

Water Framework Directive Groundwater Monitoring Programme

Site Information **Corrandulla**



Corrandulla is a spring that is used for a group water supply. This site is located in a karstified aquifer. The spring represents a significant regional groundwater discharge point with a very large ZOC.



Galway

August 2011

SITE INFORMATION					
Site Name:	Corrandulla		County:	Galway	
RBD:	WRBD		EU Reporting Code:	IE_WE_G_0020_07_008	
Easting:	135998		GWB Name:	Clare-corrib	
Northing:	238558		GWB Code:	IE_WE_G_0020	
Site Use:	Drinking Water (GWS)		Drinking Water Code:	1200PRI7272	
Hydrometric Area:	30		Water Level Monitoring Network:	Level	Flow
Townland:	AUCLOGGEEN			Y	Y
Ownership:	Corrandulla Group Water Scheme				
Water Quality Monitoring Network:	Surveillance		Operational (Point)		Operational (Diffuse)
	Y		N		Y
Site Comments:	Corrandulla is a spring that is used for a group water supply. This site is located in a karstified aquifer. This site is included in the surveillance and operational groundwater monitoring networks.				
SITE DIRECTIONS					
Location and Access Information:	Located 2km southeast of Corrandulla at Aughloheen Cross Roads behind "Peggy's" Pub. The spring source is accessed from a small lane on the left (seen from the pub) and is approximately 100m from the road. The sample is taken directly from the spring source.				
Additional Comments:	---				
WELL INFORMATION					
Monitoring Point Type:	Spring	Abstraction Rate (m³/d):	244-591	Ground Elevation (m OD):	20
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:	Mean spring flow rate of nearly 7.000 m³/d.		
Specific Capacity (m³/d/m):	---				
Static Water Level (m bgl):	---				
Scheme Name:	---	Number of Abstraction Points in the Scheme:	---	Source Report Available	N
Source Report Info:	---				
Scheme Summary:	---				

HYDROGEOLOGY								
GEOLOGY	Soil:	Cutaway/cutover peat (Cut)					Subsoil Permeability:	Moderate
	Subsoil:	Peat (Cut)						
	Bedrock:	Dinantian Pure Bedded Limestones						
HYDROGEOLOGY	Aquifer Category:	Rkc	Vulnerability at Monitoring site:	High		Flow Regime:	Karstified	
ZONE OF CONTRIBUTION	Estimated ZOC Size (km²):	265.12	ZOC Delineated By:	Tobin (CK)		Recharge Estimate (mm/yr):	307	
	ZOC Delineation Comments:	Eastern boundary is assumed to the catchment divide between the Western RBD Shannon river basin districts. The northern boundary is based on water tracing results and topography. ZOC delineation is based on a combination of tracer results and a water balance approach (i.e., using mean spring flow data, recharge estimate, and topography).						
Groundwater Vulnerability within ZOC (% area):	Extreme (X)	Extreme (E)	High	Moderate	Low	High to Low	Unclassified	
	3.83	40.85	21.45	13.38	20.45	0	0.04	
HYDROCHEMISTRY								
Hydrochemical Signature:	Ca-HCO3		Additional Water Chemistry Information:	During the monitoring period: The average nitrate concentration was 9 mg/l NO3 and the maximum nitrate concentration was 16 mg/l NO3. The average ammonium concentration was 0.041 mg/l N and the maximum ammonium concentration was 0.114 mg/l N. The average molybdate reductive phosphorus (MRP) concentration was 0.009 mg/l P and the maximum MRP concentration was 0.023 mg/l P. The average chloride concentration was 18.2 mg/l Cl and the maximum chloride concentration was 22.5 mg/l Cl.				
Alkalinity (mg/l HCO3):	Average:	Range:						
	344	278-411						
Hardness (mg/l CaCO3):	Average:	Range:						
	350	300-419						
Conductivity (uS/cm):	Average:	Range:						
	643	479-938						
Monitoring Record Period:	From:	To:						
	2007	2010						
RISK ASSESSMENT								
Pressure (e.g., Nitrates, Phosphates, Abstractions):	Diffuse		Typical Contaminants:		Phosphate			
Risk Category:	At risk, high confidence		GWB Status:		Poor			
Impact Potential within ZOC (% area):	Extreme:	High:	Moderate:		Low:	Negligible:		
	0.00	37.01	19.98		16.99	26.01		
OTHER INFORMATION								
A significant regional groundwater discharge point. Very large ZOC.								



Site



Spring



Spring

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).

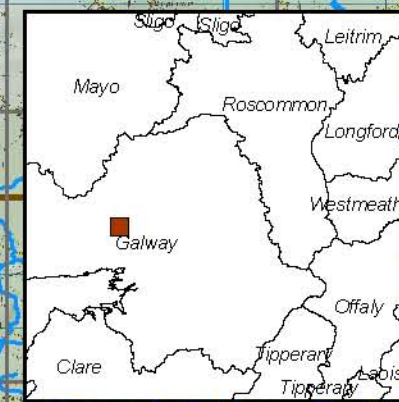
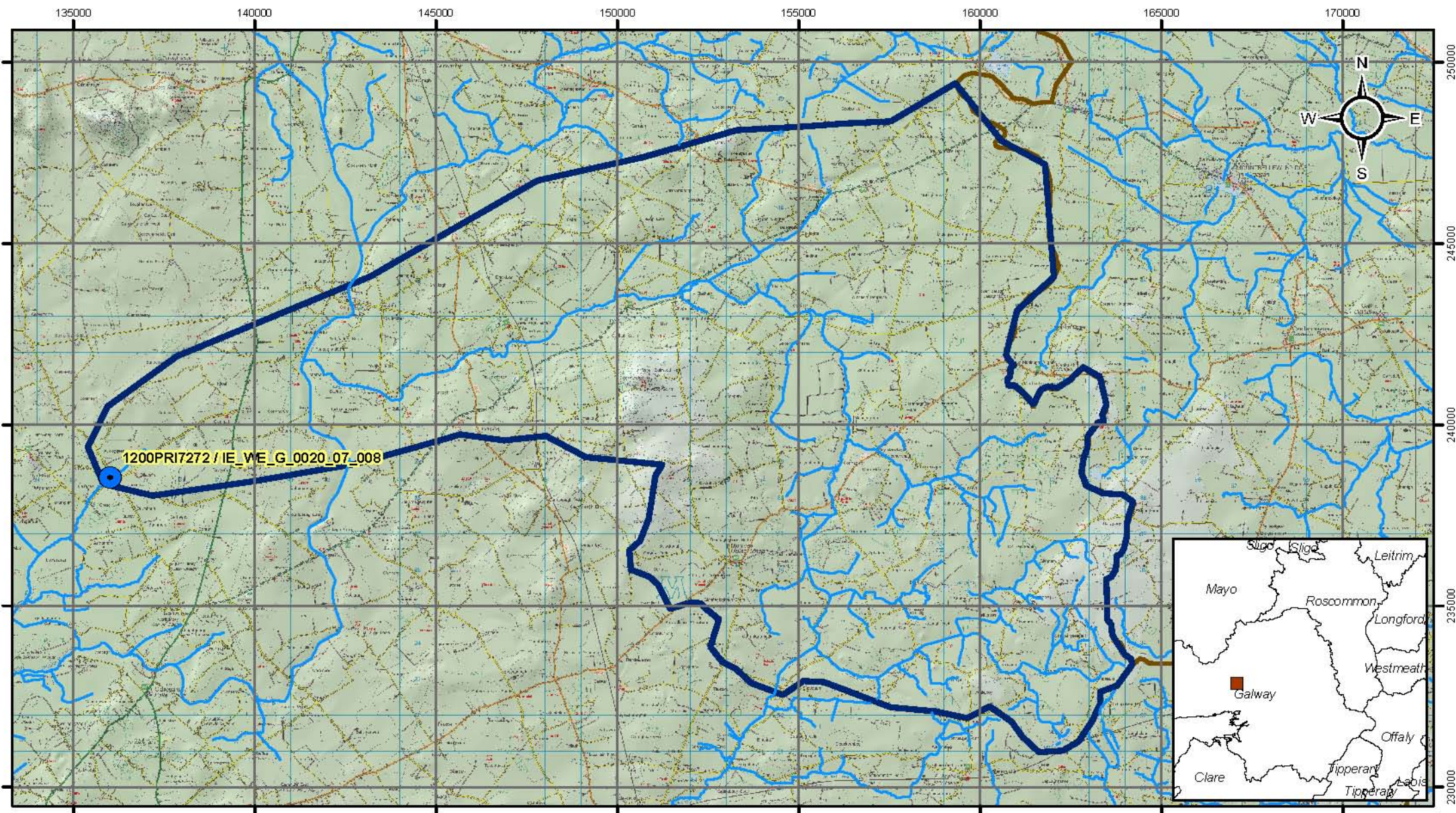
General Downgradient Distances

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:	

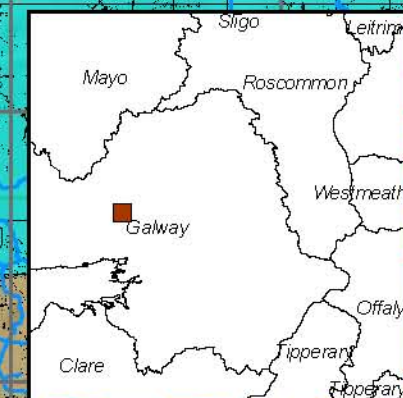
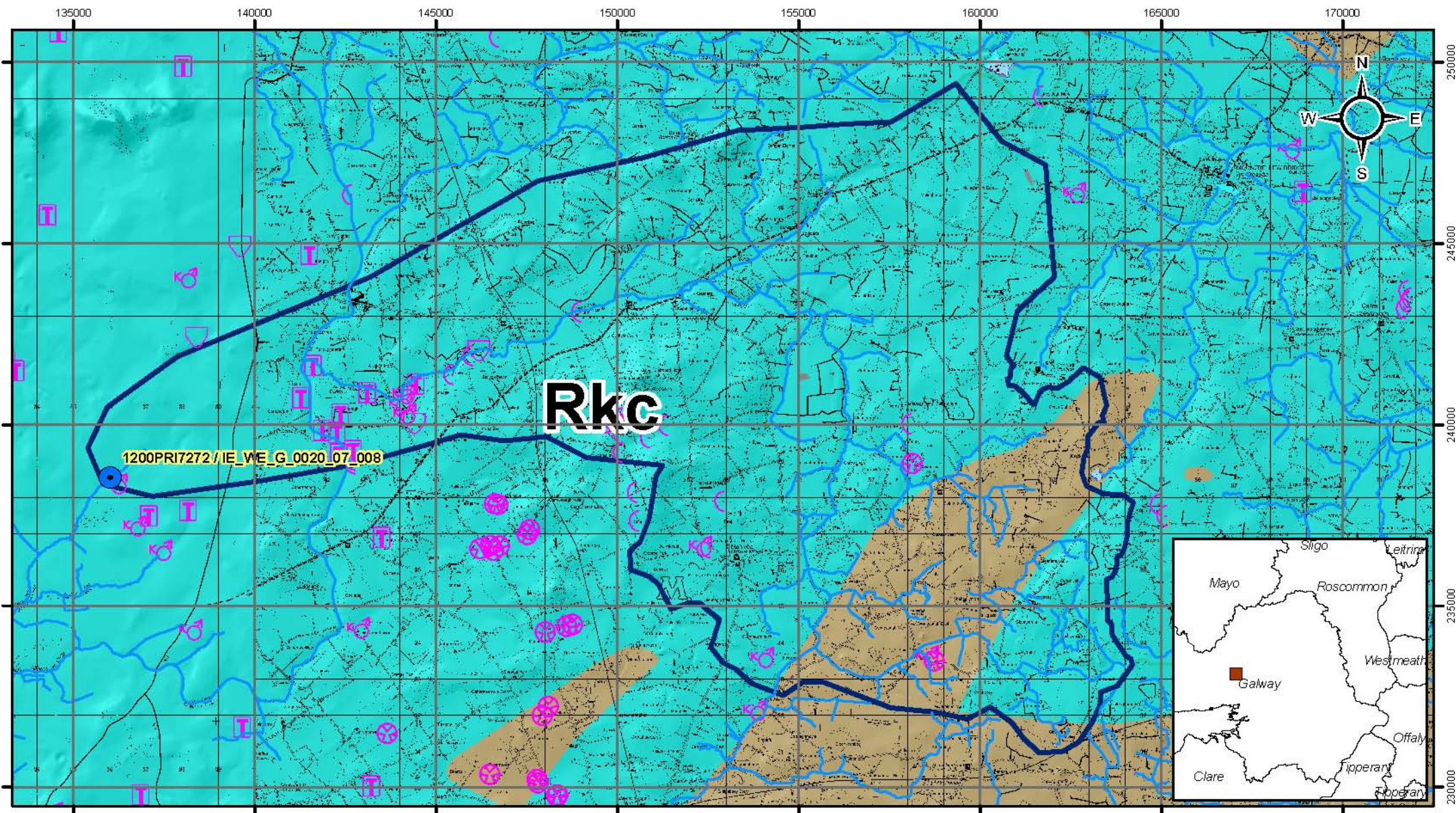


Location Map for Corrandulla

-  Abstractions
-  River Basin District
-  River
-  Zone of Contribution

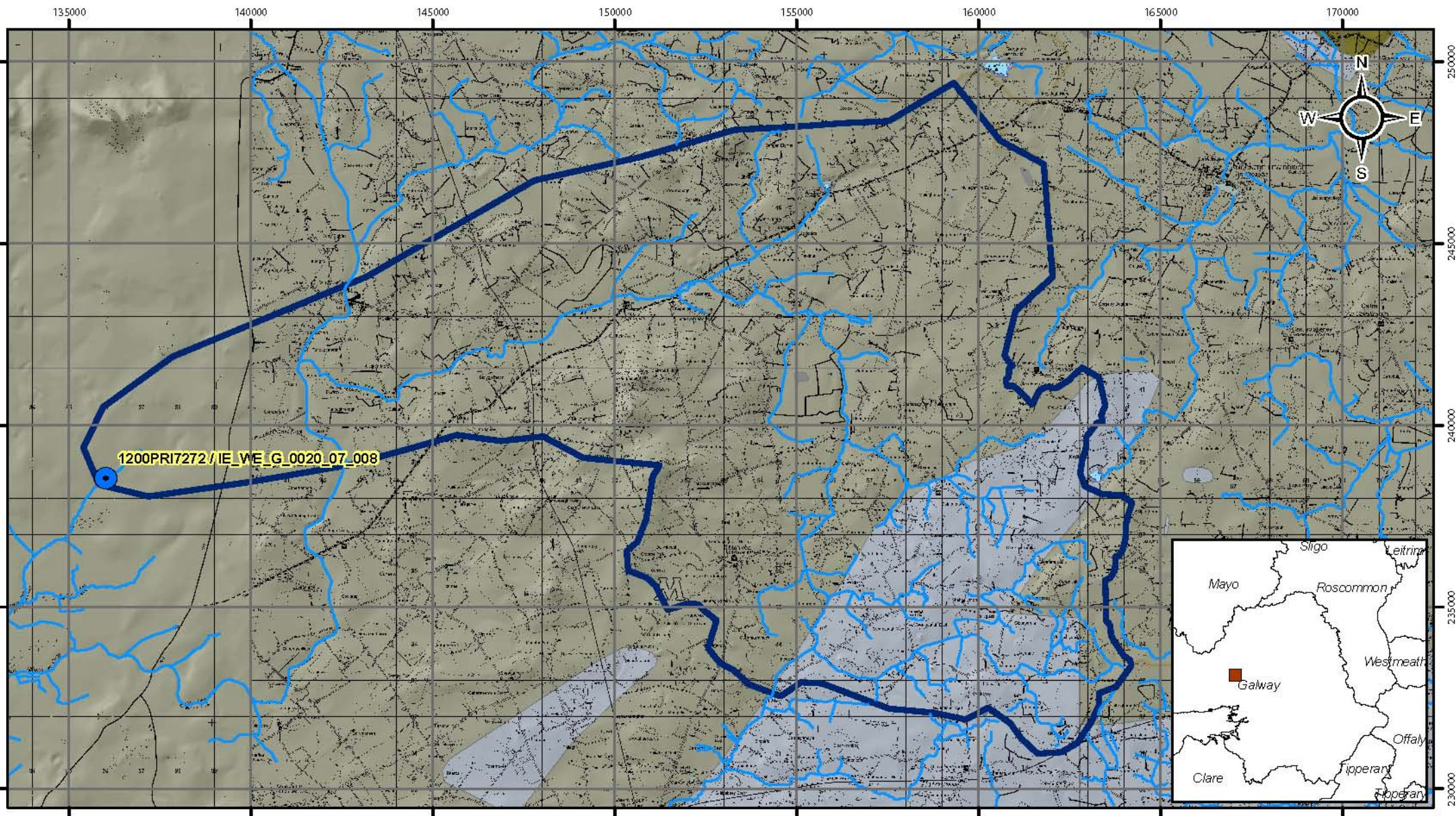
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Aquifer Category for Corrandulla

- | | | | | |
|----------------------|------------|-------------------------------|--------------|-----|
| Abstractions | Borehole | Enclosed Depression | Swallow Hole | LI |
| River | Cave | Spring | Turlough | Rkc |
| Zone of Contribution | Dry Valley | Superficial Solution Features | | |

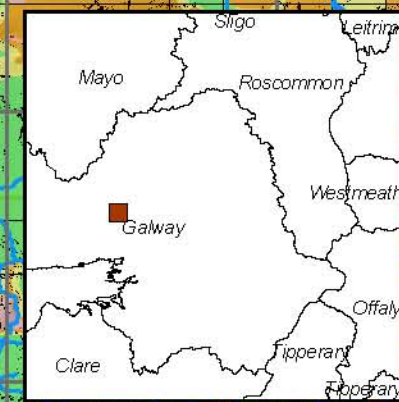
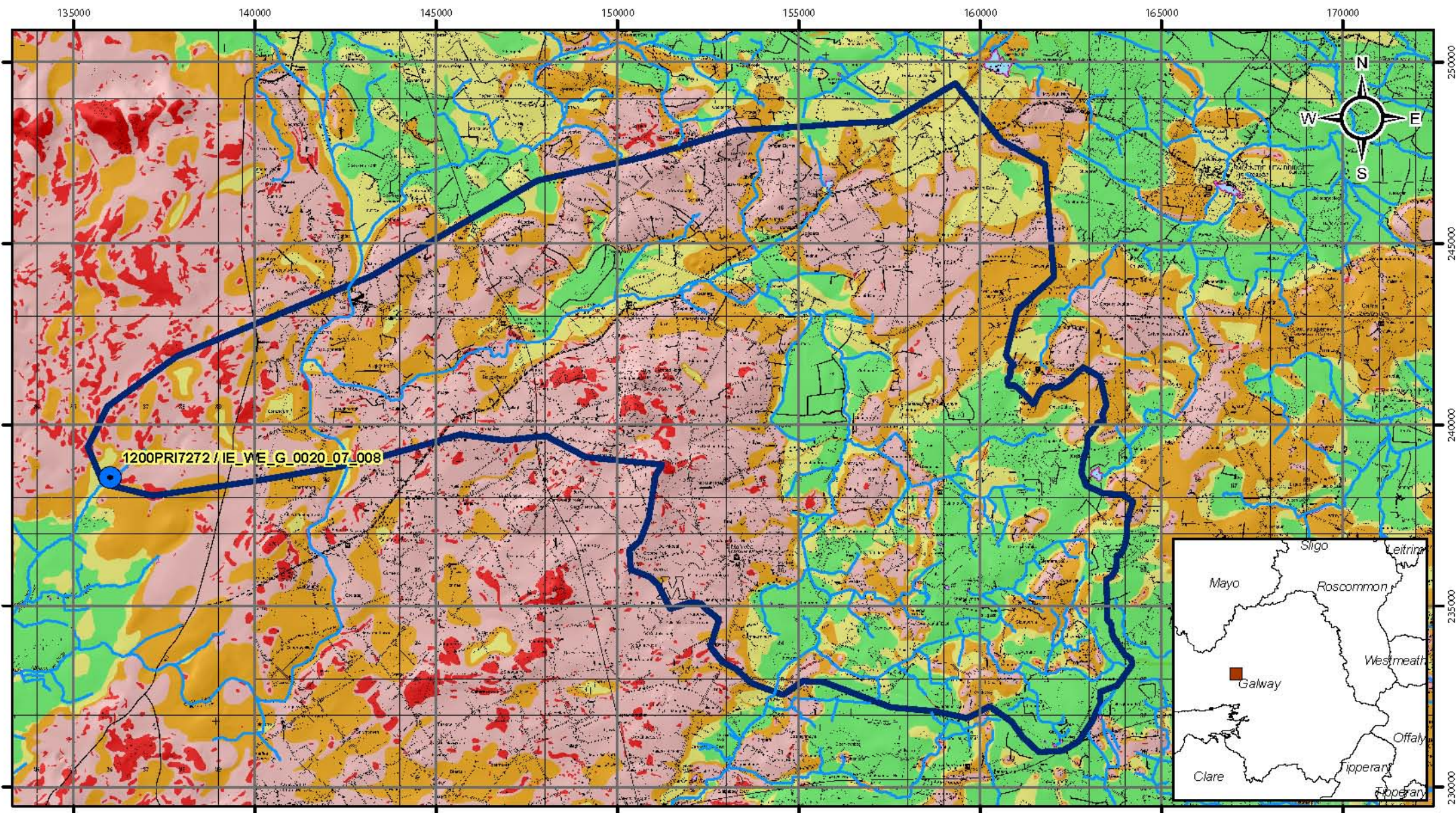


Bedrock Map for Corrandulla

-  Abstractions
-  River
-  Zone of Contribution
-  Dinantian Pure Bedded Limestones
-  Dinantian Pure Unbedded Limestones
-  Dinantian Upper Impure Limestones

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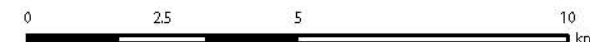
0 2.5 5 10 km

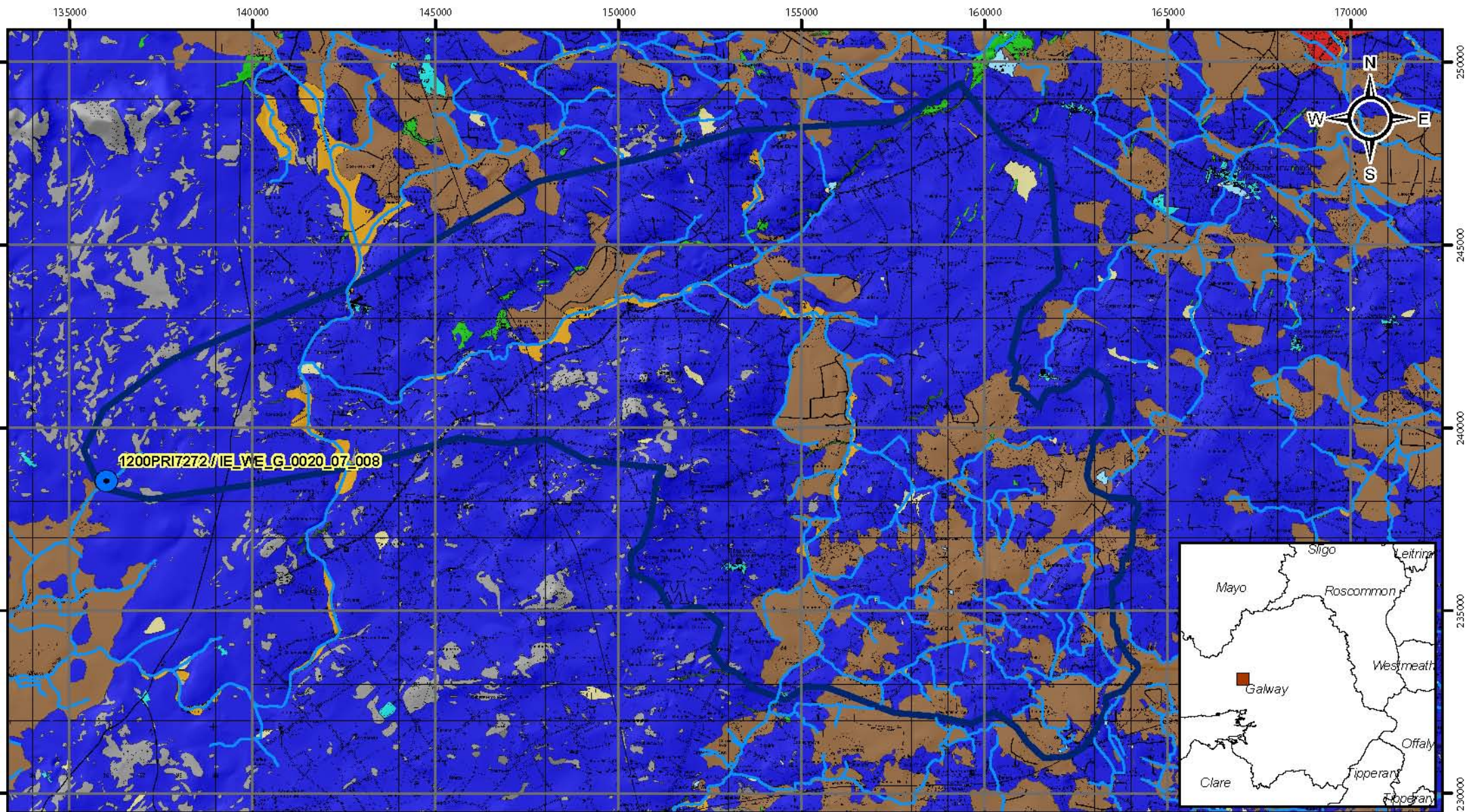


Groundwater Vulnerability for Corrandulla

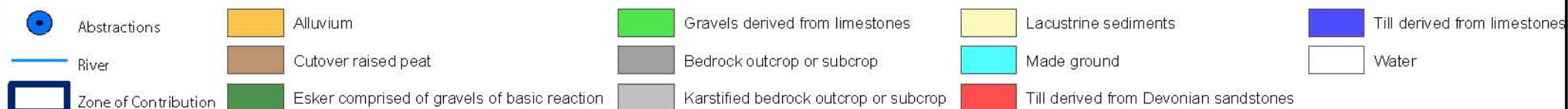


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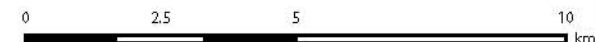


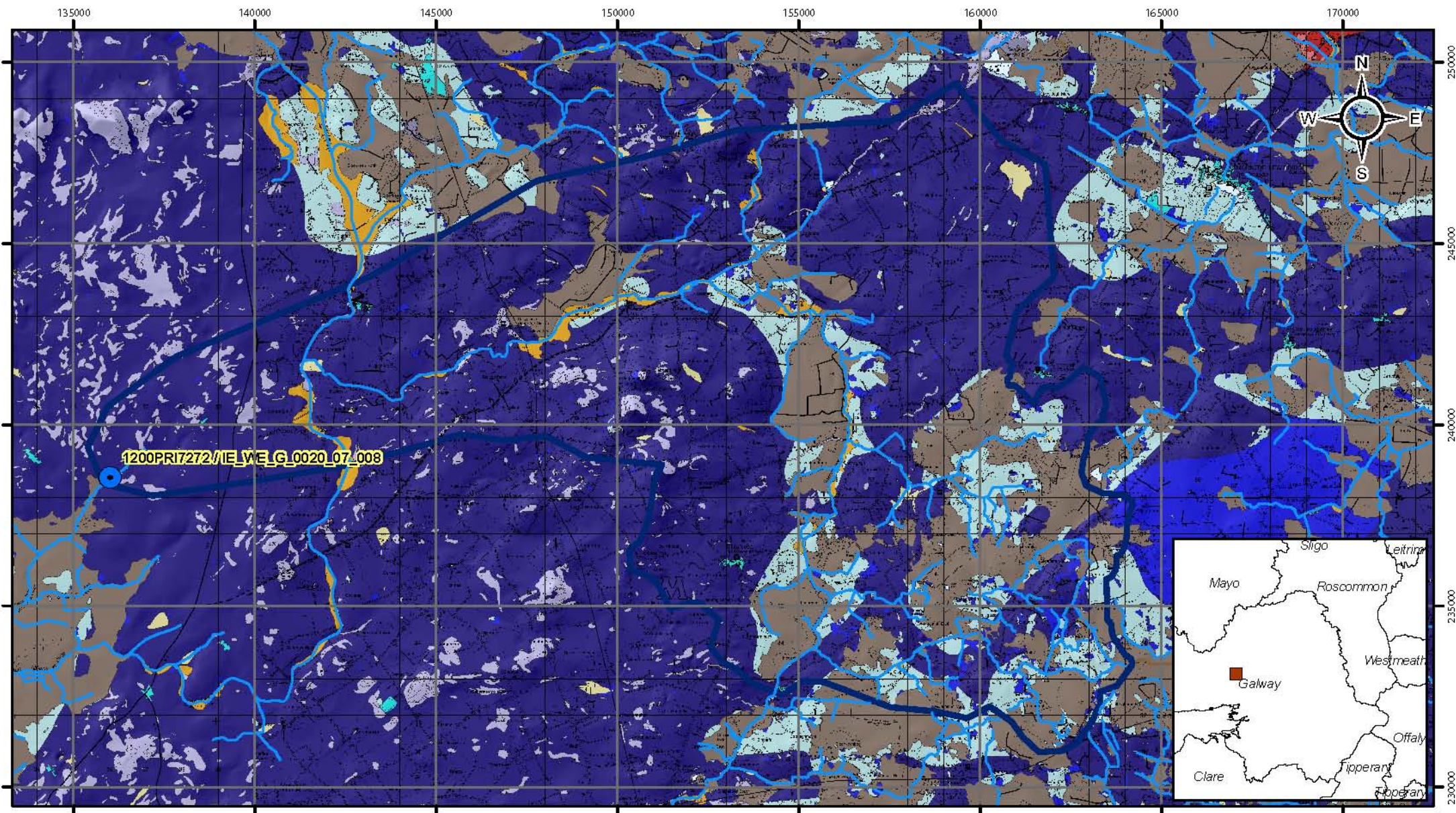


Subsoils Map for Corrandulla



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Soils Map for Corrandulla

