

Cambridge Waste Water Treatment Plant Relocation Project



Preliminary Environmental Information
February 2022

Outline Landscape, Ecological and
Recreational Management Plan

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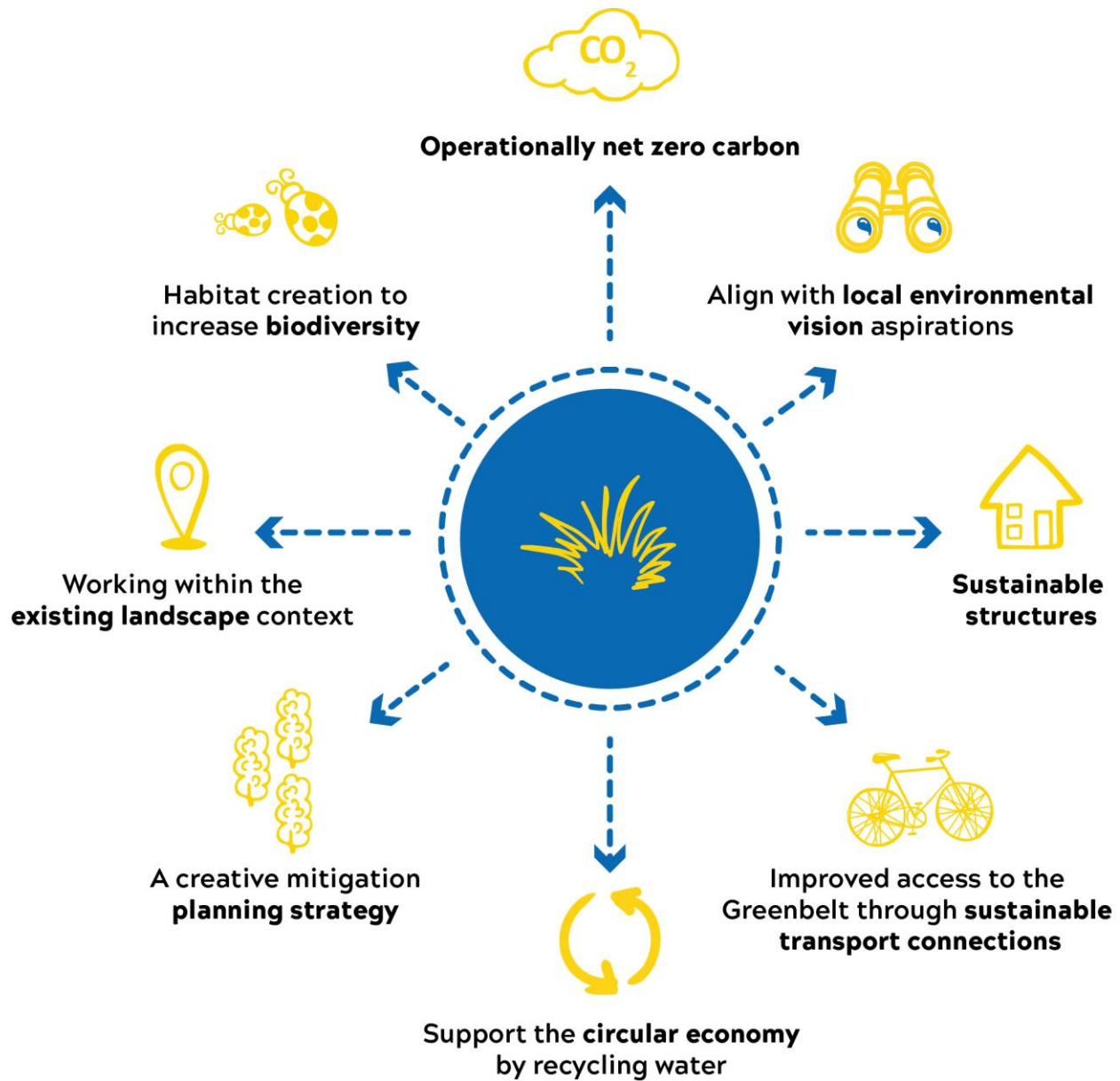
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1 Introduction

- 1.1.1 This document is an outline of the Landscape, Ecological and Recreational Management Plan (LERMP) for the Cambridge Waste Water Treatment Plant Relocation (CWWTPR) project, the Proposed Development.
- 1.1.2 A multifunctional approach has been adopted to deliver landscape enhancement, visual screening, ecological habitat creation and recreational opportunities for local communities. This approach provides both mitigation for potential environmental impacts we have identified through the Environmental Impact Assessment (EIA) process and enhancement of the local environment.
- 1.1.3 Following consideration of consultation responses, and through further discussion with stakeholders, this outline document will be refined and updated for submission as part of the Development Consent Order (DCO) application.
- 1.1.4 The central element of the LERMP is the landscape masterplan, which provides the vision for the project and will be used later to inform the detailed design.
- 1.1.5 Anglian Water's commitments to deliver and maintain the landscape masterplan will be secured through the DCO. The DCO will require the LERMP to be implemented and provide for the establishment and maintenance of the features in the landscape masterplan.
- 1.1.6 The outline LERMP should be read alongside the Main Consultation Document (MCD) and the Preliminary Environmental Information (PEI) papers on Ecology, Landscape, Recreation and Communities available [here](#). Further, more detailed, information on these topics will accompany the DCO application, which will include an Environmental Statement, a Design and Access Statement incorporating the landscape masterplan, a detailed LERMP and a Biodiversity Net Gain (BNG) report.
- 1.1.7 The geographical focus of the LERMP is on the immediate area around the proposed new treatment plant. The landscape masterplan contained in the LERMP does not include the areas of the tunnel or pipeline structures or the outfall to the River Cam. The landscape, recreational and biodiversity contexts of these elements of the Proposed Development, together with potential environmental effects and mitigation, are outlined in the PEI papers.

1.2 Our approach to landscape design

- 1.2.1 Our approach to the landscape design has been guided by our core corporate principles. Our commitment to protecting and enhancing our environment is enshrined in Anglian Water's company constitution, our Articles of Association, which commits our directors to consider the needs of the environment and the communities we serve when they are making decisions.
- 1.2.2 We have followed the National Infrastructure Commission's Design Principles for National Infrastructure to develop design principles for the project, as follows:
- to create a modern, low carbon water recycling centre of the future.
 - to reduce the footprint of the plant to 22 hectares, which is about half the size of the existing plant.
 - to create a strong identity for the site while screening the facility and reducing visual impacts on the surrounding community and landscape.
 - to re-use excavated material on site which can be used to screen the facility and also reduce the carbon and traffic impact from construction.
 - to minimise odour by incorporating solutions to address it at source and using best operational practices.
 - to reduce harmful carbon emissions through sustainable design, helping address climate change.
 - to increase biodiversity by creating new wildlife habitats.
 - to improve access to the countryside with new paths and accessible open spaces; and
 - to connect the site into the wider landscape and establish new wildlife corridors.
- 1.2.3 Subsequently, guided by advice from architects, landscape architects, ecologists and other design professionals, further environmental objectives for the project design were developed, as shown in the figure below. We then developed a design narrative from these principles and objectives to guide the development of the detailed masterplan, discussed at section 3 below.



1.3 Stakeholder engagement and evolution of the landscape masterplan

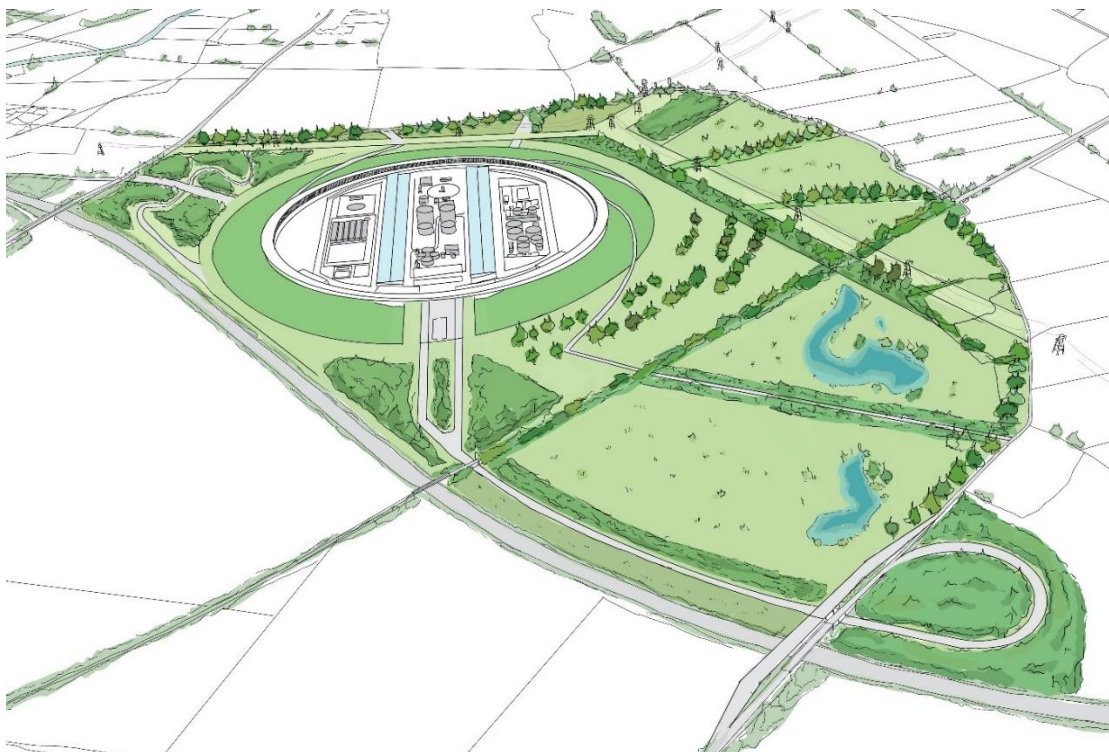
1.3.1 Stakeholder input and consultation feedback has played an important role in the development of this LERMP. During our first phase of consultation, ecology, landscape, and recreation were all identified as important issues by the community. Addressing these concerns through a multi-functional landscape design was identified as an important outcome of the design process.

1.3.2 Prior to the second phase of consultation, we built upon the design narrative and environmental objectives discussed above and, supported by the Design Council, developed three concept designs, as follows:

- A functional initial concept with a location and layout optimised for odour, supported by a landscape plan aligned with existing field patterns.



- A “rotunda” design, utilising retained excavation spoil to construct a landscaped feature in the local environment, inspired by ideas of the circular economy, water and fluidity as, well as past and present landscape features including local dykes and hillforts. The circular layout also presented an opportunity to develop a consistent approach to landscape impacts, regardless of vantage point.



- A design utilising linear “green fingers”, with a sculptural landscape of retained spoil delineating a fragmented treatment plant.



- 1.3.3 Following further advice from the Design Council, including formal design panel review from independent built-environment experts of the three design concepts, the “rotunda” concept design was selected for further consideration.
- 1.3.4 The functional design with its supporting linear landscape plan resulted in a triangular layout which was not suited to the process flows within a WWTP and was considered to offer a lower level of screening than the other two designs. The “green fingers” design was assessed as being too expensive and operationally challenging, particularly because of its fragmented, partial sunken design. It also presented a more alien form in the landscape than the “rotunda” design which offered a more naturalistic screening.
- 1.3.5 As discussed below, preliminary consultation on these three emerging design concepts took place with environmental stakeholder groups including Natural England, National Trust, RSPB, Wildlife Trust, Cam Valley Forum, Quy Fen Trustees and the Greater Cambridge Shared Planning Service (GCSP) representing South Cambridgeshire District Council and Cambridge City Council.
- 1.3.6 The “rotunda” design was included within our second phase of consultation. Feedback received strongly indicated a preference for a planted rather than an engineered screen on the top of the earthwork bank. Consultees felt that an engineered screen would present a more alien form in the landscape, compared to a more organic screen. This preference has been recognised and the landscape masterplan presented below provides details on our proposals for a planted screen.
- 1.3.7 We also engaged on landscape design with stakeholder organisations through technical working groups and with the project’s local community working group. In addition to the landscape design these groups also considered recreational mitigation and enhancement, including improving recreational connectivity, promoting Biodiversity Net Gain (BNG) and improving ecological networks.
- 1.3.8 The evolution of the LERMP has been influenced by suggestions made through the project’s Biodiversity and Ecology Technical Working Group, the Landscape and Heritage Technical Working Group, the Public Rights of Way working group, and one to one meetings with stakeholders, with particular input from Natural England, The Environment Agency, Greater Cambridge Planning, the National Trust, The Wildlife Trust, The RSPB, The British Horse Society, Camcycle, Cambridge Past Present and Future (CPPF) and The Ramblers.

- 1.3.9 In January 2022, the Greater Cambridge Shared Planning Service (GCSPS) provided landscape comments in response to the second stage of consultation. Due to the timing of this response these comments have not been able to be fully considered within this draft of the LERMP. At the time of writing further discussions are scheduled to take place with GCSPS and these will be reflected in the documents accompanying the DCO submission.
- 1.3.10 We held two collaborative workshops in 2021 where members of the community, Parish Councillors and the Save Honey Hill group provided input into the emerging landscape design.
- 1.3.11 We have also discussed the landscape masterplan with local landowners, both as part of our second phase of consultation and subsequently.

2 Overview – a multi-functional approach

- 2.1.1 The relocation project is intended to solve multiple problems and deliver multiple benefits. It will treat waste water and produce green energy and nutrients. It will deliver educational experiences of the circular economy and wider sustainability issues, through the Discovery Centre, part of the Gateway Building. Through the implementation of the LERMP it will deliver recreation, biodiversity, and landscape benefits.
- 2.1.2 The circular earthwork bank, which will enclose the treatment plant, is central to the delivery of many of these benefits and is designed to be the focus of the new facility's design, not a passive landscape feature. For security and safety reasons the enjoyment of the earthwork bank will need to be controlled, with access via the Discovery Centre. However, those invited visitors, together with workers at the site, will be able to enjoy paths on and around the bank to experience the surrounding sculpted features and wider landscape and to gain from the educational experience of views into an operational works from above. This use of the bank will be guided by interpretative material and appropriate signage.
- 2.1.3 Taking its inspiration from the existing and past rural landscape character, the project will seek to make a dramatic landscape statement, sculpting the landscape and ground levels in a manner which is both striking and sensitive to the surrounding communities it will neighbour. As it matures, it will soften and blend into the wider landscape, establishing new habitats for wildlife. Cues for the landscaped form have been drawn from local archaeological and historical features, including dykes, hillforts, and ridge-and-furrow field patterns.
- 2.1.4 This landscape sculpting will serve multiple purposes including
- the mitigation of adverse visual impacts by creating a flowing form involving natural materials to draw attention away from the tallest, working elements of the facility
 - the provision of new landscape features of interest, connecting to the surrounding landscape and proposed nature networks
 - delivering significant biodiversity net gain: a minimum of 20% by providing new habitats and hedgerows in place of intensively managed farmland
 - improved recreational opportunities and connectivity
 - reduction of vehicle movements and carbon emissions by removing the need to remove spoil from the site

- 2.1.5 The UK is facing both a biodiversity crisis and an urgent need for green open space for public enjoyment and well-being. The design responds to this by providing quiet places for both people and nature.
- 2.1.6 The project's design will deliver a minimum of 20% biodiversity net gain, with the potential to connect to the Cambridge Nature Network, enhancing ecological connectivity.
- 2.1.7 Recreational connectivity is also central to the design; Cambridgeshire has one of the lowest levels of natural green space available for public access in the UK. The project's paths will be connected to the wider network of public rights of way, and a new bridleway will improve access to Quy Fen and Anglesey Abbey.

3 The Landscape Masterplan

3.1 Introducing the landscape masterplan

- 3.1.1 The landscape masterplan is presented below on page 12 showing the areas of landscape planting, habitat creation and recreational mitigation and enhancement immediately surrounding the proposed WWTP.
- 3.1.2 Over the period of the development of the masterplan and the associated environmental studies, the landscape design for the proposed WWTP has emerged through an iterative process, informed by the landscape and visual constraints and opportunities which are apparent on site and in the surrounding context. The resulting design is therefore landscape and visually led.
- 3.1.3 The design of the landscape masterplan aims to meet the following objectives:
- To create a green and informal setting to the proposed WWTP that contributes positively to the local landscape context, at this transitional area of semi-rural and edge-of-settlement character;
 - To make effective use of parcels of land severed by the location of the Proposed Development and, where possible, to maintain existing field boundaries to clearly define the extent of the land required to deliver the LERMP;
 - To conserve and enhance the local landscape character informed by guidance in the Cambridge Inner Green Belt Boundary Study (2015) and the Greater Cambridge Landscape Character Assessment (2021). The WWTP will be situated in the Eastern Fen Edge Landscape Character Area (LCA). Key features of the Eastern Fen Edge LCA include low lying farmland separated by linear drainage ditches, hawthorn hedges, tree-lined farm tracks and woodland belts. The villages have defined, well-vegetated settlement edges and there is a network of public rights of way (PRoW) in the area. The A14 severs Cambridge from the landscape to the north and east and pylons are prominent vertical features in the landscape.
 - To respond to the landscape guidelines in the Greater Cambridge Landscape Character Assessment. These include: conserving and enhancing the regular small-scale pastoral fields, shelter belts and hedges at village edges, managing drains and ditches to maintain historic features and enhance ecological value of the farmed landscape and ensuring development is in keeping with the open, rural character of the landscape. The new landscape around the proposed WWTP will respond to these guidelines with new hedgerows, woodland and tree belts, new linear sustainable drainage features and substantial new areas of grassland. These will enhance the landscape pattern and provide substantial new

areas of wildlife habitat. The openness of the landscape immediately around the proposed WWTP will be reduced as the landscape will become more wooded, more closely resembling the landscape of the River Cam corridor and around Quy.

- To mitigate the visual effects of the plant infrastructure, through a combination of extensive new woodland and hedgerow planting and tree planting on the earthwork bank, 5m high, which will surround the proposed WWTP. The combination of these measures will in time screen views of the proposed WWTP from Horningsea Road, the River Cam, Fen Ditton, Biggin Abbey and the public rights of way north and west of the proposed WWTP.
- To achieve a biodiversity net gain through the creation of a mosaic of habitats, with both ecological and landscape character benefits.
- To ensure that the habitat created sits within a wider context of “landscape ecology”, aligned with initiatives such as the Wicken Fen Vision (which aims to *“create a diverse landscape for wildlife and people stretching from Wicken Fen to the edge of Cambridge”*) and the Cambridge Nature Network and, providing “stepping stones” for species in a changing environment; and
- To mitigate impacts on existing recreational facilities by provision of an improved path network, creating positive experiences for both visitors to the proposed WWTP and to recreational users of the wider landscape

3.1.4 Overall, the new landscape provides a new and substantial feature of green infrastructure, designed to mitigate the effects of the proposed WWTP, to create an aesthetically pleasing and user-friendly green space, and to provide exemplary wildlife benefits through a mosaic of new habitats. The features and elements of the plan are further described in the sections below.

Landscape Masterplan



Tree planting to screen views from Horningsea

New tree planting to filter views from Horningsea

Existing car park retained

Proposed open glades and rides in woodland

Trees to bank top to contribute to long term screening and visual mitigation

Proposed vehicular route

Proposed car park and cycle parking enclosure

Sculpted circular earth bank 5-7m ht. with species rich grassland slopes

Proposed southern landscape buffer of woodland blocks

Seasonal pond

Proposed 'quiet zone' for wildlife, generally inaccessible to visitors



- LEGEND**
- Existing intermittent tree groups and hedgerow trees
 - Existing retained hedgerow
 - Proposed areas of woodland
 - Proposed trees and tree groups
 - Proposed native hedgerow and hedgerow tree
 - Undulating Ridge and Furrow
 - Proposed areas of Calcareous Loam Meadow Grassland
 - Proposed new pedestrian paths
 - Existing line of pylons
 - Low Fen Drove Way Grasslands and Hedges County Wildlife Site
 - Existing PROW: Byway open to all traffic
 - Proposed PROW: new bridleway Refer to inset
 - Proposed red line boundary

New hedgerow and hedgerow tree planting to Low Fen Drove Way

Retained arable field

Ventilation 'slices'

Gentle undulations with peaks and troughs to increase habitat variation

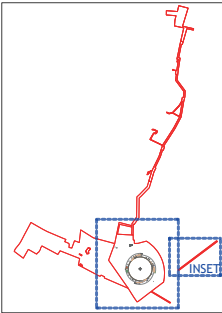
Proposed new bridleway

Native hedgerow atop earth bank to form 3m depth thicket, to be allowed to grow to 3-4m height over time

Calcareous Loam/Neutral Meadow Grassland

Grassland buffer between woodland and County Wildlife Site

LOCATION PLAN

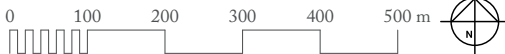


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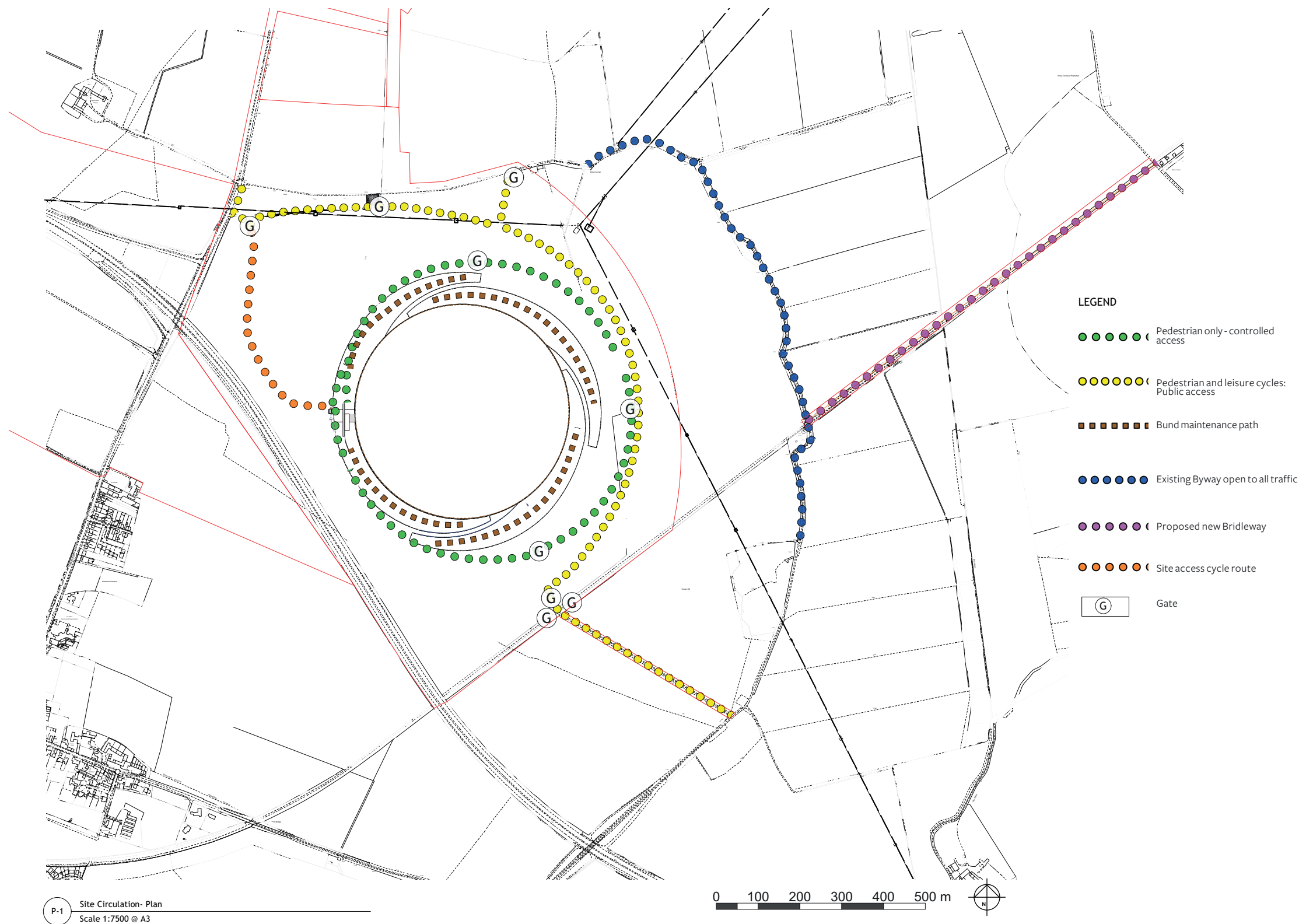
P-2
Scale 1:25000@A3 / 1:12500@A1

P-1
Landscape Masterplan - Plan
Scale 1:7500 @ A3 / 1: 3750 @ A1



- 3.1.5 The new landscape at CWWTP also creates a series of new recreational connections, on site and linking to the wider network. A wider extent is shown on page 14 to demonstrate the connectivity to the existing public rights of way network. On the site itself, new links will be created. A publicly accessible path will traverse the eastern part of the site, set between a hedgerow with hedgerow trees, and the edge of the eastern woodland. The path surface is of a suitable width to be shared by pedestrians and recreational cyclists. Internal paths lead from the Discovery Centre around the slopes of the landscape banking and through the open ridge and furrow grassland.
- 3.1.6 Interpretation boards, finger posts and scattered informal bench seating will contribute to the visitor experience.
- 3.1.7 A new bridleway will be established to the east of the site, using the existing surface along the former railway line to link Low Fen Drove Way with Station Road.
- 3.1.8 The wider recreational context is discussed further in section 5 below.

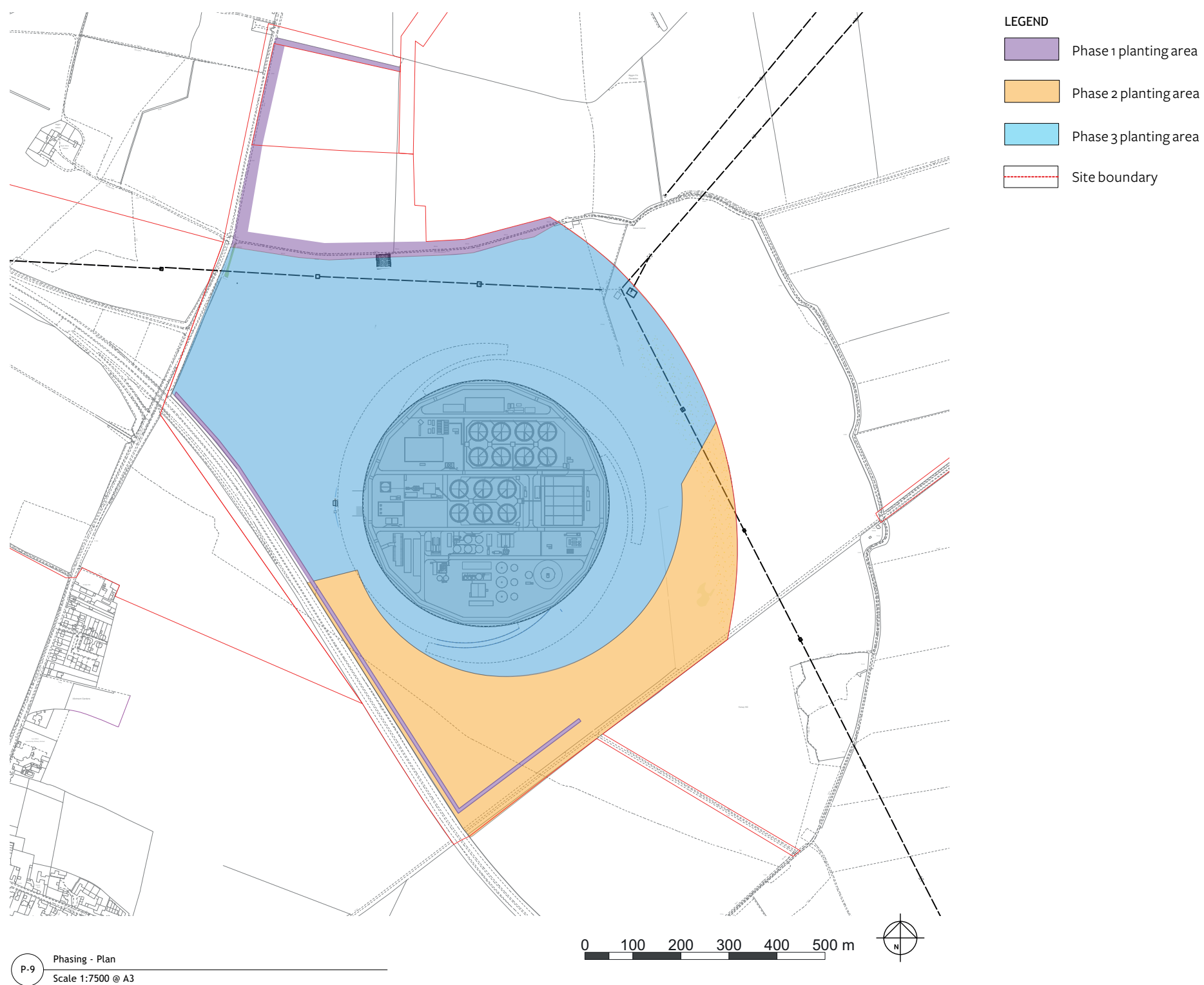
Connectivity to the existing PRow network



3.2 Landscape masterplan phasing

- 3.2.1 The landscape masterplan will be phased to maximise the opportunity for the planting to become established as early as possible. Three phases are proposed, shown in the figure below (page 16). Phase 1 (initial planting) will take place at an early stage in the areas not needed for construction activities. This planting will be protected during the construction period to allow its early establishment so that it provides screening of the Proposed Development in the later stages of construction and operation.
- 3.2.2 Phase 2 of the planting scheme would take place in areas where construction activity is scheduled to finish earliest or where there is less construction activity and therefore planting could be potentially implemented before all construction activities on site have ceased. Phase 3 could not be implemented until the proposed WWTP is fully operational and would involve re-instatement of land and the final elements of the planting scheme.

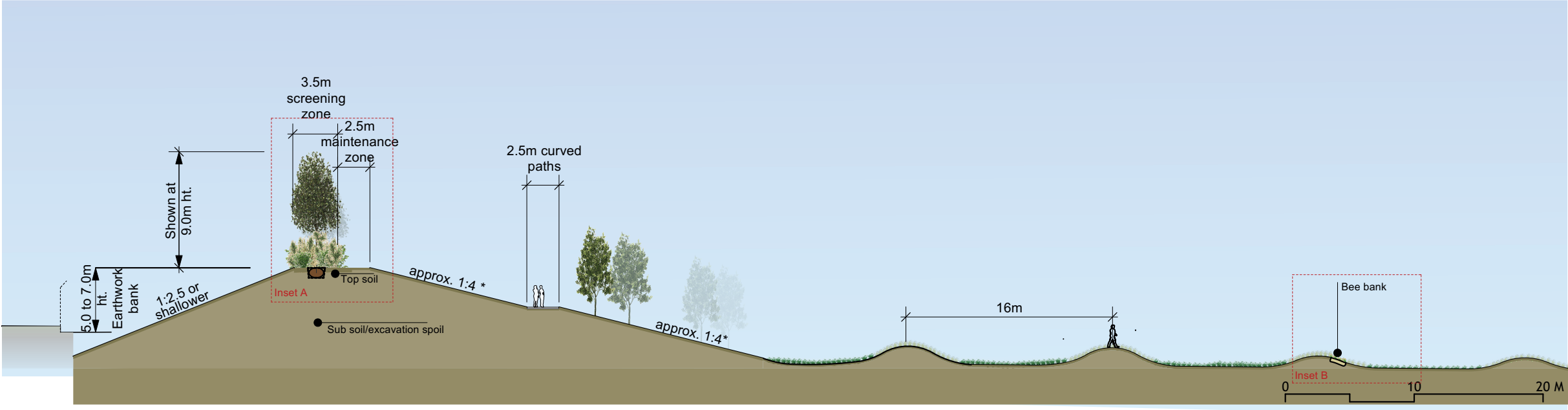
Landscape Phasing Plan



3.3 The landscape design

- 3.3.1 The landscape design aims to integrate the Proposed Development into its landscape setting and screen the structures of the proposed WWTP in views from the west and south, where it will be most visible.
- 3.3.2 The earthwork bank will comprise four curved landforms, organic in shape, which will encircle the proposed WWTP and will screen or partially screen the structures and buildings within the proposed WWTP from the first day of operation of the Proposed Development. The earthwork bank profile is asymmetric, with a steeper 1:2.5 (maximum) interior slope and an outer slope between 1:2.5 and 1:5 where the landforms are at their widest. The gentler gradient of the outer slopes will soften the bank profile, enabling better integration with the surrounding landscape. There will be a 2.5m wide area of level land all the way round the bank to facilitate maintenance. A typical cross section of the bank is set out below in the figure on page 18.

Earthwork bank section

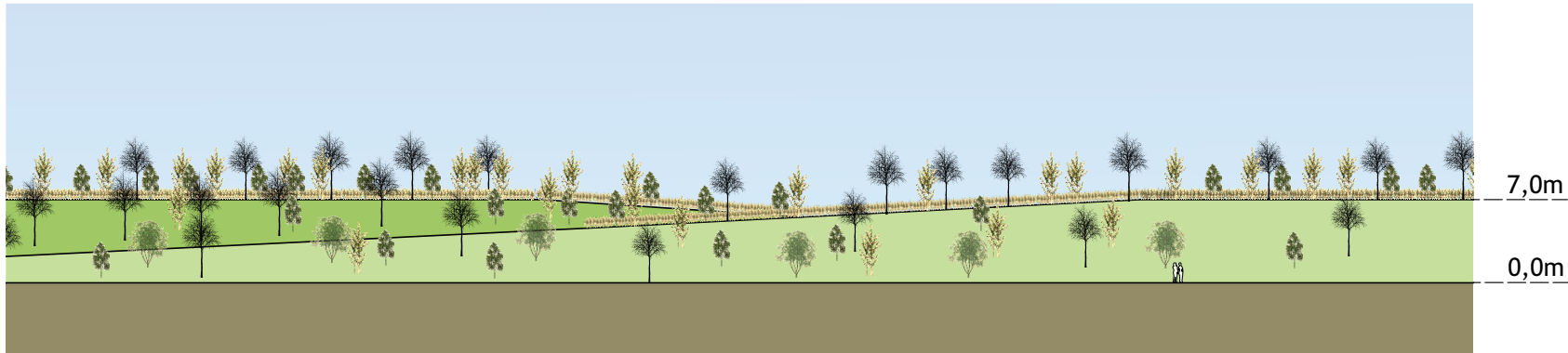


S-1 Earthwork bank - Typical Section
Scale 1:300 @ A3

*Slope will increase to 2.5 maximum at tapered end and decrease at the Earthwork bank's widest curve to 1:6

- 3.3.3 Once established, vegetation on the earthwork bank will start to further screen the WWTP. The top of the earthwork bank will be planted with a 3m width native hedgerow with clusters of trees planted within the hedgerow. Native tree species will include Field Maple, Birch, Hornbeam, Oak and Rowan, planted at varying sizes (up to approximately 5m height when installed) and in informal groups. The top of the earthwork bank will be managed so that the hedgerow grows to form a thicket, reaching a height of approximately 3m in 15 years. The trees will emerge from this as taller forms, potentially reaching 8 - 10m high after 15 years. At lower elevations, on the banks of the bank, trees will be scattered in groups, giving it an informal appearance with green 'layering' that helps to connect the bank to the landscape. By year 15, all but the tallest elements of the structures on the site, including the digesters (20m high), the boiler stack (24m high) and the nutrient recovery stacks (18m high) will be screened from most viewpoints. The figure on page 20 below shows predicted and indicative elevations of the earthwork bank at year 1, year 5 and year 15.
- 3.3.4 The earthwork bank will be seeded with a mix of grassland and wildflower species that will create a species-rich neutral grassland meadow. Between the earthwork bank and the perimeter woodland, there will be open grassland, also seeded with grassland and wildflower species. The open grassland will include areas of gently undulating landforms, resembling ridge and furrow farmland. These will have both landscape and ecological benefits, with the ridges softening the transition between the earthwork bank and the low-lying landscape of the surrounding area. The ridges will also provide different grassland habitats depending on whether they are largely in the sun or the shade. The sunnier sides of the earthwork bank and ridges will create opportunities for bee banks and reptile basking areas. Indicative figures are provided on page 21 below.
- 3.3.5 As shown on page 22, below, woodland will enclose the open grassland, with a mosaic of different woodland habitat types including traditional woodland, lighter and more informal woodland, woodland edge planting and open glades and rides. Understorey shrubs, vines and native forbs (herbaceous flowering plants) are included in appropriate proportions. The variety fosters a subtle range of habitats.

Vegetation Growth



E-1 Earthworks bank- Elevation - Vegetation Growth Rate Year 1
Scale 1:500 @ A3



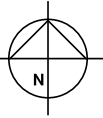
E-2 Earthworks bank - Elevation - Vegetation Growth Rate Year 5
Scale 1:500 @ A3



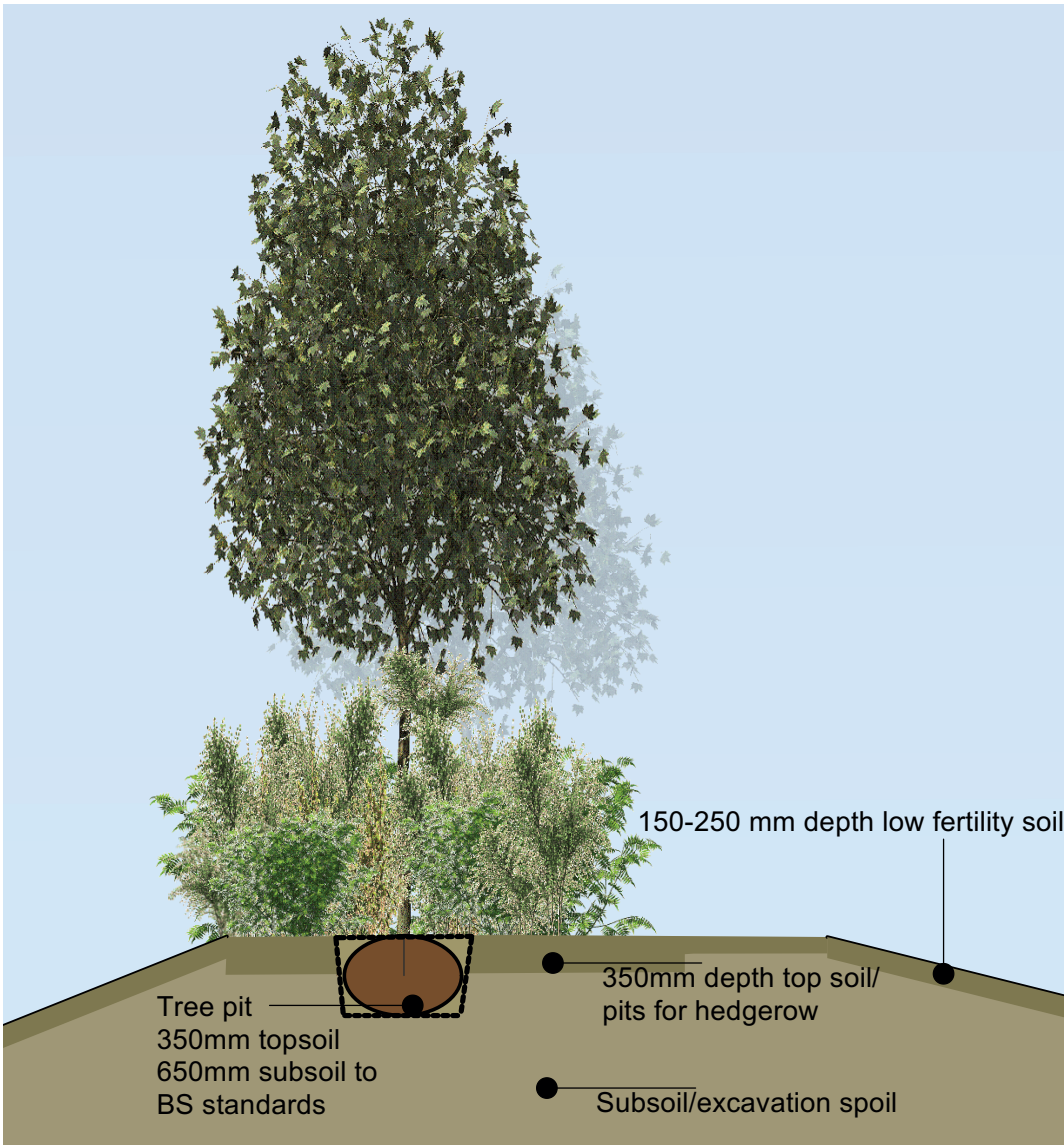
E-3 Earthworks bank - Elevation - Vegetation Growth Rate Year 15
Scale 1:500 @ A3



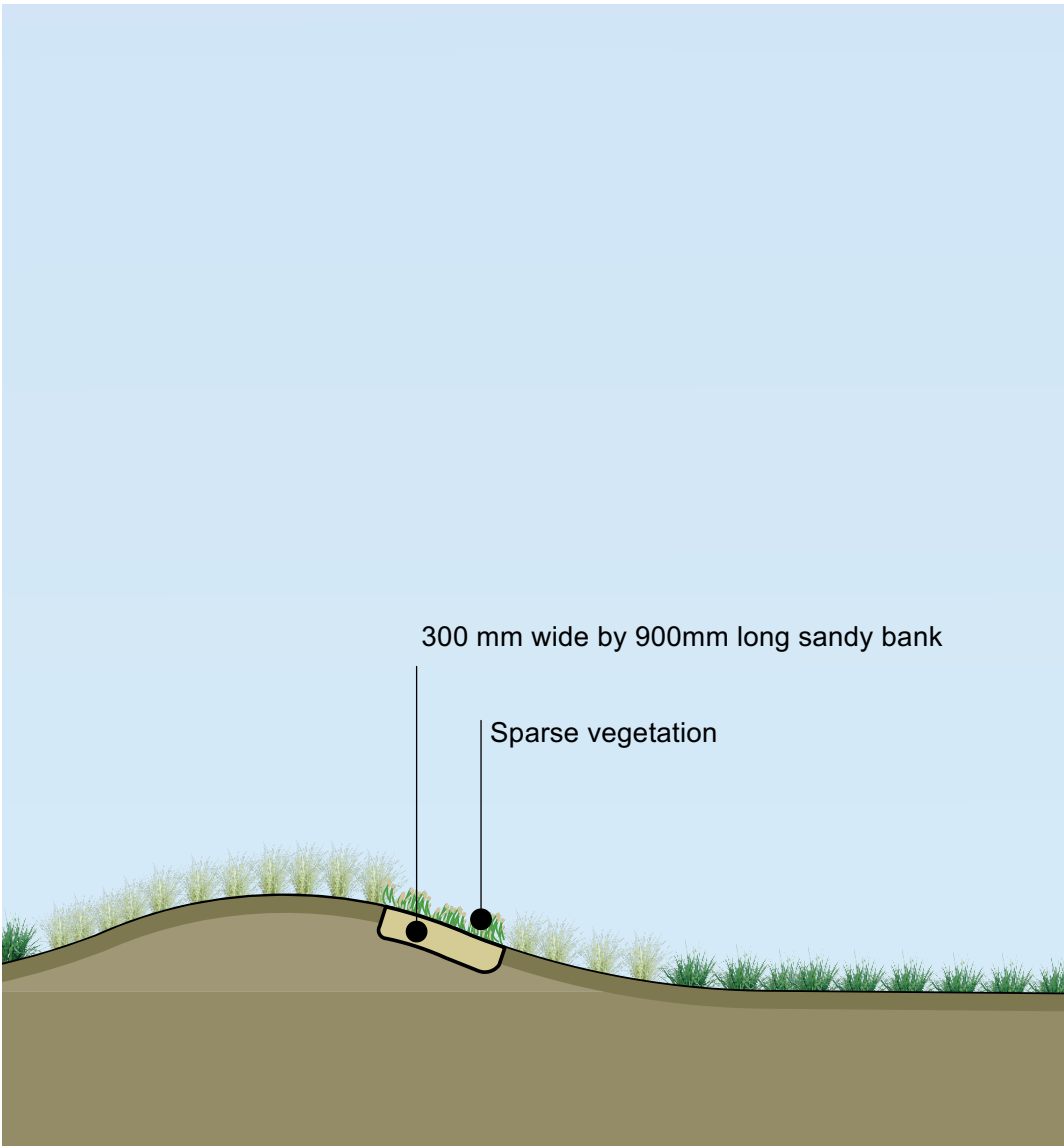
Key Plan
Not to Scale @ A3



Earthwork bank and ridge and furrow section (details)

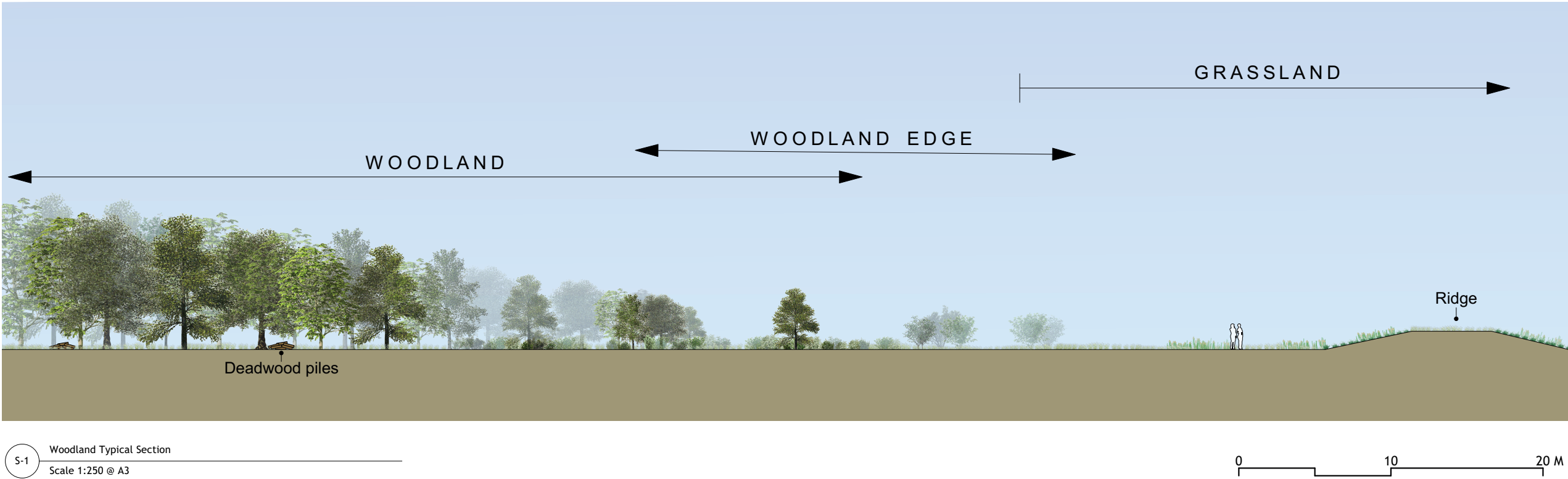


S-2 Inset A
Scale 1:100 @ A3



S-3 Inset B - Bee bank
Scale 1:100 @ A3

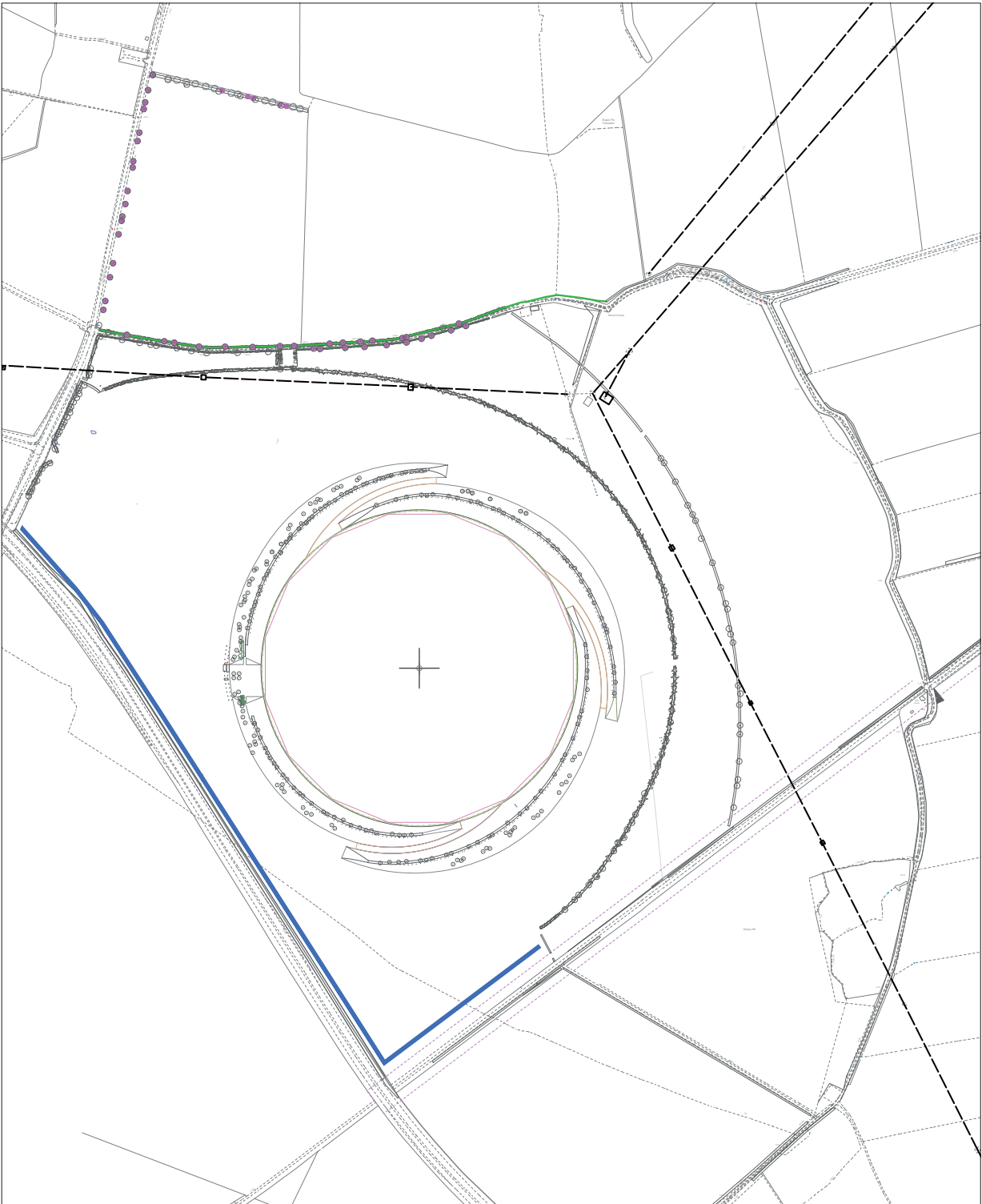
Illustrative Woodland Character



- Glade
- Grassland
- Ride
- Woodland edge
- Woodland

- 3.3.6 Other proposed planting includes standard trees to be planted in gaps in the existing tree line along Horningsea Road, which would provide screening while retaining open views across the landscape to the east and south from the road. Many of the existing trees along Horningsea Road are ash and are likely to be lost in the next few years due to ash die-back.
- 3.3.7 The initial planting described in the phasing section above will be carried out at the start of construction. This planting will include a woodland belt 7.5 m wide along the southern boundary of the site and along part of the western and eastern boundaries. Other planting will include a hedgerow with trees along both sides of Low Fen Drove Way and planting to strengthen an existing immature belt of vegetation opposite the entrance to the cemetery on Horningsea Road. These initial activities, shown on page 24 below will allow screen planting to become established during the multi-year construction period, shortening the time before it becomes effective as a visual screen.

Initial Planting



P-1 Initial Planting Proposals
Scale 1:7500 @ A3

1- INITIAL PLANTING: SITE

WOODLAND				
Woodland Zone 1: Screening edges			Area:	0.957 ha*
Density:	2250 per ha (or 2.1m spacing)			
%	Qty	species	common name	W8 prevalence
TREES (1+1 transplants, 80-100cm ht, except Ilex aquifolium: 2L, 40-60cm)				
30.0%	646	Acer campestre	Field maple	major
15.0%	323	Quercus robur	Pedunculate oak	major
15.0%	323	Quercus petraea	Sessile oak	major
0.0%		Fraxinus excelsior	Ash	major
10.0%	215	Ulmus glabra	Huntingdon Elm	major
2.0%	43	Betula pendula	Silver birch	Minor
5.0%	108	Malus sylvestris	Crab apple	Minor
2.0%	43	Betula pubescens	Downy birch	Minor
2.0%	43	Ilex aquifolium	Holly	Minor
2.0%	43	Carpinus betulus	Hornbeam	Minor
5.0%	108	Salix cinerea	Grey willow	Minor
1895 total trees				
SHRUBS (1+1 transplants 60-80cm ht)				
2.0%	43	Corylus avellana	Hazel	Major
2.0%	43	Crataegus monogyna	Hawthorn	Major
1.0%	22	Prunus spinosa	Blackthorn	Minor
1.0%	22	Sambucus nigra	Elder	Minor
1.0%	22	Viburnum opulus	Guelder rose	Minor
1.0%	22	Salix caprea	Goat willow	Minor
1.0%	22	Viburnum lantana	Wayfaring tree	Minor (England &Wales Only)
1.0%	22	Cornus sanguinea	Dogwood	Minor (England &Wales Only)
1.0%	22	Euonymus europaeus	Spindle	Minor (England &Wales Only)
1.0%	22	Rhamnus cathartica	Purging buckthorn	Minor (England &Wales Only)
100%	237	total shrubs		

LEGEND	
	Initial woodland margin planting: 1.15ha Depth: 7.5m
	Initial standard tree planting 29 no. Native tree species
	Initial native hedgerow planting 1180 l.m.
	Site boundary

2- INITIAL PLANTING: HORNINGSSEA RD/FEN DROVE WAY

TREES (RB or CG)		
Horningssea Rd: 23 no trees, gapping up existing line of trees, at random intervals		
Fen Drove Way: 24 no. trees		
Size: 25% 14-16cm girth, 50% 16-18cm girth.		
%	Qty	species
25.0%	12	Quercus robur
30.0%	14	Tilia cordata
35.0%	16	Acer campestre
10.0%	5	Quercus petraea
100.0%	47	Total trees

HEDGEROWS		length:	1180 l.m.
Spacing: planted on 300mm centres on a double staggered row, 5 per l.m.)			
%	Qty	species	common name
SHRUBS (1+1 transplants 60-80cm ht)			
55.0%	3245	Crataegus monogyna	Hawthorne
7.5%	443	Prunus spinosa	Blackthorn
7.5%	443	Rosa canina	Dog rose
7.0%	413	Viburnum lantana	Wayfaring tree
5.0%	295	Cornus sanguinea	Dogwood
5.0%	295	Ligustrum vulgare	Wild privet
5.0%	295	Rhamnus cathartica	Purging buckthorn
5.0%	295	Euonymus europaeus	Spindle
CLIMBERS (P9 or BR if appropriate)			
2.0%	118	Hedera helix	Ivy
1.0%	59	Tamus communis	Black bryony
100.0%	5900	total plants	

NOTES
W8 - Community of tree species abundant within southern and eastern Britain, warm, dry, lowland environments with calcareous soils.
National Vegetation Classification JNCC

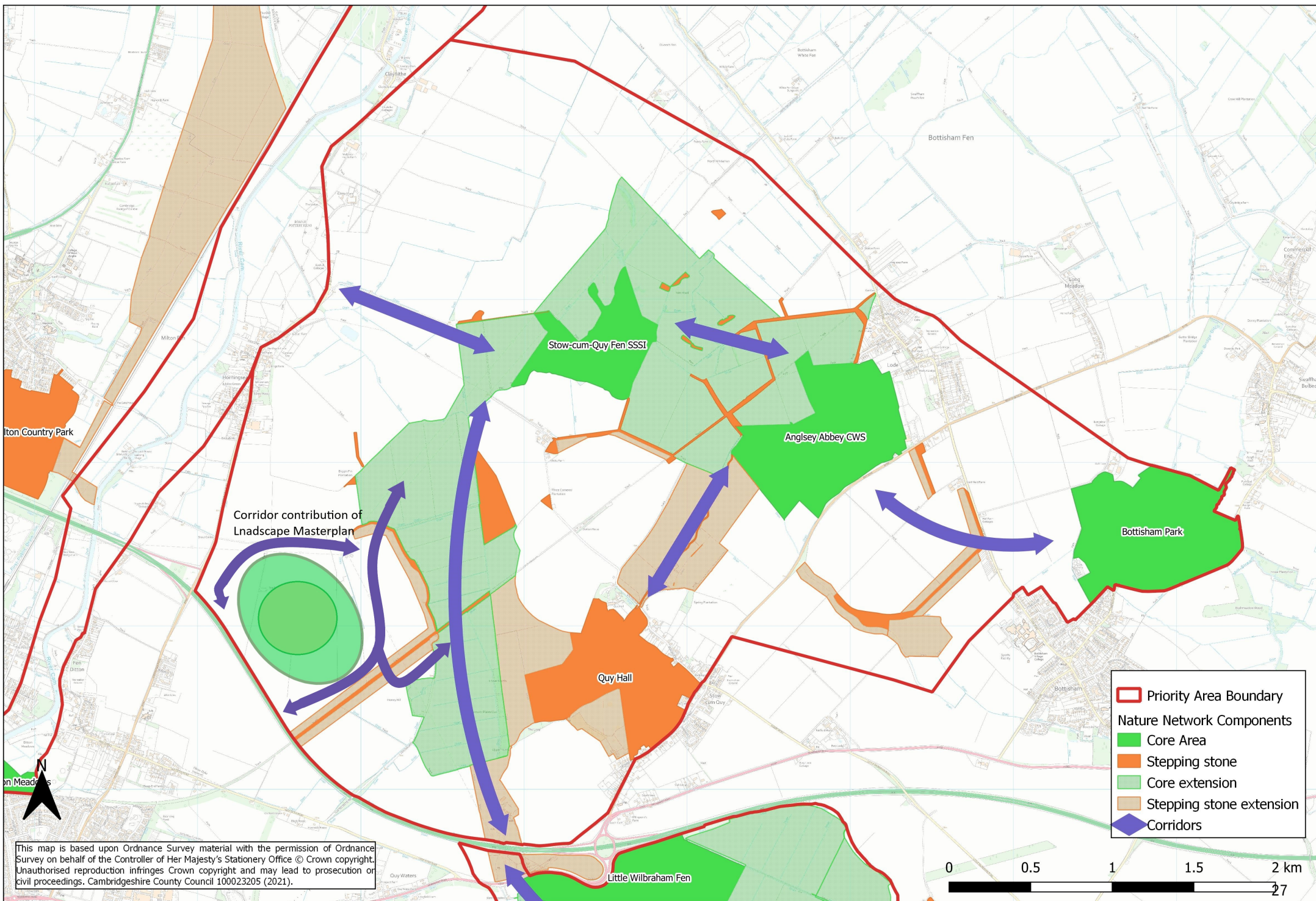
- 3.3.8 The proposed WWTP access road from the public highway, visitor car park and paths will be integrated into the landscape through the use of surface materials appropriate to their landscape setting. The entrance to the proposed WWTP will be via the Gateway Building. This will provide the interface between the newly created landscape and the functional areas of the WWTP. It will be a welcoming arrival point for visitors to the Discovery Centre and people working at the WWTP. The building will be constructed and finished in natural materials to align with the design aspiration of integrating the Proposed Development into the landscape, rather than making an urban architectural 'statement'.
- 3.3.9 As discussed in the following section, the landscape proposals create a range of new ecological habitats, including a mosaic of grassland types, woodland, hedgerow and tree planting. Bee banks, bare areas for reptile basking, and edge-of-woodland features, such as deadwood piles and understory planting, extend the range of variation within the habitats.
- 3.3.10 A regular programme of landscape maintenance will ensure the establishment and continued growth of the planted and seed areas. This establishment programme will include:
- Maintenance of a weed free area 1m in diameter around the stems of all new planting until the canopy closes and weed growth no longer competes with the woodland planting.
 - Checking stakes, shelters and tree ties on woodland, trees and hedgerow plants to ensure they remain effective in protecting young planting and are not rubbing on bark.
 - Removal of stakes, shelters and tree ties when new planting is fully established and able to withstand grazing by deer, rabbits and hares.
 - Lightly trimming new hedgerow in the first three years after planting to encourage lateral growth and create bushy plants.
 - Cutting existing and fully established hedgerows every three years to maintain a height of between 2-4m.
 - Mowing the new areas of grassland twice in the first two growing seasons in spring and autumn. Mowing the established grassland annually in autumn, collecting and removing the cuttings.
- 3.3.11 Further details on the approach to long-term maintenance are set out in section 4 below.

3.4 Biodiversity

- 3.4.1 As detailed in the section above, the landscape design proposals create a range of new ecological habitats, including a mosaic of grassland types, woodland, hedgerows, and tree planting. This is shown in the Landscape Masterplan (Page 12, above) and Habitat Areas plan (Page 31, below).
- 3.4.2 The landscape proposals have been designed to deliver a minimum of 20% biodiversity net gain (BNG) on the site of the proposed WWTP.
- 3.4.3 The BNG has been calculated according to the Biodiversity metric 3.0¹; the metric uses habitat as a proxy for wider biodiversity with different habitat types scored according to their relative biodiversity value. A full biodiversity report detailing the BNG calculation for the area covered by the landscape plan, as well as other areas such as those along the pipeline route, will be submitted with the DCO application for the Proposed Development.
- 3.4.4 The new landscape and ecology habitat creation has been designed to complement the Cambridge Nature Network opportunity areas for nature recovery², providing a new component and potential extension to the stepping stones, corridors and core areas such as Quy Hall, Little Wilbraham Fen, Stow-cum-Quy Fen SSSI. These new linkages are shown on page 27, below.

¹ Stephen Panks *et al* (2021). *Biodiversity metric 3.0: Auditing and accounting for biodiversity – User Guide*. Natural England.

² The Wildlife Trust for Bedfordshire, Cambridgeshire and Northamptonshire (2021) *The Cambridge Nature Network, A Nature Recovery Network for Cambridge and its Surrounds. Summary Report*.
<https://www.wildlifebcn.org/sites/default/files/2021-05/CambridgeNatureNetworkSummaryDigitalVersion.pdf>



- 3.4.1 Compatibility and alignment with the National Trust's Wicken Fen Vision³ has also been considered when selecting the new habitat, particularly in respect of grassland types.
- 3.4.2 The Proposed Development falls within the southern area of the Wicken Fen Vision. The landscape plan aims to create a diverse range of habitats for a large number of species, shaped by the differing soils and topography of the area. The Proposed Development sits within the drier areas of the Vision, which proposes more rough grassland and coppice belts. The Proposed Development, although featuring extensive areas of tree planting, will include grassland with the proposal to create a calcareous loam meadow community.
- 3.4.3 Woodland habitat creation will include woodland features such as edges, rides and glades, creating open areas of woodland divided into different pockets of woodland. These will provide ecological benefits for insects, birds, and bats, which have been recorded on and adjacent to the site. Rides will provide new wildlife corridors through the site to connect species to the wider landscape. The woodland design will follow a scheme and design similar to that shown on page 22, the rides and glades are also visible in the Landscape Masterplan (see page 12) and the Proposed Ecology Features Plan (see page 32).
- 3.4.4 It is proposed that the woodland species mix will include species characteristic of a National Vegetation Classification (NVC) community W8 ash (*Fraxinus excelsior*) – field maple (*Acer campestre*) – dog's-mercury (*Mercurialis perennis*) woodland⁴. Most semi-natural woodland in Cambridgeshire is W8. However, due to ash dieback, ash will not be included in the mix and it is proposed that the percentage of oak and field maple within the planting palette is increased at the expense of rowan and wild cherry, which are less common in native woodlands in Cambridgeshire. There will be planting variation in which tree species are planted in groups of varying clump/block size and spacing between trees creating gradients of different planting densities across the site. The aim will be to create priority habitat woodland such as lowland mixed deciduous woodland⁵.

³ The National Trust Wicken Fen Vision <https://nt.global.ssl.fastly.net/wicken-fen-nature-reserve/documents/wicken-fen-vision-strategy-document.pdf>

⁴ Design prescriptions have been taken from Forestry Commission (1995) *Creating New Native Woodlands*, Bulletin 112. Available online at: [Forestry Commission Bulletin: Creating new native woodlands \(forestryresearch.gov.uk\)](http://forestryresearch.gov.uk)

⁵ [Lowland mixed deciduous woodland \(UK BAP Priority Habitat description\) \(jncc.gov.uk\)](http://jncc.gov.uk)

- 3.4.5 The design will encourage natural colonisation where possible adjacent to the Low Fen Drove Way Grasslands and Hedges County Wildlife Site (CWS). Enhancement and potential extension of the CWS by the creation of a new area of semi-improved neutral grassland buffering (minimum 15-20m wide) the northern boundary of the CWS has also been designed to ensure no shading or encroachment on the existing habitats associated with the CWS. It is also proposed to improve the condition of the CWS through habitat management proposals, which could include clearing scrub in areas to restore semi-improved neutral grassland and unimproved calcareous grassland. The aim is to buffer, enhance, and improve the resilience of the CWS, keeping tree planting away from the margins of the CWS to maintain the grassland, which is used by a diverse invertebrate assemblage. The buffer will in time become a ride type habitat between the CWS and new planting within the site, this is visible in both the Landscape Masterplan (see page 12, above) and the Proposed Ecology Features Plan (see page 32).
- 3.4.6 Species-rich hedgerows will be planted with a minimum of five woody species in the planting mix, characteristic of NVC community W216 hawthorn (*Crataegus monogyna*) – ivy (*Hedera helix*) scrub. Hedgerow management will vary depending on its purpose⁷ from clipping annually to layering every 7-10 years for example, with adjacent lengths cut in different years. Hedgerow planting with fencing, where required will also be used in places to deter visitors from accessing ecological sensitive areas such as the CWS to maintain reserved areas for wildlife and prevent trampling of the grassland.
- 3.4.7 Signage and interpretation boards will be used to divert pressure away from designated sites such as Stow-cum-Quy Fen SSSI and Low Fen Drove Way Grasslands and Hedges CWS, encouraging use of the alternative greenspace within the site.
- 3.4.8 Habitat creation will aim to benefit Cambridgeshire and Peterborough Local Biodiversity Action Plan (LBAP) species amongst others such as turtle dove (*Streptopelia turtur*)⁸, barbastelle bat (*Barbastella barbastellus*)⁹, white-letter hairstreak butterfly (*Satyrrium w-album*)¹⁰ and common lizard (*Zootoca vivipara*)¹¹.
- 3.4.9 For turtle dove this will include:
- Areas of bare soil will be created along field margins in the east of the site around the proposed areas of calcareous loam meadow grassland (as shown in

⁶ Hawthorn is dominant, often accompanied by blackthorn, elder, dog rose, bramble, honeysuckle with rowan, ash or hazel as trees.

⁷ For example, to be good for invertebrates a hedge should be over 1m thick, at least 2m tall, and merge with surrounding field margin via scrub and tall herbs. Kirby, P. (1992) *Habitat management for invertebrates: a practical handbook*. Joint Nature Conservation Committee, Peterborough.

⁸ <http://www.cpbiodiversity.org.uk/download/144/>

the Landscape Masterplan (page 12) and Habitat Areas plan (page 31) and presented in section 3.1 above), with the management¹² of these areas involving annual cultivation in spring. This type of management will also benefit invertebrates.

- Sow flowering seed mixes developed to provide food for turtle doves throughout the breeding season.
- Maintain areas of mature scrub and hedgerow by managing on a three-year rotation. The creation of new scrub areas and woodland edges will be designed close to suitable areas for foraging.

3.4.10 For barbastelle bat, the Proposed Development includes woodland expansion and hedgerow linkages, which is a suggested action to benefit the species in the LBAP Priority Species Factsheet⁹. The new woodland habitat creation adjacent to the Low Fen Drove Way Grasslands and Hedges CWS will over time provide new areas for dispersal and foraging. If possible options will also be explored in installing bat boxes in the Low Fen Drove Way Grasslands and Hedges CWS.

3.4.11 For the white-letter hairstreak butterfly we have included elm in the proposed hedgerows, scrub and woodland clumps.

3.4.12 For common lizard this will include:

- The installation of log piles and hibernaculum (see figure below) to provide more resources for reptiles, which were recorded in Low Fen Drove Way Grasslands and Hedges CWS. These will be positioned in areas adjacent to the CWS (see the Proposed Ecology Features Plan on page 32), whilst ensuring no loss in the grassland habitats the CWS has been designated for.
- Explore opportunities to include the removal of scrub within the CWS to provide enhanced areas for basking.
- The maintenance of existing grasslands and the creation of new grassland on the earthwork banks (with varying aspects, including south facing) to ensure a high invertebrate abundance and provide new basking areas.
- Increased connectivity between the CWS and new grassland to increase the habitat resource for reptile.

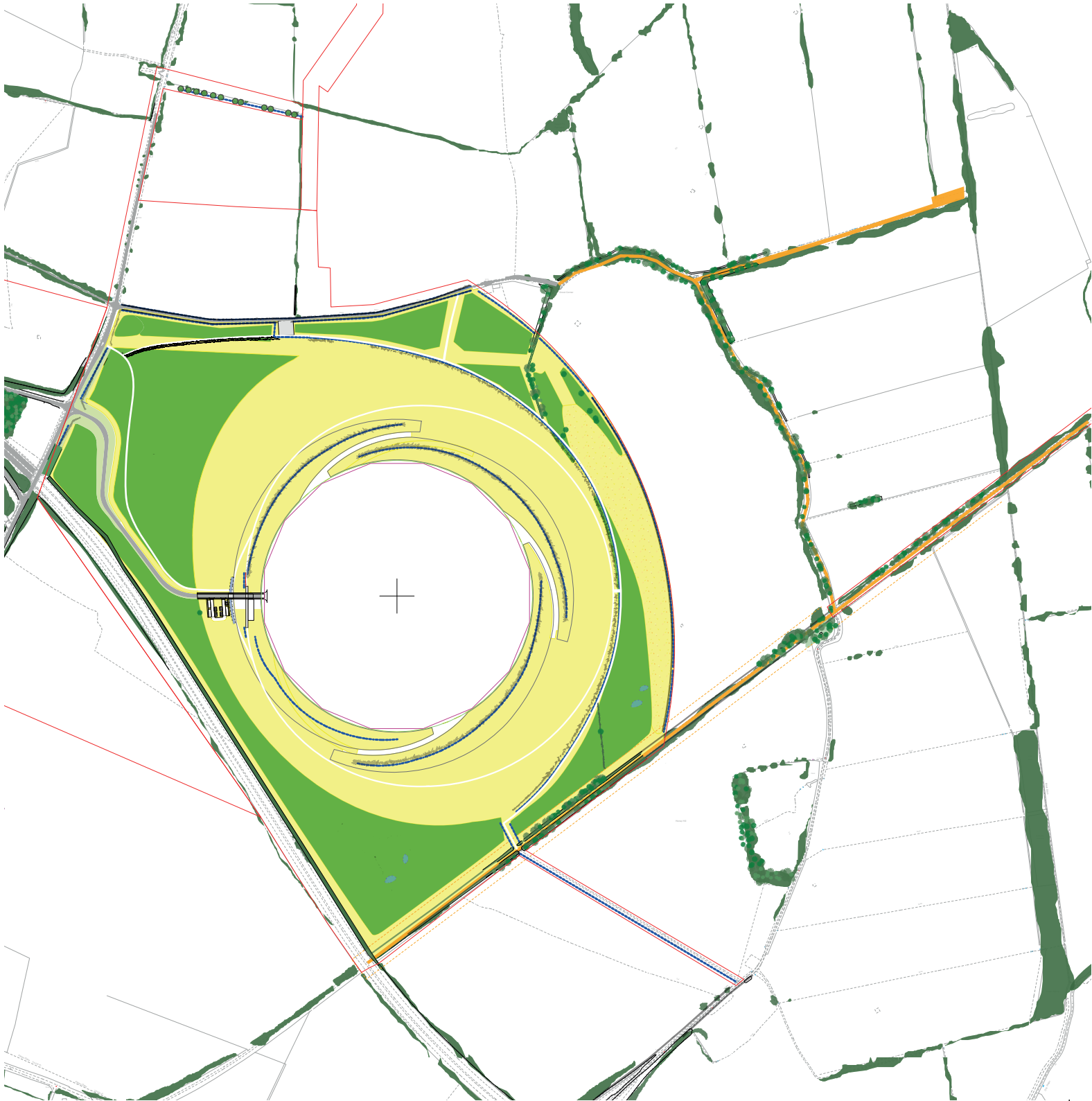
⁹ <http://www.cpbiodiversity.org.uk/download/143/>

¹⁰ <http://www.cpbiodiversity.org.uk/download/145/>

¹¹ <http://www.cpbiodiversity.org.uk/download/140/>

¹² Management of these areas should involve cultivation/rotovation in Spring. Further information is provided in Plantlife (2009) Arable Plants, A Management Guide. [ascophyllum leaflet \(plantlife.org.uk\)](http://www.plantlife.org.uk/ascophyllum-leaflet)

Proposed Habitats



- Proposed woodland
- Proposed calcareous grassland
- Low maintenance flowering lawn
- Proposed native hedgerow
- Possible wetland scrapes/ponds: subject to technical assessment
- Possible SUDs feature at entrance
- Proposed Infrastructure, car park and Treatment Plant
- County Wildlife site and setback to CWS
- Proposed paths with self-binding gravel
- Site boundary

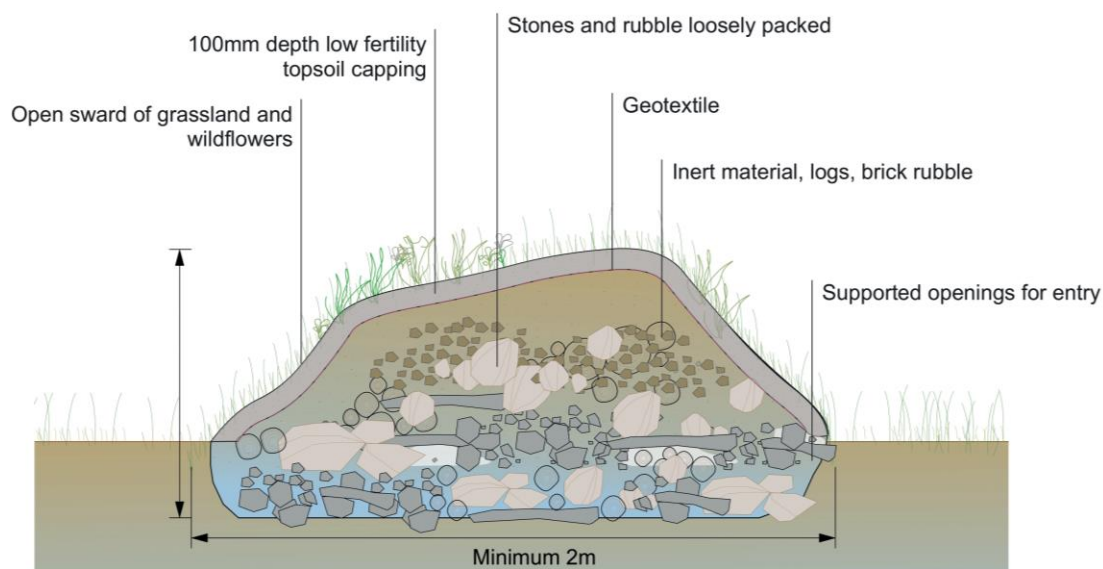
P-1 Ecology areas - Plan
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Ecological features



Typical Hibernaculum



3.4.13 Habitats will also be created to benefit invertebrates, including small seasonal ponds¹³, formed from scrapes or swales, and bee banks¹⁴ (see Proposed Ecology Features – Plan page 32 above) in strategic areas around the proposed relocated Cambridge Waste Water Treatment Plant. The seasonal ponds will be positioned in the glade/open areas of the woodland in the southern corners of the Proposed Development adjacent to the CWS (as shown in the Landscape Masterplan (page 12) and Habitat Areas plan (page 31)).

3.4.14 Further details of the planting mix, including a comprehensive species list, will be developed with stakeholders as part of the evolution of this LERMP.

¹³ <https://freshwaterhabitats.org.uk/wp-content/uploads/2013/09/Amphibians-Common-Toad-Great-Crested-Newt-and-Grass-Snake-new-logo.pdf>

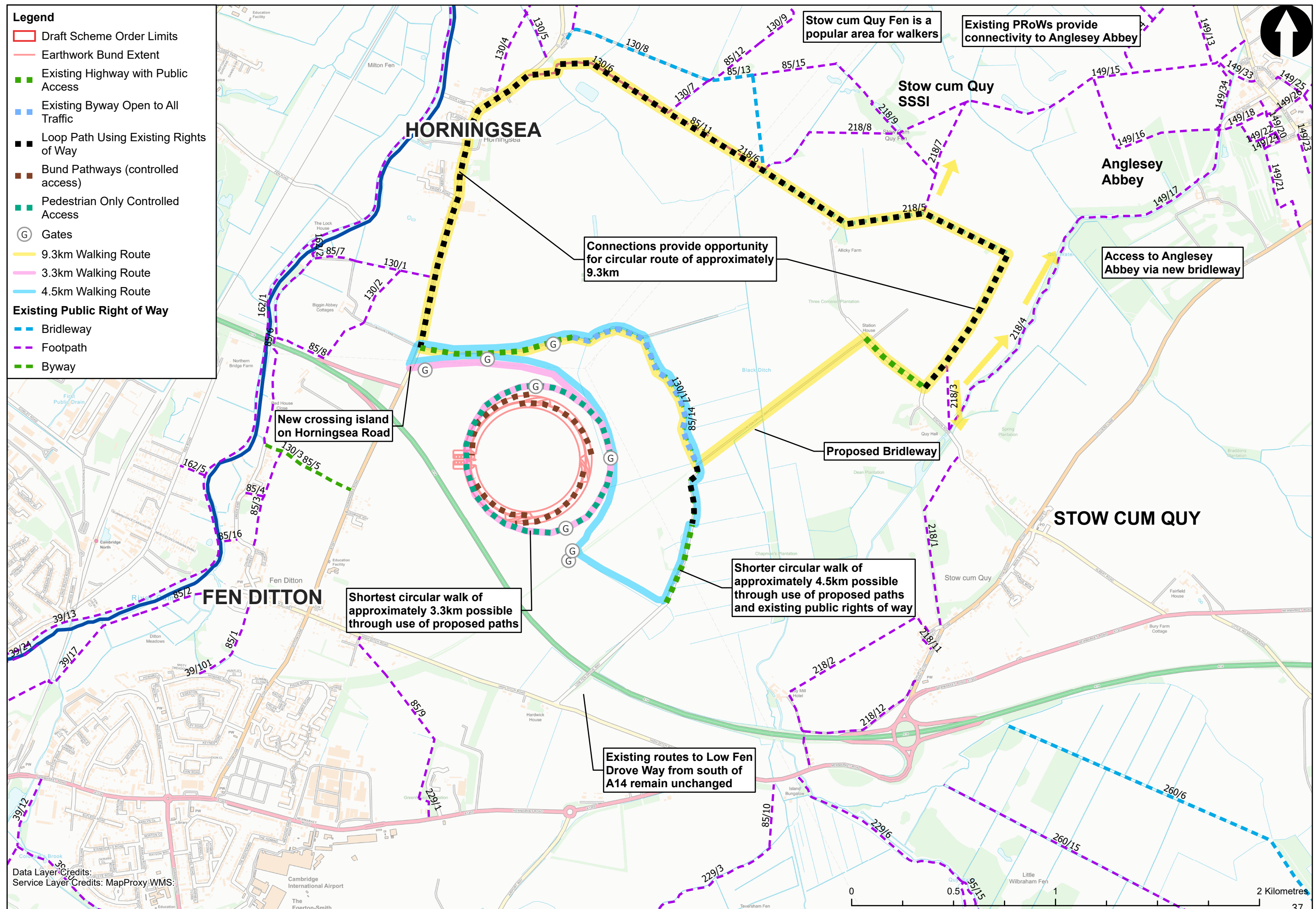
¹⁴ <https://cdn.buglife.org.uk/2020/04/Bee-bank-booklet-4.pdf>

3.5 Recreation

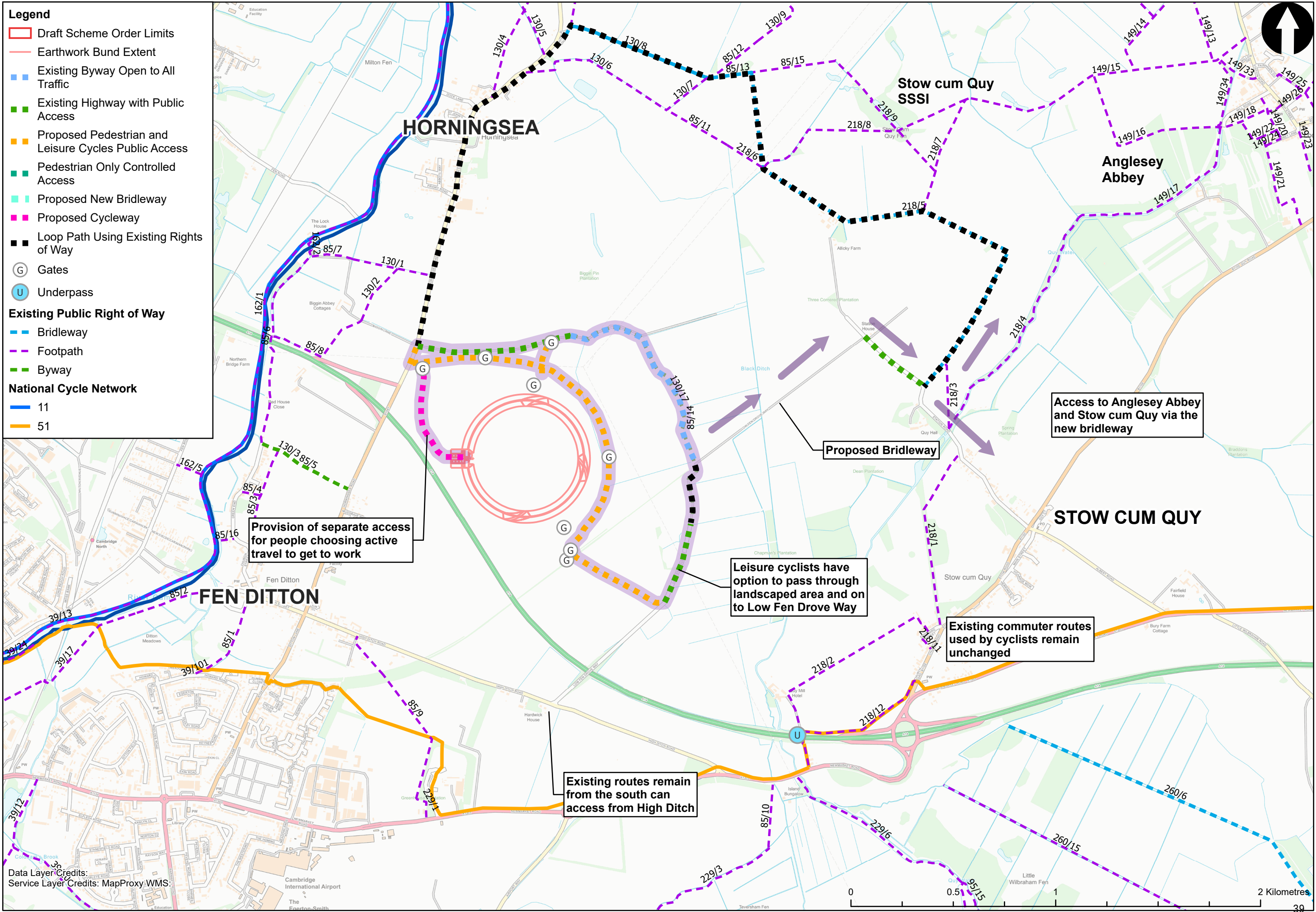
- 3.5.1 The landscape masterplan mitigates the potential impacts of the Proposed Development on existing recreational facilities, including the use of Low Fen Drove Way, by providing an improved path network and public access to enhanced green space, creating positive experiences for both visitors to the proposed WWTP and to recreational users of the wider landscape.
- 3.5.2 The key recreational components of the design are:
- A Discovery Centre, forming part of the Gateway Building, a multi-use space which will provide awareness and educational opportunities on topics such as the circular economy, the water life cycle, and wider environmental and sustainability issues.
 - Paths from the Discovery Centre, exploring the earthwork bank and wider sculpted landscape
 - A path linking the northerly and south-eastern ends of Low Fen Drove Way, running through the landscaped area to the north and east of the proposed WWTP, providing the opportunity for circular routes for pedestrians and leisure cyclists.
 - A new bridleway to the east of the site, linking Low Fen Drove Way with Station Road, providing increased recreational connectivity and access through the existing Public Right of Way (PRoW) network to Quy Fen and Anglesey Abbey.
 - Interpretation boards, finger posts and scattered informal bench seating to increase enjoyment and understanding of the new setting, which will include a range of new ecological habitats for people to experience.

- 3.5.3 The **Gateway Building** serves multiple functions. It is the point at which visitors and workers will first interact with the project and will provide a welcoming arrival point for them. It provides access to the controlled areas of the landscape, including onto the landscaping bank and into the secure works site.
- 3.5.4 The Gateway Building's visual and functional integration into the landscaping bank will assist with its placement in the sculpted landscape while providing an identifiable focal point as the place of entry, both through the building's form and its use of materials.
- 3.5.5 The building will serve both public and private functions. Parking and external access to the building will be separated to maintain safety for visitors. Visitor parking will be screened to retain the rural feel of the site. The building will provide offices, meeting spaces and welfare facilities for workers.
- 3.5.6 The **Discovery Centre** contained within the Gateway building will deliver access for scheduled educational visits, improving understanding of the importance of the circular economy; it will facilitate views into the plant works, as well as exploration of the landscaping bank and through the surrounding landscape via the network of paths.
- 3.5.7 Visitors to the Discovery Centre will have the opportunity to access the earthwork bank, providing recreational enjoyment, as well as education about the water life cycle. The design of the Proposed Development has purposely connected the Discovery Centre to the wider landscaped area via a path, so visitors are able to use and enjoy this area. The walking, cycling and horse-riding routes will be promoted within the Discovery Centre, promoting physical activity and wellbeing.
- 3.5.8 Anglian Water are committed to working collaboratively with the community to finalise the design and educational programmes within the Discovery Centre. Feedback from local schools is being sought and will be used to shape the final design of the education programmes.
- 3.5.9 It is envisaged that this will be an area for people to visit as well as access the wider network of nearby PRow to enjoy the surrounding countryside. Figures on pages 37, 39 and 41 below show how the proposed routes connect in within the wider network of PRow for walkers, cyclists and horse riders.

- 3.5.10 The new **walking routes** have been developed following stakeholder feedback including through technical working groups. During engagement, stakeholders highlighted a gap in the network to the north-east of the proposed WWTP location and the lack of connectivity between Low Fen Drove Way and Anglesey Abbey. Stakeholders also supported proposals for improving connectivity through the creation of the shorter circular walking routes.
- 3.5.11 As shown on page 37 below, two new connections to the existing PRoW are proposed. A new bridleway from Low Fen Drove Way to existing network of PRoW in the north-east and a permissive path from the proposed WWTP to Low Fen Drove Way.
- 3.5.12 The proposed new pedestrian route creates a walking loop between Horningsea and communities to the east. As shown on page 37 below, a new circular route of approximately 9.3km will be created from Horningsea, which connects into the existing PRoW network. A shorter circular walk of approximately 4.5km is also created through using the proposed path internal to the Proposed Development and Low Fen Drove Way. These connections provide additional recreational routes for nearby communities, better connect Horningsea to Stow-cum-Quy and promote outdoor physical activity, for local people and those visiting the area.

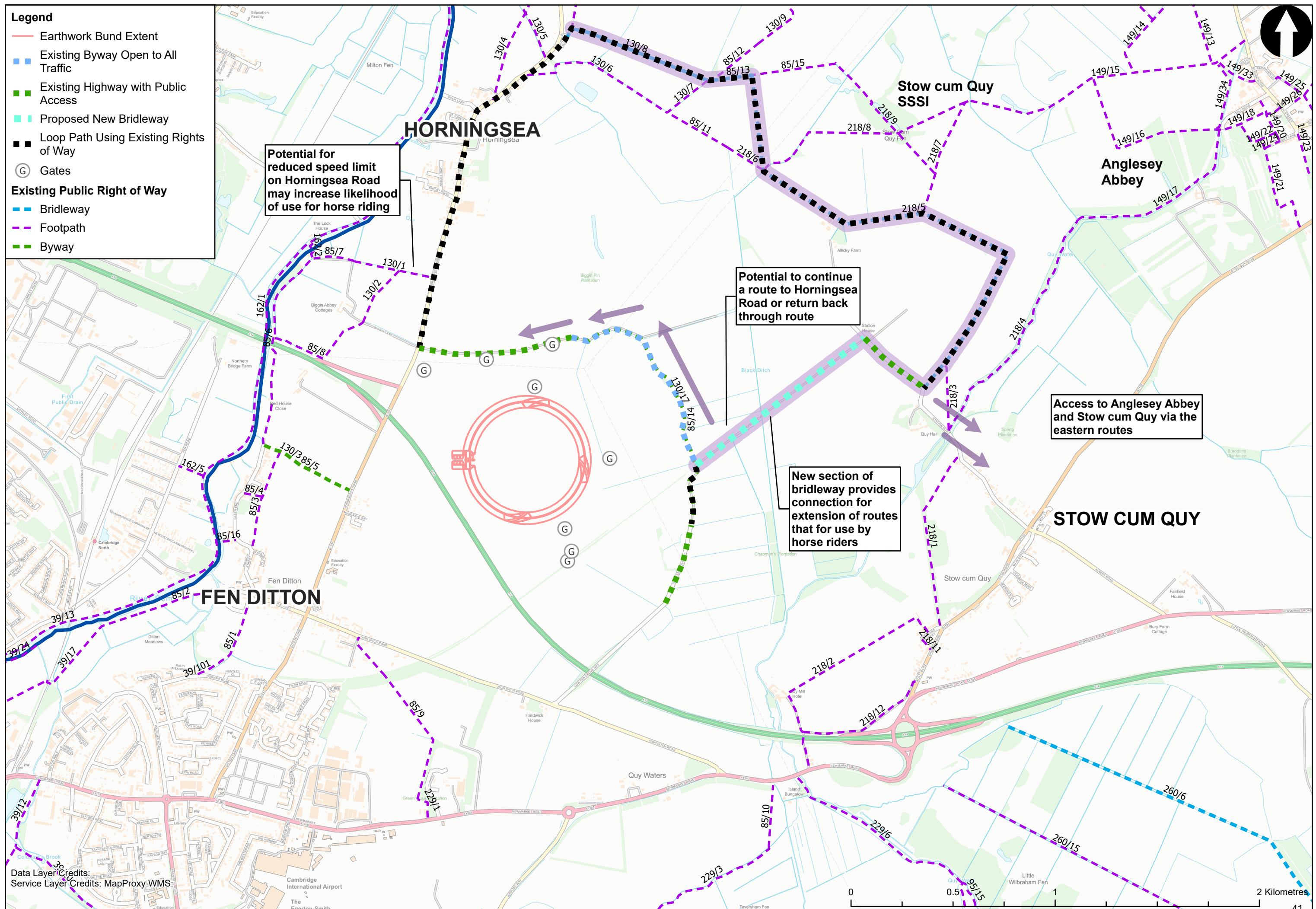


3.5.13 As shown on page 39 below, the Proposed Development provides a new option for **leisure cyclists** to travel from the cycleway on Horningsea Road (part of the proposed Horningsea Greenway), through the landscape area and on to Low Fen Drove Way. From here, existing routes to access High Ditch Road can be used to travel south. The proposed new bridleway also provides connectivity for cyclists from Low Fen Drove Way to the existing network of PRow to the north-east. This enhances the existing connections to areas such as Stow-cum-Quy and Anglesey Abbey. Please see page 39 below for the new cycling route options.



- 3.5.14 The new section of bridleway provides connection for **horse riders** to travel to eastern routes and access areas such as Anglesey Abbey and Stow-cum-Quay. There is also the potential to travel to the B1047 Horningsea Road via Low Fen Drove Way. The proposed reduced speed limit on the B1047 Horningsea Road may increase the likelihood of horse riders using this route.
- 3.5.15 The location of the publicly accessible path across the landscaped area has been informed by odour modelling. The new path, and Low Fen Drove Way, are both within areas where the modelling indicates a “negligible” effect. Recreational amenity will therefore not be adversely affected by odour.
- 3.5.16 Signage will be provided at main path junctions including at the start of each circular route. The visitor car parking area is clearly demarcated, and the Discovery Centre will be clearly signed. Route maps will be displayed in conjunction with interpretation boards and within the Discovery Centre. Route signage will include details of destination, length of trail, difficulty and if there are any accessibility constraints. On the site of the Proposed Development distance markers will be provided and clearly visible.
- 3.5.17 It is important that the recreational facilities are inclusive and accessible for all. Visitor parking for Discovery Centre will have 5% blue badge parking numbers in line with inclusive design standards. Any changes in level from the parking to the paths will provide accessible ramps. Signage, such as maps, fingerposts, trailheads will be legible by containing simple font types and font sizes large enough to be read by people who are visually impaired. Where appropriate, braille characters will be incorporated, particularly into key information signs.
- 3.5.18 Recreational paths will be designed in accordance with inclusive design standards¹⁵, and be a minimum of 3.5 metres wide for shared use spaces. If this is not possible on certain links, it will be signed. Recreational paths will be paved with material which is firm stable and slip resistant.
- 3.5.19 To create safe and accessible crossings, the proposed pedestrian and cycle crossing point on Horningsea Road will have tactile paving and dropped kerbs. A central pedestrian island is proposed to allow pedestrians and cyclists to cross Horningsea Road in two stages, if necessary. The crossing to be a minimum of 3 meters wide and clearly demarcated.

¹⁵ BS8300-1 2018: Design of an accessible and inclusive built environment. External environment – Code of practice



- 3.5.20 Stakeholders, and particularly local residents and landowners, have expressed concern about current anti-social behaviour in the area.
- 3.5.21 While Anglian Water has no reason to believe that the Proposed Development will contribute to an increase in anti-social activities it is working actively with the local police community support officer to understand more about current anti-social and criminal behaviour in the area.
- 3.5.22 In a natural environment which does not have high levels of footfall, preventing anti-social behaviour can be difficult due to low levels of passive surveillance. Maintenance of the path and facilities can be mitigating factors. It will be important to provide rubbish bins at junction locations and near seating and picnic areas. A maintenance schedule will be created that includes the emptying of rubbish bins on a regular schedule and over peak periods. Landscape maintenance (discussed in the following section) will help create a tidy environment and avoid impacts on wildlife and habitats. Employees and ground maintenance staff will increase the levels of passive surveillance.
- 3.5.23 Seating or picnic areas will be designed to have good sight lines to pathways. Lighting and CCTV will be provided in the vicinity of the access road and the Gateway Building but may not be appropriate in the wider, less developed, landscaped areas.

4 Management and maintenance

- 4.1.1 The overall responsibility for the management and maintenance of the features of the landscape masterplan will be held by Anglian Water. Anglian Water carries out similar functions across the region it serves including at Rutland Water, Pitsford Water, Ravensthorpe Reservoir and Grafham Water.
- 4.1.2 A management and maintenance plan will be agreed with key stakeholders. This programme will be enforceable through the provisions of the Development Consent Order.
- 4.1.3 Typically, Development Consent Order Requirements (conditions) require aftercare commitments for planting to take place for five years.
- 4.1.4 Longer term maintenance would take place as part of Anglian Water's wider environmental care initiatives and may involve community management groups or environmental non-governmental organisations, such as Wildlife Trusts.
- 4.1.5 Those biodiversity elements which contribute towards the 20% biodiversity net gain target set by Anglian Water for the project will be maintained for a minimum of 30 years, in keeping with the provisions of the Environment Act 2021.