

## Water Framework Directive Groundwater Monitoring Programme

### Site Information **Hollywood Public Supply**



Hollywood is a borehole that supplies an estimated 330 m<sup>3</sup>/d on average to the Hollywood PWS.



Wicklow

**August 2011**

SITE INFORMATION					
Site Name:	Hollywood Public Supply		County:	Wicklow	
RBD:	SERBD		EU Reporting Code:	---	
Easting:	295731		GWB Name:	Kilcullen	
Northing:	204567		GWB Code:	IE_EA_G_003	
Site Use:	Drinking Water (PWS)		Drinking Water Code:	3400PUB1022	
Hydrometric Area:	9		Water Level Monitoring Network:	Level	Flow
Townland:	Slievecorragh			N	N
Ownership:	Wicklow Co. Co.				
Water Quality Monitoring Network:	Surveillance		Operational (Point)		Operational (Diffuse)
	N		N		N
Site Comments:	Small fenced-in area approx. 1 km from Hollywood village, surrounded by forest and agricultural land (pasture).				

SITE DIRECTIONS	
Location and Access Information:	Drive east on the R756 from the Hollywood village centre. As the road ascends, the main pumping well is located on the left just as the road bends sharply to the right. The reservoir and treatment compound is located another 0.3 kms further east and visible approx. 100m to the left of the main road.
Additional Comments:	Both sites are visible from the road. Both sites are fenced off and locked.

WELL INFORMATION					
Monitoring Point Type:	Borehole	Abstraction Rate (m³/d):	330	Ground Elevation (m OD):	240
Borehole Log Available:	N	Total Drilled Depth (m bgl):	82	Depth to Bedrock (m bgl):	3
Top of Casing (m agl):	0.2	Upper Casing Diameter (mm):	300	Lower Casing Diameter (mm):	200
Final Borehole Depth (m):	---	Upper Casing Bottom Depth (m bgl) :	5	Lower Casing Bottom Depth (m bgl):	82
Screen Interval (m bgl):	5-82	Screen Type (PVC,Steel,other):	slotted steel liner	Screen Slot Size (mm):	---
Grout Type (cement,bentonite):	cement	Grouted above (m bgl):	5	Grout Volume Injected (m³):	---
Gravel Pack Interval (m bgl):	---	Gravel Pack Volume (m³):	---	Open Hole Interval (m bgl):	---
Potential Yield (m³/day):	432	Comments on Monitoring Site:	Well construction details are sketchy - it is not known, but suspected, that the main supply well was completed with slotted casing to a total depth of 82 m. The lower well casing appears to be grouted in place.		
Specific Capacity (m³/d/m):	---				
Static Water Level (m bgl):	---				
Scheme Name:	Hollywood PWS	Number of Abstraction Points in the Scheme:	2	Source Report Available	N
Source Report Info:	---				
Scheme Summary:	Scheme consists of two boreholes, a reservoir and a treatment unit. One borehole serves as the main supply well, the other as a back-up.				

HYDROGEOLOGY							
GEOLOGY	Soil:	Deep well drained mineral (AminDW)				Subsoil Permeability:	n/a
	Subsoil:	Tills (diamictons) (TGr)					
	Bedrock:	Granites & other Igneous Intrusive rocks					
HYDROGEOLOGY	Aquifer Category:	PI/LI	Vulnerability at Monitoring site:	Extreme	Flow Regime:	Poorly productive	
ZONE OF CONTRIBUTION	Estimated ZOC Size (km²):	1.12	ZOC Delineated By:	CDM	Recharge Estimate (mm/yr):	150	
	ZOC Delineation Comments:	Considerable uncertainty with this ZOC. The delineated ZOC is linked to GSI-mapped faulting in the Hollywood area, mainly from Knockroe (SW) towards Ballysize (NE). The ZOC is elongated in a SW-NE direction, however, it also includes parts of the Slievecorragh and Broughills Hill. In this area, a NW-SE trending depression has the same geographic trend as other GSI-mapped cross-faults. Combined with the elevated position of the site and static water level (above the position of the main fault at Holywood), the ZOC may also draw upon groundwater from these hills. A 50% added abstraction was not considered due to the fact that the well reportedly has some difficulty maintaining its abstraction rate of 330 m³/d during drier climatic periods.					
Groundwater Vulnerability within ZOC (% area):	Extreme (X)	Extreme (E)	High	Moderate	Low	High to Low	Unclassified
	57.11	31.83	10.97	0.08	0	0	0
HYDROCHEMISTRY							
Hydrochemical Signature:	---		Additional Water Chemistry Information:	No data was available. Backup well has in the past shown elevated arsenic concentrations.			
Alkalinity (mg/l HCO3):	Average:	Range:					
	---	---					
Hardness (mg/l CaCO3):	Average:	Range:					
	---	---					
Conductivity (uS/cm):	Average:	Range:					
	---	---					
Monitoring Record Period:	From:	To:					
	---	---					
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	0.00	51.95	10.83	37.22		
OTHER INFORMATION							
<p>Pumped water from main well is disinfected using Sodium Hydrochlorite. Iron and manganese filtration, and a radon removal facility, are available if/when needed.</p>							





Main well site overview



Reservoir and treatment building



Well head

## 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  $\mu$ S/cm) / Drinking Water Test (1,875  $\mu$ S/cm)

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

### General Downgradient Distances

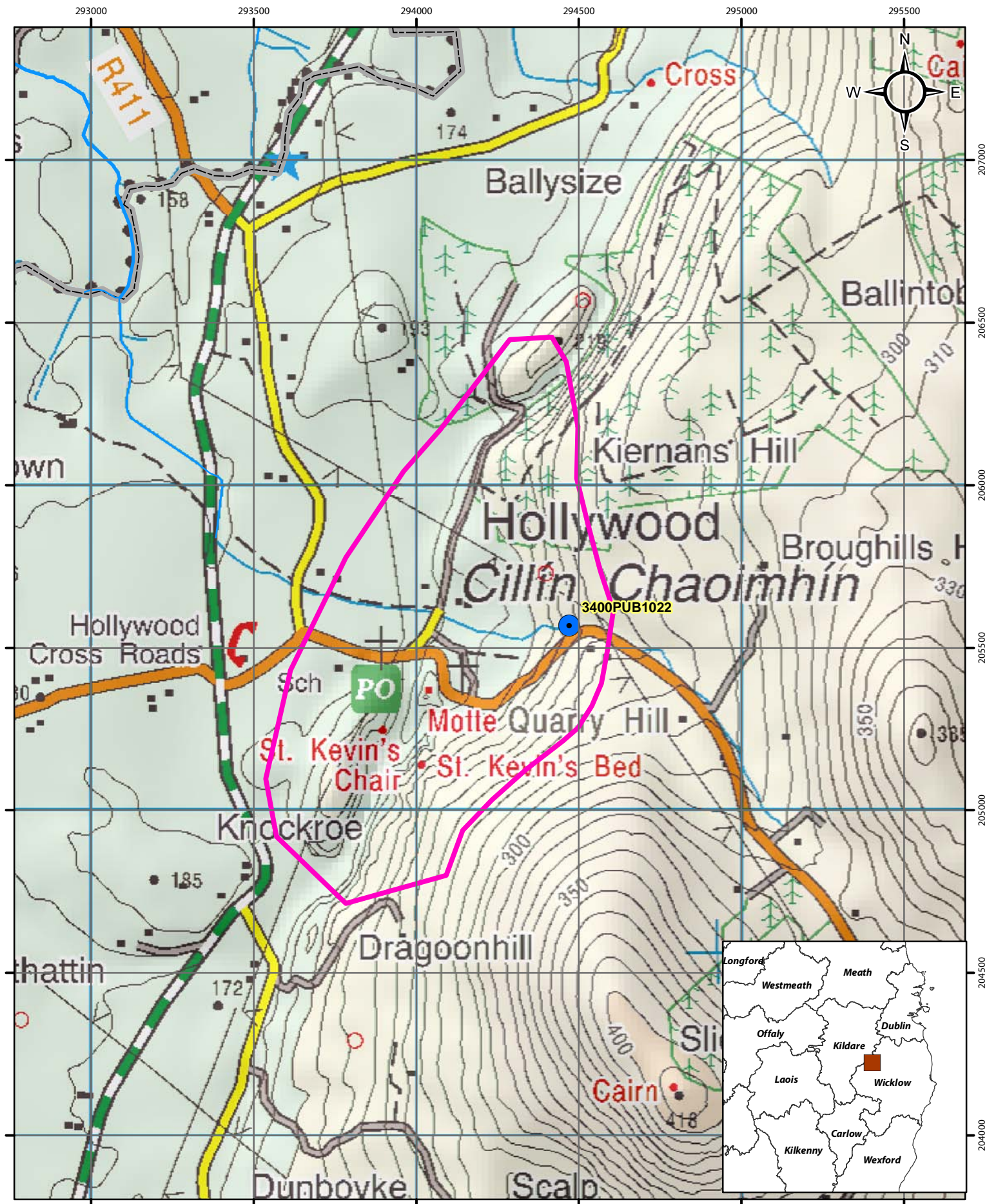
General Downgradient Distances (XL) applied to boreholes sourced in bedrock aquifers are constrained to estimate approximate limits based on data at the GSI. In some cases they may be higher or lower depending on local conditions.

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:	

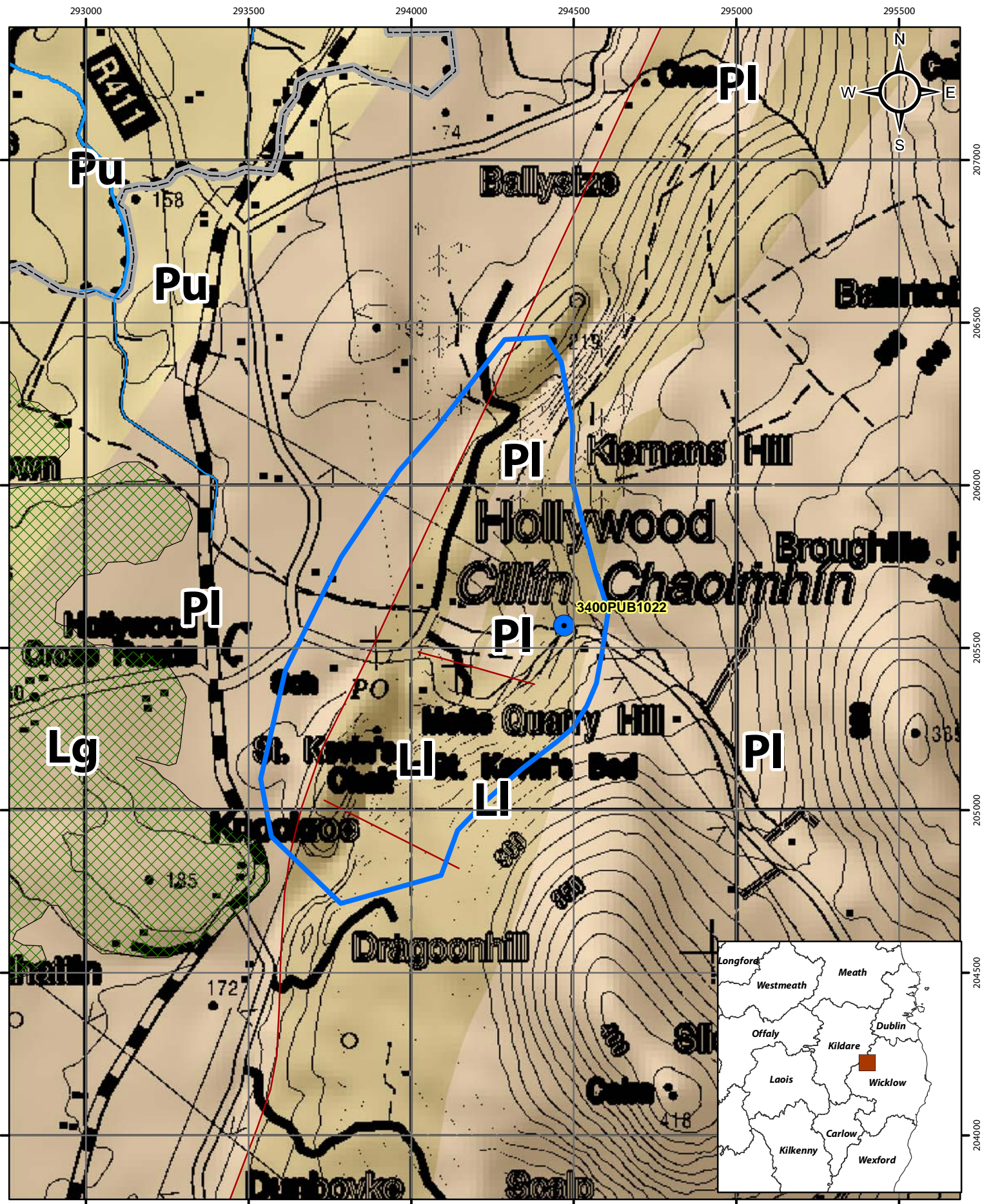




## Location Map for HOLLYWOOD PUBLIC SUPPLY

- Abstractions
- Zone of Contribution
- River

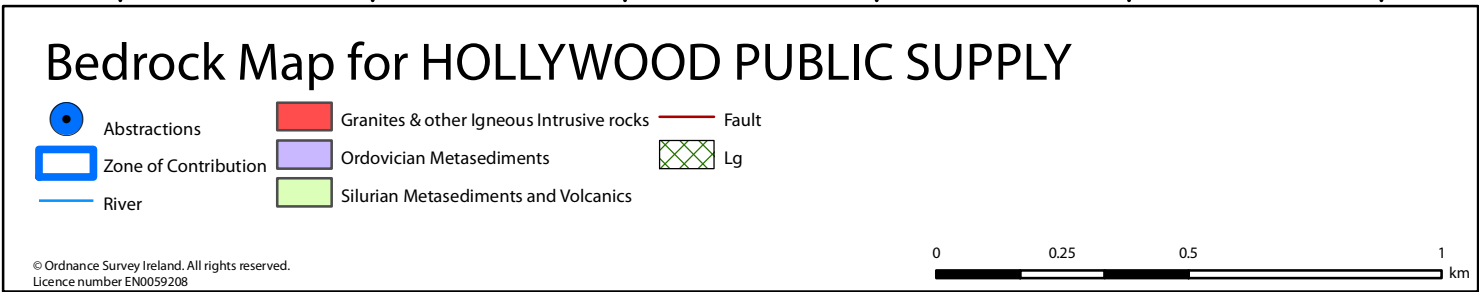




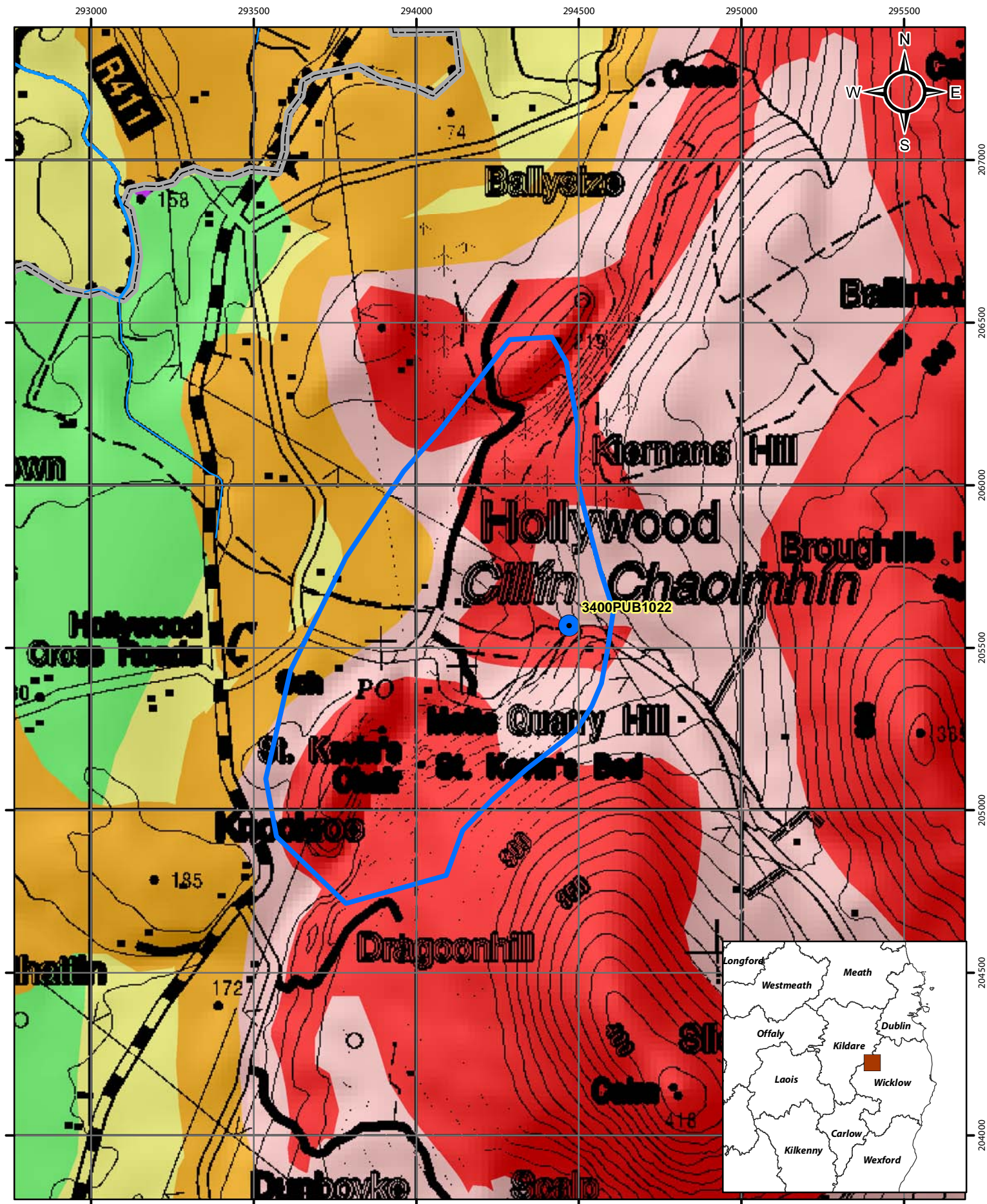
## Aquifer Category Map for HOLLYWOOD PUBLIC SUPPLY



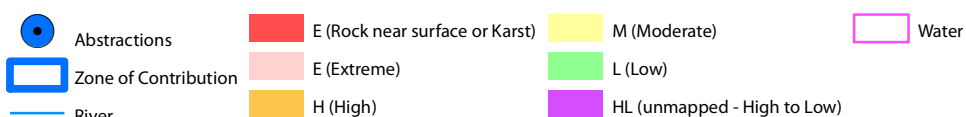




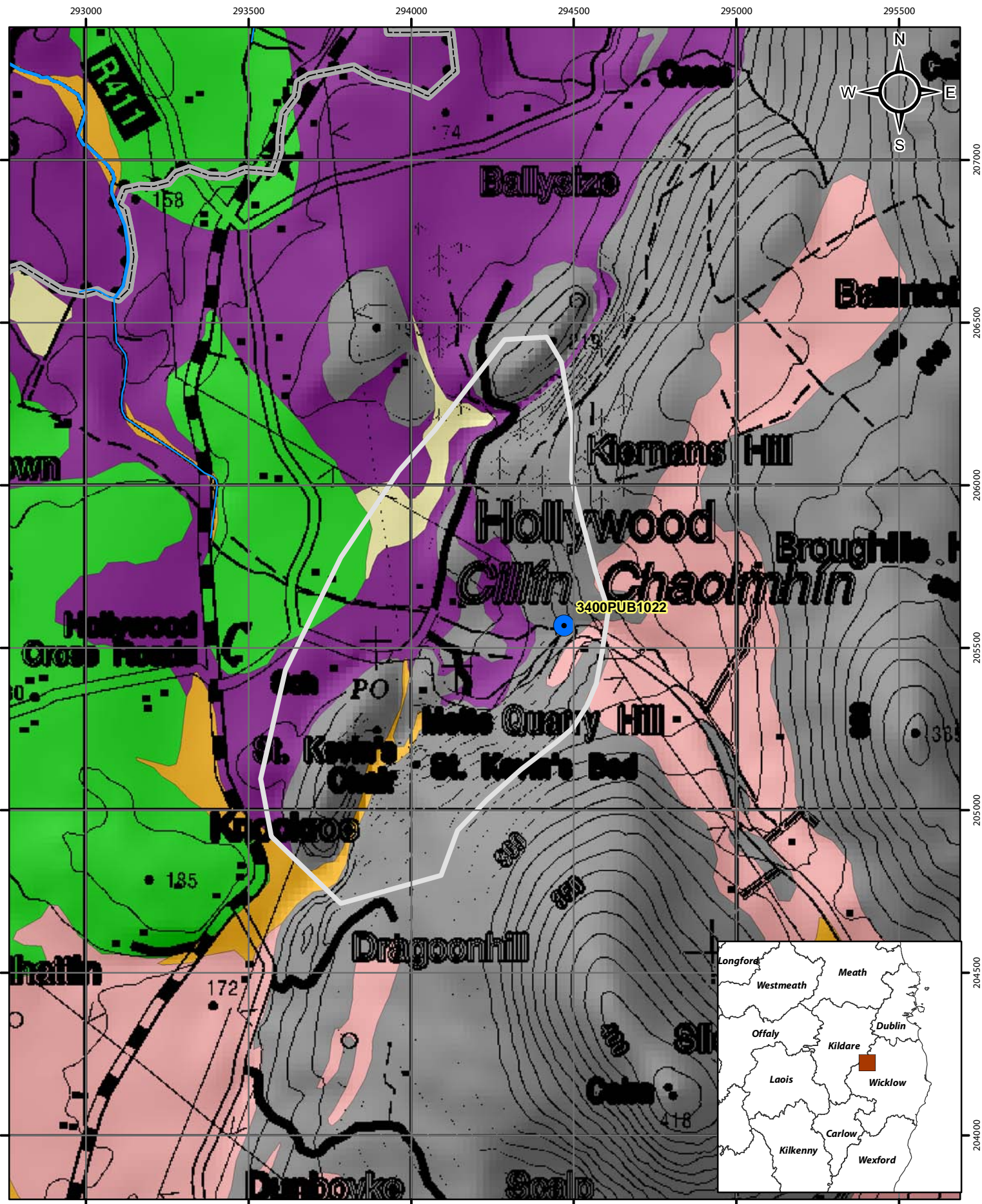




## Groundwater Vulnerability Map for HOLLYWOOD PUBLIC SUPPLY



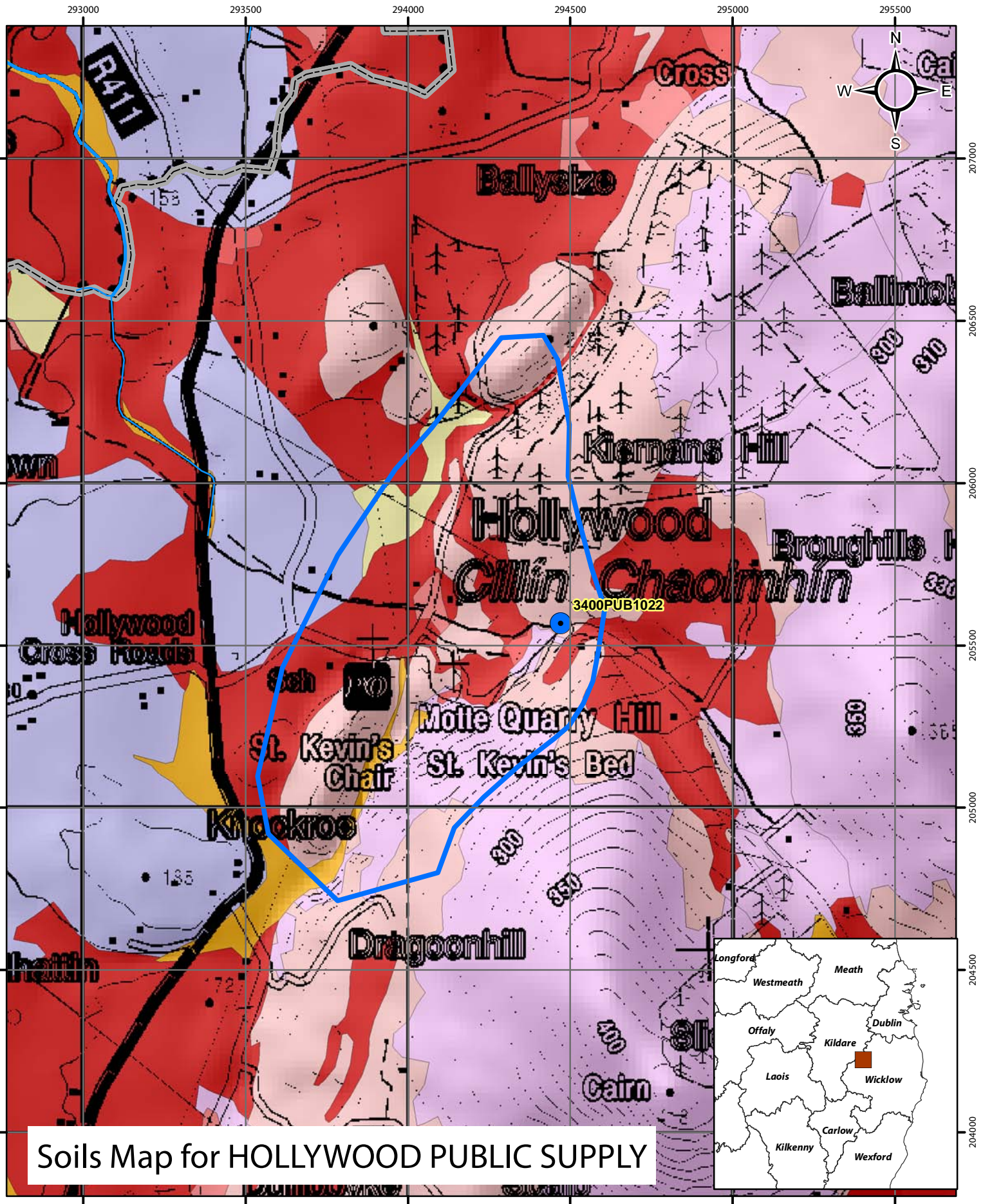




## Subsoils Map for HOLLYWOOD PUBLIC SUPPLY

- |                      |                                 |                            |  |
|----------------------|---------------------------------|----------------------------|--|
| Abstractions         | Alluvium                        | Bedrock outcrop or subcrop | Till derived from granites                               |
| Zone of Contribution | Gravels derived from limestones | Lacustrine sediments       | Till derived from Lower Palaeozoic sandstones and shales |
| River                |                                 |                            |  |





Soils Map for HOLLYWOOD PUBLIC SUPPLY

- Abstractions
- Zone of Contribution
- River
- Acid Deep Well Drained Mineral
- Acid Shallow Well Drained Mineral
- Basic Shallow Poorly Drained Peaty Mineral
- Acid Deep Poorly Drained Mineral
- Acid Shallow/Rocky/Peaty Mineral
- Mineral Alluvium
- Acid Poorly Drained Peaty Mineral
- Basic Shallow Well Drained Mineral
- Lacustrine