



UTILITIES AND INFRASTRUCTURE REPORT

FEBRUARY 2017

PROJECT:

WHITTINGTON WAY, BISHOPS STORTFORD

CLIENT:

COUNTRYSIDE PROPERTIES LTD

Report Reference: T356/CS/TS/001

REV – 8

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1. INTRODUCTION

This report has been prepared by TriConnex Limited and identifies and evaluates the likely environmental impacts resulting from the supply of utility services to the proposed strategic development specifically relating to electricity, gas, potable water and telecommunications

The assessment seeks to:

- Identify current available capacity, potential utility diversions and upgrade works required to accommodate the proposed development;
- Evaluate the significance of potential impacts in terms of beneficial / adverse consequences;
- Establish mitigation measures where appropriate; and
- Identify residual impacts.

Proposal drawings prepared by consultants Andrew Martin Planning have formed the basis of the analysis incorporated in this report.

2. ASSESSMENT METHODOLOGY

2.1 Scope

Information on existing utilities was obtained through consultation with the relevant utilities and service providers and a review of their plans (live online where available) of the Site (where available) has been undertaken by TriConnex. The plans which were reviewed are assumed to be a current reflection of the network and show the general location of services including:

- Electricity;
- Gas;
- Potable Water; and
- Telecommunications.

For each service, the utility provider has given an assessment of the likely reinforcement and/or upgrades to their networks and potential diversions required to accommodate the Proposed Development, and this information has been used to determine the impact on the relevant utilities.

2.2 Data Sources

We have secured existing apparatus records and drawings from the following utility companies, as well as information relating to proposed utility supply arrangements for the Proposed Development and identification of offsite upgrade and/or reinforcement requirements:

- UK Power Networks (Electricity);
- National Grid (Gas);
- Affinity Water (Water);
- British Telecom (Telecommunications); and
- Linesearch (Private utility companies).

2.3 Assessment Approach

In consultation with the utility providers listed in 2.2 the onsite utilities and the likely diversion works have been reviewed and identified. The potential diversion works required to accommodate the Proposed Development represent estimates which are indicative based on the current master plan and will be reviewed as the planning process advances.

Likely points of connection to supply the Proposed Development have been assessed.

References to 'On-site Apparatus' relate to the infrastructure present within the boundaries of the Site, including any proposed junctions with adjacent highways. 'Off-site apparatus' refers to the infrastructure present in the vicinity of the Proposed Development but outside of the Application Site.

2.4 Uncertainties and Limitations

The current analysis of the utilities is based on a point in time analysis of the various networks that could be affected by commencement of other developments or network alterations by the utility providers. Costs are prepared based on current (2014) information.

3. RELEVANT POLICY

The NPPF states at paragraph 162 that local planning authorities should work with other authorities and providers to assess the quality and capacity of infrastructure for telecommunications and utilities.

4. BASELINE CONDITIONS

4.1 Overall Site

We have completed an existing services / constraints plan for this job, T356-SU-01 Rev A. This shows the locations of any services within the proximity of the site. The individuals services and new supplies will now be explored a lot more detail below.

4.2 Electricity

The incumbent electricity provider for this area is UKPN. A review of its asset record information is presented below.

On Site Electric Infrastructure

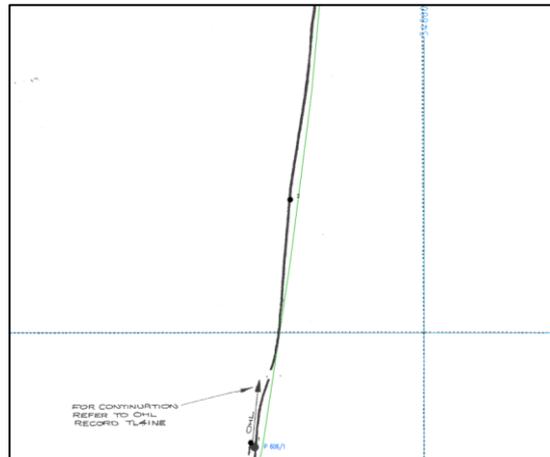
A UKPN 33/11kV primary substation (Thorley Primary) is located within the Proposed Development (see Figure 1 and 2). This is fed by two 33,000 volt cables, which, along with one 11,000 volt cable leave the primary in a westerly direction before turning south and then along the site boundary, along St James Way in a westerly direction (See Figure 3).

Due to the time and cost impacts of relocating this apparatus the current master plan has assumed it will be retained.

Figure 1 - UKPN Existing Records

Figure 3 and 4). This will require undergrounding and a route can be accommodated in the proposed layouts.

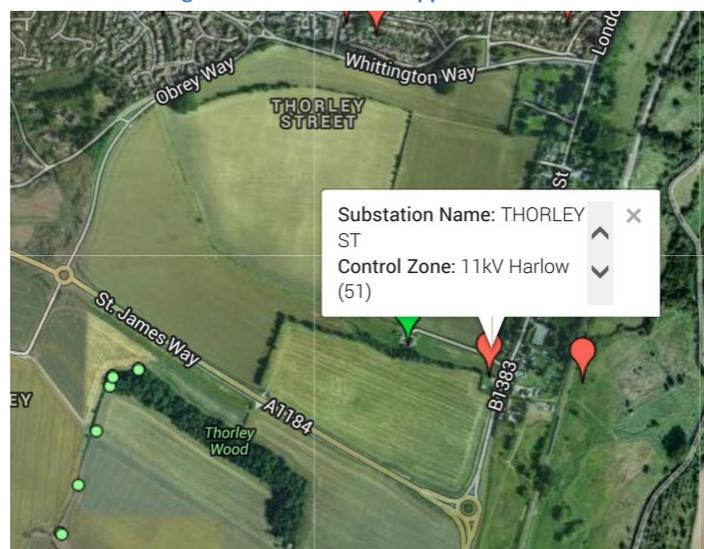
Figure 4 - UKPN Existing Records



Off-Site Electric Infrastructure

There is an existing 11KV substation (Thorley St) located adjacent to the Proposed Development (See Figure 4). Cable routes to this Substation will be confirmed prior to commencing works to ensure no impact on the adjacent layout.

Figure 5 - UKPN Off site apparatus



Point Of Connection

We have compiled a draft electrical demand assessment and completed a formal point of connection enquiry document, which has subsequently been issued to (UKPN) for point of connection determination.

Our assessment of the total load is 3.62MVA which utilises industry average demands for each residential dwelling and makes appropriate allowances for an 8FE secondary school, 3FE Primary School, early year's facility, a local centre & care home. When formal loads for all of these commercial units have been received an updated point of connection enquiry into UKPN can be made.

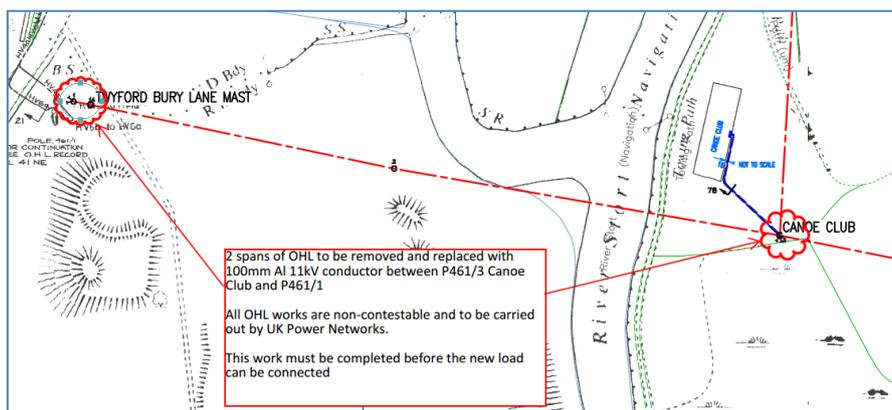
The Point of Connection (POC) for the new electricity network that has been offered assumes that the primary substation will remain. (See Figure 6).

Distribution around the site will be within the new carriageways and footpaths.

Due to the size of the load and lack of capacity in the area reinforcement works are currently required in order to take a connection from outside of the Thorley Primary. The reinforcement is split into two sections of works.

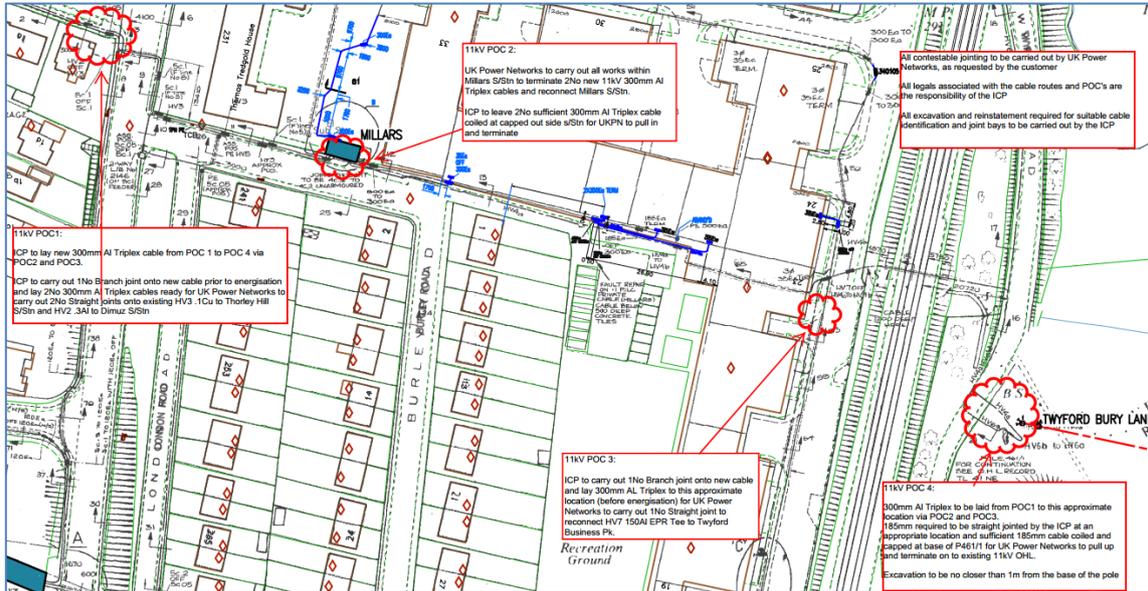
The first section of works is to replace the existing overhead line that currently goes over the River Stort with an upgraded cable. In order to do this we have assumed that directional drilling will be required to install the cable from the existing Canoe Club pole up to the Twyford Bury Lane Mast. Please see below extract.

Figure 6 - UKPN Off site reinforcement work (1)



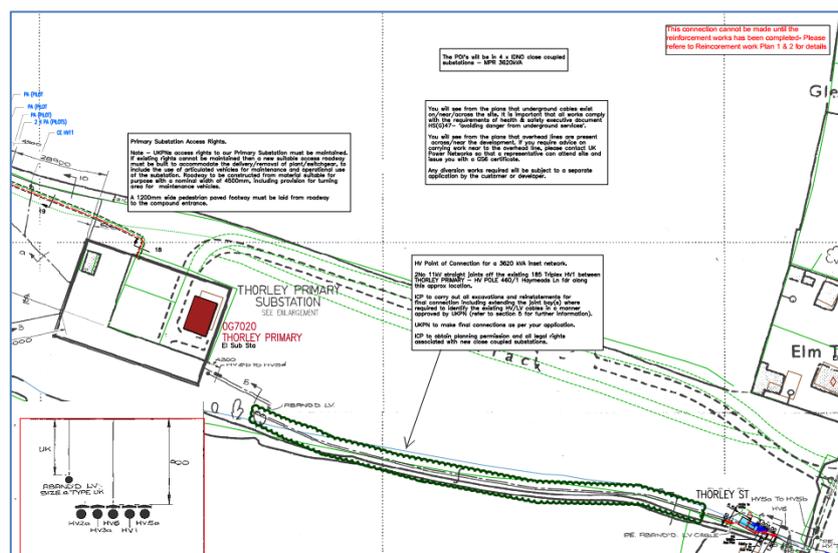
The second section of works involves upgrading an existing HV cable that runs between POC 1 to POC 4 while also connecting at POCs 3 & 4 on the below plan. We approximate this route to be circa. 350m of work. In order to get from POC 3 to POC 4 the existing railway line will have to be crossed.

At this preliminary stage we have assumed that directional drilling will again be utilised to drill under the existing line and pull the cable through.



We estimate the costs of these works to be roughly £150k however further investigate will be required in order to firm up the quotation. Due to the length of time until the proposed start onsite date for this project there is the possibility that this reinforcement work would have been completed by others however budgeting for this cost would be a suggestion.

Figure 8 - UKPN Point of connection



New on site network

Based on the load profile and indicative master plan layout it is suggested that five 11KV/Low voltage substations. An 11,000 volt below ground cable network will link these substations together and provide a secure supply. Properties will be supplied at low voltage from these substations.

There are options available on substation ratings that can reduce the number of units required on site; however their use depends on the precise site layout and phasing and therefore will need further consideration at the detailed design stage.

4.3 Gas

The incumbent gas provider for this area is National Grid. A review of its asset record information is presented below.

On Site Gas Infrastructure

No gas equipment is present within the Proposed Development.

Off-Site Gas Infrastructure

Low and Medium Pressure mains are located adjacent to the perimeter of the Proposed Development. Medium Pressure mains are located to the north of the site along Whittington Way and may require lowering at the proposed Northerly entrance (See Figure 9). A Low Pressure main is located along the Thorley Street B1383 and may require lowering at the proposed Westerly entrance (See Figure 10).

This is localised works and can be confirmed once a site entrance and on-site survey has been completed.

Figure 9 - National Grid Existing Records

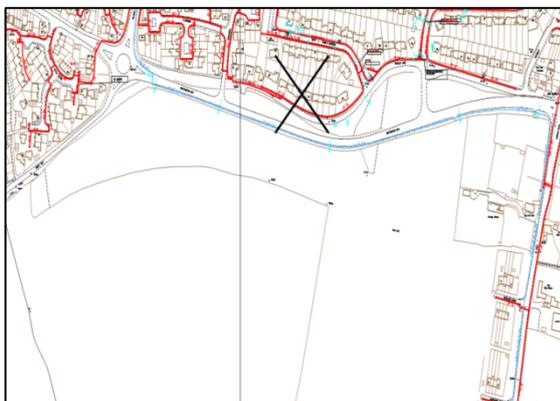
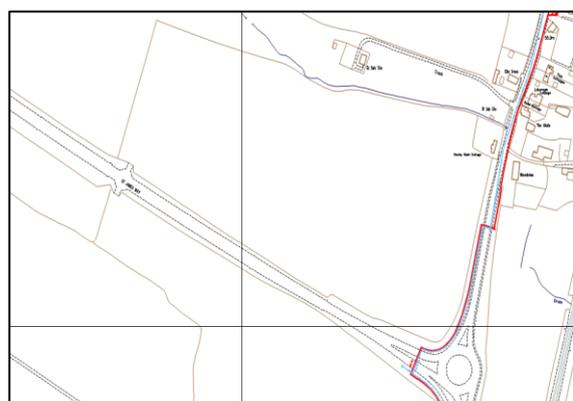


Figure 10 - National Grid Existing Records



Point Of Connection

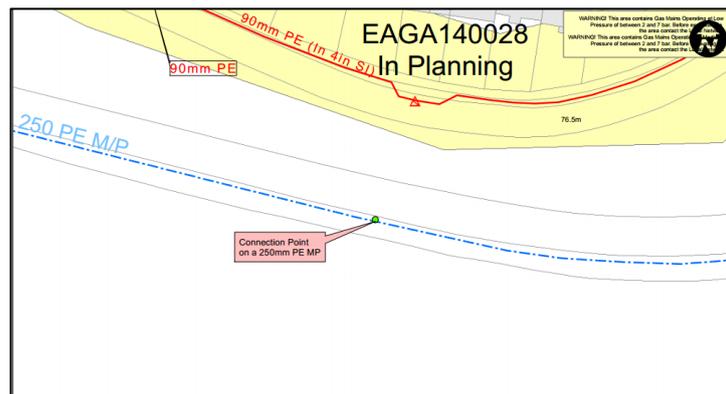
We have compiled a draft gas demand assessment and completed a formal point of connection enquiry document, which has subsequently been issued to National Grid for CSEP determination.

National Grid Gas has offered a CSEP to their existing Medium Pressure main along Whittington Way (See Figure 10). This MP main will be extended into the Proposed Development and a Pressure Reduction Station (PRI) will be required within the site. There is very limited off site works required to facilitate this connection.

Distribution around the site will be within the new carriageways and footpaths.

There is adequate capacity in the local network for the Proposed Development with NO requirement for reinforcement.

Figure 10 - CSEP at Site Boundary



New On Site Network

We will install a Low Pressure network to supply all properties. The exact sizing of the mains depends on the precise site layout and phasing and therefore will need further consideration at the detailed design stage.

4.4 Potable Water

The incumbent gas provider for this area is Affinity Water. A review of its asset record information is presented below.

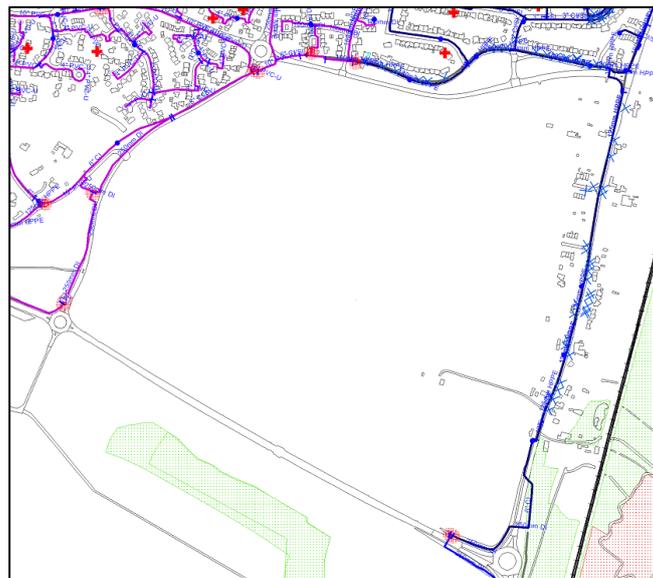
On Site Water Infrastructure

No water equipment is present within the Proposed Development.

Off-Site Water Infrastructure

There is a 125mm HPPE main that runs along the B1383, a 6" CI/SI main and a 250mm DI main that run along Obrey Way and a 250mm DI main that runs briefly onto St James Way, these may require diversion or lowering dependant on the location of the Northerly and Easterly site entrances (See Figure 10). This can be confirmed once a site entrance and on-site design has been completed.

Figure 10 - Affinity Water Records



Point Of Connection

We have compiled a demand assessment and completed an enquiry document, which has subsequently been issued to Affinity Water for POC determination.

As with all new developments we are required to make allowances for known future loads so we have assessed the total units shown within the master plan.

Affinity have responded and detailed that approximately £400k worth of reinforcement could be required in order to upgrade the network to take the new load proposed. This budget estimate was completed at the start of January 2014. Therefore an updated budget estimate with the new proposed loads would be suggested. The fee for this application is £250 plus VAT so if you would like to progress the application please confirm and we will progress of you behalf in good faith of the fee be passed through.

4.5 Telecommunications

The incumbent telecommunications provider for this area includes British Telecom. A review of its asset record information is presented below.

On Site Telecommunication Infrastructure

No BT apparatus is present within the Proposed Development.

Off-Site Telecommunication Infrastructure

No BT plant is present within the site boundary, however there is existing below ground cables that run along Thorley Street, St James Street and Obrey Way, these may require diverting or lowering dependant on the final location of the site entrance.

Virgin Media have apparatus along Thorley Street serving the existing dwellings there, this should not be affected. There is also equipment along Whittington Way; this may also require diverting or lowering dependant on the site entrance.

Point Of Connection

BT's point of connection will depend on the phasing of the scheme and we understand that there is adequate capacity in the local network for the Proposed Development with NO requirement for chargeable reinforcement.

Distribution around the site will be within the new carriageways and footpaths.

High speed broadband to the cabinet is enabled within the surrounding area.

4.6 Other Utility Providers

Interrogation of the national major asset search facility, operated by Linesearch has revealed that there are no major utility apparatus excluding those listed above, within a 1500m radius of the OS grid reference 548532, 218956. This area includes the entire proposed development and the immediate surrounding area.

The search includes all major non statutory and government apparatus owners e.g. fuel lines, gas lines, strategic gas and electricity networks etc.

4.7 Private Services

Private services are not normally shown on the utility company records. However, water, gas electricity and telecom services are not likely to be present within the Site boundary, since this comprises largely Greenfield land.

4.8 Projected Future Baseline

No significant changes to current baseline conditions are anticipated in the foreseeable future should the Proposed Development not proceed.

5. MITIGATION MEASURES

5.1 Electricity

All new HV circuits will be run within the Proposed Development thus removing any external impact.

Any reconfiguration of existing networks will be carried out within the boundary of the Proposed Development thus removing any external impact.

5.2 Gas

Adequate supply is adjacent to the Proposed Development. This will minimise the off-site excavation required and subsequent impact.

5.3 Potable Water

Adequate supply is adjacent to the Proposed Development. This will minimise the off-site excavation required and subsequent impact.

5.4 Telecommunications

Any adjustment to the existing telecommunication apparatus will be minimised to reduce the potential impact of the Proposed Development

Any high speed broadband provision offered would improve the connectivity of the Proposed Development and encourage an increase in home working. This would have a beneficial effect upon traffic flows from the Proposed Development by reducing the need to commute. There would potentially be wider social benefits with improvements to the inclusion of people with disabilities and improvement for the school to access to educational sources.

6. RESIDUAL EFFECTS

6.1 Construction Stage

No significant adverse effects are anticipated. Any effects would be negligible as noted above.

6.2 Post Completion Stage

Again no significant adverse effects are anticipated. Any affects would be negligible, while the potential for the Proposed Development to be readily supplied by high speed broadband would be a minor beneficial effect.