

## 9 – Summary of Main Impacts and Concept Design



## **9.0 – Summary of main impacts and concept design**

### **9.1 The Process**

This Environmental Statement (ES) is the culmination of comments, opinion and issues raised throughout an initial consultation. It was felt important that a wide range of organisations along with the local population were invited to raise comments with us to help shape the proposals for the project and identify any mitigation, or design considerations to be included in the concept design.

Many of the comments received were considered habitat- or access-enhancement ideas and are therefore not considered within this ES, but will be included in more detail at the management-planning stage which sets out more detailed management decisions and options for delivery in the short and longer term. The management plan will be based around the criteria, mitigation and processes contained within this ES detailed in sections 2 – 8.

The concept design should be considered an overview representation of the project, and is not intended to show detail, but does show proposed broad habitat creation plans, and main access routes as a result of completing the Environmental Impact Assessment process. More detailed design elements will be built in through further consultation with interested individuals and organisations throughout the implementation phase, as well as seeking additional advice on the habitat-creation biodiversity potential, and access potential. Visitor management, interpretation plans and education plans will be developed into an Engagement Strategy, and will involve further consultation to maximise potential in this area of the project.

### **9.2 Summary of impacts.**

The Environmental Impact Assessment identified and assessed three potential impact areas which could be considered potentially significant (archaeology, landscape and visitor impact). The ES includes a number of additional impacts which were assessed but not considered significant, but may have mitigation or site-enhancement recommendations with them.

The summary below highlights the main impacts at implementation (years one to ten), establishment (years 11 – 40) and maturity (years 40+).

#### **9.2.1 Project implementation**

The options for the implementation phase were assessed, including options for longer-term management. The planting is planned to be phased over the first ten years of the project, therefore the implementation phase is considered to be years one to ten.

- Implementation phase.

Planting will not utilise plastic tree tubes due to landfill and short-term landscape impact.

Deer fencing will be avoided where possible to prevent access obstruction to both visitors and other mammals, and may also be perceived as negative impact on internal aesthetic appeal.

Soils inversion techniques for establishing wild flowers would potentially have a significant impact on archaeology, requiring further mitigation.

- Establishment phase

None identified.

- Maturity

None identified.

## **9.2.2 Archaeology**

The archaeology investigations to date have identified a number of significant buried remains. The data collected has been used to develop a risk model, identifying by 100m x 100m grid squares, areas of varying risk, from which a series of mitigation measures or recommendations for further investigation have been attributed.

- Implementation phase

The process of planting trees and creating meadows is not considered a significant impact on either scattered finds, buried remains and buried artefacts, however root growth, whilst little evidence exists on the actual impacts, are considered to potentially have an increasingly significant impact on archaeology underground, particularly when natural regeneration or direct seeding is proposed due to the high density of plants in the early stages.

Soil inversion techniques for ground preparation, either for tree planting or meadow creation will be potentially significant, negative and permanent and require further mitigation if used.

- Establishment phase

Tree root depth from woodland planting, orchard and hedge planting is one of the most significant potential impact to underground archaeology. Mitigation will be in the form of a risk-based approach through the detailed design during the implementation stages, either through not planting areas, reducing spacing and density of trees, or carrying out further investigations as required and recommended by the Hertfordshire County Council Historic Environment advisor and the St Albans District archaeologist.

- Maturity

Tree root damage may have the potential for very high damage to underground archaeology, however mitigation will be through the design and planning stage.

Long-term damage from visitor and vehicle pressure is identified as potentially significant due to topsoil erosion. By providing numerous wide, and some surfaced paths, the potential impact from visitor use will be reduced, mitigating against these impacts.

## **9.2.3 Landscape**

The impacts on landscape can be considered somewhat subjective depending on the individual's perception and values placed on the landscape. The project will however significantly change an area of the landscape on a permanent basis; from a predominantly arable one to a wooded one. The mitigation measures are aimed at reducing the impact of change, and to enhance the landscape where possible. The assessment set out to identify sensitivities in the landscape character, and in the way it is visualised.

- Implementation phase

None identified.

- Establishment and maturity

A dry valley area to the north-west was identified as being of landscape importance and within a landscape conservation area. This area will be left predominantly open, with limited planting to enhance the character only.

Internal views, previously unavailable due to access restrictions, views over Sandridge village from higher positions within the site were identified as important. Planting of clumps as opposed to solid planting will allow open space between to be available so these views are still maintained at certain some points. Use of lower-growing shrub planting will also assist this mitigation.

The impact to people driving through the site is predicted to be significant. To mitigate against this, planting of trees will be set back from roads where the road edges are open or low hedges are present to prevent excessive shading of small lanes and significant landscape change to those passing through. The use of lower-growing shrub species and open space along road edges will also help mitigate this impact and prevent a 'wall effect' being evident as the woodland matures.

Landscapes were also identified by those living adjacent to the site and assessed as part of the population and access section.

#### **9.2.4 Flora and Fauna**

The surveys, consultation and advice received did not raise any significant negative impacts on flora and fauna either on site, adjacent or within the area. The largest impacts are identified as being generally positive and positive. Short-term impacts through the implementation phase tended to be neutral due to the young age of habitat having not developed structure, or were identified as negative impacts of low significance.

- Implementation phase

A small loss of mature hedgerow is likely if car parking and entrance proposals go ahead as described. Total loss is approx 0.9% of the site resource, and considered of low significance in terms of loss. This is a short-term impact as mitigation includes planting approximately 700m of new native hedgerows of mixed species and the planting of approximately 600,000 trees, resulting in an overall net gain in length of hedgerow, and biodiversity value.

The impact of visitors through disturbance to breeding birds was identified as needing mitigation. Positioning of paths away from mature hedgerows, or creating wide rides so that visitors are positioned away from hedgerows will reduce this impact. Additional signage asking visitors to keep dogs under control will also be implemented.

- Establishment phase and maturity

An overall loss of open-ground habitat was identified as being of moderate significance for open-ground species, particularly birds and butterflies. This will be mitigated by creating approximately 80ha of open ground within Heartwood Forest of increased biodiversity quality compared with arable crops. This, combined with a mosaic of different habitat types including scrub, wild flowers, varying grassland sward structures through varying mowing regimes and woodland, will create overall an increase in the biodiversity value of the site as a whole.

### 9.2.5 Population and Access

The majority of negative impacts requiring mitigation came out at either a surrounding village level or with residential properties adjacent to the boundary. The positive impacts identified were largely associated with increased access to open-access land, education and assistance with existing localised issues, such as speeding through Sandridge village and car parking capacity in the area.

- Implementation phase

Visitor arrival by car is potentially the largest impact at the implementation stage. Annual visitor numbers expected are in the order of 120,000 per year, largely from within the district. Whilst impact on the road from additional cars is not considered significant, there are a number of impacts which influenced the assessment as of high and negative significance overall. The potential impact on local parking spaces and the impact of this on village congestion and the daily life of the local population was potentially significant. This will be mitigated through the provision of a car park, with overflow to ensure that capacity is not exceeded in peak times and during organised events. A safe entrance will need to be provided off the B651, which is suitable for the expected longer-term visitor numbers, which is achievable given current traffic flow rates along the B651. At a district level, and village level, there are a number of roads which should be avoided by visitors who are visiting from outside the district and may not know the route to the forest. These roads are either within St Albans centre and currently subject to peak flow queuing, or are very narrow country lanes. An agreed set of preferred routes are agreed with district highway engineers for promotional purposes that fit in with existing brown tourist signage. Brown tourist signs will be provided along these routes. The Heartwood Forest will also promote green travel by train, bus, bike or on foot wherever possible to reduce arrivals by car.

Two impacts were assessed as of medium significance and negative.

The potential increase in crime locally – Likely to be linked to the car park which will be situated in an area close to the main bridleway where people will be expected to be regularly throughout the day, acting as a deterrent. A secure bike-locking facility will be provided. The entrance will also be lockable to enable the car park to be closed off at night, with a one-way exit allowing those within the car park, if closed, to leave.

Privacy to residential properties adjacent to the boundary will potentially be an impact in the early stages before trees mature. New paths will be diverted away from residential properties to discourage visitors from accessing along any boundaries. "Private" signs will be placed on management gates leading to private property. Positioning of prickly and dense shrubs will also help discourage access in sensitive areas.

- Establishment phase and maturity.

In addition to the impacts identified for the implementation stage, as the forest matures, the potentially negative impacts are generally at a neighbour level where a sense of enclosure, loss of light to properties, and views become more significant. Much of the landscape impact is considered under landscape sections however additional mitigation is required where residential properties share garden boundaries with the forest. Mitigation includes planting a minimum of a 30m shrub buffer zone on the edges to reduce impact of light loss and loss of open settings. The use of open ground was considered, however this could conflict with measures for privacy and security.

## 9.2.6 Soil, Air and Water

No significant impacts were identified for any of the project stages, however there is potential that some localised flooding may receive a limited positive impact, and local air quality may be improved in places.

## 9.3 Summary of impacts relevant at the concept design level

N.B: not all mitigation measures and opportunities for enhancement of features are represented as design features, many are not dependent on initial design layout, or are mitigation required during the project delivery stages. (See sections 2 – 8 for further detail)

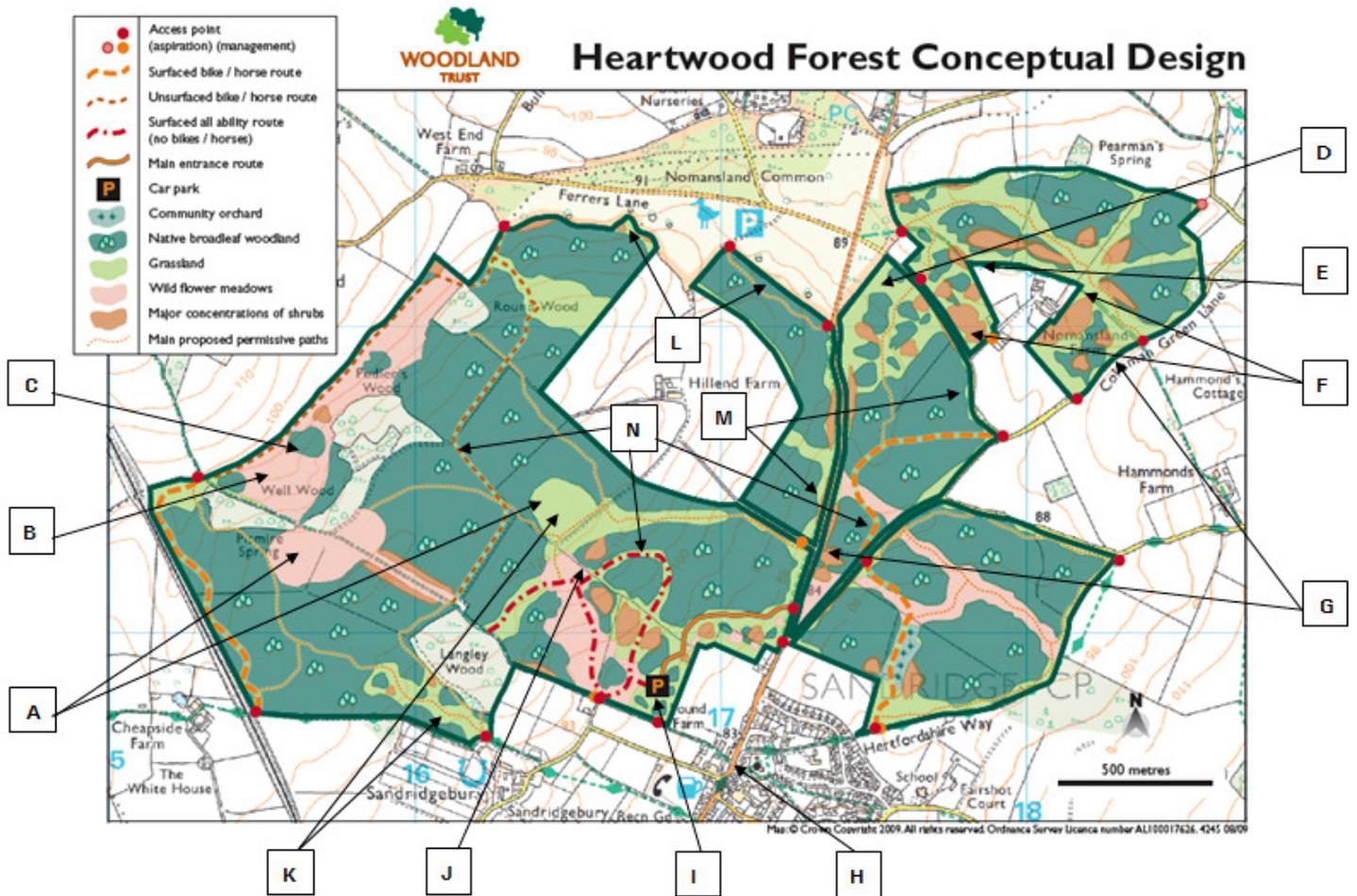
Potential Impact	Mitigation/ enhancement measures	Concept design feature	Map ref
<b>Project implementation</b>			
No design requirements identified, however different methods of implementation discussed in section 2			
<b>Archaeology</b>			
Damage to underground features through tree root damage	Risk based approach in agreement with county and district archaeologists.	Open ground is designed in where significant archaeology has Been Identified through initial investigations to protect in situ. Additional, but smaller areas of open space may be required where through further investigation, further underground archaeology is identified where preservation in situ is required.	A
<b>Landscape</b>			
Retention views looking out	Retain view from some points from within the site on elevated positions	Planting on rising gradient from the village will be in well spaced large clumps to ensure view (previously unavailable due to no access allowed) is available from some points within the site. Use of lower growing shrubs and a Hazel coppice area will further protect these views.	J
Visual impact	Create graded edges along Roads, and where appropriate retain paths along road edges to prevent 'wall effect'	Shrubs and open space to be included along minor road edges ( detail not shown in concept design)	M
Character of Landscape Conservation Area, also Identified in public Consultation as being an Important view.	Enhancement of character through limited clump planting of trees.	Dry valley to the north west retained as open with wild flower planting to add visual interest. Limited tree planting in clumps to enhance landscape.	C
<b>Flora and Fauna</b>			
Impact on Nomansland Common acid grassland habitats	Opportunity to expand acid grassland habitat to the east where soils are suitable	Planting adjacent to the eastern parts of Nomansland Common Will be more open and in clumps providing expansion possibilities for acid grassland species.	D
Impact on Nomansland Common scrub/woodland	Expansion of existing habitats	Expansion of existing dense scrub habitat will be achieved through allowing habitat to naturally regenerate out	L

habitats		between tree planting and scrub edge. Habitat further extended through promotion of varied ride edge habitat along wide paths and rides linking to Nomansland Common.	
Impact on existing hedgerows	Removal of 150 m of Hedgerow will be required to ensure safety of entrance. Net gain from project approx 700 meters through additional hedge planting.	Additional hedge planting to replace small section of hedge Lost for entrance creation, and additional gapping up of hedges where farm entrances are redundant and for screening of the entrance track. Paths next to hedgerows will be kept away, or created at very wide widths to protect existing mature hedges, which may not show on concept design.	G
Birds	Loss of overall open space habitat will be replaced by high quality mixed habitat which provides greater biodiversity potential	Some open ground will include short term, transient scrub habitat to increase habitat diversity. Scrub habitat will be promoted along hedges and woodland through natural regeneration. Along created path edges species will be planted that are favourable to retain a scrub edge and a good seed and fruit resource.	K
Arable weeds	Reduction in open and disturbed habitat will be mitigated through provision of wild flower meadows which include annual species.	Wild flower meadow creation.	B
Ponds adjacent	Prevent overshadowing of adjacent ponds. Prevent disturbance and potential risk from path cutting	Paths not created near to adjacent ponds, or newly created ones (location of any new ponds still to be confirmed)	E
<b>Population and Access</b>			
Impact on local parking and road infrastructure.	Provide car park with sufficient capacity and overflow if required. Provide a safe and suitable entrance for visitor numbers.	Entrance to car park placed in most suitable location for safety. Car park located away from properties, but where people are expected to be Much of the time for security. Lockable entrance to close car park in evenings and when required.	I
Impact of visitors crossing B651 to access all areas of the site.	Promote existing crossing point within village. Unused entrances along B651 will be blocked off with new hedges	Car park located close to the main bridleway and village crossing point.	H
Feeling of enclosure and loss of light to adjacent properties	30m buffer of lower growing shrubs Will be used in preference to open Space as this may conflict with Security and privacy issues	Extensive woodland edge shrub planting where the woodland abuts adjacent properties.	F
Links to existing access	Opportunity to provide additional links to and in-between existing access routes, and to provide routes	Provision of multi user paths which will be wide to accommodate Pedestrians, cyclists and horse riders. Where paths link with surfaced paths externally, consideration will be given to surfacing	N

	available to a variety of different user groups	these links to provide a consistent surface type. Opportunity to agree access links between Nomansland Common and Heartwood Forest to spread visitor pressure and to provide a variety of access options.	
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<b>Soil, Air and Water</b>			
No design requirements identified, however different methods of implementation discussed in section 2			

Table 8 – 1, Summary of impacts relevant to concept design level.



See appendix 23 for full size map