



SITE BOUNDARIES

SOUTH PLATEAU - NORTH EAST BOUNDARY

BOUNDARY CONDITION : WATERSIDE

The most prominent site boundary, facing onto the riverside and bounded by the bank and rivercourse below. Direct relationship with the A4232 running parallel to the site the whole length of this boundary. Introduces significant risk for acoustics. The levels also present an issue in terms of the connection to the waterside with the proposed FFL of the site potentially sitting some way above the water level. Existing features: trees, steep bank, existing jetty area. Currently this boundary is private space as part of the site but as the most public facing existing boundary it has the potential to offer a space accessible to the public as well as future residents. Beyond the A4232 lies Cardiff's Capital Retail Park and other commercial and industrial facilities located within Cardiff. There is also a potential to reconnect this boundary with the Ely Trail to the South Western tip of the site where it return to woodland and the SINC.



SOUTH PLATEAU - NORTH WEST BOUNDARY

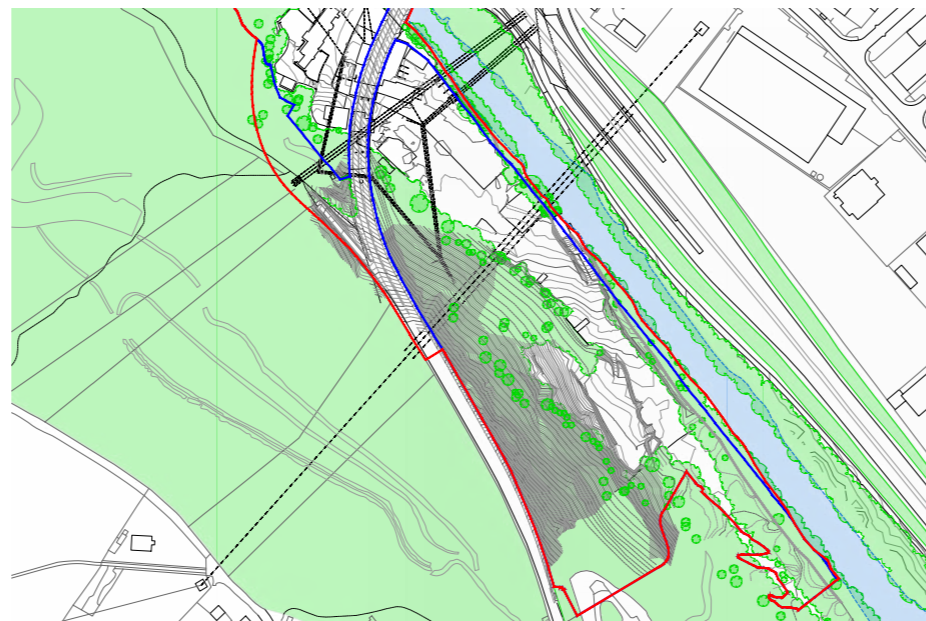
BOUNDARY CONDITION : ROAD FRONTAGE

A new site boundary will emerge with the implementation of the new road layout. This has the potential to divide the site into two distinct areas.

SOUTH PLATEAU - SOUTH WEST BOUNDARY

BOUNDARY CONDITION : WOODLAND BACKDROP

The steeply rising back and heavily wooded area gives much of the landscape character to this boundary and the wider site. The back drop of woodland which ascends all the way up the slope to the South West of the site is a defining characteristic of this site. This is interrupted by the road at the site boundary but this is currently completely concealed within the site. The Pre Application advised that the new road coming from Cardiff would need to be equally concealed within a new tree line although this may not be possible until further along the road.



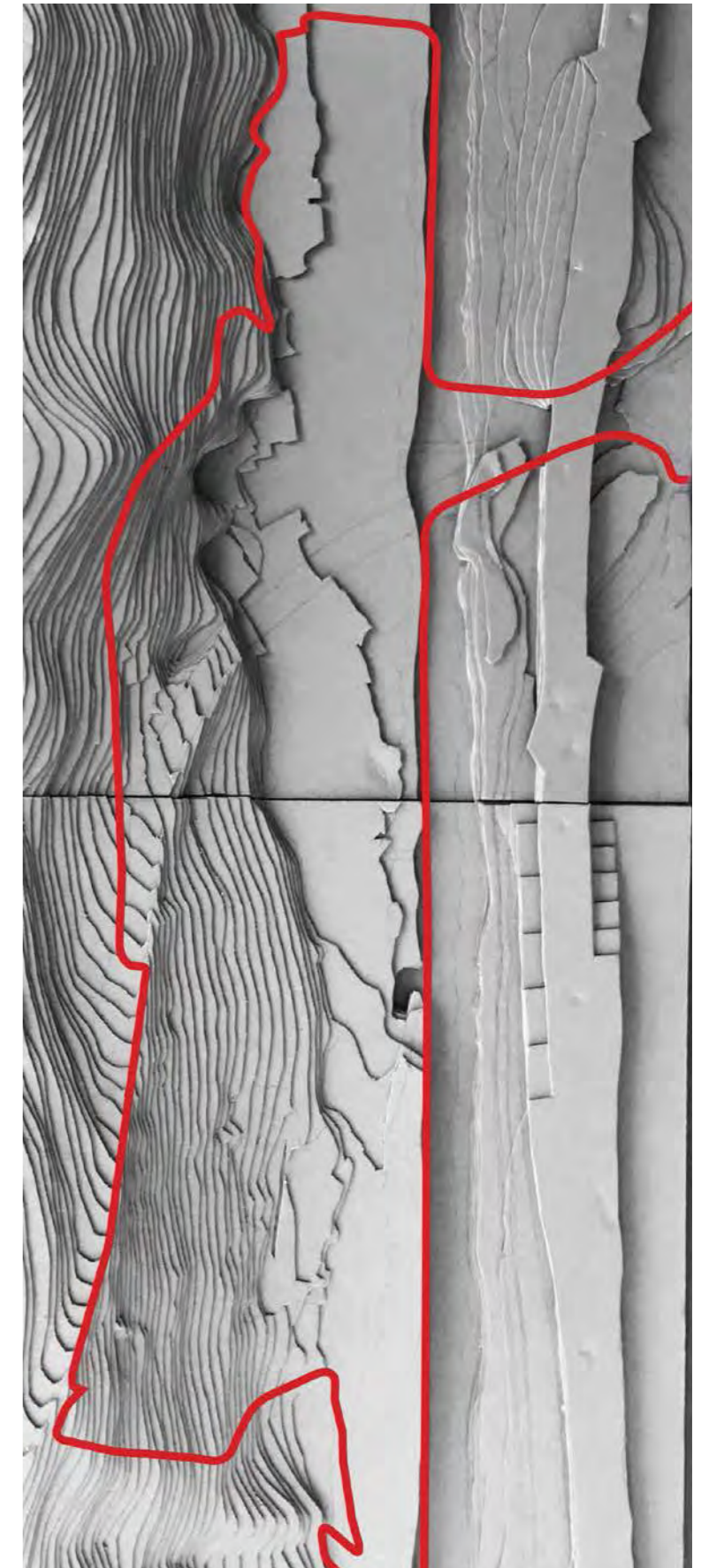
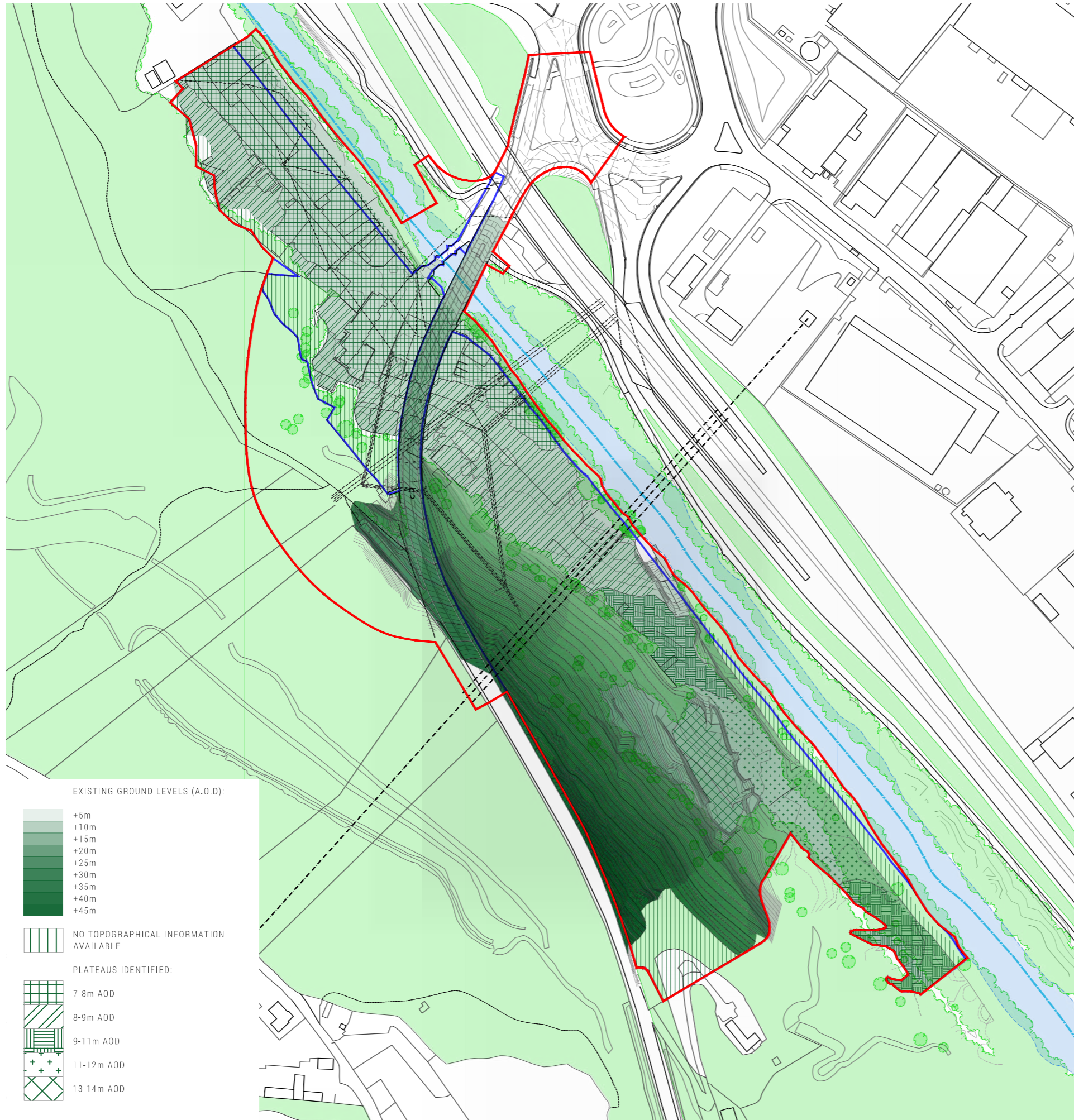
SOUTH PLATEAU - SOUTH EAST BOUNDARY

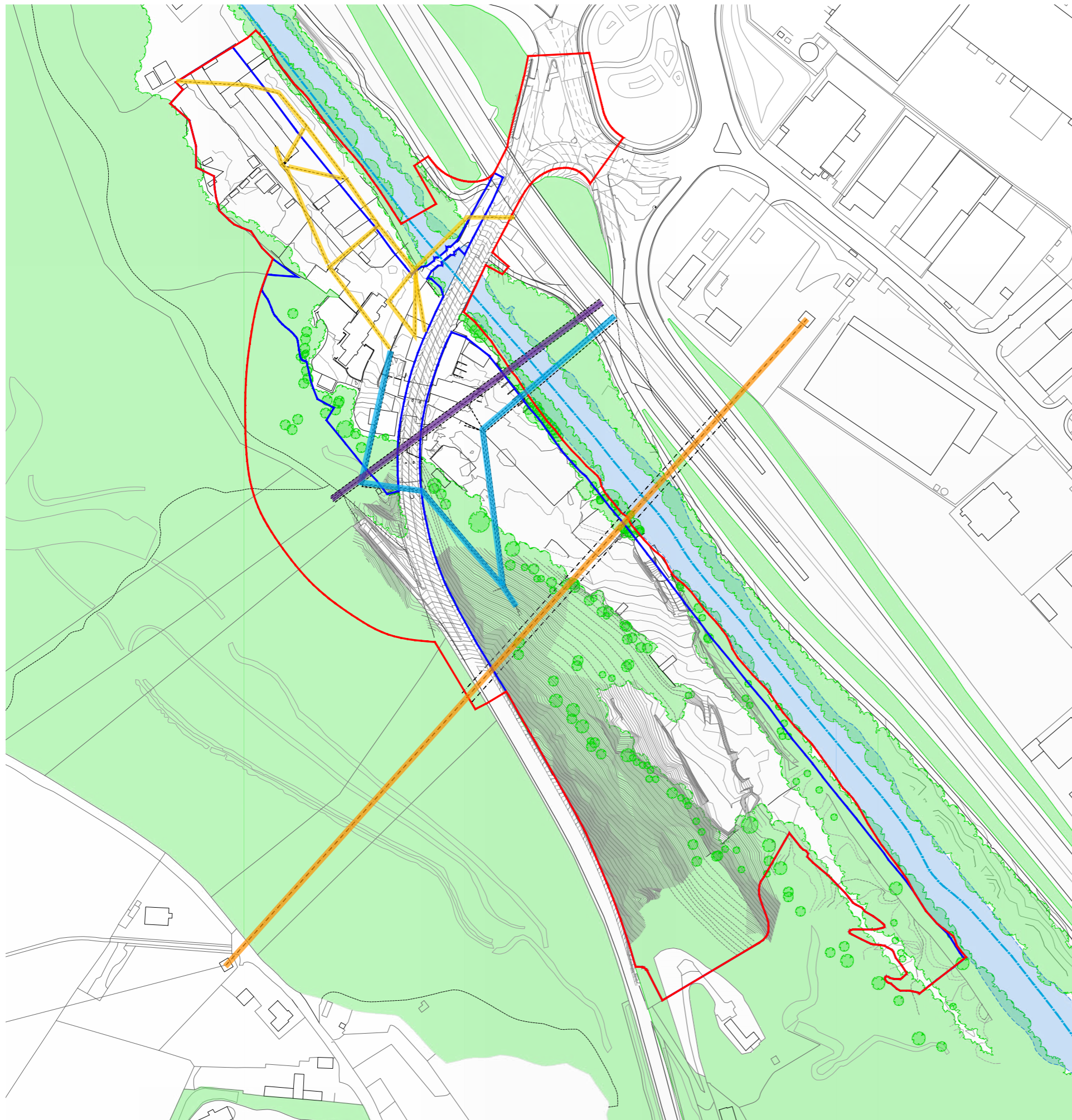
BOUNDARY CONDITION : COUNTRYSIDE EDGE

The woodland to the South West wraps round the site back to the river along the South East boundary. The nature of the woodland here is different to the steeply rising bank with its thick forest of trees, it is low level with more 'scrub' land between the water's edge and the woodland. The Ecology Report also highlights an existing pond in this area.

🕒 SITE TOPOGRAPHY

By mapping the existing contours (note areas where lines are shown dashed where survey information not available) it allows us to identify any plateaus/ areas of more level ground. The proposal should provide a pragmatic site response that works with existing site levels as much as possible.





SERVICES

POWER LINES

With the exception of the 132kV power line all lines will be underground and re routed from their existing most location to the north of the river, buried within the new road crossing, passing up through the site to reconnect with the existing cable network to the South West of the North Plateau.

With regards to the 132kV line there is no easement for the power cables running across the site. There is therefore no restriction placed on the development by WPD in relation to these lines other than vertical maintenance clearance required to access the conductors. The undergrounding of these lines would be cost prohibitive to the scheme and therefore the proposals will need to carefully consider how these can be implemented into the wider landscaping strategy for the site.

ELECTRICITY + GAS

Following initial discussions with WPD it was advised that the current demand to the site would require reinforcement and that the site would require a new power supply. The initial estimate was that 3no substations would be required across the site, one to the North; two to the South.

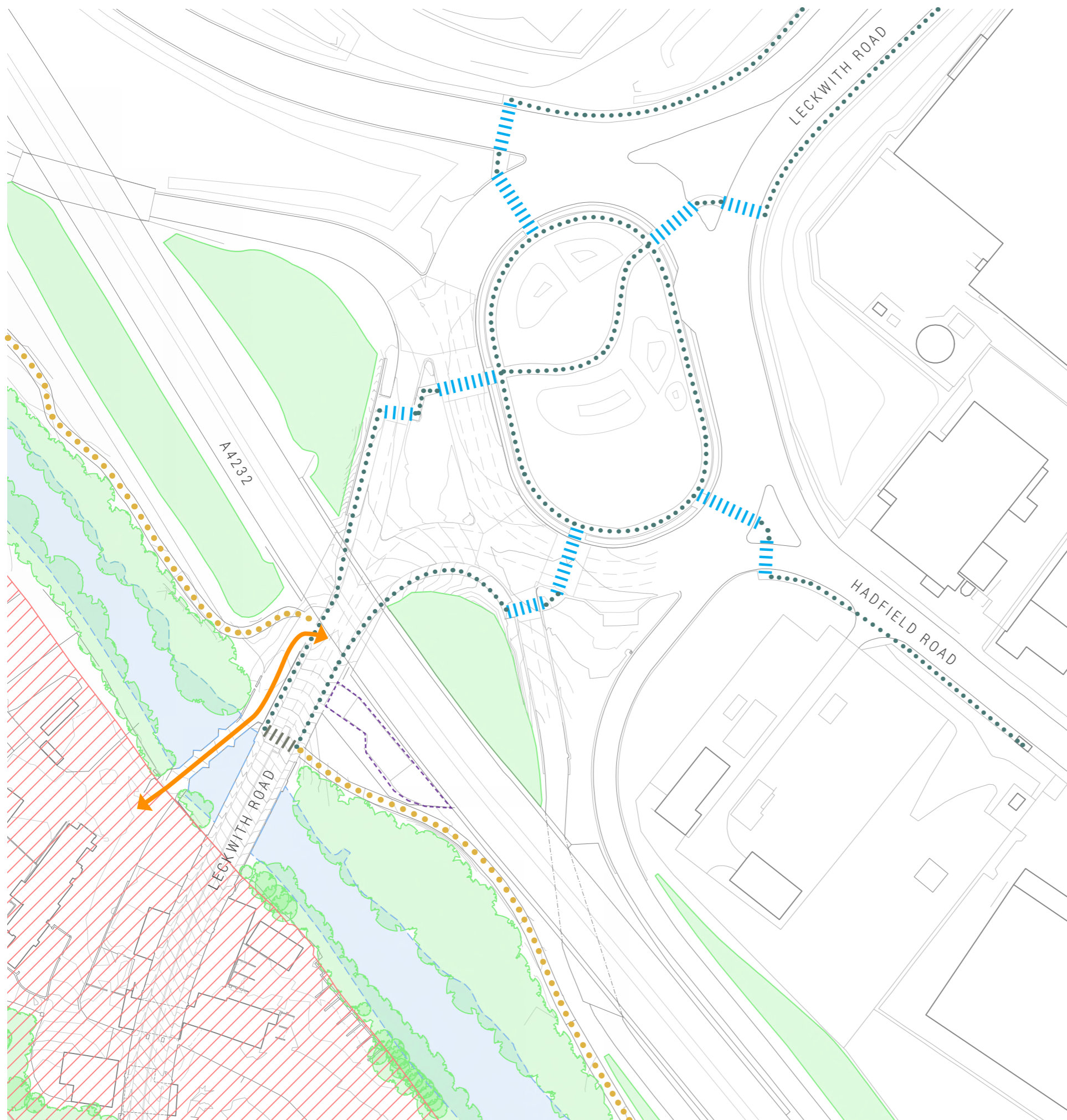
The Wales and West Utility maps are currently not showing a gas provision to the site. This may be incorrect given current site uses or it may be that there is currently an alternative fuel supply, e.g. oil, on site.

The proposals/site would benefit from a clear Energy Strategy and Assessment. Clearly there is a lack of existing energy supply to and provisions on site and rather than creating new infrastructure that may prove redundant in the future the energy strategy would benefit from a more holistic approach more in accord with Welsh Government directives and UK Government legislation.

The Welsh Government has a clear strategy on low carbon housing and Zero Carbon will become the benchmark for future housing developments. On site electricity generation to allow the development to feed back into the grid builds on the historic self sufficient nature of the site and also its productivity in providing for the wider context.

Key:

- Application site boundary
- 132kV Overhead Power Line
- 33kV Overhead Power Line
- 11kV Overhead Power Line
- Low Voltage Power Line



🕒 SITE ACCESS

The adjacent map shows the existing access, vehicular and pedestrian, into the development site.








The development site is currently only accessible via the Leckwith 'Old' Bridge which is designated as a Scheduled Ancient Monument and is Grade II Listed (orange arrow). Given the current use of the site for commercial/light industrial activity, many of the movements over the bridge are by vans or HGV's. There is vehicle damage to the stone abutments either side of the listed bridge and continued use of the bridge as a principal vehicular route into the site is not appropriate - it would certainly never have been part of its planned function historically. In addition the bridge has no pavements and so pedestrian and cycle access is constrained.

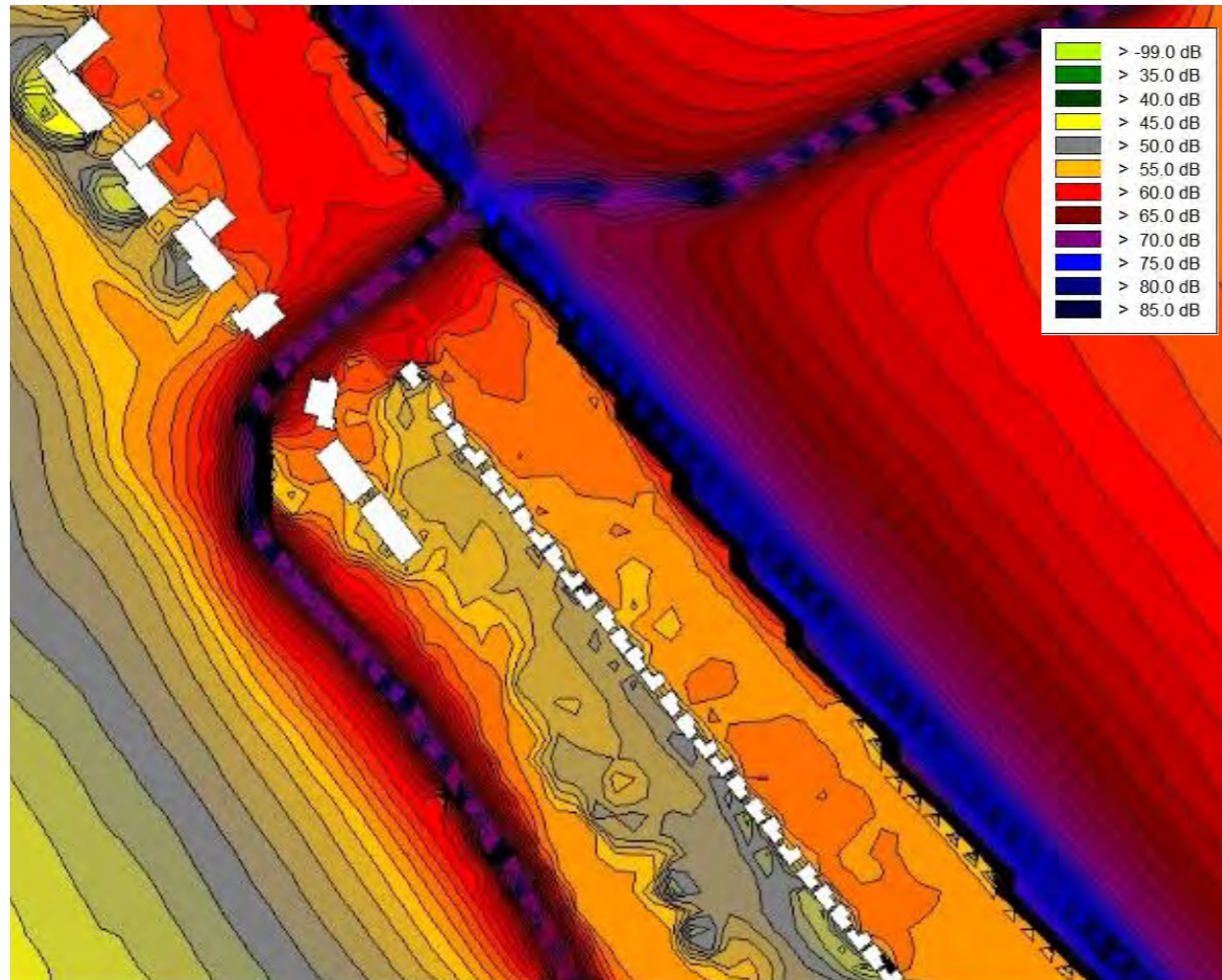
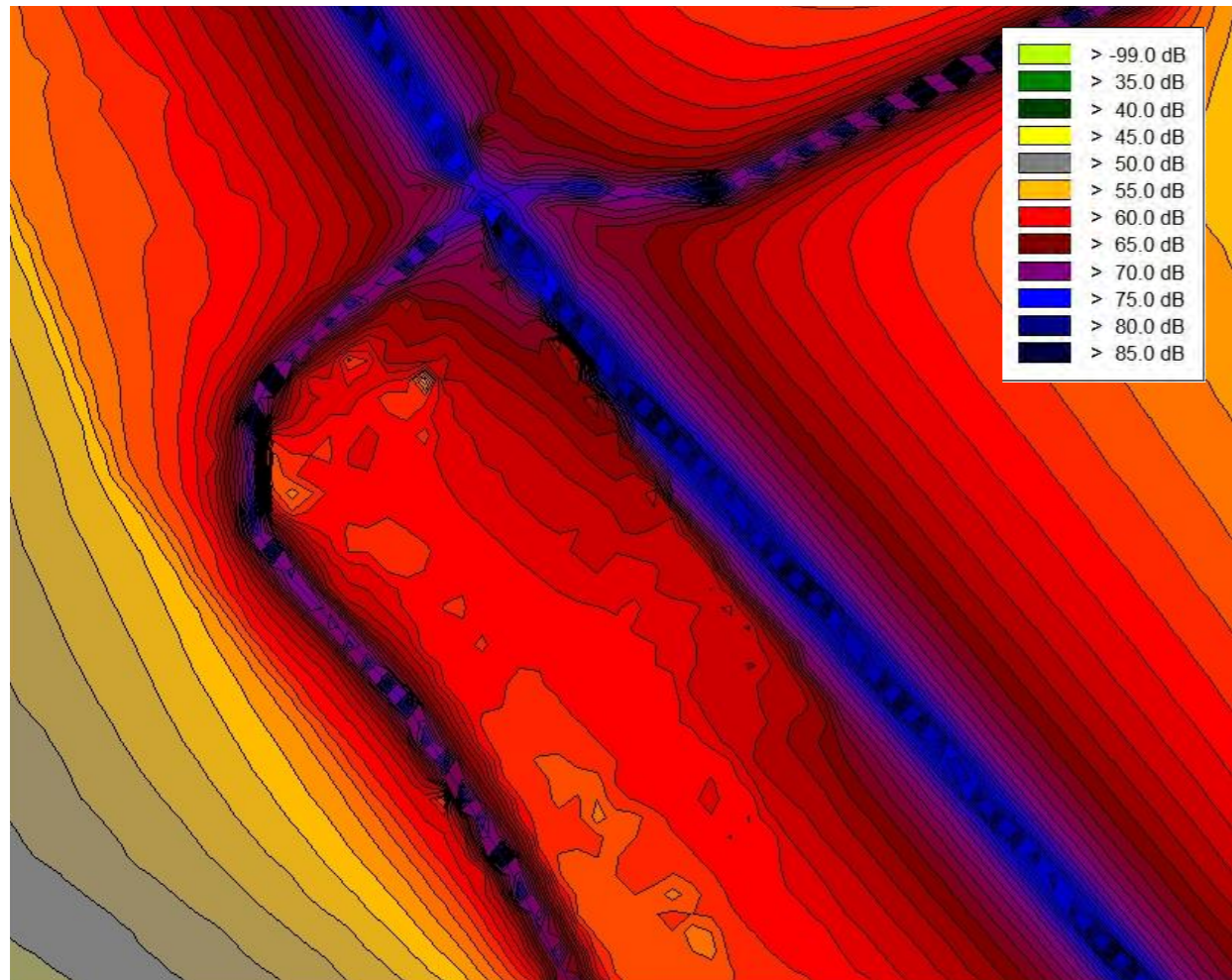
Alongside the listed bridge the Leckwith Road river bridge and viaduct connects the Vale to Cardiff. In 2016 a Feasibility Report was commissioned by the Vale of Glamorgan Council to assess its condition. The report provided a number of options regarding the bridge and the viaduct, several of which involved its removal and replacement due to concerns about the longevity of the existing structure. It is understood that the bridge is in such a state of disrepair and that the need to replace it is a likely requirement for VoG in the near future. Closing and replacing the existing bridge will cause huge disruption to existing transport links so the option considered as part of the proposals is to construct a new bridge within the development site allowing the existing bridge to remain open until such time that the realigned route can become operational.

By handling vehicular movements elsewhere this also presents the opportunity for a revised access point into the development site, thereby allowing the Listed Bridge which currently provides the only vehicular access to instead provide a pedestrian and cycle route into the site – connecting it with the Ely Trail to the East of the river.

With regards to wider access the site benefits from existing provision for pedestrians and cyclists in the locality, including shared footways/cycleways on both sides of the B4267 Leckwith Road, a comprehensive network of crossing facilities, and neighbouring off-road routes. Employment areas and a range of local facilities are located within walking and cycling distance of the site.

It is noted that the Vale of Glamorgan's parking guidelines identify the site being in Zone 6 (deep rural) which is considered to be an area with no local facilities within walking distance. An assumption that motorised travel is required for all journeys except for the most local and public transport services are very infrequent or beyond walking distance. This is however not the case in respect of Leckwith Quay. The site itself is in fact located in a sustainable location within walking and cycling distance of a number of key facilities, services and regular public transport links.

-  The Application Site
-  Central island refuge for pedestrians (no means of stopping traffic)
-  Toucan Crossing
-  Off-road cycle route
-  Ely Trail (cycle / pedestrian route)
-  Sole existing site access via listed bridge
-  Land used for van parking and storage (ownership unknown)



FLOOD RISK + DRAINAGE

A full Flood Consequences Assessment is being prepared for the scheme by WSP. In order to progress the masterplan the client has instructed to proceed with proposals on the basis of establishing a minimum FFL of +8.12m across the site on their understanding that this will mitigate any flood risk.

The application site lies entirely within Zone C1, as defined by the Development Advice Map (DAM) referred to in Technical Advice Note 15: Development and Flood Risk (TAN15) (July 2004). The Flood Map information, which is updated on a quarterly basis, confirms the site to be within the 0.1% (1 in 100 year) and 0.1% (1 in 1000 year) annual probability fluvial flood outlines of the Ely River. We advise that the applicant demonstrates, through submission of a Flood Consequences Assessment (FCA), that the consequences of flooding can be managed over the lifetime of the development. The purpose of the FCA is to ensure that all parties are aware of the risks to and from the development, and ensure that if practicable, appropriate controls can be incorporated in a planning permission to manage the risks and consequences of flooding

Due to the close proximity of the River Ely the Pre Application advised that consideration is given to the possible geomorphology and biodiversity impacts of the development on the river corridor.

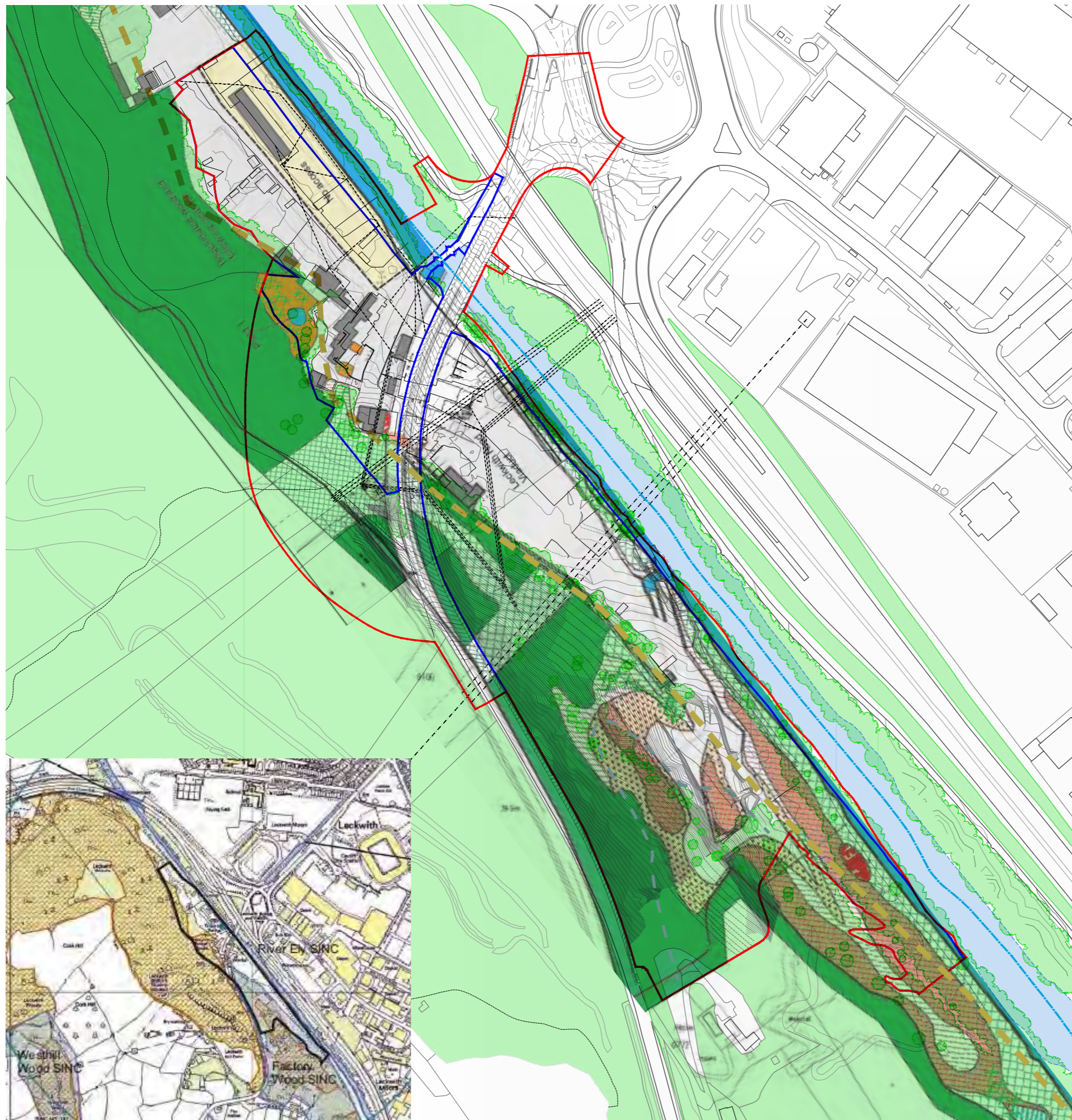
With regard to drainage, full details of the drainage strategy for both surface and foul water drainage should be submitted with any application. Only clean surface water can enter surface water drains. Installation of silt traps and oil filters should be implemented where possible. Further information will need to be supplied in the form of site and ground water assessments to determine opportunities for the use of sustainable drainage schemes.

ACOUSTICS

Acoustic mapping of the site has been carried out by Mach Acoustics, in order to establish the existing noise conditions on the site. Subsequently, testing has been carried out which seeks to ascertain which areas of the site will have a noise level below the 68 dB as recommended in TAN11, with various different mitigation measures in place. A full report has been produced by Mach Acoustics which can be read separately to this document.

ARCHAEOLOGY

Archaeology Report is provided by G&GAT. As the site is recognised as having archaeological interest, UDP Policy ENV19 – Preservation of Archaeological remains will apply. The policy outlines where development is permitted which affects a site of archaeological interest mitigation measures will be required. The Glamorgan Gwent Archaeological Trust will need to be consulted further on any future planning application.



🕒 ECOLOGY

The Ecology Report has been prepared by David Clements Ecology.

The Preliminary Ecology Report prepared in 2016 identified that to the south and west of the site are large areas of woodland comprising Leckwith Wood and Factory Wood Site of Importance for Nature Conservation (SINC) and the Ely Valley and Ridge Slopes Special Landscape Area (SLA). Ecology plays an important role in the proposals and key recommendations from the report in terms of habitat are noted below.

In terms of habitats the new development should seek to cause the least possible encroachment into the Leckwith and Factory Woods where they abut and run into the site and also from the ruderal marsh and associated habitats at the southern end of the site. Where woodland habitat is lost to the development an equivalent area of new woodland should be created on land adjacent to the development and should be exclusively of native species which are indigenous to the region, planted in a naturalistic pattern. The new road corridor should also be restored to semi-natural woodland. Where possible landscaping of the site should include wooded corridors running West to East across the site from the Woodland to the River. These corridors should also be of native woodland character. Care should be taken to preserve, as far as possible, the woody cover at the edge of the River Ely, to maintain continuity between this cover and the remainder of the riparian corridor and the woodlands to the west. The existing conifer plantation should be felled and restored to native cover. Adequate vegetation cover, even if low, should be maintained at river edge. The landscaping of the redeveloped site should aim to include new areas of semi natural habitat within the managed landscape framework. These could include new areas of semi natural woodland, grassland and wetland/pond habitats. Lighting of the site will also need to be carefully considered.

TREES

The Arborist Final Report has been prepared by Arborwood Tree Care. The report suggests that existing woodland trees are low value and that there are no TPOs on the site.

HABITATS + VEGETATION KEY

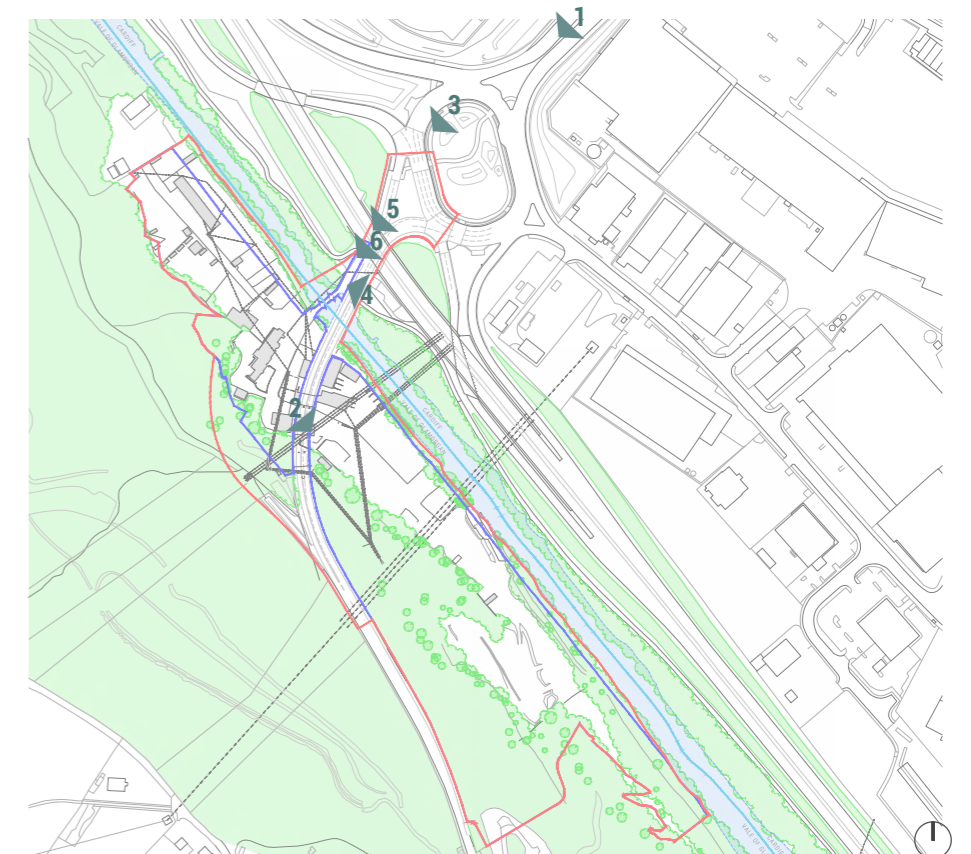
Survey Boundary	No access available for survey
Buildings	Scrub - dense continuous
Bare ground	Ruderal vegetation
Broadleaved semi-natural woodland	Japanese knotweed
Open Water	Himalayan balsam - scattered (overlay)
Abandoned garden vegetation	



VIEWS: INTO THE SITE

From the surrounding area, the site is well concealed by trees along the river bank, woodland rising up the hill along the south west, and the A4232 flyover. From further away, the most prominent site feature is the hill, as seen in view 1.

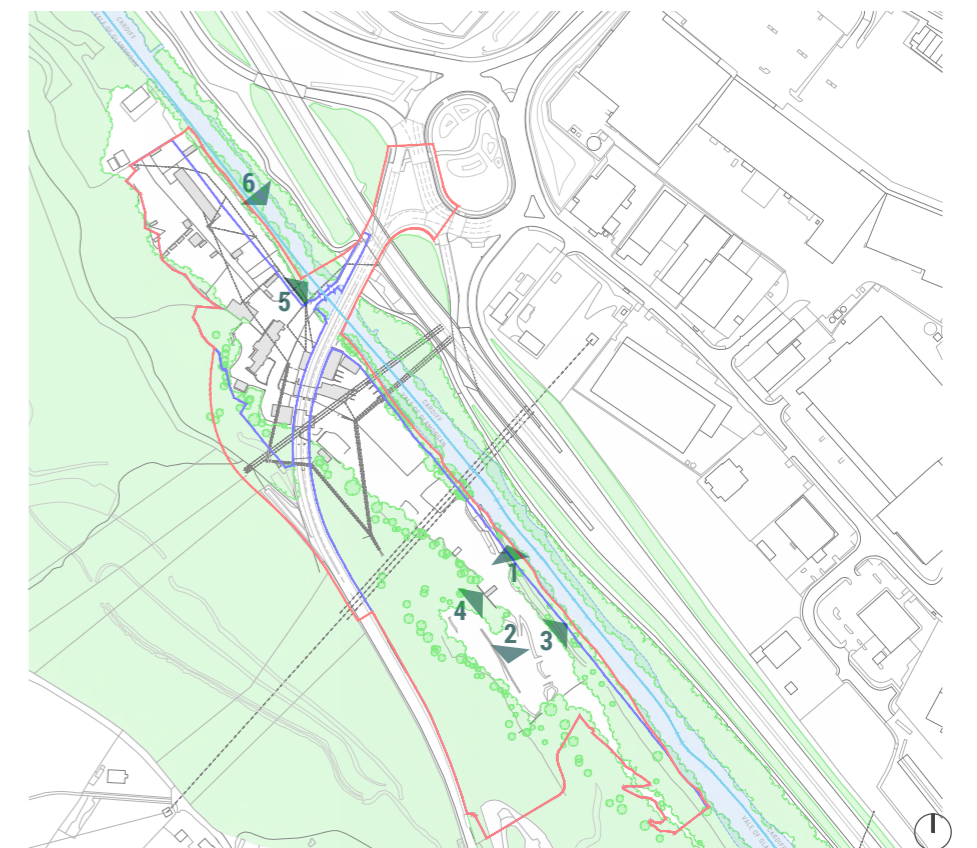
A Landscape Visual Impact Assessment has been carried out by the Landscape Architects, Novell Tullett.

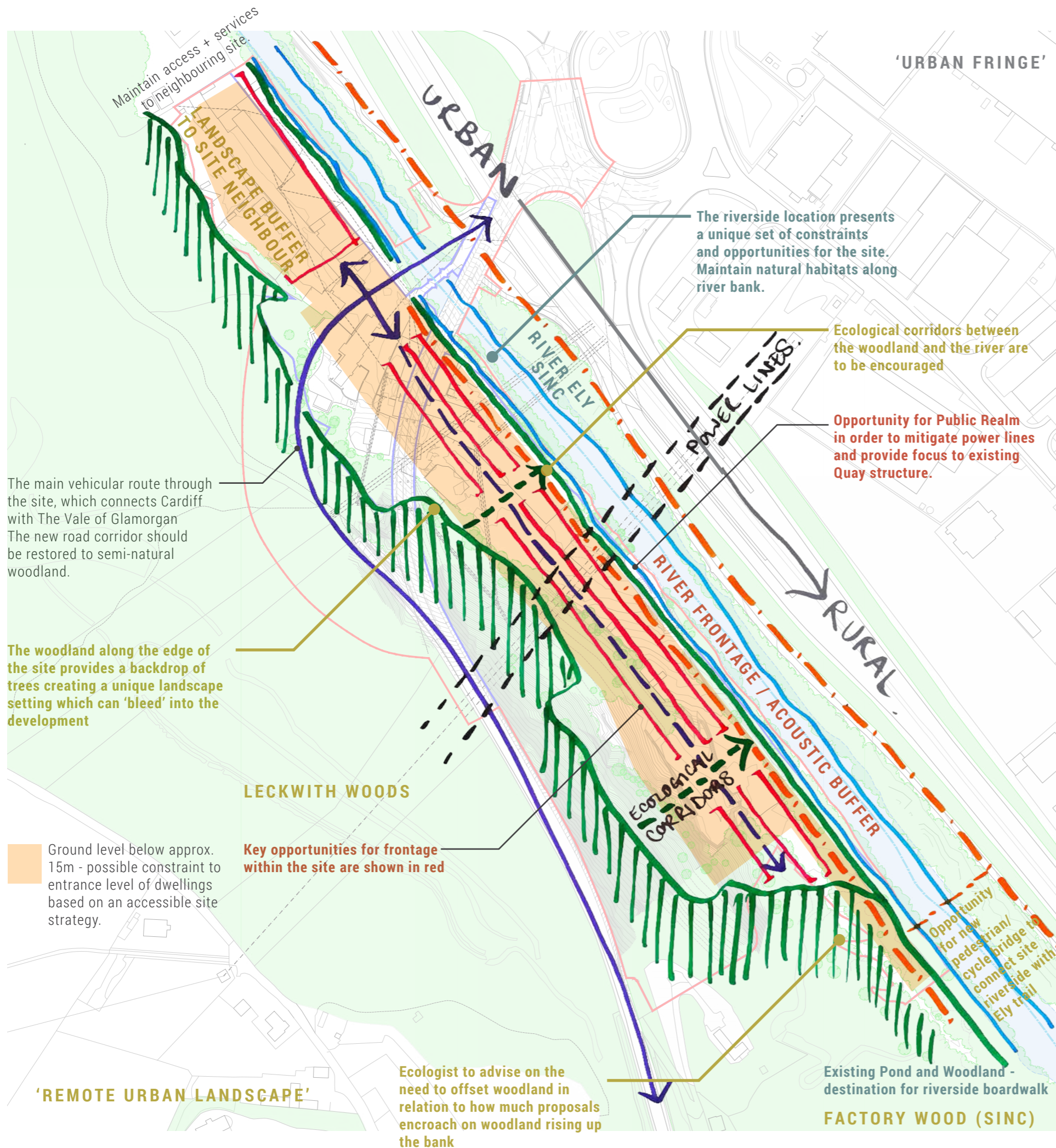




VIEWS: FROM THE SITE

The site enjoys very little in the way of long-reaching views due to its seclusion. It is well surrounded by greenery with the woodland running along the length of the site, stretching up the hill.





🕒 SUMMARY OF OUTCOMES

Prior to moving forward with design development, several 'key moves' for the scheme are outlined below, in response to the site + wider context analysis, all suggestive of characteristics that will begin to define our new site identity.

THE SITE CONTEXT: A unique setting bridging between Cardiff to the North East and The Vale of Glamorgan to the South West. The historic use of this site and surrounding land suggests several characteristics in terms of finding an identity by which to define this site and the nature of the spaces we create. The present day context provides a rural, residential setting to the South West; an urban, residential setting to the North East and an immediate neighbouring context dominated by retail but also strongly rooted in sport, health and wellbeing.

URBAN TO RURAL: Expanding on the context to either side of this development, although this also introduces a sensitivity to the proposals, being particularly mindful of the Vale's UDP in regards to the positive management and protection of this location in relation to its urban/rural location - this may also be the defining feature to ensure a unique identity is created for the Leckwith Quay site. The Cardiff Terrace vs. The Vale Farmsteads - a new housing typology is required to unite the two and using the river flowing North to South as a key frontage to the site it also provides the axis along which this urban to rural shift can occur. A further physical context is provided by the former Leckwith Moors, now reclaimed land, suggesting European housing precedents such as canalside typologies may also be applicable. A new vernacular informed by the wider, historic context and best practice precedent examples.

THE RIVER: As well as providing a key axis for the site the river corridor provides a North - South link between the North and South Plateau that currently make up the site at Leckwith Quay, albeit needing to be interrupted by the new road/bridge crossing. Care should be taken to preserve as far as possible the nature of the existing water's edge and bank; partly wooded and with limited formal landscaping. The river side frontage provides one of the few outward looking aspects to the development although this must be balanced with the view of the road and the need to reduce road noise within the site.

THE WOODLAND: If the river provides the key site frontage the woodland provides a backbone to the site. The site itself is largely inward looking and difficult to view from outside of the boundary but there is a clear view to the woodland that rises up behind and extends down into the site. The combination of woodland and levels create a drama and enclosure to the site that is unique to this location.

LANDSCAPING + ECOLOGY: Wooded corridors running from East to West across the site connecting the Leckwith Woods with the river corridor. The need to offset woodland areas lost to areas of the development. A sensitive landscaping strategy is required encouraging new areas of semi natural habitat. Similarly the Strategy should treat the site response to Public Open Space holistically. With regards to the Public Art requirements our recent experience has shown that in an area with a unique Landscape setting an alternative approach to Public Art may be beneficial to the successful integration of this aspect. Most notably the undertaking of an Environmental Colour Assessment and its application as guidance for the proposals.

LEVELS + ACOUSTICS: The site levels and response to acoustics create a distinct set of boundary conditions that require further exploration in section in order to generate typologies informed by site location: W to E + N to S.

ENERGY STRATEGY: The lack of existing services provision suggests the need for an informed and imaginative response to the energy strategy for the site. In reference to the self sufficient nature of previous site uses, a Zero Carbon approach would certainly provide a clear, veritable and distinct identity to the proposals in juxtaposition to the existing site's current brownfield designation.

SECTION 3

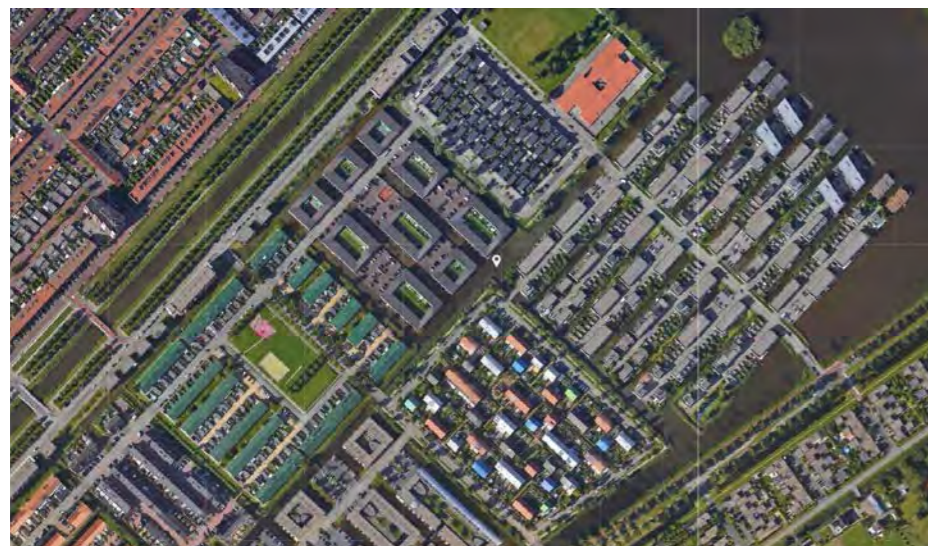
DESIGN DEVELOPMENT

MASTERPLAN: PRECEDENT CASE STUDY 1

YPENBURG

Located in Ypenburg, a new housing development in The Hague, the so called Waterwijk neighbourhood consists of several islands grouped together. Each island contains a different suburban typology. Enclosed blocks, patio houses, row houses and luxury villas.

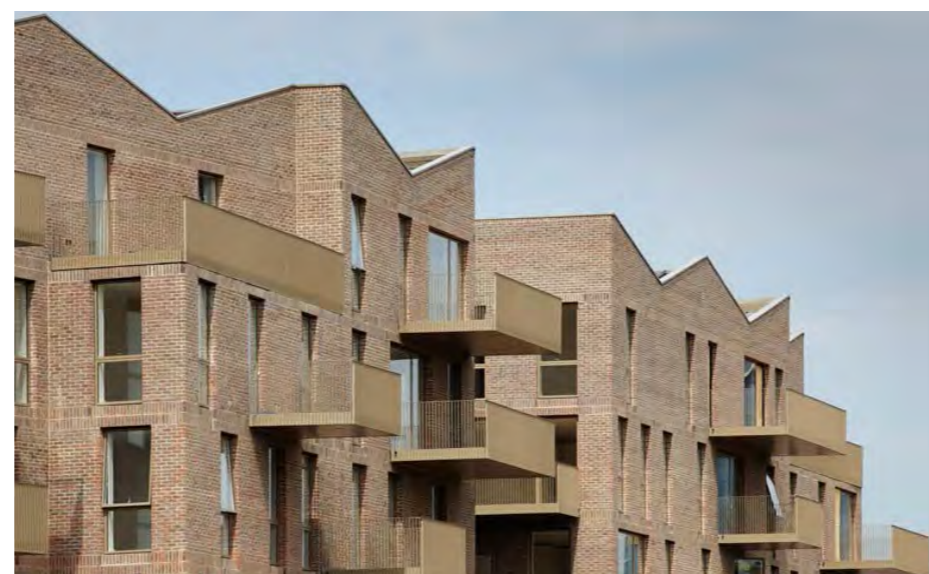
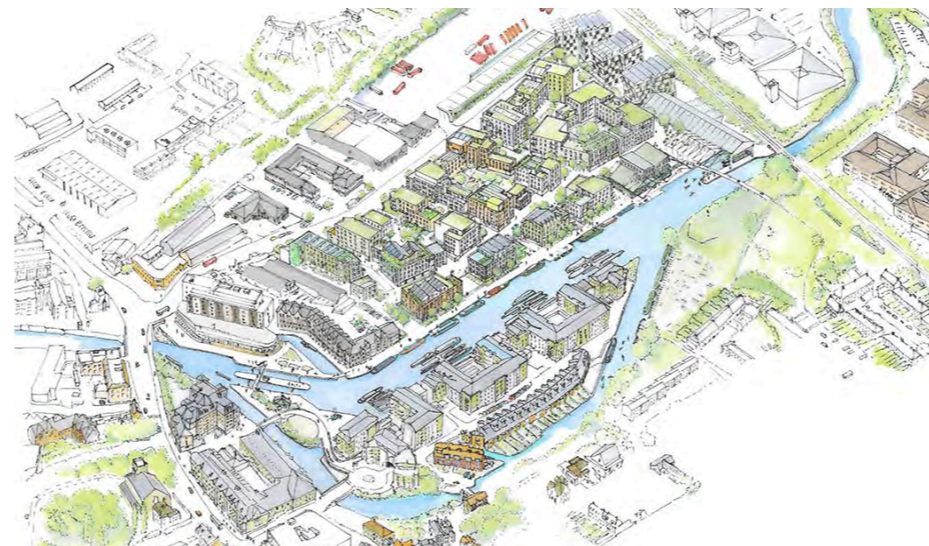
MVRDV was responsible for the overall masterplan of the Waterwijk, but also for the architecture of several typologies: the Watervillas, the Hedge Island and the Patio Island. We feel that the nature of changing typologies across the wider site provides a useful case study for Leckwith Quay as it changes from an urban to more rural character along the length of the river.



MASTERPLAN: PRECEDENT CASE STUDY 2

BRENTFORD LOCK WEST PHASE ONE

The regeneration of Brentford Lock West (phase one) saw the construction of over 150 new homes. The first block (highlighted in orange), designed by Morris and Company Architects, was completed in 2015 and comprises 45 homes of mixed tenure. The scheme set out to achieve a relationship between the industrial history of the docks whilst also maintaining a connection with the neighbourhood streets at its rear. The roof structure relates directly to the boating sheds of Brentford. The design adheres to the master plan created in collaboration with URBED, Tovatt Architects + Planners and masterplanner Klas Tham. The blocks are centered around shared courtyards that set out to achieve a sense of community.



DEVELOPING THE BRIEF

The summary of outcomes outlined the first steps of developing the brief and the proposed masterplan.

Following this a thorough design process has been undertaken in order to ensure that the proposal responds to the unique character and constraints that the site offers. Below is a brief outline of how the outcomes of the site analysis were then taken forward in the development of the design. All drawings in this section of the DAS are process work; the final proposal drawings can be found in the next chapter.

STEP 1:

PRECEDENT STUDY

In the first instance, a precedent study was carried out in order to identify a collection of reference projects, in particular in relation to the unique boundary conditions of the site and also to look for case studies (described adjacent) that had similarly taken an underused site and demonstrated how through a considered architectural and landscape approach, a new 'place' within or as an extension to an existing town or city, with its own unique character and identity, could be established.

DENSITY + CAPACITY STUDY

Following the identification of relevant precedents a short study was undertaken in order to gain a broad understanding of the potential capacity for housing on the site at various densities. This was done using the typologies and vernaculars identified by our wider context analysis and also best practice examples identified during the precedent study. Following this initial exercise, a range of broad site strategies were mapped out, based on the outcomes of the site analysis. These diagrams were developed to understand physical element of the proposal such as frontages, routes, nodes and key buildings.

PREFERRED SITE STRATEGY

A preferred option was then chosen as a strategy to be developed further into a concept masterplan layout. In this early-stage design, three key character areas emerged within the masterplan: Urban (in the North of the site), Waterside (in the centre) and Rural (in the South of the site).

STEP 2:

DEVELOPMENT OF CHARACTER AREAS

Building on the site-wide strategy which emerged from the site analysis and density + capacity study, each of the three character areas became the focus of a further study. This involves a closer look at the street pattern and density of each area, as well as utilising precedent studies and visualisation to develop a distinct character which helps to refine and define each zone.

DEVELOPMENT OF DWELLING TYPES

As part of the process for character area development, the dwelling types are explored in more detail. Given the distinctive nature of the site, each area requires a unique response in order to develop a proposal which responds to topography, acoustics, daylighting and privacy needs, amongst other constraints.

STEP 3:

REFINEMENT

🕒 DENSITY + CAPACITY STUDIES

The site analysis identified the developable area for the site in relation to: the river, site levels and key existing site features to be maintained - most notably the woodland, the hillside and its associated ecology.

Having identified a range of housing typologies and a figure-ground grain in accordance with the local vernaculars of Cardiff and the Vale of Glamorgan, an initial study is undertaken to establish the site-wide strategy for development on the site. Sketches and diagrams are used to test various street arrangements, taking into account routes and circulation, views and orientation, scale and density, and provision of public spaces.

The best elements are taken from these diagrammatic studies and developed into a preferred site strategy (see next page).

LAYOUT SKETCH:

LAYOUT DIAGRAM:

TEST A



NORTH PLATEAU

Spine Road to riverside
Woodland edge housing

SOUTH PLATEAU

Courtyard block at entrance
Spine road
Blue, green and urban frontages

TEST B



NORTH PLATEAU

Central spine road

SOUTH PLATEAU

Riverside: as urban becomes rural,
orientation and scale shift
Woodland road

TEST C



NORTH PLATEAU

Spine Road to riverside
Woodland edge housing

SOUTH PLATEAU

Courtyard block at entrance
Spine road
Blue, green and urban frontages
Road to rear

Aerial view of the site



Cardiff Figure-ground



LAYOUT SKETCH KEY

- Maisonette / Townhouse
- Allowance for Banking
- Public Open Space
- Roads
- Woodland Retaining Housetype
- Garden Houses
- Courtyard Block
- Riverside-facing Terrace
- Villas

LAYOUT DIAGRAM KEY

- Pedestrian and cycle routes
- Vehicle routes
- Key buildings
- Frontages
- Public open space