



Utilities Infrastructure Specialists

Utilities Feasibility Report

Prepared for

Leach Homes Ltd and Ptarmigan Planning.

For a proposed development at

Land North and East of Ware, Hertfordshire.


PDI Project No: 14.331 Rev: C.

REVISIONS

Revisions from the last issue are indicated by bar marks on the right hand side of the affected paragraph.

Date:	Revision:
16-06-2014	c. Water section updated .

APPROVALS

Approved by:	Signature:	Date:
Author		
Planning Manager		23-7-2014,
Managing Director		23/7/14.

CONTENTS

Preamble	Page 3
Water	Page 5
Gas	Page 7
Electricity	Page 9
Telecoms	Page 11
Cable TV	Page 12
Street-lighting	Page 13
Oil Pipelines	Page 14
Cost Summary	Page 15
Appendices	Page 16

PREAMBLE

Purpose of this report:

This report has been compiled following instruction from Leach Homes Ltd and Ptarmigan Planning on 29th April 2014.

This report provides a summary of the existing utilities infrastructure within the vicinity of the proposed development, available capacity to supply the development, together with, estimated costs for anticipated reinforcement and/or diversionary works. Estimated costs are also provided for all new on-site utilities connections.

Reference.

When compiling this report reference has been made to the following documents:

- A1 - 1,5000 scale Combined Land Holding Plan.
- JTP – OS Base Plan Drawing No. 00849 SK01.
- East Herts Council, Draft District Plan-Preferred Options Consultation 2014.

Assumptions.

Given the preliminary nature of the information provided a number of assumptions have been made in terms of Land use. The development will comprise of 3000 mixed size dwellings, Secondary School, 2 no.Primary Schools, Employment Area, Health Centre, District Centre and Community Building.

Estimated Utility Demands:

Electric. - Diversified Demand	12 MVA
Gas. - Peak demand kwh.	41,337
AQ Mwh.	43,404
Water. – Est Demand m3/day.	1,800
Daily Peak demand L/S.	150

- Each plot and/or unit will have a separate service connection.
- The soil is not contaminated and it would not be necessary to use ductile iron water mains (subject to soil report).
- The local water company will guarantee 1 bar pressure only. Booster sets may be required depending on the number of storeys in each block, the costs for these have not been allowed for in our feasibility report.
- The depths and locations given by the utilities companies for existing mains are approximate only; where depth information is not available we have assumed existing mains and cables have been laid to typical NJUG specifications. Actual location and depth must be determined by hand dug trial holes.

- Access road construction depths will be no greater than 750mm.
- No allowance for electricity disconnection costs have been made as it is general practice for electricity companies to remove meters, de-energise and disconnect free of charge.
- Water supply pipes are the landowner's responsibility from the stopcock and may be removed as part of your site clearance/demolition works contract.
- BT will carry the cost of providing service to the site boundary, as is their normal practice.

Disclaimer:

The details contained within this feasibility report are based on current information provided by the client and by the relevant statutory undertakers; therefore PDI will accept no responsibility for errors, omissions, and/or discrepancies in this respect.

Furthermore, PDI will not accept responsibility in respect of differences between estimated costs mentioned within this report and eventual actual costs when they are obtained.

WATER

Off-site

Affinity Water records indicate the presence of the following strategic water mains outside the development boundary:

- 300mm water main from the south adjacent to the A10 Trunk road.
- 700mm water main, running East – West, to the North of the development site.

Affinity Water mains identified close to or within the development site boundary:

- 125mm. MDPE main running North - South along Ermine Street.
- 200mm ductile iron main along High Oak Road and Fanham Halls Road.
- 3 inch AC main from East of site, supplying Noahs Ark and the Fanhams Hall complex.
- AC mains, size not detailed on plans, along Cozens Road.
- 4 inch PVC main along Widbury Hill.

Diversions

Water diversions are anticipated to accommodate the proposed access roads to the individual land parcel/phases of the development. Allow a budget cost of **£75,000** for these works

Reinforcement

Due to the size and proximity of the existing water mains to the North and West of the proposed development site, no major reinforcement works are anticipated as a result of the proposed development.

Affinity Water have confirmed that it will be possible to accommodate the initial phases of the development, closest to Ware, from existing capacity within the network.

However, it may be necessary to extend the existing water mains from the junction of the A10, along the proposed A10 – Widbury Hill Link Road in order to accommodate the remainder of the development site. Allow a budget figure of **£276,000** for this work.

On-site

A budget sum of **£924,000** should be allowed for installation of the onsite water main. We would recommend allowing a budget sum of **£1,299,000** for connection of services.

Infrastructure Charges

A sum of **£1,035,000** (based on current Affinity Water costs of £345 per plot, valid until 31st March 2015) should be allowed for infrastructure charges. This excludes sewerage infrastructure charges which would be payable with potable water infrastructure charges at the time of connection.

Summary

Therefore a budget total of **£3,609,000** should be allowed for new water mains for the development as a whole.

GAS

Off-site

National Grid Gas Networks records indicate the presence of the following strategic gas mains outside the development boundary:

- LHP high pressure gas pipeline within the North Western corner of the development site, adjacent to the A10 Trunk road.
- MP gas main crossing the A10 into Ware, close to the South Western boundary of the proposed development site.
- 90mm MP gas main, situated to the South of the development site, within Widbury Hill.

National Grid mains identified close to or within the development site boundary:

- 180 mm. LPPE main running North - South along Ermine Street.
- 180 mm LPPE main along High Oak Road and Fanham Halls Road.
- 90 mm LPPE, main along Fanham Hall Road supplying the Fanhams Hall complex.
- 90mm LP PE, along Cozens Road.

Diversions

Gas diversions are anticipated to accommodate the proposed access roads to the individual land parcel/phases of the development. Allow a budget cost of **£75,000** for these works

It is not anticipated that the HP Gas Pipeline will require diversion to facilitate construction of the new site. This pipeline is protected by a wayleave agreement and is a notifyable pipeline under the PADHI Planning Authority/HSE process. It is assumed that in order to avoid significant diversion costs to the developer the design layout would incorporate the pipeline in its present position. In this event National Grid may insist on the installation of a concrete protection slab in accordance with their document CE12 and SSW 22. Allow a budget of **£30,000** for this work.

Reinforcement

Due to the size and proximity of the existing MP gas network, in order to accommodate the full gas load required to supply 3000 units, reinforcement works are anticipated to the MP Gas main within Widbury Hill. allow **£87,700** for these works.

Our consultations with National Grid, dated 22nd May 2014 have confirmed the following connection points and the number of residential units that can be taken from their existing LP network, without reinforcement, as follows:

200 units from 180 PE main, Ermine Street.
240 units from 180mm main High Oak Rd/Fanhams Hall Road.
50 units from 180mm main Fanham Halls Road.
500 units from 90 mm PE main in Cozens Road.

On-site

Based on an estimated figure of £300 per plot, a budget sum of **£900,000** should be allowed for installation of on site mains and services.

Summary

A budget total of **£1,092,700** should be allowed for provision of gas for the development as a whole.

ELECTRICITY

Off-site:

UK Power Networks are the electric network operator for the area of the proposed site. The proposed development is located between their Ware Primary Sub-stn and Rye House Grid. Their Network records indicate the presence of the following strategic HV/LV mains cables outside the development boundary:

- OHV cables adjacent to A1170, eastern side of Ermine Street, crossing west into proposed development.
- Primary sub –station to the west of A10, HV cables adjacent to the A10 Trunk Road by the SW corner of the proposed 200 units development phase. Further OHV cables heading NE towards A1170 and the GPO Repeater Station.

UK Power Networks mains cables identified close to or within the development site boundary:

- LV mains cables running North - South along Ermine Street and crossing eastwards to Wodson Leisure centre.
- LV mains cables along High Oak Road, supplying Round House and Roundhouse Lodge.
- Existing HV within Fanham Halls Road crossing proposed development area, HV supply to sub-station Fanhams Hall and Hotel complex. HV crossing development site from south to Great Cozens sub – station, south of Fanhams Hall.
- HV supply to Noahs Ark.
- HV sub-station Kingsway East.
- HV sub-station rear of 176 Cozens Road, HV crossing north into Development site.
- HV sub-station side of 11 Barley Ponds Road, HV/LV crossing east into development site.
- HV and LV cables along Widbury Hill, to the south of the Development site.

Diversions

It is preferable to divert the sections of overhead cable that would impact upon construction of the various proposed site access. We anticipate that any overhead cables effected will be replaced with new underground mains laid within the proposed footpath of the new development phases.

A budget sum of **£210,000** should be allowed for diversion of the electric cables.

It may be beneficial to check the land transfer documents to see if the overhead cables are in fact protected by a wayleave/easement agreement, or, the subject of a 'lift and shift' clause.

Reinforcement

Our initial discussions with UK Power Networks confirm that the proposed development site will need to be supplied from Ware Primary Sub station with reinforcement from their Rye House Primary sub station, and there is only limited spare capacity at these primaries. To provide the overall capacity of 12 MVA, UKPN have confirmed that they will need to carry out further upgrades to the primaries as follows:

- Install two new 33kv circuit breakers at Rye House Grid.

- Install two 33kv cables with associated pilot cables from the circuit breakers to Ware Primary, a route length of approximately 7.5km.
- Upgrade the 33/11kv transformers at Ware primary.
- Extend the 11kv switchboard at Ware Primary for your development.

UKPN advise allowing **£6,000,000** for a proposed upgrade to these primary transformers to accommodate the proposed development.

On-site

Based on an estimated 3000 no. residential units, a budget sum of **£2,750,000** should be allowed for the installation of a new electricity mains / services to serve the development. This figure includes for 1no. Boundary sub-station and 10no. on site distribution sub-stations.

Summary

A budget total of **£8,960,000** should be allowed for provision of electricity for the development as a whole.

TELECOMS

Off-site

BT records indicate the presence of the following strategic O/H cables, poles and below ground duct and joint boxes outside the development boundary:

- OH cables crossing A1170 roundabout/Ermine Street, going north, adjacent to the A10 Trunk road.

BT mains cables and joint boxes identified close to or within the development site boundary:

- Duct and joint boxes running North - South along Ermine Street.
- Duct and joint boxes from A1170 into Moles Farm complex.
- OH cables from High Oak Road to south of Round House.
- OH cables supplying Noahs Ark and the Fanhams Hall complex.
- Duct and joint boxes along Cozens Road.
- Duct and joint boxes along Widbury Hill.

Diversions

The exact location of the BT poles and o/h cables is not clear, therefore we recommend allowing a budget sum of **£64,000** for diversion of the existing cables to facilitate construction of the proposed site access roads.

The location of telecoms cables, poles, chambers and cabinets should be considered when detailing the final location of the site access road, as unnecessary diversion works can be avoided.

Reinforcement

BT will provide telecoms service to the site boundary at their expense.

Any costs associated with off-site reinforcements will be borne by BT up to the value of £3,400 per plot. If reinforcement costs exceed this amount, a cost may be incurred. Reinforcement costs are not anticipated to be required to serve this development.

On-site

All site materials will be supplied free of charge by BT.

A budget sum of **£83,000** should be allowed for the installation of on site BT ducting and the construction of new BT joint boxes.

Summary

Therefore a budget total of **£147,000** should be allowed for new telecoms infrastructure for the proposed development as a whole.

CABLE TV

Virgin Media records indicate the presence of the following strategic below ground duct and joint boxes outside the development boundary:

- Duct and cables along west side of Ermine Street, crossing south of A1170 roundabout to supply leisure centre.

Virgin Media Duct and joint boxes identified close to or within the development site boundary:

- Duct and joint boxes running North - South along Ermine Street.
- Duct and joint boxes along
- Duct and joint boxes along High Oak Road.
- Duct and joint boxes along Fanhams Hall Road.
- Duct and joint boxes along Cozens Road.
- Duct and joint boxes along Widbury Hill.

Off-site, diversions and reinforcement

It is preferable to divert the sections of cable duct that would impact upon construction of the various proposed site access roads. The exact location of joint boxes is not clear, therefore we recommend allowing a budget sum of **£64,000** for diversion of the existing cables to facilitate construction of the proposed site access roads.

The location of Virgin Media cables, chambers and cabinets should be considered when detailing the final location of the site access road, as unnecessary diversion works can be avoided.

On-site

No requirement for cable infrastructure has been identified at this time.

Summary

Therefore a budget total of **£64,000** should be allowed for new telecoms infrastructure for the proposed development as a whole.

STREET LIGHTING

Off-site, column-removal and/or relocation

No existing lighting columns are indicted within the proposed development area.

Proposed

No details of proposed lighting columns have been provided.

Should lighting columns be required, we would recommend a budget sum of £1000 per column and £800 per connection.

In instances where private lighting is required we assume this would be run off a landlord's supply or alternatively a metered feeder pillar.

Based on the site area we would recommend allowing a budget sum of **£270,000**.

Summary

A budget sum of **£270,000** should be allowed for the installation of new street lighting columns.

OIL PIPELINES

No strategic oil pipelines have been identified as passing through the site.

Asset owners confirmed unaffected are:

BOC Limited (A Member of the Linde Group)
BP Exploration Purbeck Southampton Pipeline
BPA
Centrica Energy
ConocoPhillips (UK) Ltd
ConocoPhillips Ltd Humber Refinery
Coryton Energy Co Ltd (Gas Pipeline)
E-on UK Plc (Gas Pipelines Only)
Esso Petroleum Company Limited
FibreSpeed Limited
Geo Networks Limited
Government Pipelines & Storage System
INEOS Manufacturing (Scotland and TSEP)
Ineos Enterprises Limited
Mainline Pipelines Limited
Manchester Jetline Limited
Marchwood Power Ltd (Gas Pipeline)
NPower CHP Pipelines
National Grid Gas and Electricity Transmission
Oikos Storage Limited
Premier Transmission Ltd (SNIP)
SABIC UK Petrochemicals
Scottish Power Generation
Shell UK Ltd
Star Energy
Total UK (Finaline, Colnbrook & Colwick Pipelines)
Wingas Storage UK Ltd

COST Summary

	Off-Site Work	Cost (£'s)	On-Site Work	Cost (£'s)	Rebate (£'s)	Sub-Totals (£'s) by utility type
Water	Off-Site diversions Reinforcement	75,000.00 276,000.00	onsite mains installation service connections infrastr' charge	924,000 1,299,000 1,035,000		3,609,000
Gas	Diversions HP Protection slab MP reinforcement	75,000.00 30,000.00 87,700.00	Mains and services installation	900,000		1,092,700
Electricity	O/H diversion HV/Lvcable div' Primary Upgrade	210,000.00 6,000,000.00	Mains and services Installation/ Sub-station	2,750,000		8,960,000
Telecoms	Diversions	64,000.00	duct and joint boxes	83,000		147,000
Cable TV	Diversions	64,000.00				64,000
Street Lighting			Supply, Installation and Connections of columns	270,000		270,000
Sub-Totals (£'s) by Off-site/on-site		6,881,700		7,261,000	0	

Total (£'s) 14,142,700

Note: The above sums whether actual or estimated do not include VAT unless otherwise stated.

APPENDICES

Copies of material provided by you and/or the statutory undertakers that has been used in preparing this report are contained within the following sections:

Customer > Site Location Plan	Reference > Received 29 th April 2014
Cable TV > Virgin Media	SG127PX dated 13-5-14
Water > Affinity Water	Reference > 14.331-1:3600 dated 1-5-14
Gas > National Grid Records	Reference > TL3516,TL3715,TL3714,TL3815
Electricity > UK Power Network Records	Reference > 2014/2156731 dated 8/5/14
Telecoms > BT openreach Records	Reference > JHE015051 dated 30-4-14
Oil Pipelines > Linesearch Enquiry	Reference > LS-BUD 1965666,1965836,1965935 1965996,1966082