Water Framework Directive

Groundwater Monitoring Programme

Site Information

Ballyogarty WS

Ballyogarty WS is a borehole with an abstraction rate of 195m³/day. In 2009 a source report was prepared for the source.

Waterford County Local Authorities
Údaráis Áitiúla Chontae Phort Láirge

August 2011

Waterford

SITE INFORMATION

Site Name:	Ballyogarty WS	County:	Waterford		
RBD:	SERBD	EU Reporting Code:	IE_SE_G_146_24_004		
Easting:	240069	GWB Name:	Tramore		
Northing:	104522	GWB Code:	IE_SE_G_146		
Site Use:	Drinking Water (PWS)	Drinking Water Code:	3100PUB1018		
Hydrometric Area:	17	Water Level Monitoring Network:	Level	Flow	
Townland:	BALLYOGARTY		N	N	
Ownership:	Waterford County Council				

Water Quality Monitoring Network:	Surveillance	Operational (Point)	Operational (Diffuse)
	N	N	Y

Site Comments:	The compound comprises a pumping house and adjacent metal shed. The borehole is located inside the treatment building. The source pumps directly into the water supply distribution main. There is no reservoir. Abstraction from the well is controlled by a pressure tank and cuts in and out frequently as pressure in the mains fluctuates with demand.

SITE DIRECTIONS

Location and Access Information:	The Ballyogarty borehole is 1.7 km south of Kilmacthomas in the townland of Ballyogarty. The source is located in a 10 m by 10 m gated compound with concrete post and rail fencing, adjacent to the R677 from Kilmacthomas to Ballylaneen.
Additional Comments:	---

WELL INFORMATION

Monitoring Point Type:	BH	Abstraction Rate (m^3/d):	195	Ground Elevation (m OD):	44
Borehole Log Available:	---	Total Drilled Depth (m bgl):	21.9	Depth to Bedrock (m bgl):	5.6
Top of Casing (m agl):	---	Upper Casing Diameter (mm):	230 concrete outer	Lower Casing Diameter (mm):	200
Final Borehole Depth (m):	Cased to Rock	Upper Casing Bottom Depth (m bgl) :	unknown	Lower Casing Bottom Depth (m bgl):	unknown
Screen Interval (m bgl):	unknown	Screen Type (PVC,Steel,other):	steel	Screen Slot Size (mm):	unknown
Grout Type (cement,bentonite):	not grouted	Grouted above (m bgl):	---	Grout Volume Injected (m^3):	---
Gravel Pack Interval (m bgl):	---	Gravel Pack Volume (m^3):	---	Open Hole Interval (m bgl):	unknown
Potential Yield (m^3/day):	---	Comments on Monitoring Site:	pumping water level 6m bgl.		
Specific Capacity ($m^3/d/m$):	60				
Static Water Level (m bgl):	2.75				
Scheme Name:	Ballyogarty	Number of Abstraction Points in the Scheme:	1	Source Report Available	Y

Source Report Info:	TOBIN/CDM/OCM 2010
Scheme Summary:	The Ballyogarty borehole source supplies the townlands surrounding the source as well the southwestern part of Kilmacthomas.

HYDROGEOLOGY

GEOLOGY	Soil:	Deep well drained mineral (AminDW)			Subsoil Permeability:	Low
	Subsoil:	Tills (diamictons) (TAv)				
	Bedrock:	Ordovician Volcanics				
HYDROGEOLOGY	Aquifer Category:	Rf	Vulnerability at Monitoring site:	High to Low	Flow Regime:	Productive fissured bedrock
ZONE OF CONTRIBUTION	Estimated ZOC Size (km²):	0.41	ZOC Delineated By:	Tobin (PC, CK)	Recharge Estimate (mm/yr):	340
	ZOC Delineation Comments:	ZOC is delineated primarily on topography. Uniform flow equation was used to establish the downgradient distance of 50m. The delineated ZOC represents a maximum likely ZOC for the source based on the available data and protects a recharge footprint equivalent to 380 m³/day.				

Groundwater Vulnerability within ZOC (% area):	Extreme (X)	Extreme (E)	High	Moderate	Low	High to Low	Unclassified
	10.05	14.62	0	0	0	75.33	0

HYDROCHEMISTRY

Hydrochemical Signature:	Ca-HCO3		Additional Water Chemistry Information:	During the monitoring period: The average nitrate concentration was 37 mg/l NO3 and the maximum nitrate concentration was 44 mg/l NO3. The average ammonium concentration was 0.02 mg/l N and the maximum ammonium concentration was 0.156 mg/l N. The average molybdate reductive phosphorus (MRP) concentration was 0.032 mg/l P and the maximum MRP concentration was 0.084 mg/l P. The average chloride concentration was 20.8 mg/l Cl and the maximum chloride concentration was 26 mg/l Cl.
Alkalinity (mg/l HCO3):	Average:	Range:		
	26	8-50		
Hardness (mg/l CaCO3):	Average:	Range:		
	49	35-60		
Conductivity (uS/cm):	Average:	Range:		
	175	129-205		
Monitoring Record Period:	From:	To:		
	2001	2010		

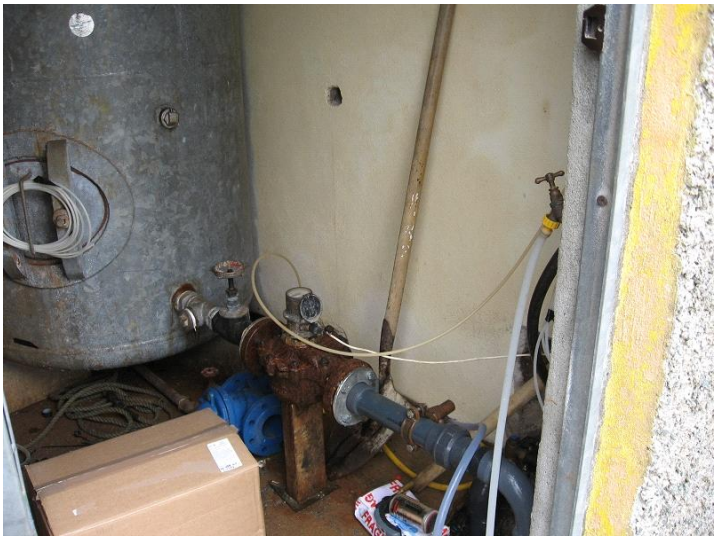
RISK ASSESSMENT

Pressure (e.g., Nitrates, Phosphates, Abstractions):	Diffuse	Typical Contaminants:	Nitrates
Risk Category:	At risk, high confidence	GWB Status:	Good

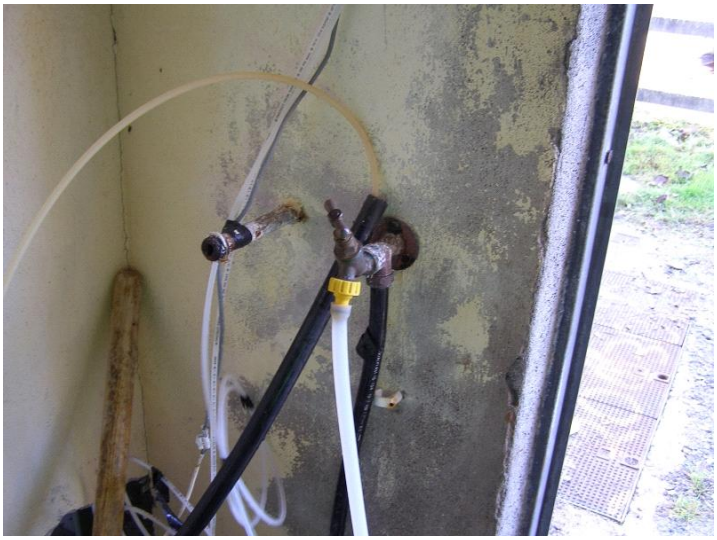
Impact Potential within ZOC (% area):	Extreme:	High:	Moderate:	Low:	Negligible:
	0.00	29.90	70.10	0.00	0.00

OTHER INFORMATION

Pump House



Borehole



Sampling Point

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 N03)
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).

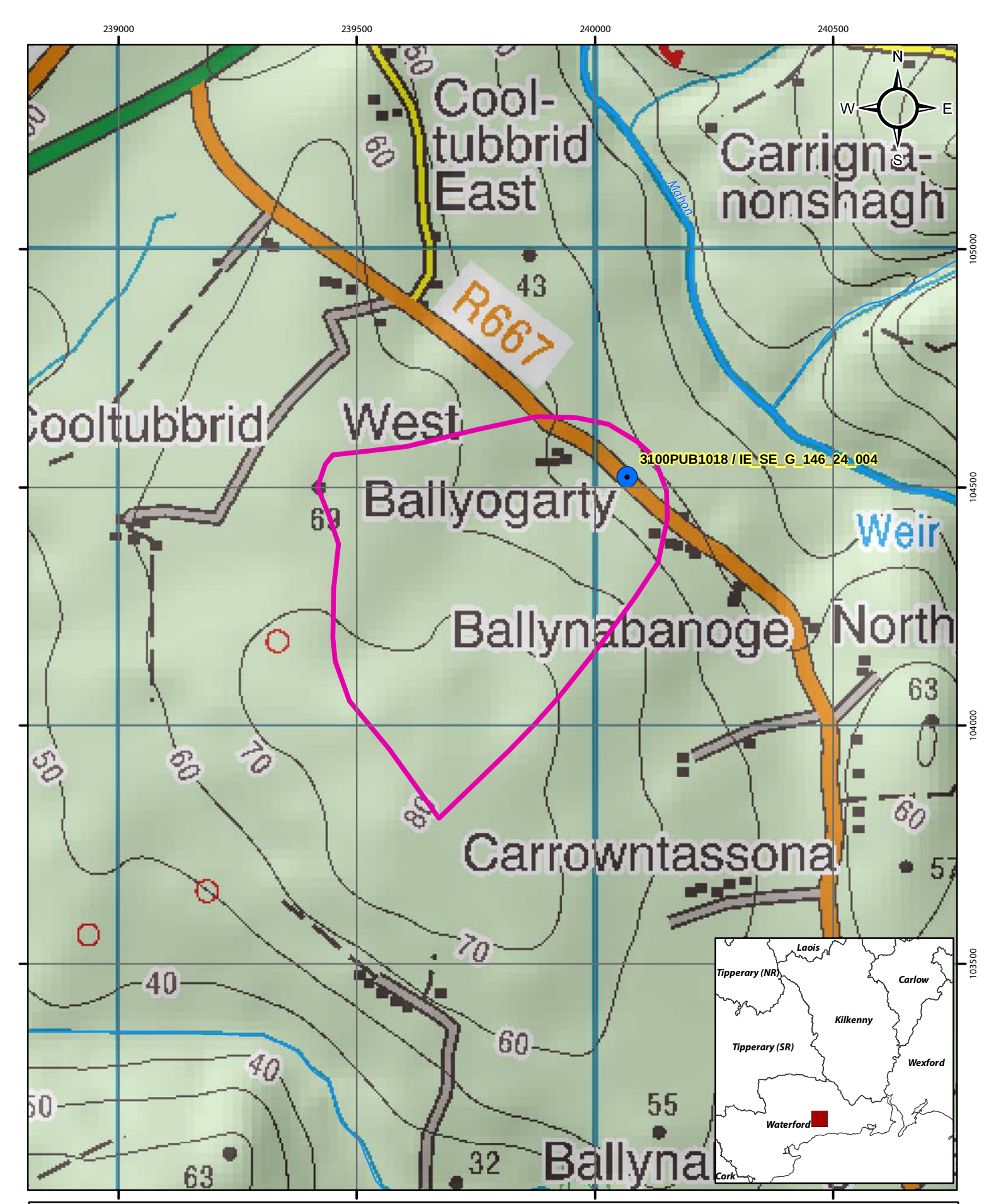
General Downgradient Distances

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		Date:	
Version 1:	Prepared by	Tobin (PC, CK)	Date:	2009
Version 2:	Prepared by		Date:	
Version 3:	Prepared by		Date:	
Version 4:	Prepared by		Date:	



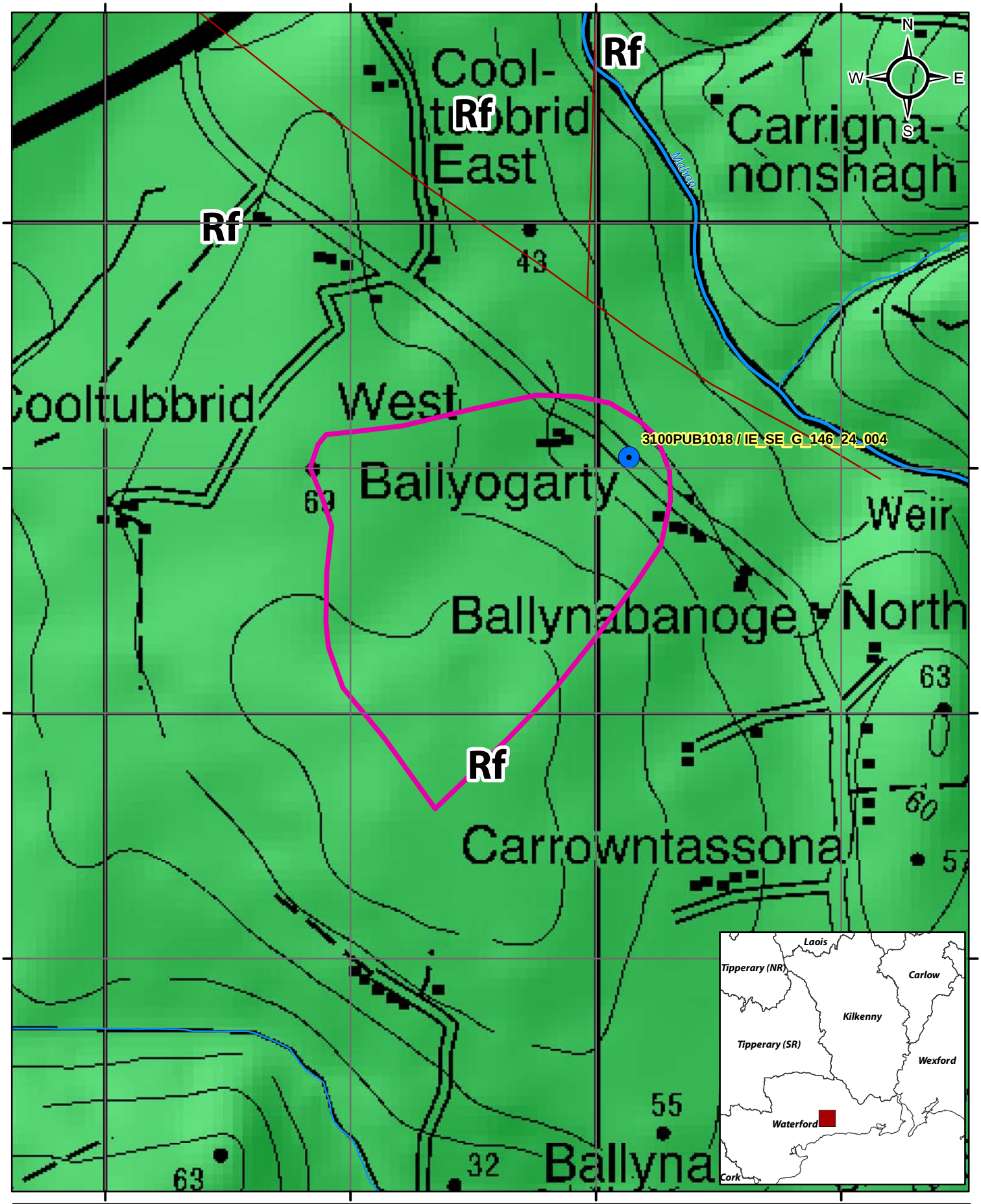
Location Map for Ballyogarty

Abstractions

River

Zone of Contribution

0 0.25 0.5 1 km



Aquifer Category Map for Ballyogarty

Abstractions

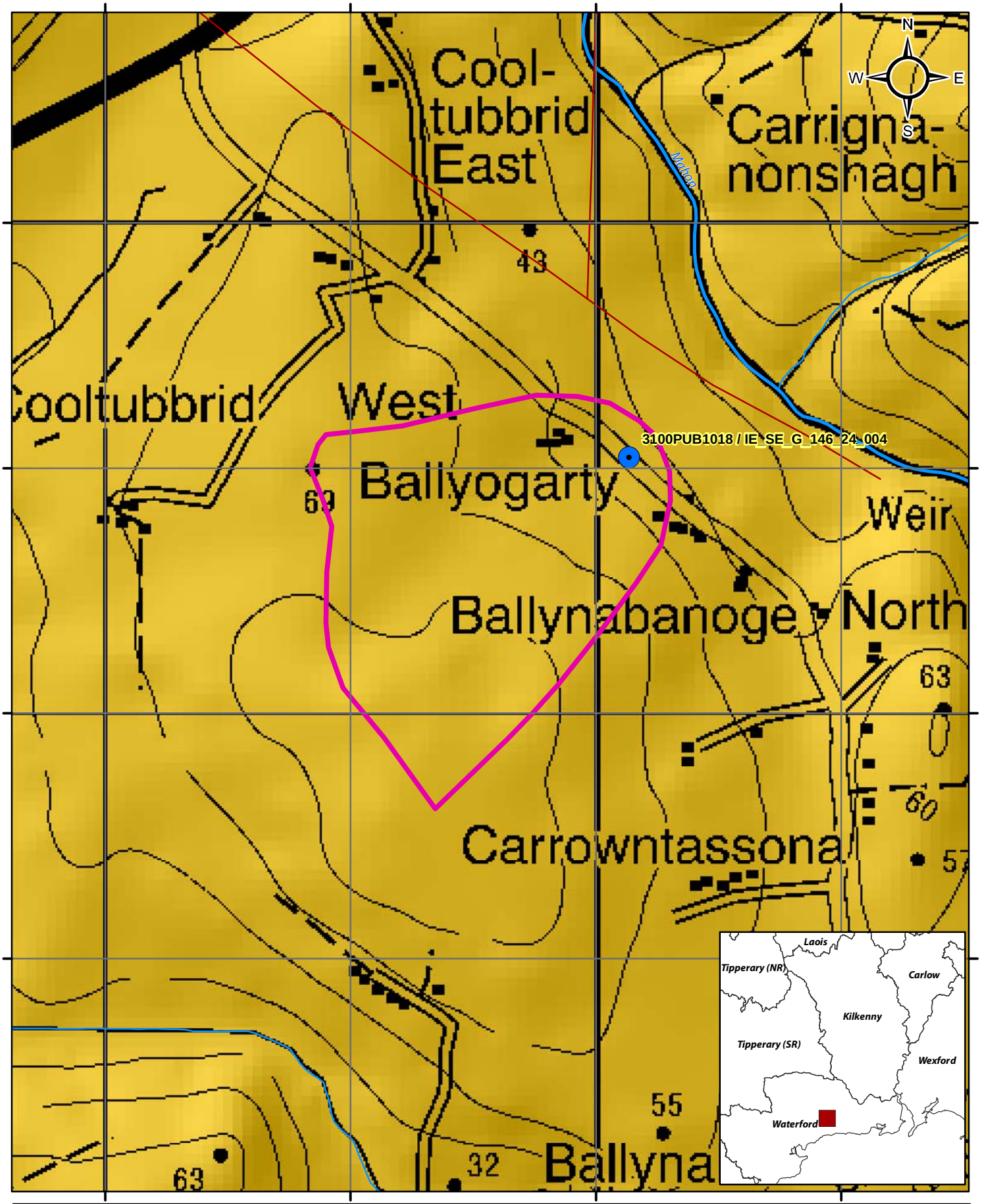
Rf

River

Fault

Zone of Contribution

0 0.25 0.5 1 km



Bedrock Map for Ballyogarty

Abstractions

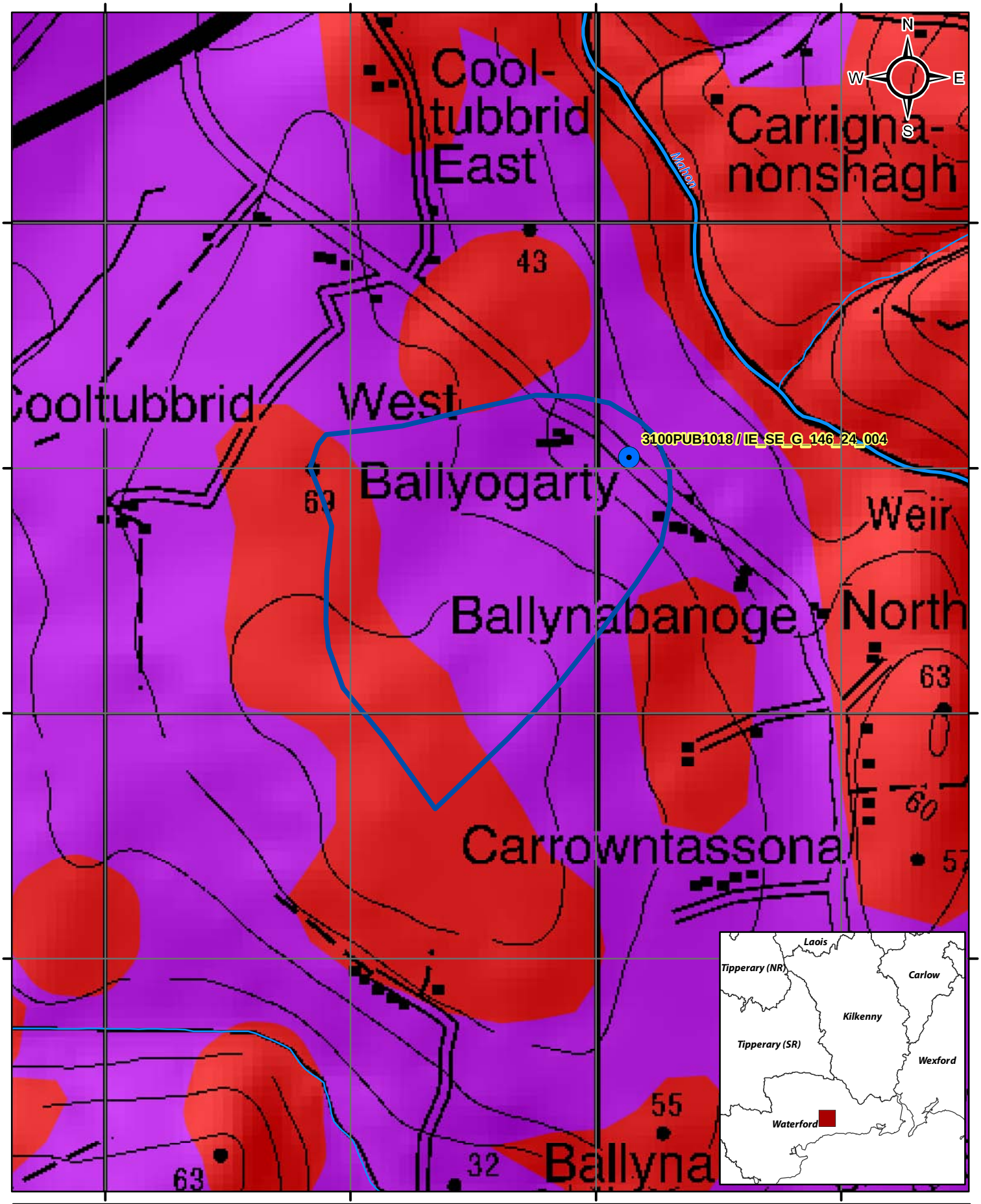
River

Zone of Contribution

Fault

Ordovician Volcanics

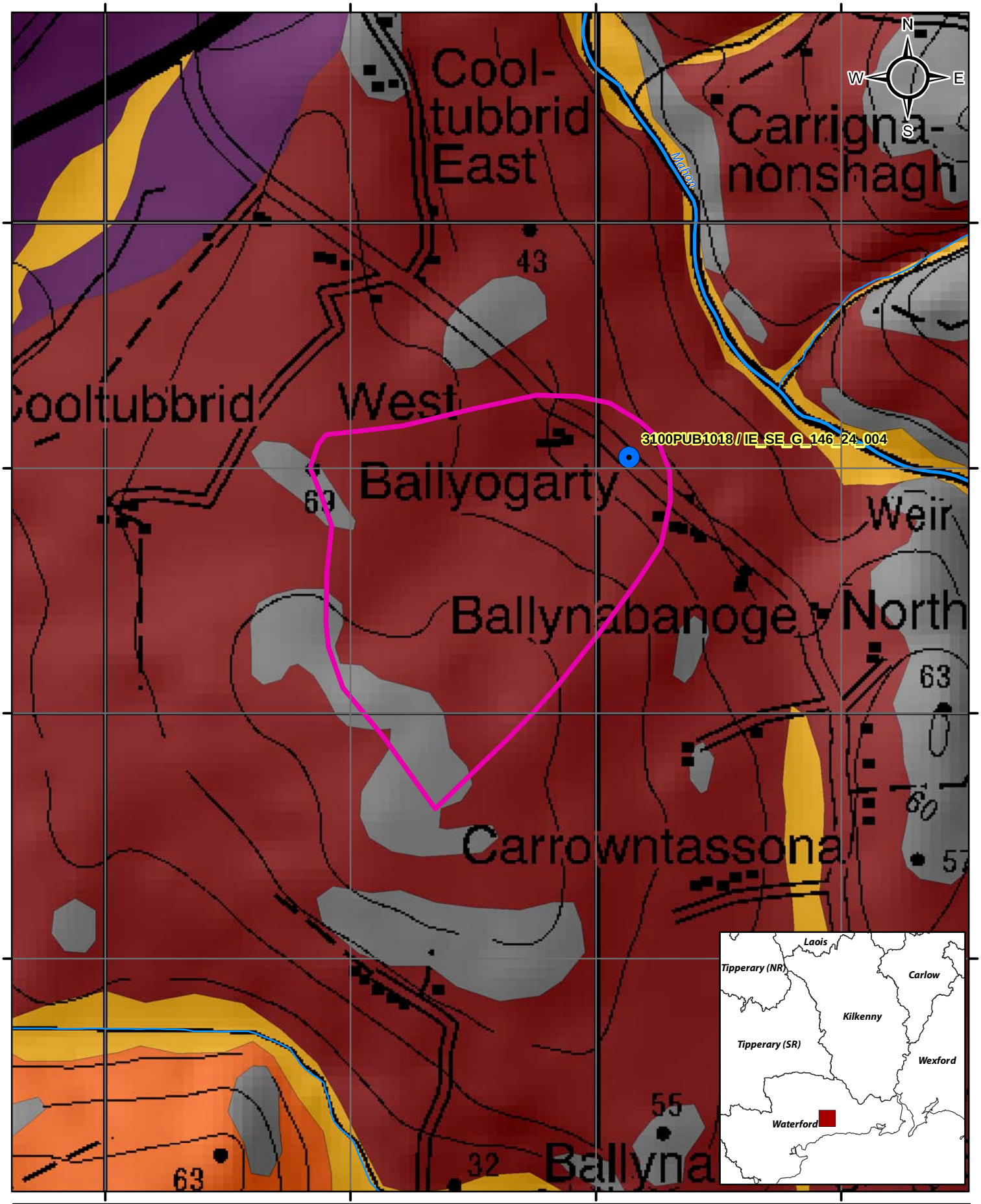
0 0.25 0.5 1 km



Groundwater Vulnerability Map for Ballyogarty

- Abstractions
- River
- Zone of Contribution
- X (extreme - outcrop or rock close)
- E (extreme)
- H (high)
- M (moderate)
- L (low)
- HL (unmapped)
- Water
- No Data

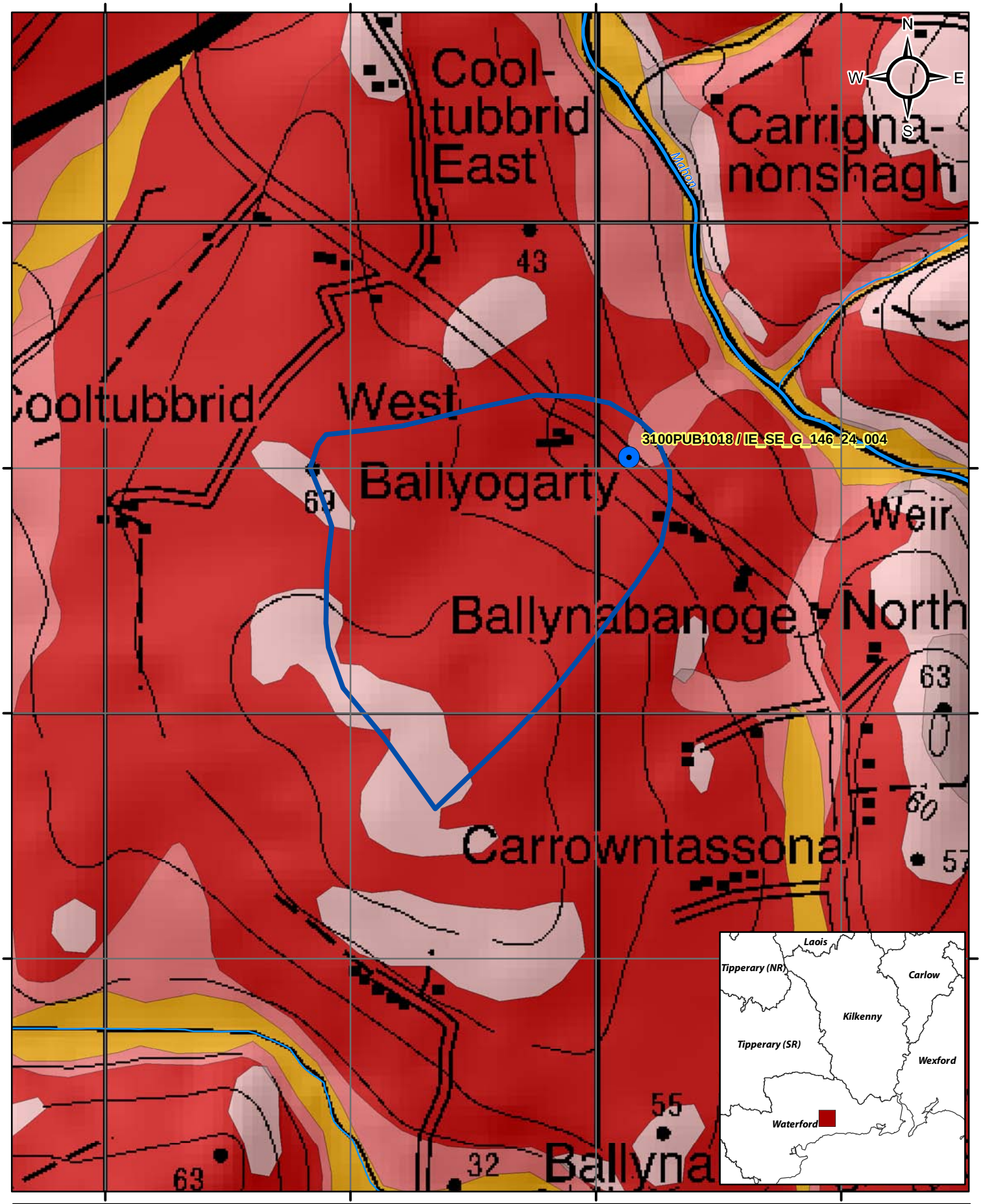
0 0.25 0.5 1 km



Subsoils Map for Ballyogarty

- Abstractions
- River
- Zone of Contribution
- Alluvium
- Bedrock outcrop or subcrop
- Till derived from acid volcanic rocks
- Till derived from basic igneous rocks
- Till derived from Lower Palaeozoic shales

0 0.25 0.5 1 km



Soils Map for Ballyogarty

- Abstractions
- River
- Zone of Contribution
- Acid Deep Well Drained Mineral
- Acid Deep Poorly Drained Mineral
- Acid Shallow Well Drained Mineral
- Acid Shallow Poorly Drained Mineral
- Mineral Alluvium

0 0.25 0.5 1 km