PENRHOS, CAE GLAS & KINGSLAND, HOLYHEAD

APPLICATION NUMBER 46C427K/TR/EIA/ECON

WOODLAND METHODOLOGY & NOTIONAL WOODLAND STRATEGIES

planit
intelligent environments

Penrhos Holiday Village
Methodology for development within woodland blocks

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This document has been produced to supplement the existing tree and woodland strategy information contained within the Tree and Woodland Assessment, Arboricultural Impact Assessment (revised), Site Masterplans and Design and Access Statement.

The purpose of this document is to provide a detailed methodology for progressing the detailed design of the development within the Leisure Villages new and retained woodland areas. In addition, a series of map overlays are provided to give clear information on the extent and quantum of woodland likely to be effected by the development. Notional development scenarios are also provided for key woodland areas already identified by both the current assessments and IOACC comments, and are intended to show how development could take place, strategies used to minimise impact and potential residual impacts to woodland cover. These are intended as a guide only, and will be subect to review and alternation during the detailed design stage of the project.

Penrhos Holiday Village
Methodology for development within woodland blocks

Methodolgy for works during the Detailed Design stage

It will be critical for arboricultural advice to continue to guide the detailed design phase to ensure the aspirations of the masterplan can be achieved.

As identified in the 'Tree and Woodland Assessment' report, a number of specific further works will be required during the detailed design stage to ensure development is sensitively and appropriately located within the woodland areas.

Detailed Tree Survey
A detailed tree survey of key areas of woodland will be required once outline planning permission has been obtained. Informed by the masterplan, this additional level of assessment will help inform structure placement and ensure the impact on valuable trees is minimised.

Arboricultural Implications Assessment
An evaluation of the impact of the development proposals on existing trees will be required in the form of an Arboricultural Implications Assessment (AIA). This will be included with future reserved matters applications for IOACC approval. The AIA will identify trees that require removal, those that can be retained and any areas of protection or special construction procedure required to minimise tree damage.
An initial visual assessment identified areas of woodland that had the potential for development based on the following criteria:
- Density of tree cover.
- Age, species and form of trees
- Structural integrity, potential for wind damage as a result of thinning.
- Visual and physical amenity value of block from primary public footpaths and key viewpoints
- Individual trees of high value within the woodland blocks
- Existing and potential habitat corridors - connecting woodlands blocks
- Areas of degenerate woodland with limited future potential where thinning and re-planting will create opportunity for lodge integration.
- Topography, drainage and structure and ecological value of woodland understory.

During this process Root Protection Areas (RPA) for individual trees and standoff zones for retained groups and woodlands will be identified. These will ultimately be used to define a Construction Exclusion Zone (CEZ), to identify areas of protection around retained trees and to inform suitable protection measures and avoid areas identified as being at risk of wind induced structural failure.

Woodland Management Plan
Mitigation for the loss of trees will be achievable in part by the enhancement of retained woodland together with a significant investment in proposed new woodland areas identified. To allow the existing and proposed woodlands to reach its full potential an approved and committed long term woodland management plan will be required. To allow the potential of this resource to be realised through the adoption of a comprehensive and approved management plan.

Windthrow Assessment
ForestGALES computer software, produced and supplied by the Forestry Commission, has the ability to calculate the probability of wind-failure to average trees within a stand. Although designed for use on large-scale forestry operations, the targeted use of ForestGALES is recommended in the current situation to provide baseline information on which to base future management recommendations. This will include safe thinning percentages and the identification of areas of trees that have developed an increased resistance to failure and thereby act as stabilisers for larger wooded areas.

Development Opportunity Assessment
An initial area of opportunity will be calculated within each woodland compartment. This will be governed by a minimum width of wind-firm edge trees that must be retained in order to maintain compartment integrity.

This process will involve further woodland inspection and will be determined based on tree age and species and on the compartments location and subsequent exposure (current and proposed). The use of tools such as ForestGALES will be employed to ratify specifications. A safety margin will be applied to the results and they will be adjusted to accommodate additional screening requirements or to open up strategic views where practicable.

The exact number and positioning of lodges within each compartment will be determined based on the following set of general design parameters:

- Lodge dimensions;
- Minimum operational requirements (car parking, amenity space etc.)
- Minimise the engineering / utility requirements (foundations, gas, water etc)
- A minimum 2m tree clearance from all elevations;
- A target of 10m clearance of large trees - based on lodge design;
- Amenity for visitors

In addition the following considerations will be made;

- The habitat value of individual trees;
- Species specific characteristics of trees and how these may interact with the development (honeydew from sycamore etc.);
- Hazard assessment of retained trees other than form wind-related failure;

Methodology of Construction methods for development within woodland blocks

All works within the woodland blocks will be assessed and implemented in accordance with *'BS5837:2012 Trees in relation to design, demolition and construction – Recommendations'*

Part of the vision for the Penrhos Leisure Village is to provide high quality lodge accommodation set within new and existing woodland. Clearly, to achieve this, consideration of works within the trees RPA's will need to be made. Adopting a precautionary approach to this, it is proposed that in conjunction with the AIA, and Development Opportunity Assessment an Arboricultural method statement will be produced - this will include detailed information on:

- Location and specification of temporary ground and fence protection
- Areas of proposed excavation
- Areas of proposed new hardstanding and levels
- Specialist foundation information for lodges and structures
- Retaining structures
- Preparatory works for landscaping
- Auditable/audited system of arboricultural site monitoring, including a schedule of specific site events requiring input or supervision.

Figure 1 - Penrhos

Existing Woodland Blocks - as identified within the 'Tree and Woodland Assessment'

Category A Woodland - 6.8ha
Category B Woodland - 9.5ha
Category C Woodland - 15.7ha
Area of TPO Woodland - 28ha

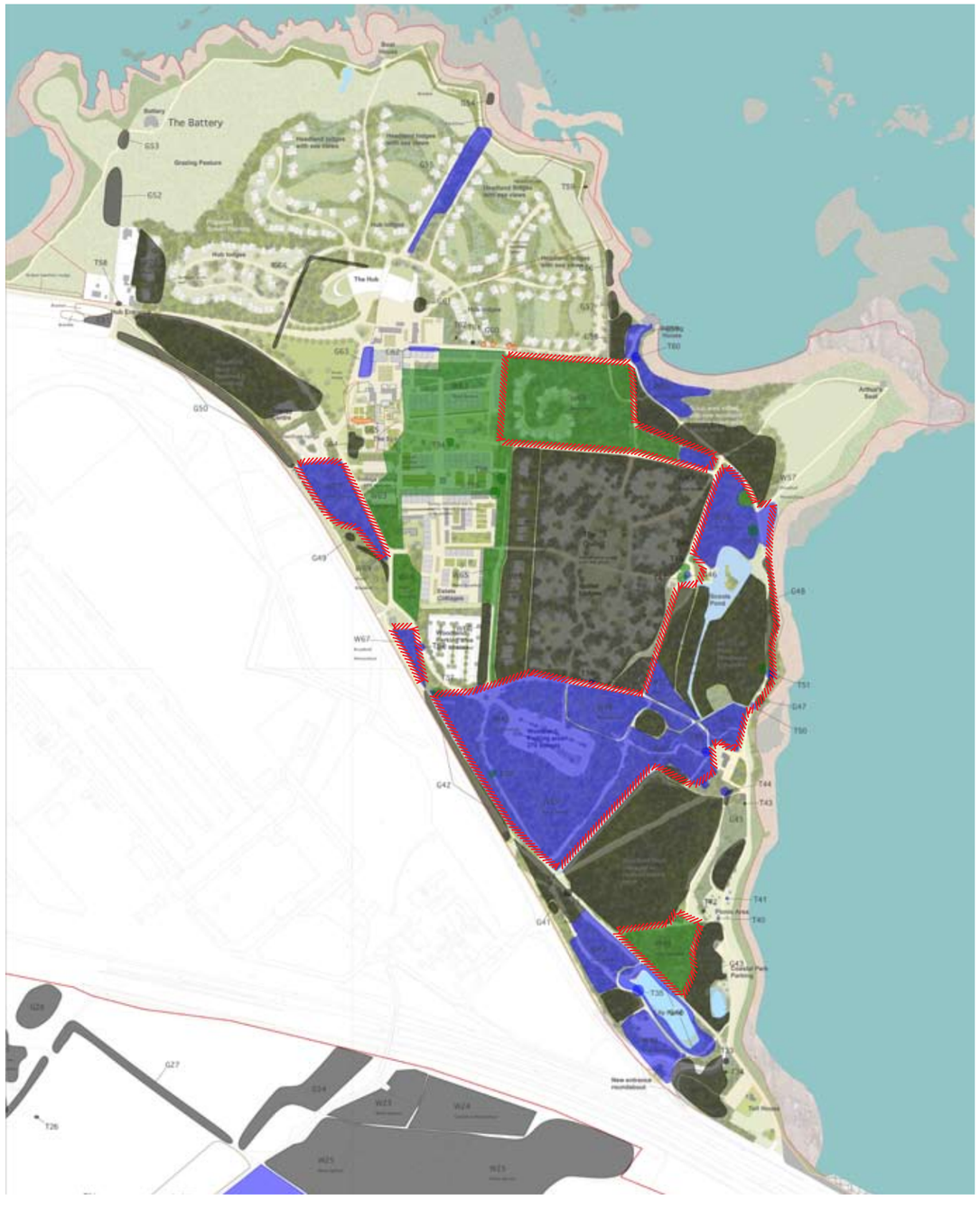
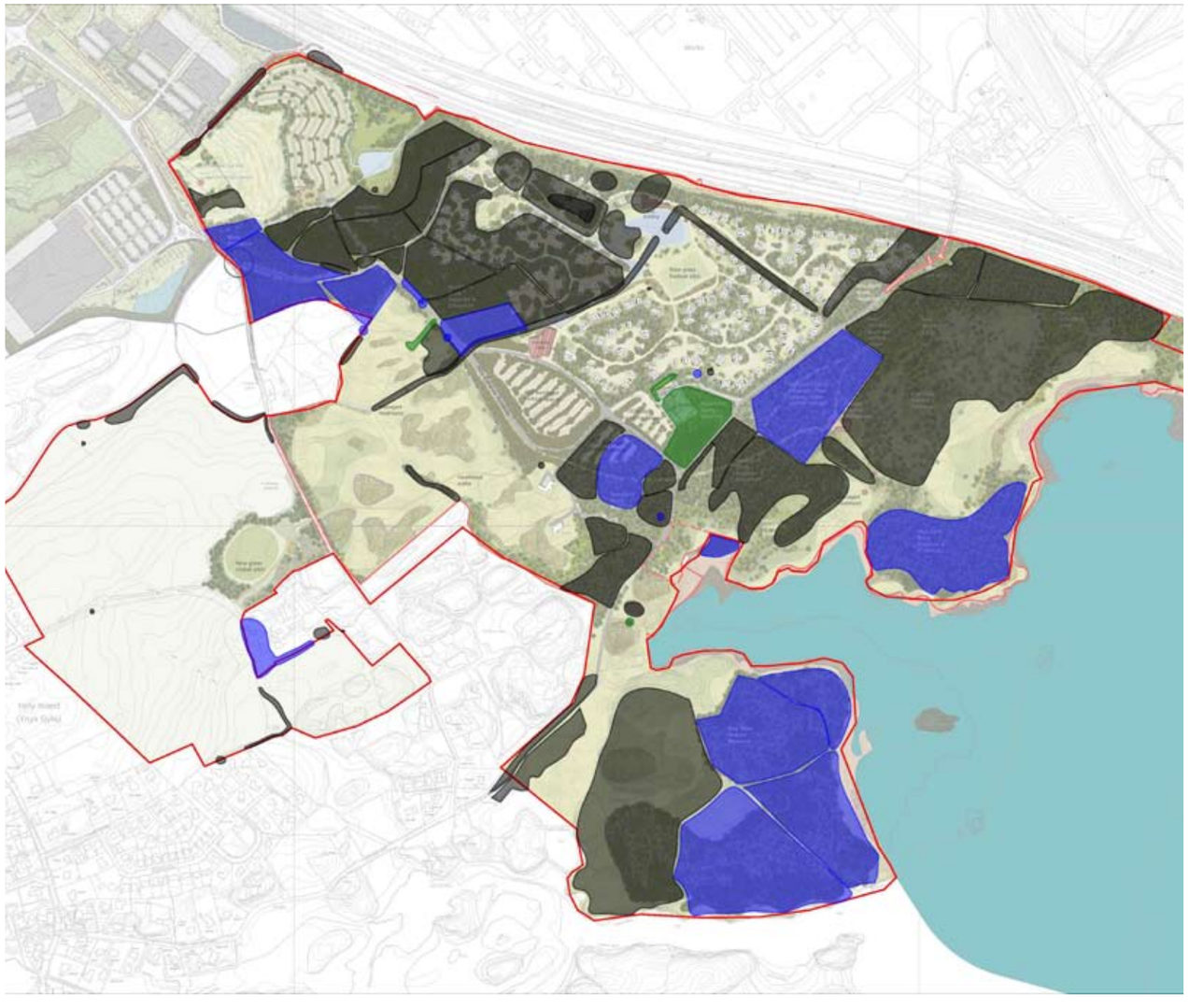


Figure 2 - Cae Glas

Existing Woodland Blocks - as identified within the 'Tree and Woodland Assessment'

Category A Woodland - 0.9ha
Category B Woodland - 17.6ha
Category C Woodland - 23ha



Category A Woodland - 6.8ha
Trees of high value, including those that are particularly good examples of their species and or those that are visually dominant within the landscape. Trees of significant conservation, historical or commemorative value.
Category B Woodland - 9.5ha
Trees of moderate value, including those that do not qualify as Category A due to minor remediable defects and/or those that collectively form distinct landscape features, thereby attracting a higher rating than they might as individuals
Category C Woodland - 18.1ha
Trees of low value, the retention of which should not unreasonably constrain development. Trees present in groups or woodlands but without this conferring on them significantly greater landscape value.

Figure 3 - Penrhos
Overall Woodland Strategy

Approx. area of Woodland on site	**32ha**
Area of woodland directly affected by development	**11ha**
Remaining Woodland	**21ha**
Area of Retained Woodland with public access	**15ha**
Area of Retained Woodland with private access	**17ha**

Area of Woodland Directly Affected by Development

Figure 4 - Cae Glas
Overall Woodland Strategy

Approx. area of woodland on site	**41.5ha**
Area of woodland directly impacted by development	**7.3ha**
Remaining Woodland	**34.2ha**
Woodland with Managed Public Access (incl. nature reserve)	**31.5ha**
Area of Woodland - private access	**10ha**

Area of Woodland Directly Affected by Development

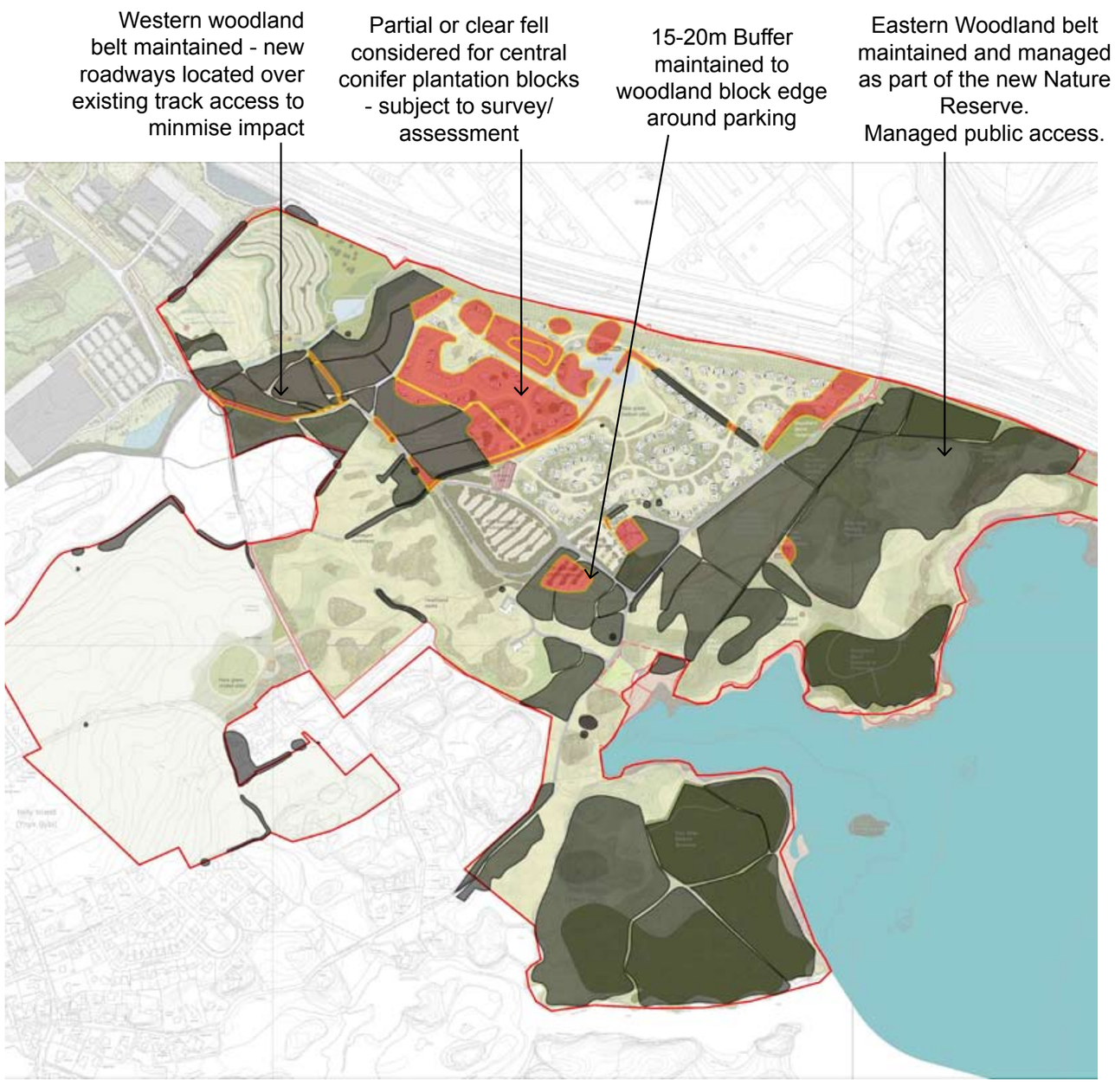


Figure 5 - Penrhos

Proposed New Woodland Blocks

Area of New Woodland Planting - 4.3ha
Area of which has Managed Public Access - 0.6ha

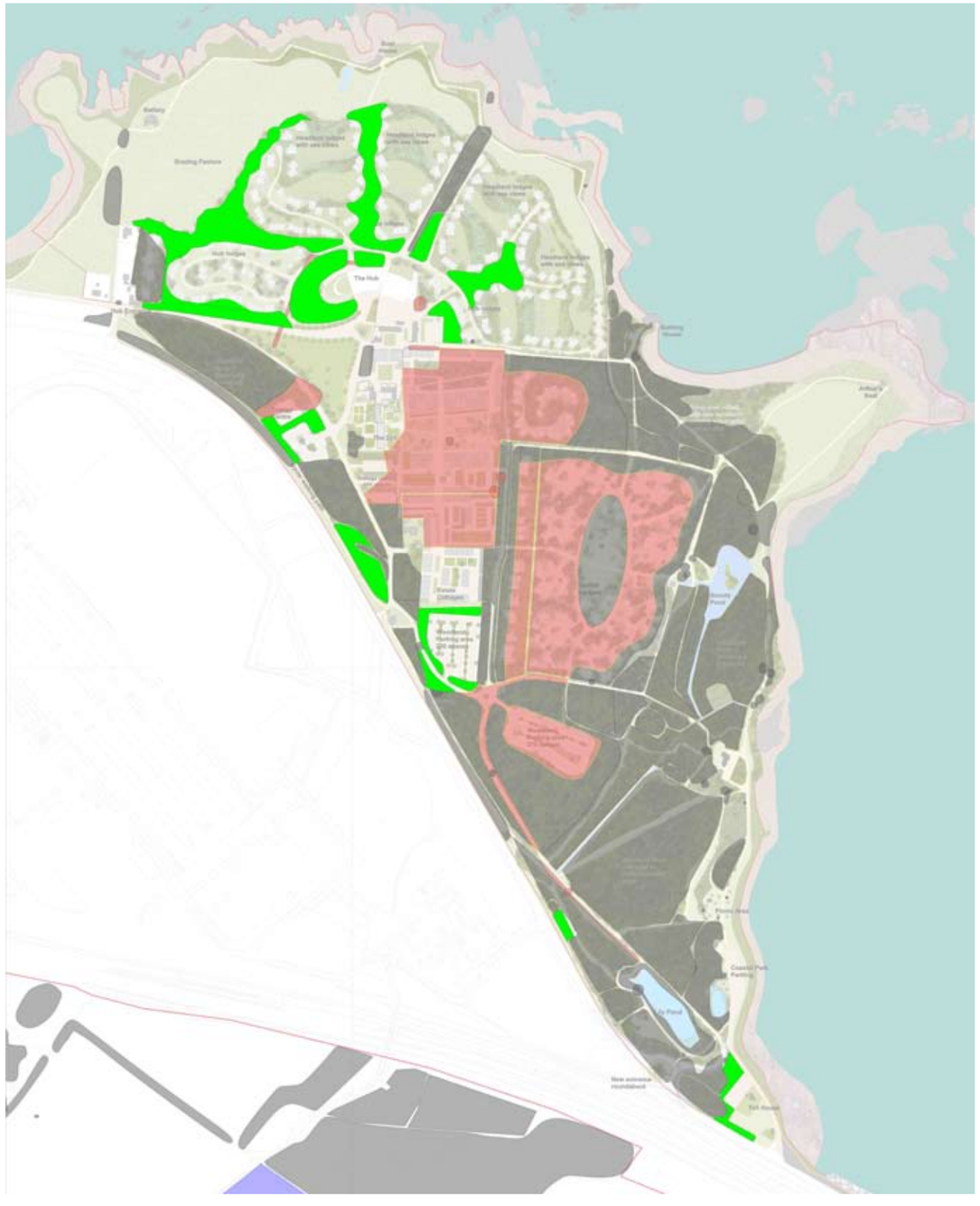
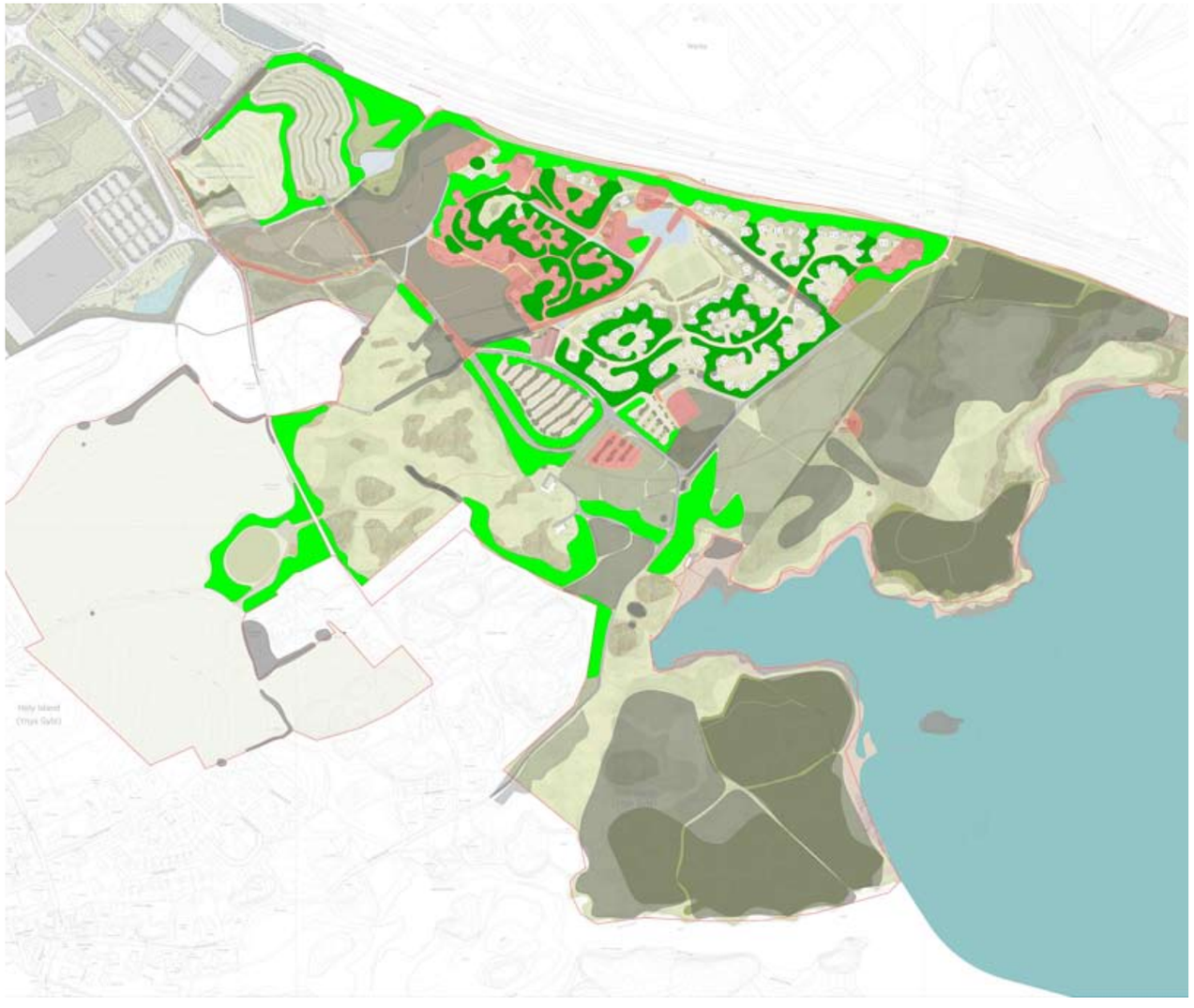


Figure 6- Cae Glas

Proposed New Woodland Blocks

Area of New Woodland Planting - 11ha
Area of which has Managed Public Access - 5.3ha
Area of New Tree Planting within Lodge Areas 4.8ha



New Woodland Planting

Although detailed planting proposals are beyond the scope of this outline planning application it is proposed that a suitable species mix will be developed in consultation with the local authority and Forestry Commisssion for advice and local provenance suppliers. These could be, but not limited to:

Climax trees - Oak, Pine, Sycamore, Sweet Chestnut, Hornbeam, Beech, Ash - subject to current restrictions due to Ash dieback - Chalara fraxinea fungus.
Nurse Trees - Birch, Alder, Field Maple, Rowan, Willow.
Edge / under storey - Hazel, blackthorn, hawthorn, Holly, Dog Rose, Gorse,

Figure 7 - Penrhos
Development Strategy for Estate Cottages

- The detailed assessment will help to identify any significant specimen trees and groups that should be retained within the walled gardens. Reference to historic mapping of the gardens will also help to establish if specimens formed part of the original structure planting for the site.
- Assumed that clearance will be required for substantial areas of self seeded woodland with a target of maintaining 30% tree cover comprising of the key high quality specimens.
- Larger garden areas within the masterplan offer greater opportunities for woodland blocks/ tree groups to be retained and to allow woodland links across the site to be maintained.
- It is acknowledged that these retained trees will have significant RPA zones, and that large protected areas will be required - restricting construction access and requiring additional ground protection within construction areas.
- There is a presumption to clearing areas adjacent to the garden walls to open up the original historic layout and avoid further damage to the structures.
- Construction traffic would access via routes from the house courtyards or from the southern gardens - using existing gateways through the walled gardens - although limited new access may be required.

KEY

Existing trees to be retained.
(Representative RPA shown by dotted line)

Existing area of woodland to be removed

New Tree Planting
(species, size to be confirmed)

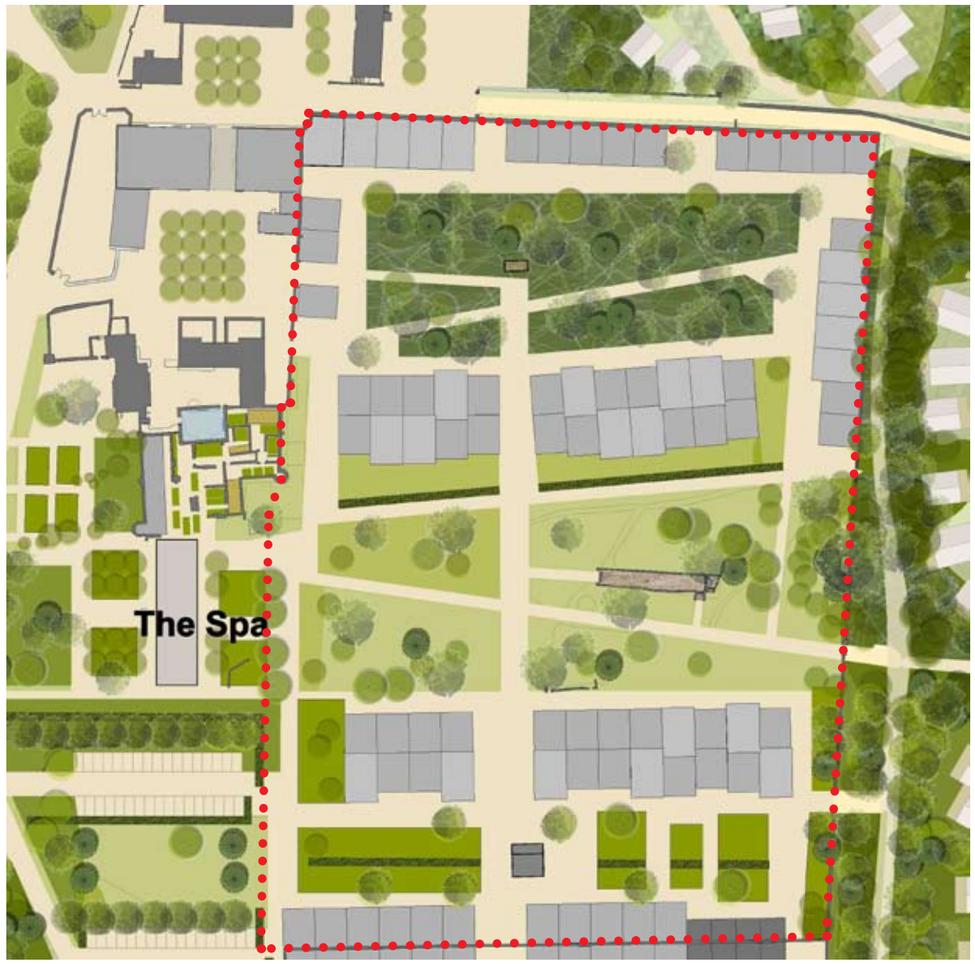
Existing Young tree specimen to be relocated on site

Proposed Tree Protection Fencing
(In accordance with BS:5837:2012 Trees in relation to design, demolition and construction. Recommendations)

Notional line for primary construction compound

Notional line for key service runs

Current Masterplan - Estate Cottages north



Notional Woodland Strategy Plan - Estate Cottages north

Where identified by assessment, individual tree specimens will be protected and integrated into the walled garden layout. Consideration of RPA's will guide the extent of adjacent development.

Central Woodland block retained and protected during construction phase. No dig approach to pedestrian access routes.

Central cleared area will allow for construction of the cottages

Construction access and lodge services will be taken from the west and south of the garden. min 10m wide route along main proposed avenue.

Central Garden Area retained and protected during construction phase. No dig approach to pedestrian access routes. No dig temporary roadways will be required to allow access to the south. Some tree clearance is anticipated in this area to open up the historic garden vistas from the house.

Figure 8 - Penrhos

Development Strategy for Eastern Woodland Block W63

- The detailed assessment will help to identify any significant tree groups within the area that will form the structure for lodge placement.
- It is assumed that a ‘light touch’ approach would be taken within this area with lodges positioned at low density.
- Target of maintaining 70% tree cover within this area, in addition to new planting. Lodge placement has been consolidated into smaller internal areas to help prevent fragmentation of the woodland block.
- Detailed woodland assessment will help identify existing and potential clear areas within the wood for lodge placement
- A woodland buffer of 20m will be maintained to the northern edge of the block to ensure visual continuity from the headland areas and allow the integrity of the woodland edge to be maintained.
- It is acknowledged that trees are likely to have large RPA’s, and that lodge placement may impact on these - requiring detailed assessment and agreement in addition to special construction methods for lodge foundations, servicing and access pathways.
- Construction access will be from Western (estate cottage) area - minimising impact on the wider woodland group.
- Construction routes will follow the existing historic pathways to minimise tree removal, although it is acknowledged that there could be impact to the adjacent tree RPA’s and that additional ground protection may be required along edges of the compound.
- Long term access during the operational phase will be restricted to pedestrian/ cycle routes, helping to minimise construction requirements on paths and walkways.

KEY

Existing trees to be retained.
(Representative RPA shown by dotted line)

Existing area of woodland to be removed

New Tree Planting
(species, size to be confirmed)

Existing Young tree specimen to be relocated on site

Proposed Tree Protection Fencing
(In accordance with BS:5837:2012 Trees in relation to design, demolition and construction. Recommendations)

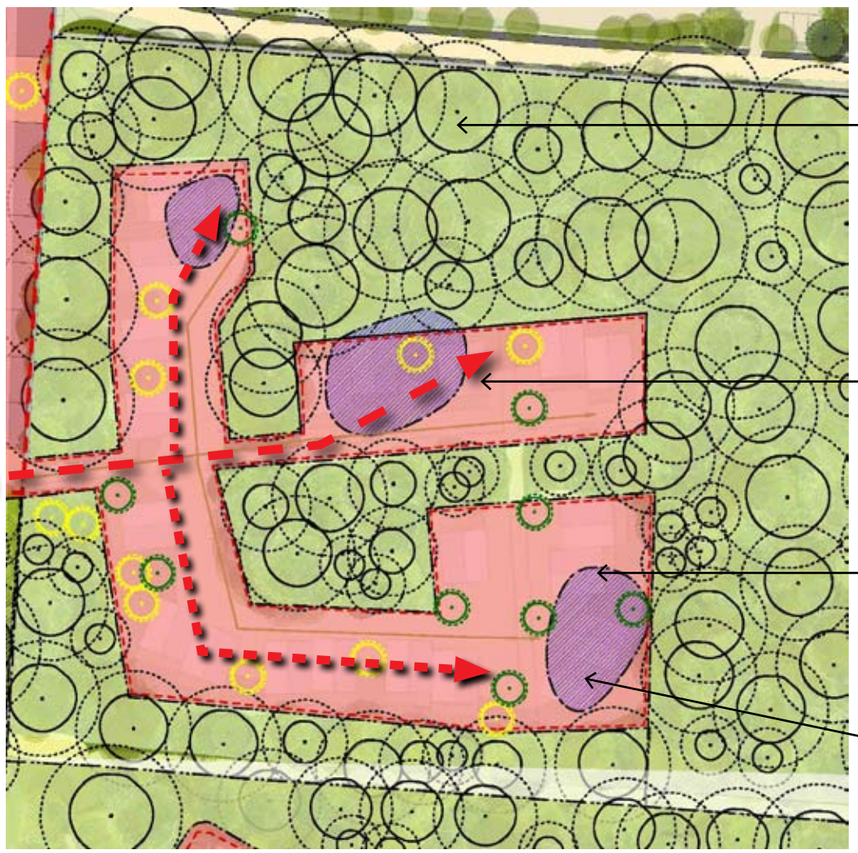
Notional line for primary construction compound

Notional line for key service runs

Existing cleared/ thinned areas - or areas identified through the management plan for thinning

Current Masterplan - Eastern Woodland Block W63

Notional Woodland strategy plan - Eastern Woodland Block W63



Woodland Buffer
A substantial 20m buffer will be protected to ensure the integrity of the woodland edge and preserve views to the wood from the headland

Construction access and lodge services will be taken from the west with a likely cleared central area. Additional ground protection due to the extensive RPA’s is anticipated in accordance with BS5837

Special construction methods for lodges within or close to main RPA’s is anticipated within this area, such as pile or floating beam foundations. In special circumstances lodges may be located closer that 10m - subject to assessment and agreement.

Existing areas of cleared woodland will be utilised for construction access and lodge placement

Figure 9 - Penrhos
Principles for lodge placement within the Quillet

- The detailed assessment will help to identify any significant tree groups within the area that will form the structure for lodge placement.
- These significant groups will be protected as larger blocks.
- Target of maintaining 50% tree cover - exploiting the young tree stock to relocate where required.
- Lodge development will be based on forming smaller woodland 'clusters' that allow blocks of the current tree stock to remain in place.
- The majority of the trees will be small with corresponding small RPA's allowing much closer lodge placement.
- Larger specimens within the boundary areas will be protected as a continuous block. A 15-20m buffer will be maintained to the edges of the block to maintain visual integrity from adjacent public areas - areas of adjacent scrub woodland to be thinned/ replanted.
- Construction routes will be taken from the central oval route with access from the existing southern roadway - reducing impacts on surrounding woodland areas.
- Lodges placed adjacent to the western tree avenue will be constructed, accessed and serviced from the Quillet area.

KEY

Existing trees to be retained.
(Representative RPA shown by dotted line)

Existing area of woodland removed/ relocated

New Tree Planting
(species, size to be confirmed)

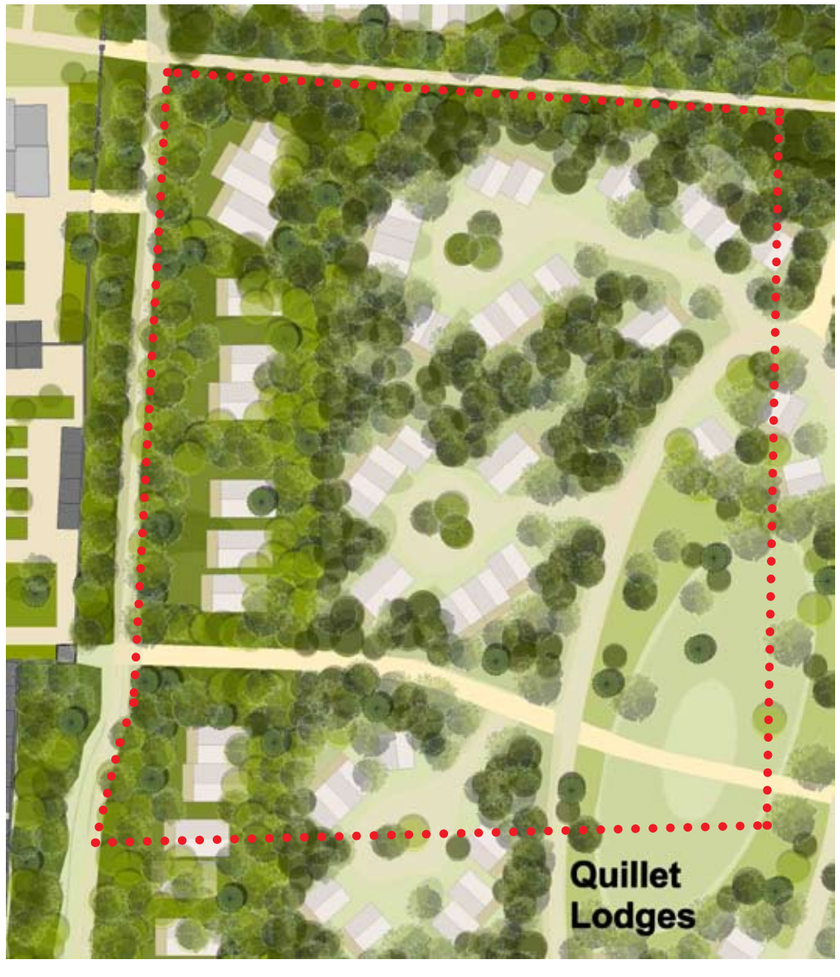
Existing Young tree specimen to be relocated on site

Proposed Tree Protection Fencing
(In accordance with BS:5837:2012 Trees in relation to design, demolition and construction. Recommendations)

Notional line for primary construction compound and primary access routes

Notional line for key service runs

Current Masterplan - N/W corner of Quillet



Notional Woodland Strategy Plan - N/W corner of Quillet

Buffer edge to woodland block maintained - minimum 15m depth with thinning of self seeded thicket along inside edge.

Construction routes
Main routes through the woodland -min width 6m - trees relocated from effected areas. New service runs located within this zone leading to the central roadway.

Internal woodland groups identified during the assessment will be protected as a single larger block with fencing to BS5837.

Lodges placed a minimum of 2m from young stock and 10m from mature specimens.

Central Construction route will feed access to the smaller Quillet lodge 'clusters' - min width 8m.

Tree Avenue W65 will be protected within a single area of protective fencing. All pedestrian access within this to be constructed in accordance with BS5837.

Central Core area of the Quillet protected as a single area of protective fencing.

Figure 10 - Penrhos

Development Strategy for Parking within Woodland Block W45

- Parking areas will be designed to minimise land take from the woodland
- Consolidated layouts will require significant/ total clear fell of the identified areas.
- Target of maintaining 70% tree cover within the overall woodland block.
- Detailed tree assessment will identify any specimens or groups that could be incorporated into the parking area design and will inform the strategy for protective fencing.
- Parking construction will utilise permeable surfacing to minimise service runs and maintain moisture and air to any retained trees within the layout.
- It is acknowledged that retained trees and edges to woodland will have significant RPA's that the development may overlap - requiring special construction methods and additional ground protection during construction.
- Construction access will be along the existing estate roadway and proposed road routes - minimising impact on the outer woodland edges
- Associated pedestrian routes and pathways will be low impact no dig construction.

KEY

Existing trees to be retained.
(Representative RPA shown by dotted line)

Existing area of woodland to be removed

New Tree Planting
(species, size to be confirmed)

Existing Young tree specimen to be relocated on site

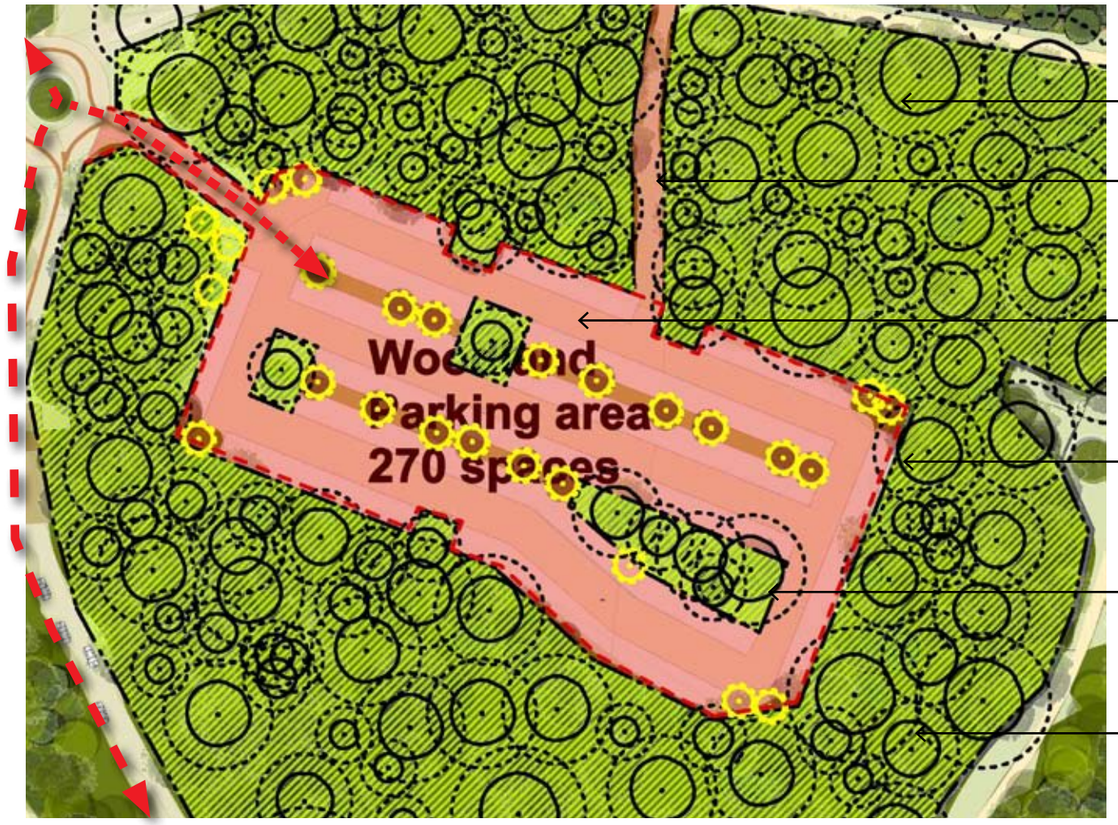
Proposed Tree Protection Fencing
(In accordance with BS:5837:2012 Trees in relation to design, demolition and construction. Recommendations)

Notional line for primary construction compound and primary access routes

Notional line for key service runs

Current Masterplan - Parking within Woodland Block W45

Notional Woodland strategy plan - Parking within W45



Woodland Buffer
Revised layout allows for extensive buffer areas of woodland to be retained 30-50m depth

Linking pathways to be pedestrian/ cycle restrcited to minimise construction requirements

Efficient parking arrangement to minimise tree removal. Parking for 250-300 cars.

Additional ground protection may be required to edge areas during the construction phase. Car park surfacing is likely to require 3d reinforcement and no dig adjacent to woodland

Specimens and small groups could be integrated into the layout - subject to assessment/ wind throw analysis etc.

Woodland Buffer
Revised layout allows for extensive buffer areas of woodland to be retained 40-50m depth

Figure 11 - Cae Glas

Development Strategy for Plantation Woodland Blocks W15/16

- Assumed that detailed assessment and wind throw assessment will identify extent of clearance required - either partial or clear fell.
- Where possible, internal blocks will be retained and protected to help give context to lodge development in conjunction with new planting.
- Where possible the woodland edges will be maintained - subject to survey and assessment
- It is acknowledged that significant new woodland planting will be provided within early phase of works to create appropriate feel for the area.
- Construction routes will follow proposed roadways to allow for maximum tree retention, with the main site access from Entrance Hub to the south of the woodland.

KEY

Existing trees to be retained.
(Representative RPA shown by dotted line)

Area of Woodland identified for clear fell

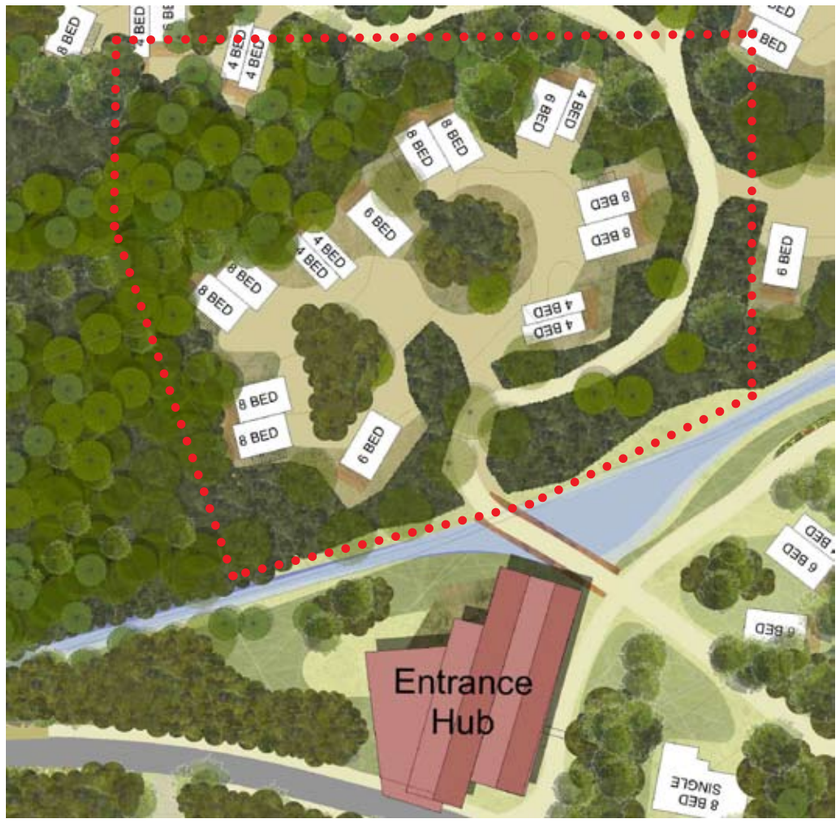
New Tree Planting
(species, size to be confirmed)

Proposed Tree Protection Fencing
(In accordance with BS:5837:2012 Trees in relation to design, demolition and construction. Recommendations)

Notional line for primary construction compound

Notional line for key service runs

Current Masterplan - Woodland Block W15/16



Notional Woodland Strategy Plan - Woodland Block W15/16

Existing woodland edge retained as intact block. Subject to assessment some internal restructuring may be possible. Woodland will be protected as a single block during construction - some additional ground protection may be required adjacent to this edge.

New tree planting will be focused on small internal blocks to help reinstate tree cover in the medium to long term.

Extensive clear fell of the woodland blocks may be required with new tree planting providing the immediate context for new lodges.

Where possible edge and internal woodland blocks will be retained - subject to condition and stability assessment. These trees and RPA's will be protected as single larger blocks during the construction period.

Primary construction access will be from the entrance hub and associated new roadway.

Figure 12 - Cae Glas

Development Strategy for Hotel within Woodland Block W22 and Tree Group G32

- Hotel is designed to fit within the existing landscape features
- The farmstead sits within a natural low point within the site - helping to reduce visual impact of the building.
- Clearance of self seeded trees within the farmstead walls will help to reduce further structural damage
- The majority of trees and groups removed are low to medium value - limited Cat A trees removed.
- Woodland Group G32 is retained along the northern wall - subject to structural survey, with minimal loss to accommodate the northern section of hotel building
- Target of maintaining 75% tree cover within the overall woodland block - with the majority of Cat A woodland protected.
- Construction access will be from the existing roadway to the west of the site - minimising impact to the main woodland block
- It is acknowledged that retained trees and edges to woodland will have significant RPA's that the development may overlap - requiring special construction methods and additional ground protection during construction.
- A notional 5m build zone is provided around the main building to allow for construction access.
- Associated pedestrian routes and pathways will be low impact no dig construction.

KEY

Existing trees to be retained.
(Representative RPA shown by dotted line)

Existing area of woodland to be removed

New Tree Planting
(species, size to be confirmed)

Existing Young tree specimen to be relocated on site

Proposed Tree Protection Fencing
(In accordance with BS:5837:2012 Trees in relation to design, demolition and construction. Recommendations)

Notional line for primary construction compound and primary access routes

Notional line for key service runs

Current Masterplan - Hotel within Woodland Block W22 & G32

Notional Woodland strategy plan - Hotel within W22 &32

Woodland Group G32 retained along the northern wall area if structure is not affected.

Extensive new planting to reinforce the existing woodland block.

Hotel located over the footprint of the existing farmstead and surrounding yard. Internal self seeded tree groups to be removed to protect the historic structure.

Additional ground protection may be required to edge areas during the construction phase. A notional 5m clear build zone is indicated around the main building.

High value woodland protected with minimal intrusion into main block by development.