nationalgrid

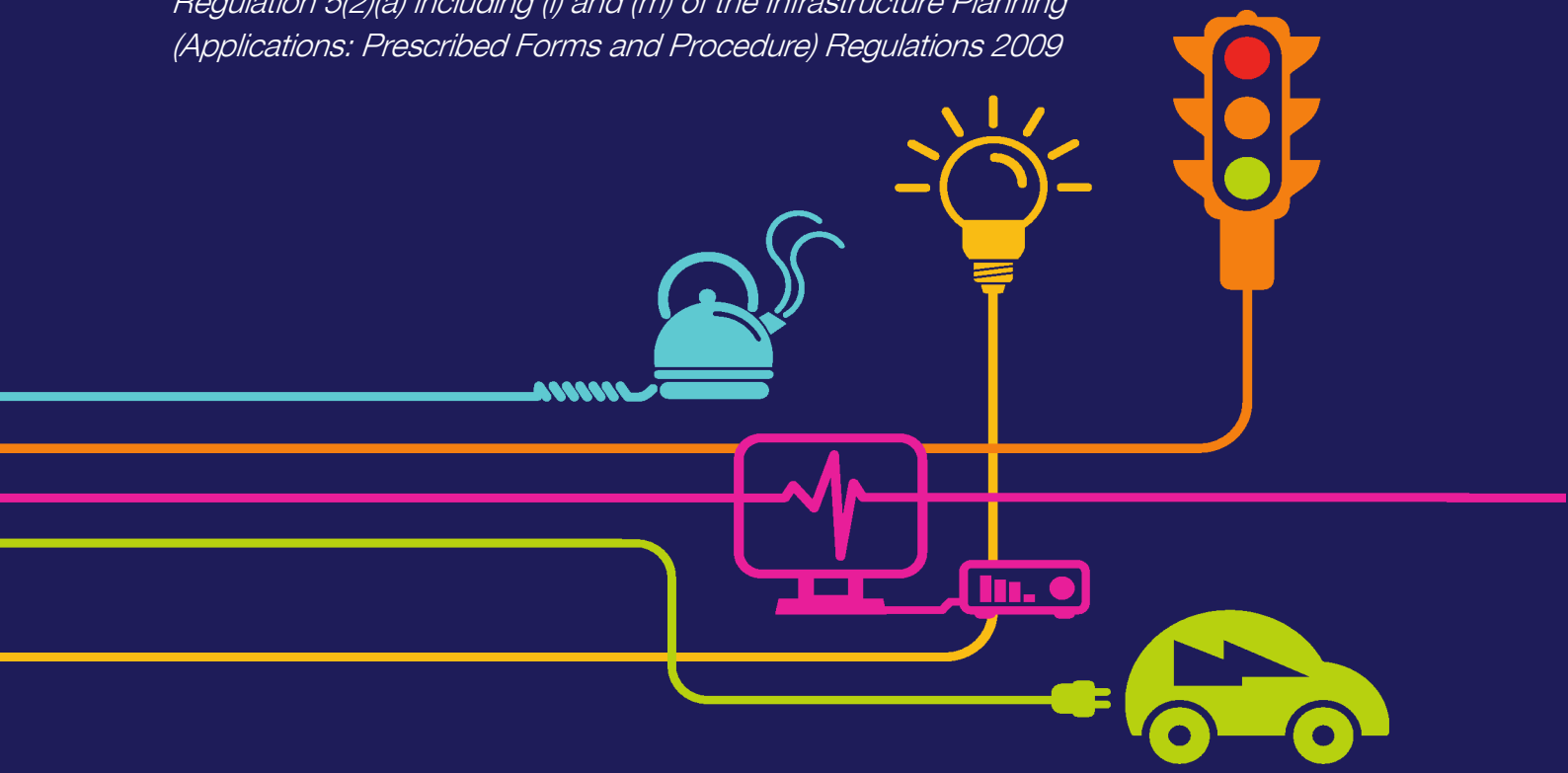
DOCUMENT 5.11.2.6

Private Water Supply Risk Assessment

Chapter 11 – Appendix 6

National Grid (North Wales Connection Project)

Regulation 5(2)(a) including (l) and (m) of the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009



nationalgrid

North Wales Connection Project

Volume 5

Document 5.11.2.6 Appendix 11.6 Private Water Supply Risk Assessment

National Grid
National Grid House
Warwick Technology Park
Gallows Hill
Warwick
CV34 6DA

Final September 2018

Page intentionally blank

Document Control			
Document Properties			
Organisation		AECOM	
Author		William Hartas	
Approved by		Nick Struggles, Philip Smart	
Title		Appendix 11.6 Private Water Supply Study	
Document Reference		Document 5.11.2.6	
Version History			
Date	**Version**	**Status**	**Description/Changes**
September 2018	Rev A	Final	Final for submission

Page intentionally blank

Contents

Page intentionally blank

1.1 INTRODUCTION

1.1.1 The North Wales Connection Project has the potential to affect the water quality and yield of potable Private Water Supplies (PWS) located in the vicinity of the Proposed Development.

1.1.2 Impact on the water quality of potable PWS may be a health risk and may cause inconvenience to the user. In order to identify sources where there is a plausible risk of derogation and where mitigation may be required along the scheme a PWS study has been undertaken to identify the presence of PWS that may be affected by the scheme.

1.1.3 The Proposed Development could impact the existing PWSs in the vicinity of the scheme through:-

- reducing the yield of the supply due to dewatering activities or the interception of groundwater flow pathways; and,
- causing deterioration in groundwater quality due to leakages and accidental spillages of fuels, lubricants and chemicals and surface water runoff containing a high sediment loading.

1.1.4 The effects of the Proposed Development on the agricultural quality of soils are considered in Chapter 18, Agriculture (**Document 5.18**).

1.2 SCOPE

1.2.1 The scope of works for the PWS study was as follows:

- Contact Environmental Health Officers at Isle of Anglesey County Council (IACC), Gwynedd Council and Natural Resources Wales (NRW) to request information they hold on PWS;
- Obtain and review database of landowners along the route;
- Undertake a hydrogeological screening exercise to determine the study area along the route by:
    - Examining 1:10,000 and 1:50,000 scale geology maps and topographical maps;
    - Reviewing ground investigation information, including historical BGS boreholes and the Structural Soils 2017 Investigation;

- Examining depth and types of superficial deposits; and
- Site surveys and supply holder interviews.

- Issue questionnaires to identified PWS, all landowners and/or agents (identified in the screening exercise);
- Collate results from questionnaires; and
- Review questionnaire responses and use this information to undertake a hydrogeological risk assessment to determine if there are any potential risks to the PWS from the Proposed Development

1.3 IDENTIFICATION OF PRIVATE WATER SUPPLIES FOR ASSESSMENT

1.3.1 The locations of surface and groundwater abstraction licences in the vicinity of the Proposed Development were identified from data held by NRW and from environmental data contained within a Groundsure Report for an area within 2km of the Order Limits. The Local Authorities (IACC and Gwynedd Council) were also contacted to identify the location of PWS within 5km of the route. Data has also been received from private water supply owners who approached the North Wales Connection Project Team with information regarding their supply and were not included in the data received from NRW, IACC and Gwynedd Council. Due to the rural nature of the Proposed Development, private supplies were commonplace with details of approximately 600 potential supply locations being obtained from NRW, IACC and Gwynedd Council

1.3.2 An initial screening exercise was undertaken in order to establish which supply locations could be discounted from potential impacts arising from the Proposed Development and which supply locations required further assessment of information.

1.3.3 Screening of these large numbers of supplies was based in the first instance on distance from the Order Limits and tunnel shafts. The screening distance was 300m from the Order Limits or 1km from the tunnel shafts and underground LOD. This is due to the highly heterogeneous and often igneous (non-porous) geology in the vicinity of the Proposed Development, lack of requirement for significant dewatering during foundation construction of the pylons (with extensive dewatering confined to the tunnel and associated shafts) and minimal ground disturbance expected during construction. Based on the limited, short term and temporary nature of the dewatering required for

the pylon foundations, it was considered unlikely that significant effects on the groundwater level would extend more than 300m from the pylons.

1.3.4 Persons responsible for the land where each supply was indicated to be situated were approached for interview. Where possible and land access was granted, the responsible person was interviewed for details of the supply and a Private Water Supply Questionnaire was completed. If access to the supply was not possible, questionnaires were posted to the land freeholder address. One further water supply (Maen Eryr) was identified during field surveys with a questionnaire being undertaken with the supply holder during the survey. A summary of the identified supplies is included as Table 1 below and a copy of a Private Water Supply Information Questionnaire is included as Appendix A.

Table 1 Summary of Identified Private Water Supplies From Screening

Supply	Easting	Northing	Section
IACC Public Wells			
Cae'r Gors	236250	392620	A
Cromlech	236250	392200	A
Gwyddelyn Bach (Fawr)	236200	392900	A
Gwyddelyn Fawr	236270	392850	A
Pant	238800	389890	A
Plas	236960	391320	A
Ty Nant	239300	389910	A
Tyddyn Goronwy	235930	393260	A
Tyddyn Pandy	239300	389910	A
Bryn Eglwys,	244110	385340	B
Dryll	242040	387810	B
Gorslwyd Bach	242250	388030	B
Gydrhos	243370	386300	B
Bwlch Daran,	245580	381290	C
Clorach	245030	384650	C
Pensingrig	245920	380300	C

Table 1 Summary of Identified Private Water Supplies From Screening			
Supply	Easting	Northing	Section
Ty Coch	246350	382460	C
Bodfeiris	250680	371550	E
Factory	250850	372100	E
Talcen Eiddew	251100	372210	E
Glanllyn	252500	371700	F
Hen Ysgol	252300	371550	F
Talbont	252120	371740	F
Ty'n Lon	252920	371380	F
IACC Private Water Supplies			
Garnedd Isaf	240346	389234	B
The Rectory	244605	385329	B
Fron Capel	249166	372796	E
Glan Menai	252157	371754	F
Tyddyn Fadog	251329	370696	F
Site Survey Identified Supplies			
Maen Eryr	246985	380198	A
Brynddu	237437	391101	A
Siop Y Goeden	238935	392003	A
Rhosbeirio	238956	391328	A
Pen Yr Orsedd	239309	389904	A
Pen Yr Orsedd	239360	389794	A
Tyn Ffrwd	242561	386881	B
Rhyd y Badell	243356	383617	B
Bryn Hyfryd	243970	385846	B
Bryn Goleu	244050	386168	B
Bryn Goleu	244119	386255	C
Clorach Fawr	244926	384281	C

Table 1 Summary of Identified Private Water Supplies From Screening			
Supply	Easting	Northing	Section
Plas Nant	245398	378328	C
Bonc Fadog	245663	378866	C
Maenaddwyn Nurseries	245706	384239	C
Maen farm	245816	384092	C
12 Kingfisher Close	245884	379365	C
Carrog Groes	246957	378548	C
Carrog Groes	247121	378511	C
Bodgynda Farm	247174	380175	C
Bryncrug	247370	378559	C
Glanrafon	247371	378694	C
Pen Ceint	248576	375168	D
Bron Refail	248597	376894	D
Bwlch Gwyn	248741	372881	D
Ty Hen	249149	375232	D
Plas Penmynydd farm	249406	375197	E
Tyn Cae	249539	372972	E
Plas Penmynydd	249575	375188	E
Marchynys	250472	373184	E
Ty Gwair AND Plot 3	250630	370985	E
Bodynys	250798	374087	E
Parciau	251176	374797	E
Ty Fry Farm	251701	376484	E
Ty Mawr	251961	375146	E
Rhyd y Delyn Fawr	252087	375619	E
Glanrhyd Farm	254134	367829	F
Fodol Cottage	254339	368391	F
Tyddyn Forgan	255307	367712	F

Hydrogeology/Geology

1.3.5 Published geological maps (1:50,000 BGS Map Sheets 92 & 96, parts of 94, 105 & 106) and GIS data sourced from the BGS indicates the area within the Order Limits is underlain by the geological succession as summarised in Table 2. Table 3 contains a description of the encountered geological units. The superficial geological strata and associated groundwater receptors range from Secondary (Undifferentiated) strata (Glacial Till), to Secondary A Aquifers (Alluvial, Glaciofluvial and Tidal Flat deposits), and Secondary B Aquifers (Coastal Zone Deposits). The bedrock geology is also very varied from Schist (Secondary B Aquifer), to Sandstones and Mudstones (Secondary A and B Aquifers) to Limestone (Principal and Secondary A Aquifers).

Table 2: Summary of Geology within the Order Limits

Summary of Geology for Section A	
Stratum Type	Description
Superficial	The majority of this section is indicated to be underlain by Glacial Till which comprises predominantly clays but also consists of silts, sands, gravels and boulders. Localised areas of Alluvium comprising clays, silts, sands and gravel are also present. Coastal Zone Deposits are present at the littoral zone of Wylfa Head which comprise of sands, silts and clay.
Bedrock	For the majority of this section the solid geology is generally indicated to be Mica Schist and Psammite of the New Harbour Group. Major exceptions to this are the schist and igneous rock of the Gwna Group at Wylfa and psammite and pelite of the South Stack Formation between Tyddyn Cywarch and Rosgoch.
Summary of Geology for Section B	
Stratum Type	Description
Superficial	The majority of this section is indicated to be underlain by Glacial Till which comprises predominantly clays but also consists of silts, sands, gravels and boulders. Occasionally Alluvium, consisting of clays, silts, sands and gravel may be present, particularly west of Gaer Farm.
Bedrock	The majority of this section is underlain by Ordovician Rocks of interbedded mudstone and sandstone. Igneous intrusions are indicated to be present in the vicinity of Bodneithior.

Table 2: Summary of Geology within the Order Limits	
Summary of Geology for Section C	
Stratum Type	Description
Superficial	The majority of this section is indicated to be underlain by Glacial Till which comprises predominantly clays but also consists of silts, sands, gravels and boulders. Localised areas of Glaciofluvial Deposits, consisting of sand and gravel are also present. Two large bands of Alluvium are shown in the vicinity of Cefn-Du Mawr.
Bedrock	This section is predominantly underlain by hornfels, schists and micas from various geological groups with the predominant group being the Central Anglesey Shear Zone. Sedimentary bedrock includes the Red Sandstone of the Old Red Sandstone Group and interbedded sandstones and mudstones in the vicinity of Capel Coch. East of Capel Coch is the Lligwy Sandstone Formation which is formed of interbedded sandstone and conglomerate. The entire length of the section is crossed with occasional bands of igneous and metamorphic rock types such as hornblende.
Summary of Geology for Section D	
Stratum Type	Description
Superficial	The majority of this section is indicated to be underlain by Glacial Till which comprises predominantly clays but also consists of silts, sands, gravels and boulders. Localised areas of Glaciofluvial Deposits, consisting of sand and gravel are also present. Additionally, a band of Tidal Flat Deposits crosses the corridor in association with the Afon Ceint.
Bedrock	This section is underlain by sandstone in the vicinity of the B5110 and limestone from Talwrn to the B5420. In the area of Plas Pynmyndd Farm there is an intrusion of igneous rocks from the east of the corridor. South of this area the mapping indicates a band of mudstone and sandstone with a band of schist.
Summary of Geology for Section E	
Stratum Type	Description
Superficial	The land immediately adjacent to the Afon Ceint is underlain Tidal Flat Deposits of organic sands, gravels, silts and clays. The rest of the section is predominantly underlain by Glacial Till which comprises predominantly clays but also consists of silts, sands, gravels and boulders. Occasionally, there are pockets of Alluvium

Table 2: Summary of Geology within the Order Limits	
	in the southern portion of this section.
Bedrock	The bedrock in this section is comprised of limestone of the Clwyd Limestone group in the vicinity of the Afon Ceint. This gives way to interbedded mudstones and sandstones of Ordovician Rocks around Cefn Poeth. South of Cefn Poeth is dominated by the Central Anglesey Shear Zone and the Berw Shear Zone which are comprised of schist and mica. Occasionally, pockets of gneiss and hornblende are to be found in this section.
Summary of Geology for Section F	
Stratum Type	Description
Superficial	The overhead line (OHL) is underlain by Alluvium at the position of dividing line between sections E and F. As the OHL joins the Braint Tunnel Head House / Cable Sealing End Compound it is underlain by Glacial Till. An area of Alluvium is indicated by geological mapping to be south-east of the Braint within the Limits of Deviation. An area of Head deposits is present approximately 150 m north-west of the Tŷ Fodol Construction Compound which again gives way to Glacial Till as the tunnel alignment reaches the Tŷ Fodol Construction Compound. The Tŷ Fodol Construction Compound is predominantly underlain by Glacial Till with the OHL to the Pentir Substation crossing a band of Alluvium and Peat.
Bedrock	The area near Afon Braint is dominated by the Central Anglesey Shear Zone and Berw Shear Zone, which are comprised of schist and mica. The northern bank of the Menai Strait is underlain by limestone of the Clwyd Limestone Group. From the southern bank of the Menai Strait, the Limit of Deviation for the tunnel is entirely underlain by limestone of the Loggerheads Limestone Formation crossing two bands of sandstone of the same geological group in the vicinity of Vaynol Park. South-east of Vaynol Park sedimentary rocks dominate with the alignment passing through sandstone of the Allt Lwyd Formation in addition to a short section of conglomerate, mudstone and sandstone belonging to the Minffordd Formation. The Tŷ Fodol Construction Compound is underlain by felsic tuff of the Padarn Tuff Formation. The OHL to the Pentir Substation is underlain by the Minifordd Formation which in this area also consists of interbedded conglomerate and sandstone.

Table 3: Detailed Description of Encountered Geological Units	
Geological Unit	Description
Peat	Two main lithologies: 'brushwood' (freshwater) peat and 'phragmites' (brackish water) peat; may be an organic-rich clay; humic deposits accumulation of wet, dark brown, partially decomposed vegetation.
Alluvium	Normally soft to firm consolidated, compressible silty clay, but can contain layers of silt, sand, peat and basal gravel. A stronger, desiccated surface zone may be present.
Coastal Zone Deposits	Shingle, gravel, sand, silt and clay, locally with peat layers; may be bedded or chaotic; from the coastal zone.
Marine Beach Deposits	Shingle, sand, silt and clay; may be bedded or chaotic; beach deposits may be in the form of dunes, sheets or banks; in association with the marine environment.
Tidal Flat Deposits	Normally consolidated soft silty clay, with layers of sand, gravel and peat. Characteristically low relief; from the tidal zone.
Glacial Till	No Description within BGS Lexicon of Named Rock Units. Glacial Till is derived from the abrasive action of glaciers. The deposited material is often heterogeneous in nature and can consist soft to stiff clays, fine to medium sands and gravels as well as cobbles and boulders of various lithologies.
Glaciofluvial Deposits	Sand and gravel, locally with lenses of silt, clay or organic material; of glaciofluvial origin.
Central Anglesey Shear Zone	No Description within BGS Lexicon of Named Rock Units. 1:50,000 scale geological mapping indicates that Schists and Mica are the main rock types in the part of the unit underlying the Proposed Development.
Clwyd Limestone Group	Diverse range of limestone facies with subordinate sandstone and mudstone units, and exhibiting local dolomitisation. Records the initiation and growth of a carbonate platform along the northern flank of the Wales-Brabant Massif.

Table 3: Detailed Description of Encountered Geological Units	
Gwna Group	Grit, phyllite, quartzite, limestone, jasper, graphitic phyllite, spilitic pillow lavas and tuffs.
Lligwy Sandstone Formation	Cross-bedded sandstones, pebbly sandstones and conglomerates with subordinate siltstone and mudstone beds. Records fluvial deposition along the margin of the North Wales Dinantian platform throughout the late Asbian.
Loggerheads Limestone Formation	Thickly bedded, massive, pale grey shelly limestones (packstones and grainstones), locally mottled and pseudo-brecciated, arranged in shoaling upwards cycles capped by calcretes, hummocky palaeokarstic surfaces and associated thin bentonitic clay seams (palaeosols) and rare coals. Locally dolomitised and with scattered chert nodules. The Loggerheads Limestone Formation records late Asbian platform carbonate deposition on the North Wales Dinantian shelf. Each cyclic sequence records a shoaling upwards unit developed in response to transgressive and regressive movements in sea level. Many regressions culminated in emergence of the platform surface and the formation of calcrete and karstic dissolution features. During these periods of emergence, wind blown volcanic ash accumulated on the platform surface to form thin bentonitic soils.
Minifordd Formation	No Description within BGS Lexicon of Named Rock Units. 1:50,000 scale geological mapping indicates that conglomerates, mudstones and sandstones are the main rock types in the part of the unit underlying the Proposed Development.
New Harbour Group	Fissile green mica schist, gritty green mica schist, with bedded jasper, jaspery phyllite and pelitic lava.
Old Red Sandstone Group	No Description within BGS Lexicon of Named Rock Units. 1:50,000 scale geological mapping indicates that sandstone is the main rock type in the part of the unit underlying the Proposed Development.
Ordovician Rocks	No Description within BGS Lexicon of Named Rock Units. 1:50,000 scale geological mapping indicates that interbedded mudstones and sandstones are the main rock types in the part of

Table 3: Detailed Description of Encountered Geological Units	
	the unit underlying the Proposed Development.
Padarn Tuff Formation	Strongly welded rhyolitic ash-flow tuffs with abundant phenocrysts of quartz and sodic plagioclase, subordinate air-fall tuffs and rhyolite lavas.
South Stack Formation	Schistose greywackes with partings of mica-schist, or interbedded metasandstones, pelites and subordinate quartzites.

Questionnaire results

1.3.6 Interviews were conducted with the person responsible for the PWS at two of the supplies namely Tyddyn Fadog and Maen Eryr in March 2017. Access to interview other supply holders was not granted at the time of undertaking the surveys. To date, only written responses from the responsible persons from Factory, Caer'r Gors, Gydrhos, Ty Nant, Gwyddelyn Fawr and Tyddyn Goronwy have been received. All of these responses indicated that the properties involved no longer used PWS and instead were using a mains water supply and as such these have been discounted from this study.

1.3.7 For many of the identified supplies, access was not granted by the landowner and hence it was not possible to confirm details of the supply and in particular whether the source remains in use. For most of the sources where access was possible, it was established that the source no longer was in use and that the water supply to the property was from the mains network.

1.3.8 Thirty PWS (detailed in Table 1 above) were identified during screening for assessment. A summary of the geology and hydrogeology as well as results from questionnaires where undertaken is provided as Table 3 below.

Page intentionally blank

Table 3 Summary of Private Water Supply geology, hydrogeology and questionnaire results.

Location	Approx. Distance and Direction from the Proposed Development Order limits	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Q1: Type of water supply?	Q2: How old is PWS?	Q3: Is PWS for domestic purposes?	Q4: Source of PWS?	Q5: NGR of PWS?	Q6: Depth of any Borehole?	Q6b: Geological strata of well screen?	Q7: How is the water conveyed to the house?	Q8: What is the water used for?	Q9: Category of water supply [1]?	Q10 (1): No of people supplied by PWS for domestic purposes?	Q10 (2): No of dwellings?	Q10 (3): Daily abstraction? rate	Q11: How often do you abstract from the PWS?	Q12: Do you have an EA/NRW licence?	Q12 b) do you know the licence No.?	Q13: Does you supply run dry/ fluctuate?	Q14: Do you perceive any changes to your usage?	Q15: How good is the water quality?	Q16 a): has analysis been undertaken?	Q16 b) can we see the results?	Q17 Are you likely to start using a PWS?
IACC – Public Wells																								
Bodfeiris	Within Order Limits	Glacial Till (Secondary Undifferentiated) Central Anglesey Shear Zone - Schist (Secondary B)	**Land access was not granted for site survey. Questionnaires have been sent to the supply holder but a response is yet to be received.**																					
Bryn Eglwys,	270m West	No Superficial Deposits Indicated Ordovician Rocks – Mudstone / Sandstone (Secondary B)	**Land access was not granted for site survey. Questionnaires have been sent to the supply holder but a response is yet to be received.**																					
Bwlch Daran,	90m West	Glacial Till (Secondary A) Ordovician Rocks – Mudstone / Sandstone (Secondary B)	**Land access was not granted for site survey. Questionnaires have been sent to the supply holder but a response is yet to be received.**																					
Cae'r Gors	40m South East	Glacial Till (Secondary A) New Harbour Group – Schist	**The person responsible for this private water supply indicated that the property no longer has a private water supply and instead receives water from a mains supply – Screened Out.**																					

Table 3 Summary of Private Water Supply geology, hydrogeology and questionnaire results.

Location	Approx. Distance and Direction from the Proposed Development Order limits	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Q1: Type of water supply?	Q2: How old is PWS?	Q3: Is PWS for domestic purposes?	Q4: Source of PWS?	Q5: NGR of PWS?	Q6: Depth of any Borehole?	Q6b: Geological strata of well screen?	Q7: How is the water conveyed to the house?	Q8: What is the water used for?	Q9: Category of water supply [1]?	Q10 (1): No of people supplied by PWS for domestic purposes?	Q10 (2): No of dwellings?	Q10 (3): Daily abstraction? rate	Q11: How often do you abstract from the PWS?	Q12: Do you have an EA/NRW licence?	Q12 b) do you know the licence No.?	Q13: Does you supply run dry/ fluctuate?	Q14: Do you perceive any changes to your usage?	Q15: How good is the water quality?	Q16 a): has analysis been undertaken?	Q16 b) can we see the results?	Q17 Are you likely to start using a PWS?
		and Psammite (Secondary B)																						
Clorach	40m North West	Glacial Till (Secondary Undifferentiated) Ordovician Rocks – Mudstone / Sandstone (Secondary B)	**Land access was not granted for site survey. Questionnaires have been sent to the supply holder but a response is yet to be received.**																					
Cromlech	100m South West	Glacial Till (Secondary Undifferentiated) New Harbour Group – Schist and Psammite (Secondary B)	**Land access was not granted for site survey. Questionnaires have been sent to the supply holder but a response is yet to be received.**																					
Dryll	Within Order Limits	Glacial Till (Secondary Undifferentiated) Ordovician Rocks – Mudstone / Sandstone (Secondary B)	**A site survey was carried out with the landowner where the supply was indicated to exist. This supply is no longer present with the well infilled at some point during the 1950s – Screened Out**																					

Table 3 Summary of Private Water Supply geology, hydrogeology and questionnaire results.

Location	Approx. Distance and Direction from the Proposed Development Order limits	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Q1: Type of water supply?	Q2: How old is PWS?	Q3: Is PWS for domestic purposes?	Q4: Source of PWS?	Q5: NGR of PWS?	Q6: Depth of any Borehole?	Q6b: Geological strata of well screen?	Q7: How is the water conveyed to the house?	Q8: What is the water used for?	Q9: Category of water supply [1]?	Q10 (1): No of people supplied by PWS for domestic purposes?	Q10 (2): No of dwellings?	Q10 (3): Daily abstraction? rate	Q11: How often do you abstract from the PWS?	Q12: Do you have an EA/NRW licence?	Q12 b) do you know the licence No.?	Q13: Does you supply run dry/ fluctuate?	Q14: Do you perceive any changes to your usage?	Q15: How good is the water quality?	Q16 a): has analysis been undertaken?	Q16 b) can we see the results?	Q17 Are you likely to start using a PWS?
Factory	50m North	Glacial Till (Secondary Undifferentiated) Central Anglesey Shear Zone - Schist (Secondary B)	**The person responsible for this PWS indicated that the property no longer has a PWS and instead receives water from a mains supply – Screened Out.**																					
Glanllyn	310m East	Glacial Till (Secondary Undifferentiated) Central Anglesey Shear Zone – Schist (Secondary B)	**Land access was not granted for site survey. Questionnaires have been sent to the supply holder but a response is yet to be received.**																					
Gorslwyd Bach	100m North East	Glacial Till (Secondary Undifferentiated) Ordovician Rocks – Mudstone / Sandstone (Secondary B)	**Land access was not granted for site survey. Questionnaires have been sent to the supply holder but a response is yet to be received.**																					
Gwyddelyn Bach (Fawr)	220m North East	Glacial Till (Secondary Undifferentiated) New Harbour Group – Schist and Psammite	**The person responsible for this private water supply indicated that the property no longer has a private water supply and instead receives water from a mains supply – Screened Out.**																					

Table 3 Summary of Private Water Supply geology, hydrogeology and questionnaire results.

Location	Approx. Distance and Direction from the Proposed Development Order limits	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Q1: Type of water supply?	Q2: How old is PWS?	Q3: Is PWS for domestic purposes?	Q4: Source of PWS?	Q5: NGR of PWS?	Q6: Depth of any Borehole?	Q6b: Geological strata of well screen?	Q7: How is the water conveyed to the house?	Q8: What is the water used for?	Q9: Category of water supply [1]?	Q10 (1): No of people supplied by PWS for domestic purposes?	Q10 (2): No of dwellings?	Q10 (3): Daily abstraction? rate	Q11: How often do you abstract from the PWS?	Q12: Do you have an EA/NRW licence?	Q12 b) do you know the licence No.?	Q13: Does you supply run dry/ fluctuate?	Q14: Do you perceive any changes to your usage?	Q15: How good is the water quality?	Q16 a): has analysis been undertaken?	Q16 b) can we see the results?	Q17 Are you likely to start using a PWS?
		(Secondary B)																						
Gwyddel yn Fawr	230m North East	Glacial Till (Secondary Undifferentiated) New Harbour Group – Schist and Psammite (Secondary B)	**Land access was not granted for site survey. Questionnaires have been sent to the supply holder but a response is yet to be received.**																					
Gydrhos	100m South West	Glacial Till (Secondary Undifferentiated) Ordovician Rocks – Mudstone / Sandstone (Secondary B)	**The person responsible for this private water supply indicated that the property no longer has a private water supply and instead receives water from a mains supply – Screened Out.**																					
Hen Ysgol	250m East	Glacial Till (Secondary Undifferentiated) Central Anglesey Shear Zone – Schist (Secondary B)	**Land access was not granted for site survey. Questionnaires have been sent to the supply holder but a response is yet to be received.**																					
Pant	60m South East	Glacial Till (Secondary	**Land access was not granted for site survey. Questionnaires have been sent to the supply holder but a response is yet to be received.**																					

Table 3 Summary of Private Water Supply geology, hydrogeology and questionnaire results.

Location	Approx. Distance and Direction from the Proposed Development Order limits	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Q1: Type of water supply?	Q2: How old is PWS?	Q3: Is PWS for domestic purposes?	Q4: Source of PWS?	Q5: NGR of PWS?	Q6: Depth of any Borehole?	Q6b: Geological strata of well screen?	Q7: How is the water conveyed to the house?	Q8: What is the water used for?	Q9: Category of water supply [1]?	Q10 (1): No of people supplied by PWS for domestic purposes?	Q10 (2): No of dwellings?	Q10 (3): Daily abstraction? rate	Q11: How often do you abstract from the PWS?	Q12: Do you have an EA/NRW licence?	Q12 b) do you know the licence No.?	Q13: Does you supply run dry/ fluctuate?	Q14: Do you perceive any changes to your usage?	Q15: How good is the water quality?	Q16 a): has analysis been undertaken?	Q16 b) can we see the results?	Q17 Are you likely to start using a PWS?
		Undifferentiated) South Stack Formation – Psammite and pelite (Secondary B)																						
Pensingrig	160m West	Glacial Till (Secondary Undifferentiated) Central Angelsey Shear Zone – Schist (Secondary B)	**Land access was not granted for site survey. Questionnaires have been sent to the supply holder but a response is yet to be received.**																					
Plas	300m South West	Glacial Till (Secondary Undifferentiated) New Harbour Group – Schist and Psammite (Secondary B)	**Land access was not granted for site survey. Questionnaires have been sent to the supply holder but a response is yet to be received.**																					
Talbont	Within Order Limits	Glacial Till (Secondary B) New Harbour Group – Schist (Secondary B)	**Land access was not granted for site survey. Questionnaires have been sent to the supply holder but a response is yet to be received.**																					

Table 3 Summary of Private Water Supply geology, hydrogeology and questionnaire results.

Location	Approx. Distance and Direction from the Proposed Development Order limits	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Q1: Type of water supply?	Q2: How old is PWS?	Q3: Is PWS for domestic purposes?	Q4: Source of PWS?	Q5: NGR of PWS?	Q6: Depth of any Borehole?	Q6b: Geological strata of well screen?	Q7: How is the water conveyed to the house?	Q8: What is the water used for?	Q9: Category of water supply [1]?	Q10 (1): No of people supplied by PWS for domestic purposes?	Q10 (2): No of dwellings?	Q10 (3): Daily abstraction? rate	Q11: How often do you abstract from the PWS?	Q12: Do you have an EA/NRW licence?	Q12 b) do you know the licence No.?	Q13: Does you supply run dry/ fluctuate?	Q14: Do you perceive any changes to your usage?	Q15: How good is the water quality?	Q16 a): has analysis been undertaken?	Q16 b) can we see the results?	Q17 Are you likely to start using a PWS?
Talcen Eiddew	190m North East	Glacial Till (Secondary Undifferentiated) Central Angelsey Shear Zone – Schist (Secondary B)	**Land access was not granted for site survey. Questionnaires have been sent to the supply holder but a response is yet to be received.**																					
Ty Coch	Within Order Limits	Glacial Till (Secondary Undifferentiated) Old Red Sandstone Supergroup – Sandstone (Secondary A)	**Land access was not granted for site survey. Questionnaires have been sent to the supply holder but a response is yet to be received.**																					
Ty Nant	200m South West	No superficial deposits indicated South Stack Formation – Psammite and pelite (Secondary B)	**The person responsible for this private water supply indicated that the property no longer has a private water supply and instead receives water from a mains supply – Screened Out.**																					
Tyddyn Goronwy	210m East	No superficial deposits indicated New Harbour Group – Schist and Psammite	**The responsible person for this supply indicated that the property known as Tyddyn Goronwy was due to be demolished and is currently unoccupied – Screened Out.**																					

Table 3 Summary of Private Water Supply geology, hydrogeology and questionnaire results.

Location	Approx. Distance and Direction from the Proposed Development Order limits	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Q1: Type of water supply?	Q2: How old is PWS?	Q3: Is PWS for domestic purposes?	Q4: Source of PWS?	Q5: NGR of PWS?	Q6: Depth of any Borehole?	Q6b: Geological strata of well screen?	Q7: How is the water conveyed to the house?	Q8: What is the water used for?	Q9: Category of water supply [1]?	Q10 (1): No of people supplied by PWS for domestic purposes?	Q10 (2): No of dwellings?	Q10 (3): Daily abstraction? rate	Q11: How often do you abstract from the PWS?	Q12: Do you have an EA/NRW licence?	Q12 b) do you know the licence No.?	Q13: Does you supply run dry/ fluctuate?	Q14: Do you perceive any changes to your usage?	Q15: How good is the water quality?	Q16 a): has analysis been undertaken?	Q16 b) can we see the results?	Q17 Are you likely to start using a PWS?
		(Secondary B)																						
Tyddyn Pandy	200m South West	No superficial deposits indicated South Stack Formation – Psammite and pelite (Secondary B)	**Land access was not granted for site survey. Questionnaires have been sent to the supply holder but a response is yet to be received.**																					
Ty'n Lon	960m North of Cable Route	Glacial Till (Secondary Undifferentiated) Clwyd Limestone Group – Limestone (Principal Aquifer)	**Land access was not granted for site survey. Questionnaires have been sent to the supply holder but a response is yet to be received.**																					
IACC – Private Water Supplies																								
Garnedd Isaf	170m South West	Glacial Till (Secondary Undifferentiated) Ordovician Rocks – Mudstone / Sandstone (Secondary B)	**Land access was not granted for site survey. Questionnaires have been sent to the supply holder but a response is yet to be received.**																					
Glan Menai	30m North	Glacial Till (Secondary B) New Harbour	**Land access was not granted for site survey. Questionnaires have been sent to the supply holder but a response is yet to be received.**																					

Table 3 Summary of Private Water Supply geology, hydrogeology and questionnaire results.

Location	Approx. Distance and Direction from the Proposed Development Order limits	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Q1: Type of water supply?	Q2: How old is PWS?	Q3: Is PWS for domestic purposes?	Q4: Source of PWS?	Q5: NGR of PWS?	Q6: Depth of any Borehole?	Q6b: Geological strata of well screen?	Q7: How is the water conveyed to the house?	Q8: What is the water used for?	Q9: Category of water supply [1]?	Q10 (1): No of people supplied by PWS for domestic purposes?	Q10 (2): No of dwellings?	Q10 (3): Daily abstraction? rate	Q11: How often do you abstract from the PWS?	Q12: Do you have an EA/NRW licence?	Q12 b) do you know the licence No.?	Q13: Does you supply run dry/ fluctuate?	Q14: Do you perceive any changes to your usage?	Q15: How good is the water quality?	Q16 a): has analysis been undertaken?	Q16 b) can we see the results?	Q17 Are you likely to start using a PWS?
		Group – Schist (Secondary B)																						
The Rectory	70m South West	Glacial Till (Secondary Undifferentiated) Ordovician Rocks – Mudstone / Sandstone (Secondary B)	**Land access was not granted in order to conduct a site survey. Questionnaires have been sent to the supply holder but a response is yet to be received.**																					
Tyddyn Fadog	270m South West (Braint THH)	Glaciofluvial Deposits- Sand and Gravel (Secondary A) Central Anglesey Shear Zone – Schist (Secondary B Aquifer)	Private Supply	Over 100 years	Yes	Spring which feeds a trough in a pump house	251329, 370696	n/a	n/a	Pumped from the pump house	Drinking, washing, grey water	1	2-4	1	No idea	Daily	No	No	No	Yes - Loss	Very good	No	n/a	Yes
Fron Capel	190m West	Glacial Till (Secondary Undifferentiated) Central Anglesey Shear Zone – Schist (Secondary B)	**Land access was not granted for site survey. Questionnaires have been sent to the supply holder but a response is yet to be received.**																					

Table 3 Summary of Private Water Supply geology, hydrogeology and questionnaire results.

Site Survey Identified Supplies		
Location	Maen Eryr	Brynddu
Approx. Distance and Direction from the Proposed Development Order limits	130m West	160m South West
Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Glacial Till (Secondary B) Central Anglesey Shear Zone (Secondary B)	No Superficial Deposits (n/a) Central Anglesey Shear Zone and Berw Shear Zone - Schist (Secondary B Aquifer)
Q1: Type of water supply?	Private Water & Mains	**Land access was not granted during the site survey and no questionnaires have been received.**
Q2: How old is PWS?	15 Years	
Q3: Is PWS for domestic purposes?	Yes	
Q4: Source of PWS?	1 x Well 2x Borehole	
Q5: NGR of PWS?	246985, 380198	
Q6: Depth of any Borehole?	20m	
Q6b: Geological strata of well screen?	Unknown	
Q7: How is the water conveyed to the house?	Pumped from tanks	
Q8: What is the water used for?	Drinking, washing, grey water, cattle	
Q9: Category of water supply [1]?	2	
Q10 (1): No of people supplied by PWS for domestic purposes?	7	
Q10 (2): No of dwellings?	2	
Q10 (3): Daily abstraction? rate	No idea	
Q11: How often do you abstract from the PWS?	Daily	
Q12: Do you have an EA/NRW licence?	No	
Q12 b) do you know the licence No.?	No	
Q13: Does you supply run dry/ fluctuate?	Y	
Q14: Do you perceive any changes to your usage?	No	
Q15: How good is the water quality?	Good	
Q16 a): has analysis been undertaken?	No	
Q16 b) can we see the results?	No	
Q17 Are you likely to start using a PWS?	Yes	

Table 3 Summary of Private Water Supply geology, hydrogeology and questionnaire results.

Location	Approx. Distance and Direction from the Proposed Development Order limits	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Q1: Type of water supply?	Q2: How old is PWS?	Q3: Is PWS for domestic purposes?	Q4: Source of PWS?	Q5: NGR of PWS?	Q6: Depth of any Borehole?	Q6b: Geological strata of well screen?	Q7: How is the water conveyed to the house?	Q8: What is the water used for?	Q9: Category of water supply [1]?	Q10 (1): No of people supplied by PWS for domestic purposes?	Q10 (2): No of dwellings?	Q10 (3): Daily abstraction? rate	Q11: How often do you abstract from the PWS?	Q12: Do you have an EA/NRW licence?	Q12 b) do you know the licence No.?	Q13: Does you supply run dry/ fluctuate?	Q14: Do you perceive any changes to your usage?	Q15: How good is the water quality?	Q16 a): has analysis been undertaken?	Q16 b) can we see the results?	Q17 Are you likely to start using a PWS?
Siop Y Goeden	1180m North East	Glacial Till (Secondary Undifferentiated Aquifer) New Harbour Group - Schist (Secondary B Aquifer)	**Land access was not granted during the site survey and no questionnaires have been received.**																					
Rhosbeiriio	760m North East	Glacial Till (Secondary Undifferentiated Aquifer) New Harbour Group - Schist (Secondary B Aquifer)	**Land access was not granted during the site survey and no questionnaires have been received.**																					
Pen Yr Orsedd	200m South West	Glacial Till (Secondary Undifferentiated Aquifer) New Harbour Group - Schist (Secondary B Aquifer)	**Land access was not granted during the site survey and no questionnaires have been received.**																					

Table 3 Summary of Private Water Supply geology, hydrogeology and questionnaire results.

Location	Approx. Distance and Direction from the Proposed Development Order limits	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Q1: Type of water supply?	Q2: How old is PWS?	Q3: Is PWS for domestic purposes?	Q4: Source of PWS?	Q5: NGR of PWS?	Q6: Depth of any Borehole?	Q6b: Geological strata of well screen?	Q7: How is the water conveyed to the house?	Q8: What is the water used for?	Q9: Category of water supply [1]?	Q10 (1): No of people supplied by PWS for domestic purposes?	Q10 (2): No of dwellings?	Q10 (3): Daily abstraction? rate	Q11: How often do you abstract from the PWS?	Q12: Do you have an EA/NRW licence?	Q12 b) do you know the licence No.?	Q13: Does you supply run dry/ fluctuate?	Q14: Do you perceive any changes to your usage?	Q15: How good is the water quality?	Q16 a): has analysis been undertaken?	Q16 b) can we see the results?	Q17 Are you likely to start using a PWS?
Pen Yr Orsedd	270m South West	No Superficial Deposits (n/a) South Stack Formation - Psammite and Pelite (Secondary B Aquifer)	**Land access was not granted during the site survey and no questionnaires have been received.**																					
Tyn Ffrwd	20m West	No Superficial Deposits (n/a) South Stack Formation - Psammite and Pelite (Secondary B Aquifer)	**Land access was not granted during the site survey and no questionnaires have been received.**																					
Rhyd y Badell	1600m West	Glacial Till (Secondary Undifferentiated Aquifer) Ordovician Rocks - Undifferentiated Mudstone and Sandstone (Secondary B Aquifer)	**Land access was not granted during the site survey and no questionnaires have been received.**																					

Table 3 Summary of Private Water Supply geology, hydrogeology and questionnaire results.

Location	Approx. Distance and Direction from the Proposed Development Order limits	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Q1: Type of water supply?	Q2: How old is PWS?	Q3: Is PWS for domestic purposes?	Q4: Source of PWS?	Q5: NGR of PWS?	Q6: Depth of any Borehole?	Q6b: Geological strata of well screen?	Q7: How is the water conveyed to the house?	Q8: What is the water used for?	Q9: Category of water supply [1]?	Q10 (1): No of people supplied by PWS for domestic purposes?	Q10 (2): No of dwellings?	Q10 (3): Daily abstraction? rate	Q11: How often do you abstract from the PWS?	Q12: Do you have an EA/NRW licence?	Q12 b) do you know the licence No.?	Q13: Does you supply run dry/ fluctuate?	Q14: Do you perceive any changes to your usage?	Q15: How good is the water quality?	Q16 a): has analysis been undertaken?	Q16 b) can we see the results?	Q17 Are you likely to start using a PWS?
Bryn Hyfryd	20 South West	Glacial Till (Secondary Undifferentiated Aquifer) Ordovician Rocks - Undifferentiated Mudstone and Sandstone (Secondary B Aquifer)	**Land access was not granted during the site survey and no questionnaires have been received.**																					
Bryn Goleu	120m North East	No Superficial Deposits (n/a) Unamed Igneous Intrusion - Picrite (Secondary B Aquifer)	**Land access was not granted during the site survey and no questionnaires have been received.**																					
Bryn Goleu	190m North East	No Superficial Deposits (n/a) Unamed Igneous Intrusion - Picrite (Secondary B Aquifer)	**Land access was not granted during the site survey and no questionnaires have been received.**																					

Table 3 Summary of Private Water Supply geology, hydrogeology and questionnaire results.

Location	Approx. Distance and Direction from the Proposed Development Order limits	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Q1: Type of water supply?	Q2: How old is PWS?	Q3: Is PWS for domestic purposes?	Q4: Source of PWS?	Q5: NGR of PWS?	Q6: Depth of any Borehole?	Q6b: Geological strata of well screen?	Q7: How is the water conveyed to the house?	Q8: What is the water used for?	Q9: Category of water supply [1]?	Q10 (1): No of people supplied by PWS for domestic purposes?	Q10 (2): No of dwellings?	Q10 (3): Daily abstraction? rate	Q11: How often do you abstract from the PWS?	Q12: Do you have an EA/NRW licence?	Q12 b) do you know the licence No.?	Q13: Does you supply run dry/ fluctuate?	Q14: Do you perceive any changes to your usage?	Q15: How good is the water quality?	Q16 a): has analysis been undertaken?	Q16 b) can we see the results?	Q17 Are you likely to start using a PWS?
Clorach Fawr	125m West	No Superficial Deposits (n/a) Unamed Igneous Intrusion - Picrite (Secondary B Aquifer)	**Land access was not granted during the site survey and no questionnaires have been received.**																					
Plas Nant	2000m West	Glacial Till (Secondary Undifferentiated Aquifer) Coedana Complex - Hornfells (Secondary B Aquifer)	**Land access was not granted during the site survey and no questionnaires have been received.**																					
Bonc Fadog	1500m West	Glacial Till (Secondary Undifferentiated Aquifer) Gwna Group - Schist (Secondary B Aquifer)	**Land access was not granted during the site survey and no questionnaires have been received.**																					

Table 3 Summary of Private Water Supply geology, hydrogeology and questionnaire results.

Location	Approx. Distance and Direction from the Proposed Development Order limits	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Q1: Type of water supply?	Q2: How old is PWS?	Q3: Is PWS for domestic purposes?	Q4: Source of PWS?	Q5: NGR of PWS?	Q6: Depth of any Borehole?	Q6b: Geological strata of well screen?	Q7: How is the water conveyed to the house?	Q8: What is the water used for?	Q9: Category of water supply [1]?	Q10 (1): No of people supplied by PWS for domestic purposes?	Q10 (2): No of dwellings?	Q10 (3): Daily abstraction? rate	Q11: How often do you abstract from the PWS?	Q12: Do you have an EA/NRW licence?	Q12 b) do you know the licence No.?	Q13: Does you supply run dry/ fluctuate?	Q14: Do you perceive any changes to your usage?	Q15: How good is the water quality?	Q16 a): has analysis been undertaken?	Q16 b) can we see the results?	Q17 Are you likely to start using a PWS?
Maenaddwyn Nurseries	210m East	Glacial Till (Secondary Undifferentiated Aquifer) Gwna Group - Schist (Secondary B Aquifer)	**Land access was not granted during the site survey and no questionnaires have been received.**																					
Maen farm	310 East	Glacial Till (Secondary Undifferentiated Aquifer) Coedana Complex - Hornfells (Secondary B Aquifer)	**Land access was not granted during the site survey and no questionnaires have been received.**																					
12 Kingfisher Close	1000m West	Glacial Till (Secondary Undifferentiated Aquifer) Coedana Complex - Hornfells (Secondary B Aquifer)	**Land access was not granted during the site survey and no questionnaires have been received.**																					

Table 3 Summary of Private Water Supply geology, hydrogeology and questionnaire results.

Location	Approx. Distance and Direction from the Proposed Development Order limits	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Q1: Type of water supply?	Q2: How old is PWS?	Q3: Is PWS for domestic purposes?	Q4: Source of PWS?	Q5: NGR of PWS?	Q6: Depth of any Borehole?	Q6b: Geological strata of well screen?	Q7: How is the water conveyed to the house?	Q8: What is the water used for?	Q9: Category of water supply [1]?	Q10 (1): No of people supplied by PWS for domestic purposes?	Q10 (2): No of dwellings?	Q10 (3): Daily abstraction? rate	Q11: How often do you abstract from the PWS?	Q12: Do you have an EA/NRW licence?	Q12 b) do you know the licence No.?	Q13: Does you supply run dry/ fluctuate?	Q14: Do you perceive any changes to your usage?	Q15: How good is the water quality?	Q16 a): has analysis been undertaken?	Q16 b) can we see the results?	Q17 Are you likely to start using a PWS?
Carrog Groes	480m West	Glacial Till (Secondary Undifferentiated Aquifer) Gwna Group - Schist (Secondary B Aquifer)	**Land access was not granted during the site survey and no questionnaires have been received.**																					
Carrog Groes	310m West	Glacial Till (Secondary Undifferentiated Aquifer) Gwna Group - Schist (Secondary B Aquifer)	**Land access was not granted during the site survey and no questionnaires have been received.**																					
Bodgynda Farm	Within the Order Limits	Glacial Till (Secondary Undifferentiated Aquifer) Gwna Group - Schist (Secondary B Aquifer)	**Land access was not granted during the site survey and no questionnaires have been received.**																					

Table 3 Summary of Private Water Supply geology, hydrogeology and questionnaire results.

Location	Approx. Distance and Direction from the Proposed Development Order limits	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Q1: Type of water supply?	Q2: How old is PWS?	Q3: Is PWS for domestic purposes?	Q4: Source of PWS?	Q5: NGR of PWS?	Q6: Depth of any Borehole?	Q6b: Geological strata of well screen?	Q7: How is the water conveyed to the house?	Q8: What is the water used for?	Q9: Category of water supply [1]?	Q10 (1): No of people supplied by PWS for domestic purposes?	Q10 (2): No of dwellings?	Q10 (3): Daily abstraction? rate	Q11: How often do you abstract from the PWS?	Q12: Do you have an EA/NRW licence?	Q12 b) do you know the licence No.?	Q13: Does you supply run dry/ fluctuate?	Q14: Do you perceive any changes to your usage?	Q15: How good is the water quality?	Q16 a): has analysis been undertaken?	Q16 b) can we see the results?	Q17 Are you likely to start using a PWS?
Bryncrug	100m West	Glacial Till (Secondary Undifferentiated Aquifer) Central Anglesey Shear Zone and Berw Shear Zone - Schist (Secondary B Aquifer)	**Land access was not granted during the site survey and no questionnaires have been received.**																					
Glanrafon	115m West	Alluvium (Secondary A Aquifer) Old Red Sandstone Supergroup - Sandstone (Secondary A Aquifer)	**Land access was not granted during the site survey and no questionnaires have been received.**																					
Pen Ceint	Within the Order Limits	Glacial Till (Secondary Undifferentiated Aquifer) Old Red Sandstone Supergroup - Sandstone (Secondary A Aquifer)	**Land access was not granted during the site survey and no questionnaires have been received.**																					

Table 3 Summary of Private Water Supply geology, hydrogeology and questionnaire results.

Location	Approx. Distance and Direction from the Proposed Development Order limits	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Q1: Type of water supply?	Q2: How old is PWS?	Q3: Is PWS for domestic purposes?	Q4: Source of PWS?	Q5: NGR of PWS?	Q6: Depth of any Borehole?	Q6b: Geological strata of well screen?	Q7: How is the water conveyed to the house?	Q8: What is the water used for?	Q9: Category of water supply [1]?	Q10 (1): No of people supplied by PWS for domestic purposes?	Q10 (2): No of dwellings?	Q10 (3): Daily abstraction? rate	Q11: How often do you abstract from the PWS?	Q12: Do you have an EA/NRW licence?	Q12 b) do you know the licence No.?	Q13: Does you supply run dry/ fluctuate?	Q14: Do you perceive any changes to your usage?	Q15: How good is the water quality?	Q16 a): has analysis been undertaken?	Q16 b) can we see the results?	Q17 Are you likely to start using a PWS?
Bron Refail	340m East	Glacial Till (Secondary Undifferentiated Aquifer) Clwyd Limestone Group - Limestone (Principal Aquifer)	**Land access was not granted during the site survey and no questionnaires have been received.**																					
Bwlch Gwyn	575m West	Glacial Till (Secondary Undifferentiated Aquifer) Clwyd Limestone Group - Sandstone / Mudstone (Principal Aquifer)	**Land access was not granted during the site survey and no questionnaires have been received.**																					
Ty Hen	480m East	No Superficial Deposits (n/a) Coedana Complex - Gneiss (Secondary B Aquifer)	**Land access was not granted during the site survey and no questionnaires have been received.**																					

Table 3 Summary of Private Water Supply geology, hydrogeology and questionnaire results.

Location	Approx. Distance and Direction from the Proposed Development Order limits	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Q1: Type of water supply?	Q2: How old is PWS?	Q3: Is PWS for domestic purposes?	Q4: Source of PWS?	Q5: NGR of PWS?	Q6: Depth of any Borehole?	Q6b: Geological strata of well screen?	Q7: How is the water conveyed to the house?	Q8: What is the water used for?	Q9: Category of water supply [1]?	Q10 (1): No of people supplied by PWS for domestic purposes?	Q10 (2): No of dwellings?	Q10 (3): Daily abstraction? rate	Q11: How often do you abstract from the PWS?	Q12: Do you have an EA/NRW licence?	Q12 b) do you know the licence No.?	Q13: Does you supply run dry/ fluctuate?	Q14: Do you perceive any changes to your usage?	Q15: How good is the water quality?	Q16 a): has analysis been undertaken?	Q16 b) can we see the results?	Q17 Are you likely to start using a PWS?
Plas Penmynydd farm	715m East	Glacial Till (Secondary Undifferentiated Aquifer) Clwyd Limestone Group - Limestone (Principal Aquifer)	**Land access was not granted during the site survey and no questionnaires have been received.**																					
Tyn Cae	10m East	Tidal Flat Deposits (Unproductive Superficial Aquifer) Clwyd Limestone Group - Limestone (Principal Aquifer)	**Land access was not granted during the site survey and no questionnaires have been received.**																					
Plas Penmynydd	850m East	Glacial Till (Secondary Undifferentiated Aquifer) Central Anglesey Shear Zone and Berw Shear Zone - Schist (Secondary B Aquifer)	**Land access was not granted during the site survey and no questionnaires have been received.**																					

Table 3 Summary of Private Water Supply geology, hydrogeology and questionnaire results.

Location	Approx. Distance and Direction from the Proposed Development Order limits	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Q1: Type of water supply?	Q2: How old is PWS?	Q3: Is PWS for domestic purposes?	Q4: Source of PWS?	Q5: NGR of PWS?	Q6: Depth of any Borehole?	Q6b: Geological strata of well screen?	Q7: How is the water conveyed to the house?	Q8: What is the water used for?	Q9: Category of water supply [1]?	Q10 (1): No of people supplied by PWS for domestic purposes?	Q10 (2): No of dwellings?	Q10 (3): Daily abstraction? rate	Q11: How often do you abstract from the PWS?	Q12: Do you have an EA/NRW licence?	Q12 b) do you know the licence No.?	Q13: Does you supply run dry/ fluctuate?	Q14: Do you perceive any changes to your usage?	Q15: How good is the water quality?	Q16 a): has analysis been undertaken?	Q16 b) can we see the results?	Q17 Are you likely to start using a PWS?
Marchyn ys	910m East	Glacial Till (Secondary Undifferentiated Aquifer) Clwyd Limestone Group - Limestone (Principal Aquifer)	**Land access was not granted during the site survey and no questionnaires have been received.**																					
Ty Gwair AND Plot 3	230m South	Glacial Till (Secondary Undifferentiated Aquifer) Central Anglesey Shear Zone and Berw Shear Zone - Schist (Secondary B Aquifer)	**Land access was not granted during the site survey and no questionnaires have been received.**																					
Bodynys	1590m East	Glacial Till (Secondary Undifferentiated Aquifer) Central Anglesey Shear Zone and Berw Shear Zone - Schist (Secondary B Aquifer)	**Land access was not granted during the site survey and no questionnaires have been received.**																					

Table 3 Summary of Private Water Supply geology, hydrogeology and questionnaire results.

Location	Approx. Distance and Direction from the Proposed Development Order limits	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Q1: Type of water supply?	Q2: How old is PWS?	Q3: Is PWS for domestic purposes?	Q4: Source of PWS?	Q5: NGR of PWS?	Q6: Depth of any Borehole?	Q6b: Geological strata of well screen?	Q7: How is the water conveyed to the house?	Q8: What is the water used for?	Q9: Category of water supply [1]?	Q10 (1): No of people supplied by PWS for domestic purposes?	Q10 (2): No of dwellings?	Q10 (3): Daily abstraction? rate	Q11: How often do you abstract from the PWS?	Q12: Do you have an EA/NRW licence?	Q12 b) do you know the licence No.?	Q13: Does you supply run dry/ fluctuate?	Q14: Do you perceive any changes to your usage?	Q15: How good is the water quality?	Q16 a): has analysis been undertaken?	Q16 b) can we see the results?	Q17 Are you likely to start using a PWS?
Parciau	2160m East	Glacial Till (Secondary Undifferentiated Aquifer) Central Anglesey Shear Zone and Berw Shear Zone - Schist (Secondary B Aquifer)	**Land access was not granted during the site survey and no questionnaires have been received.**																					
Ty Fry Farm	3240m East	No Superficial Deposits (n/a) Central Anglesey Shear Zone and Berw Shear Zone - Schist (Secondary B Aquifer)	**Land access was not granted during the site survey and no questionnaires have been received.**																					
Ty Mawr	3010m East	No Superficial Deposits (n/a) Ordovician Rocks - Undifferentiated Mudstone and Sandstone (Secondary B Aquifer)	**Land access was not granted during the site survey and no questionnaires have been received.**																					

Table 3 Summary of Private Water Supply geology, hydrogeology and questionnaire results.

Location	Approx. Distance and Direction from the Proposed Development Order limits	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Q1: Type of water supply?	Q2: How old is PWS?	Q3: Is PWS for domestic purposes?	Q4: Source of PWS?	Q5: NGR of PWS?	Q6: Depth of any Borehole?	Q6b: Geological strata of well screen?	Q7: How is the water conveyed to the house?	Q8: What is the water used for?	Q9: Category of water supply [1]?	Q10 (1): No of people supplied by PWS for domestic purposes?	Q10 (2): No of dwellings?	Q10 (3): Daily abstraction? rate	Q11: How often do you abstract from the PWS?	Q12: Do you have an EA/NRW licence?	Q12 b) do you know the licence No.?	Q13: Does you supply run dry/ fluctuate?	Q14: Do you perceive any changes to your usage?	Q15: How good is the water quality?	Q16 a): has analysis been undertaken?	Q16 b) can we see the results?	Q17 Are you likely to start using a PWS?
Rhyd y Delyn Fawr	3290m East	Glacial Till (Secondary Undifferentiated Aquifer) Central Anglesey Shear Zone and Berw Shear Zone - Schist (Secondary B Aquifer)	**Land access was not granted during the site survey and no questionnaires have been received.**																					
Glanrhyd Farm	410m East	Glacial Till (Secondary Undifferentiated Aquifer) Central Anglesey Shear Zone and Berw Shear Zone - Schist (Secondary B Aquifer)	**Land access was not granted during the site survey and no questionnaires have been received.**																					
Fodol Cottage	5m South	Glacial Till (Secondary Undifferentiated Aquifer) Padarn Tuff Formation - Tuff (Secondary A Aquifer)	**Land access was not granted during the site survey and no questionnaires have been received.**																					

Table 3 Summary of Private Water Supply geology, hydrogeology and questionnaire results.

Location	Approx. Distance and Direction from the Proposed Development Order limits	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Q1: Type of water supply?	Q2: How old is PWS?	Q3: Is PWS for domestic purposes?	Q4: Source of PWS?	Q5: NGR of PWS?	Q6: Depth of any Borehole?	Q6b: Geological strata of well screen?	Q7: How is the water conveyed to the house?	Q8: What is the water used for?	Q9: Category of water supply [1]?	Q10 (1): No of people supplied by PWS for domestic purposes?	Q10 (2): No of dwellings?	Q10 (3): Daily abstraction? rate	Q11: How often do you abstract from the PWS?	Q12: Do you have an EA/NRW licence?	Q12 b) do you know the licence No.?	Q13: Does you supply run dry/ fluctuate?	Q14: Do you perceive any changes to your usage?	Q15: How good is the water quality?	Q16 a): has analysis been undertaken?	Q16 b) can we see the results?	Q17 Are you likely to start using a PWS?
Tyddyn Forgan	160m South	Glacial Till (Secondary Undifferentiated Aquifer) Padarn Tuff Formation - Tuff (Secondary A Aquifer)	**Land access was not granted during the site survey and no questionnaires have been received.**																					

1.3.9 Notes:

- Category One supplies are used for domestic purposes only;
- Category Two supplies are used for non-domestic food production, in locations such as staff canteens, hospitals, nursing homes, hostels, schools etc;
- Water supplies to camp sites, touring caravan sites and all other properties providing short-term or holiday accommodation are classified as Category Two;
- A water supply that is used for cleansing or cooling operations for processing of milk is considered to be Category One; and
- Thickness of superficial deposits and groundwater levels are unknown as no relevant historical borehole logs are available.

1.4 RISK ASSESSMENT

1.4.1 A qualitative hydrological risk assessment has been undertaken for twenty three PWS following the screening by location, geology, hydrology and results of questionnaires. The risk assessment provides a qualitative assessment in order to establish if any of the PWS may be affected by the Proposed Development either through interruption of groundwater flow and/or deterioration in water quality. The risk assessment is presented in Table 5 below.

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
IACC Public Wells					
Bodfeiris	Within Order Limits	Glacial Till (Secondary (Undifferentiated) Central Anglesey Shear Zone - Schist (Secondary B)	Level with Proposed Development	Moderate Risk	The supply is identified as being within the Order Limits and is indicated as lying on an access track. The location of the source has not yet been confirmed. Whilst there is a low likelihood that the yield of the supply would be affected as significant dewatering is not expected, water quality could be affected from surface run-off and accidental spillages of fuels/oils from plant.
Bryn Eglwys,	270m West	No Superficial Deposits Indicated	Approximately 1m below Proposed	Moderate / Low Risk	The supply is slightly down the hydraulic gradient from the Proposed Development. Impact

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
		Ordovician Rocks – Mudstone / Sandstone (Secondary B)	Development level.		on groundwater productivity/flow is expected to be limited however. This is due to the fact that significant dewatering would not be expected for construction of pylon foundations in this location. There is a low likelihood however for water quality to be affected by surface run-off and accidental spillages of fuels/oils from plant
Bwlch Daran,	90m West	Glacial Till (Secondary A) Ordovician Rocks – Mudstone / Sandstone (Secondary B)	Approximately 2-3m above Proposed Development Level	Low Risk	The supply is up the hydraulic gradient, it is therefore unlikely that the water quality of the supply would be affected by surface contaminants. As it is unlikely that significant dewatering would be required to

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
					construct foundations for pylons no impact on yield would be expected.
Clorach	40m North West	Glacial Till (Secondary (Undifferentiated) Ordovician Rocks – Mudstone / Sandstone (Secondary B)	Approximately 2-3m below Proposed Development Level	Moderate Risk	The supply is located down the hydraulic gradient within a valley which has two pylons located up the valley slopes. Whilst dewatering is not expected to be significant in order to facilitate pylon foundation constructionthe supply could be affected if significant run-off of sediments / contaminants is generated by plant and construction.

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
Cromlech	100m South West	Glacial Till (Secondary (Undifferentiated) New Harbour Group – Schist and Psammite (Secondary B)	Approximately 1m below Proposed Development Level	Moderate/Low Risk	The supply is slightly down the hydraulic gradient from the Proposed Development. Impact severity is expected to be limited. This is due to the fact that significant dewatering would not be expected for construction of pylon foundations in this location. There is a low likelihood however for water quality to be affected by surface run-off and accidental spillages of fuels/oils from plant
Glanllyn	310m East	Glacial Till (Secondary (Undifferentiated) Central Anglesey Shear Zone – Schist (Secondary	Level with Proposed Development	Low Risk	The supply would be separated from the Proposed Development by a railway and roadways which would prevent the supply being impacted by surface run-off. Glacial Till and the distance from

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
		B)			the supply also make the transmission of contaminants laterally within groundwater unlikely. Dewatering for pylons would be unlikely to be significant to construct the Proposed Development here as to lower groundwater levels to reduce the yield of the supply.
Gorslwyd Bach	100m North East	Glacial Till (Secondary (Undifferentiated) Ordovician Rocks – Mudstone / Sandstone (Secondary B)	Level with Proposed Development	Moderate / Low Risk	Impact severity is expected to be limited due to the fact that significant dewatering would not be expected for construction of pylon foundations in this location. There is a low likelihood however for water quality to be affected by surface run-off and accidental

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
					spillages of fuels/oils from plant
Gwyddelyn Fawr	230m North East	Glacial Till (Secondary (Undifferentiated) New Harbour Group – Schist and Psammite (Secondary B)	Level with Proposed Development	Moderate/Low Risk	Impact severity is expected to be limited due to the fact that significant dewatering would not be expected for construction of pylon foundations in this location. There is a low likelihood however for water quality to be affected by surface run-off and accidental spillages of fuels/oils from plant
Hen Ysgol	250m East	Glacial Till (Secondary (Undifferentiated) Central Anglesey Shear Zone – Schist (Secondary	Level with Proposed Development	Low Risk	The supply would be located a significant distance from pylon locations. The pathway for contaminants to reach the supply is expected to be highly limited by glacial Till restricting transmission in groundwater.

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
		B)			The access tracks in the vicinity of the supply are existing hardstanding so plant generated sediment run-off is unlikely.
Pant	60m South East	Glacial Till (Secondary Undifferentiated) South Stack Formation – Psammite and pelite (Secondary B)	Level with Proposed Development	Low Risk	The supply would be located a significant distance from pylon locations. The pathway for contaminants to reach the supply is expected to be highly limited by glacial Till restricting transmission in groundwater. The access tracks in the vicinity of the supply are existing hardstanding so plant generated sediment run-off is unlikely.

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
Pensingrig	160m West	Glacial Till (Secondary (Undifferentiated) Central Angelsey Shear Zone – Schist (Secondary B)	Level with the Proposed Development	Low Risk	Whilst the supply is indicated as being approximately 150m west of an access track this is an already existing track. As such the supply is not likely to be affected by traffic associated with the Proposed Development than by existing traffic. The supply would be located at a significant distance from construction activity hence impacts would be insignificant.
Plas	300m South West	Glacial Till (Secondary (Undifferentiated) New Harbour Group – Schist	Approximately 1m below Proposed Development Level	Moderate/Low Risk	The supply would be slightly down the hydraulic gradient from the Proposed Development. Impact upon groundwater flow/productivity is expected to

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
		and Psammite (Secondary B)			be limited. This is due to the fact that significant dewatering is not expected for construction of pylon foundations in this location. There is a low likelihood however for water quality to be affected by surface run-off and accidental spillages of fuels/oils from plant
Talbont	Within Order Limits	Glacial Till (Secondary B) New Harbour Group – Schist (Secondary B)	Level with Proposed Development	Low Risk	Whilst the supply is indicated as being on or adjacent to an access track this is an existing hard surfaced track. As such the supply is not likely to be affected more by traffic associated with the Proposed Development than by existing traffic. The supply is not located near to any pylon construction areas.

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
Talcen Eiddew	190m North East	Glacial Till (Secondary (Undifferentiated) Central Angelsey Shear Zone – Schist (Secondary B)	Level with Proposed Development	Low Risk	The supply would be separated from the Proposed Development by a railway and roadways which would prevent the supply being impacted by surface run-off. Glacial Till and the distance from the supply would also make the transmission of contaminants laterally within groundwater unlikely.
Ty Coch	Within Order Limits	Glacial Till (Secondary (Undifferentiated) Old Red Sandstone Supergroup – Sandstone	Level with Proposed Development	Low Risk	The supply is indicated as being within 50 m of pylon 4AP048. It is anticipated that the abstraction is from the Old Red Sandstone Aquifer which geological mapping indicates is overlain by the glacial Till. It is considered unlikely that

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
		(Secondary A)			dewatering would be required in the Old Red Sandstone. However, should dewatering be required in the bedrock at pylon 4AP048 further assessment of the likely impact on the PWS will be undertaken. This may lead to a recommendation for a foundation design that does not require dewatering such as piling or the discharge of any pumped water to a soakaway between the pylon and the water supply to maintain groundwater flow.
Tyddyn Pandy	200m South West	No superficial deposits indicated South Stack Formation –	Approximately 2-3m below the Proposed Development	Moderate/Low Risk	The supply would be located down the hydraulic gradient in relation to the Proposed Development. Whilst dewatering

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
		Psammite and pelite (Secondary B)	Level		is not expected to be significant in order to facilitate pylon foundation construction the water quality of the supply may be affected if significant run-off of sediments / contaminants is generated by plant and construction.
Ty'n Lon	960m North of Cable Route	Glacial Till (Secondary (Undifferentiated) Clwyd Limestone Group – Limestone (Principal Aquifer)	Approximately level with the Proposed Development	Low Risk	The supply would be located approximately 1000m north of Limit of Deviation for the cable. Given the status of a Principal Aquifer containing large quantities of groundwater, it is considered unlikely even though significant dewatering is required to construct the tunnel and shafts

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
					that this would affect the productivity of the supply at this distance if it is founded within the limestone bedrock. If the supply is founded within the glacial Till the low permeability of the deposit means that it would not be affected by dewatering at this distance from the Proposed Development.
IACC – Private Water Supplies					
Garnedd Isaf	170m South West	Glacial Till (Secondary (Undifferentiated) Ordovician Rocks – Mudstone / Sandstone	Approximately 1m below Proposed Development Level	Moderate/Low Risk	The supply would beslightly down the hydraulic gradient from the Proposed Development. Impact upon groundwater flow/productivity is expected to be limited however. This is due to the fact that significant

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
		(Secondary B)			dewatering is not expected for construction of pylon foundations in this location. There is a low likelihood however for water quality to be affected by surface run-off and accidental spillages of fuels/oils from plant
Glan Menai	30m North	Glacial Till (Secondary B) New Harbour Group – Schist (Secondary B)	Approximately level with Proposed Development	Low Risk	Whilst the supply is indicated as being on or adjacent to an access track this is an existing hard surfaced track. As such the supply is unlikely to be affected any more by traffic associated with the Proposed Development than existing traffic. The supply is not located near any pylon construction areas hence no dewatering is needed.

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
The Rectory	70m South West	Glacial Till (Secondary (Undifferentiated) Ordovician Rocks – Mudstone / Sandstone (Secondary B)	Approximately level with the Proposed Development	Moderate/Low Risk	Impact upon groundwater productivity/flow is expected to be limited due to the fact that significant dewatering is not expected for construction of pylon foundations in this location. There is a low likelihood however for water quality to be affected by surface run-off and accidental spillages of fuels/oils from plant
Tyddyn Fadog	400m South West (Braint THH)	Glaciofluvial Deposits- Sand and Gravel (Secondary A) Central Anglesey Shear Zone – Schist (Secondary B Aquifer)	Approximately level with the Proposed Development	Low Risk	This PWS is located approximately 400 m from the Braint tunnel shaft. The interview and site visit indicated that the supply is taken from a spring at the property. Geological mapping shows that localised glaciofluvial deposits adjoin

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
					glacial till in the area. It is likely that source of the spring are the permeable layers in the glaciofluvial deposits which are not indicated to be present in the shaft's location. Furthermore as caisson rings would be installed during shaft construction to create a groundwater cut off through superficial deposits which would reduce the influence of dewatering. Due to the limited influence of dewatering and absence of hydrogeological continuity between the shaft location and the spring, it is considered that dewatering at the shaft would have no impact on

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
					the spring and the water supply.
Fron Capel	190m West	Glacial Till (Secondary (Undifferentiated) Central Angelsey Shear Zone – Schist (Secondary B)	Approximately level with the Proposed Development	Moderate/Low Risk	Impact on groundwater flow/productivity is expected to be limited due to the fact that significant dewatering is not expected for construction of pylon foundations in this location. There is a low likelihood however for water quality to be affected by surface run-off and accidental spillages of fuels/oils from plant
Site Survey Identified Supplies					
Maen Eryr	130m West	Glacial Till (Secondary B) Central Anglesey Shear Zone	Approximately level with the Proposed Development	Moderate/Low Risk	Impact upon groundwater flow/productivity is expected to be limited due to the fact that significant dewatering is not

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
		(Secondary B)			expected for construction of pylon foundations in this location. There is a low likelihood however for water quality to be affected by surface run-off and accidental spillages of fuels/oils from plant. The presence of Glacial Till also reduces the likelihood of the risk from surface born contaminants as the PWS relies mostly on boreholes drilled to approximately 20m.
Brynddu	160m South West	No Superficial Deposits (n/a) Central Anglesey Shear Zone and Berw Shear Zone - Schist (Secondary	Approximately Level with the Proposed Development	Low Risk	The supply is understood to be disused. If it were to be recommissioned in the future the distance from the scheme coupled with the limited dewatering for pylon construction

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
		B Aquifer)			makes it unlikely that it would be affected by dewatering. There is a low possibility of being impacted by accidental spillages of fuels/chemicals.
Siop Y Goeden	1180m North East	Glacial Till (Secondary Undifferentiated Aquifer) New Harbour Group - Schist (Secondary B Aquifer)	Approximately 20m lower than the proposed development	Low Risk	The distance from the Proposed Development makes it highly unlikely that it would be affected by dewatering associated with pylon construction or from accidental spillages or of fuels / chemicals.
Rhosbeirio	760m North East	Glacial Till (Secondary Undifferentiated Aquifer)		Low Risk	The distance from the Proposed Development makes it highly unlikely that it would be affected by dewatering associated with pylon construction or from

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
		New Harbour Group - Schist (Secondary B Aquifer)			accidental spillages or of fuels / chemicals.
Pen Yr Orsedd	200m South West	Glacial Till (Secondary Undifferentiated Aquifer) New Harbour Group - Schist (Secondary B Aquifer)	Approximately level with the proposed development	Moderate/Low Risk	Impact upon groundwater flow/productivity is expected to be limited due to the fact that significant dewatering is not expected for construction of pylon foundations in this location. There is a moderate/low likelihood however for water quality to be affected by surface run-off and accidental spillages and fuel and chemicals during construction.
Pen Yr Orsedd	270m South West	No Superficial Deposits (n/a)	Approximately level with the	Moderate/Low Risk	Impact upon groundwater flow/productivity is expected to

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
		South Stack Formation - Psammite and Pelite (Secondary B Aquifer)	proposed development		be limited due to the fact that significant dewatering is not expected for construction of pylon foundations in this location. There is a moderate/low likelihood however for water quality to be affected by surface run-off and accidental spillages and fuel and chemicals during construction.
Tyn Ffrwd	20m West	No Superficial Deposits (n/a) South Stack Formation - Psammite and Pelite (Secondary B Aquifer)	Approximately level with the proposed development.	Low	Whilst the supply is adjacent to a road proposed for site access the Proposed Development is not likely to affect this supply via vehicular access any more than traffic currently using this road. Dewatering for the construction of pylons is likely to be located at

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
					least 200m from the supply and is to be short duration and not expected to affect the quality or quantity of supply.
Rhyd y Badell	1600m West	Glacial Till (Secondary Undifferentiated Aquifer) Ordovician Rocks - Undifferentiated Mudstone and Sandstone (Secondary B Aquifer)	Approximately 20m above the Proposed Development	Low	The supply is located at a sufficient distance where dewatering or other activities associated with the Proposed Development are not considered to have a significant (if any) impact on the quality or productivity of the supply.
Bryn Hyfryd	20m South West	Glacial Till (Secondary Undifferentiated	Approximately level with the proposed	Moderate	The limited extent and duration of dewatering for pylon construction is unlikely to affect the productivity of the supply. The

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
		Aquifer) Ordovician Rocks - Undifferentiated Mudstone and Sandstone (Secondary B Aquifer)	development		exact form of abstraction (e.g borehole) is unknown as such it has been judged that there exists a moderate risk of the supply being affected by spillages of fuels and oils during construction.
Bryn Goleu	120m North East	No Superficial Deposits (n/a) Unamed Igneous Intrusion - Picrite (Secondary B Aquifer)	Approximately level with the Proposed Development	Moderate/Low	The limited extent and duration of dewatering for pylon construction is unlikely to affect the productivity of the supply. The exact form of abstraction (e.g borehole) is unknown as such it has been judged that there exists a moderate/low risk of the supply being affected by spillages of fuels and oils during construction.

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
Bryn Goleu	190m North East	No Superficial Deposits (n/a) Unamed Igneous Intrusion - Picrite (Secondary B Aquifer)	Approximately level with the Proposed Development	Moderate/Low	The limited extent and duration of dewatering for pylon construction is unlikely to affect the productivity of the supply. The exact form of abstraction (e.g borehole) is unknown as such it has been judged that there exists a moderate/low risk of the supply being affected by spillages of fuels and oils during construction.
Clorach Fawr	125m West	No Superficial Deposits (n/a) Unnamed Igneous Intrusion - Picrite (Secondary B Aquifer)	Approximately 10m below the Proposed Development	Moderate/Low	The limited extent and duration of dewatering for pylon construction is unlikely to affect the productivity of the supply. The exact form of abstraction (e.g borehole) is unknown as such it has been judged that there exists a moderate/low risk of the supply

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
					being affected by spillages of fuels and oils during construction.
Plas Nant	2000m West	Glacial Till (Secondary Undifferentiated Aquifer) Coedana Complex - Hornfells (Secondary B Aquifer)	Approximately 10m below the Proposed Development	Low	The supply is located at a sufficient distance where dewatering or other activities associated with the Proposed Development are not considered to have a significant (if any) impact on the quality or productivity of the supply.
Bonc Fadog	1500m West	Glacial Till (Secondary Undifferentiated Aquifer) Gwna Group - Schist (Secondary B Aquifer)		Low	The supply is located at a sufficient distance where dewatering or other activities associated with the Proposed Development are not considered to have a significant (if any) impact on the quality or

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
					productivity of the supply.
Maenaddwyn Nurseries	210m East	Glacial Till (Secondary Undifferentiated Aquifer) Gwna Group - Schist (Secondary B Aquifer)	Approximately 10m above the Proposed Development	Low	Dewatering associated with Pylon construction is not expected to be extensive enough to affect productivity of the supply. Additionally, the supply is at an elevation above the proposed development so run-off and spillages of fuels/chemicals are unlikely to affect the supply quality.
Maen farm	310 East	Glacial Till (Secondary Undifferentiated Aquifer) Coedana Complex - Hornfells	Approximately 10m above the Proposed Development	Low	Dewatering associated with Pylon construction is not expected to be extensive enough to affect productivity of the supply. Additionally, the supply is at an elevation above the

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
		(Secondary B Aquifer)			proposed development so run-off and spillages of fuels/chemicals are unlikely to affect the supply quality.
12 Kingfisher Close	1000m West	Glacial Till (Secondary Undifferentiated Aquifer) Coedana Complex - Hornfells (Secondary B Aquifer)	Approximately 25m below the proposed development	Low	The supply is located at a sufficient distance where dewatering or other activities associated with the Proposed Development are not considered to have a significant (if any) impact on the quality or productivity of the supply.
Carrog Groes	480m West	Glacial Till (Secondary Undifferentiated Aquifer) Gwna Group -	Approximately 20m below the proposed development	Moderate/Low	The limited extent and duration of dewatering for pylon construction is unlikely to affect the productivity of the supply. The exact form of abstraction (e.g borehole) is unknown as such it

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
		Schist (Secondary B Aquifer)			has been judged that there exists a moderate/low risk of the supply being affected by spillages of fuels and oils during construction.
Carrog Groes	310m West	Glacial Till (Secondary Undifferentiated Aquifer) Gwna Group - Schist (Secondary B Aquifer)	Approximately 20m below the proposed development	Moderate/Low	The limited extent and duration of dewatering for pylon construction is unlikely to affect the productivity of the supply. The exact form of abstraction (e.g borehole) is unknown as such it has been judged that there exists a moderate/low risk of the supply being affected by spillages of fuels and oils during construction.
Bodgynda Farm	Within the Order Limits	Glacial Till (Secondary Undifferentiated Aquifer)	Level with the Proposed Development	Moderate	Impact upon groundwater flow/productivity is expected to be limited due to the fact that significant dewatering is not

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
		Gwna Group - Schist (Secondary B Aquifer)			expected for construction of pylon foundations in this location. There is a moderate likelihood however for water quality to be affected by surface run-off and accidental spillages of fuels/oils from plant. The exact nature of supply is unknown so it is unknown if any protection would be afforded by the Glacial Till.
Bryncrug	100m West	Glacial Till (Secondary Undifferentiated Aquifer) Central Anglesey Shear Zone and Berw Shear Zone - Schist (Secondary	Approximately 20m below the proposed development	Moderate/Low	The limited extent and duration of dewatering for pylon construction is unlikely to affect the productivity of the supply. The exact form of abstraction (e.g borehole) is unknown as such it has been judged that there exists a moderate/low risk of the supply

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
		B Aquifer)			being affected by spillages of fuels and oils during construction.
Glanrafon	115m West	Alluvium (Secondary A Aquifer) Old Red Sandstone Supergroup - Sandstone (Secondary A Aquifer)	Approximately 20m below the proposed development	Moderate/Low	The limited extent and duration of dewatering for pylon construction is unlikely to affect the productivity of the supply. The exact form of abstraction (e.g borehole) is unknown as such it has been judged that there exists a moderate/low risk of the supply being affected by spillages of fuels and oils during construction.
Pen Ceint	Within the Order Limits	Glacial Till (Secondary Undifferentiated Aquifer) Old Red Sandstone		Moderate	Impact upon groundwater flow/productivity is expected to be limited due to the fact that significant dewatering is not expected for construction of pylon foundations in this location.

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
		Supergroup - Sandstone (Secondary A Aquifer)			There is a moderate likelihood however for water quality to be affected by surface run-off and accidental spillages of fuels/oils from plant. The exact nature of supply is unknown so it is unknown if any protection would be afforded by the Glacial Till.
Bron Refail	340m East	Glacial Till (Secondary Undifferentiated Aquifer) Clwyd Limestone Group - Limestone (Principal Aquifer)	Approximately Level with the Proposed Development	Low	Impact upon groundwater flow/productivity is expected to be limited due to the fact that significant dewatering is not expected for construction of pylon foundations in this location. With a shallow valley separating the supply from the Proposed Development it is unlikely that water quality would be affected

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
					by surface run-off and accidental spillages of fuels/oils from plant.
Bwlch Gwyn	575m West	Glacial Till (Secondary Undifferentiated Aquifer) Clwyd Limestone Group - Sandstone / Mudstone (Principal Aquifer)	Approximately Level with the Proposed Development	Low	The supply is located at a distance where it is considered unlikely that activities associated with pylon construction would affect quality or productivity of the supply.
Ty Hen	480m East	No Superficial Deposits (n/a) Coedana Complex - Gneiss (Secondary B Aquifer)	Approximately 10m above the proposed development	Low	The supply is located at a distance and elevation where it is considered unlikely that activities associated with pylon construction would affect quality or productivity of the supply.

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
Plas Penmynydd farm	715m East	Glacial Till (Secondary Undifferentiated Aquifer) Clwyd Limestone Group - Limestone (Principal Aquifer)	Approximately 10m above the proposed development	Low	The supply is located at a distance and elevation where it is considered unlikely that activities associated with pylon construction would affect quality or productivity of the supply.
Tyn Cae	10m East	Tidal Flat Deposits (Unproductive Superficial Aquifer) Clwyd Limestone Group - Limestone (Principal Aquifer)	Level with the Proposed Development	Moderate	Impact upon groundwater flow/productivity is expected to be limited due to the fact that significant dewatering is not expected for construction of pylon foundations in this location. There is a moderate likelihood however for water quality to be affected by surface run-off and accidental spillages of fuels/oils from plant. The exact nature of

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
					supply is unknown so it is unknown if any protection would be afforded by the Tidal Flat Deposits
Plas Penmynydd	850m East	Glacial Till (Secondary Undifferentiated Aquifer) Central Anglesey Shear Zone and Berw Shear Zone - Schist (Secondary B Aquifer)	Approximately 10m above the proposed development	Low	The supply is located at a distance and elevation where it is considered unlikely that activities associated with pylon construction would affect quality or productivity of the supply.
Marchynys	910m East	Glacial Till (Secondary Undifferentiated Aquifer)	Approximately level with the Proposed dDevelopment	Low	The supply is located at a distance and elevation where it is considered unlikely that activities associated with pylon construction would affect quality

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
		Clwyd Limestone Group - Limestone (Principal Aquifer)			or productivity of the supply.
Ty Gwair AND Plot 3	230m South	Glacial Till (Secondary Undifferentiated Aquifer) Central Anglesey Shear Zone and Berw Shear Zone - Schist (Secondary B Aquifer)	Approximately level with the Proposed Development	Low	This PWS is located approximately 900m from the Braint tunnel shaft. Caisson rings would be installed during shaft construction to create a groundwater cut off through superficial deposits which would reduce the influence of dewatering. Due to the limited influence of dewatering and absence of hydrogeological continuity between the shaft location and the supply, it is considered that dewatering at the shaft would have no impact on

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
					the water supply.
Bodynys	1590m East	Glacial Till (Secondary Undifferentiated Aquifer) Central Anglesey Shear Zone and Berw Shear Zone - Schist (Secondary B Aquifer)	Approximately level with the Proposed Development	Low	The supply is located at a distance and where it is considered unlikely that activities associated with the Proposed Development would affect quality or productivity of the supply.
Parciau	2160m East	Glacial Till (Secondary Undifferentiated Aquifer) Central Anglesey Shear Zone and	Approximately 20m above the Proposed Development	Low	The supply is located at a distance and where it is considered unlikely that activities associated with the Proposed Development would affect quality or productivity of the supply.

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
		Berw Shear Zone - Schist (Secondary B Aquifer)			
Ty Fry Farm	3240m East	No Superficial Deposits (n/a) Central Anglesey Shear Zone and Berw Shear Zone - Schist (Secondary B Aquifer)	Approximately 20m above the Proposed Development	Low	The supply is located at a distance and where it is considered unlikely that activities associated with the Proposed Development would affect quality or productivity of the supply.
Ty Mawr	3010m East	No Superficial Deposits (n/a) Ordovician Rocks - Undifferentiated Mudstone and Sandstone (Secondary B	Approximately Level with the Proposed Development	Low	The supply is located at a distance and where it is considered unlikely that activities associated with the Proposed Development would affect quality or productivity of the supply.

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
		Aquifer)			
Rhyd y Delyn Fawr	3290m East	Glacial Till (Secondary Undifferentiated Aquifer) Central Anglesey Shear Zone and Berw Shear Zone - Schist (Secondary B Aquifer)	Approximately Level with the Proposed Development	Low	The supply is located at a distance and where it is considered unlikely that activities associated with the Proposed Development would affect quality or productivity of the supply.
Glanrhyd Farm	410m East	Glacial Till (Secondary Undifferentiated Aquifer) Central Anglesey Shear Zone and	Approximately level with the Proposed Development	Low	The supply is located on the other side of a valley from the Braint Tunnel Head House. As such it is unlikely within hydraulic connectivity. Caisson rings would be installed during shaft construction to create a

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
		Berw Shear Zone - Schist (Secondary B Aquifer)			groundwater cut off through superficial deposits which would reduce the influence of dewatering. Due to the limited influence of dewatering and absence of hydrogeological continuity between the shaft location and the supply, it is considered that dewatering at the shaft would have no impact on the water supply.
Fodol Cottage	5m South	Glacial Till (Secondary Undifferentiated Aquifer) Padarn Tuff Formation - Tuff (Secondary A	Approximately 20-30 lower than the Proposed Development	Moderate	Access to the Proposed Development is via an existing road as such plant and traffic associated with the development is not expected to impact supply any more than current conditions. Whilst the supply is located

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
		Aquifer)			approximately 250m from the Ty Fodol Shaft, caisson rings will be used in the shaft construction limiting the required amount of dewatering. As such productivity of the supply is not expected to be significantly affected. However as the supply is located approximately 20-30m lower than the proposed development, there exists a moderate risk of the quality of the supply being affected by surface run off and spillage.s
Tyddyn Forgan	160m South	Glacial Till (Secondary Undifferentiated Aquifer)	Level with the Proposed Development	Low	This PWS is located approximately 900m from the Braint tunnel shaft. Caisson rings would be installed during shaft

Table 5 Summary of questionnaire responses and hydrogeological screening					
Location	Approx. Distance and Direction from the Proposed Development features.	Superficial Geology (Aquifer Status) Bedrock Geology (Aquifer Status)	Approximate Topographic Level of PWS in relation to the Proposed Development	Estimated Risk	Justification
		Padarn Tuff Formation - Tuff (Secondary A Aquifer)			construction to create a groundwater cut off through superficial deposits which would reduce the influence of dewatering. Due to the limited influence of dewatering and absence of hydrogeological continuity between the shaft location and the supply, it is considered that dewatering at the shaft would have no impact on the water supply.

1.5 CONCLUSION

1.5.1 It is considered that there is the potential for the Proposed Development to introduce contaminants directly into the PWS or indirectly affect water quality/supply in the following locations summarised in Table 6 below.

Table 6 Private water supplies at risk from contaminants			
Supply	Easting	Northing	Section
Bodfeiris	250680	371550	E
Bryn Eglwys,	244110	385340	B
Clorach	245030	384650	C
Cromlech	236250	392200	A
Gorslwyd Bach	242250	388030	B
Gwyddelyn Fawr	236270	392850	A
Plas	236960	391320	A
Tyddyn Pandy	239300	389910	A
Garnedd Isaf	240346	389234	B
The Rectory	244605	385329	B
Fron Capel	249166	372796	E
Maen Eryr	246985	380198	A
Brynddu	237437	391101	A
Bryn Hyfryd	243970	385846	B
Bodgynda Farm	247174	380175	C
Pen Ceint	248576	375168	D
Tyn Cae	249539	372972	E
Fodol Cottage	254339	368391	E

1.5.2 It is concluded that the above properties would experience a residual level of risk from construction activities associated with the Proposed Development. A comprehensive water sampling and water level monitoring strategy will be prepared and implemented prior to, during and after the construction works take place to clarify the actual impacts, if any, on the supplies.

1.5.3 Water sampling will be conducted in a careful and methodical manner and in accordance with best practice as described in the following relevant British Standards taking account of future updates and replacements as necessary:

- BS EN ISO 5667-1:2006, BS 6068-6.1:2006 - Part 1: Guidance on the design of sampling programmes and sampling techniques;
- BS EN ISO 5667-3:2003, BS 6068-6.3:2003 - Part 3: Guidance on the preservation and handling of water samples;
- BS ISO 5667-5:2006 - Part 5: Guidance on sampling of drinking water from treatment works and piped distribution systems;
- BS ISO 5667-6:2005 - Part 6: Guidance on sampling of rivers and streams; and
- BS ISO 6068-6-14: 1998 – Water Quality – Sampling – Part 14: Guidance on quality assurance of environmental water sampling and handling.

1.5.4 The sampling and analysis of PWS water samples will also be in accordance with the conditions and requirements of the following legislation:

- The Private Water Supply (Wales) Regulations 2017;
- The Water Industries Act 1991; and
- The Water Supply (Water Quality) Regulations 2000.

Appendix A Private Water Supply Questionnaire

North Wales Connection Project

Private Water Supply Questionnaire

[redacted]

Purpose of the questionnaire

Part of the environmental assessment for the North Wales Connection Project is being delivered by the [redacted] working on the behalf of the National Grid.

The questionnaire will be used to identify and characterise any private water supplies in the vicinity of the Proposed Project. We will use the information provided to assess any risk to your private water supply as part of the Environmental Impact Assessment and implement any monitoring that might be required pre, during and post construction if the Proposed Project is approved for construction.

If you have any queries about the Proposed Project, you can contact the North Wales Connection Project Team using the contact details:

[redacted]

Or for more information on the Proposed Project, please visit the project website at:

http://www.northwalesconnection.com/

Completing the questionnaire

There are 17 questions. For questions where answer options are provided, please tick the relevant box(es).

Additional information to help you complete this questionnaire is provided at the end.

If you require additional space to complete any of your answers, please use the space provided at the end of the questionnaire.

Once you have completed the questionnaire, please return it to:

[redacted]

Private water supplies

The control of private water supplies is described in The Private Water Supplies Regulations 2010 which came into force on the 1st January 2010. A summary of which is provided on the link below

http://dwi.defra.gov.uk/stakeholders/legislation/pwsregs2009.pdf

A private water supply is a non-mains (i.e. not from a utility service provider) source that is used for drinking, washing, cooking, or for food production purposes. These supplies include:

1. Water from a well or borehole or spring, which is supplied from someone other than a

Water Undertaker or Licensed water supplier, or;

2. Water supplied by Water Undertaker or Licensed water supplier, which is then further distributed by another person (a “private distribution network”).

For the purpose of this questionnaire, the private water supplies are divided into Category One and Category Two supplies.

- Category One supplies are used for domestic purposes only
- Category Two supplies are used for non-domestic food production, in locations such as staff canteens, hospitals, nursing homes, hostels, schools etc.
- Water supplies to camp sites, touring caravan sites and all other properties providing short-term or holiday accommodation are classified as Category Two.
- A water supply that is used for cleansing or cooling operations for processing of milk is considered to be Category One

[redacted]

Question 1

Please describe your water supply.

Mains Supply	Y	N
Private Supply	Y	N
Both	Y	N

If you use a mains water supply only, please continue to question 17.

Question 2

How old is your water supply?

Question 3

a) If you use a private water supply for domestic purposes (such as drinking, cooking, washing, or food preparation) are you responsible for the supply?

Yes	
No	

b) If the answer to question 3 a) is no, please provide details of the owner / occupier of the source (if known).

……

……

Question 4

a) Please tick the source type of the Private Water Supply.

Spring		Stream or River	
Well		Lake/Pond	
Bore Hole		Other surface water source	

b) Please state the name of the source (if it has one).

Source Name	

Question 5

Please provide the National Grid Reference for the source of the water supply (if known).

National Grid Reference	

Question 6

a) Please give an estimated depth of any bore holes or wells that the private water supply might come from.

	metres

b) If it is known, please state the geology (e.g. limestone / sandstone) of the land where the bore hole or well is situated.

……

……

……

……

Question 7

How is water from the source conveyed to your house / field / reservoir?

……

……

……

Question 8

Please provide details of how the water is used by yourself and any other users.

Drinking water		Irrigation	
Washing		Cattle	
Grey water (WCs)		Other (please state below)	

……

……

……

Question 9

If it is known, please specify the current category and class of the private water supply. (see page 3)

Category	
1	
2	

Question 10

If you do not know the category and class of your private water supply, please provide an estimation of the following:

(1)	The number of persons supplied with water for domestic purposes	
(2)	The number of dwelling served by the supply	
(3)	The average daily volume of water extracted (m^3/day)	

[redacted]

Question 11

How often do you extract / use water from the private supply?

Daily	
Weekly	
Monthly	
Seasonally	

Question 12

a) Do you have a licence from Natural Resources Wales or the local council extract water?

Yes	
No	

b) If yes, please provide the licence number:

……

……

……

Question 13

a) Does your supply run out in dry periods or fluctuate at certain times of year?

Yes	
No	

b) If yes, please give details (e.g. seasons).

……

……

……

Question 14

a) If you currently use water from a private supply, do you perceive any changes to your usage in the future?

Yes	
No	

b) If yes, please give details.

……

……

……

Question 15

How good is the quality of the water supply? Example does the water have any taste or odour issues?

……

……

……

Question 16

a) Has water analysis ever been undertaken?

Yes	
No	

b) If yes, are you content for us to see the results?

Yes	
No	

Question 17

a) Are you likely to start using a private water supply within the next few years?

Yes	
No	

b) If yes, please provide details.

……

……

……

Signed …….

Print Name …….

Date …….

Thank you for your assistance

Additional Information

The space below can be used to expand on any of your answer. Before doing so, please state which question your comments refer to.