.024
298	<0.02
284	<0.02

246	<0.02
289	0.033
276	<0.02
280	<0.02
267	<0.02
302	0.029
299	0.037
285	0.049
295	0.035
297	<0.02
289	<0.02
220	0.119
291	0.031
246	0.136
307	0.026
288	0.044
211	0.156
301	0.035
247	0.105
318	0.045
299	0.039
302	0.029
309	0.029
298	<0.02
299	<0.02
273	<0.02
280	<0.02
302	<0.02
308	0.03
221	0.102
300	0.034
244	0.14
266	0.059
272	0.061
297	0.031
279	0.026
283	0.023
292	0.038
288	0.054
300	0.02
264	0.026
296	0.041
294	0.053
291	0.053
300	0.036

288	0.036
294	<0.01
292	<0.01
297	<0.01
284	<0.01
282	0.014
292	0.041
294	0.019
280	0.084
281	0.062
285	0.049
277	0.044
297	0.014
285	<0.01
290	<0.01
307	0.01
302	0.013
297	0.033
280	0.063
312	0.035
292	0.023
285	<0.01
283	<0.01
292	0.029
311	0.025
297	0.03
265	0.098
288	0.05
299	0.04
295	0.06
295	0.021
307	<0.01

0239: Ca F0241: Calc 0664: Oil & 1183: Wetl 3021: Mine 3023: Pher 3267: Type 3683: N In

[illegible]

[illegible]

	121	1	0	0	3	6.18
	124	2	0	0	3	5.92
102	102	1	0	0	3	4.56
	106	2	0	0	3	5.42
	121	5	0	0	3	5.41
119	120	1	0	0	3	5.23
	119	1	0	0	3	4.63
	117	5	0	0	3	2.53
	74.7	6	0	0	4	3.35
	114	2	0	0	3	5.08
	122	1	0	0	3	5.55
	112	1	0	0	3	5.11
	123	1	0	0	3	5.49
	118	1	0	0	3	4.55
	114	1	0	0	3	3.8
	104	1	0	0	3	4.85
	124	2	0	0	3	6.82
123	122				3	5.55
	88.9	1	0	0	3	4.23
104	107	1	0	0	3	3.38
	122	1	0	0	3	4.7
	124	1			3	4.33
78.7	79.2	4			4	5.33
	113	1			3	5.36
	105	1	0	0	3	5.25
117	118	1	0	0	3	5.3
	122	0	1		3	5.18

	124	0	1	3	5.37
120	115	0	1	3	4.96
	104	0	1	3	3.16
	114		1	3	2.91
85.6	86.5		1	3	<0.23
	114		1	3	2.94
	120		1	3	3.01
119	119		1	3	3.29
	118	0	4	4	4.04
	116	0	1	3	6.18
		0	2	3	6.2
117		0	1	3	5.58
		0	1	3	5
		0	1	3	4.53
118		0	1	3	4.09
		0	4	3	2.01
		0	1	3	1.2
107		0	1	3	2.04
		0	1	3	5.13
		0	2	3	4.77
116		0	1	3	5.12
		0	1	3	5.57
		0	2	3	5.27
118		0	1	3	4.47
		0	2	3	4.25
		0	1	3	3.28
98		0	1	3	2.51
		0	1	3	2.47
		0	1	3	2.33
113		0	1	3	3.26
		0	3	3	5.67
		0	1	3	6.1
117		0	1	3	5.62
		0	1	3	5.44
		0	6	3	5.2
111		0	1	3	4.2
		0	1	3	4.09
		0	1	3	4.72
104		0	1	3	3.62
		0	1	3	2.8
		0	5	3	
94.8		0	1	3	
		0	1	3	
		0	6	3	
112		0	1	3	
		0	1	3	
		0	6	4	
		0	1	3	
		0	1	3	

1
1
1
1
1
1
1
1
6
1
1
1
1
1
1

1
1
1
1
1
1
1
1
6
1
1
1
1
1
1

3
3
3
3
3
3
3
3
3
3
3
2
3
3

[illegible]

5889: Trichl 6450: Cu F 6455: Zinc 6515: Actic 6724: DEH 6841: Pher 8944: TriB 9190: 4-no

	1.9	25.8	0
	1.9	7.5	0
	2.6	18.7	0
	1.2	12.3	0
	2.9	19.4	0
	1.5	13.2	0
	3.4	15.8	0
	3.8	33.7	0
	1.3	47.6	0
	1.5	15.4	0
<1	<5		0
	1.6	12	0
	2.4	13	0
	2.7	14.4	0
	2	16.4	0
	1.8	21.4	0
	1.2	21.6	0
	1.7	20.7	0
	1.3	22.9	0
	1.3	21.6	0
	1.1	20.5	0
	1.7	7.4	0
	1.9	11.3	0
	1.6	8	0
<1		5.7	0
	1.1	<5	0
<1	<5		0
	1.2	31.7	0
	1.8	10.7	0
	1.5	10.1	0
	1.5	27.8	0
	1.1	25.1	0
<1		21.8	0
<1		7.6	0
	1.15	9	0
<1		8.2	0
<1		14.9	0
<1	<5		0
<1	<5		0
	1.13	6.1	0
	2.28	9.5	0
<1		10.4	0
<1		15.4	0
	1.24	13.3	0
<1		6.21	0
<1		6.23	0
<1		7.28	0
<1		6.46	0

<1	<5	0
<1	5.08	0
	1.02	0
	1.08	0
	1.99	0
	1.79	0
	8	0
	5.58	0
	1.4	0
	1.03	0
	2.17	0
	2.5	0
	1.9	0
	2.37	0
<1	5.73	0
	1.96	0
	2.4	0
	1.09	0
	1.29	0
<1	28.2	0
<1	26.9	0
<1	26.4	0
<1	19.8	0
	1.35	0
	1.31	0
	1.2	0
<1	5.72	0
<1	6.06	0
<1	13.9	0
	2.27	0
<1	10.1	0

<2.5		17.1	0
<2.5		21	0
<2.5		33.1	0
<2.5		18.3	0
<2.5		13.6	
<2.5		15.8	0
<2.5		10.2	
	2.7	27.6	
	5.9	57.3	
<2.5		17.4	
<2.5		14.5	
<2.5		21.1	
	9.9	36.1	
<2.5		15.3	
<2.5		7.1	
	6.9	46.5	
<2.5		14.4	
<2.5		13.3	
	3	23.1	
<2.5		11.2	
<2.5		19.5	
<2.5		11.8	
	3.2	23.2	
<2.5		29.1	
<2.5		18.6	
<2.5		18.7	
<2.5		23.2	

<2.5		22.6	0
	4.2	17.2	0
<2.5		17	0
<2.5		16.1	
<2.5	<5		
<2.5		10.5	
<2.5		13.1	
<2.5		12.6	
<2.5		16.9	0
<2.5		19	0
<2.5		24.6	0
<2.5		12.7	0
<2.5		13.2	0
<2.5		8.5	0
<2.5		6.5	0
<2.5		6.5	0
<2.5		5	0
<2.5		5.1	0
	2	24.5	0
<1		11.4	0
<1		17.1	0
	1	13	0
<1		15.1	0
<1		11	0
<1		11.9	0
	1.6	7.9	0
<1		5.6	0
<1	<5		0
<1		5.3	0
<1		6.7	0
	5.2	17	0
	1.3	12.5	0
	1.4	37.2	0
	1.1	11.7	0
	1.8	20.5	0
	2	15.5	0
<1		8.8	0
	1.3	8.8	0
	1.5	20.4	0
<1	<5		0
<1		6.9	0
<1	<5		0
<1		8.5	0
	1.6	10.5	0
	2	11.6	0
	1.7	15	0
	1.5	18.6	0
	1.6	11.9	0
	2.1	13	0

	2.3	9.6	0
	1.7	5.9	0
	1.2	29.4	0
	3.4	11	0
	3.6	7.5	0
	1.3	14.5	0
	3.6	9.6	0
	4	21	0
	1.6	15.5	0
	2.8	25.7	0
	3.4	14.2	0
	1.1	13	0
<1		8.9	0
	1.6	9.2	0
	1.6	8	0
	1.2	8.9	0
	1	9.4	0
	1.3	9.3	0
	1	11.1	0
	1.6	13.6	0
<1		21.5	0
	1.1	13.2	0
	1.3	9.9	0
	1.4	11.2	0
	2.4	8.4	0
	1.4	6.2	0
<1	<5		0
<1	<5		0
<1	<5		0
<1		7	0
<1		7.5	0
	1.8	14.3	0
	1.1	16.6	0
<1		11.5	0
<1		9.5	0
	1.2	8.65	0
	1	9.9	0
<1		7.7	0
<1	<5		0
<1		5.5	0
<1		6.7	0
	1.48	11.5	0
<1		10.5	0
	1.27	12.1	0
<1		11.1	0
<1		13	0
<1		15.7	0
<1		11.9	0
<1		5.08	0

<1		5.82	0
<1		14.5	0
<1		6.93	0
<1	<5		0
<1		5.24	0
<1	<5		0
<1		8.93	0
<1		18	0
<1		27.7	0
<1		12.3	0
<1		9.47	0
	2.71	20.9	0
<1		8.08	0
	2.68	13.7	0
<1		7.59	0
<1		8.7	0
	3.16	15.9	0
<1		10.3	0
	1.58	20.4	0
<1		18.3	0
<1		13.1	0
	1.1	15.7	0
<1		12.4	0
	1.1	10.9	0
<1		7.58	0
<1		7.48	0
<1	<5		0
<1	<5		0
<1		6.84	0
	2.13	17.1	0
<1		10.5	0

<0.005	<0.2	<0.0005	<0.125
<0.005	<0.2	<0.0005	<0.125
<0.005	<0.2	<0.0002	<0.125
<0.005	<0.2	<0.0002	<0.04
<0.005	0.284	<0.0002	
		<0.0002	
			<0.04
<0.01	<0.2	<0.0002	<0.04
<0.01	0.793	<0.0002	<0.04
		<0.0002	
<0.01	0.244	<0.0002	<0.04
<0.01	<0.2	<0.0002	<0.04
<0.01	<0.2	<0.0002	<0.04
<0.01	<0.2	<0.0002	<0.04

<0.01

<0.2

<0.0002

<0.04

<0.2

<0.0002

<0.04

<0.2

<0.0002

<0.04

<0.2

<0.0002

0.0497

<0.2

<0.0002

<0.04

<0.2

<0.0002

<0.04

0.258

<0.0002

<0.04

<0.2

<0.0002

<0.04

<0.2

<0.0002

<0.04

<0.2

<0.0002

<0.04

<0.2

<0.0002

<0.04

<0.2

<0.0002

<0.04

<0.2

<0.0002

<0.04

<0.0002

<0.0002

<0.0002

<0.0002

<0.0002

<0.0002

<0.0002

<0.0002

<0.0002

<0.0002

<0.0002

<0.0002

9267: ptOc 9901: O Di 9924: Oxygen Diss, mg/l

95	11.2
93.9	11.1
92.5	11.2
95.6	11
99.7	11.8
96.7	12.5
90.8	11
98.3	12
97.6	11.5
110.4	13
108	11.4
106.2	10.6
94.8	9.19
99.2	9.99
95.7	9.95
97.5	11.3
102.4	12
96.2	12
98.2	11.8
107.3	12.7
101.9	11.6
104	11
103.3	10.7
102.6	10.3
94.3	9.11
96.4	9.68
98.8	10.1
87	9.64
94.7	10.7
100.3	12.2
102.5	12.6
101.1	12.6
113.1	14.2
105.7	11.7
113.3	12.5
100.9	10.3
103.4	9.85
107.6	10.5
101.7	10.4
93.6	10.8
90.8	11
103.1	14
97	11.4
103.6	13.1
111.5	12.8
111	12.2
92.2	9.5
101.9	10.1

103.1	10.2
99.9	10.1
91	9.44
86	9.81
85.9	9.65
93.9	11.7
96.4	11.4
99.7	12.8
102.6	11.7
97.8	10.9
96.9	10.9
110.7	11.2
98.5	10
106.9	10.3
89.4	8.91
99.3	10.5
97.9	11.1
99.6	11.7
98.6	11.2
98.3	11.9
102.5	13
104.9	13.3
97.3	10.6
97.9	9.98
97.4	9.01
93.6	8.86
91.5	8.93
89.7	9.65
91.3	10
92.6	11.3
99.3	11.7
104.1	11.3
106	10.4
93	10.2
99.4	12.9
96.7	10.4
98.6	10
93.2	9.89
100	12.1
105.4	10.2
101.1	9.87
95.4	12.5
98.1	12
107.4	11.9
85.7	9.75
88.5	10.7
92.5	10.9
99.1	11.8
89.7	10.2

84	8.71
105.2	10
66.8	6.36
80.9	8.15
75.8	7.99
90.4	10.2
85.4	10.7
83.7	9.85
82.2	9.94
87.3	10.2
77.9	8.45
111.7	10.6
71.1	7.58
82.5	10.3
71.7	7.44
61.5	5.81
67.9	7.32
86.7	10
61.6	6.01
77.8	7.63
77.5	8.82
92.5	10.8
85	10.4
83	9.44
83	9.42
69	8.04
79.4	8.4
96.2	8.54
107	10.4
95	9.66
104	11.4
71	7.63
84	10.5
80	9.23
93.4	10.9
65.9	6.57
105.6	10.3
110.1	11.5
97.6	11.1
98.2	12.2
92.4	10.6
155.2	16.3
89.3	8.99
100	10.3
42.4	4.65
52.3	5.73
65.2	7.09
75.6	8.51
79	9.32

82	9.26
82	8.9
79.8	8.33
105.1	10.1
114.1	9.99
110.3	9.85
82	8.24
62.4	6.86
64.9	7.72
86	9.99
90.7	9.74
89.5	10.3
75.5	8.26
104.3	10.8
102.7	9.94
83.8	8.37
90.6	8.5
104	10
61.1	6.55
82.8	8.47
63.6	6.81
72.5	7.9
89.3	10.7
92.1	9.87
71.3	7.1
91.6	9.29
95.4	8.78
52.3	4.97
93.5	8.79
84.2	8.38
76.8	8.15
98.6	11.9
80.5	9.45
84.9	10.5
88.2	10.4
91.1	9.96
103.2	10.1
92.9	9.61
70.1	6.97
109.8	9.67
114.7	10.9
94.7	8.92
53.8	5.76
64.6	7.4
73.7	8.53
82.7	9.97
84.9	9.66
107.8	11.1
92.2	9.31

78.9	7.88
100.1	10.5
92.5	9.68
82	9.33
72.3	8.42
66.1	7.89
63.6	7.29
69	8.08
86.9	10.4
86	10.1
85.2	10.5
102.2	11.2
135.9	13.8
109.5	10.5
118.7	11.3
85.1	8.05
76.9	8.49
84.1	9.42
86.7	10.6
81.8	9.87
86.8	11
92.1	10.7
93.5	10.5
106	11.2
103.9	10.8
100.5	9.73
101.6	9.56
105	10.7
81.7	8.25
73.9	7.77
69.9	8.07
74.5	8.3
87.1	10.7
95.4	11
97.9	10.9
108.9	11.7
110.4	11.4
91.6	8.77
118.1	10.8
73.5	7.08
135.2	13.2
69.8	7.3
61.8	7.18
67.3	7.71
86.5	10.6
96.3	11.6
80.4	10.2
97.2	10.8
108.3	11.4

	102	10.1
	80.1	7.89
	122.3	11.4
	92.9	9.3
	74.3	7.6
	75.4	8.2
	70.9	7.55
	81.9	9.12
	91.3	11.9
	111.5	12.5
	105.3	11.4
	76.6	8.39
	107.4	10.7
	46.7	4.75
	76.3	7.48
	75.1	7.65
	60.3	6.35
	90.4	9.68
	76	8.86
	88.5	10
	88	10.5
	89.4	10.5
	98.3	11.7
	111.5	11.3
	122	12
	120.5	11.4
	70.1	6.63
	87.5	8.36
	73.3	7.25
	65.5	7.28
	79.3	9.86
	83.3	9.66
	81.7	9.83
	86.9	10.2
<0.05	78.6	8.45
<0.05	90.4	9.57
<0.05	81.4	8.58
<0.01	102	9.96
	92	9.13
<0.01		
<0.01	87.7	8.76
<0.01	99.5	10.6
<0.01	83.7	9.06
<0.01	76.9	8.81
<0.01	85	9.69
<0.01	80.4	9.89

<0.01	85.2	9.9
	90.8	9.7
	118.4	12
	102.8	10
	113.8	10.7
	75.2	7.31
	73	7.59
	61.6	6.81
	59	6.39
	86.3	9.26
	81.8	9.92
	84.5	9.7
	86.5	9.41
	131.8	13.5
	100.4	9.64
	111.9	10.6
	95.5	9.3
	50	5.8
	71	8.19
	104.4	11.6
	105.1	11.7
	124.8	12.4
	85.9	8.83
	75.7	7.18
	101.4	10.7
	67.7	7.68
	76.1	9.66
	81	10
	89.9	11
	98.2	11.4
	91.5	10
	108.2	10.5

Appendix 12E

Permits

Identify Results

Coordinate PositionNGR:ST4989962395 **WIMS Active Discharge Consents**[View business reports for this feature](#)

Consent Number: 080659
 Version Number: 1
 Previous Number: 1022
 Date Effective: 19-Aug-1969
 Date Reviewed: 19-Aug-1971
 Short Name: PIGEON HOUSE
 Long Name: PIGEON HOUSE FARM
 Address 1: REDHILL
 Address 2: BRISTOL
 Discharge Site NGR: ST4990062400
 Easting: 349900
 Northing: 162400
 Discharge Type: Farms (not house)/Crop + Animal Rearing/Plant Nursery
 EA Region: SW

WIMS Active Discharge Consents Outlets

Permit Number: 080659
 Permit Version: 1
 Outlet Reference Number: 1
 Site Name: PIGEON HOUSE FARM
 Address Line 1: REDHILL
 Address Line 2: BRISTOL
 Receiving Watercourse: TRIB OF RIVER CONGRESBURY YEO
 Organisation Name: MRS D M BABER
 Discharge National Grid Reference: ST4990062400
 Outlet National Grid Reference: ST4990062400
 Date Effective: 19-Aug-1969
 Outlet Code: T
 Outlet Description: Trade
 Outlet Receiving Code: 01
 Outlet Receiving Description: Freshwater river

Identify Results

Coordinate PositionNGR:ST3938168494 **WIMS Active Discharge Consents Outlets**

Permit Number: 102096
 Permit Version: 1
 Outlet Reference Number: 1
 Site Name: BARN AT POPLAR FARM
 Address Line 1: BACK LANE
 Address Line 2: KINGSTON SEYMOUR
 Address Line 3: SOMERSET
 Address Line 4: .
 Post Code: BS21 6UN
 Receiving Watercourse: RIVER KENN
 Organisation Name: MR G RUSHTON
 Discharge National Grid Reference: ST3927068460
 Outlet National Grid Reference: ST3937068460
 Date Issued: 14-Apr-2004
 Date Effective: 14-Nov-2002
 Outlet Code: U
 Outlet Description: Sewage - not water company
 Outlet Receiving Code: 01
 Outlet Receiving Description: Freshwater river
 Permit Number: 101877
 Permit Version: 1
 Outlet Reference Number: 1
 Site Name: BARN AT POPLAR FARM
 Address Line 1: BACK LANE
 Address Line 2: KINGSTON SEYMOUR
 Address Line 3: SOMERSET
 Address Line 4: .
 Post Code: BS21 6UN
 Receiving Watercourse: RIVER KENN
 Organisation Name: MR H RUSHTON
 Discharge National Grid Reference: ST3927068460
 Outlet National Grid Reference: ST3935068480
 Date Issued: 07-May-2002
 Date Effective: 22-Apr-2002
 Outlet Code: U
 Outlet Description: Sewage - not water company
 Outlet Receiving Code: 01
 Outlet Receiving Description: Freshwater river

Identify Results

Coordinate PositionNGR:ST4069469030 **WIMS Active Discharge Consents Outlets**

Permit Number:	101904
Permit Version:	1
Outlet Reference Number:	1
Site Name:	WARRENS HOLIDAY VILLAGE
Address Line 1:	COLEHOUSE LANE
Address Line 2:	KENN
Address Line 3:	CLEVEDON
Address Line 4:	SOMERSET
Post Code:	BS21 6TQ
Receiving Watercourse:	RHYNE VIA SOAKAWAY
Organisation Name:	MR R WARREN
Discharge National Grid Reference:	ST4054069590
Outlet National Grid Reference:	ST4070069040
Date Issued:	23-Aug-2002
Date Effective:	22-Aug-2002
Outlet Code:	U
Outlet Description:	Sewage - not water company
Outlet Receiving Code:	01
Outlet Receiving Description:	Freshwater river

Identify Results

Coordinate Position

NGR:ST4251467704 [Copy](#)

WIMS Active Discharge Consents

[View business reports for this feature](#)

Consent Number: EPRDB3495AG
 Version Number: 1
 Date Issued: 02-Feb-2016
 Date Effective: 02-Feb-2016
 Short Name: PULLINS
 Long Name: PULLINS BAKERY
 Address 1: KENNMOOR ROAD
 Address 2: KENN
 Address 3: NORTH SOMERSET
 Address 4: -
 Post Code: BS21 6TZ
 Discharge Site NGR: ST4250367675
 Easting: 342503
 Northing: 167675
 Discharge Type: Making of Food Products/Dairy
 EA Region: SW

WIMS Active Discharge Consents Outlets

Permit Number: EPRDB3495AG
 Permit Version: 1
 Outlet Reference Number: 1
 Site Name: PULLINS BAKERY
 Address Line 1: KENNMOOR ROAD
 Address Line 2: KENN
 Address Line 3: NORTH SOMERSET
 Address Line 4: -
 Post Code: BS21 6TZ
 Receiving Watercourse: TRIBUTARY OF SAY'S RHYNE
 Organisation Name: PULLINS (BAKERS) LIMITED
 Discharge National Grid Reference: ST4250367675
 Outlet National Grid Reference: ST4249967707
 Date Issued: 02-Feb-2016
 Date Effective: 02-Feb-2016
 Outlet Code: Y
 Outlet Description: Sewage and Trade combined
 Outlet Receiving Code: 01
 Outlet Receiving Description: Freshwater river

Identify Results

Coordinate Position

NGR:ST4251467492 [Copy](#)

WIMS Active Discharge Consents

[View business reports for this feature](#)

Consent Number: EPRJP3526XZ
 Version Number: 1
 Date Issued: 12-May-2011
 Date Effective: 12-May-2011
 Short Name: CROSSWAYS
 Long Name: CROSSWAYS FARM
 Address 1: KENNMOOR ROAD
 Address 2: YATTON
 Address 3:
 Address 4: NORTH SOMERSET
 Post Code: BS21 6TZ
 Discharge Site NGR: ST4250667576
 Easting: 342506
 Northing: 167576
 Discharge Type: Domestic property (single) (incl farm house)
 EA Region: SW

WIMS Active Discharge Consents Outlets

Permit Number: EPRJP3526XZ
 Permit Version: 1
 Outlet Reference Number: 1
 Site Name: CROSSWAYS FARM
 Address Line 1: KENNMOOR ROAD
 Address Line 2: YATTON
 Address Line 3:
 Address Line 4: NORTH SOMERSET
 Post Code: BS21 6TZ
 Receiving Watercourse: THE SAY'S RHYNE
 Organisation Name: MR PETER SWEET
 Discharge National Grid Reference: ST4250667576
 Outlet National Grid Reference: ST4249967541
 Date Issued: 12-May-2011
 Date Effective: 12-May-2011
 Outlet Code: U
 Outlet Description: Sewage - not water company
 Outlet Receiving Code: 01
 Outlet Receiving Description: Freshwater river

Identify Results

Coordinate Position

NGR:ST4705371618 [Copy](#)

WIMS Active Discharge Consents

[View business reports for this feature](#)

Consent Number: 070742
 Version Number: 1
 Date Effective: 22-May-1990
 Date Reviewed: 22-May-1992
 Short Name: JACKLANDS BR
 Long Name: JACKLANDS BRIDGE FISH FARM
 Address 1: TICKENHAM
 Address 2: BRISTOL
 Discharge Site NGR: ST4712071700
 Easting: 347120
 Northing: 171700
 Discharge Type: Fish + Aquaculture/Fish Farm/Cress Farm
 EA Region: SW

WIMS Active Discharge Consents Outlets

Permit Number: 070742
 Permit Version: 1
 Outlet Reference Number: 1
 Site Name: JACKLANDS BRIDGE FISH FARM
 Address Line 1: TICKENHAM
 Address Line 2: BRISTOL
 Receiving Watercourse: RIVER LAND YEO
 Organisation Name: DR CHRISTOPHER ROBERTS
 Discharge National Grid Reference: ST4712071700
 Outlet National Grid Reference: ST4703071670
 Date Effective: 22-May-1990
 Outlet Code: T
 Outlet Description: Trade
 Outlet Receiving Code: 01
 Outlet Receiving Description: Freshwater river
 Permit Number: 070742
 Permit Version: 1
 Outlet Reference Number: 2
 Site Name: JACKLANDS BRIDGE FISH FARM
 Address Line 1: TICKENHAM
 Address Line 2: BRISTOL
 Receiving Watercourse: RIVER LAND YEO
 Organisation Name: DR CHRISTOPHER ROBERTS
 Discharge National Grid Reference: ST4712071700
 Outlet National Grid Reference: ST4705071640
 Date Effective: 22-May-1990
 Outlet Code: T
 Outlet Description: Trade
 Outlet Receiving Code: 01
 Outlet Receiving Description: Freshwater river

Identify Results

Coordinate PositionNGR:ST4591068034 **WIMS Active Discharge Consents Outlets**

Permit Number:	101827
Permit Version:	1
Outlet Reference Number:	1
Site Name:	CHELVEY WATER TREATMENT WORKS
Address Line 1:	CHELVEY
Address Line 2:	BACKWELL
Address Line 3:	BRISTOL
Address Line 4:	.
Post Code:	.
Receiving Watercourse:	RIVER KENN(S)
Organisation Name:	BRISTOL WATER PLC
Discharge National Grid Reference:	ST4739067880
Outlet National Grid Reference:	ST4591068060
Date Issued:	06-Mar-2002
Date Effective:	01-Jun-2002
Outlet Code:	T
Outlet Description:	Trade
Outlet Receiving Code:	01
Outlet Receiving Description:	Freshwater river

Identify Results

Coordinate PositionNGR:ST4591268041 **WIMS Active Discharge Consents Outlets**

Permit Number: 101827
Permit Version: 1
Outlet Reference Number: 1
Site Name: CHELVEY WATER TREATMENT WORKS
Address Line 1: CHELVEY
Address Line 2: BACKWELL
Address Line 3: BRISTOL
Address Line 4: .
Post Code: .
Receiving Watercourse: RIVER KENN(S)
Organisation Name: BRISTOL WATER PLC
Discharge National Grid Reference: ST4739067880
Outlet National Grid Reference: ST4591068060
Date Issued: 06-Mar-2002
Date Effective: 01-Jun-2002
Outlet Code: T
Outlet Description: Trade
Outlet Receiving Code: 01
Outlet Receiving Description: Freshwater river

Identify Results

Coordinate Position

NGR:ST4602563610

WIMS Active Discharge Consents

[View business reports for this feature](#)

Consent Number: EPRDP3228XU
 Version Number: 1
 Date Issued: 27-Jul-2010
 Date Effective: 27-Jul-2010
 Short Name: STABLE GROVE
 Long Name: STABLE GROVE
 Address 1: WEST WAY ROAD
 Address 2: WRINGTON
 Address 3: BRISTOL
 Address 4: WESSEX
 Post Code: BS40 5NR
 Discharge Site NGR: ST4599563588
 Easting: 345995
 Northing: 163588
 Discharge Type: Domestic property (single) (incl farm house)
 EA Region: SW

WIMS Active Discharge Consents Outlets

Permit Number: EPRDP3228XU
 Permit Version: 1
 Outlet Reference Number: 1
 Site Name: STABLE GROVE
 Address Line 1: WEST WAY ROAD
 Address Line 2: WRINGTON
 Address Line 3: BRISTOL
 Address Line 4: WESSEX
 Post Code: BS40 5NR
 Receiving Watercourse: RIVER CONGRESBURY
 Organisation Name: MR MALCOM HAGEN
 Discharge National Grid Reference: ST4599563588
 Outlet National Grid Reference: ST4601063576
 Date Issued: 27-Jul-2010
 Date Effective: 27-Jul-2010
 Outlet Code: U
 Outlet Description: Sewage, - not water company
 Outlet Receiving Code: 01
 Outlet Receiving Description: Freshwater river

Identify Results

Coordinate Position

NGR:ST4950571062 [Copy](#)

WIMS Active Discharge Consents

[View business reports for this feature](#)

Consent Number: 081226
 Version Number: 1
 Previous Number: 2819
 Date Effective: 29-Mar-1974
 Date Reviewed: 28-Mar-1976
 Short Name: HAZEL FARM(W
 Long Name: HAZEL FARM(WRAXALL,BRISTOL)
 Address 1: WRAXALL
 Address 2: BRISTOL
 Address 3: AVON
 Discharge Site NGR: ST4950071080
 Easting: 349500
 Northing: 171080
 Discharge Type: Farms (not house)/Crop + Animal Rearing/Plant Nursery
 EA Region: SW

WIMS Active Discharge Consents Outlets

Permit Number: 081226
 Permit Version: 1
 Outlet Reference Number: 1
 Site Name: HAZEL FARM(WRAXALL,BRISTOL)
 Address Line 1: WRAXALL
 Address Line 2: BRISTOL
 Address Line 3: AVON
 Receiving Watercourse: TRIB OF RIVER LAND YEO
 Organisation Name: G R VOWLES
 Discharge National Grid Reference: ST4950071080
 Outlet National Grid Reference: ST4950071080
 Date Effective: 29-Mar-1974
 Outlet Code: T
 Outlet Description: Trade
 Outlet Receiving Code: 01
 Outlet Receiving Description: Freshwater river

Identify Results

Coordinate PositionNGR:ST5042269200 **WIMS Active Discharge Consents Outlets**

Permit Number:	101484
Permit Version:	1
Outlet Reference Number:	1
Site Name:	STANCOMBE QUARRY
Address Line 1:	STANCOMBE QUARRY
Address Line 2:	STANCOMBE LANE
Address Line 3:	FLAX BOURTON
Address Line 4:	SOMERSET
Post Code:	BS48 3QD
Receiving Watercourse:	TRIB OF THE LAND YEO
Organisation Name:	TARMAC TRADING LIMITED
Discharge National Grid Reference:	ST5030069320
Outlet National Grid Reference:	ST5041069210
Date Issued:	30-May-2001
Date Effective:	18-May-2001
Outlet Code:	T
Outlet Description:	Trade
Outlet Receiving Code:	01
Outlet Receiving Description:	Freshwater river

Identify Results

Coordinate PositionNGR:ST4592168042 **WIMS Active Discharge Consents Outlets**

Permit Number: 101827
Permit Version: 1
Outlet Reference Number: 1
Site Name: CHELVEY WATER TREATMENT WORKS
Address Line 1: CHELVEY
Address Line 2: BACKWELL
Address Line 3: BRISTOL
Address Line 4: .
Post Code: .
Receiving Watercourse: RIVER KENN(S)
Organisation Name: BRISTOL WATER PLC
Discharge National Grid Reference: ST4739067880
Outlet National Grid Reference: ST4591068060
Date Issued: 06-Mar-2002
Date Effective: 01-Jun-2002
Outlet Code: T
Outlet Description: Trade
Outlet Receiving Code: 01
Outlet Receiving Description: Freshwater river

Identify Results

Coordinate Position

NGR:ST5390062593

WIMS Active Discharge Consents

[View business reports for this feature](#)

Consent Number: 020446
 Version Number: 1
 Previous Number: 806B
 Date Effective: 30-Sep-1965
 Date Reviewed: 30-Sep-1967
 Short Name: LAUREL FARM
 Long Name: LAUREL FARM
 Address 1: RIDGEHILL
 Address 2: WINFORD
 Address 3: NR. BRISTOL
 Discharge Site NGR: ST5390062610
 Easting: 353900
 Northing: 162610
 Discharge Type: Domestic property (single) (incl farm house)
 EA Region: SW

WIMS Active Discharge Consents Outlets

Permit Number: 020446
 Permit Version: 1
 Outlet Reference Number: 1
 Site Name: LAUREL FARM
 Address Line 1: RIDGEHILL
 Address Line 2: WINFORD
 Address Line 3: NR. BRISTOL
 Receiving Watercourse: TRIB OF RIVER CHEW
 Organisation Name: P R GEORGE
 Discharge National Grid Reference: ST5390062610
 Outlet National Grid Reference: ST5390062610
 Date Effective: 30-Sep-1965
 Outlet Code: U
 Outlet Description: Sewage - not water company
 Outlet Receiving Code: 01
 Outlet Receiving Description: Freshwater river

Identify Results

Coordinate Position

NGR:ST5819065472

WIMS Active Discharge Consents

[View business reports for this feature](#)

Consent Number: 020601
 Version Number: 1
 Previous Number: 719B
 Date Effective: 31-Aug-1965
 Date Reviewed: 31-Aug-1967
 Short Name: YEW TREE FM
 Long Name: YEW TREE FARM
 Address 1: NORTH WICK
 Address 2: DUNDRY
 Address 3: NR. BRISTOL
 Discharge Site NGR: ST5820065510
 Easting: 358200
 Northing: 165510
 Discharge Type: Domestic property (single) (incl farm house)
 EA Region: SW

WIMS Active Discharge Consents Outlets

Permit Number: 020601
 Permit Version: 1
 Outlet Reference Number: 1
 Site Name: YEW TREE FARM
 Address Line 1: NORTH WICK
 Address Line 2: DUNDRY
 Address Line 3: NR. BRISTOL
 Receiving Watercourse: TRIB OF RIVER CHEW
 Organisation Name: W R G COSSHAM
 Discharge National Grid Reference: ST5820065510
 Outlet National Grid Reference: ST5820065510
 Date Effective: 31-Aug-1965
 Outlet Code: U
 Outlet Description: Sewage - not water company
 Outlet Receiving Code: 01
 Outlet Receiving Description: Freshwater river

Identify Results

Coordinate Position

NGR:ST5591863482

WIMS Active Discharge Consents

[View business reports for this feature](#)

Consent Number: 021302
 Version Number: 1
 Previous Number: 1905
 Date Effective: 01-Jun-1979
 Date Reviewed: 01-Jun-1981
 Consent Comment: TRADE EFFLUENT FROM FORECOURT AND VEHICLE WASHING AREA
 Short Name: WINFORD ROAD
 Long Name: WINFORD ROAD GARAGES LTD
 Address 1: LITTLETON MILLS
 Address 2: WINFORD
 Address 3: BRISTOL
 Post Code: BS18 8HQ
 Discharge Site NGR: ST5590063500
 Easting: 355900
 Northing: 163500
 Discharge Type: Shop incl Garden Centre/Retail Trade(not Motor Vehicle)
 EA Region: SW

WIMS Active Discharge Consents Outlets

Permit Number: 021302
 Permit Version: 1
 Outlet Reference Number: 1
 Site Name: WINFORD ROAD GARAGES LTD
 Address Line 1: LITTLETON MILLS
 Address Line 2: WINFORD
 Address Line 3: BRISTOL
 Post Code: BS18 8HQ
 Receiving Watercourse: TRIB OF RIVER CHEW
 Organisation Name: THE SECRETARY, WINFORD ROAD GARAGES LTD
 Discharge National Grid Reference: ST5590063500
 Outlet National Grid Reference: ST5590063500
 Date Effective: 01-Jun-1979
 Outlet Code: T
 Outlet Description: Trade
 Outlet Receiving Code: 01
 Outlet Receiving Description: Freshwater river

Identify Results

Coordinate Position

NGR:ST5680763313

WIMS Active Discharge Consents

[View business reports for this feature](#)

Consent Number: EPRBB3193AR
 Version Number: 1
 Date Issued: 18-Aug-2014
 Date Effective: 31-Mar-2015
 Consent Comment: NEW PERMIT - HOLDER AND ADDITIONAL DETAILS ADDED
 Short Name: BATTLE LANE
 Long Name: BATTLE LANE CSO
 Address 1: BATTLE LANE
 Address 2: CHEW MAGNA
 Address 4: BRISTOL
 Post Code: BS40 8PX
 Discharge Site NGR: ST5679063316
 Easting: 356790
 Northing: 163316
 Discharge Type: Storm Tank/CSO on Sewerage Network (water company)
 EA Region: SW

WIMS Active Discharge Consents Outlets

Permit Number: EPRBB3193AR
 Permit Version: 1
 Outlet Reference Number: 1
 Site Name: BATTLE LANE CSO
 Address Line 1: BATTLE LANE
 Address Line 2: CHEW MAGNA
 Address Line 4: BRISTOL
 Post Code: BS40 8PX
 Receiving Watercourse: WINFORD BROOK
 Organisation Name: WESSEX WATER SERVICES LTD
 Discharge National Grid Reference: ST5679063316
 Outlet National Grid Reference: ST5686263261
 Date Issued: 18-Aug-2014
 Date Effective: 31-Mar-2015
 Outlet Code: S
 Outlet Description: Sewage - water company
 Outlet Receiving Code: 01
 Outlet Receiving Description: Freshwater river

Identify Results

Coordinate PositionNGR:ST5783862918 **WIMS Active Discharge Consents Outlets**

Permit Number:	102223
Permit Version:	1
Outlet Reference Number:	1
Site Name:	CHEW MAGNA PS
Address Line 1:	DUMPERS LANE
Address Line 2:	BRISTOL
Address Line 3:	.
Address Line 4:	.
Post Code:	BS40 8SS
Receiving Watercourse:	RIVER CHEW(S)
Organisation Name:	WESSEX WATER SERVICES LIMITED
Discharge National Grid Reference:	ST5761062900
Outlet National Grid Reference:	ST5782062900
Date Issued:	04-Dec-2003
Date Effective:	01-Feb-2005
Outlet Code:	S
Outlet Description:	Sewage - water company
Outlet Receiving Code:	01
Outlet Receiving Description:	Freshwater river

Identify Results

Coordinate PositionNGR:ST5706162071 **WIMS Active Discharge Consents Outlets**

Permit Number: 102937
Permit Version: 5
Outlet Reference Number: 2
Site Name: CHEW STOKE WATEWATER TREATMENT WORK
Address Line 1: WALLEY COURT ROAD
Address Line 2: CHEW STOKE
Address Line 4: BRISTOL
Post Code: BS40 8XS
Receiving Watercourse: RIVER CHEW (S)
Organisation Name: WESSEX WATER SERVICES LIMITED
Discharge National Grid Reference: ST5706061960
Outlet National Grid Reference: ST5704762083
Date Issued: 30-Dec-2016
Date Effective: 01-Jan-2017
Outlet Code: S
Outlet Description: Sewage - water company
Outlet Receiving Code: 01
Outlet Receiving Description: Freshwater river

Identify Results

Coordinate Position

NGR:ST5634261789

WIMS Active Discharge Consents Outlets

Permit Number: 021523
Permit Version: 2
Outlet Reference Number: 1
Site Name: CHEW STOKE PUMPING STATION
Address Line 1: BILBIE ROAD
Address Line 2: CHEW STOKE
Address Line 4: BRISTOL
Post Code: BS40 8XW
Receiving Watercourse: TRIB OF RIVER CHEW
Organisation Name: WESSEX WATER SERVICES LTD
Discharge National Grid Reference: ST5610661745
Outlet National Grid Reference: ST5633761806
Date Issued: 15-Mar-2017
Date Effective: 31-Mar-2017
Outlet Code: S
Outlet Description: Sewage - water company
Outlet Receiving Code: 01
Outlet Receiving Description: Freshwater river

Appendix 12F

North Somerset Council Memo

INTERNAL MEMORANDUM

FROM: Flood Risk Management Team

Date: 11 July 2018

Application: Environmental Scoping Opinion to determine the scope of an Environmental Impact Assessment for a future application for the proposed expansion of the airport to accommodate 12 million passengers per annum.

Reference Number: 18/P/3502/EA2

Location: Bristol International Airport, North Side Road, Felton, Bristol

Formal comments regarding the above.

The Flood Risk Management (Drainage) Team comments are advisory as this is an EIA screening opinion

Advisory:

The site lies within an Environment Agency Source Protection Zone 2, and a low risk area for ground water flooding. The surface water flood maps show flooding at 1 in 30 on Downside Road and A38.

The LLFA only records of flooding in the area are at the following locations

- On the corner of Cooks Bridle Path and Downside Road, which includes both garden and highway flooding
- On the A38 between the airport roundabouts – this may be due to highway drainage capacity issues
- At the Airport Tavern Lulsgate Bottom in 2012 – although work was carryout by the highways authority to a soakaway in 2013 and we have no records since
- We have no records of groundwater or other sources of flooding

Sustainable drainage principles should be applied to the site and we are aware that soakaways are already used within the airport complex. British Geological Survey infiltration map suggests that that infiltration will be possible, however due to the source protection zone pollution control may be required, this should be confirmed with BRE 365 infiltration tests in the location of any proposed soakaways.

Our guidance document on sustainable drainage should be followed and we recommend that where possible drainage is integrated into the green infrastructure spaces <https://www.n-somerset.gov.uk/wp-content/uploads/2015/12/West-of-England-sustainable-drainage-developer-guide.pdf>

Any watercourse (rhyne) network should remain open and allow easy access for maintenance and inspections, any EIA should assess the environment in and around the network.

There must be no interruption to the surface water drainage system of the surrounding land as a Consultation letter for internal consultee

result of the operations on the site. Provisions must be made to ensure that all existing drainage systems continue to operate effectively and that land owners upstream and downstream of the site are not adversely affected, therefore any EIA should assess the influence flooding might have on the environment both on site and on neighbouring land.