

Water Framework Directive Groundwater Monitoring Programme

Site Information

Glin



Glin PWS is supplied by one borehole. The abstraction rate is 225 m³/day. A GSI SPZ report exists for now decommissioned wells. A new ZOC has been delineated on the basis of the new borehole drilled.

SITE INFORMATION					
Site Name:	Glin		County:	Limerick	
RBD:	Shannon IRBD		EU Reporting Code:	IE_SH_G_030_13_011	
Easting:	114235		GWB Name:	Ballylongford	
Northing:	146626		GWB Code:	IE_SH_G_030	
Site Use:	Drinking Water (PWS)		Drinking Water Code:	1900PUB1030	
Hydrometric Area:	24		Water Level Monitoring Network:	Level	Flow
Townland:	BALLYGILTENAN NORTH			N	N
Ownership:	Limerick County Council				
Water Quality Monitoring Network:	Surveillance		Operational (Point)		Operational (Diffuse)
	Y		N		N
Site Comments:	Glin PWS is situated in a Locally Important Aquifer (LI) / Namurian Undifferentiated bedrock. The PWS is included in the GW surveillance monitoring network.				

SITE DIRECTIONS	
Location and Access Information:	Coming from Limerick drive into Glin village, take a left on R524, then take another left at a y-junction toward the top of the village for Ballyhahill. Drive 1.2km along this road, the borehole is on LHS immediately past a narrow bridge.
Additional Comments:	Scheme has evolved and all original boreholes are no longer used.

WELL INFORMATION					
Monitoring Point Type:	BH	Abstraction Rate (m³/d):	225	Ground Elevation (m OD):	35-40
Borehole Log Available:	---	Total Drilled Depth (m bgl):	62	Depth to Bedrock (m bgl):	~5
Top of Casing (m agl):	0.32	Upper Casing Diameter (mm):	200	Lower Casing Diameter (mm):	150
Final Borehole Depth (m):	62	Upper Casing Bottom Depth (m bgl) :	8.2	Lower Casing Bottom Depth (m bgl):	26
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):	26 to 62
Potential Yield (m³/day):	872	Comments on Monitoring Site:	8" outer steel casing; 6" inner steel casing. Concrete plinth around outer casing. No grouting in annulus. According to consultants specification (Brian O'Connor) the casing was to be set 3m into the rock. It is known though from the driller that rock is greater than 5m. Top of inner casing is 32cm above concrete plinth. Works are ongoing and the casing is likely to be raised higher. No information on water levels and cannot be dipped readily.		
Specific Capacity (m³/d/m):	Unknown				
Static Water Level (m bgl):	Artesian				
Scheme Name:	Glin	Number of Abstraction Points in the Scheme:	1	Source Report Available	N
Source Report Info:	Source report prepared by GSI is for out of commission boreholes.				
Scheme Summary:	The bored well is located approximately 1.2 km southeast of Glin.				

HYDROGEOLOGY								
GEOLOGY	Soil:	Unknown (A)					Subsoil Permeability:	Low
	Subsoil:	Alluvium (A)						
	Bedrock:	Namurian Undifferentiated						
HYDROGEOLOGY	Aquifer Category:	LI	Vulnerability at Monitoring site:	High to Low			Flow Regime:	Poorly productive
ZONE OF CONTRIBUTION	Estimated ZOC Size (km²):	0.45	ZOC Delineated By:	TOBIN (CK)			Recharge Estimate (mm/yr):	200-300
	ZOC Delineation Comments:	Artesian borehole next to river abstracts 150-225 m³/15 hours; reported yield is 872 m³/d. ZOC is based on a 150% of 24hr current abstraction rate (540m³/d). It is likely that gravelly subsoils and potentially a fracture at depth provides the flow to the borehole. There is a mapped N-S fault running past the borehole up the Glencorby river valley. ZOC includes a 100m buffer south along the fault. It includes a topographic catchment toward the borehole on both sides of the main river. HydroChem indicates denitrification - confined. Artesian level is about 2m above river level which is 13-15m from bh.						
Groundwater Vulnerability within ZOC (% area):	Extreme (X)	Extreme (E)	High	Moderate	Low	High to Low	Unclassified	
	28.37	34.33	0	0	0	37.3	0	
HYDROCHEMISTRY								
Hydrochemical Signature:	Ca-HCO3		Additional Water Chemistry Information:	During the monitoring period: The average nitrate concentration was 2 mg/l NO3 and the maximum nitrate concentration was 12 mg/l NO3. The average ammonium concentration was 0.265 mg/l N and the maximum ammonium concentration was 0.458 mg/l N. The average molybdate reductive phosphorus (MRP) concentration was 0.011 mg/l P and the maximum MRP concentration was 0.067 mg/l P. The average chloride concentration was 27.6 mg/l Cl and the maximum chloride concentration was 36.4 mg/l Cl.				
Alkalinity (mg/l HCO3):	Average:	Range:						
	204	149-305						
Hardness (mg/l CaCO3):	Average:	Range:						
	148	111-473						
Conductivity (uS/cm):	Average:	Range:						
	441	303-554						
Monitoring Record Period:	From:	To:						
	1995	2010						
RISK ASSESSMENT								
Pressure (e.g., Nitrates, Phosphates, Abstractions):	---			Typical Contaminants:	---			
Risk Category:	At risk, high confidence			GWB Status:	Good			
Impact Potential within ZOC (% area):	Extreme:	High:	Moderate:	Low:	Negligible:			
	0.00	63.79	36.21	0.00	0.00			
OTHER INFORMATION								
<p>Driller - Morgan Lenihans of Glin. Discharge pipe available to river for possible test pumping. Abstraction rate is currently 15m³/hr for 15 hours approximately - this is related to the icy weather through Dec 2010 to Jan 2011 and may reduce to 150m³/d.</p> <p>The well is capped - cant be dipped readily. A pumping test needs to be carried out which is possible as there is 24 hour storage in reservoir. There is a well in the factory on the other side of the river and there is also a test borehole south of the current borehole along the road. Testing could assess relative contributions of bedrock and subsoils. Inner and outer casing are due to be raised.</p>								



Sampling point



Well Head



Site Overview

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	GSI	Date:	01/12/1995
Version 1:	Prepared by	TOBIN (CK)	Date:	Mar 2011
Version 2:	Prepared by		Date:	
Version 3:	Prepared by		Date:	
Version 4:	Prepared by		Date:	

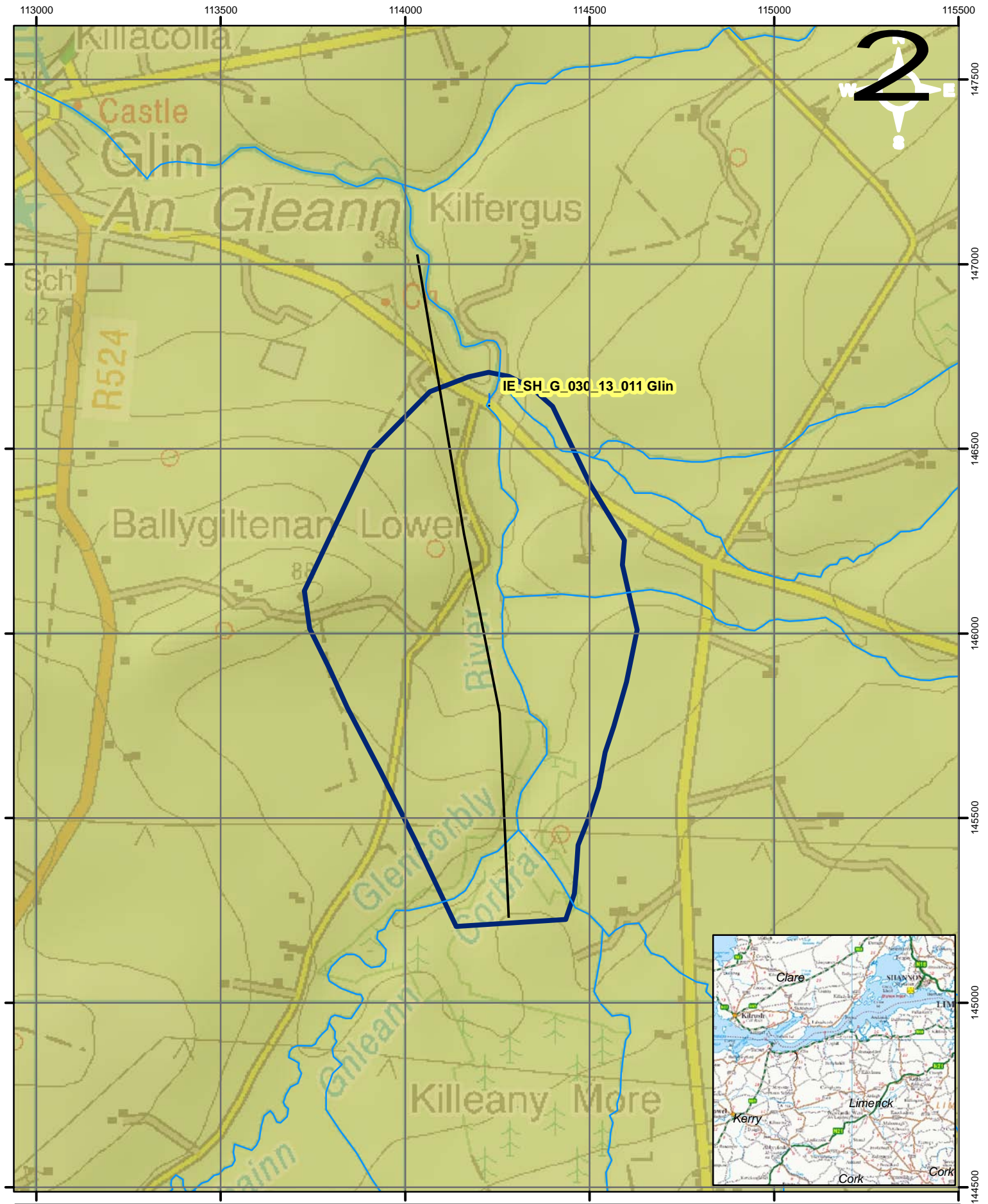


Location Map for Glin

- ! Abstractions
- River
- Zone of Contribution

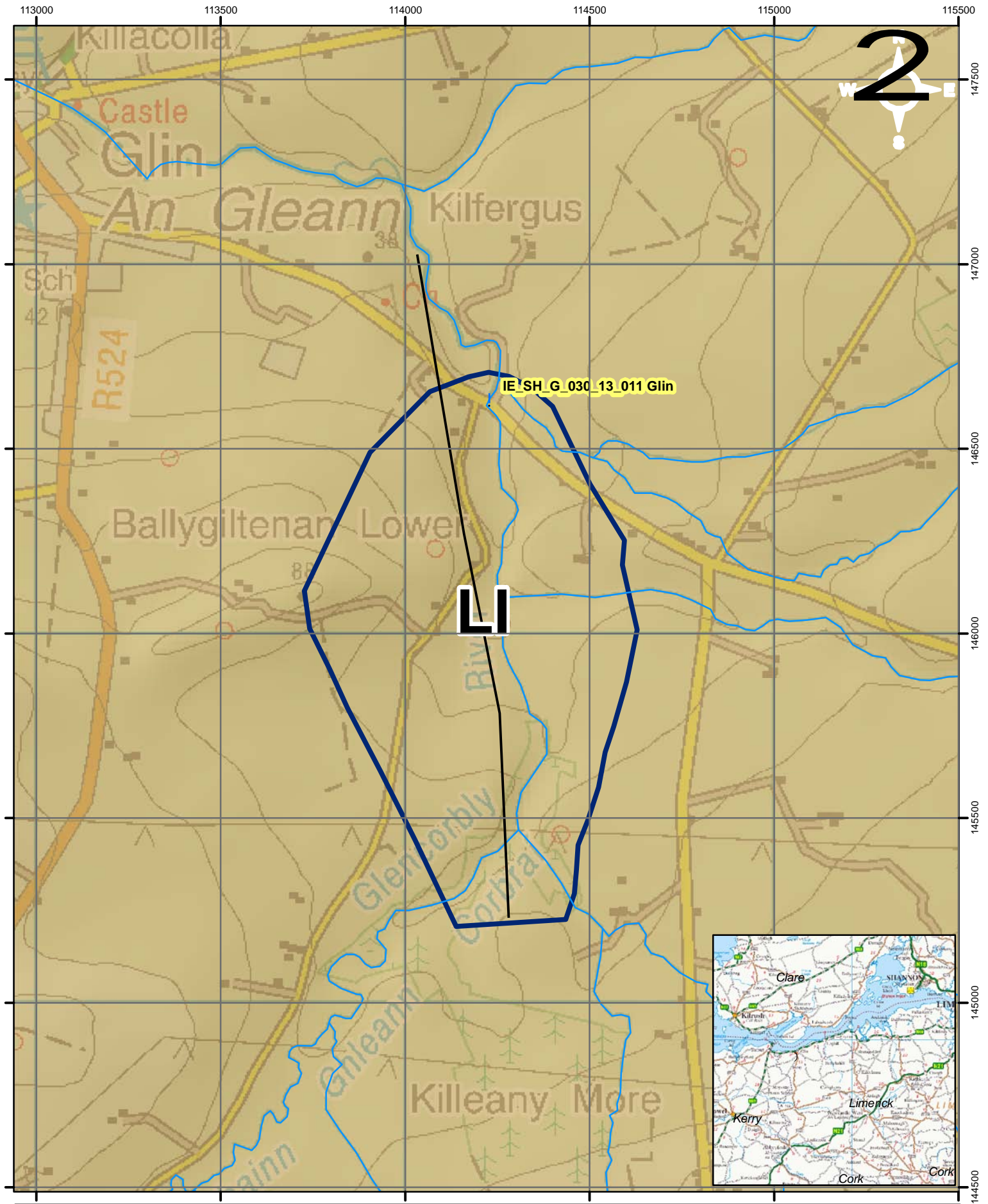
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0 0.25 0.5 1 km



Bedrock Map for Glin

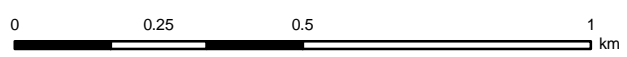
- ! Abstractions
- Fault
- River
- Zone of Contribution
- Namurian Undifferentiated

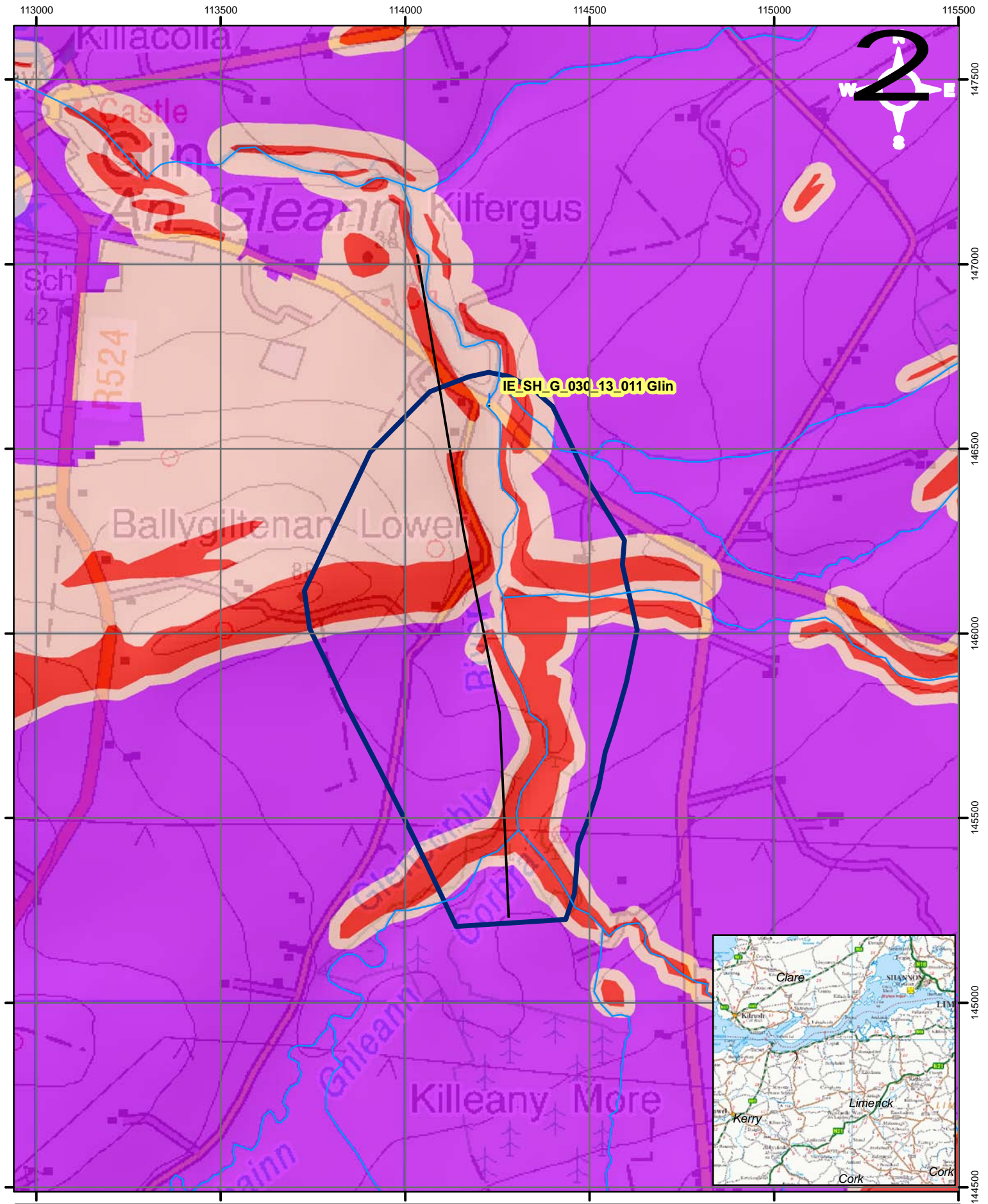


Aquifer Map for Glin

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

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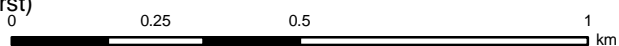


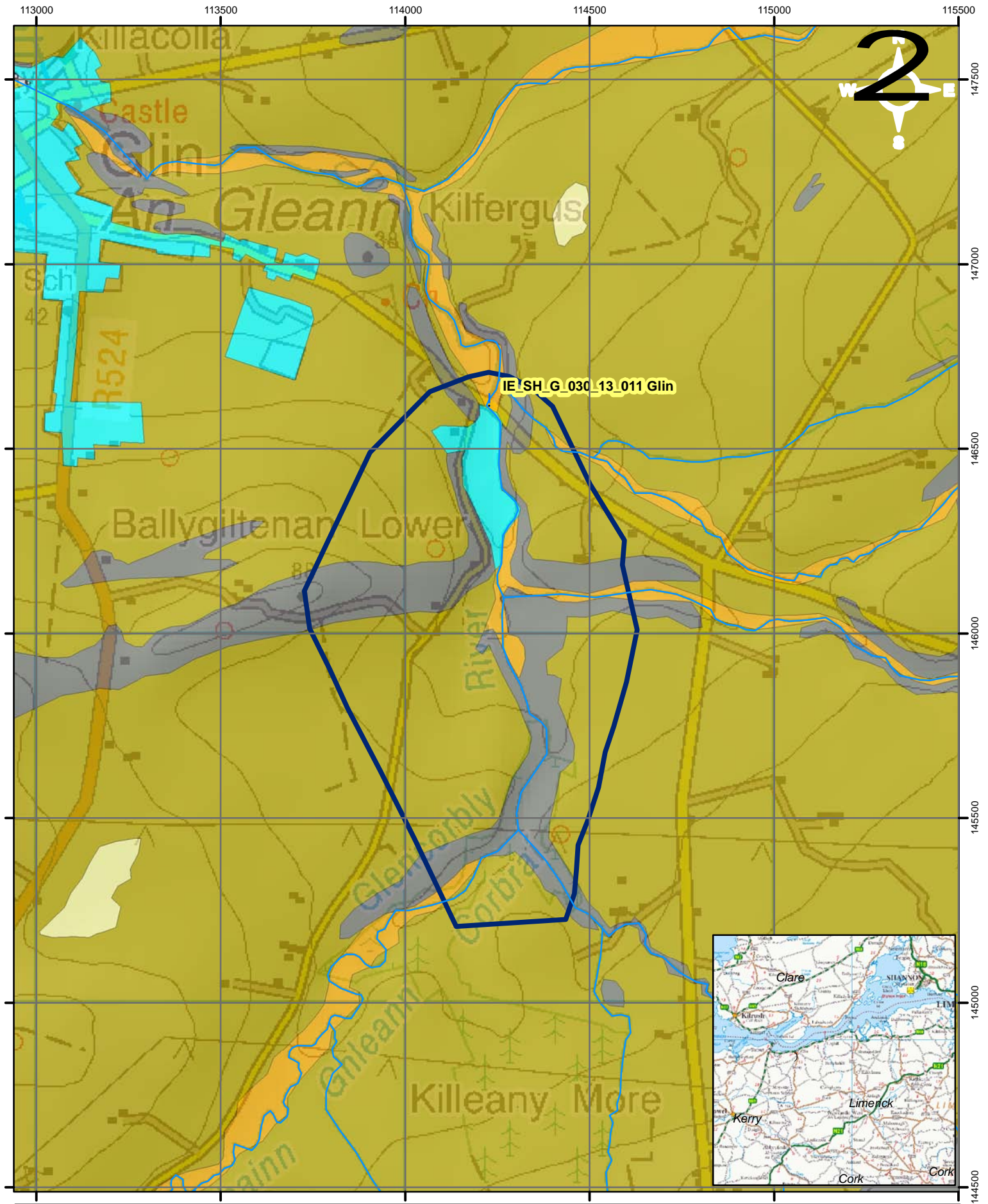


Groundwater Vulnerability Map for Glin

- ! Abstractions
- River
- Zone of Contribution
- E (Extreme)
- HL (unmapped - High to Low)
- E (Rock near surface or Karst)

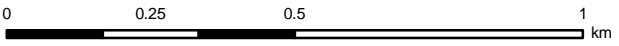
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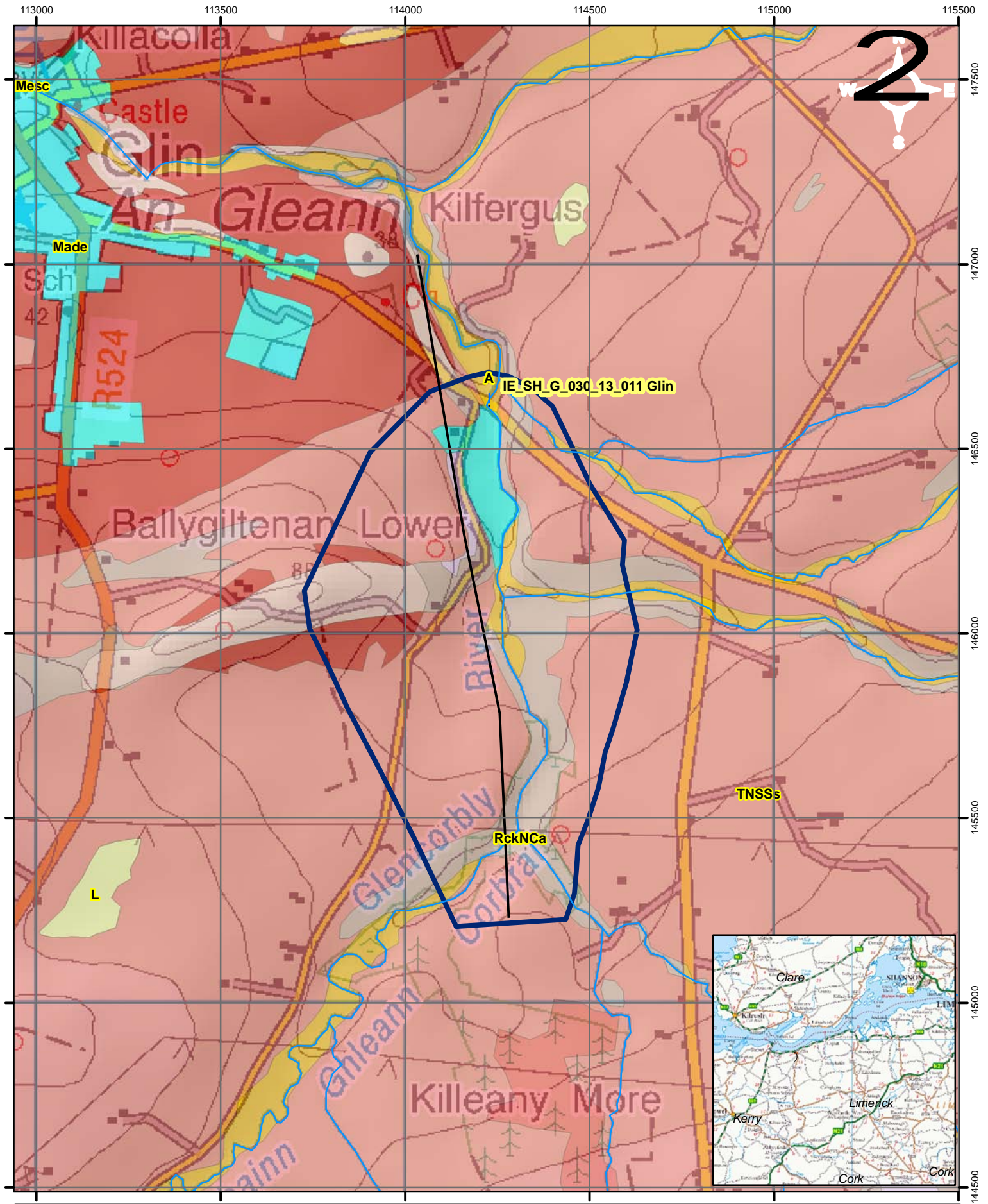




Subsoil Map for Glin

- | | | |
|----------------------|----------------------------|--|
| ! Abstractions | Alluvium | Estuarine silts and clays |
| River | Bedrock outcrop or subcrop | Made ground |
| Zone of Contribution | Lacustrine sediments | Till derived from Namurian sandstones and shales |





Soils Map for Glin

