

Water Framework Directive Groundwater Monitoring Programme

Site Information

Athy UDWS (Townparks BH)



Athy (Townparks) borehole is used as a part of a public water supply which abstracts a total of 1270m³/day. The GSI completed a source report in 2004.



Kildare

August 2011

SITE INFORMATION					
Site Name:	Athy UDWS (Townparks BH)		County:	Kildare	
RBD:	SERBD		EU Reporting Code:	IE_SE_G_003_09_001	
Easting:	267950		GWB Name:	Bagenalstown_2	
Northing:	194510		GWB Code:	IE_SE_G_003	
Site Use:	Drinking Water (PWS)		Drinking Water Code:	1400PUB1050	
Hydrometric Area:	14		Water Level Monitoring Network:	Level	Flow
Townland:	TOWNPARKS(REBAN WEST)			N	N
Ownership:	Kildare County Council				
Water Quality Monitoring Network:	Surveillance	Operational (Point)		Operational (Diffuse)	
	N	N		Y	
Site Comments:	---				
SITE DIRECTIONS					
Location and Access Information:	The well field is located in the townland of Townparks, Athy, Co. Kildare. The site is situated at Barrack Lane, which is on the north side of Athy, off the Stradbally Road, on the western side of the River Barrow.				
Additional Comments:	---				
WELL INFORMATION					
Monitoring Point Type:	Borehole	Abstraction Rate (m³/d):	1270	Ground Elevation (m OD):	56
Borehole Log Available:	---	Total Drilled Depth (m bgl):	40	Depth to Bedrock (m bgl):	10
Top of Casing (m agl):	---	Upper Casing Diameter (mm):	350	Lower Casing Diameter (mm):	---
Final Borehole Depth (m):	Cased to 13m, Bedrock at 10m	Upper Casing Bottom Depth (m bgl) :	---	Lower Casing Bottom Depth (m bgl):	---
Screen Interval (m bgl):	---	Screen Type (PVC,Steel,other):	---	Screen Slot Size (mm):	---
Grout Type (cement,bentonite):	---	Grouted above (m bgl):	---	Grout Volume Injected (m³):	---
Gravel Pack Interval (m bgl):	---	Gravel Pack Volume (m³):	---	Open Hole Interval (m bgl):	---
Potential Yield (m³/day):	---	Comments on Monitoring Site:	---		
Specific Capacity (m³/d/m):	---				
Static Water Level (m bgl):	---				
Scheme Name:	Athy	Number of Abstraction Points in the Scheme:	3	Source Report Available	Y
Source Report Info:	Source report prepared by GSI in 2004.				
Scheme Summary:	The scheme consists of two boreholes and an infiltration gallery. Each of the abstraction points pumps water directly into the main distribution system which covers the main Athy urban area, supplying water to approximately 6,000 people.				

HYDROGEOLOGY							
GEOLOGY	Soil:	Alluviums (AlluvMIN)				Subsoil Permeability:	Moderate
	Subsoil:	Alluvium (A)					
	Bedrock:	Dinantian Pure Bedded Limestones					
HYDROGEOLOGY	Aquifer Category:	Rkd	Vulnerability at Monitoring site:	Moderate	Flow Regime:	Karstified	
ZONE OF CONTRIBUTION	Estimated ZOC Size (km ²):	36	ZOC Delineated By:	GSI	Recharge Estimate (mm/yr):	315	
	ZOC Delineation Comments:	The GSI delineated the ZOC on the basis of hydrogeological mapping, geology and topography for a number of borehole supplies and infiltration gallery. See the source report for details.					
Groundwater Vulnerability within ZOC (% area):	Extreme (X)	Extreme (E)	High	Moderate	Low	High to Low	Unclassified
	10.93	6.74	54.3	28.04	0	0	0
HYDROCHEMISTRY							
Hydrochemical Signature:	Ca-HCO ₃		Additional Water Chemistry Information:	During the monitoring period: The average nitrate concentration was 17 mg/l NO ₃ and the maximum nitrate concentration was 27 mg/l NO ₃ . The average ammonium concentration was 0.024 mg/l N and the maximum ammonium concentration was 0.146 mg/l N. The average molybdate reductive phosphorus (MRP) concentration was 0.007 mg/l P and the maximum MRP concentration was 0.023 mg/l P. The average chloride concentration was 46.2 mg/l Cl and the maximum chloride concentration was 52 mg/l Cl.			
Alkalinity (mg/l HCO ₃):	Average:	Range:					
	292	240-340					
Hardness (mg/l CaCO ₃):	Average:	Range:					
	382	334-471					
Conductivity (uS/cm):	Average:	Range:					
	751	640-846					
Monitoring Record Period:	From:	To:					
	2007	2010					
RISK ASSESSMENT							
Pressure (e.g., Nitrates, Phosphates, Abstractions):	Diffuse		Typical Contaminants:	Nitrates			
Risk Category:	At risk, high confidence		GWB Status:	Good			
Impact Potential within ZOC (% area):	Extreme:	High:	Moderate:	Low:	Negligible:		
	5.16	68.93	10.76	3.98	11.17		
OTHER INFORMATION							



Site Protection



Sampling Point



Land Use

Data Summary Sheet - July 2011

Disclaimer: The data in this document are based on the best available information and understanding at time of writing. Neither the Environmental Protection Agency, nor the individual bodies supplying data for this document and accompanying maps will be responsible for any loss or damage from the use or interpretation of these data.

Rock Unit Geology Map: GSI, 2009

Aquifer Type Map: GSI, 2009

Groundwater Vulnerability Map: GSI, 2009

Soils & Subsoils Type: Teagasc, 2007

Recharge Map: GSI, 2009

Impact Potential Map: EPA, 2009

Risk Assessment Map: EPA WFD Risk Assessment, 2006

Groundwater Body Status: EPA WFD Status Assessment, 2008

Water Quality Data: EPA WFD Monitoring, 2008

Groundwater Threshold Values

Groundwater threshold values for selected parameters:

Nitrate - General Chemical Test/ Drinking Water Test (37.5 mg/l NO₃)

Ammonium - Drinking Water Test (0.175 mg/l N) / Surface Water Test (0.065 mg/l N)

Molybdate Reactive Phosphorus (MRP) - Surface Water Test (0.035 mg/l P)

Chloride -Saline/Intrusive Test (24 mg/l) / Drinking Water Test (175 mg/l Cl)

Electrical Conductivity -Saline/Intrusive Test (800 µS/cm) / Drinking Water Test (1,875 µS/cm)

Further information on groundwater threshold values is contained in the Groundwater Regulations (S.I. No.9 of 2010).

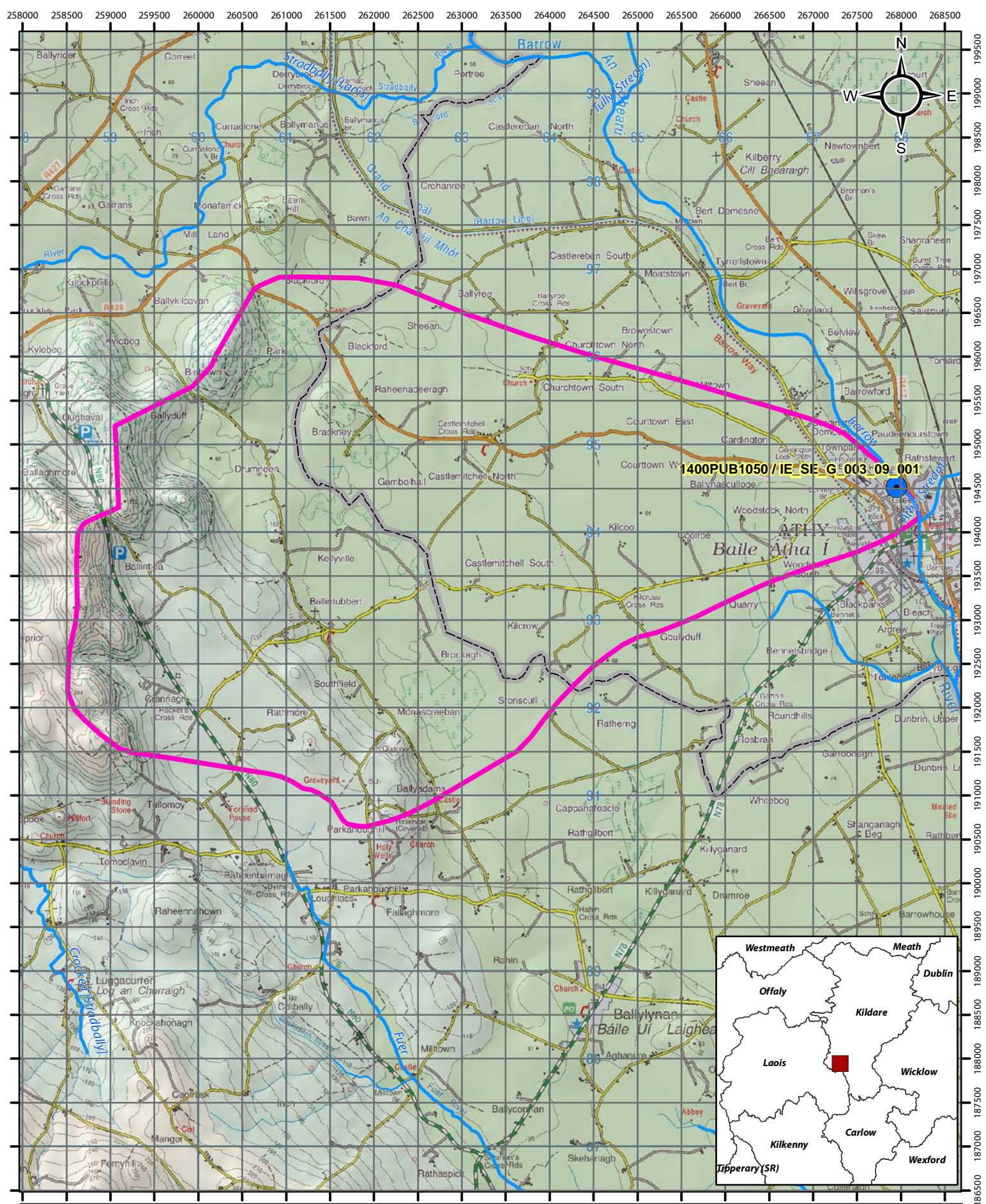
General Downgradient Distances

General Downgradient Distances (XL) applied to boreholes sourced in bedrock aquifers are constrained to estimate approximate limits based on data at the GSI. In some cases they may be higher or lower depending on local conditions.




Rk, Rkd, Lk	225 m
Lm	150 m
Ll, Pl	60 m

It is assumed that groundwater downgradient of a spring cannot flow back up to the spring, however a precautionary 30m buffer is generally applied which allows for instances where pumping under dry weather periods may induce a drawdown or where the ground may be sloping toward the spring from the downgradient side.

Version 0:	Prepared by	GSI	Date:	01/03/2004
Version 1:	Prepared by	OCM (DC)	Date:	Feb 2011
Version 2:	Prepared by		Date:	
Version 3:	Prepared by		Date:	
Version 4:	Prepared by		Date:	

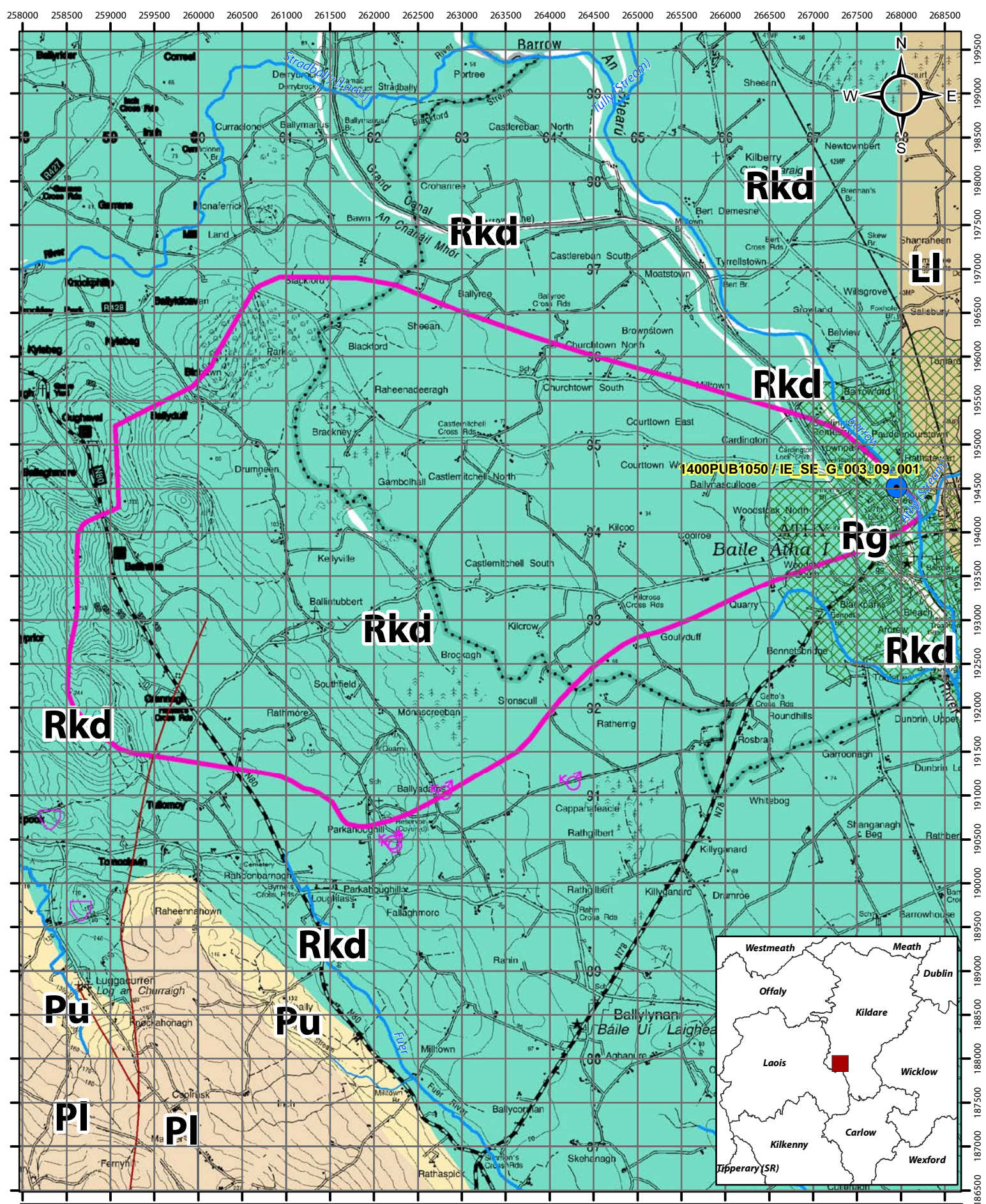


Location Map for Athy UDWS

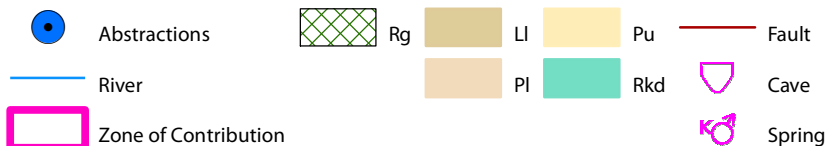
-  Abstractions
-  River
-  Zone of Contribution

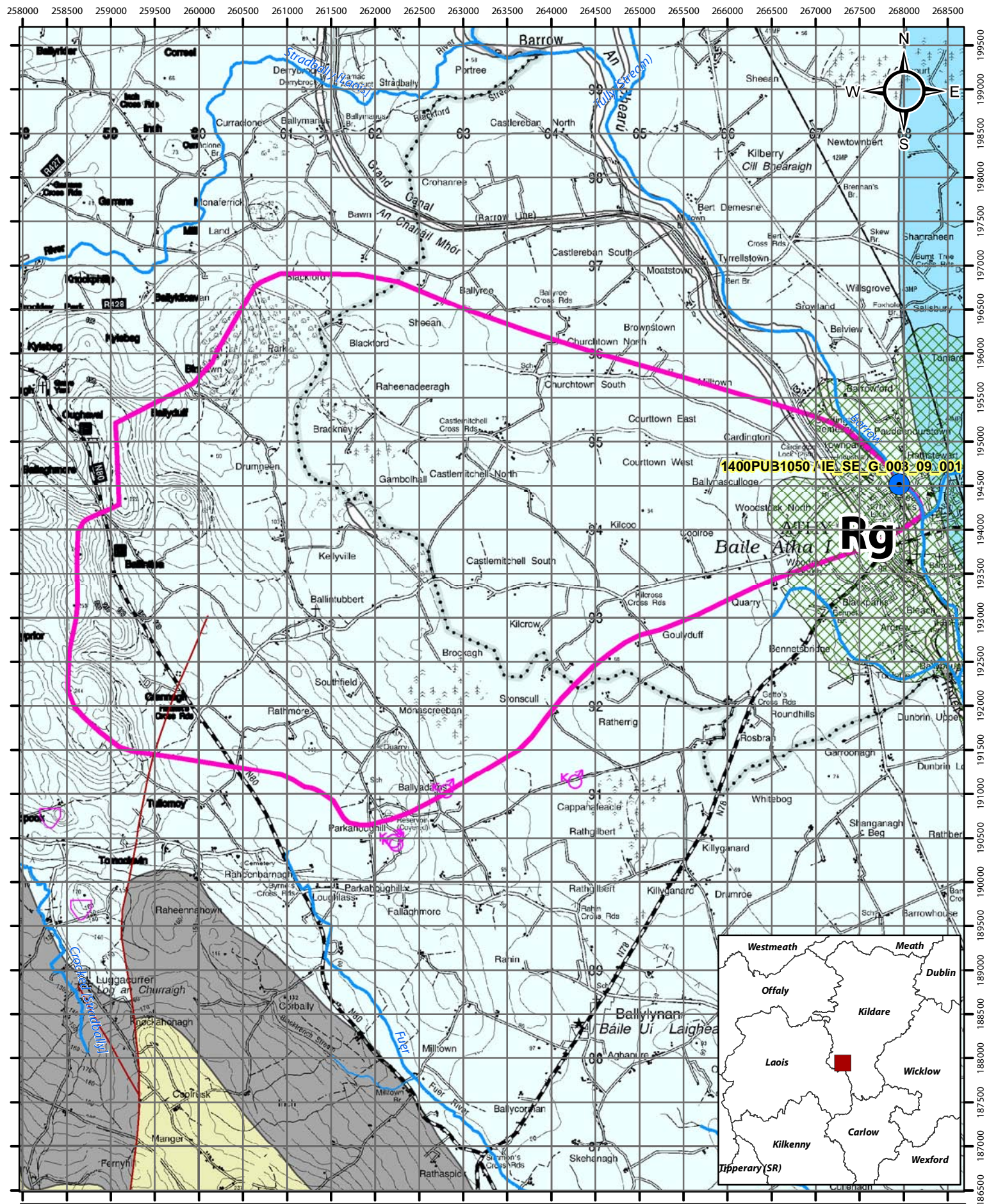
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0 0.25 0.5 1
km



Aquifer Category Map for Athy UDWS



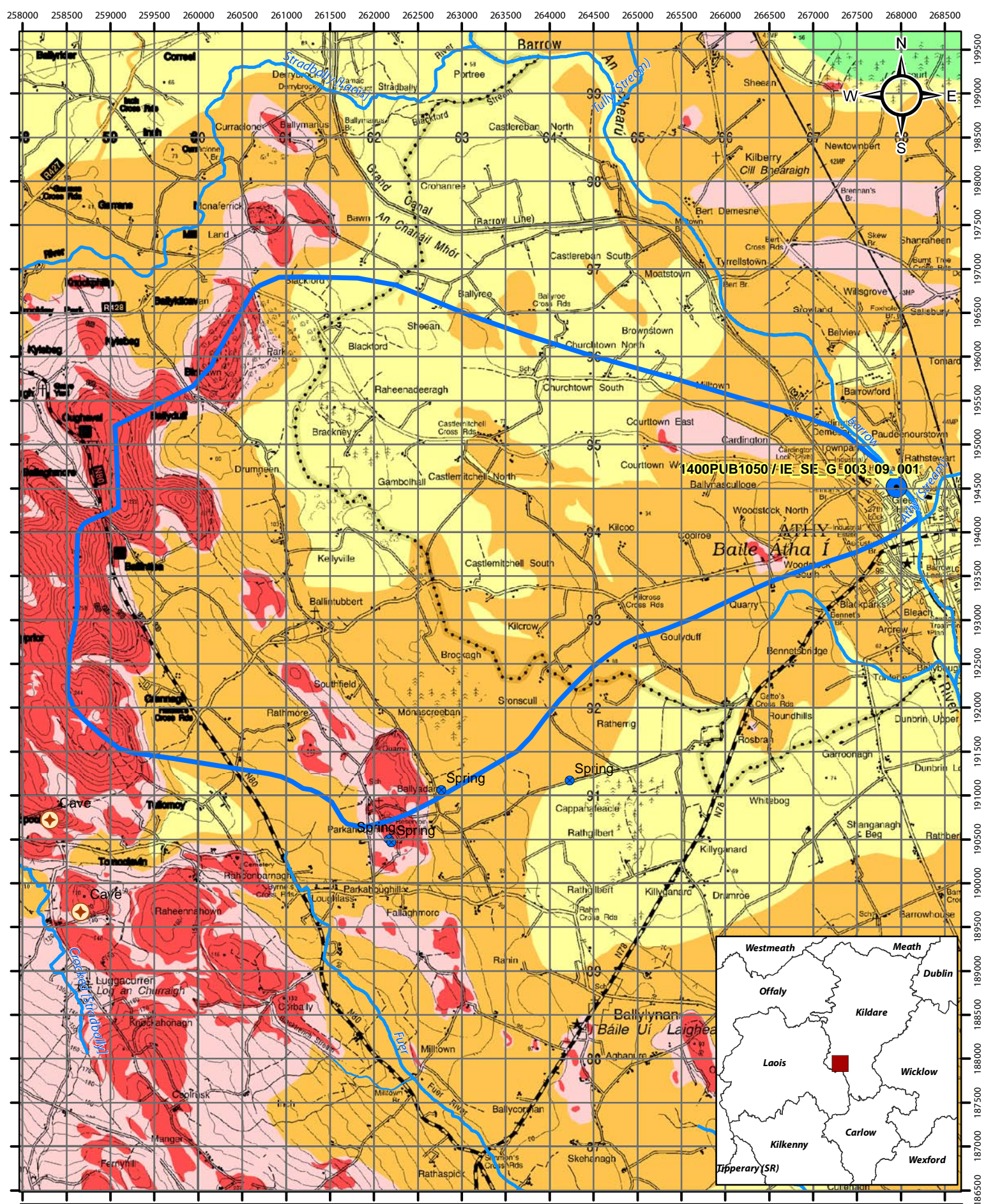


Bedrock Map for Athy UDWS

- | | | | |
|----------------------|-----------------------------------|---------------------|-------|
| Abstractions | Rg | Namurian Sandstones | Fault |
| River | Dinantian Lower Impure Limestones | Namurian Shales | Cave |
| Zone of Contribution | Dinantian Pure Bedded Limestones | Spring | |

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0 0.25 0.5 1
km

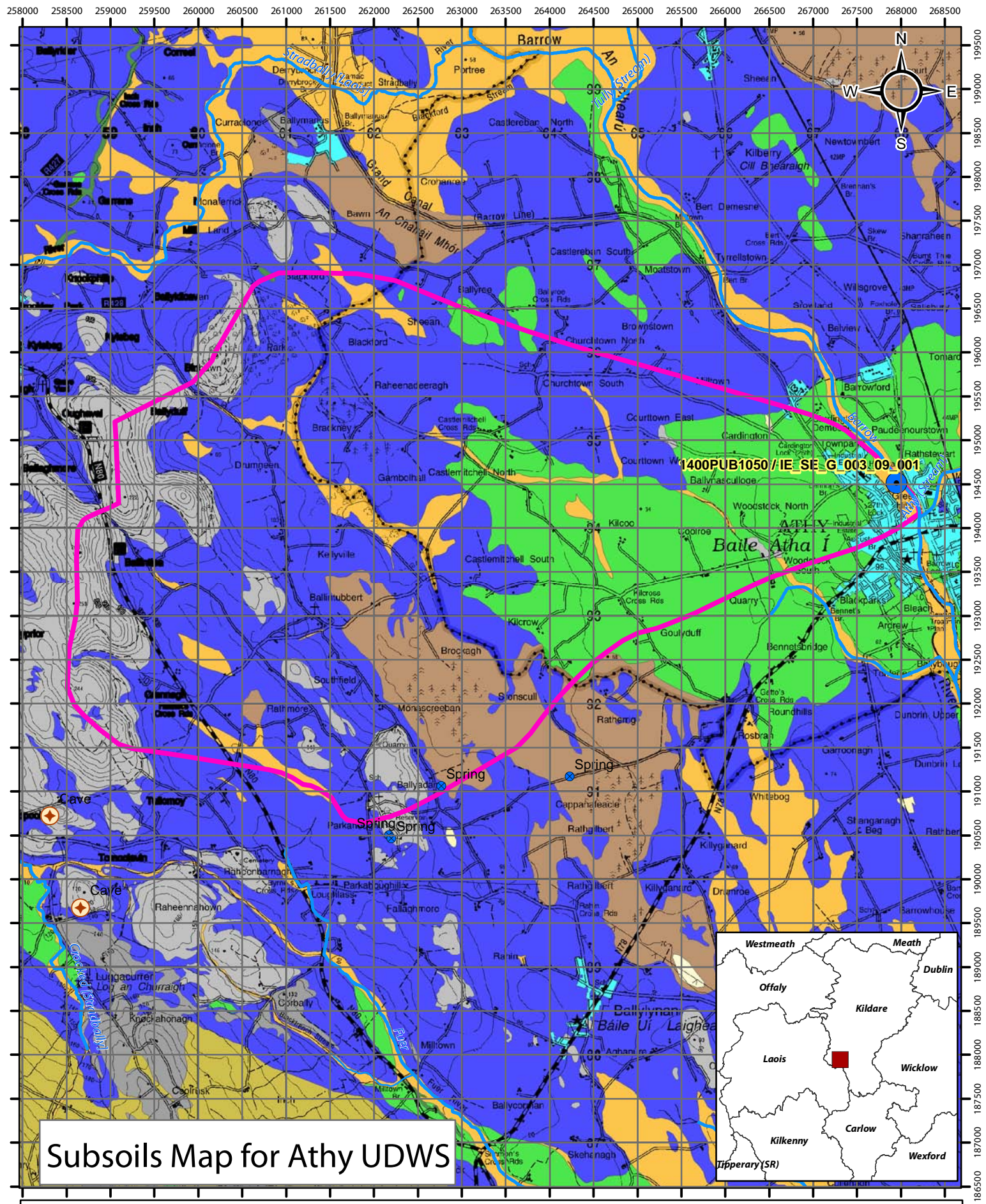


Groundwater Vulnerability Map for Athy UDWS

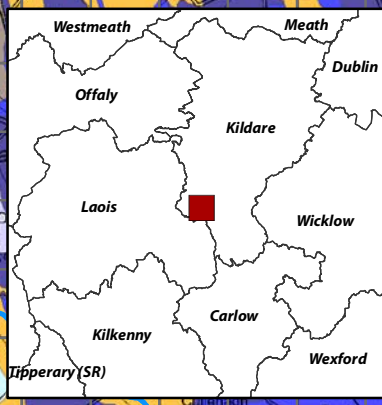
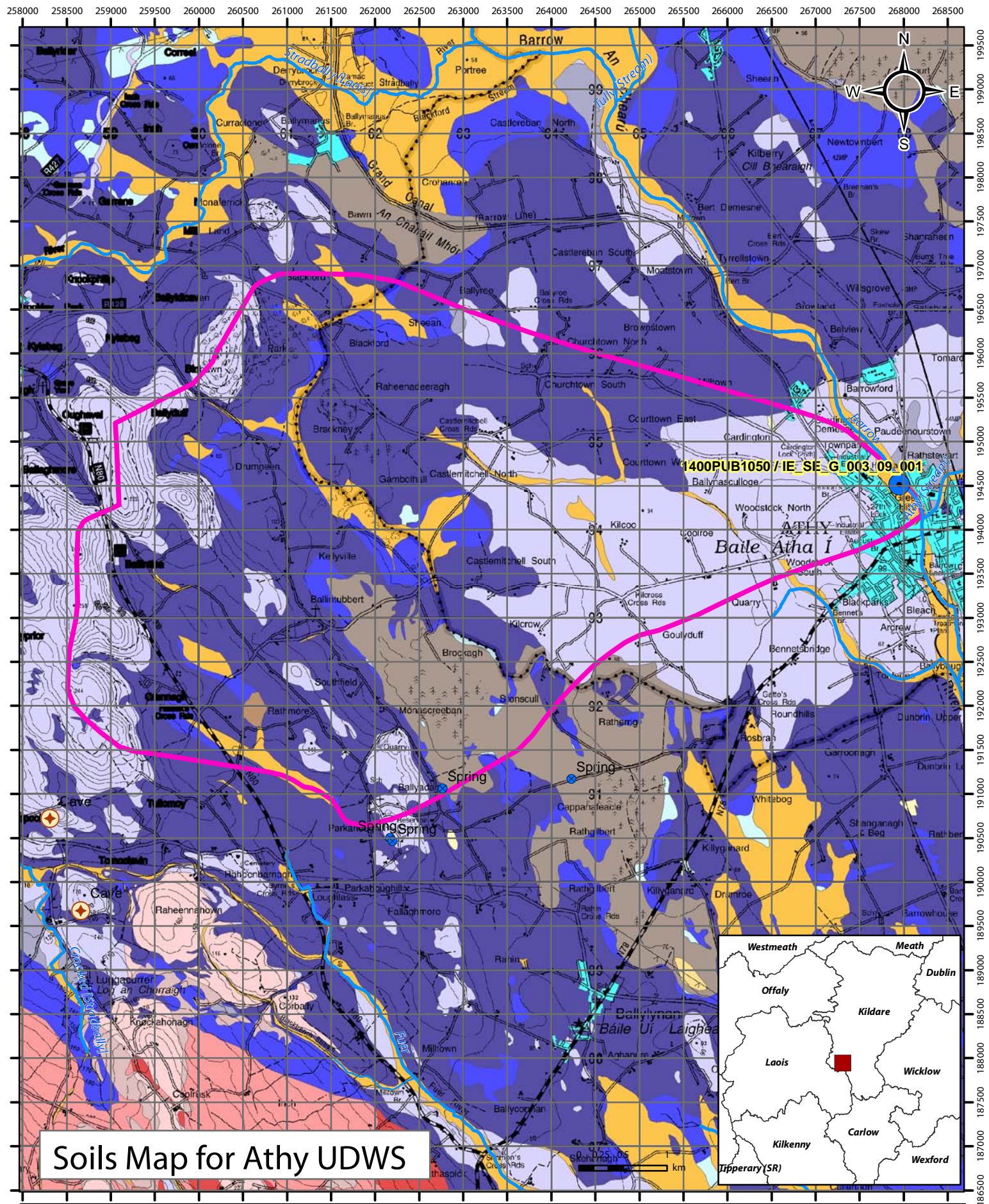
- Abstractions
- River
- Zone of Contribution
- E (Rock near surface or Karst)
- E (Extreme)
- H (High)
- M (Moderate)
- L (Low)
- HL (unmapped - High to Low)
- Water
- No Data

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0 0.25 0.5 1 km



- | | | | | | |
|--|----------------------|--|--|--|--|
| | Abstractions | | Cutover raised peat | | Lacustrine sediments |
| | River | | Esker comprised of gravels of basic reaction | | Lake marl |
| | Zone of Contribution | | Gravels derived from limestones | | Made ground |
| | Alluvium | | Bedrock outcrop or subcrop | | Till derived from limestones |
| | Fen peat | | Karstified bedrock outcrop or subcrop | | Till derived from Namurian sandstones and shales |



	Abstractions		Acid Shallow Well Drained Mineral		Basic Shallow Well Drained Mineral		Mineral Alluvium
	River		Acid Shallow Poorly Drained Mineral		Basic Shallow Poorly Drained Mineral		Marl-type Alluvium
	Zone of Contribution		Basic Deep Well Drained Mineral		Basic Shallow Poorly Drained Peaty Mineral		Lacustrine
	Acid Deep Well Drained Mineral		Basic Deep Poorly Drained Mineral		Fen Peat		Made
	Acid Deep Poorly Drained Mineral		Basic Poorly Drained Peaty Mineral		Cutover/Cutaway Peat		