FOUL DRAINAGE & UTILITIES ASSESSMENT
Proposed Residential Development
Site F, Thame, Oxfordshire

Prepared for: Regeneration Holdings Ltd
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<td>J Birch</td>
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Glanville

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Executive Summary

Site F has been selected by South Oxfordshire District Council (SODC) as the preferred site for large-scale housing development in Thame following consultation on the Council’s Core Strategy Options.

A Foul Drainage & Utilities Assessment has been prepared as a technical appendix to the concept masterplan that will accompany SODC’s Core Strategy submission for Site F in mid-March 2011.

The principal public utility companies which serve the Thame area are Southern Gas Networks, Thames Water (potable water and sewerage), EDF Energy (electricity) and British Telecom (BT).

Gas, potable water, electricity and telecommunication services all exist adjacent to the site along Oxford Road. Supplies of gas are present in both medium and low pressure mains. Potable water pipework exists in both local distribution mains and a large trunk main. Electricity supply is present in both high voltage and low voltage networks. BT ducts exist on both sides of Oxford Road and along the south side of the A418. A public foul sewer exists past the site on Oxford Road.

Once planning approval is granted, detailed plans and service loadings will be submitted to each service provider so that proposals and quotations can be obtained for new supplies.

None of the utility searches has indicated apparatus within the boundary of Site F and thus it is unlikely that service diversions will be necessary to enable the site to be developed. However, two vehicular accesses are proposed to serve Site F from Oxford Road and both accesses cross existing underground and/or overhead services which may require diversion and/or protection. Detailed proposals and cost estimates for the accommodation works required to facilitate the construction of the site accesses will be obtained from the affected utility companies.

Due to the local topography it is likely that foul water from Site F will drain under gravity to the south-eastern corner of the site where a new foul water pumping station will be provided that will discharge to the public foul sewer in Oxford Road.

The capacity of existing foul water infrastructure in the Thame area is currently being reviewed by Thames Water in view of the proposed development of Site F. Thames Water is expected to report on the need for any infrastructure upgrades in March 2011.

In conclusion, it is considered that there should be no significant difficulty in providing new infrastructure to serve Site F or any significant abnormal costs that would prevent the site from being developed for residential purposes.
1.0 Introduction

1.1 Site F has been selected by South Oxfordshire District Council (SODC) as the preferred site for large-scale housing development in Thame following consultation on the Council’s Core Strategy Options. SODC’s Core Strategy submission is to be subject of Examination in Public in Summer 2011.

1.2 Glanville Consultants has been engaged by Regeneration Holdings Ltd to prepare a Foul Drainage & Utilities Assessment as a technical appendix to the concept masterplan that will accompany SODC’s Core Strategy submission for Site F in mid-March 2011.

1.3 This report considers all existing services known to be located in the vicinity of the site. It examines the existing situation, the feasibility of providing new connections and the need for diversionary work. The utility services considered include:

- Gas
- Water
- Electricity
- Telecommunications

1.4 The report also outlines a strategy for the disposal of foul water from the site once developed for residential purposes.

1.5 The surface water drainage strategy can be found in the Flood Risk Assessment, which has been prepared as a separate technical appendix to the concept masterplan for Site F.
2.0 The Proposed Development Site

2.1 The site is located approximately 1.2km north-west of Thame town centre. It is bounded by the River Thame to the north, the A418 Thame bypass to the west, Oxford Road to the south and Cuttle Brook, residential properties and open fields to the east.

2.2 The site is located at Landranger Grid Reference SP 695 061.

2.3 A site location plan can be found at Appendix A.

Existing Site Description

2.4 The total site area is 34.7Ha, all of which is farmland and used for grazing livestock.

2.5 The site falls steadily from south-west to north-east towards the River Thame and Cuttle Brook. Approximately 7.6Ha of land adjacent to these watercourses is within the flood plain, and so the area suitable for accommodating residential development is 27.1Ha, including roads and green spaces

Proposed Development

2.6 The proposed development is known as “Site F”. Site F has been selected by South Oxfordshire District Council (SODC) as the preferred site for large-scale housing development in Thame following consultation on the Council’s Core Strategy Options. SODC’s Core Strategy submission is to be subject of Examination in Public in Summer 2011.

2.7 It is proposed to provide a total of 530 residential dwellings on Site F. Of these, 60% will be designated as ‘open market’ and 40% will be designated as ‘affordable’.

2.8 A concept masterplan has been developed for Site F to show how the various land uses can be accommodated to meet SODC’s adopted standards. A copy of the concept masterplan for Site F is included at Appendix B.
### 3.0 Utilities

#### Existing Services

3.1 Records have been obtained from utility companies known to have sewers, plant and apparatus within and surrounding the site. The principal public utility companies that serve the Thame area are:

- Southern Gas Networks (gas)
- Thames Water (potable water & sewerage)
- EDF (electricity)
- British Telecom (telecommunications)

3.2 Copies of the service records obtained are included in the appendices stated below.

3.3 An internet based enquiry using www.linesearch.org was also concluded to ascertain the presence of more obscure or confidential utilities such as Government Pipelines (GPSS) and High Pressure Pipelines. A list of utilities not found to be present in the area is included in Appendix C for reference.

#### Gas

3.4 Records obtained from Southern Gas Networks are included in Appendix D for reference. Record information indicates there are medium pressure (MP) and low pressure (LP) gas mains running the length of Oxford Road, serving Thame to the south and east of the site.

3.5 The LP main runs from the centre of Thame on the south side of Oxford Road and ends in Highfield Close at the south-western end of the site. This main serves properties to the south of Oxford Road. The MP main runs from Thame on the north side of Oxford Road and continues to the west of the site along the A418.

3.6 There is no Southern Gas Networks apparatus indicated within the development site boundary.

#### Potable Water

3.7 Record information obtained from Thames Water is included at Appendix E. The records indicate there is an existing network of water mains serving Thame, with a distribution main running along the south side of Oxford Road and south along Rycote Lane, south of the site. There is also a trunk main, used for the bulk distribution of water, running along the north side of Oxford Road, crossing to the south side of Oxford Road immediately to the east of Highfield Close and then running west along the A418.

3.8 There is no Thames Water apparatus indicated within the development site boundary.

#### Electricity

3.9 Record information obtained from EDF Energy is included at Appendix F. The records indicate that there are existing networks of both high and low voltage supplies along Oxford Road.
3.10 There are three substations positioned along Oxford Road located adjacent to the water main booster station in Highfield Close, at Lord Williams School and at the foul water pumping station near Cuttle Brook.

**Telecommunications**

3.10 Record information obtained from British Telecom (BT) is included at Appendix G. This information indicates there are two ducts running along Oxford Road serving Thame to the south and east of the site, and a single duct following the western boundary in the verge of the A418 bypass.

3.11 There is no BT apparatus indicated within the development site boundary.

**New Supplies**

3.12 Gas, water, electricity and telecommunication services exist adjacent to the site along Oxford Road and serving the main urban area of Thame to the south and east of the site. Proposals for servicing the site have not yet been obtained from the utility companies.

3.13 Given the scale of the development and the extra demand it will generate to existing services, a detailed assessment will be required in order to determine if any reinforcement of local supply networks is required. It is likely that new electricity sub stations will be required, however, the adjacent supplies of gas and water are relatively large scale installations (medium pressure gas and trunk water main), and so may already have sufficient capacity to serve Site F.

3.14 Thames Water's potable supply is provided from Long Crendon reservoir. The effect of the extra demand will need to be modelled at the detailed design stage.

3.15 Once planning approval is granted for residential development on Site F, detailed plans and service loadings will be submitted to each service provider so that proposals and quotations can be obtained for new supplies.

3.16 A more in depth investigation will be required to ascertain the precise location and depths of the utilities when there are plans to make connections.

**Diversions**

3.17 None of the utility searches has indicated apparatus within the boundary of Site F and thus it is unlikely that service diversions will be necessary to enable the site to be developed.

3.18 Two vehicular accesses are proposed to serve Site F from Oxford Road and both accesses cross existing underground and/or overhead services which may require diversion and/or protection. Detailed proposals and cost estimates for the accommodation works required to facilitate the construction of the site accesses will be obtained from the affected utility companies at the detailed design stage.
4.0 **Foul Water Drainage**

**Existing Situation**

4.1 Sewer records obtained from Thames Water are included in Appendix E and indicate a comprehensive network of public foul sewers serving Thame. These records only show those sewers that are maintained by Thames Water. Other privately owned sewers may be present in the vicinity of the site, but these are not shown on public records.

4.2 A single foul water gravity sewer exists adjacent to the site, which runs along the south side of Oxford Road and crosses to the north side of the road to the east of Town Farm Close. This sewer serves properties to the north and south of Oxford Road and discharges to a pumping station near the south-eastern end of the site, just to the west of the road bridge over Cuttle Brook. A rising main from this pumping station discharges to a gravity sewer to the east of Cuttle Brook from where it flows east through the town centre.

4.3 Thame’s sewage treatment works is located to the north of the town, to the north of Kingssey Road and to the west of Moorend Lane.

4.4 No public foul sewers are located within the development boundary.

**Proposed Foul Water Drainage Strategy**

4.5 Thames Water has been contacted and has indicated that Site F would be the preferred location for large-scale housing in Thame, in terms of sewage treatment infrastructure; because Site F is closer to the sewage treatment works than the alternative sites.

4.6 Thames Water has also indicated that detailed modelling will be required to assess the capacity of existing infrastructure and the impact the development of Site F will have on demand to establish whether any upgrading will be required. A detailed report with costings is expected from Thames Water in March 2011.

4.7 Due to the local topography, it is likely that foul water from Site F will drain under gravity to the south-eastern corner of the site where a new foul water pumping station will be provided that will discharge to the existing public foul sewer in Oxford Road. The foul water drainage strategy is outlined in the drawing included at Appendix H.

4.8 The proposals will be reviewed during development of the detailed design and with the results of Thames Water’s modelling to ensure that Site F can be integrated with the wider infrastructure requirements of Thames Water.

4.9 All additional foul water infrastructure constructed to serve Site F will be designed in accordance with sewers for Adoption, 6th Edition and current best practice. It is envisaged that the new infrastructure will be offered to Thames Water for adoption under Section 104 of the Water Industry Act, 1991.
5.0 Summary and Conclusions

5.1 Site F has been selected by South Oxfordshire District Council as the preferred site for a large-scale housing development in Thame. It is proposed to provide a total of 530 residential dwellings on the site.

5.2 The feasibility of providing the proposed development with gas, water, electricity and telecommunication supplies has been considered, along with a strategy for the disposal of foul water from the site once developed.

5.3 Gas, water, electricity and telecommunication services exist adjacent to the site along Oxford Road.

5.4 Given the scale of the development, and the extra demand it would generate, a detailed assessment is required in order to establish if any upgrading of services are required. However, the adjacent supplies of gas and water are relatively large size installations and may therefore already have sufficient capacity to serve Site F.

5.5 A more in depth investigation will be required to ascertain the precise location and depths of the utilities when there are plans to make a connection.

5.6 It is likely that service diversions and/or protection will be necessary to facilitate the construction of the two proposed accesses to the site from Oxford Road.

5.7 Once planning approval is granted for residential development on Site F, detailed plans and service loadings will be submitted to each service provider so that proposals and quotations can be obtained for new supplies.

5.8 The capacity of existing foul water infrastructure in Thame is currently being reviewed by Thames Water and a report on the need for any infrastructure upgrades to serve Site F is expected in March 2011.

5.9 In conclusion, it is considered that there should be no significant difficulty in providing new infrastructure to serve Site F or any significant abnormal costs that would prevent the site from being developed for residential purposes.
Appendices
Appendix A

Location Plan
Appendix B

Concept Masterplan
Appendix C

Linesearch Enquiry Result
Search Results

Thank you for your enquiry: LS-110223-YT-170-PHN

Thank you for your enquiry, there is no further action necessary.

Please note
The Linesearch.org system only contains information on National Grid’s Transmission assets. All other National Grid or other local high pressure (above 7 bar) gas pipelines and lower pressure gas mains are not included.

For all other energy network operators’ information and contact details see http://2010.energynetworks.org/

Please quote the Linesearch enquiry reference number in *all* correspondence

Please print this screen for your records.

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System by eShopworks
Appendix D

Southern Gas Networks
Appendix E

Thames Water
The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified before any works are undertaken. Crown copyright Reserved

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Sewer Key - Commercial Drainage and Water

Public Sewer Types (Operated & Maintained by Thames Water)

- **Foul**: A sewer designed to convey waste water from domestic and industrial sources to a treatment works.
- **Surface Water**: A sewer designed to convey surface water (e.g., rainwater from roofs, yards, and car parks) to rivers or watercourses.
- **Combined**: A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.

Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

- **Air Valve**
- **Dam Chase**
- **Fitting**
- **Meter**
- **Vent Column**

Operational Controls

A feature in a sewer that changes or diverts the flow in the sewer. Example: A hydrobrake limits the flow passing downstream.

- **Control Valve**
- **Drop Pipe**
- **Ancillary**
- **Weir**

End Items

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol. Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

- **Outfall**
- **Undefined End**
- **Inlet**

Other Symbols

Symbols used on maps which do not fall under other general categories

- **Public/Private Pumping Station**
- **Change of characteristic indicator (C.O.C.I.)**
- **Invert Level**
- **Summit**

Areas

Lines denoting areas of underground surveys, etc.

- **Agreement**
- **Operational Site**
- **Chamber**
- **Tunnel**
- **Conduit Bridge**

Other Sewer Types (Not Operated or Maintained by Thames Water)

- **Foul Sewer**
- **Surface Water Sewer**
- **Combined Sewer**
- **Gulley**
- **Culverted Watercourse**
- **Proposed**
- **Abandoned Sewer**

Notes:

1) All levels associated with the plans are to Ordnance Datum Newlyn.

2) All measurements on the plans are metric.

3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate direction of flow.

4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.

5) ‘na’ or ‘0’ on a manhole level indicates that data is unavailable.

6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in millimetres. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement. If you are unsure about any text or symbology present on the plan, please contact a member of Property Insight on 0118 925 1504.
The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified before any works are undertaken. Crown copyright Reserved.
Waterworks Key - Commercial Drainage and Water Enquiry

**PIECE DIAMETER DEPTH BELOW GROUND**
- Up to 300mm (12") 900mm (3')
- 300mm - 600mm (12" - 24") 1100mm (3' 8")
- 600mm and bigger (24" plus) 1200mm (4')

**Distribution Main**: The most common pipe shown on water maps. With few exceptions, domestic connections are only made to distribution mains.

**Trunk Main**: A main carrying water from a source of supply to a treatment plant or reservoir, or from one treatment plant or reservoir to another. Also a main transferring water in bulk to smaller mains used for supplying individual customers.

**Supply Main**: A supply main indicates that the water main is used as a supply for a single property or group of properties.

**Fire Main**: Where a pipe is used as a fire supply, the word "FIRE" will be displayed along the pipe.

**Metered Pipe**: A metered main indicates that the pipe in question supplies water for a single property or group of properties and that the quantity of water passing through the pipe is metered even though there may be no meter symbol shown.

**Transmission Tunnel**: A very large diameter water pipe. Most tunnels are buried very deep underground. These pipes are not connected to the structural integrity of buildings shown on the map provided.

**Proposed Main**: A main that is still in the planning stages or in the process of being laid. More details of the proposed main and its reference number are generally included near the main.

**Operational Sites**
- Booster Station
- Other
- Other (Proposed)
- Pumping Station
- Service Reservoir
- Shaft Inspection
- Treatment Works
- Unknown
- Water Tower

**Water Pipes** (Operated & Maintained by Thames Water)
- Hydrants
- Meters
- Valves
- End Items
- Framework
- Blank Flange
- Capped End
- Undefined End
- Manifold
- Customer Supply
- Fire Supply

**Other Water Pipes** (Not Operated or Maintained by Thames Water)
- Data Logger
- Other Symbols
- Other Water Company Main: Occasionally other water company water pipes may overlap the border of our clean water coverage area. These mains are depicted with the owner of the pipe displayed along them.
- Private Main: Indicates that the water main in question is not owned by Thames Water. These mains normally have text associated with them indicating the diameter and owner of the pipe.
Appendix F

EDF Electricity
Appendix G

British Telecom
Appendix H

Proposed Foul Water Drainage Strategy
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