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PROJECT MANAGEMENT – DEVELOPMENT - UTILITIES

Burbury Investments
Ellesmere Marina
Shropshire
Utilities Assessment Report

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Utilities Assessment Report

Birmingham
Livery Place, 35 Livery Street, Colmore Business District
Birmingham, B3 2PB
T: 0121 233 3322

Leeds
Whitehall Waterfront, 2 Riverside Way
Leeds, LS1 4EH
T: 0113 233 8000

London
11 Borough High Street
London, SE1 9SE
T: 0207 407 3879

Manchester
11 Portland Street
Manchester, M1 3HU
T: 0161 233 4260

Nottingham
5th Floor, Waterfront House, Station Street
Nottingham, NG2 3DQ
T: 0115 924 1100

October 2022

DOCUMENT ISSUE RECORD

Document Number:	EEM-BWB-ZZ-XX-RP-PM-0002_UAR
BWB Reference:	BMW2025 – Ellesmere Marina, Shropshire

Revision	Date of Issue	Status	Author:	Checked:	Approved:
P01	October 2022	S2	Chris Barry Utilities Project Manager	Chris Phillips Utilities Consultant	Nisha Mistry Associate Utilities Consultant
			C.Barry	[redacted]	

Notice

EXECUTIVE SUMMARY

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Electricity	Scottish Power Energy Networks (SPEN) are the incumbent distribution netw operator (DNO) for the area of the development. SPEN maintain the electricity infrastructure in the local area. Within the site boundary, SPEN have two High Voltage (HV) 11kV Overhead cables which cross the site in two areas. On the eastern boundary towards Shropshire Union Canal, where Ellesmere Cricket Ground is opposite, a HV cable runs south towards the Canal Trust Ellesmere Yard. The second of the overhead cables comes from the east at Berwyn View and runs west acı the site towards Scotland Street. It is anticipated diversionary works will need to take place, in order for the on-site development plans to be achieved. SPEN have suggested the divers of the existing apparatus within the site boundary, can be diverted thro the new road layout within the site but this can only be assessed upon receip of a fixed masterplan. An easement would be required if the apparatus to be retained in the existing position. A budget enquiry has been raised with SPEN (Ref: NN617278582). SPEN have confirmed a point of connection may be taken from the two primary substations to make an interconnecting network, further detailed analysis w need to be undertaken under a formal point of connection applicatic To provide an achievable solution.
Gas	Wales & West Utilities (WWU) are the incumbent distribution network oper for the area of the development. WWU maintain the gas infrastructure in the local area. Within the site boundary, WWU have two gas mains which encroach the from the southeast, heading northwest, before continuing into the neighbouring third-party land. The gas mains within the site are a High Pressure (HP) and Medium Pressure (MP) mains, which run central within the site boundary. The easement for the MP main is 3m either side (6m total), with the HP main having an easement of 15m either side (30m total). If an easement is not achievable, diversionary works will be required. There is an abandoned HP main running in parallel to the west, towards the sewage works. WWU confirmed the main as abandoned in an email da 29th April 2022 at 07:01am, in which they also provided a plan to confirm this. A pre planning enquiry was raised with WWU (Ref: 7100006249). They advised that due to the size of the proposed development, there would be a requirement to install a gas governor onsite, from which low pressure (LP) infrastructure will be laid to serve each of the individual residential and commercial units. A full assessment was not conducted by WWU, due to th development proposals still in planning.
Clean Water	Severn Trent Water (STW) are the incumbent distribution network operator for clean water in the area of the development. STW maintain the clean water infrastructure. The asset records received from STW show a 250mm water main running fr the A495, crossing third party land and entering the site boundary to the north towards Lakelands Academy, to the neighbouring housing estate Berwyn View. There is also a 63mm water main on the boundary at Telford Avenue, however there is a small water stream between the main and t site. STW have confirmed an easement of 2.5m either side (5m total) of the 250mm main. If the development were to compromise this area, a diversion would be required.

	A pre planning enquiry (Ref: 1037519) was raised in March 2022. Based on the information provided to STW at the time, they identified two potential p of connection for the site; the 250mm at the roundabout on the A495 and th other to the existing 63mm at Canal Way/Telford Avenue. The points of connection are subject to diversion applications being made. STW have advised due to the size of the development, reinforcement work would required due to loss of pressure across the network. The nature of the reinforcements will only be known and understood once the exact requirements have been confirmed e.g., fixtures and fittings for all properties.
Foul Water	Severn Trent Water (STW) are the incumbent waste and drainage network operator in the development area. The asset records obtained from STW show a network of foul and surface water in the area and within the site. There is a 100mm pressure foul main running through the site from north to south. This is located from the tip of the site boundary by the sewage works plant and runs straight south into the neighbouring land across the Shropshire Union Canal. The second encroachment is just within the site boundary from Berwyn View running v This is a 200mm combined pressure main. Both mains require a 3m easement each side (6m total) of the centreline of the pipe. Based on the proposed site entrances, it is anticipated no diversionary w will be required on the A495 due to the lack of infrastructure in this area. From Canal Way, STW have a foul water and surface water pipe, where the ne access road is being proposed. It is anticipated diversionary assessments v be required with STW when the S278 works are more established. It is recommended to undertake PAS128 (GPR) Survey. STW have advised connection is possible and that a pumping station is lik to be required. STW have advised network modelling is required, as base the existing development information, they believe it will have an adverse effect on their network, an increased risk in pollution and therefore reinforcement work is likely to be required.
Telecommunications	Openreach manage and install the primary telecommunication infrastı across the UK and in this particular area. The asset records obtained from Openreach show a network of overhead and buried cables in the local area. The estimated points of connectio would be provided from the A495 and/or the alternative on Canal Way for the eastern part of the boundary. There are no onsite diversionary works anticipated, due to the lack of an onsite infrastructure from Openreach. If S278 works are expected, an assessment would need to be carried out on the A495 dependant on th works being done. The cables are showing in the northern footpath of th A495, so if the proposed access road is to the southern footpath, diversio are unlikely to be expected. Virgin Media are not available in the area. Fibre to the Cabinet is available from Openreach but not directly to the premise.
GTC - Electricity and Gas	GTC are an IDNO (Independent Distribution Network Operator) and IGT (Independent Gas Transporter), who can provide infrastructure to premises outside of the normal distribution network, in this case Scottish Power and Wales & West Utilities. The asset records obtained from GTC show no infrastructure within the site boundary, however, have a network of electricity and gas in the neighbouring housing estate by Tesco – Canal Way, Telford Avenue, Diamond Way, Tetchill Brook Road. It is not anticipated GTC apparatus will require diverting at the proposed entrance on Canal Way.

	GTC could be utilised as a third-party network provider for the developmer however a full assessment would be required from them to confirm capac and likelihood of connection.

CONTENTS

FIGURES

TABLES

APPENDICES

1. INTRODUCTION

Instruction

1.1 BWB Consulting (BWB) were instructed by Burbury Investments (the Client) to carry out a Utilities Assessment Report to evaluate the potential impacts on the existing utility infrastructure in relation to the proposed site development, and to obtain relevant and intermediate level information regarding the requirement for protection/diversionary works.

1.2 The purpose of the UAR is to identify any existing infrastructure that may constrain the development within and around the site boundary, and to identify a strategy for the delivery of future supplies to the site. The assessment also considers whether any utility service diversions are required to accommodate the development proposals.

1.3 The proposed development site is anticipated to comprise of approximately 250 residential units, a marina with capacity to accommodate approximately 200 leisure craft and narrow boats, an 80-bed hotel and leisure spa, holiday cabins and a touring caravan site. These will be located over an area of approximately 32.3 ha, as reflected in the Proposed Masterplan contained within **Appendix 1**.

Scope of Works

1.4 The report will outline and assess the utilities issues in relation to the proposed development site and will identify the requirements for new utility infrastructure, potential upgrade/reinforcement works, and/or the need for further investigation/modelling. The scope of works include;

i. Asset Records – request the latest records showing the extents of existing statutory services present within the vicinity of the site and plot on topographical survey/OS background mapping to provide a Composite Services Plan (CSP).

ii. Diversion of existing services – undertake a review of the CSP against the proposed site layout to identify which utility assets are required to be diverted or accounted for within the development layout proposal.

iii. Demand calculations – estimate the total utility load demand requirements for the development, for each of the mains utility services.

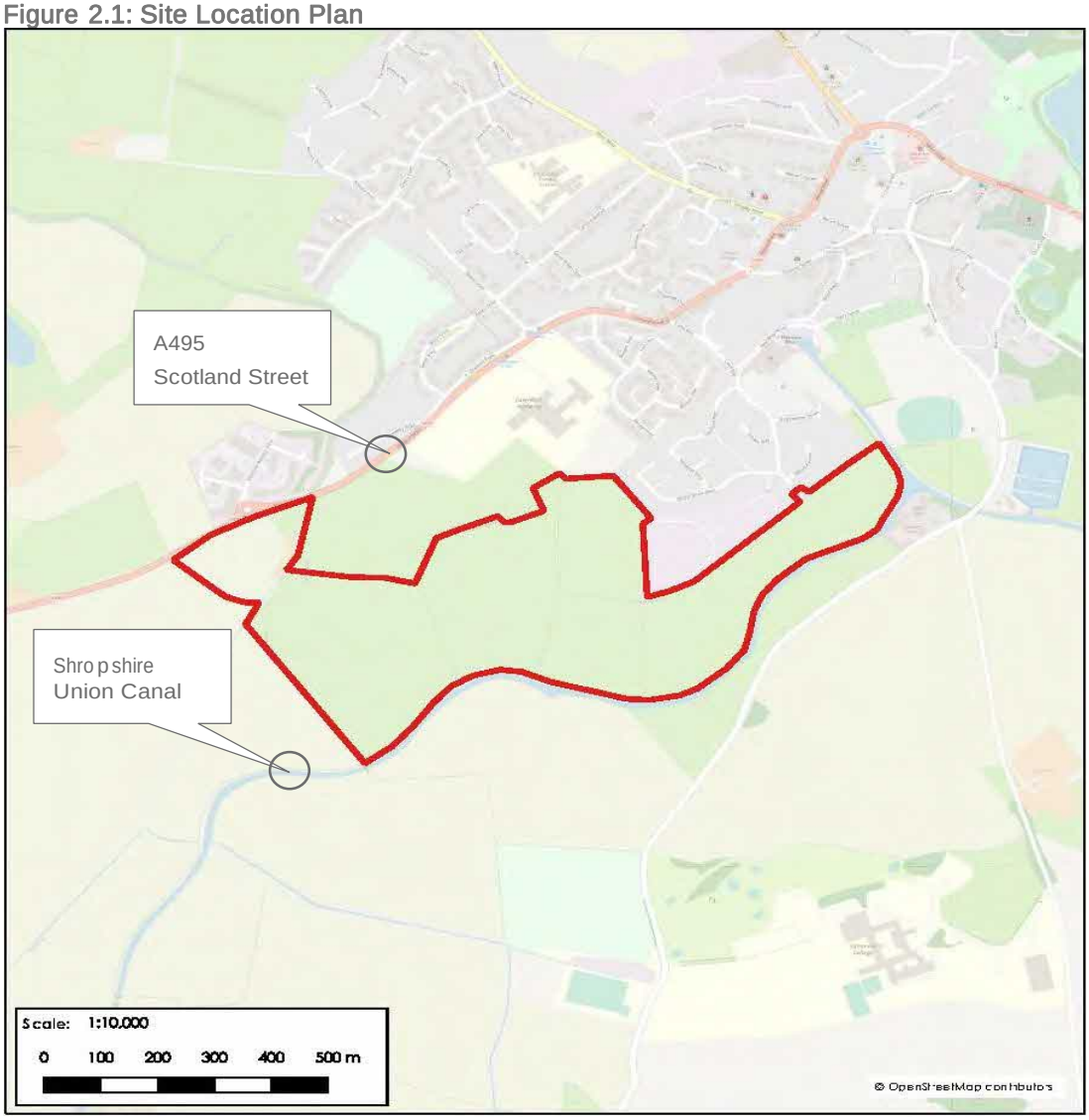
iv. New connections – Identify points of connection and any reinforcement requirements for the provision of new supplies, including indicative infrastructure routes from the incumbent suppliers and independent providers.

2. THE SITE

Site Location

2.1 The layout of the proposed site development is illustrated below in **Figure 2.1**. The site is currently greenfield land located at Ellesmere Marina, Shropshire. The site can be found at national grid reference SU535863.

Figure 2.1: Site Location Plan



Site Description

2.2 The site boundary is formed by a network of hedgerows and fence lines. The Shropshire Union Canal is present immediately to the south and east of the site, with agricultural fields beyond. Agricultural fields are also present to the west and north of the western part of the site. A sewage works and residential development plot are present to the north of the eastern part of the site. A river runs along the northern boundary and the entrance to the site in the western area and is also present along the boundary with the sewage works in the east.

3. UTILITY PROVIDERS

3.1 BWB has, for the purpose of this report, made initial utility search enquiries to the statutory undertakers to ascertain existing utility infrastructure within and adjacent to t proposed development site.

3.2 The site is shown to be situated in an area where Scottish Power Energy Networks (SPEN) operate the electricity network, Wales and West Utilities (WWU) operate the gas infrastructure and Severn Trent Water (STW) maintain the clean and wastewater drainage. The telecommunications infrastructure is provided by Openreach.

3.3 The statutory undertakers who have assets within or in the vicinity of the proposed development site are listed in the **Table 3:1** below.

Table 3.1: Statutory Undertakers List

Utility	Utility Provider	Location
Electricity	SPEN	Within the site
Electricity	GTC	Near the site
Gas	WWU	Within the site
Gas	GTC	Near the site
Clean Water	STW	Within the site
Wastewater	STW	Within the site
Telecommunications	Openreach	Near the site

3.4 From a review of the existing asset records obtained by BWB, a Composite Services Plan (Drawing No: EMM-BWB-00-XX-DR-Z-001_Composite_Services_Plan_S2-P3) has been prepared showing the extent of the existing utility infrastructure within and adjacent to the proposed development site boundary, this is contained within **Appendix 2**.

3.5 The information contained within this report is derived from data pr
main public utility companies. No information has been provided in relation to “private” infrastructure that might be present within or adjacent to the proposed development site.

3.6 It should be noted that all asset records obtained have a validity period of a maximum 3-6 months, and the capacity investigation responses received at the time of writing this report are correct and have a validity period which ranges from 3-12 months, the result of these enquiries may be subject to future reinforcement/change by net operators.

3.7 Where statutory undertakers have identified apparatus within or near the site proposal, those services are discussed withing the following sections.

4. UTILITIES INFRASTRUCTURE DEMAND ASSESSMENT

4.1 For the purpose of the utilities assessment, BWB submitted speculative enquiries to each known utility company for the Ellesmere Marina development. The speculative enquiries should be considered as aspirational at this stage for the assessment of strategic utilities provisions. The loadings assessment also takes into consideration the need for Electrical Vehicle Charging and non-gas heated properties.

4.2 To determine the predicted utility demands that will be generated by the development proposal, individual requirements have been calculated for electricity, gas, clean water, and wastewater. These calculations have been based on the proposed land use and calculated using a range of sources, included but not limited;

I. Assumptions on usage provided by the statutory incumbent utility providers.

II. Building Services Research and Information Associated publications (BSRIA).

III. British Water code of practice.

IV. Sewers for adoption 7th addition.

4.3 This approach has been taken to encourage further network assessments from the utility providers to provide an understanding of the existing capacity within their network and an indication of how much of the proposed development may be delivered without the need for reinforcement. Where reinforcement works are required, the network assessments should identify the likely trigger points for these works.

5. ELECTRICITY INFRASTRUCTURE

Existing Electricity Infrastructure

5.1 The proposed site development resides in an area where Scottish Power Energy Networks (SPEN) maintain the local electricity infrastructure. Asset records received in March 2022 show a well-established High Voltage (HV), Low Voltage (LV), Underground (UG) and Overhead (OH) cables within and in close proximity to the proposed site development.

5.2 Of note, the record plans indicate the presence of 2no. overhead HV lines that cross the development footprint. The first set of overhead HV lines bisect the development along the north of the site, entering from the north-west before exiting at the north-eastern boundary, where they appear to supply the residential and commercial units surrounding the proposed development.

5.3 The second set of overhead HV lines are shown to encroach within the easterly extents of the site, from north to south, where they are indicated to supply Ellesmere College, to the south of the development.

5.4 The SPEN record plans obtained indicate there is no further apparatus present within the site itself.

Diversionary Works

5.5 SPEN propose dismantling all overhead lines that cross the site and diverting the lines underground. SPEN would then utilise the undergrounded HV cables to provide supplies to the proposed development. It is likely that an onsite substation will be required for the HV network to terminate and then LV supplies to be laid to each connectivity.

5.6 It is envisaged that the undergrounded HV cables would follow the layout of th proposed development however, this is subject to a reasonably fixed site layout plan and the submission of a formal application to SPEN.

5.7 We recommend that proposed supply strategy considers the existing HV cables as a holistically approach as opposed to grounding the utilities separately as part of cost savings.

Electrical Vehicle Charging (EVC) Demand

5.8 The Government have announced their intention to withdraw the ir engine from road transport by 2040, which will drive a shift towards electric vehicles, and alternative technologies.

5.9 One of the key challenges is going to be electricity, and how to respond to the potential huge volume, at present due to the uncertainty surrounding the potential uptake and use of EVC points (EVCP). The load demand profile discussed with SSEN has considered the potential demand required for EVCPs.

5.10 It is advised that further consultation with Shropshire County Council is undertaken to advise on the future energy plan, the Local Authority (LA) which will likely require a percentage of the development to facilitate for electric vehicles to meet Net Zer requirements.

Proposed Electricity Infrastructure

5.11 For the purposes of the UAR, BWB have requested supply budget estimates for two scenarios, these options consider the requirement for electricity heated (5MVA) and gas heated (3.5MVA) properties, both options reflecting a 20% uplift to facilitate future EVC requirements.

5.12 The SPEN budget estimates received (Ref: NN617278582) dated 21st March 2022, confirm there is insufficient capacity within their existing infrastructure to provide both a 5mVA and 3.5mVA demand, the budget estimate provided is in the range of £800k to £1.85m. These costs comprise of contestable and non-contestable works.

5.13 The budget estimate provided is based on SPEN undertaking both contestable works and non-contestable works, we advise that the developer to undertake the option to appoint an Independent Connection Provider (ICP) or Independent Distribut Network Operator (IDNO) to provide a contestable quote, the non-contestable element of works will be any connections to the existing HV network which must be undertaken by SPEN.

5.14 Further consultation undertaken with SPEN Senior Design Engineer, advises that there is an achievable solution, there are two primary substation Ellesmere and Ellesmere MMB in the area which may have potential of 500kVA capacity on each, which can be an option to extend the 11kV network from both to create a new circuit, this option will require SPEN undertaking a feasibility study on the network to assess the interconnectivity and space within both units.

5.15 SPEN have also advised that the reduced load of 3MVA could be supplied via a new HV cable interconnector between the two primary substations noted above in section 5.14, the cable route may not an easy installation as it would need to be installed through or around the town, but it is an achievable opportunity to extend the 11kV panel boards at each primary substation. We recommend in order to investigate this option a formal quote for a Point of Connection is requested for the detailed analysis study to be undertaken.

6. GAS INFRASTRUCTURE

Existing Wales & West Utilities Gas Infrastructure

6.1 Wales and West Utilities (WWU) asset record (Dated: 7th March 2022) plans obtained show there is a network of high pressure (HP) and medium pressure (MP) gas mains within both the site and the surrounding area, respectively.

6.2 Most notably, the WWU record plan show the HP and MP gas mains bisecting the site through the centre.

6.3 An existing gas governor is present within the vicinity of the north-eastern boundary of the site, which is likely to provide a connection to the existing MP mains.

Local High Pressure Gas Main review

6.4 BWB have been in contact with the Health and Safety Executive (HSE) to gain an understanding of the potential constraints associated with the gas mains and how they relate to the current development site. Following the HSE assessment, BWB contacted WWU to verify build proximity zones to understand if they had any objections to the proposed development.

6.5 The HSE confirmed the pipeline is operated by Wales and West Utilities and is referred to as follows;

Pipeline Name: Minimum Offtake Spur – Dudleston Heath / Wem (HN056)

HSE Ref: 4129142
Transco: 2049

- Inner Zone – 15m (either side of the main)
- Middle Zone - 15m (either side of the main)
- Outer Zone - 21m (either side of the main)

Pipeline Name: Dudleston Heath / Wem (HN056)

HSE Ref: 7792
Transco Ref: 2049

- Inner Zone – 15m (either side of the main)
- Middle Zone - 15m (either side of the main)
- Outer Zone - 21m (either side of the main)

6.6 The gas main will need to be considered within the master planning exercise as the main currently runs through the southern part of the development area.

Health and Safety Executive

6.7 HSE's advice on land use planning, in the majority of cases, is delivered through PADHI guidance – "Planning Advice for Developments near Hazardous Installations" and is monitored by the Local Planning Authority with guidance by the HSE.

6.8 The information given in the table below has been extrapolated from PADHI HSE's Land Use Planning Methodology document and provides the sensitivity level o development types and in which consultation zone they could or could not be constructed.

Table 6.1: Land Use Planning Methodology Document

Development Type	Sensitivity	Development Permitted Within
Development of 1 or 2 dwelling units	Level 1	Inner Zone
Developments up to & including 30 dwelling units And At a density of no more than 40 per hectare	Level 2	Middle Zone
Larger developments for more than 3 dwelling units	Level 3	Outer Zone
Single carriageway roads and car pa	Level 1	Inner Zone
Public playing fields (below 100 people)	Level 2	Middle Zone
Public playing fields (below 100 peopl	Level 3	Outer Zone
Workplaces (predominantly non-retail) providing for less than 100 occupants i each building and less than 3 occupi storeys	Level 1	Inner Zone
Workplaces (predominately non-retail) providing for more than 100 occupa in any building or 3 or more occupie storeys in height	Level 2	Middle Zone

6.9 The Decision Matrix below (as extrapolated from PADHI HSE's Methodology document[1]) in association with sensitivity levels (above) provides guidance on whether certain types of development can be built in which Consultation Distance.

Table 6.2: HSE Decision Matrix

Sensitivity Level	Development in inner zone	Development in middle zone	Development in outer zone
1	Don't Advise Against	Don't Advise Against	Don't Advise Against
2	Advise Against	Don't Advise Against	Don't Advise Against
3	Advise Against	Advise Against	Don't Advise Against
4	Advise Against	Advise Against	Advise Against

[1] https://www.hse.gov.uk/landuseplanning/methodology.htm

6.10 Therefore, using the table above it is evident that should the proposed development be for greater than 30 dwelling units, then no development (dwelling) will be permitted within the inner or middle consultation zones but can be constructed within the outer zone

Diversionary Works

6.11 BWB liaised with the Health and Safety Executive (HSE) regarding the type development allowed within proximity to the mains. Using their sensitivity matrix in conjunction with the known development proposals for the area, the HSE have provided the buffer zones which highlight the stand-offs for permissible development within proximity to the gas mains.

6.12 The Wales & West Utilities (WWU) plan shows a medium pressure (MP) and high pressure (HP) gas main that cross the development footprint.

6.13 Discussions with WWU have confirmed that the gas mains present within the site each contain a legal easement. The MP gas main carries a total easement width of 6m (3m each side of the centreline of the pipe). The HP gas main has a total easement width of 30m (15m each side of the centreline of the pipe).

6.14 WWU have confirmed that both the MP and HP mains are constructed from steel and that no building can be constructed directly above the mains.

6.15 Further discussions with WWU have confirmed that the HP gas main can be diverted to heavy walled pipe, at a cost to the developer, which would reduce the total easement width to 6m (3m either side of the centreline of the pipe). Prior to commencing works, WWU have suggested that an assessment of the condition of the main and a survey of the immediate surrounding area will be necessary.

6.16 Furthermore, WWU have indicated that the cost to divert is significant, with long lead times of approximately 2 years and an estimate in costs of circa £3million.

6.17 WWU have undertaken an assessment of the MP main, and a diversion strategy based on the masterplan, in order to ensure the asset is protected but equally accommodated within the proposed site. The plan can be found within **Appendix 3**. The estimated cost to divert the MP main based on this plan is £94,498.02, of which this does not include onsite excavation.

6.18 WWU finally confirmed that road crossings above their HP gas main are permissible, so long as the minimum depth of cover of 1.2m is maintained, with a protection slab also, however an assessment would be required to understand traffic density, type of road and extra loading being applied to the main from the road.

6.19 Where possible, it is recommended that the HP gas main is left in-situ and accommodated within the final site development plans.

6.20 It is not anticipated the proposed site entrances will require any diversionary works, due to the lack of infrastructure around these areas.

Proposed Gas Infrastructure

6.21 Discussions with Wales & West Utilities (WWU) suggest that a connection can be made to the 3" medium pressure (MP) gas main within the site, at a location central to the proposed development.

6.22 Due to the size of the proposed development, WWU have confirmed that there will be a requirement to install a gas governor onsite, from which low pressure (LP) infrastructure will be laid to serve each of the individual residential and commercial units.

6.23 WWU are unable to assess the local network until the development proposals and uses are reasonably fixed. However, it is anticipated that offsite reinforcement works to the local network will be required, due to the size of the proposed development.

6.24 It is recommended that a formal application is submitted to WWU nearer to the time of construction and once the development proposals are reasonably fixed.

7. CLEAN WATER INFRASTRUCTURE

Existing Clean Water Infrastructure

7.1 The Severn Trent Water (STW) clean water record plan (Dated: 31st March 2022) shows a network of clean water mains of varying sizes, within and surrounding the site.

7.2 Most notably, there is a 250mm clean water main located within the carriageway of the A495, Scotland Street, beyond the north-western boundary of the site. The 250mm clean water main is shown to continue in an easterly direction where it is shown to encroach within the north-eastern boundary of the development.

7.3 There is also a 63mm clean water main across the water stream at Telford Avenue, which feeds and continues around the housing estate, back to the A495.

Diversionary Works

7.4 Discussions with STW have confirmed that the 250mm clean water main that encroaches the development along the north-eastern boundary and at the site entrance, has a building proximity distance of 5m (2.5m each side of the centreline). Furthermore, STW have stated the requirement for them to have 24/7 access to their clean water main and for it not to be within private land.

7.5 Based on the current site plan, the 250mm clean water main appears to be located within the rear gardens of the proposed residential units. Discussions with STW have confirmed that their apparatus cannot be located within rear garden spaces, due to access and maintenance requirements. As a result, STW advise adjusting the site plan to accommodate the water main, or alternatively diverting the water main away from the proposed development site.

7.6 It is recommended that further discussions with STW are undertaken nearer to the time of construction and once the site entrance arrangements are reasonably fixed, in order to ascertain whether diversionary works will be required or, whether protection measures will be suitable during the construction works. Where possible, it is recommended that minimum cover levels are maintained at the proposed site entrance.

Proposed Clean Water Infrastructure

7.7 The Severn Trent Water (STW) clean water supply response received, confi connection can be made to the existing 250mm water main, located within footpath of the A495, to the north-west of the site.

7.8 STW have confirmed that the existing network does not have sufficient capacity to supply the proposed development and therefore, will require reinforcement works to achieve adequate demand.

7.9 STW are unable to attribute costs nor timescales to the potential reinforcement works until the development proposals and uses, including fixtures and fittings are reasonably

fixed. As such, it is recommended that a formal application is submitted nearer to the time of construction, and once the development proposals are reasonably fixed.

7.10 The cost breakdown provided by STW to provide the site with clean water infrastructure is shown below in Table 7.1.

Table 7.1: Clean Water

Description of Charge	TABLE HEADER
New Water Mains– Lay Only (Contestable Works)	£479,850
New Water Mains– Open Cut (Contestable Works)	£566,900
New Water Mains Self-Lay (Non-contestable Works)	£15,900

7.11 Should the developer wish to proceed with a self-lay development, you can opt to choose a Water Industry Regulation Schemes (WIRS) accredited installer operating as a self-lay prover (SLP) to complete the contestable works. The non-contestable works denote connection works that STW will undertake themselves.

8. FOUL AND SURFACE WATER INFRASTRUCTURE

8.1 The Severn Trent Water (STW) sewer record plans received show a public combined, foul and surface water sewers of varying sizes, within and surrounding the site.

Existing Foul and Surface Water Infrastructure

8.2 The STW sewer record plans show a pressurised combined gravity se within the site, from the northern boundary.

8.3 In addition, there is a 225mm combined gravity sewer that skirts the propo development along the north-eastern boundary of the site where it continues in a southerly direction, terminating into the Wharf Meadow Sewage Treatment Works.

8.4 Most notably, the STW sewer record plans show a 100mm pressurised sewer bisecting the middle of the site. The 100mm pressurised sewer is shown entering from the southern boundary of the site, where it heads north before discharging into the Wharf Meadow Sewage Treatment Works.

Diversionary Works

8.5 The Severn Trent Water (STW) sewer record plans obtained indic that there is a 100mm pressurised foul sewer that bisects the centre of the site, from a southerly to northerly direction, before discharging into the Wharf Meadow Sewage Treatment Works.

8.6 Following a review of the record plans obtained, in conjunction with the proposed site masterplan, it is evident that the 100mm pressurised foul sewer runs directly beneath the proposed marina. Initial discussions with STW suggest that diversionary works will be necessary in order to facilitate the proposed development. STW have confirmed that a s.185 application must be submitted, outlining the diversion proposals and accompanied by supporting documentation.

8.7 Furthermore, the STW record plans obtained show a 200mm pressurised foul sewer that encroaches within the northern boundary of the site. Based on the current site plan, the foul sewer is shown to be located beneath the proposed back gardens It is recommended that the site plan is altered to accommodate the 200mm pressurised sewer so that no construction takes place directly above it.

8.8 The foul drainage response received from STW provides confirmation that both foul sewers have a 12m protective strip (6m each side of the centreline), within which no building can be constructed.

8.9 Based on the proposed Masterplan (Named: 5614-PL500H Ellesmere Masterplan), the proposed site entrances from the A495 and Canal Way show no diversionary works being required on the A495, however STW foul and surface pipes are on Canal Way at the proposed site entrance, therefore diversionary works may be required to

accommodate the changes in ground level and/or greenfield to road. A recommendation to undertake a PAS128 (GPR) Survey is advised.

Proposed Foul Water Infrastructure

8.10 The Severn Trent Water (STW) foul drainage response suggests 2no. points of connection to serve the total development. Following a review of the site proposals, STW anticipate connecting to the 225mm sewers present each side of the Wharf Meadow Sewage Treatment Works to the north of the site.

8.11 Due to the size of the proposed development, STW anticipate reinforcement works being required to the existing network in order to accommodate the anticipat increase in foul flows. STW estimate the anticipated foul flow of 8.2l/s from the residential sections of the site and this will have an adverse effect on the network and treatment process. STW have previously conducted modelling for a smaller site at the same location and the report come back and flagged, the additional flow would increase the risk of pollution and would have high operational risks.

8.12 A quotation has been sought from STW, to undertake the modelling required to provide confirmation of the residual available capacity within the existing network and to provide commentary on the potential impact posed by the proposed development. Upon receipt of a response, an update will be circulated confirming the associated cost.

Proposed Surface Water Infrastructure

8.13 The developer enquiry response received (Dated 31st March 2022) confirms, under the terms of Section H of the Building regulations 2010, the disposal of surface water flows by means of Soakaways should be considered as the primary method, in addition, other drainage methods should be explored before a discharge to the public sewerage system is pursued.

8.14 Following the above considerations, if it can be demonstrated that Soakaways would not be possible on the site, then satisfactory evidence will need to be submitted to STW. The evidence should either be percolation test results or a statement from the consultant undertaking the relevant investigation works (extract or supplementary letter).

9. TELECOMMUNICATIONS INFRASTRUCTURE

Existing Openreach Infrastructure

9.1 The Openreach record plans obtained show a network of underground cable surrounding the site.

9.2 Of note, the Openreach record plans show underground assets present within A495, beyond the northern boundary of the site.

9.3 The Openreach record plans indicate that there is no apparatus present within the proposed development site itself.

Diversionary Works

9.4 The Openreach record plans received indicate that the site is f apparatus. As such, diversionary/disconnection works are not anticipated to required.

9.5 Based on the proposed Masterplan (Named: 5614-PL500H Ellesmere Masterplan), the proposed site entrances from the A495 and Canal Way show no diversionary works being required as part of the S278 works. There are assets within close proximity to the proposed site entrances, so a recommendation to undertake a PAS128 (GPR) Survey is advised.

Proposed Telecommunications Infrastructure

9.6 The site and its surroundings appear to be well served by Openr Proposed new supplies should not therefore be difficult to procure and new BT infrastructure is usually 'free issue.' The provision of new services to suit the development should not be problematical. Openreach can provide detailed proposals upon receipt of a detailed masterplan, showing incoming connection points for each property.

9.7 In advance of this, it is anticipated that a connection can be made to the existin underground Openreach network, within the vicinity of the site.

9.8 Early engagement with telecommunications providers is required to understand the potential to supply the proposed development. Openreach normally provide telephone and broadband services to all new developments free of charge, with the end user paying for the connection costs. All civils works will typically be undertaken by the developer using free issue of Openreach ducts and Openreach specified ducts boxes to the Openreach confirmed design, which will allow for Openreach to pu cables through the newly installed ducts as and when required.

9.9 Openreach will make payments to the developer for construction and installation of Openreach network on new developments on a per plot basis. The payment amounts are agreed between Openreach and the House Builders Federation (HBF).

9.10 Further enquires to alternative telecommunications companies is also recommended to understand the telephone and broadband service offerings available to the future on site customers.

10. CONCLUSION AND RECOMMENDATIONS

Summary of Investigations

10.1 The table below summarises the result of investigations undertaken by BWB Consulting.

10.1: Summary of Investigations Table 10

UTILITY PROVIDER	EXISTING UTILITY INFRASTRUCTURE		NEW UTILITY INFRASTRUCTURE REQUIREMENTS
	ONSITE / NEAR DEVELOPMENT	DIVERSION REQUIREMENTS	
Scottish Power Energy Networks (Electricity)	HV networks shown within and adjacen to the site boundary	Dependant on a final masterplan being produced, diversionary works are anticipated within the site boundary, in order to facilitate the onsite developmen	SPEN can provide power for the development, subject to a feasibility sy=study to be undertaken under a formal Point of Connection application, there is an achievable solution to extend the 11kV network from two primary substation to provide an interconnecting network.
Wales and West Utilities (Gas)	WWU have an MP and HP main within the site boundary and within the surrounding area.	Diversionary works are anticipated within the site boundary unless the easement corridors can be adhered too.	Points of connection are available from the local infrastructure. WWU were unable to conduct a full assessment of the local area, until uses for gas were reasonably fixed. They anticipate reinforcement work would be required due to the size of the development and a gas governor would most likely be required on site.
Severn Trent Water (Clean Water)	STW have a 250mm water main to the north of the site boundary. There is an established water network outside of the site boundary.	Dependant on the final masterplan being produced, diversionary works may be required in the north towards Berwyn View. A consideration for diversionary works/plant protection for the	STW have advised modelling will be required, to better understand the impact on their network.

		proposed site entrances.	
Severn Trent Water (Foul water)	STW have a network of foul, combined and surface water infrastructure within the area and within the site boundary	Dependant on the final masterplan being produced, diversionary works may be required in the north towards Berwyn View. A consideration for diversionary works/plant protection for the proposed site entrances.	STW have advised modelling will be required, to better understand the impact on their network. STW have advised its highly likely reinforcement work will be required
Openreach (Telecommunications)	Openreach has an established telecommunication network in the area via overhead and buried assets.	No diversionary works required to facilitate the on-site development.	Openreach normally provide telephone and broadband services to all new residential developments free of charge.

Conclusions

10.2 The existing site surroundings are well served by the main utility services. Based on the information obtained from the utility providers, diversionary works will be required to facilitate the development and the proposed site access on Canal Way primarily but also consideration at the A495.

10.3 The responses BWB have received from SPEN, WWU and STW will provide a point for further discussions with multi-utility providers to understand a strategy to provide the proposed development with utility infrastructure.

10.4 Capacity supply responses have been procured by BWB for the electricity, gas, clean water and foul water networks, showing a tiered approach to a supply strategy for the proposed development, this now sets a foundation for further engagement with the utility providers once the development proposal is fixed.

Recommendations

10.5 It is recommended that further consultation with the relevant companies is undertaken closer to the time of development to confirm the availability of capacity within the relevant utility networks.

10.6 For electrical requirements, electrical requirements, we recommend further consultation is required with the developer to discuss the phasing of the development and the build programme to factor in the development as non-gas heating and the requirements for electrical heated properties as well the requirements for vehicle charging points. It is likely there is opportunity to have some of the development as gas heated however this will be dependent on the build programme. It is advised that SPEN are to be consulted to discuss the network requirements subject to the local plan requirements for new builds. It is recommended that a formal connection application is submitted for SPEN to

undertaken a detail analysis of the network to provide an achievable solution for the site.

10.7 It is recommended that further liaison is undertaken with STW to register the site with the strategic asset management team for the reinforcements works required to take the proposed foul water flows for the site.

10.8 It is recommended that a PAS128 Level B below ground survey is undertaken prior to commencing site works to determine whether if there are any unknown/priv apparatus present within the confines of the site boundary.

10.9 To potentially mitigate any diversionary work to existing utility infrastructure, w recommend that trial holes are carried out to confirm exact depths of the utilities to facilitate the site access.

10.10 Further liaison is required with WWU to discuss the detailed analysis required to accommodate the high-pressure gas main within the proposed development.

10.11 We recommend that a search is carried out to establish if any of the utility infrastructure is held under legal agreements and consents.

10.12 Due to the development size, it is recommending the developer consider spine mains infrastructure to be installed in all new road layout to ensure the phasing of development has the accurately sized infrastructure in place, it likely that these requests will need to be submitted under separate applications.

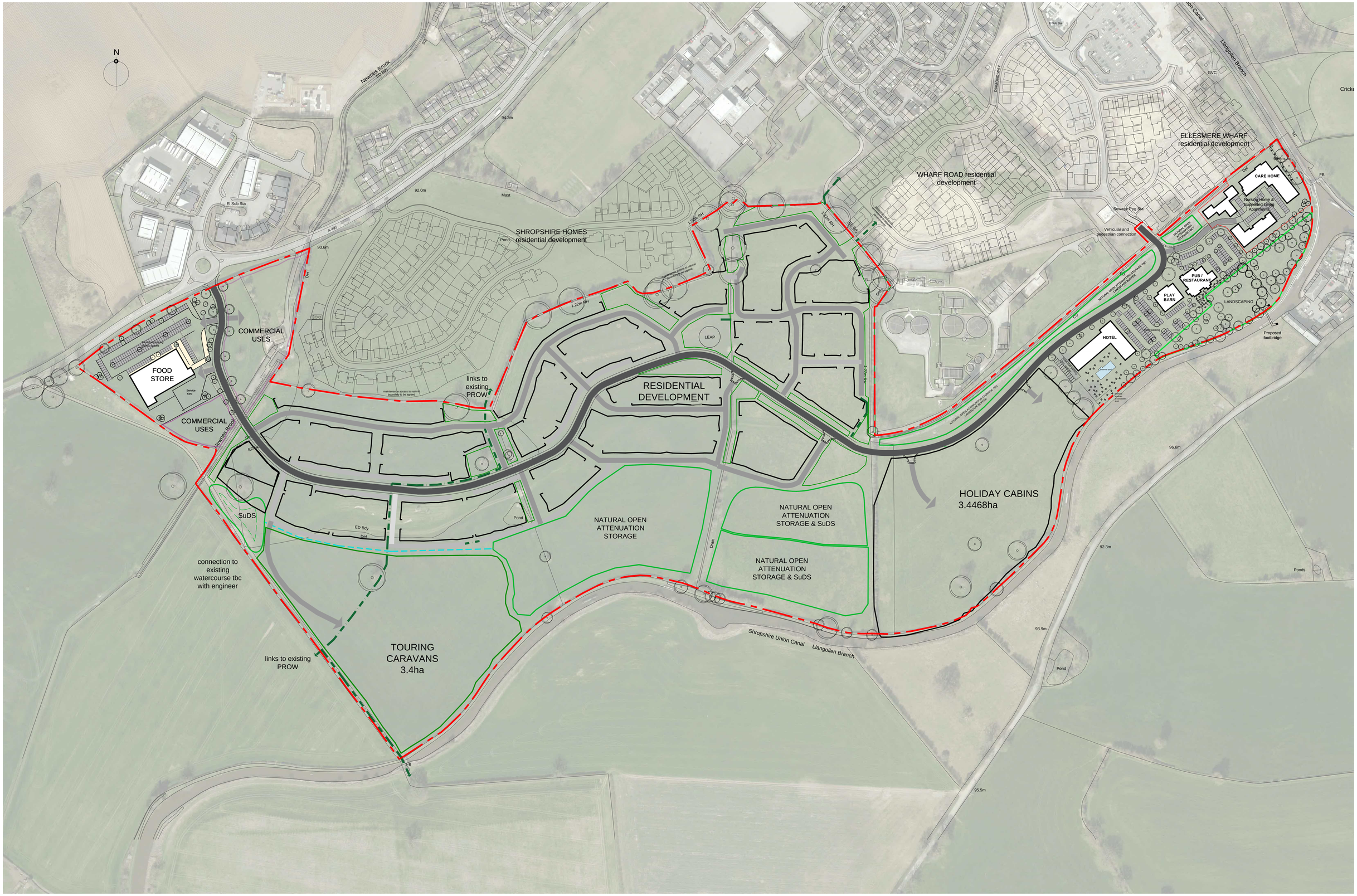
10.13 Following planning permission, the developer is recommended to consider, telecommunications strategy and to register the site with Openreach.

APPENDICES

APPENDIX 1: Proposed Masterplan

When printed correctly, at A0, this line will measure 75mm at full size

CHECK PRINTED SIZE



Burbury Investments

Ellesmere Canalside Development

INDICATIVE MASTERPLAN

The Carriage Building, Bruton Way, Gloucester, GL1 1DG T: 03333 405 500 E: mail@robertslimbrick.com

Date: Oct 2021

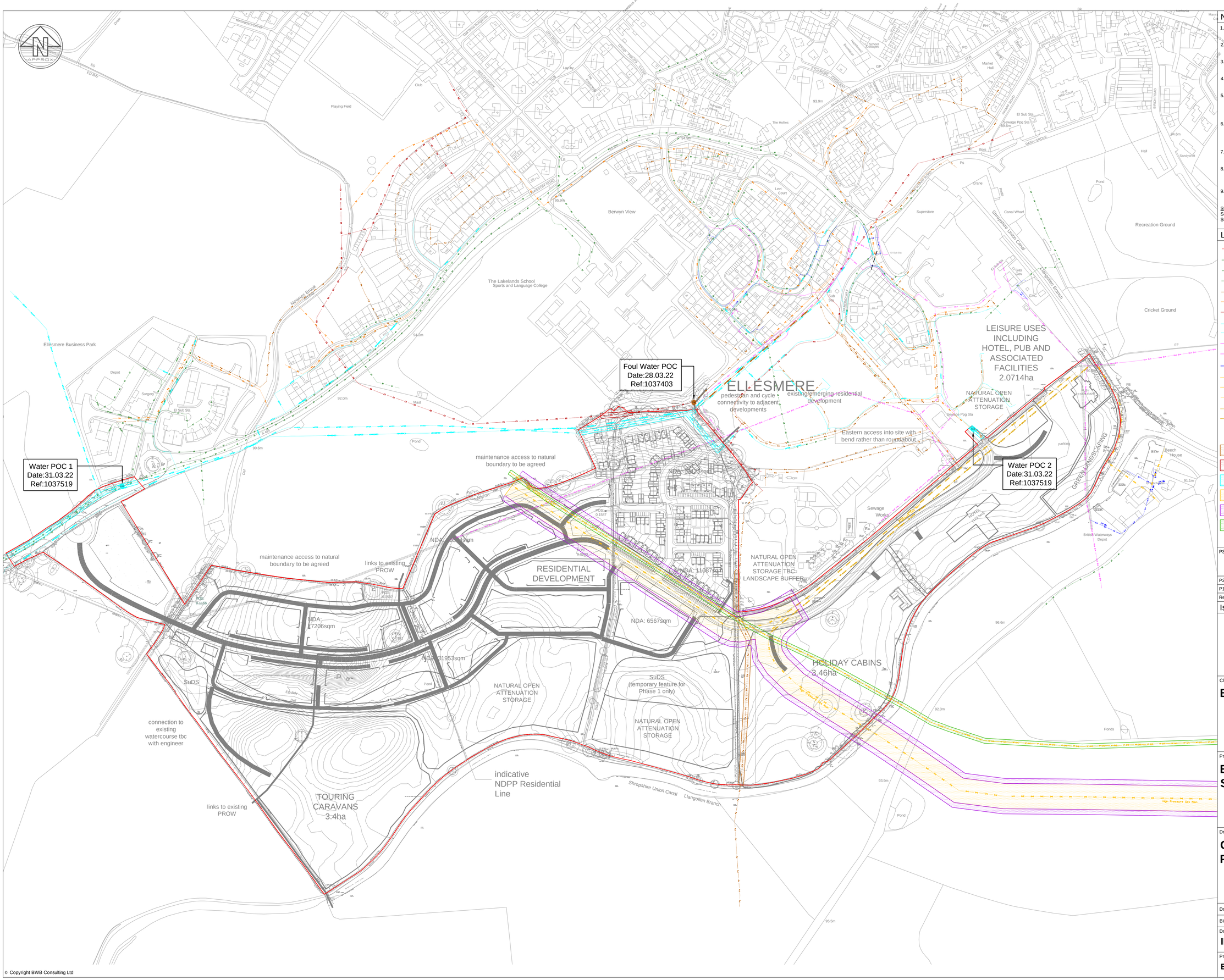
Scale: 1:1250 @ A0

Subject to correct printing. See top left

Dwg No: PL500H

Roberts Limbrick ARCHITECTS

APPENDIX 2: Composite Services Plan



Notes

1. Do not scale this drawing. All dimensions must be checked/ verified on site. If in doubt ask.
2. This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.
3. All dimensions in metres unless noted otherwise. All levels in metres unless noted otherwise.
4. Any discrepancies noted on site are to be reported to the engineer immediately.
5. The accuracy of the services information shown on this drawing cannot be guaranteed and is only an indicative representation. The information shown is based upon asset record drawings from statutory authorities. It is given without liability or warranty.
6. The contractor shall be responsible for verifying the exact location of all statutory undertakers apparatus and other public/private drainage/services in consultation with the relevant operator/service provider.
7. BWB has the capability of tracing and recording on-site services with locations recorded on topographical survey data.
8. The clean water points of connections have been provided based on a pre planning assessment and subject to a diversion application being made.
9. Information detailing the position of the Points Of Contact onto existing services in the area have been obtained from statutory undertakers.

Statutory Undertakers	Reference	Date Obtained
Severn Trent Water Clean (STW)	1037519	31/03/2022
Severn Trent Water Foul (STW)	1037403	28/03/2022

Legend

- SITE BOUNDARY
- EXISTING BT APPARATUS
- PLANNED BT APPARATUS
- EXISTING VIRGIN MEDIA APPARATUS
- EXISTING FOUL WATER SEWER
- EXISTING SURFACE WATER SEWER
- EXISTING COMBINED PRESSURED SEWER
- EXISTING WATER APPARATUS
- ABANDONED WATER APPARATUS
- EXISTING HV ELECTRICITY APPARATUS
- EXISTING HV ELECTRICITY APPARATUS
- EXISTING LV ELECTRICITY APPARATUS
- EXISTING HIGH PRESSURE GAS APPARATUS
- EXISTING MEDIUM PRESSURE GAS APPARATUS
- EXISTING LOW PRESSURE GAS APPARATUS
- ABANDONED HIGH PRESSURE GAS APPARATUS
- ABANDONED MEDIUM PRESSURE GAS APPARATUS
- FOUL WATER SEWER POC
- CLEAN WATER POC
- FOUL WATER SEWER EASEMENT 3M
- COMBINED PRESSURED SEWER EASEMENT 3M
- WATER EASEMENT 2.5M
- HIGH PRESSURE GAS EASEMENT INNER ZONE 15M AND MIDDLE ZONE 15M
- HIGH PRESSURE GAS EASEMENT OUTER ZONE 21M
- MEDIUM PRESSURE GAS EASEMENT 3M

P3	05.10.22	Issued For Information Gas route abandoned, electricity cable disconnected and removed, points of connection added and easements added. Master plan updated.	GEM	CP
P2	09.12.19	Amended Water Main	TM	DB
P1	27.07.17	First Issue	LP	IB
Rev	Date	Details of issue / revision	Drw	Rev

Issues & Revisions

BWB
CONSULTANCY | ENVIRONMENT
INFRASTRUCTURE | BUILDINGS
■ Birmingham | 0121 233 3322
□ Leeds | 0113 233 8000
□ London | 020 7407 3879
□ Manchester | 0161 233 4260
□ Nottingham | 0115 924 1100
www.bwbconsulting.com

Client

Burbury Investments Ltd.

Project Title

Ellesmere Marina
Shropshire

Drawing Title

COMPOSITE SERVICES PLAN

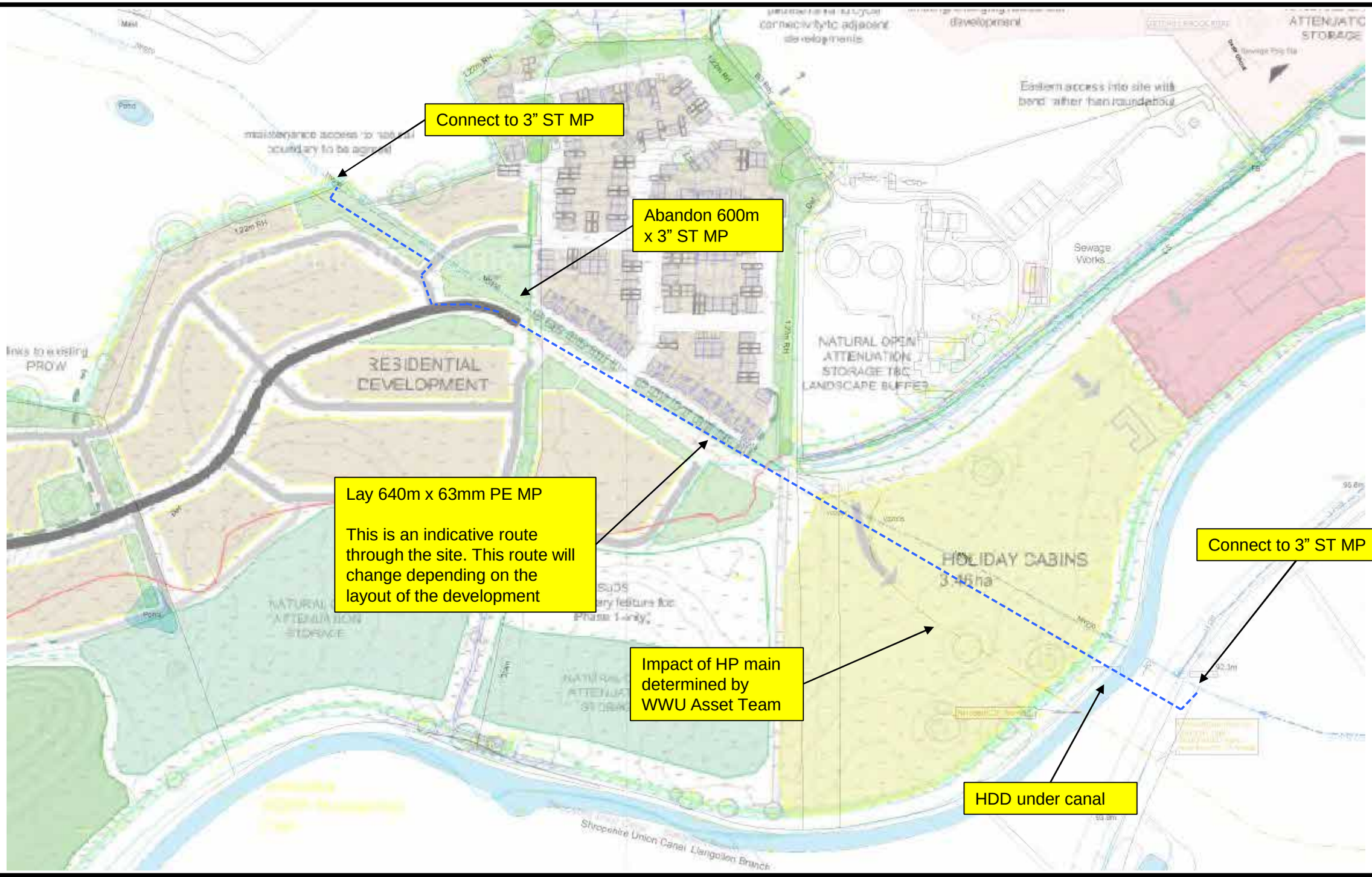
Drawn:	L.Padmore	Reviewed:	I.Bhatti		
BWB Ref:	BMW2025	Date:	27.07.17	Scale@A1:	2000

Drawing Status

INFORMATION

Project - Originator - Zone - Level - Type - Role - Number	Status	Rev
EMM-BWB-00-XX-DR-Z-001	**S2**	**P3**

APPENDIX 3: Wales & West Utilities Medium Pressure Diversion Plan



WALES&WEST UTILITIES

ArcIMS 9.2

The plan shows those pipes owned by Wales & West Utilities or the relevant Gas Distribution Network in their roles as Licenced Gas Transporters (GT). Gas Pipes owned by other GTs, or otherwise privately owned, may be present in this area. Information with regard to such pipes should be obtained from the relevant owners. The information shown on this plan is given without warranty, the accuracy thereof cannot be guaranteed. Service pipes, valves, syphons, stub connections, etc. are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Wales & West Utilities, the relevant Gas Distribution Network, or their agents, servants or contractors for any error or omission. Safe digging practices, in accordance with HS(G)47, must be used to verify and establish the actual position of mains, pipes, services and other apparatus on site and before any mechanical plant is used. It is your responsibility to ensure that this information is provided to all persons (either direct labour or contactors) working for you or near gas apparatus. The information included on this plan should not be referred to beyond a period of 28 days from the date of issue.

- Low Pressure (LP) 21mbar – 75mbar
- Medium Pressure (MP) 350mbar – 2bar
- Intermediate Pressure (IP) 2bar – 7bar
- High Pressure (HP) >7bar
- Line/Fire Valve
- Governor Station
- Change of Diameter
- End Cap

Document Version: CONN_LF_WW_233

65017483 - Ellesmere Marina, Ellesmere, SY12 0FA

Date:	12.09.22
Designer:	Geraint Capel
Scale:	Not to Scale
Drawing Number:	One of One
Grid Reference:	E: 339655 N: 334068