Langtree PP and Panattoni

Six56, Warrington

Environmental Statement

Part 2 – Utilities Technical Paper 10

Revision C 22nd March 2019

Revision Record

Revision Reference	Date of Revision	Nature of Revision	Author	Checked By
A	01.02.2019	Initial issue following comments received	CN	CB
B	19.02.2019	Updated comments	CN	CB
C	22.03.2019	Updated following comments	CN	CB

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Report Date	22/03/2019
Project No.	5002435

Document Ref.	Part 2 Utilities Paper 10
Revision	C

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1. Introduction

1.1. Ridge and Partners LLP are undertaking the environmental assessment and production of the ES Technical Paper for Utilities in the context of the Proposed Development.

1.2. Ridge and Partners LLP have carried our preliminary design works to establish the new development utility loads.

1.3. This Paper will examine the feasibility of the Proposed Development from a utilities perspective and in particular assess the existing utility infrastructure local to the Site and the requirements for proposed utilities servicing the Proposed Development. The paper will then assess the impacts on the existing utility infrastructure due to the Proposed Development. The assessment will include necessary utility diversions, disconnections and alterations.

1.4. The overall utility assessment, including responses from the enquiries from the utility providers, will be analyzed to identify potential environmental impacts.

1.5. Note that discussions have been held with the various asset owners to establish the new Points of Connections and future maintenance required for the various services remaining within the Proposed Development.

1.6. The current load allowances for the site, and new connection enquiries, are based om desk top studies for the types of buildings proposed using industry standard benchmarking and historical data for similar developments, and also include for an element of spare capacity for future expansion.

2. Documents Consulted

2.1. The baseline data used to undertake the Utility Assessment includes:

- Proposed Parameters Plans for the Development (see Appendix 5 of the ES Part One Report)
- Proposed illustrative Masterplan for the Development (see Appendix 4 of the ES Part One Report)
- All relevant available utility providers existing utility record plans
- Utility load schedules based on proposed usage
- The above has been used to form the basis of the Proposed utility strategy.
- All available existing record drawings were obtained from the relevant asset owners.
- The Parameters Plans and illustrative Masterplan have been considered to assist in the proposed service routes and equipment.

3. Consultations

3.1. In response to the Scoping Opinion received from the Council and consultation comments following the submittal of the ES Scoping Opinion, the following identifies the queries with relevant responses;

3.2. All relevant utilities asset owners have been contacted to establish new utility Points of Connections (PoC's), and associated disconnections and diversions. A summary of the consultations is included in the table below.

Theme / Issue	Date	Consultee	Method	Summary of Discussion	Outcome / Output
Electricity connection	September 2018	SP Energy Networks (via Ameon utilities)	Submitted via e-mail though an IDNO (Ameon Utilities).	Proposals for full load capacities received from utility providers.	Agreement with utility providers for full load requirements
Gas connections	September 2018	Transco (via Ameon utilities)	Submitted via e-mail though an IDNO (Ameon Utilities).	Proposals for full load capacities received from utility providers.	Agreement with utility providers for full load requirements
Water Connections	September 2018	United Utilities (via Ameon utilities)	Submitted via e-mail though an IDNO (Ameon Utilities).	Proposals for full load capacities received from utility providers.	Agreement with utility providers for full load requirements
Electricity disconnection / diversions	September 2018	SP Energy Networks (via Ameon utilities)	Submitted via e-mail though an IDNO (Ameon Utilities).	Proposals for disconnection and diversions where required	Agreement with utility providers for associated works
Water disconnection / diversions	September 2018	United Utilities (via Ameon utilities)	Submitted via e-mail though an IDNO (Ameon Utilities).	Proposals for disconnection and diversions where required	Agreement with utility providers for associated works

Table 10.1: Summary of Consultations and Discussions

4. Methodology and Approach

4.1. The methodology and approach adopted during this process is defined below:

4.2. Network capacity requests have been issued to all relevant utility providers based on anticipated loadings required to service the overall Proposed Development, with the aim to establish the capability of the various existing utilities in and around the Site and identify any upgrading/reinforcement requirements.

4.3. Preparation and submission of all proposed utility enquiry applications requesting the following information: Confirmation of works required to existing utilities to accommodate the Proposed Development based on the illustrative Masterplan Layout in terms of diversions and protections; existing infrastructure capacity assessment based on anticipated loadings calculated for the overall development using Energy Benchmark loadings for each area of the development in accordance with BSRIA Guide 5th Edition to establish capacity capabilities for servicing the Proposed Development. The infrastructure capacity assessment will identify, if applicable, any off site and on site reinforcement and upgrading requirements.

4.4. Proposed Utility Network Points of Connections (PoC's) have been received by the relevant asset owners, the new underground Utility services are envisaged to be run from the PoC's to the proposed development within existing highways.

4.5. The proposed Electric PoC is to be connected from the existing 33kV network in two locations, PoC No1 is located closd to the roundabout on Broad Lane and Grappenhall Lane, with PoC No2 located at the Thelwall Grid primary off Ferry Lane, refer to drawing in Appendix 10.4.

4.6. The proposed Gas PoC is to be connected from the existing 180mm PE medium pressure main located at the intersection on Barleycastle Lane, refer to drawing in Appendix 10.5.

4.7. The proposed Water PoC is to be connected from the existing 450mm water main located on the corner of Knutsford Road and Cliff lane, refer to drawings in Appendix 10.6 & 10.7.

Receptors

4.8. The geographical extents of the potential impacts from the development are set out below:

Designation	Receptors
International	None applicable
National	None applicable
Regional	None applicable
County	None applicable
Borough/District	None applicable
Local/Neighbourhood	Existing residential receptors within the surrounding area and site habitats and ecological features

Table 10.2: Receptors

Refer to the Key receptors plans in the Appendix 6 of the ES Part 1 Report.

Environmental Impacts

1.1. The Environmental impacts from the development are outlined are set out below:

Magnitude	Environmental Impact
Substantial	Permanent/irreversible change to key characteristics of the strategic utility network (electric, gas, water, telecommunications) with important consideration at a district scale. Impacts certain or likely to occur
High	Permanent/irreversible change to key characteristics of utility networks (Electric, Gas, Water, Telecommunications) with important considerations on the local network (e.g upgrade local infrastructure)
Moderate	Permanent/irreversible change to the local utility network (electricity, gas, water, telecommunications) that may result in temporary disruptions locally
Minor	Temporary change over a limited area to key characteristics of the utility network (electricity, gas, water, telecommunications). Impacts likely to occur (e.g. increase in loading due to the Proposed Development prior to completion of any necessary offsite infrastructure improvements)
Negligible	Minor temporary change over a limited area to key characteristics of the utility network (electricity, gas, water, telecommunications). Impacts unlikely or rarely to occur (e.g. protection of existing local minor utility apparatus to facilitate the construction of the Proposed Development)
Neutral	An impact on the utility network which will not have any influence

Table 10.3: Environmental Impacts

Significance of Effects

1.2. The significance of effect is determined using the significance matrix in Section 6 of the Environmental Statement Part One Report. This identifies the receptor level across the top of the matrix and the magnitude of environmental impact down the side and where they meet within the matrix identifies the significance of the effect.

Impact Prediction Confidence

1.3. It is also of value to attribute a level of confidence by which the predicted impact has been assessed. The criteria for these definitions are set out below:

Confidence Level	Description
High	The predicted impact is either certain i.e. a direct impact, or believed to be very likely to occur, based on reliable information or previous experience.
Low	The predicted impact and its levels are best estimates, generally derived from first principles of relevant theory and experience of the assessor. More information may be needed to improve confidence levels.

Table 10.4: Confidence Levels

5. Baseline Information

5.1. The baseline data used to undertake the Utility Assessment include:

- Proposed Parameters Plans for the Development (see Appendix 5 of the ES Part One Report)
- Illustrative Masterplan for the Development (see Appendix 4 of the ES Part One Report)
- All available utility providers existing utility record plans
- Utility load schedules based on proposed usage
- The above has been used to form the basis of the Proposed utility strategy.
- All available existing record drawings were obtained from the relevant asset owners.
- The Parameters Plan and Masterplan have been considered to assist in the proposed service routes and equipment.

6. Alternatives Considered

6.1. Alternatives have been considered as part of the evolution of the proposals. These will be documented within the ES, identifying how environmental considerations have influenced the proposals.

6.2. A number of considerations have influenced the Utilities proposal, Strategy and Parameter Plans, for the Proposed Development including;

- The existing residential properties adjacent to Bradley Hall Farm (including Bradley Hall Cottages)
- Proposed Parameters Plan
- Proposed Illustrative Masterplan
- Site demand
- Existing telephone mast
- Energy Strategy

6.3. The proposed usage of the site facilities, and energy strategy influenced the load capacities required from the local utilities infrastructure, and, in turn, the locations of the Points of Connections.

6.4. Of the above, considerations were influenced by environmental conditions when establishing the 'Points of Connections' (PoC's), the closest possible PoC's have been progressed to ensure as minimal disruption as possible when installing new underground utilities.

6.5. The alternatives progressed within the scheme include;

- Various load assessments to suit a mixture of building uses, to establish PoC's and provide flexibility to the Proposed Development.
- Alternative Points of Connections and services routes to ensure proposals with the least environmental impacts have been progressed.

7. Potential Environmental Effects

7.1. Potential environmental impacts envisaged include:

7.2. Impact on the existing natural environment and habitats within the site by installation of on-site utility infrastructure to service the overall Proposed Development.

7.3. Impact on existing residential receptors local to the site as well as the surrounding areas, due to roadworks and traffic management during installation of the proposed underground utilities being installed to site, and the potential upgrade and reinforcement of offsite existing utility infrastructure to provide increased utility supplies in which to accommodate the Proposed Development.

7.4. Potential impact to the residential receptors adjacent to the proposed development due to increased traffic to the site for deliveries of plant and workforce traffic when installing the onsite utilities infrastructure for the Proposed Development.

Construction Phase

7.5. Impacts which have the potential to be significant during the construction phase include:

7.6. Diversions and disconnections of the existing Electrical and Telecommunications infrastructure crossing the site. These services will need to be disconnected and diverted as required by the Proposed Development layout. Relevant asset owners and customers will be consulted and works will result in construction activities on site including travelling to site for workforces.

7.7. New Extra High Voltage (EHV) 33kV Electrical Primary sub-station. This work will involve installation of new underground 33kV EHV underground cabling to the site, and will involve traffic management systems to facilitate the installation of the underground cabling, also construction works on site to form the new EHV Primary sub-station.

7.8. Temporary services connections to the site for the construction activities, workforces will require installation of a new temporary service infrastructure during the construction period.

7.9. Significance of affects during the construction phase before the consideration of mitigation are as set out overleaf:

Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level
Disconnections / Diversions of existing utility infrastructure crossing the Site.	Local	Neutral	Neutral	High
New EHV supply for Primary sub-station	Local	Minor negative	Minor adverse	High
Temporary / Proposed utilities to site	Local	Minor negative	Minor adverse	High

Table 10.5: Significance of Effect - Construction Phase

7.10. The potential environmental impacts are mainly during the construction phase and are not deemed significant. These include disruption to local receptors due to the installation of underground utilities on-site and off-site within the highway referenced in the Project Description 'Proposed Services Arrangements' of the ES Part One Report 1.

Operational Phase

7.11. Impacts which have the potential to be significant during the operational phase include:

7.12. Disruption of existing connections to the existing residential properties adjacent Bradley Hall Farm (including Bradley Hall Cottages) on the Proposed Development.

7.13. Disruption of existing connections to the existing Telephone Mast on the Proposed Development.

7.14. The impacts and the significance of affects during the operational phase are as set out below:

Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level
Disruption to existing operations on Proposed Development	Local	Neutral	Neutral	High
Disruption to existing connections to the Telephone mast on the Proposed Development	Local	Neutral	Neutral	High
Disruption to existing connections to residential properties adjacent Bradley Hall Farm	Local	Neutral	Neutral	High

Table 10.6: Significance of Effect - Operation Phase

7.15. The potential environmental impacts during the operational phase are not significant.

8. Proposed Mitigation

8.1. Proposed mitigation to reduce and manage potential impacts include:

8.2. All services are to be installed within an agreed services corridor and installed underground within soft verge where possible, taking in to account any existing natural environment and habitats within the Site.

8.3. All new utility connections have been applied for, the applications provide the required capacities for the Proposed Development plus spare capacities for potential future upgrade works.

8.4. All services are anticipated to be derived from roads local to the site. Existing services to surrounding areas are not envisaged to be affected, and any road works will be subject to an approved traffic management plan.

8.5. Confirmation of the Utilities Points of Connections for Water are to be confirmed by United Utilities and approved traffic management plans will be in place for the works associated with laying the new piped services.

8.6. Confirmation of the Utilities Points of Connections for Electricity have been confirmed by SP Energy Networks and approved traffic management plans will be in place for the works associated with laying the new underground cables.

8.7. The Gas Point of Connection has been received from Cadent and approved traffic management plans will be in place for the works associated with laying the new piped services.

Construction Phase

8.8. Proposed mitigation to reduce and manage potential impacts include:

8.9. All known services have been identified utilising record drawings. A majority of services are to be diverted or removed to facilitate the Proposed Development. The asset owners have been consulted to ensure minimal impacts.

8.10. The new 33kV EHV Electrical supply for the Primary Sub Station will be installed in new underground trenches on or adjacent roadways. An agreed traffic management plan will be in place for these works. Also, the infrastructure will be sized to accommodate future phased works, to reduce potential future impact of having to install additional cabling.

8.11. Temporary / proposed utility supplies will be taken directly from the local utility provider's network. This will reduce the need for diesel generation, giving a more efficient and quieter solution, therefore no impact to existing surrounding infrastructure is envisaged.

Operational Phase

8.12. Proposed mitigation to reduce and manage potential impacts include:

8.13. To minimise disruption of connections to existing operations building on site, the utilities will typically be installed on a 'ring' type distribution, to ensure buildings can be back fed during any works to the utility services. Services will be sized to accommodate future expansion.

9. Potential Residual Effects

9.1. The potential residual effects for the construction phase takes in to account the mitigation proposed and the residual effects as indicated in the table below. This table details the assessments taken in to account of the mitigation proposed to identify the residual significance of effects.

Potential Residual Effects – Construction Phase

Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level	Mitigation	Residual Significance of Effect
Disconnections / Diversions of any existing utility infrastructure crossing the Site and directly adjacent to the Site or at the re-aligned roundabout	Local	Neutral	Neutral	High	Services identified, will be removed or diverted to facilitate the Proposed Development in accordance with the asset owners to plan in and minimize any disruptions.	Neutral
New HV supply from Primary	Local	Minor negative	Minor adverse	High	Suitable traffic management plan for all roads affected by installation of new cables. Infrastructure sized to accommodate future expansion to reduce impact in the future.	Negligible
Temporary / Proposed utilities to site	Local	Minor negative	Minor adverse	High	Temporary supplies to be taken from local networks rather than temporary plant.	Negligible

Table 10.7: Residual Significance of Effect - Construction Phase

9.2. The significance of effects is determined using the significance Matrix table in Section 6 of the ES Part One Report.

9.3. In conclusion, the potential residual effects for the construction phase associated with the utilities works for the Proposed Development are 'Neutral', therefore no impact on the utility network is envisaged.

Potential Residual Effects – Operational Phase

9.4. The potential residual effects for the operational phase takes in to account the mitigation proposed and the residual effects as indicated in the table below. This table details the assessments taken in to account of the mitigation proposed to identify the residual significance of effects.

Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level	Mitigation	Residual Significance of Effect
Disruption to existing operations on Proposed Development	Local	Neutral	Neutral	High	Install utilities in resilient manner to reduce the risk of loss of supply to existing users, and size infrastructure to suite future expansion	Neutral

Table 10.8: Residual Significance of Effect - Operation Phase

9.5. The significance of effects is determined using the significance Matrix table in Section 6 of the ES Part One Report.

9.6. In conclusion, the potential residual effects for the operational phase associated with the utilities works for the Proposed Development are 'Neutral', therefore no impact on the utility network is envisaged.

10. Additive Impacts (Cumulative Impacts and their Effects)

10.1. For the purposes of this ES we define the cumulative effects as:

'Those that result from additive impacts (cumulative) caused by other existing and/or approved projects together with the project itself.'

10.2. All the projects to be considered as part of the cumulative impact assessment are described in the ES Part One Report. The projects to be considered in respect of the cumulative assessment relating to utilities are listed in the table overleaf:

	Possible Cumulative Development	Details	Status	Justification for Cumulative	To be considered in the CIA (Yes/No)
1	Land bounded by Pewterspear Green Road, Ashford Drive, Stretton, Warrington LPA Ref: 2016/28807 Applicant - HCA	Outline Planning Application for 180 dwellings.	Planning permission granted by WMBC 28-09-2017 (3 years to implement planning permission)	Potential relationship in terms of socio economic. It is a committed development and therefore included within the future baseline and assessed within the assessment of the Proposed Development. It does not therefore need reconsidering in the cumulative assessment for traffic and transport, noise and vibration and air quality. **Not considered to be a link in respect of any of the other technical areas due to distance and detached nature from the site.** **Regarding the Utilities there is no specific cumulative impacts envisaged.**	Yes – socio economic
2	Land bounded by Green Lane &, Dipping Brook Avenue, Appleton, Warrington, WA4 5NN LPA Ref: 2017/29930 Applicant - HCA	Outline Planning Application for 370 dwellings	Planning permission granted by WMBC 22-01-2018 (3 years to implement planning permission)		
3	Land South of Astor Drive, East of Lichfield Avenue &, South of Witherwin Avenue, Grappenhall Heys, Warrington, WA4 3LG LPA Ref: 2017/29929 Applicant - HCA	Outline Planning Application for 400 dwellings	Planning permission granted by WMBC 22-01-2018 (3 years to implement planning permission)		
4	Land North of Barleycastle Lane, Appleton, Warrington Liberty Properties Development Ltd & Eddie Stobart LPA Ref: 2017/31757	Full Planning application (Major) - Demolition of all existing on-site buildings and structures and construction of a National Distribution Centre building (Use Class B8) with ancillary office accommodation (Class B1(a)), vehicle maintenance unit, vehicle washing area, internal roads, gatehouse, parking areas, perimeter fencing, waste management area, sustainable urban drainage system, landscaping, highways improvements and other associated works. (Gross internal floor space of 56,197m², together with 1,858m² of ancillary office)	Refused Planning Permission by WMBC 14-11-2018	Potential relationship in terms of geology and ground conditions; flood risk and drainage; landscape and visual impact; ecology and nature conservation; socio economic; cultural heritage; utilities; waste; energy; and operational noise. Whilst the planning application has been refused it is still to form part of a sensitivity test for traffic and therefore included within the assessment of the Proposed Development. It does not therefore need reconsidering in the cumulative assessment for traffic and transport; and in terms of traffic generation in respect of noise and vibration; and air quality.	Yes- geology and ground conditions; flood risk and drainage; landscape and visual impact; ecology and nature conservation; socio economic; cultural heritage; **utilities**; waste; energy; and operational noise
5	Land to the east of Stretton Road, north of Pepper Street, Stretton Road, Appleton Thorn, Warrington LPA Ref: 2017/31848	Full Planning Application for 71 dwellings	Planning permission granted by WMBC 24-10-2018 (3 years to implement planning permission)	Potential relationship in terms of socio economic. It is a committed development and therefore included within the future baseline and assessed within the assessment of the Proposed Development. It does not therefore need reconsidering in the cumulative assessment for traffic and transport, noise and vibration and air quality.	Yes – socio economic

				Not considered to be a link in respect of any of the other technical areas due to distance and detached nature from the site. **Regarding the Utilities there is no specific cumulative impacts envisaged.**	
6	Blue Machinery Ltd, Barleycastle Trading Estate, Lyncastle Road, Warrington, WA4 4SY LPA Ref: 2016/28994	Full Planning Application for new industrial warehouse building for storage (replacing smaller storage building), single storey extension to existing building for further storage and two storey extension for additional office space, associated parking provision and landscaping. (1,699m^2 new build, 180m^2 and 265m^2 extensions)	Planning permission granted by WMBC 17-02-2017 (3 years to implement planning permission)	Potential relationship in terms of geology and ground conditions; flood risk and drainage; socio economic; and waste. The traffic generation is not considered to be significant and therefore there is not considered to be a relationship in respect of traffic and transport; noise and vibration; and air quality. **Not considered to be a link in respect of landscape and visual impact; ecology and nature conservation; cultural heritage; utilities; and energy due to distance and detached nature from the site.** **Regarding the Utilities there is no specific cumulative impacts envisaged.**	Yes - geology and ground conditions; flood risk and drainage; socio economic; and waste
7	Land off Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4SN LPA Ref: 2015/25255 Morley Estates	Full Planning Application for industrial / warehouse development (Sui Generis) to facilitate a plant hire business with elements of vehicle / plant repair, servicing, maintenance and plant storage / distribution / parking and associated offices / welfare facilities, vehicular access via existing service road, acoustic bunding and fencing and other means of enclosure, soft landscaping, 36 car park spaces, fuel pumps (and associated underground tanks), vehicle / plant wash bay and sub-station (Resubmission of 2014/24618) (4,545sqm industrial warehouse building)	Planning permission granted by WMBC 16-10-2015	Potential relationship in terms of geology and ground conditions; flood risk and drainage; and socio economic. The traffic generation is not considered to be significant and therefore there is not considered to be a relationship in respect of traffic and transport; noise and vibration; and air quality. **Not considered to be a link in respect of landscape and visual impact; ecology and nature conservation; cultural heritage; utilities; waste and energy due to distance and detached nature from the site.** **Regarding the Utilities there is no specific cumulative impacts envisaged.**	Yes - geology and ground conditions; flood risk and drainage; and socio economic
8	Former Stretton Airfield, Warrington, WA4 4RG LPA Ref: 2014/2332 Hensmill Property	Proposed construction of subterranean car storage facility (B8 Use Class) with ancillary office development and associated demolition and landscaping accessed from Crowley Lane.	Planning permission granted 23-06-2015	Potential relationship in terms of landscape and visual impact; and socio economic. The traffic generation is not considered to be significant and therefore there is not considered to be a relationship in respect of traffic and transport; noise and vibration; and air quality.	Yes - landscape and visual impact; and socio economic

				Not considered to be a link in respect of geology and ground conditions; flood risk and drainage; ecology and nature conservation; cultural heritage; utilities; waste and energy due to distance and detached nature from the site. **Regarding the Utilities there is no specific cumulative impacts envisaged.**	
9*	Warrington Garden Suburb (as identified in the Council's Preferred Development Option Consultation Document (July 2017)	The Warrington Garden Suburb is identified as a Preferred Development Option, which provides the potential development of around 7,000 new homes to be delivered over the full 20 years of the Plan, therefore we have assessed relevant phases with the Cumulative Assessment. Using the Development Trajectory (Table 20 Garden City Suburb Employment Land Trajectory of the Preferred Development Option Consultation Document) we have based the cumulative assessment ONLY on the quantum of development within the Garden Suburb expected to come forward in parallel with the delivery timeframe for the Six 56 Application Proposals. *Due to the limited information available in respect of the Garden Suburb, the Six 56 Warrington Cumulative Assessment will be a non-spatial assessment.		Potential relationship in terms of socio economic. The 1021 dwellings that form part of the Garden Suburb Phase 1 are already assessed as committed development and therefore included within the future baseline and assessed within the assessment of the Proposed Development. It does not therefore need reconsidering in the cumulative assessment for traffic and transport, noise and vibration and air quality. The 15.7ha of employment land at Land North of Barley Castle Lane (Liberty Properties and Stobart) and the additional 1,995 residential units expected to be delivered in Phase 2 of the Garden Suburb will be assessed in the Traffic and Transportation, Noise and Air Quality cumulative assessments based on traffic assessments and Warrington Council's Multi Model Highways Model produced for the emerging Local Plan, which takes account of additional Local Plan Growth in the area. The Cumulative Assessment will be based on the assumptions made within this model in terms of timing of delivery and distribution of traffic on the network. Agricultural Land and Socio Economic cumulative assessments will be based on the residual residential quantum of development (1995 dwellings) identified in the Garden Suburb Phase 2. There is not sufficient information available in terms of spatial delivery for cumulative assessments to be undertaken in respect of the other technical areas, which include Geology and Ground Conditions; Flood Risk and Drainage; Landscape and Visual Impact; Ecology and Nature Conservation; Cultural Heritage and Archaeology; **Utilities**; Waste; and Energy. As such it is not possible to undertake a cumulative assessment in respect of these technical areas.	Yes – socio economic

	Warrington Garden Suburb Phase	Uses and Quantum identified in Preferred Development Option (July 2017)	Uses and Quantum to be identified in Six 56 Cumulative Assessment		
	Phase 1 0-5 years Assumed 2020-2025	406 residential units (non- Green Belt sites) 22ha employment (employment areas include Six 56 Warrington and Land around Barley Castle Lane)	Six 56 Proposals will be under construction, with part delivered within Phase 1 of the Garden Suburb. The following form part of the Garden Suburb Phase 1 and will be included within the Cumulative Assessment: • HCA sites (950 dwgs)* • 71 dwgs associated with land to east of Stretton Road* • Land North of Barley Castle Lane (Liberty Properties and Stobart) (LPA Ref: 2017/31757) - 15.7ha* *Note that these sites are already included as part of the Cumulative Assessment and already referenced as sites 1, 2, 3 and 4.		
	Phase 2 6-10 years Assumed 2026-2030	2610 residential units (includes 496 non-Green Belt sites and 2,114 Green Belt sites) 30.3 ha employment (employment areas include Six 56 Warrington and Land around Barley Castle Lane)	Six 56 Proposals will be completed during 2027/2028. The following form part of the Garden Suburb Phase 2 and will be included within the Cumulative Assessment: Garden City Suburb Phase 1 and 2 employment land equates to 52.3ha, beyond the 30 ha referenced in the Phase 1 and Phase 2 employment trajectory set out in the PDO. Six 56 Warrington developable area and planning application for Land North or Barley Castle Lane (LPA Ref: 2017/31757) already equates to 77.52 ha and is already included as part of the Cumulative Assessment. Garden Suburb Phase 1 and 2 residential units equates to a total of 3016 units. The Cumulative Assessment already includes 1,021 residential units. Therefore this Cumulative Assessments should include an **additional 1995 residential units** (i.e. the residual number of units identified in Preferred Development Option that		

			not already included within Six 56 Cumulative Assessment)		
	Phase 3 11-15 years Assumed 2031-2035	2,144 ha residential units 45.9 ha employment	The Six 56 Proposals will be fully operational Given this Phase of the Garden City Suburb will be beyond the delivery of Six 56 Proposals this phase will not to be included within the Six 56 Cumulative Assessment		
	Phase 4 16-20 years Assumed 2036-2040	2,144 residential units 18.6ha employment	The Six 56 Proposals will be fully operational Given this Phase of the Garden City Suburb will be beyond the delivery of Six 56 Proposals this phase will not to be included within the Six 56 Cumulative Assessment		

Table 10.9: Cumulative Projects

10.3. Both Construction and Operational phases will be considered and the short, medium and long term impacts assessed.

Short Term

10.4. The utility services will be installed in co-ordination with the proposed development, and will comprise of a network of underground ducts running below main spine roads with road cross overs at intervals to ensure connections to the entire Proposed Development.

10.5. The installation of these ducts will be installed in co-ordination with the site and road layout, therefore there are no significant effects envisaged.

Medium Term

10.6. The utility service will typically be installed within the "soft dig" zones, and suitable access chambers installed, where appropriate, to ensure any restrictions on future access is minimised.

Long Term

10.7. There are a number of proposed developments in the cumulative area, and the timing of these developments may impact on the availability of utility supplies. In the particular, reference to

the electrical point of connection, therefore as part of the proposed capacity applied for it incorporates the spare capacity for potential future requirements.

11. Conclusion

11.1. In conclusion, the findings of the Paper highlight any potential effects the new Utilities works may have caused by the proposed new connections, disconnections and diverted services required to facilitate the proposed development.

11.2. As identified throughout this Paper, the Utilities proposals to the Proposed Development do not provide any significant effects to the local and surrounding receptors. All potential effects envisaged have been identified within this Paper and the proposed mitigation methods explained and subsequent residual effects identified.

11.3. All relevant asset owners have been contacted to offer points of connection suitable for the proposed developments requirements.

11.4. Network capacity enquiries have been issued to all relevant utility providers based on anticipated loadings required to service the overall Proposed Development, of which the relevant utility provider proposals will be based on.

11.5. The Illustrative Masterplan and Parameters Plans have been set out to ensure any existing live services that are to remain to and from the site will not be affected, and easements maintained in accordance with the asset owners requirements. Currently all of the approvals have been agreed in principle and the technical appraisals have been undertaken to ensure that:

- Sufficient Gas, Water, Electricity and Telecoms services and capacities are available to the site to support the Proposed Development.
- Existing underground or overhead live services to and from site that are to be maintained will be diverted where necessary to support the Proposed Development. Where services are to be diverted, this will be carried out in agreement with the relevant asset owners, to support the Proposed Development and maintain access / easements requirements.

11.6. All existing redundant / out of commission services will be cut back and made safe, and existing services identified and recorded for future reference.

11.7. The potential Construction and Operational phase impacts have been mitigated and improved to Neutral or Negligible.

11.8. The Proposed underground Utility services are all envisaged to be run from the PoC's to the proposed development within existing highways.

12. Reference List

12.1. Below is a list of information used within this Technical Paper:

- SP Energy Networks Existing Electric Record Drawings
- Transco Existing Gas Record Drawings
- United Utilities Existing Water Record Drawings
- BT Existing Record Drawings
- Proposed Illustrative Masterplan

13. Appendices

Appendix 10.1 – • SP Energy Networks Existing Electric Record Drawings

The position and depths of underground and overhead apparatus as indicated on this plan are approximate and are intended for guidance only. The depths may have changed if the land surface levels have altered. You are also informed that the plan may not show, or may inaccurately show, individual property services and services to street lighting installations. The onus of locating the apparatus precisely before commencing any excavations or other works in the immediate vicinity therefore rests entirely upon the person undertaking or responsible for those works. Before any such works are undertaken the precise location of the apparatus and cables should therefore be ascertained by suitable means. In the event of an emergency or for further assistance please contact 0800-092-9290 (ScottishPower area) or 0800-001-5400 (SP Manweb area).

SP ENERGY NETWORKS
On behalf of SP Manweb plc

SP Manweb plc
Registered Office: c/o PowerSystems
3 Prenton Way, Prenton, CH43 3ET
Registered in England and Wales No 2366937

OVERHEAD LINE

UNDERGROUND CABLES

In Use

Out of Use

Assumed route

VOLTAGE COLOUR KEY

EHV	132kV	BLUE
	33kV	GREEN
HV		RED
LV		BROWN

Where cables have been laid SINCE 1 OCTOBER 1988, the following depths in mm apply (to the tops of cables or ducts) UNLESS OTHERWISE SHOWN, but see comments. (TO TOP OF CABLE, ADD 75mm FOR BOTTOM OF TRENCH)

	EHV	HV	LV
IN FOOTPATHS :	775	600	450
ACROSS ROADS :	775	700	600
ALONG ROADS :	775	700	600
AGRICULTURAL :	910	910	910

Your attention is drawn to the Health and Safety Executive Booklet HSG47, available from HSE.

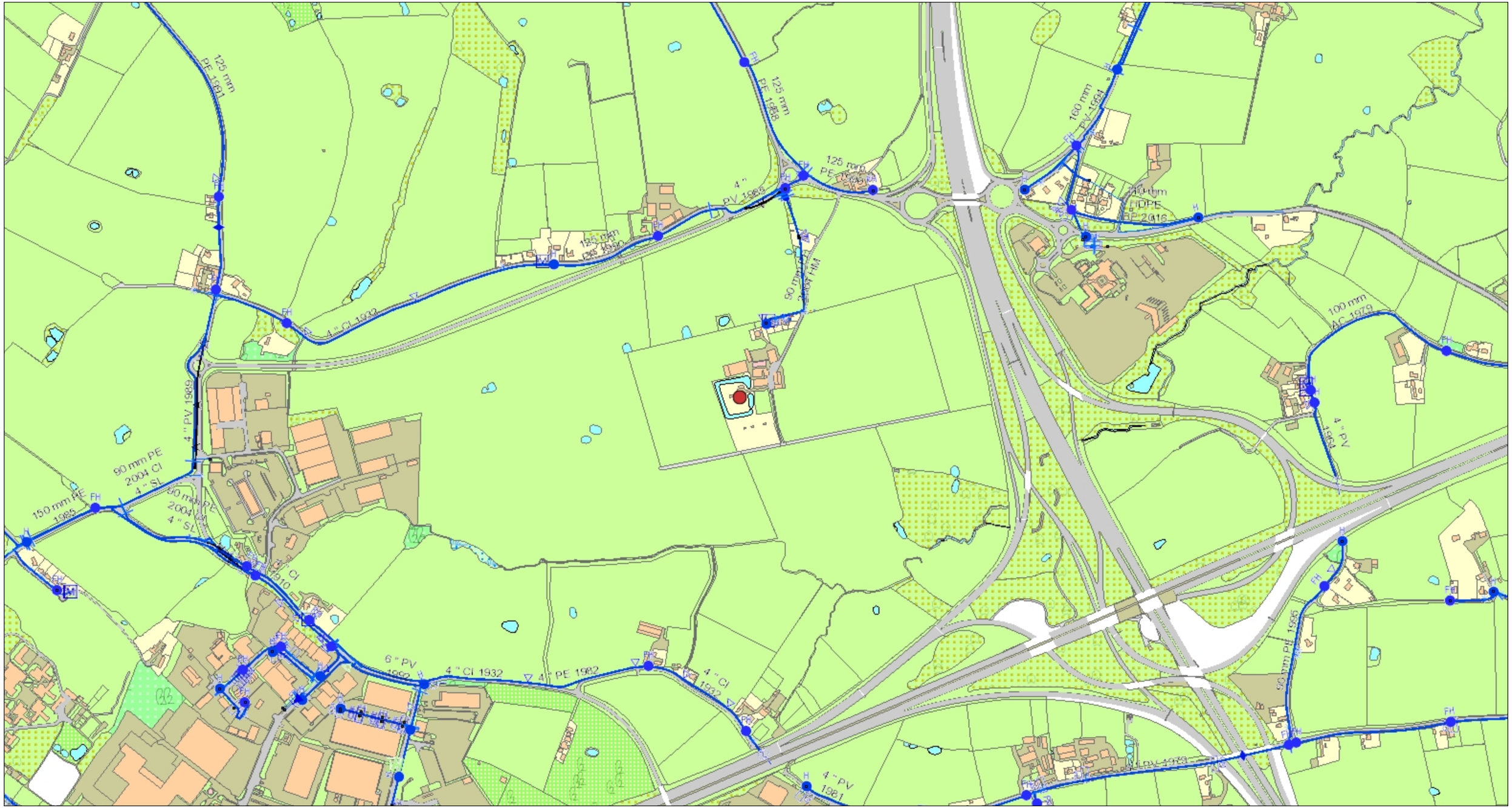
DATE	14/08/2017
SCALE	1 : 6,546
MAP REFERENCE	365,512 384,470

0 20 40 80 120 160 Metres

Appendix 10.2 – Transco Existing Gas Record Drawings

UU Maps for Safe Dig

Centre :	X : 365750	Y : 384510	Date : 16/08/2017 17:19:23	Scale Approx : 8000

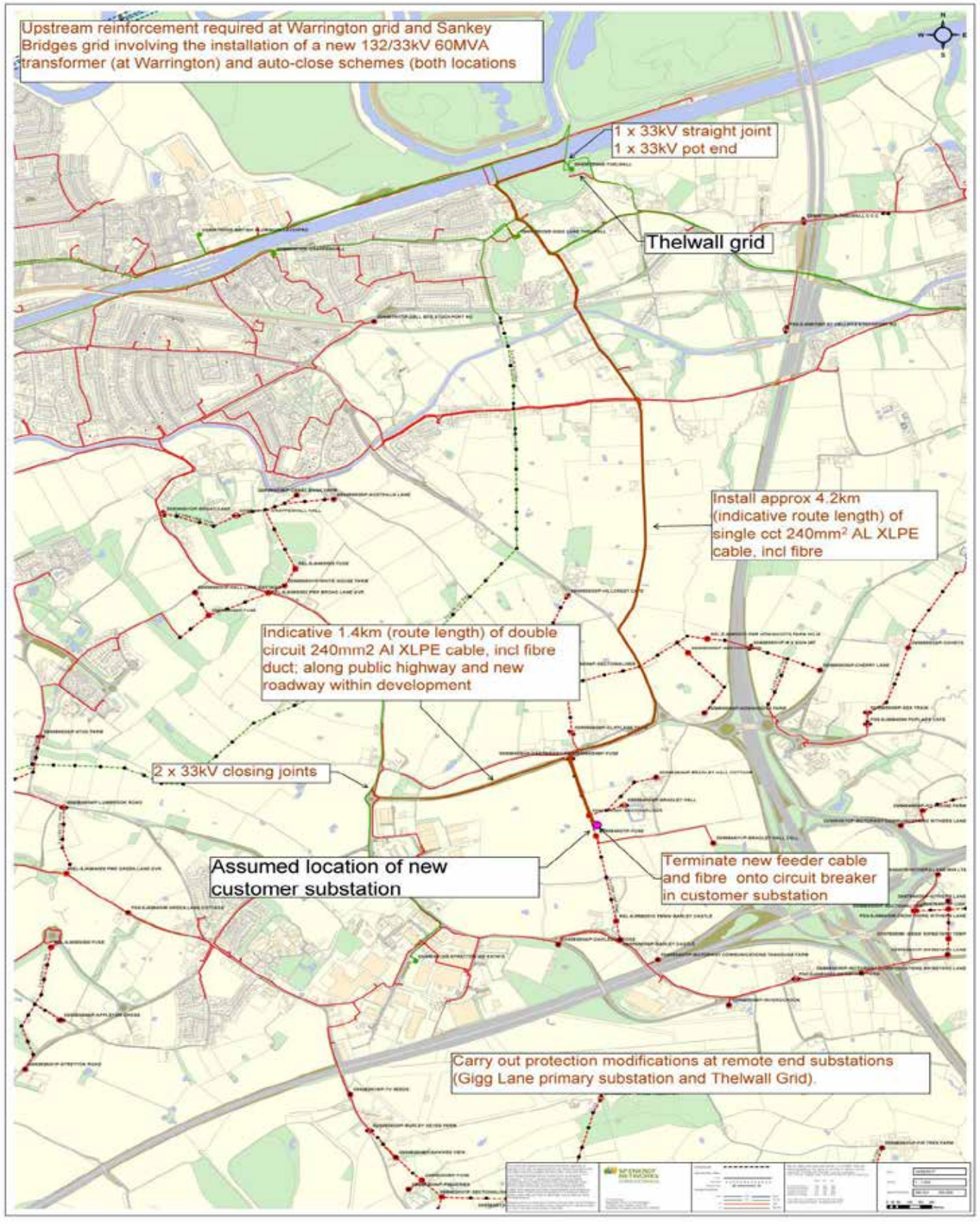


Extract from maps of United Utilities' Underground Assets

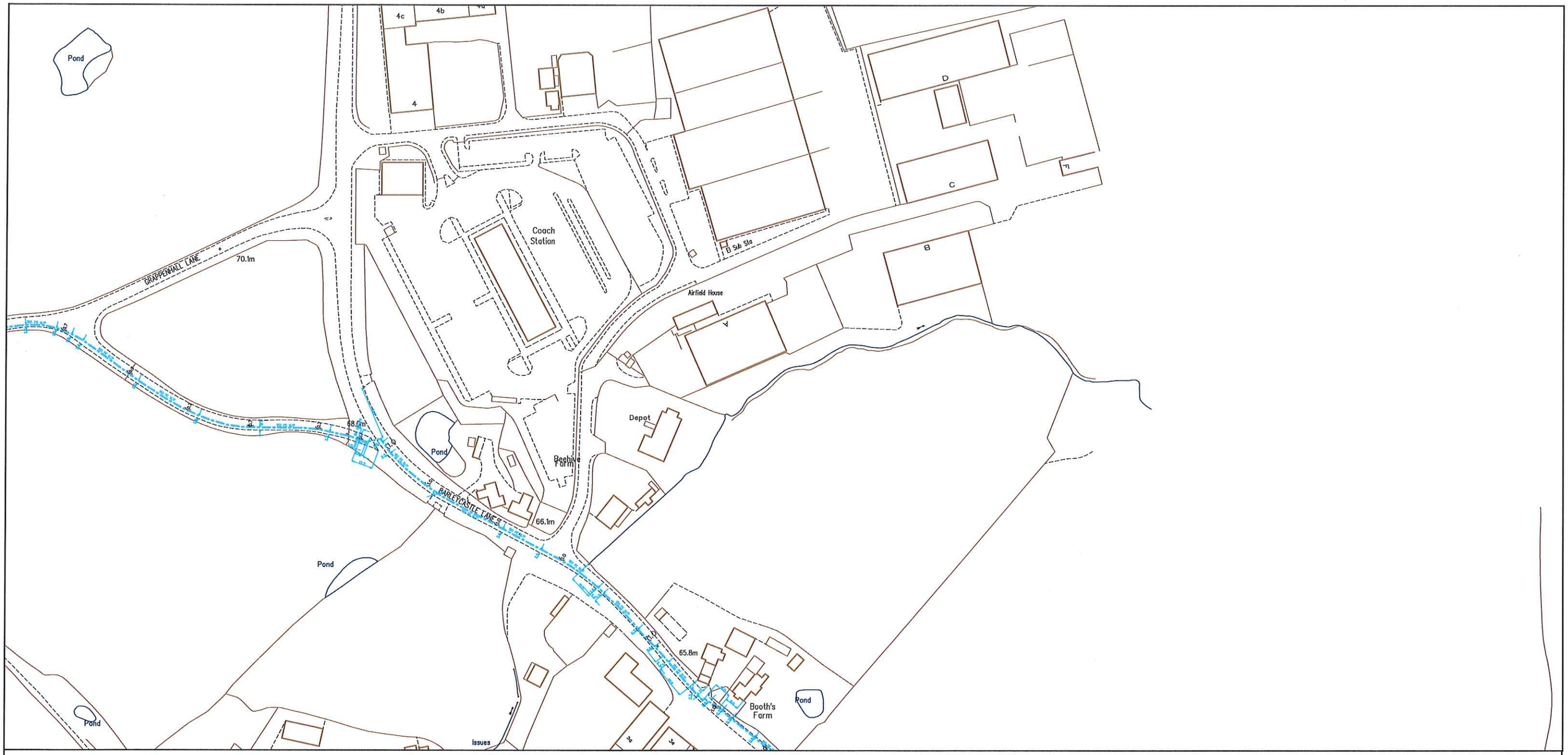
The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. The actual positions may be different from those shown on the plan and private service pipes may be shown by a blue broken line. United Utilities Water will not accept liability for any damage caused by the actual position being different from those shown.

Appendix 10.3 - United Utilities Existing Water Record Drawings

Point Of Connection - Geographical location



Appendix 10.4 – Proposed Electrical Point of Connection



SCALE: Not to scale	LP MAINS
USER ID: mmattatia	MP MAINS
DATE: 15/08/2017	IP MAINS
EXTRACT DATE: 05/06/2017	LHP MAINS
MAP REF: SJ6484	NHP MAINS
CENTRE: 364802, 384242	

Some examples of Plant items:
Valve, Depth of Cover, Syphon, Diameter Change, Material Change, Out of Standard Service

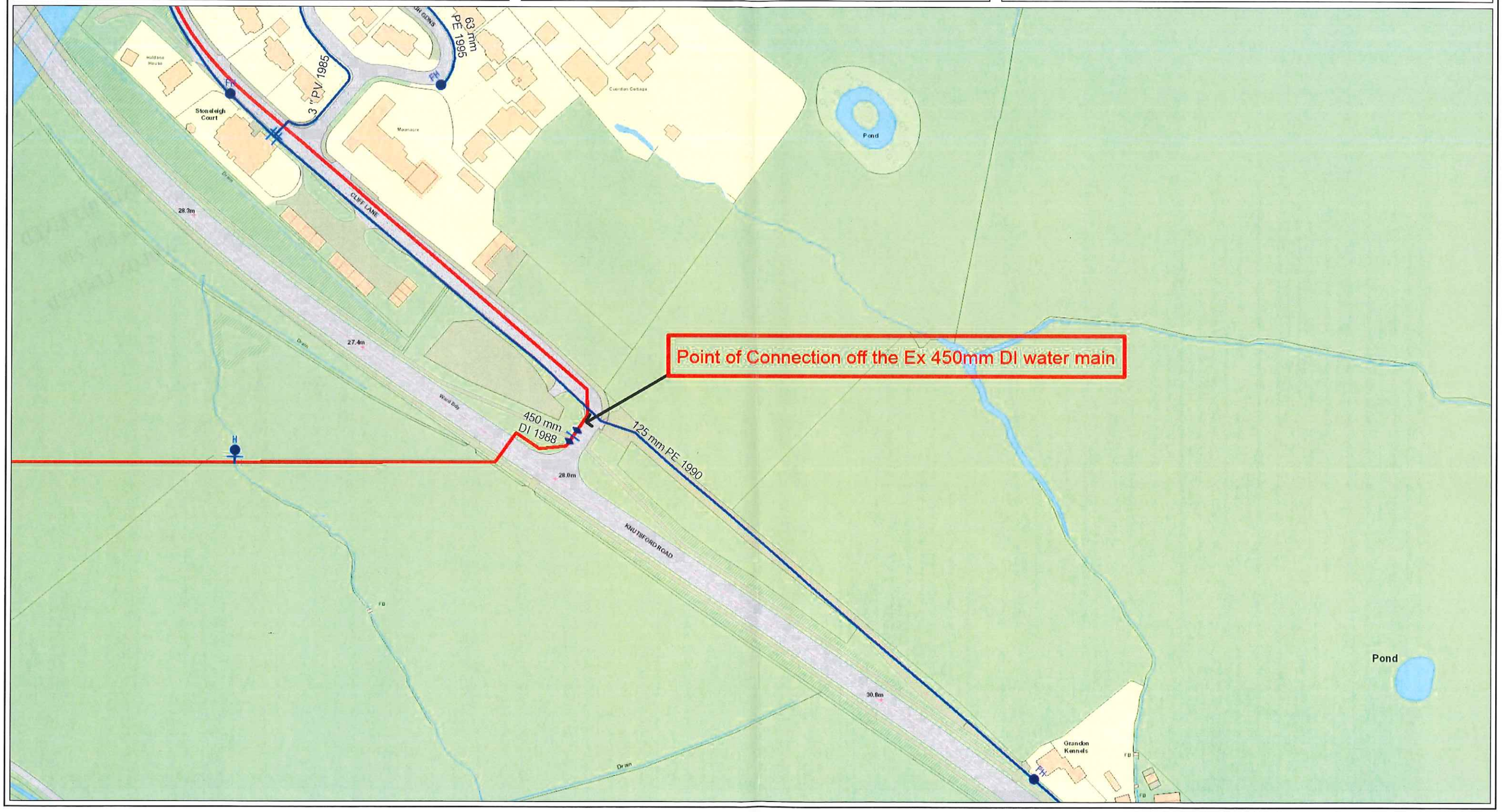
This plan shows those pipes owned by National Grid Gas plc in their role as a Licensed Gas Transporter (GT). Gas pipes owned by other GTs, or otherwise privately owned, may be present in this area. Information with regard to such pipes should be obtained from the relevant owners. The information shown 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 National Grid Gas plc 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 before any mechanical plant is used. It is your responsibility to ensure that this information is provided to all persons (either direct labour or contractors) working for you on 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. Further information on all DR4s can be determined by calling the DR4 hotline on 01455 892426 (9am-5pm) A DR4 is where a potential error has been identified within the asset record and a process is currently underway to investigate and resolve the error as appropriate.

MAPS Viewer Version 5.7.0.0

Local Machine

Appendix 10.5 - Proposed Gas Point of Connection

Centre :	X : 364816	Y : 386223	Date : 07/11/2017	Scale Approx : 1500



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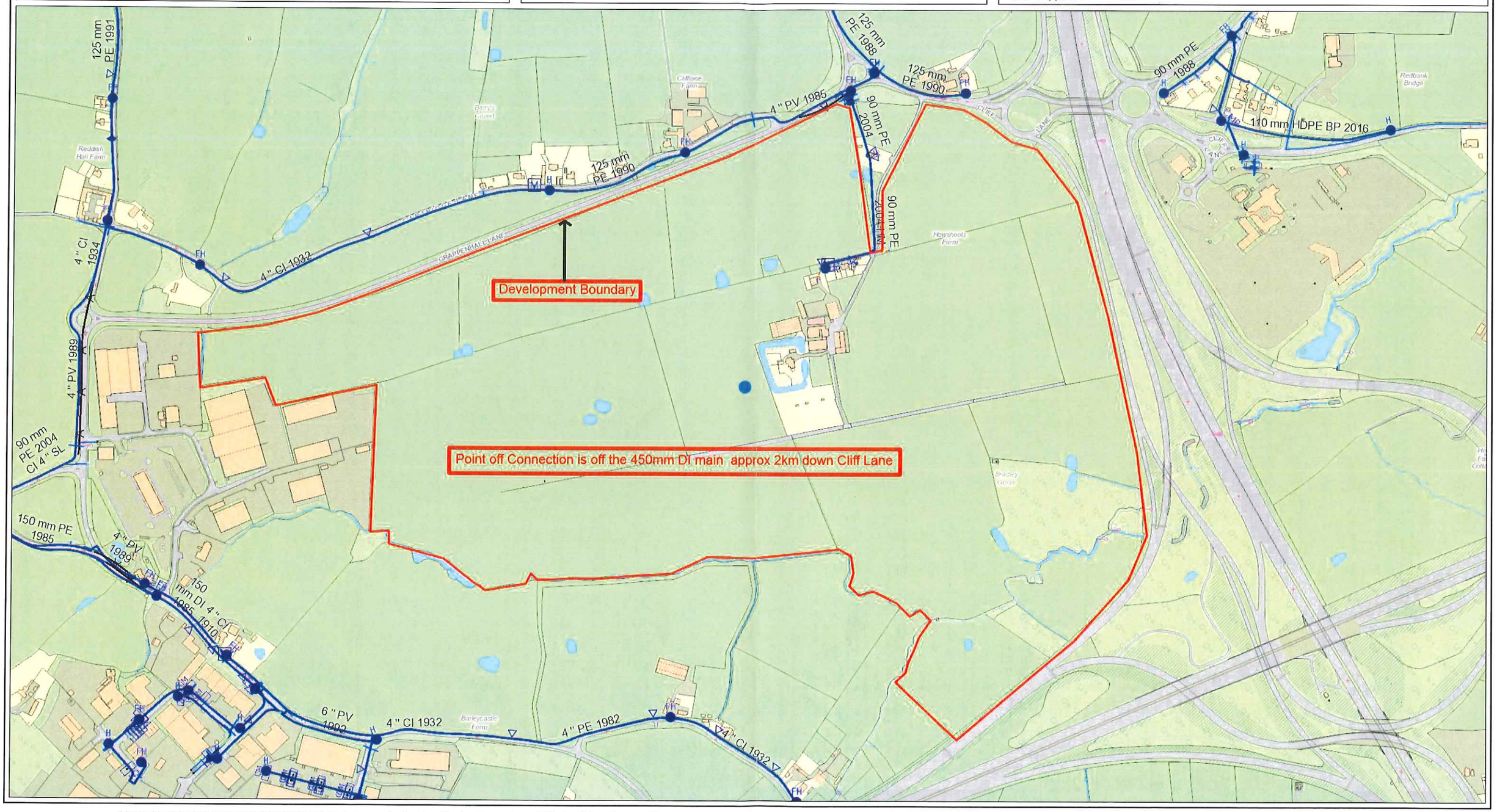
Appendix 10.6 - Proposed Water Point of Connection 1

Centre :	X : 365645	Y : 384456	Date : 07/11/2017	Scale Approx : 6000



The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently av

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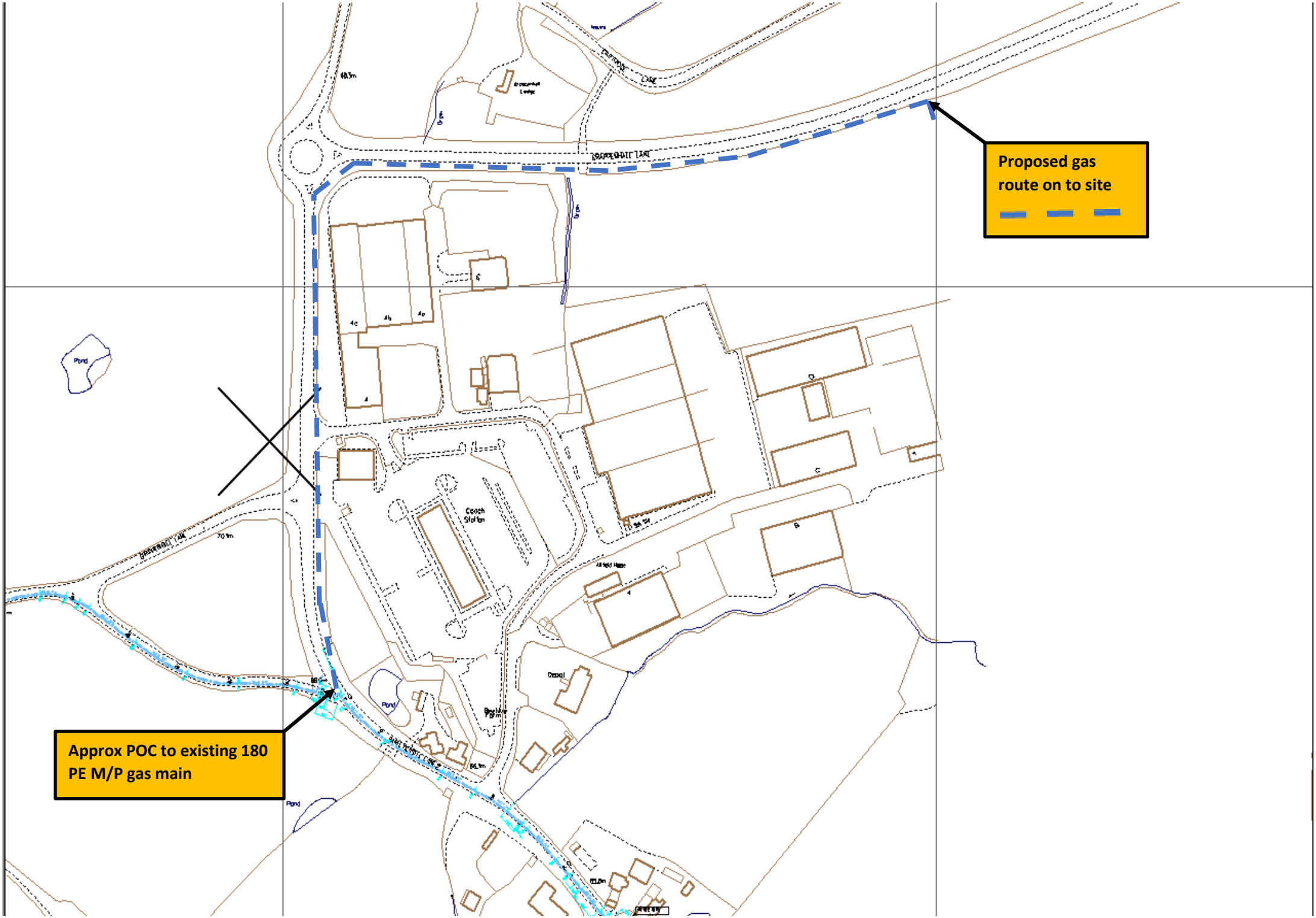
Appendix 10.7 - Proposed Water Point of Connection 2


Proposed gas route on to site
Approx POC to existing 180 PE M/P gas main
Pond
Coach Station
Depot