

Ecology

An **Ecological Impact Assessment (EclA)** is currently being formulated for the site at the Land north of Camp Road, Heyford Park, Oxfordshire to demonstrate a technical understanding of the ecological constraints of the Site.

Statutory & Non-statutory Sites

No designated sites were located on site. Non statutory designated sites were located within short distance to the site. Effects upon these sites can be managed within the EclA. The site lies within Impact Risk Zones (IRZ) for two nationally designated sites. The site proposals are of a type that are likely to impact these designated sites. Impacts on these sites can be managed within the EclA.

Habitats

The habitats on site included ephemeral vegetation, amenity grassland, improved grassland, broadleaved plantation woodland, dense and scattered scrub,

broadleaved scattered trees, poor semi-improved grassland, tall ruderal, inundation vegetation, standing water, intact species-poor hedgerow, intact species poor with trees, dry and

KEY:

-  Site boundary
-  Existing ponds with indicative buffer
-  High risk item - roosting bats, GCN
-  Moderate risk item - breeding birds, invertebrates
-  High risk item - red kite nest
-  Moderate risk item - horsetail
-  Habitats to be created
-  Habitats to be enhanced
-  Hedgerows to be retained and enhanced
-  Existing watercourse
-  Ecological corridors/networks

Ecology Opportunities and Constraints



wet ditch, stream, buildings and bare ground. Six hedgerows were located on site and are Habitats of Principal Importance under the NERC Act (2006) (HPI). If more than 20m of the hedgerows are to be removed, then further hedgerow assessment (HEGS) should be conducted. Four other HPI habitats were located within close proximity to the site. Impacts on these habitats can be managed within a Construction and Environmental Management Plan (CEMP). Horsetail was also located on site. If this plant is to be impacted as part of the works, it should be carefully removed by hand and treated.

Protected Species

Four ponds were located on site which are considered to be breeding habitats for great crested newts (GCN). These ponds are to be retained. However, habitats suitable for GCN are to be removed in close proximity to these ponds. Therefore, a mitigation licence from Natural England is recommended to permit development.

A red kite nest was identified on site. Further red kite surveys are recommended on site to be undertaken in the spring to determine the location and usage of the red kite nests on site prior to construction works.

The habitats on site including ephemeral vegetation, inundation vegetation, marginal vegetation, scrub, hedgerows and woodland are suitable for invertebrate species.

Two moderate bat roosting potential trees were located on site close to the roads to be constructed on site. It is recommended that these trees are retained, and a root protection zone is installed on these trees. Habitats on site are suitable for commuting and foraging bats. Sensitive bat lighting strategy is recommended to be detailed within a CEMP to reduce impacts on these habitats.

Water vole surveys were conducted on site which revealed the stream of site to not be used by water voles with surrounding foraging habitats being suboptimal for water voles.

Design Considerations

A number of key design considerations have emerged following the baseline review and should be incorporated into the masterplan. These are summarised below:

- High value habitats e.g. ponds, woodland and wetland should be retained with low value habitats preferred for removal e.g. improved grassland;
- Hedgerows should be retained and enhanced where possible. Removal of hedgerows should be minimised. Enhancement should include 'gapping up' of hedgerows using native species to improve connectivity. Root protection zones should be installed around hedgerows to prevent disturbance to commuting species during construction;
- Bat, bird and hedgehog boxes are recommended on trees, buildings and hedgerows on site, as well as insect hotels;
- Habitats such as scrub, broadleaved plantation woodland and grassland on site should be enhanced using tree and native planting. New habitats should be created on site, two ponds, wildflower meadows and woodland;
- Soft landscaping proposals should deliver new tree, hedgerow and woodland planting to provide an overall enhancement to tree canopy cover of the Site, as well as multi-functional environmental and amenity benefits. A suitable ongoing management plan should be in place to support protected species should they be present and ensure ongoing biodiversity gain; and
- The site should also be enhanced by excluding and avoiding construction works around horsetail (invasive species) and for the horsetail to be treated on site.'

Flood Risk & Drainage

A **Flood Risk Assessment** has been undertaken by BWB Consulting to demonstrate an understanding of the Site.

The Site is greenfield in nature and the topography of the Site falls to the southwest with an ordinary watercourse system present and running north to south within the western parcel.

Mapping held by the British Geological Survey (BGS) demonstrates that the Site and immediate surrounding area is underlain by limestones of the White Limestone Formation, with no recorded superficial deposits. These deposits are not considered to be within a Source Protection Zone (SPZ).




Flood risk

The Environment Agency (EA) Flood Map for Planning does not include the ordinary watercourse located to the west of the Site. In the absence of this mapping, EA surface water flood risk mapping has instead been used to inform the flood extent of this watercourse. The mapping demonstrates that surface water flooding associated with this watercourse does not encroach upon the areas proposed for development.

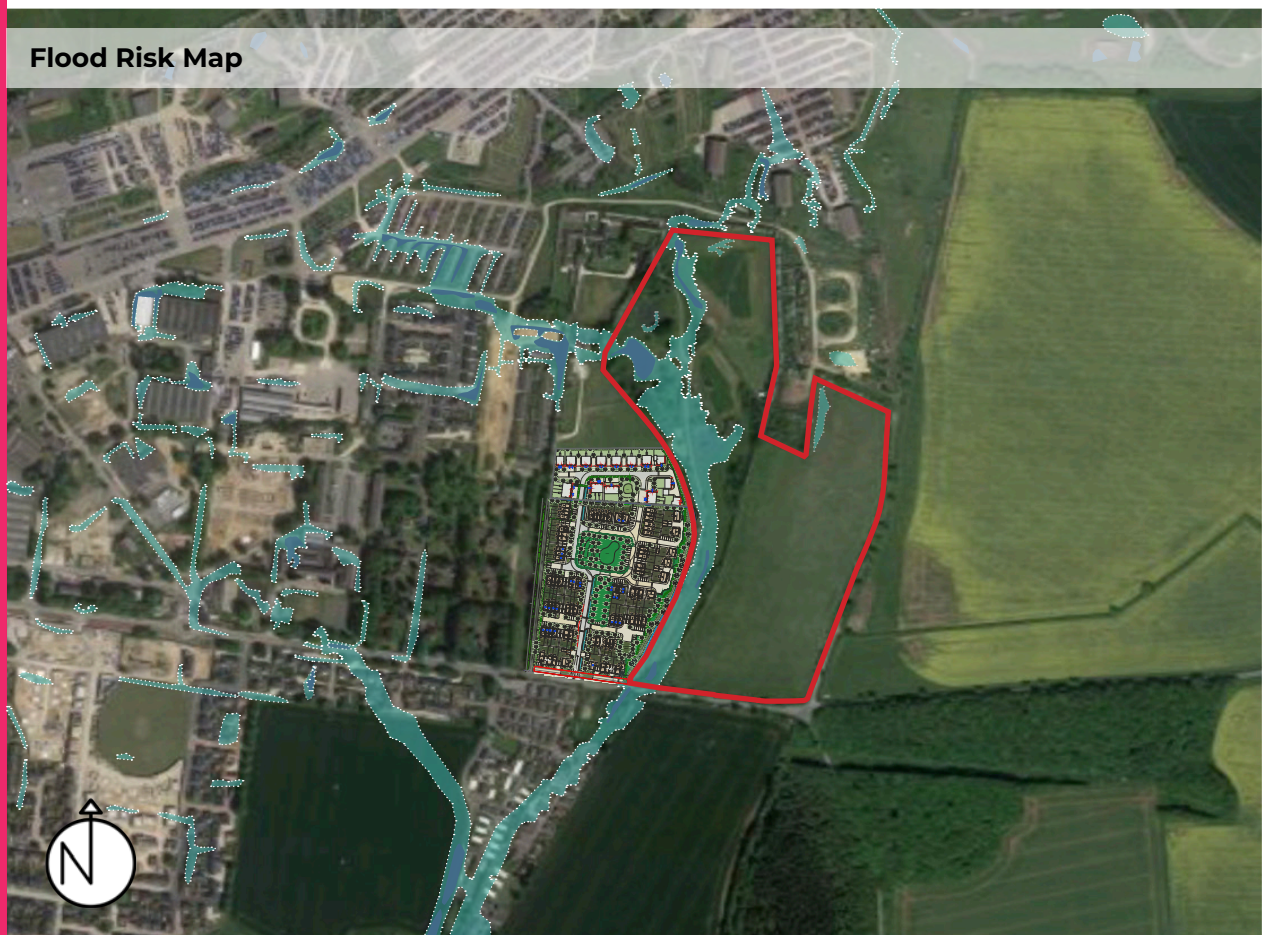
This approach is considered conservative and there is likely to be opportunities to refine flood extents as part of more detailed assessments at a later stage.

Furthermore, the mapping demonstrates that the majority of the land proposed for development is at a very low risk of surface water flooding with only isolated areas of low (1 in 1000 year event) to medium (1 in 100 year event) probability of surface water flooding being located within the development parcels. Available LiDAR data demonstrates this is associated with topographical depressions and unlikely to represent actual fluvial flood risk.

KEY:

-  Site boundary
-  Low - Medium Risk (1 in 1000 - 1 in 100 years)
-  High Risk (1 in 30 years)

Flood Risk Map



The proposed development has also been assessed against a further range of potential flood risk sources including canals, groundwater, reservoirs and sewers. None of these flood sources have been found to pose a barrier to any potential development.

Proposed Surface Water Drainage

An appropriate Surface Water Management Strategy, which complies with the latest local and national advice as well as Sustainable Drainage Systems (SuDS) principals (Amenity, Biodiversity, Water Quality and Water Quantity), will be implemented on the Site to attenuate the increase in surface water runoff caused by development. In line with the first tier of the drainage hierarchy, the use of infiltration should be investigated owing to the favourable ground conditions in the form of freely draining soils and an underlying geology of limestone. Soakaway testing performed as part of the planning application site to the west has demonstrated favourable infiltration rates which have enabled the use of a largely infiltration led surface water drainage strategy.

In the absence of infiltration testing for this Site, a discharge to the adjacent watercourse system has instead been assumed for the purpose of preparing the illustrative layout. Surface water runoff from the development is proposed to be stored in a series of detention basins located at the low point of the development. In line with national and local guidance it is proposed that these will discharge to an appropriate point within the wider surface watercourse network at a rate equivalent to the greenfield QBAR rate. Appropriate storage will be provided to accommodate runoff for all events up to the 1 in 100-year event, with an additional allowance for both climate change and urban creep.

Through the application of Sustainable Urban Drainage Systems (SuDS), surface water will be stored within the Site and subjected to multiple stages of treatment to guarantee that the water quality in the wider area is protected. Wherever possible SuDS features will be above ground to enhance the aesthetic amenity of the development and provide valuable habitats for the local wildlife. Example SuDS features that will

be incorporated into the development wherever possible include dry extended detention basins, swales and permeable paving.

Foul Water Drainage

It is proposed to drain foul water separately from surface water. Foul flows from the development will either be conveyed to a public foul sewer west of the Site, conveyed to a private waste treatment centre to the south (subject to agreement) or treated on-site by a small-scale treatment plant. Due to the distance to foul sewer network, it is likely a connection offsite would require a foul pumping station. Should an option be chosen in which a foul pumping station is required, it will be located in the lowest point of the development parcel(s) which will enable a gravity connection to be made from the development. Additionally, a 15m cordon sanitaire will be provided around any pumping station for foul drainage management of the Site.

Design Considerations

A number of key design considerations have emerged following the baseline review, and should be incorporated into the evolving masterplan. These are summarised below:

- Proposed drainage basins should be located on the Site in such a way that they respond to existing site levels and that they connect into the existing infrastructure network;
- The proposed basin(s) should be sized and positioned to take account of the requirements of the new development and the existing constraints of the Site; and
- Incorporation of SuDS features, including swales, dry extended detention basins and permeable paving, to provide water quality and biodiversity benefits.

Utilities

A **Desk Based Utilities Assessment** has been undertaken by BWB Consulting to demonstrate an understanding of the Site.

It has been identified that, electricity and telecommunications infrastructure are located within the development boundary, and adjacent clean water. Also noted in the area is a network of GTC owned gas infrastructure, and Thames Water combined sewerage network.

An online search was conducted using Line Search and Digdat and portals to identify the potential affected utility providers who have assets on or in the vicinity of the development area. Those identified can be seen in the table below.

Scottish and Southern Energy (SSE) (Electricity)

Records indicate that within the boundary at the south along Camp Road there are two 11kV cables that head west to east to a pole mounted overhead 11kV network, these 11kV overheads travel north within the boundary before diverting west across the boundary. They terminate at a pole mounted transformer into an underground LV supply, supplying the agricultural buildings north-west of the boundary.

At this point SSE have not been contacted in relation to diversionary works, it is anticipated that protection or diversionary works would be required once the masterplan is finalised to negate the build over of assets.

SSE have a well-established low and high voltage network to the west (Upper Heyford) and south of site, offering potential to provide suitable

points of electricity connection, a strategy will need to be agreed with SSE to understand capacity and delivery requirements.

GTC (Electric)

The GTC Record plans show a network of LV mains present within the residential properties north and south of Camp Road, adjacent Larsen Road. The GTC service area terminates beyond the western site boundary and shows that the site boundary is clear of assets.

GTC (Gas)

GTC gas have apparatus in Upper Heyford adjacent to Larsen Road supplying residential properties west of the site boundary, this network terminates beyond the western site boundary.

The proposals do not have an adverse effect on this network and could offer a suitable point for connection; a strategy will need to be agreed with GTC to understand capacity and delivery requirements.

Scotia Gas Networks (Gas)

The Site boundary and wider area is shown to be clear of SGN assets. Further, the SGN record plans show that the residential properties in the vicinity of Larsen Road to the north and south of Camp Road are supplied by GTC in the absence of SGN assets in the area.

Thames Water (Potable Water)

Thames Water (TW) records indicate that a 355mm High Performance Polyethylene Pipe (HPPE) water main is present running outside the southern boundary along Camp Road. Parallel to the 355mm main there is a 16" clean water trunk main and these assets head in a west to east direction within the

Utility	Provider	Existing Infrastructure
Electricity	Scottish and Southern Energy	Within the Site
Electricity	GTC	Near the Site
Gas	GTC	Near the Site
Gas	Scotia Gas Networks (SGN)	Near the Site
Portable Water	Thames Water (TW)	Near the Site
Foul/Surface Water	Privately owned	Near the Site
Telecommunications	Openreach (OR)	Within and near the Site

carriageway. This network may offer a suitable point of connection for the development.

Drainage Infrastructure (Wastewater)

Thames Water (TW) records indicate that there is a privately owned combined drainage infrastructure which exists adjacent to the proposed development, this network terminates within a sewerage treatment works west of the site boundary, located south of Camp Road. Although these assets are showing with the records received from TW, these assets are not owned or maintained by TW, however there this network may offer a suitable point of connection for the proposed development.

Openreach (Telecommunications)

Openreach records indicate that along Camp Road to the south are assets outside the proposed site boundary which slightly enters the boundary at the far south-east before exiting and continuing along Camp Road, also heading northwards up Chilgrove Drive in the verge across the road from the site boundary.

At the north of the boundary the underground BT asset changes into an overhead service within the boundary, before exiting and supplying agricultural buildings further north-west.

Openreach records indicate the proposals do not have an adverse effect on the development but offer a potential for connection; a strategy will need to be agreed with Openreach to understand capacity and delivery requirements.

HSE

The HSE consultation received confirms that the identified site does not lie within an HSE zone of hazard, accident, or pipeline, and confirms that the HSE does not need to be consulted for this development.

Conclusions

Early indication is that utility capacity can be provided by existing infrastructure or through network reinforcing works. Consideration will need to be given to continue the supply to the existing customers, while facilitating the delivery of the new development.

It is not anticipated that any of these utilities identified are in any way a barrier to the development site and there is no reason why the development should not be allocated from a utility's perspective.

Design Considerations

A number of key design considerations have emerged following the baseline review and should be incorporated into the evolving masterplan. These are summarised below:

- It is assumed that utility capacity can be provided by existing infrastructure or through network reinforcing;
- Overhead electricity cables should be incorporated into the design where possible. If necessary there could be an opportunity for them to be diverted or undergrounded; and
- The inclusion of Electrical Vehicle charging points should be considered.

