CHAPTER 19: UTILITIES

Introduction

19.1 This chapter assesses the existing utilities and services specifically relating to electric, gas, potable water and telecommunications within and surrounding the site and identifies potential diversions and up-grading works required to accommodate the proposed Development. In particular, it considers the potential effects of the diversion and provision of utilities to the site.

19.2 The chapter describes the methods used to assess the impacts, the baseline conditions currently existing at the site and surroundings, the potential direct and indirect impacts of the development arising from the mitigation measures required to prevent, reduce, or offset the impacts and the residual impacts. It has been prepared by the Utility Partnership Limited (UPL).

Planning Policy Context

National Planning Policy

19.3 There are no specific policy requirements of relevance to the consideration of the effects of the development on utilities within the Isle of Anglesey County Council Core Strategy.

Local Planning Policy

19.4 There are no specific policy requirements of relevance to the consideration of the effects of the development on utilities within the IOACC Core Strategy.

Approach

Assessment Methodology

19.5 Based upon information provided by National Grid Electric (NGET), Scottish Power Energy Networks (SPEN), Wales and West Utilities (WWU), Dwr Cymru Welsh Water (DCWW) and BT Openreach (BT) an assessment was undertaken of the existing on-site electricity, gas, potable water and telecommunications infrastructure with regard to maintaining supplies to existing customers and the potential decommissioning / diversion of existing utility infrastructure to accommodate the proposed development.

19.6 'On-site apparatus' refers to the utility infrastructure present within the boundaries of the site, whilst 'off-site apparatus' refers to the utility infrastructure present adjacent to the site boundaries.

19.7 Information relating to the proposed new supply arrangements for the Proposed Development, with regard to electricity, gas, potable water and telecommunications infrastructure points of connection, identification of off-site upgrade and/or reinforcement requirements has been assessed based upon information provided by the incumbent utility providers: SPEN, WWU, DCWW and BT.

19.8 With regard to new utility supplies to serve the development, UPL have produced estimated utility demand calculations, based on the proposed land use. This information has been provided to the incumbent utility providers as the basis to

determine new supply and offsite reinforcements for the proposed development although these consultations are at a very early stage.

Significance Criteria

19.9 As there are no generally accepted criteria for assessing the significance of the effect on utilities, and given the nature of the impact, effects are identified as either beneficial, neutral or adverse and as either 'minor', 'moderate', 'major' or 'negligible'.

19.10 The allocation of the significance criteria is based upon professional judgement of the relationship between existing factors such as capacity and the potential increase in demand.

Assumptions / Limitations

19.11 The utility network plans reviewed are assumed to be up to date and show the general location of the existing utilities/services.

Baseline Conditions

19.12 This section describes the baseline conditions at the site (and surrounding area as appropriate). Existing utility infrastructure is shown in Figure 19.1**.**

Electricity – National Grid Electric (NGET) and Scottish Power Energy Networks (SPEN)

19.13 The existing electricity infrastructure both on and off site is shown in Figure 19.1 and is summarised below. This is based on a review of NGET's / SPEN's asset record information and a consultation meeting with SPEN's representatives.

Penrhos

19.14 The NGET network plan shows a 132KV extra high voltage (EHV) underground cable, crossing the Holyhead Road causeway within the A55 at the south-eastern corner of the site. This is the NGET 132KV supply to the AAM sub-station. The supply is metered at 132KV at the AAM sub-station.

19.15 The SPEN network plans of the area show an underground 11KV high voltage (HV) cable, immediately outside the south-eastern boundary of the site at London Road (A55). This feeds a pole-mounted transformer (PMT) identified as "08/2780/003/P- Toll House". The underground HV cable follows the line of the old London Road (A5) and feeds:

- an HV overhead line (OHL) from "08/2780/007/F-Fuse" to a PMT within the site identified as "08/2780/005/P-Beddmanarch".
- a PMT identified as "08/2781/001/P-Penrhos", with a low voltage (LV) OHL supplying Penrhos Farm.
- an HV OHL from "08/2681/005/F-Fuse" to 2 no. PMTs within the site identified as "08/2781/002/P-Penrhos Farm" and "08/2781/003/P-Bungalow".
- a PMT on the north-western site boundary identified as "Bryn Glas / Penrhos Lodge" with LV OHLs supplying several buildings within the site.

Cae Glas

19.16 The SPEN network plans of the area show a 33KV EHV underground cable entering the north of the site from the 33KV sub-station 08/2780/010/ E-Alpoco. This cable becomes an OHL and runs to the north-west to leave the site at the north-western boundary. Electrically speaking, this is a "teed" feed to the Alpoco sub-station.

19.17 19.15 There is an HV OHL connected from pole "08/2579/023/F-Sectionaliser", situated to the south west of Trearddur Mews that enters the site from a south-westerly direction to a location close to the PMT identified as "08/2680/001/P-Cae-Glas". From this point, the HV OHL traverses in three directions:

- in a northerly direction to a PMT identified as "08/2680/003/P-Tyddyn Bach" on the northern site boundary where the OHL continues in an easterly direction to a PMT identified as "08/2680/005/P-Tyddyn Heli".
- in an easterly direction to a PMT identified as"08/2679/003/P-Felin Heli".
- in a westerly direction to a PMT identified as "08/2580/004/P-Tyddyn U Chaf".

19.18 There are both 11KV and 33KV OHLs within the south-western part of the site.

Kingsland

19.19 There is a 33KV OHL that runs through the north-eastern part of the site.

19.20 There is a further HV OHL crossing the southern boundary of the eastern part of the site, connected to a PMT outside the site identified as "08/2580/005/P-Craigfa"

19.21 There is also a PMT and associated HV and LV cables within the south-western boundary of the western part of the site identified as "08/2480/002/P-Bodwradd" which supplies existing buildings outside the curtilage of the site.

Gas – Wales and West Utilities (WWU)

19.22 The existing gas infrastructure both on and off site is shown in Figure 19.1 and is summarised below. This is based on a review of WWU's asset record information and a consultation meeting with WWU's representatives.

Penrhos

19.23 WWU network plans show a 150 mm dia. steel (ST) high pressure (HP) gas main crossing the Holyhead Road causeway within the A55 at the south-eastern corner of the site.

19.24 The nearest low pressure (LP) network is within the existing residential development approximately 1,000 metres to the west of the western site boundary.

Cae Glas

19.25 The WWU network plans show a high pressure (HP) gas main within the northern boundary of the site, running parallel with the A55 dual carriageway.

19.26 Network plans also show low pressure (LP) gas mains within the existing residential development to the south west of the site.

19.27 There is also a medium pressure (MP) network at the nearest point of the WAG Parc Cybi road infrastructure.

Kingsland

19.28 The WWU network plans of the area show a medium pressure (MP) gas main running within Kingsland Road, to the north of the site. There is a pressure reducing station (governor) on Kingsland Road to the south of the site.

Potable Water – Dwr Cymru Welsh Water (DCWW)

19.29 The existing potable water infrastructure both on and off site is shown in Figure 19.1 and is summarised below. This is based on a review of DCWW's asset record information and a consultation meeting with DCWW's representatives.

Penrhos

19.30 The DCWW network plans show a 10-inch dia. cast iron (CI) distribution main crossing the Holyhead Road causeway within the A55 at the south-eastern corner of the site and which follows the line of main A55.

19.31 There is also a 20-inch dia. UPVC trunk main crossing the Holyhead Road causeway within the A55 at the south-eastern corner of the site, which follows the line of the old London Road (A5). After some 100 metres, this main reduces to a 400 mm dia. ductile iron concrete lined (DICL) trunk main. A 3-inch dia. asbestos cement (AC) main branches off from this main and follows the line of the track linking Penrhos Farm with Penrhos Lodge to the west.

Cae Glas

19.32 The DCWW network plans show a 90 mm dia. distribution main, running in a southerly direction through Lon Towyn Capel, within the development. The main tees off with a 3 inch UPVC distribution main, which feeds a small residential development outside the site boundary. The main also feeds Trearddur Mews, which is sited within the site boundary. The 90 mm dia. main is fed from the 400 mm dia. DI main within the A55.

Kingsland

19.33 The DCWW network plans of the area show a 12-inch dia. asbestos cement (AC) distribution main passing through the north-western part of the site. There is also a 125 mm dia. distribution main with Kingsland Road to the north of the site.

Telecommunications – BT Openreach (BT)

19.34 The existing BT infrastructure both on and off site is shown in Figure 19.1 and is summarised below. This is based on a review of BT's asset record information, which is of generally poor quality.

Penrhos

19.35 The BT network plans appear to show underground ducting, manholes and joint boxes crossing the Holyhead Road causeway within the A55 at the south-eastern corner of the site and which then follow the western carriageway of the old London Road (A5).

19.36 From the line of ducts within the old London Road (A5) at manhole no. 142, a line of overhead cables and support poles extends across the site to service Penrhos Farm and other buildings to the east.

Cae Glas

19.37 The BT network plans appear to show a line of overhead cables and support poles along the track that forms the north-western perimeter of the site.

19.38 They also show a line of overhead cables and support poles in the southern part of the site to the north of Trearddur Bay

Kingsland

19.39 The BT network plans of the area appear to show lines of underground ducting and joint boxes within the vicinity of the football ground and sports stadium.

19.40 A line of underground ducts and joint boxes is shown within Kingsland Road (B4545).

19.41 A line of overhead cables and support poles follows the line of the track that crosses the western part of the site to the west of the sports stadium.

Telecommunications – FibreSpeed Limited

19.42 FibreSpeed has a duct and fibre system within the main A55 dual carriageway verge on the southern side. The infrastructure runs to a junction box within the adjacent WAG Parc Cybi site.

Telecommunications – Other Companies

19.43 There are no records of any other telecommunications companies or utility apparatus within or in the vicinity of the three parts of the site.

Potential Impacts

19.44 This section summarises the potential impact on existing utility (electricity, gas potable water and telecommunications) apparatus and the impact of installing new supplies to the proposed development.

Demolition and Construction

Electricity – all areas

19.45 From previous experience of similar projects, UPL advise that easement widths for OHLs are generally between 3 and 6 metres. However, it is anticipated that the existing OHLs within the development site will be diverted and laid underground within the new road layouts, or through areas of open space (subject to agreement of new easements and wayleaves with SPEN) and due consideration of any potential environmental impact of the proposed works. The diversion of the OHLs below ground would have a **negligible** effect on electricity supply.

19.46 Without the reinforcement of the local electrical infrastructure outlined within this Chapter there will be a significant shortfall in its capacity. If SPEN were not to carry out the necessary upgrading works, the development would experience a significant reduction to the security of supply and there would be insufficient supply capacity to meet the peak demands of the area. However, SPEN have a

statutory requirement to maintain electricity supplies and to provide the infrastructure for new developments. Therefore the impact will be **negligible**.

Gas

Penrhos

19.47 WWU has advised that the only possible connection opportunity for this part of the development is by taking a connection from the existing 180 mm dia. LP network in Rallt Newydd. This is a distance of circa 1,000 metres to the west of the site boundary and would involve off-site pipework being installed along either the Penrhos Beach Road or the old London Road (A5), with the preference being along the Penrhos Beach Road.

Cae Glas

19.48 WWU has advised that the only possible connection opportunity for this part of the development is by taking a connection from the existing 180 mm dia. medium pressure (MP) network in Parc Cybi.

19.49 The existing HP gas main will be retained within proposed development. Due to the costs associated with diversion of this asset it is highly likely that it will be left in its current position and any effects on the site requirements managed to enable this outcome. The requisite easement will be preserved at all locations above the pipeline.

Kingsland

19.50 WWU has advised that the only possible opportunity for this part of the development is by taking a connection from the existing 125 mm dia. medium pressure (MP) network in Kingsland Road directly outside the site entrance.

General

19.51 The on-site gas infrastructure will be provided within the new highways and gas will generally be distributed to the proposed buildings at low pressure. Pressure reducing stations (PRS) will be required where gas supplies are required to be distributed at low pressure. This is subject to detailed design and specific supply requirements for each building but sufficient information is available at this time as part of the concept plan to identify the likely effects arising.

19.52 The likely effects arising from the connection to gas networks will be **negligible** as there is sufficient capacity within the existing networks to supply the whole development without detriment to the existing infrastructure and supplies.

Potable Water – all areas

19.53 DCWW has indicated that some external reinforcement of their existing network may be required but that this cannot be confirmed without further modelling of the network capabilities in the light of the expected demand of the development.

19.54 The incorporation of new potable water infrastructure to the development would be likely to give rise to a **negligible to minor beneficial** effect to the local area.

Telecommunications – all areas

19.55 The existing overhead telecommunications cables and lines are likely to be diverted below ground during the construction works. The diversion of such cables will have **no effect** on services and will generate no additional environmental effects than those already identified as construction stage impacts in other chapters.

19.56 The only available telecommunication provider within the development area is BT Openreach. To provide services to the development would require the extension and/or adaption of their existing network infrastructure within the area.

19.57 The incorporation of new telecommunications infrastructure to the development would be likely to give rise to a **negligible to minor beneficial** effect to the local area.

Completed Development

19.58 The diverted existing utility infrastructure to accommodate the proposed development and the construction of the new utility supply provision will be formally adopted by the incumbent utility provider and remain their responsibility with regard to future ownership, operation and maintenance. **No significant effects** are anticipated during the operation of the development.

Mitigation Measures

Demolition and Construction

19.59 Mitigation measures specific to the diversion of existing and the construction of new utility infrastructure generally relate to arrangements to divert, protect and/or accommodate existing utility infrastructure within the proposed development and ensuring new utility supplies and capacity are available to meet the requirements for each phase as they build out.

19.60 Specific requirements for diversionary and/or protections to existing utility apparatus will be progressed into detailed design with the incumbent utility providers following planning consent and as the development phasing progresses.

19.61 Applications for new utility supplies will be submitted to agree and formalise detailed designs for the new supplies and to ensure delivery within the timescales required to meet the phasing strategy.

Completed Development

19.62 The previous section indicates that no effects requiring mitigation are likely during the operation of the scheme.

Residual Impacts

19.63 Residual effects are those that will remain after mitigation measures have been taken into account.

Demolition and Construction

Electricity

19.64 With the implementation of the improvements to the facilities set out above, the effect of the development on electricity supply will be **negligible**.

Gas

19.65 The residual effect on gas supply will be **negligible**.

Potable Water

19.66 The retention and protection during construction phases of the water main is likely to give rise to a **negligible** effect on water infrastructure.

19.67 The implementation of the reinforcement works recommended by STW will ensure that the impact upon water supply is **negligible**.

Telecommunications

19.68 The residual effect on telecommunications will be **negligible** to minor beneficial.

Completed Development

19.69 No residual effects are considered likely after the development has been completed.

Conclusions

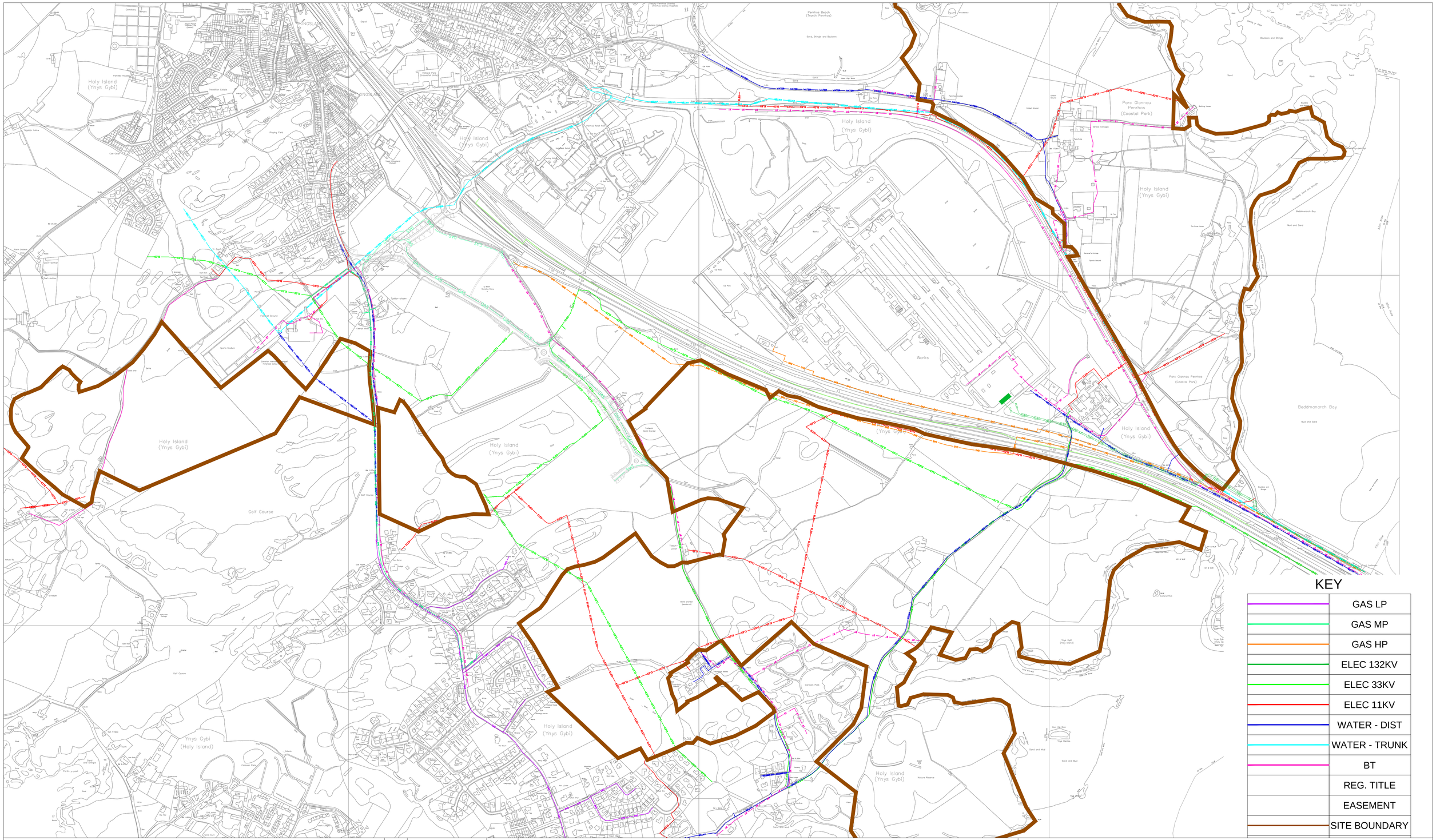
19.70 This Chapter identifies baseline constraints with regard to potential existing utility (electricity, gas, potable water and telecommunications) diversions and/or protections both within and adjacent to the proposed development and an approach to progress such matters as the proposed development builds out.

19.71 The main utility constraints to the proposed development are the existing 33KV and 11KV overhead electricity lines. Formal agreement will be required with Scottish Power Energy Networks for the diversion and/or protection measures required for the detailed development delivery.

19.72 Initial consultation with the incumbent gas network provider (WWU) has identified that the existing gas network within the area of the site currently has sufficient capacity to supply the proposed development.

19.73 Consultation with the incumbent potable water provider (DCWW) has identified that some external reinforcement of their existing network may be required but that this cannot be confirmed without further modelling of the network capabilities in the light of the expected demand of the development.

19.74 The existing telecommunication provider within the area of the proposed development (BT Openreach) will need to confirm that the proposed development can be served by extending and / or adapting their local existing network infrastructure into the development phases.



KEY

	GAS LP
	GAS MP
	GAS HP
	ELEC 132KV
	ELEC 33KV
	ELEC 11KV
	WATER - DIST
	WATER - TRUNK
	BT
	REG. TITLE
	EASEMENT
	SITE BOUNDARY

UPL
UTILITY MANAGEMENT & ENERGY CONSULTANTS

Utility Partnership Ltd.,
Prennau House, Copse Walk,
Cardiff Gate Business Park,
Cardiff, CF23 8XH

Tel. +44 (0) 29 2073 9500
Fax. +44 (0) 29 2073 9501

email: mail@up-ltd.co.uk
Web: www.up-ltd.co.uk

É Copyright UTILITY PARTNERSHIP LTD OWN THE COPYRIGHT OF THIS WHICH IS SUPPLIED IN CONFIDENCE AND WHICH MUST NOT BE USED FOR ANY PURPOSE OTHER THAN THAT FOR WHICH IT IS SUPPLIED AND MUST NOT BE REPRODUCED WITHOUT WRITTEN PERMISSION FROM THE OWNERS.

Rev	Date	By	Description
3	04/10/2012	CM	132kV electricity added
2	05/09/2012	PJN	Kingsland boundary changed
1	17/04/2012	RH	Fibrespeed network added
0	26/08/2011	RH	INITIAL ISSUE

THIS IS A CONTROLLED CAD DRAWING - MAKE NO MANUAL CHANGES

Client: Capita Symonds

Job Title: Penrhos Leisure Village

Drawn	RH	Date 29/07/2011	Scale 1:5000
Checked	PW	Date 26/08/2011	
Approved	PN	Date 26/08/2011	Original Size A1

Drawing Title: All Existing Utilities

Drg.No. E000202236-001

Issue 3