

Water Framework Directive Groundwater Monitoring Programme

Site Information **Eyrecourt PS**



Eyrecourt is a spring which supplies the Eyrecourt public water scheme.
The total average abstraction rate is approximately 180 m³/d.



Galway

August 2011

SITE INFORMATION					
Site Name:	Eyrecourt PS		County:	Galway	
RBD:	Shannon IRBD		EU Reporting Code:	---	
Easting:	191814		GWB Name:	Tynagh	
Northing:	216556		GWB Code:	IE_SH_G_236	
Site Use:	Public drinking water supply		Drinking Water Code:	1200PUB1019	
Hydrometric Area:	25		Water Level Monitoring Network:	Level	Flow
Townland:	Eyrecourt Denesne			N	N
Ownership:	Galway Co. Co.				
Water Quality Monitoring Network:	Surveillance		Operational (Point)		Operational (Diffuse)
	N		N		N
Site Comments:	Spring chamber and pumphouse located ion Rt 356 by the "Mill House", near Eyrecourt village. Site surrounded by agricultural land and forests.				

SITE DIRECTIONS	
Location and Access Information:	Drive Rt 356 east out of Eyrecourt village. The road makes a 90 degree bend to the south by the main church (St. Martin's). The pumphouse is located by a shed at the Mill House approximately 300 m SE from the main church. The spring is located 200 m north from the pumphouse, following a forest track which is accessed from a locked iron gate at the back of the pumphouse.
Additional Comments:	The pump house is located on the southern margin of a forest. Three streams merge near the source and flow south past the source.

WELL INFORMATION					
Monitoring Point Type:	Spring	Abstraction Rate (m³/d):	180	Ground Elevation (m OD):	47
Borehole Log Available:	---	Total Drilled Depth (m bgl):	n/a	Depth to Bedrock (m bgl):	---
Top of Casing (m agl):	---	Upper Casing Diameter (mm):	---	Lower Casing Diameter (mm):	---
Final Borehole Depth (m):	---	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:	Pump house is located at 191763E, 216411N. Source (spring) is located approx. 200 m further north in forested area with access from behind the pump house. The overflow from the spring is reportedly small. On day of site visit, there was no overflow. Despite the small overflow, the spring source is reportedly reliable, even in drier climatic periods. Water is chlorinated only at the pumphouse.		
Specific Capacity (m³/d/m):	---				
Static Water Level (m bgl):	---				
Scheme Name:	Eyrecourt PWS	Number of Abstraction Points in the Scheme:	1	Source Report Available	N
Source Report Info:	---				
Scheme Summary:	Seven upwellings in a single, covered spring chamber. Water is gravity fed to a 45 m³ reservoir at pumphouse, from where water is pumped directly into water distribution network.				

HYDROGEOLOGY								
GEOLOGY	Soil:	Shallow well drained mineral (BminSW)					Subsoil Permeability:	Moderate
	Subsoil:	Glaciofluvial sands and gravels (GLs)						
	Bedrock:	Dinantian Upper Impure Limestones						
HYDROGEOLOGY	Aquifer Category:	LI	Vulnerability at Monitoring site:	Moderate		Flow Regime:	Poorly productive	
ZONE OF CONTRIBUTION	Estimated ZOC Size (km²):	0.53	ZOC Delineated By:	CDM (HM)		Recharge Estimate (mm/yr):	200	
	ZOC Delineation Comments:	ZOC delineated based on recharge estimate, topography, and an abstraction rate of 225 m³/d, which is 25% greater than actual abstraction rate of 180 m³/d. The 25% added abstraction was considered due to knowledge that some spring overflow occurs, although this has not been quantified or documented to any extent. A 50% added daily volume was not considered feasible due to LI aquifer designation and knowledge of another larger spring in vicinity of the source. A small and only periodically active swallowhole is located north of the source by the Eyrecourt ruins, which may be linked to the Eyrecourt source.						
Groundwater Vulnerability within ZOC (% area):	Extreme (X)	Extreme (E)	High	Moderate	Low	High to Low	Unclassified	
	0.18	16.34	73.61	8.03	1.84	0	0	
HYDROCHEMISTRY								
Hydrochemical Signature:	Ca-HCO3		Additional Water Chemistry Information:	The average concentration of MRP (0.056 mg/L P) during the period 2007-2010 exceeds the WFD threshold value of 0.035 mg/L P. High counts of coliforms and faecal coliforms present in the untreated samples. Many records of boil water notices in county council files, as well as elevated iron and manganese concentrations.				
Alkalinity (mg/l HCO3):	Average:	Range:						
	364.57	332-388						
Hardness (mg/l CaCO3):	Average:	Range:						
	404	360-444						
Conductivity (uS/cm):	Average:	Range:						
	774	745-801						
Monitoring Record Period:	From:	To:						
	2007	2010						
RISK ASSESSMENT								
Pressure (e.g., Nitrates, Phosphates, Abstractions):	Diffuse		Typical Contaminants:		Nitrates, Phopshates			
Risk Category:	At risk, high confidence		GWB Status:		Good			
Impact Potential within ZOC (% area):	Extreme:	High:	Moderate:		Low:	Negligible:		
	0.00	87.62	5.82		2.44	4.12		
OTHER INFORMATION								
A second larger spring is located approximately 500 m to the NE of the Eyrecourt source. This spring is unnamed and its flow details are not known. However, it is clearly larger than the Eyrecourt source. It appears to be linked to a stream which sinks below ground approximately 400 m to the north of the spring.								



Pump House



Spring Chamber



Pumps

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).

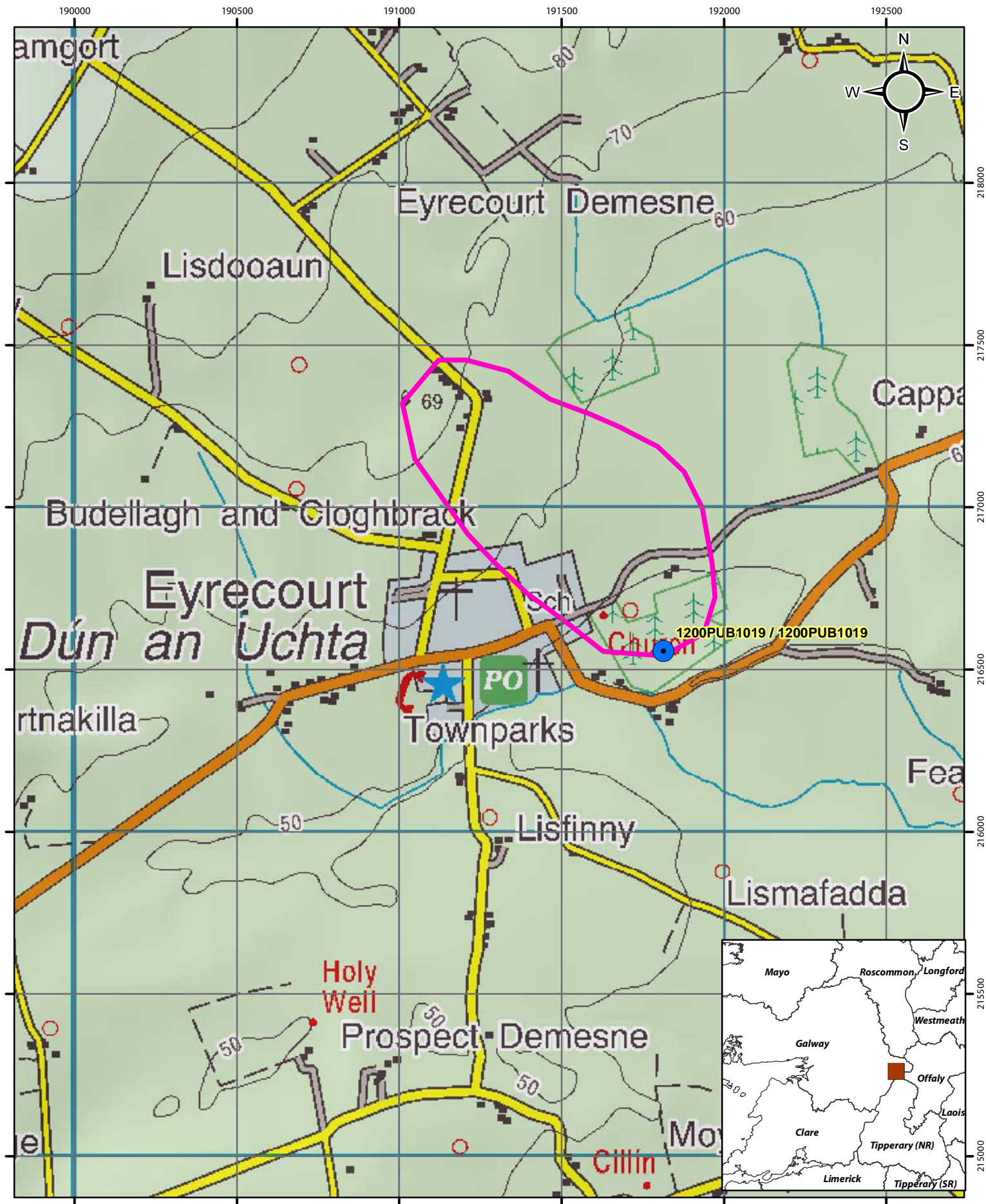
General Downgradient Distances

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
LI, PI	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	CDM (HM)	Date:	Feb 2011
Version 2:	Prepared by		Date:	
Version 3:	Prepared by		Date:	
Version 4:	Prepared by		Date:	

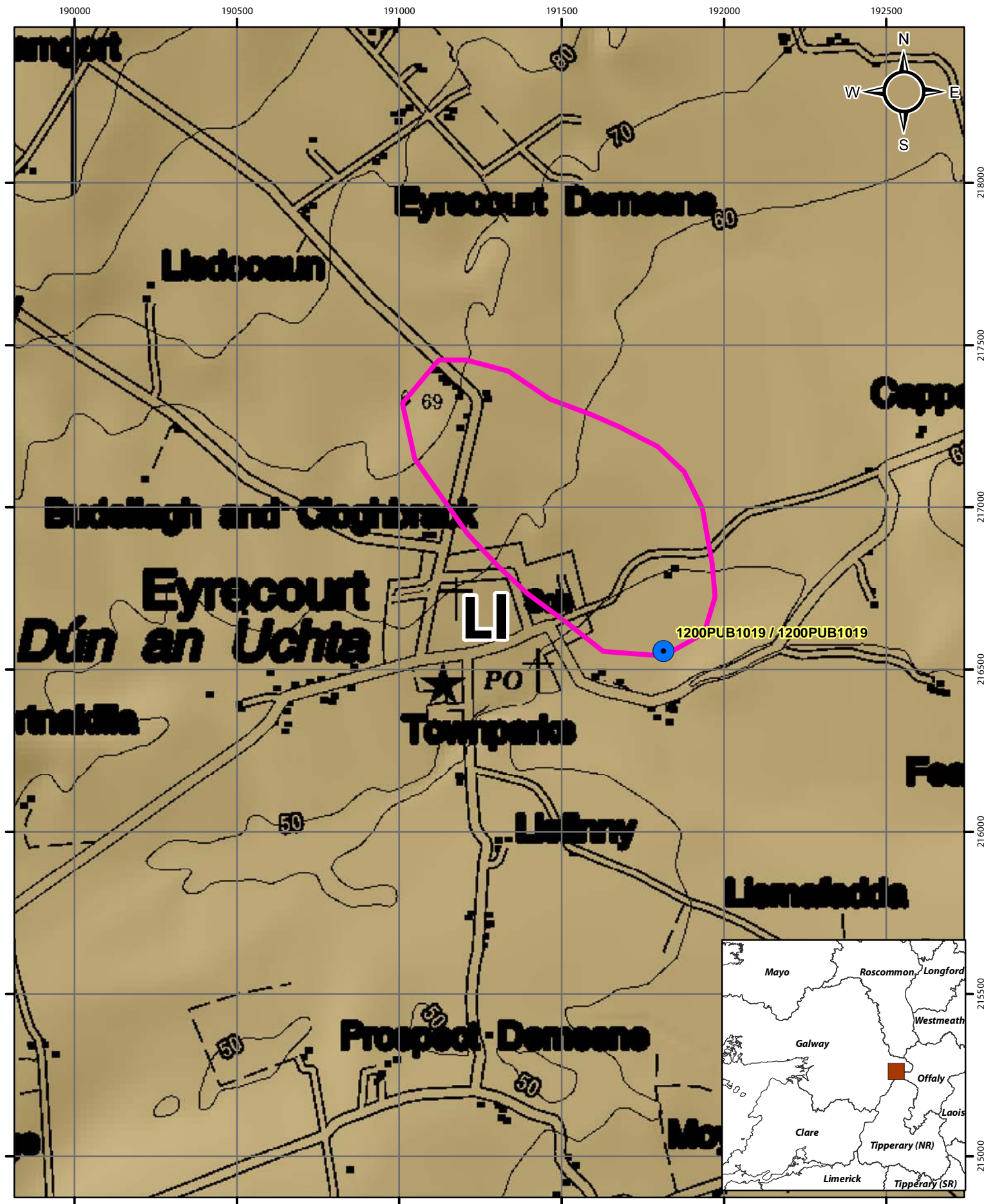


Location Map for Eyrecourt P.S.





- Abstractions
- Zone of Contribution
- River

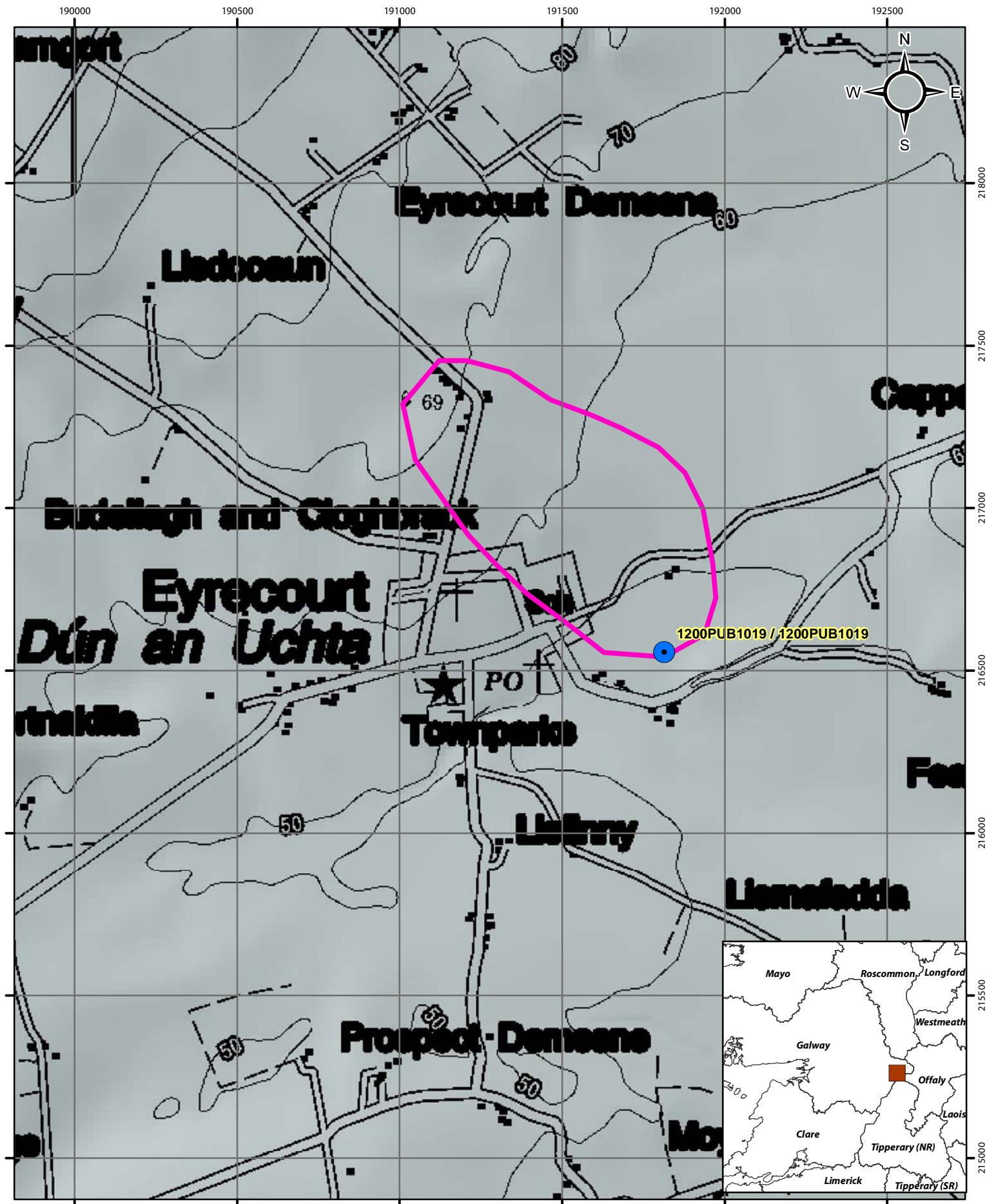
© Ordnance Survey Ireland. All rights reserved.
Licence number EN0059208

0 0.25 0.5 1 km



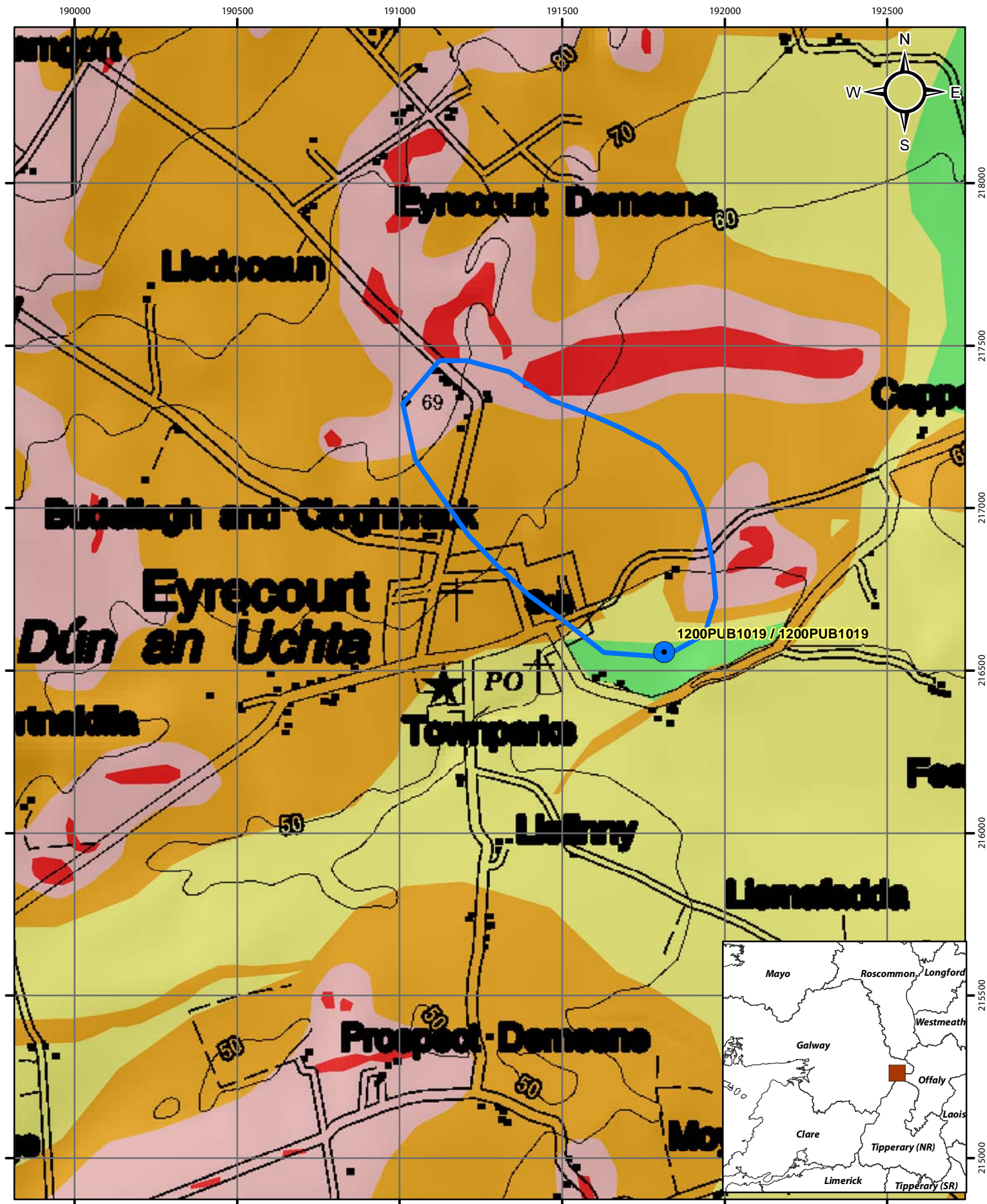
Aquifer Category Map for Eyrecourt P.S.

-  Abstractions
-  Zone of Contribution
-  River
-  LI

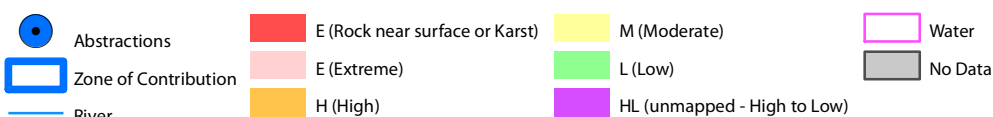


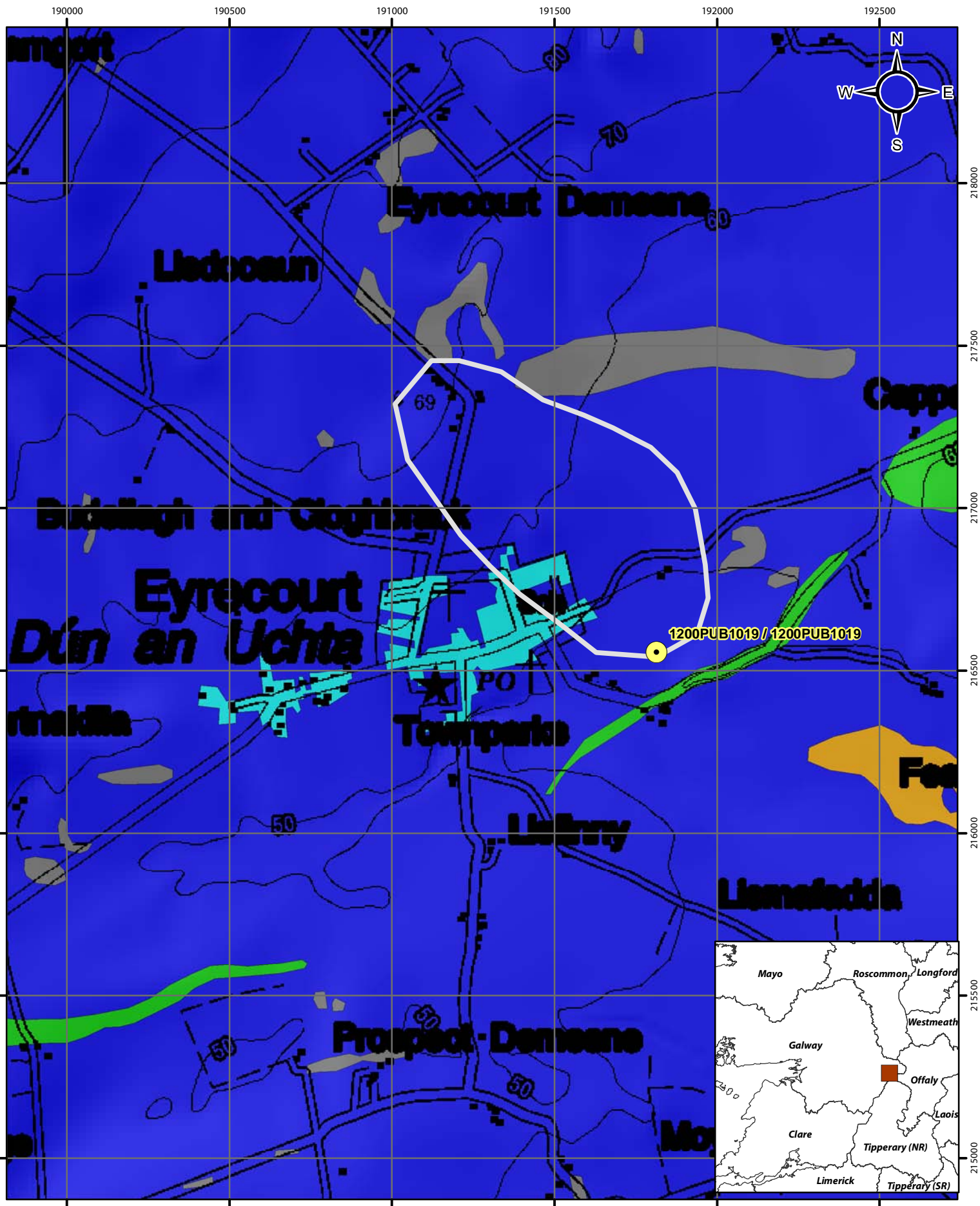
Bedrock Map for Eyrecourt P.S.

-  Abstractions
-  Zone of Contribution
-  River
-  Dinantian Upper Impure Limestones



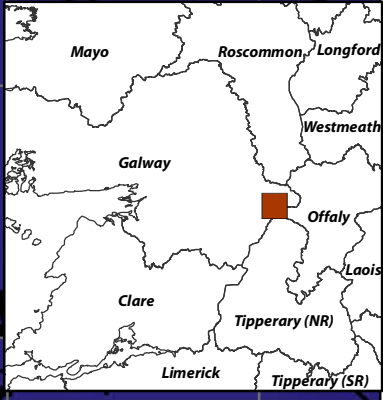
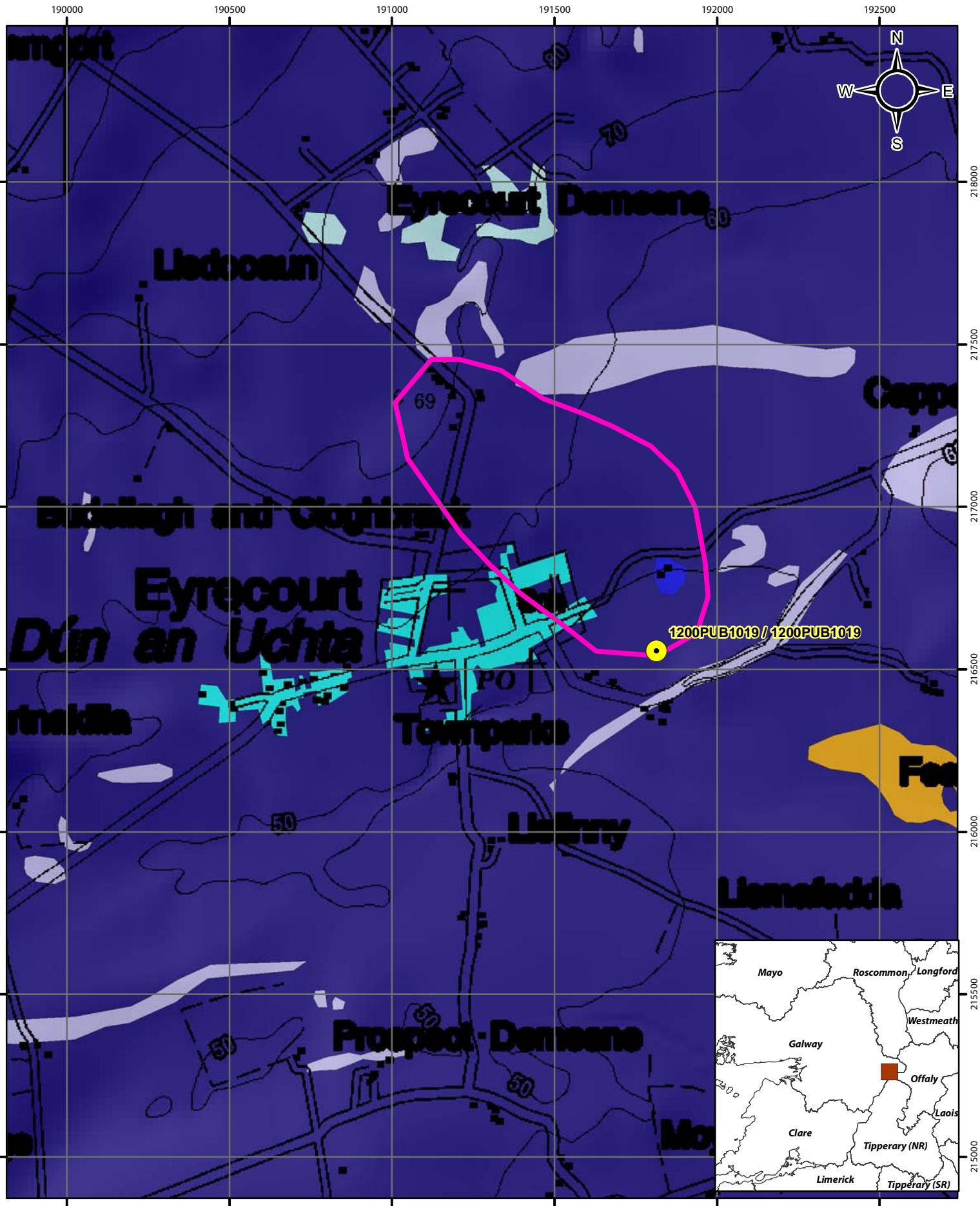
Groundwater Vulnerability Map for Eyrecourt P.S.





Subsoils Map for Eyrecourt P.S.

- Abstractions
- Alluvium
- Bedrock outcrop or subcrop
- Till derived from limestones
- Zone of Contribution
- Gravels derived from limestones
- Made ground
- River



Soils Map for Eyrecourt P.S.

- Abstractions
- River
- Zone of Contribution
- Basic Deep Well Drained Mineral
- Basic Poorly Drained Peaty Mineral
- Mineral Alluvium
- Basic Deep Poorly Drained Mineral
- Basic Shallow Well Drained Mineral
- Made