

Water Framework Directive Groundwater Monitoring Programme

Site Information **Feakle PWS**



Feakle is a single borehole supplying the Feakle public water scheme. The average abstraction rate is approximately 250 m³/day on average.



SITE INFORMATION					
Site Name:	Feakle PWS		County:	Clare	
RBD:	Shannon IRBD		EU Reporting Code:	---	
Easting:	154755		GWB Name:	Lough Graney	
Northing:	186310		GWB Code:	IE_SH_G_157	
Site Use:	Drinking Water (PWS)		Drinking Water Code:	0300PUB1017	
Hydrometric Area:	25		Water Level Monitoring Network:	Level	Flow
Townland:	Bauragegaun			N	N
Ownership:	Clare County Council				
Water Quality Monitoring Network:	Surveillance		Operational (Point)		Operational (Diffuse)
	N		N		N
Site Comments:	Single well site surrounded by hills, forestry and agricultural land (pasture).				

SITE DIRECTIONS	
Location and Access Information:	From Feakle village (church), drive west towards Glendree. After 1.6km, pass T-junction by driving "straight through". The well is located 200m after the T-junction on the right hand side.
Additional Comments:	The well is located beside a private house, visible from the road but still easy to miss.

WELL INFORMATION					
Monitoring Point Type:	Borehole	Abstraction Rate (m³/d):	250	Ground Elevation (m OD):	145
Borehole Log Available:	---	Total Drilled Depth (m bgl):	66	Depth to Bedrock (m bgl):	---
Top of Casing (m agl):	-0.3	Upper Casing Diameter (mm):	150	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):	Steel	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:	The Feakle borehole was drilled in 1997 by a private landowner and was later purchased by Clare County Council. Total well depth is 200ft. A submersible pump is installed at a depth of 150ft (c. 46 m). No borehole log or test results have been located. Well yield is reportedly reliable even during drier climatic periods. Water is chlorinated only.		
Specific Capacity (m³/d/m):	---				
Static Water Level (m bgl):	2				
Scheme Name:	Feakle PWS	Number of Abstraction Points in the Scheme:	1	Source Report Available	N
Source Report Info:	---				
Scheme Summary:	Single borehole supplying Feakle. Water is pumped to new 250,000 gallons reservoir (5 day supply).				

HYDROGEOLOGY							
GEOLOGY	Soil:	Deep poorly drained mineral (AminPD)				Subsoil Permeability:	Low
	Subsoil:	Tills (diamictons) (TLPSSs)					
	Bedrock:	Silurian Metasediments and Volcanics					
HYDROGEOLOGY	Aquifer Category:	PI	Vulnerability at Monitoring site:	Low	Flow Regime:	Poorly productive	
ZONE OF CONTRIBUTION	Estimated ZOC Size (km²):	1.55	ZOC Delineated By:	CDM (HM)	Recharge Estimate (mm/yr):	100	
	ZOC Delineation Comments:	The ZOC was delineated on the basis on an estimated recharge value, topography and the reported abstraction rate. The abstraction rate was increased by 50% on the basis that the well is in all likelihood associated with a fault mapped nearby by the GSI which throws the Old Red Sandstone against Silurian metasediments. The ZOC was therefore extended preferentially in the direction of the strike of the fault, due east-west.					
Groundwater Vulnerability within ZOC (% area):	Extreme (X)	Extreme (E)	High	Moderate	Low	High to Low	Unclassified
	10.56	21.31	10.82	0	57.31	0	0
HYDROCHEMISTRY							
Hydrochemical Signature:	---		Additional Water Chemistry Information:	Few data are available.			
Alkalinity (mg/l HCO3):	Average:	Range:					
	---	---					
Hardness (mg/l CaCO3):	Average:	Range:					
	---	---					
Conductivity (uS/cm):	Average:	Range:					
	424	409-430					
Monitoring Record Period:	From:	To:					
	2004	2007					
RISK ASSESSMENT							
Pressure (e.g., Nitrates, Phosphates, Abstractions):	Diffuse		Typical Contaminants:	Nitrates			
Risk Category:	At risk, low confidence		GWB Status:	Good			
Impact Potential within ZOC (% area):	Extreme:	High:	Moderate:	Low:	Negligible:		
	0.00	0.00	31.96	68.04	0.00		
OTHER INFORMATION							



Site overview



Well head



Well covers

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 μ S/cm) / Drinking Water Test (1,875 μ S/cm)

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

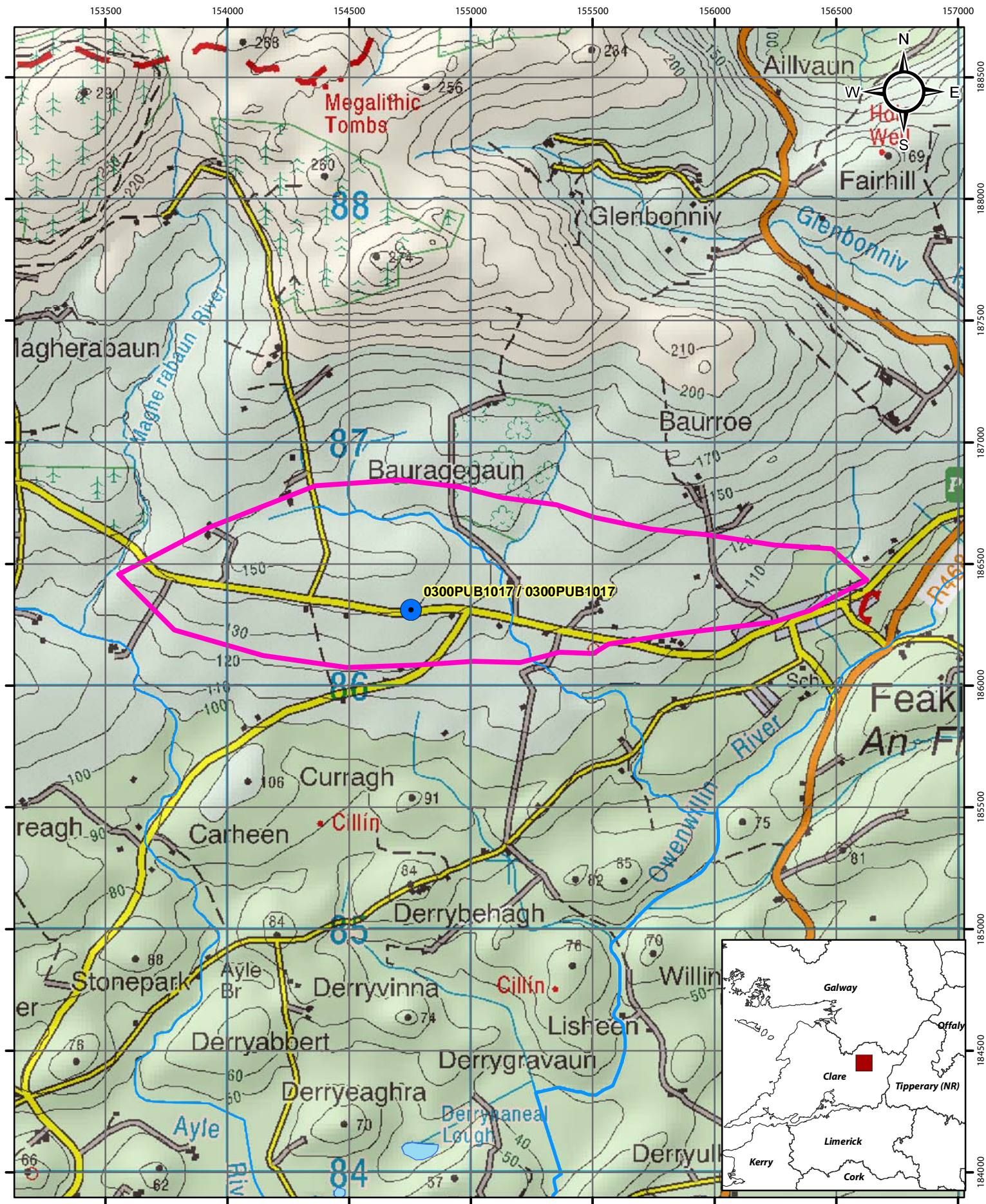
General Downgradient Distances

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

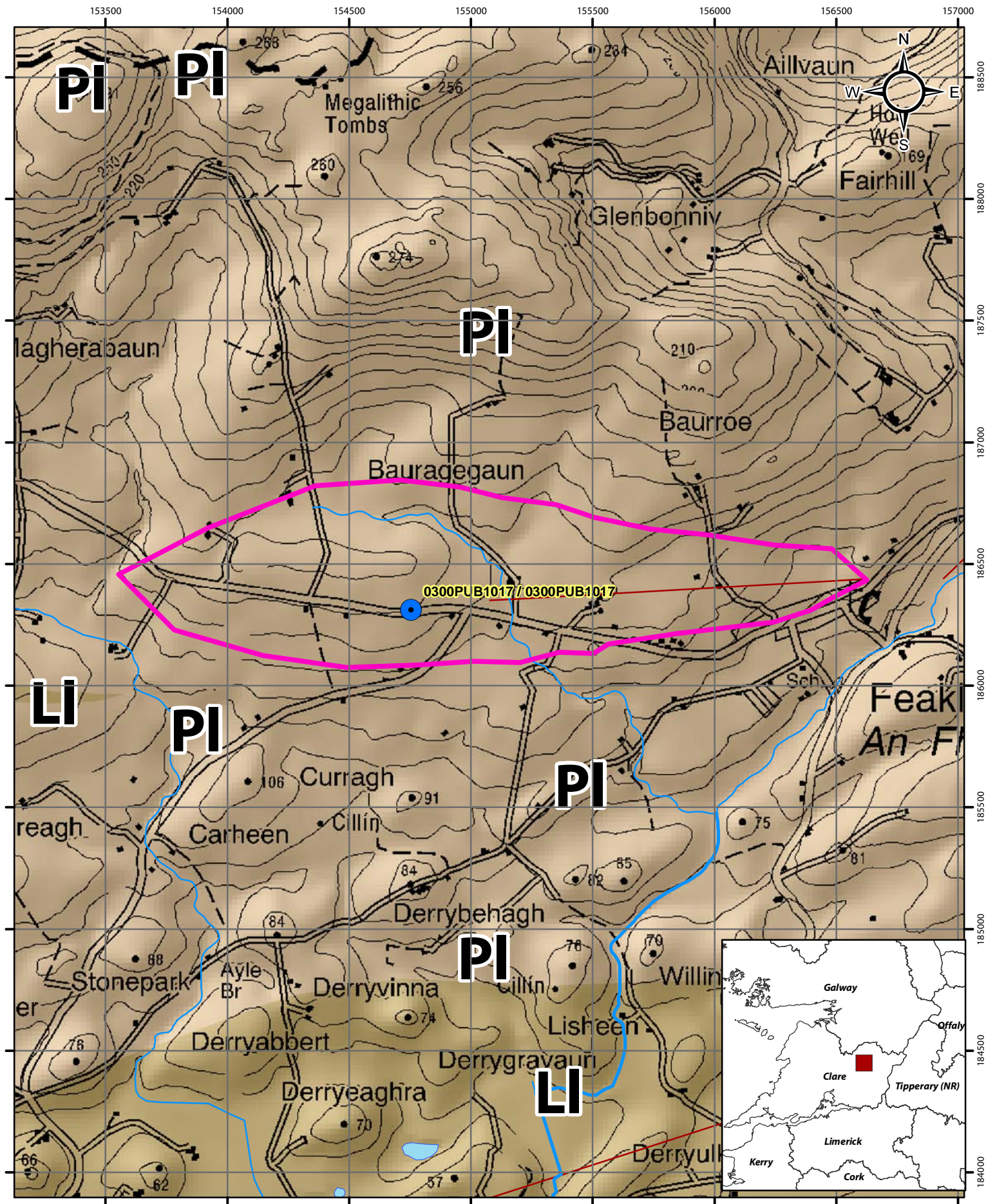
It is assumed that groundwater downgradient of a spring cannot flow back up to the spring, however a precautionary 30m buffer is generally applied which allows for instances where pumping under dry weather periods may induce a drawdown or where the ground may be sloping toward the spring from the downgradient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



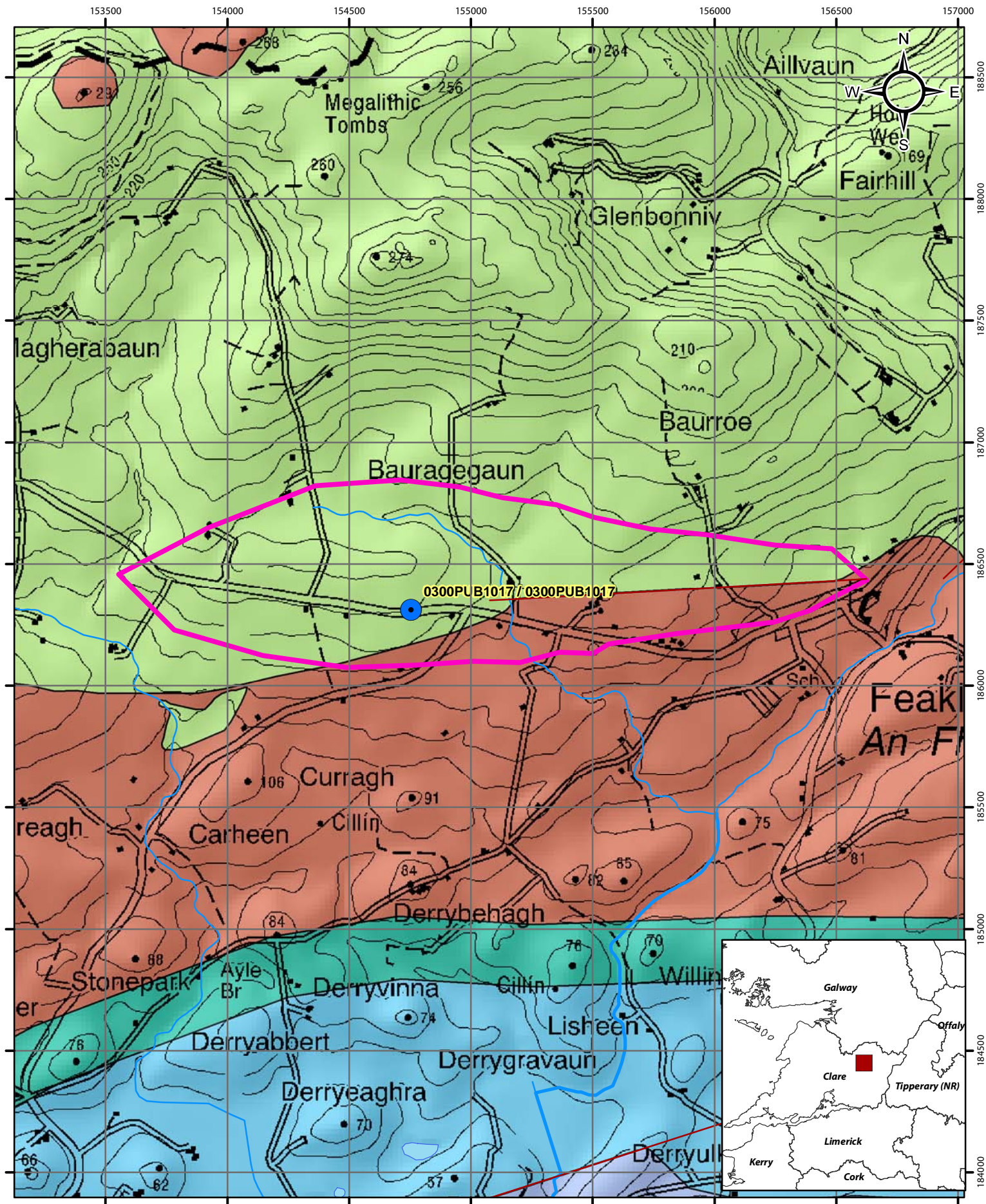
Location Map for Feakle PWS

- Abstractions
- Zone of Contribution
- River



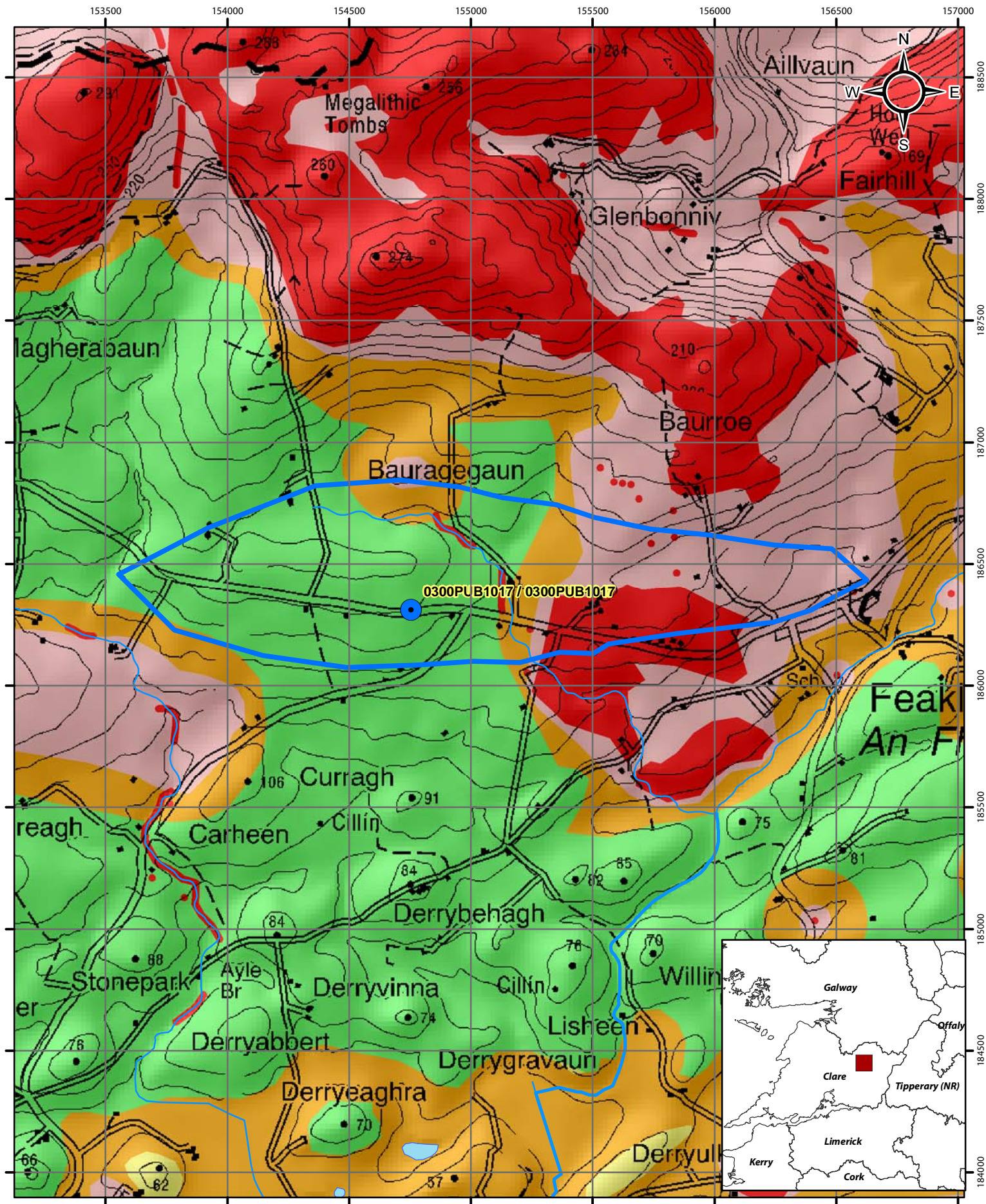
Aquifer Category Map for Feakle PWS

- Abstractions
- Zone of Contribution
- River
- LI
- PI
- Fault



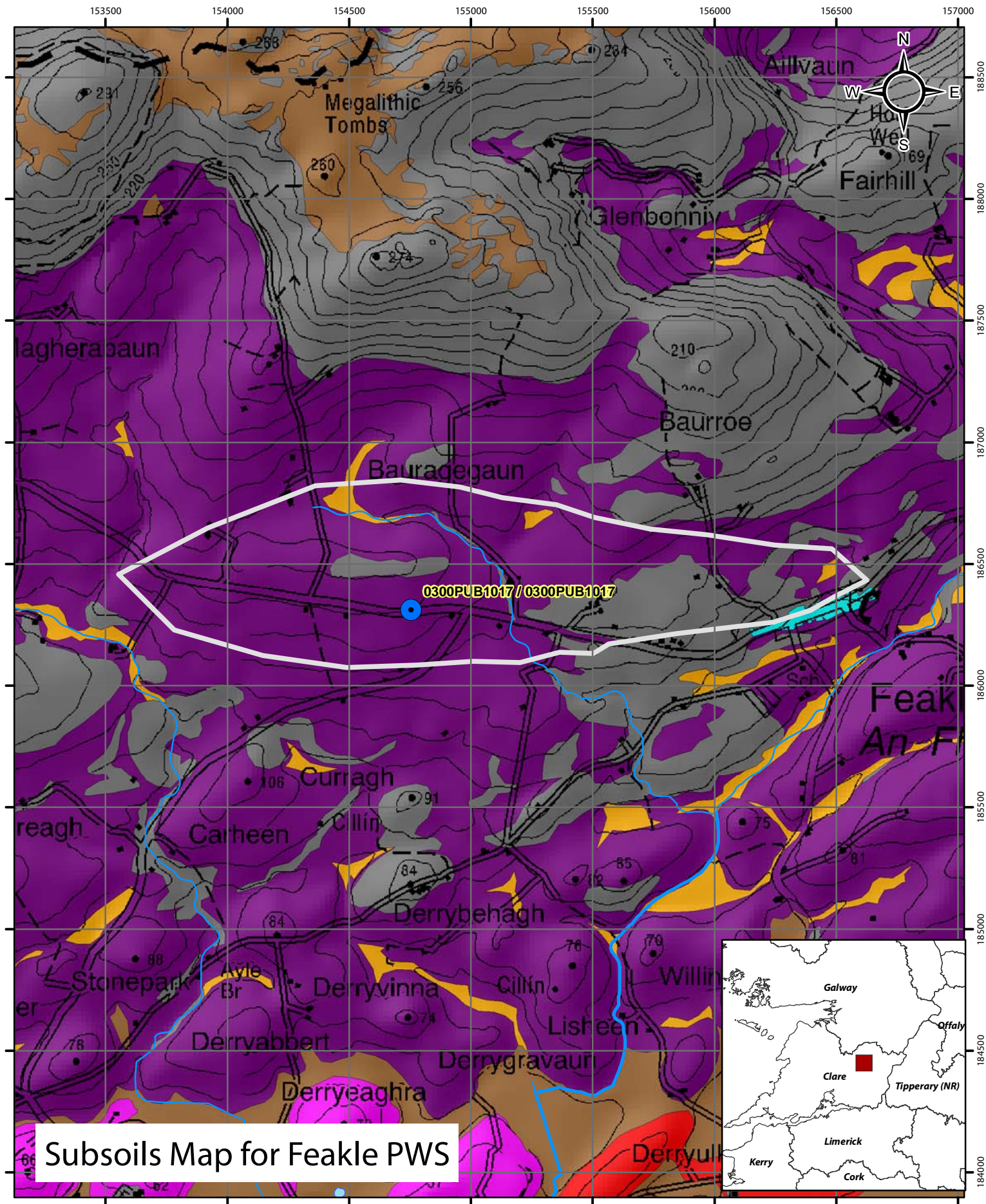
Bedrock Map for Feakle PWS

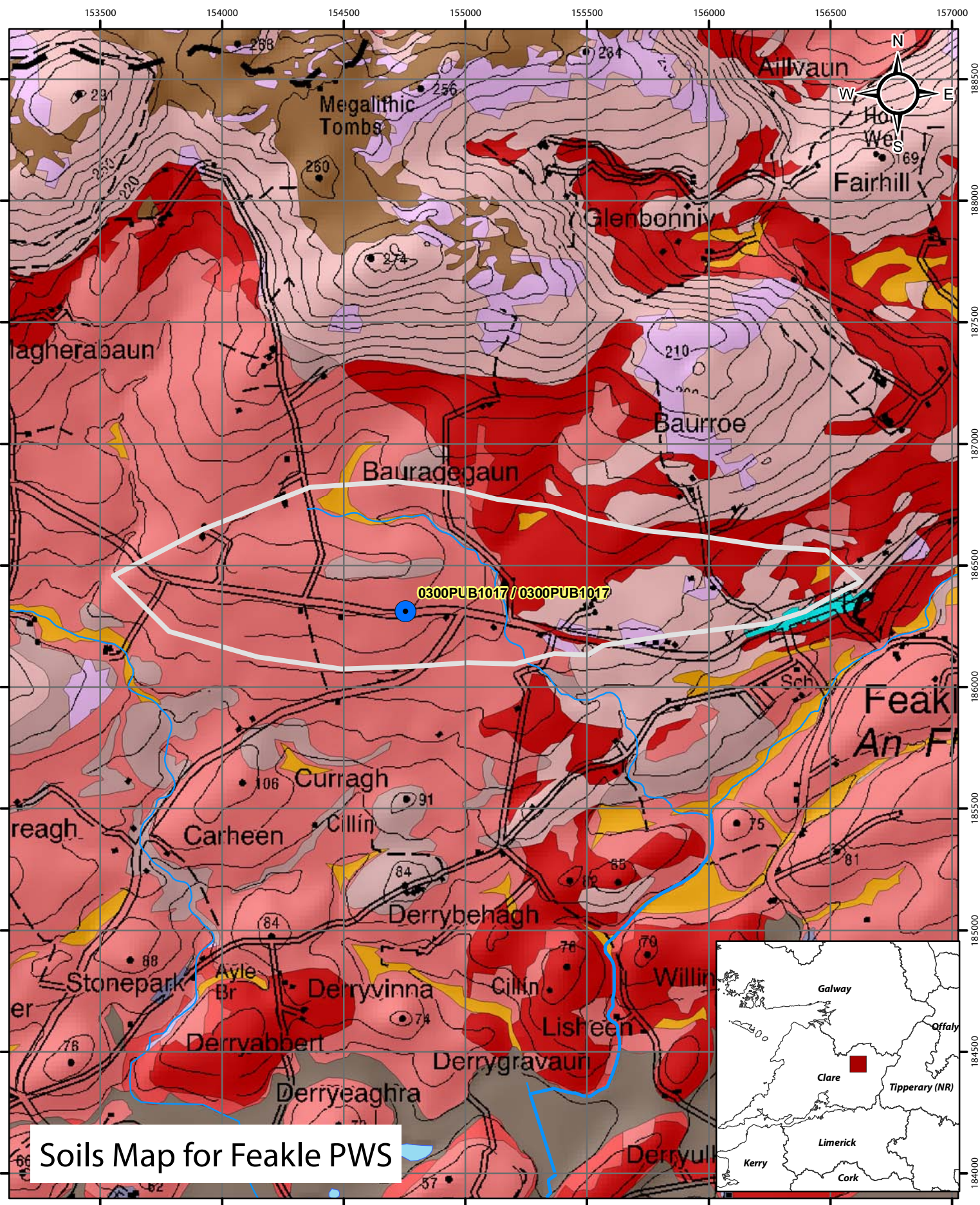
- Abstractions
- ▭ Zone of Contribution
- River
- ▭ Devonian Old Red Sandstones
- ▭ Dinantian (early) Sandstones, Shales and Limestones
- ▭ Dinantian Lower Impure Limestones
- ▭ Dinantian Pure Unbedded Limestones
- ▭ Silurian Metasediments and Volcanics
- Fault



Groundwater Vulnerability Map for Feakle PWS

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





Soils Map for Feakle PWS

- | | | | |
|----------------------|-------------------------------------|--------------------------------------|----------------------|
| Abstractions | Acid Deep Well Drained Mineral | Acid Shallow/Rocky/Peaty Mineral | Cutover/Cutaway Peat |
| Zone of Contribution | Acid Deep Poorly Drained Mineral | Basic Shallow Well Drained Mineral | Mineral Alluvium |
| River | Acid Poorly Drained Peaty Mineral | Basic Shallow Poorly Drained Mineral | Made |
| | Acid Shallow Well Drained Mineral | Basic Shallow/Rocky/Peaty Mineral | |
| | Acid Shallow Poorly Drained Mineral | Blanket Peat | |