SNC·LAVALIN

ATKINS
Member of the SNC-Lavalin Group

Cambridge South East Transport Phase 2

Environmental Statement

Appendix 2.2 Landscape and Environmental Management Plan

31st July 2023

Introduction

Purpose and objectives

2.1.1 The LEMP for the Proposed Development sets out the management requirements relating to landscape and ecology during its operation. It identifies the landscape and ecology mitigation and enhancement measures and how future management will ensure that the objectives of the design are achieved.

2.1.2 The LEMP is a draft document that will be updated following approval of the Transport and Works Act Order (TWAO) by the Secretary of State . The final LEMP will be prepared by the Applicant to take into account any conditions or special requirements affecting the LEMP that could be set in the final TWAO. The final LEMP will need to be approved by the relevant competent authority prior to works commencing on site.

2.1.3 During construction, the requirements of this LEMP will be delivered by the appointed contractor. Once appointed, the construction contractor will finalise the existing draft Construction Environment Management Plan (CEMP) , which specifies actions and responsibilities to protect and manage all identified mitigation measures prior to and during construction. The Final CEMP will describe how construction activities will be undertaken and managed in accordance with commitments and requirements identified within the ES and this document, as well as contractual and legislative requirements and construction industry best practice. The draft CEMP (Volume 3, Appendix 2.4) sets the minimum standard of what will be included within the Final CEMP.

2.1.4 The CEMP and CoCP (Volume 3, Appendix 2.3) detail the best practice measures that will be implemented during construction of the Proposed Development to mitigate construction-related effects on biodiversity, such as artificial lighting, pollution events and noise.

2.1.5 Mitigation in the form of landscaping and habitat creation work proposed as part of the construction phase of the Proposed Development will provide locally important habitats, including broadleaved woodland and species-rich grassland.

2.1.6 Once the Proposed Development is operational this LEMP will become the focus for future management and maintenance works. The responsibility for this is set out in brief below.

Site Location

2.1.7 The area covered by the LEMP is the permanent land within the red line boundary for the Proposed Development. There are some proposed mitigations that occur outside of the red line boundary which will need to be implemented through agreements with the appropriate landowners, these relate principally to the installation of minor works such as bird nest boxes and bat boxes and the relocation of a badger sett.

2.1.8 The Proposed Development lies to the south-east of Cambridge, running for approximately 8.5 km between the A1307 / A11 / A505 junction and CBC and skirting the eastern edges of Sawston, Stapleford and Great Shelford. At the CBC, the new route is proposed to run along Francis Crick Avenue, connecting to the existing guided busway, enabling services to continue to the stations and Cambridge city centre via the busway.

2.1.9 The landscape and ecological masterplan Annex A of this report show the route of the Proposed Development and the proposed landscape and ecological mitigation design. The route is divided into a series of works areas which are described below.

Works Area 1 and Works Area 1a: Francis Crick Avenue on the Cambridge Biomedical Campus

2.1.10 The first 680 m of the route alignment starts in the CBC at the roundabout between Robson's Way with Francis Crick Avenue. The route then runs on the existing private road network on Francis Crick Avenue down to the roundabout at the junction of Addenbrooke's Road, Francis Crick Avenue and Dame Mary Archer Way. Along this section of the route there will be a bus stop for passengers to get on and the buses (the CBC Stop). The route will then leave the existing road network on the existing segregated guided busway towards the existing railway line before heading south.

2.1.11 Landscape and ecological mitigation includes:

- Tree planting
- Amenity grassland.

Works Areas 2 & 2A and Works Areas 3, 3A & 3B: CBC to Granham's Road

2.1.12 The busway will then run for 1.4 km to the west of Nine Wells Local Nature Reserve, adjacent to and parallel with the mainline railway before curving along the eastern hedge line running down to Granham's Road. This section of the route crosses Hobson's Brook (a watercourse with historical significance) but otherwise runs through arable fields. Hedgerows in this area provide breeding and winter shelter habitats for ground-nesting and other bird species.

2.1.13 Landscape and ecological mitigation includes:

- Tree planting
- Hedgerow planting
- Wildflower meadow creation
- Enhanced grass margins
- Ecological pond for water voles
- Bird boxes.

Works Area 4: Granham's Road to Hinton Way

2.1.14 The route crosses Granham's Road via a signalised crossing and continues on a south-easterly alignment through two fields before crossing Hinton Way. This stretch is about 0.89 km long. The route will be close to residential properties in Great Shelford where it crosses Hinton Way.

2.1.15 Landscape and ecological mitigation includes:

- Woodland
- Tree planting
- Hedgerow planting
- Amenity grassland
- Wildflower meadow
- Enhanced grass margins.

Works Area 5: Hinton Way to Haverhill Road

2.1.16 From Hinton Way the route runs for a short distance across arable fields to the crossing with Haverhill Road (total distance about 1 km). There will be a stop on the south side of Hinton Way (the Great Shelford Stop) with cycle stands, a shelter, real-time message boards, lighting, disabled parking and a pick and drop off point for other passengers.

2.1.17 Landscape and ecological mitigation includes:

- Creation of hibernacula
- Woodland
- Tree planting
- Hedgerow
- Amenity grassland
- Wildflower meadow
- Chalk grassland
- Transplanting important hedgerow.

Works Area 6: Haverhill Road to Sawston Road

2.1.18 This section of the route is about 3 km long and crosses PRoW 212/2 (a bridleway), the River Granta floodplain, the River Granta (a County Wildlife Site) and PRoW 12/10 (a restricted byway). The Stapleford Stop, on the south side of Haverhill Road will have the same facilities as described for the Great Shelford Stop.

2.1.19 The predominant land use along this section of the route is arable farming, with some pasture, scrub and tree belts between the River Granta crossing and Sawston Road. The route also passes through North Farm where the route runs parallel to a disused railway line. The busway passes the boundary of the South Cambridge Business Park in Sawston (an area of light manufacturing and storage facilities) and new housing on Sawston Road / Babraham Road, which is partly occupied and partly still under construction.

2.1.20 Landscape and ecological mitigation includes:

- Woodland
- Tree planting
- Hedgerow
- Amenity grassland
- Wildflower meadow
- Ecological ponds
- Kingfisher nest tunnels
- Hibernacula on existing raised bunds alongside the River Granta
- Transplanting important hedgerow
- Ditch creation.

Works Area 7: Sawston Road to High Street

2.1.21 From Sawston Road / Babraham Road, the route continues for about 1 km in a south-easterly direction, crossing Babraham High Street. The Sawston Stop, on the south side of Sawston Road, will have the same facilities as those described for the Great Shelford Stop. The land in the area is predominantly arable farmland and the busway crosses PRoW 12/9 (a footpath).

2.1.22 Landscape and ecological mitigation includes:

- Tree planting
- Hedgerow
- Wildflower meadow.

Works Area 8 to 14: High Street to entrance to A11 Travel Hub and associated active travel routes

2.1.23 From Babraham High Street, the busway will run in a north-easterly direction over the River Granta and into the A11 Travel Hub. This section is around 1.13 km in length.

2.1.24 The A11 Travel Hub will be adjacent to the A11, south-west of the grade separated junction between the A1307 and A11. General traffic will access the A11 Travel Hub off the A1307 via a new roundabout junction. The A11 Travel Hub will cover an area of approximately 15.5 ha.

2.1.25 PRoW 12/4 (a footpath) crosses the A11 Travel Hub site and crosses the A11 via an existing footbridge. The southern part of the A11 Travel Hub site is in Flood Zones 2 and 3 of the River Granta. The A11 Travel Hub will include access roads, car, cycle and coach parking, a waiting area with a facilities building and street lighting.

2.1.26 Landscape and ecological mitigation includes:

- Woodland
- Tree planting
- Hedgerow
- Wildflower meadow
- Ecological ponds
- Bird boxes and bat boxes
- Kingfisher nest tunnels
- Hibernacula
- Transplanting important hedgerow
- Ditch creation.

Management of the Proposed Development

Operation and maintenance responsibilities

2.1.27 CCC will be the owner of the Proposed Development. It will be the responsibility of CCC to administer the day-to-day management and maintenance of the Proposed Development and all associated lands.

2.1.28 CCC may deliver the maintenance of the public transport route operations through the Highways Department, with landscape and ecological management delivered through a separate arm of CCC.

2.1.29 Precisely how the CCC delivers its responsibilities will be set out in an update to this LEMP once the Transport and Works Act Order (TWAO) is approved by the Secretary of State (SoS). The final LEMP will: be updated to take into account any conditions set by the SoS in the approved TWAO prior to construction of the Proposed Development commencing.

Biodiversity Net Gain commitments

2.1.30 The Environment Act 2021 makes provision for a grant of planning permission (including deemed grants of planning permission) in England to be subject to a condition to secure a biodiversity gain objective (known as Biodiversity Net Gain, or BNG). It is understood that BNG will become mandatory for planning applications submitted after November 2023. Section 90A and Schedule 7A of the Environment Act will, when in force, provide that there should be an increase of at least 10% in biodiversity units and that the habitats enhancement resulting from BNG works should be maintained for at least 30 years after the development is completed. Currently, there is no development plan or emerging plan policy requirement for the delivery of a specified quantum of BNG although the Greater Cambridge Biodiversity Supplementary Planning Document, which provides additional technical guidance to support policies in the Cambridge and South Cambridge Local Plans that seek to conserve and enhance biodiversity, advises that "*should new Local Plan policies instruct a higher percentage of Biodiversity Net Gain than that nationally mandated, that the higher of the two amounts (of Biodiversity Net Gain) shall be the minimum requirement for development*." and "*This aspiration is supported by the recently formulated Doubling Nature Vision, adopted by South Cambridgeshire District Council (Feb 2021). This vision reflects the growing awareness of biodiversity loss and increasing concerns to protect the natural environment, habitats and species. The vision seeks a 20% level of Biodiversity Net Gain above pre-development baseline conditions. Whilst this Supplementary Planning Document does not set this as a figure or target, this aspiration may have further support with future amendments to the Environment Act 2021.*"

2.1.31 Although the Proposed Scheme will not be subject to the statutory BNG requirement CCC is committed to the delivery of at least 20% BNG. Although not subject to Environment Act 2021 provisions, CSET commits to delivering 30 years of management for biodiversity net gain (BNG) under the landscape and ecological management function. This will cover all the landscape planting and ecological mitigation measures included in this document.

2.1.32 The BNG targets for the various habitats created through the landscape design will be the focus and driver for management for the 30 year period after Proposed Development opening. These targets will need to be reviewed periodically to see what progress is being achieved. If additional action is identified as being required, it will be implemented by CCC.

2.1.33 The BNG commitments in terms of target values for different habitats are set out in the BNG calculations (Volume 3, Appendix 10.12).

Mitigation and enhancement designs

Landscape objectives

2.1.34 The landscape objectives for the Proposed Development are as follows:

- To minimise the impact of the Proposed Development on the landscape through sympathetic planting design
- Where practical to maintain and enhance existing landscape character and visual amenity
- To ensure successful establishment and continued success of each landscape element through maintenance operations
- To ensure that landscape enhancements are managed effectively and for the benefit of amenity and visual screening
- To maintain flexibility within the plan to enable ongoing operations to be reviewed and amended to best meet site specific objectives (particularly in the light of potential changes in climate)
- To minimise, as far as practicable, potential health and safety risks arising from the landscape design.

Ecological objectives

2.1.35 The ecological objectives for the Proposed Development are as follows:

- To minimise, as far as is practicable, the impacts of the Proposed Development on protected and notable species identified within, and in proximity to, its area
- To maintain and enhance habitat connectivity within, and in proximity to, its area
- To replace or provide compensation measures for the loss of ecological features and habitats, i.e., hedgerows, trees and grassland
- To ensure successful establishment and continued success of the ecological mitigation and its continued suitability through appropriate maintenance
- To enhance the overall ecological value of the Proposed Development area.

Landscape and ecological design

2.1.36 This section sets out the landscape and ecological mitigation design for the Proposed Development, with a short summary of the management.

Wildflower meadow

2.1.37 Areas within Works Areas 2, 2A, 3, 3A, 3B, 4, 5, 6, 7, 8, 9 and 10, including the sustainable drainage swales, will be seeded with a species-rich grassland seed mix to create wildflower meadow.

2.1.38 The species-rich grassland will include native flowering plant species that are of high value to pollinators. The seed mix will contain a range of flowers from flat daisy-types, such as oxeye daisy *Leucanthemum vulgare*; yellow composites, such as rough hawkbit *Leontodon hispidus*, which benefit species and groups with short tongues; and labiates, such as selfheal *Prunella vulgaris*, which are favoured by certain solitary bee species and long-tongued bumblebees. Once established, the grassland will be managed to culture strong populations of invertebrates and not to diminish the flowering potential of the grassland resource. A typical seed mix is listed in Table A2.2.1.

Table A2.2.1 Seed mix for wildflower meadow

Species	Percentage mix (%)
Wildflowers	
Achillea millefolium (yarrow)	0.5
Euphorbia exigua L (dwarf spurge)	0.5
Anthyllis vulneraria (kidney vetch)	0.5
Centaurea nigra (common knapweed)	1.5
Centaurea scabiosa (greater knapweed)	1.0

Species	Percentage mix (%)
Galium verum (lady's bedstraw)	1.5
Nepeta cataria (catnip)	1.0
Geranium pratense (meadow cranesbill)	0.2
Knautia arvensis (field scabious)	1.0
Leucanthemum vulgare (oxeye daisy)	1.0
Leontodon hispidus (rough hawkbit)	0.3
Lotus corniculatus (birdsfoot trefoil)	1.5
Malva moschata (musk mallow)	0.5
Plantago media (hoary plantain)	0.5
Primula veris (cowslip)	1.0
Prunella vulgaris (selfheal)	1.0
Ranunculus acris (meadow buttercup)	1
Cynoglossum officinale (hound's tongue)	1.0
Sanguisorba minor ssp minor (salad burnet)	2.0
Silene vulgaris (bladder campion)	1.0
Fragaria vesca (wild strawberry)	0.5
Mentha arvensis (corn mint)	1.0
Grasses	
Briza media (quaking grass – wild)	1.0
Cynosurus cristatus (crested dog's tail)	34.0
Festuca ovina (sheep's fescue)	10.0
Festuca rubra ssp juncea (slender red fescue)	17.0
Phleum bertolonii (smaller cat's-tail)	4.0
Trisetum flavescens (yellow oat-grass - wild)	2.0
Anthoxanthum odoratum (sweet vernal-grass - wild)	2.0
Agrostis capillaris (common bent)	10.0

Enhanced grass margins

2.1.39 Field margins within Works Areas 2, 2A, 3, 3A, 3B and 4 will be sown with a seed mix which will provide cereals and legumes for farmland birds in winter and early spring, such as HF02 as specified by Natural England. The seed mix is listed in Table A2.2.2

Table A2.2.2 Wild bird seed mix for HF02

Species	Percentage mix (%)
Legumes	
Lotus corniculatus (bird's foot trefoil)	10.0
Medicago lupulina (black medick)	10.0
Trifolium pratense (red clover)	10.0
Trifolium repans (white clover)	5.0
Trifolium hybridum (alsike clover)	5.0
Cereals	
Avena sativa (oat)	20.0
Triticum aestivum (wheat)	20.0
Secale cereale (rye)	20.0
Secale cereale (rye)	20.0

Chalk grassland

2.1.40 An exposed cutting within Works Area 5 will be sown with a chalk grassland seed mix such as *EM6 – Meadow Mixture for Chalk and Limestone Soils*[1] from Emorsgate Seeds. The surface of the exposed cutting will be prepared for seeding by harrowing[2] the subsoil to create a seedbed. It will not be topsoiled. The seed mix is listed in Table A2.2.3.

Table A2.2.3 Seed mix for chalk grassland

Species	Percentage mix (%)
Wildflowers	
Achillea millefolium (yarrow)	0.2
Agrimonia eupatoria (agrimony)	0.5
Anthyllis vulneraria (kidney vetch)	0.5
Betonica officinalis - (Stachys officinalis) (betony)	0.2
Centaurea nigra (common knapweed)	1.0
Filago vulgaris (common cudweed)	1
Centaurea scabiosa (greater knapweed)	3
Daucus carota (wild carrot)	1.3
Salvia verbenaca (wild clary)	1.0
Filipendula vulgaris (dropwort)	0.2
Galium album - (Galium mollugo) (hedge bedstraw)	0.6
Onobrychis viciifolia (sainfoin)	1.0
Knautia arvensis (field scabious)	2
Leontodon hispidus (rough hawkbit)	0.1
Leucanthemum vulgare (oxeye daisy - (moon daisy))	1.0
Medicago lupulina (black medick)	0.4
Origanum vulgare (wild marjoram)	0.4
Pastinaca sativa (wild parsnip)	1
Plantago media (hoary plantain)	0.5
Poterium sanguisorba - (Sanguisorba minor) (salad burnet)	2
Primula veris (cowslip)	0.1
Prunella vulgaris (selfheal)	0.5
Rumex acetosa (common sorrel)	0.5
Silene vulgaris (bladder campion)	1
Grasses	
Briza media (quaking grass - wild)	4
Carex flacca (glaucous sedge)	0.2
Cynosurus cristatus (crested dog's tail)	24
Festuca ovina (sheep's fescue)	24
Festuca rubra (red fescue)	21.8
Koeleria macrantha (crested hair-grass - wild)	2
Phleum bertolonii (smaller cat's-tail - wild)	2
Trisetum flavescens (yellow oat-grass - wild)	2

[1] https://wildseed.co.uk/mixtures/view/7/meadow-mixture-for-chalk-and-limestone-soils

[2] The means to effectively harrow the soil on the cutting slopes to be determined by the contractor taking into account safety risks of doing this work.

Amenity grassland

2.1.41 Areas within Works Areas 1, 1A, 4, 5 and 6 will be sown with a general-purpose grass and wildflower seed mix, such as *EM1: Basic General Purpose Meadow Mixture*[3] from Emorsgate Seeds. Depending on the cutting regime of the grassland, it could be maintained as short grass in areas of higher wear, such as around the bus stops or A11 Travel Hub, or allowed to grow longer, into grassland with wildflowers, where short grass is not required. The seed mix is listed in Table A2.2.4.

Table A2.2.4 Seed mix for amenity grassland

Species	Percentage mix (%)
Grasses	
Agrostis capillaris (common bent)	8.0
Cynosurus cristatus (crested dog's tail)	40.0
Festuca rubra (slender creeping red fescue)	28.0
Phleum bertolonii (smaller cat's-tail)	4.0
Wildflowers	
Centaurea nigra (common knapweed)	5.0
Daucus carota (wild carrot)	1.5
Galium verum (lady's bedstraw)	4.0
Leucanthemum vulgare (oxeye daisy)	0.5
Malva moschata (musk mallow)	2.0
Poterium sanguisorba (salad burnet)	2.0
Prunella vulgaris (selfheal)	1.5
Ranunculus acris (meadow buttercup)	1.5
Silene dioica (red campion)	2.0

Damp grassland

2.1.42 Areas in Work Areas 6 and 8 likely to be permanently damp will be sown with a damp grassland seed mix such as EM8: Meadow Mixture for Wetlands from Emorsgate Seeds. The seed mix is listed in Table A2.2.5.

Table A2.2.5 Seed mix for damp grassland

Species	Percentage mix (%)
Grass	
Agrostis capillaris (common bent)	10.0
Alopecurus pratensis (meadow foxtail - wild)	1.0
Anthoxanthum odoratum (sweet vernal-grass – wild)	3.0
Briza media (quaking grass – wild)	2.0
Cynosurus cristatus (crested dog's tail)	24.0
Deschampsia cespitosa (tufted hair-grass – wild)	1.0
Festuca rubra (slender creeping red fescue)	32.0
Hordeum secalinum (meadow barley – wild)	1.0
Schedonorus pratensis (meadow fescue – wild)	6.0
Wildflowers	
Achillea millefolium (yarrow)	0.2
Achillea ptarmica (sneezewort)	0.2
Betonica officinalis (betony)	1.0
Centaurea nigra (common knapweed)	2.5
Filipendula ulmaria (meadowsweet)	2.0
Galium verum (lady's bedstraw)	2.0
Leontodon hispidus (rough hawkbit)	0.5
Leucanthemum vulgare (oxeye daisy)	0.5
Lotus corniculatus (bird's-foot trefoil)	0.7
Lotus pedunculatus (greater bird's-foot trefoil)	0.5

[3] https://wildseed.co.uk/mixtures/view/2

Species	Percentage mix (%)
Plantago lanceolata (ribwort plantain)	1.0
Primula veris (cowslip)	1.0
Prunella vulgaris (selfheal)	1.5
Ranunculus acris (meadow buttercup)	2.0
Sanguisorba officinalis (great burnet)	1.5
Silaum silaus (pepper saxifrage)	0.5
Silene flos-cuculi (ragged robin)	0.4
Succisa pratensis (devil's-bit scabious)	2.0

Grassland around the water vole ponds

2.1.43 The ecological ponds in Works Areas 2, 3, 6 and 8 are intended to provide water vole habitat, and the ponds in Work Area 9 are intended to benefit general wetland biodiversity. The grassland around the water vole mitigation ponds and between the ponds and Hobson's Brook and the River Granta will be sown with a seed mix appropriate for the production of a tussocky species-rich sward, such as EM10 Tussock Mixture from Emorsgate Seeds. This is to provide cover for water voles. The seed mix is listed in Table A2.2.6

Table A2.2.6 Tussock mixture

Species	Percentage mix (%)
Grass	
Alopecurus pratensis (meadow foxtail)	1.0
Cynosurus cristatus (crested dog's tail)	16.0
Dactylis glomerata (cocksfoot)	16.0
Deschampsia cespitosa (tufted hair-grass)	4.0
Festuca rubra (strong creeping red fescue)	24.0
Holcus lanatus (Yorkshire fog)	1.0
Schedonorus arundinaceus - (Festuca arundinacea) (tall fescue)	10.0
Schedonorus pratensis (Festuca pratensis) (meadow fescue)	8.0

Species	Percentage mix (%)
Wildflowers	
Achillea millefolium (yarrow)	0.5
Agrimonia eupatoria (agrimony)	0,5
Arctium minus (lesser burdock)	0.5
Centaurea nigra (common knapweed)	1.0
Centaurea scabiosa (greater knapweed)	1.0
Chaerophyllum temulum (rough chervil)	2.5
Daucus carota (wild carrot)	2.0
Dipsacus fullonum (wild teasel)	1.0
Filipendula ulmaria (meadowsweet)	0.2
Galium album (hedge bedstraw)	2.3
Geranium pratense (meadow crane's-bill)	0.4
Knautia arvensis (field scabious)	2.0
Leucanthemum vulgare (oxeye daisy)	1.0
Pastinaca sativa (wild parsnip)	0.5
Pimpinella major (greater burnet-saxifrage)	0.1
Prunella vulgaris (selfheal)	1.0
Silene dioica (red campion)	1.0
Torilis japonica (upright hedge-parsley)	1.0
Succisa pratensis (devil's-bit scabious)	0.5
Vicia cracca (tufted vetch)	0.5

Grassland around the ecological ponds (except water vole ponds)

2.1.44 The edges of the ponds in Works Areas 2, 3, 6, 8 and 9 will be sown with a seed mix such as EP1 Pond Edge Mixture. The seed mix is listed in Table A2.2.7

Table A2.2.7 Pond edge mixture

Species	Percentage mix (%)
Grass	
Agrostis capillaris (common bent)	10.0
Alopecurus pratensis (meadow foxtail)	3.0
Anthoxanthum odoratum (sweet vernal-grass)	3.0
Briza media (quaking grass)	3.0
Cynosurus cristatus (crested dog's tail)	26.0
Deschampsia cespitosa (tufted hair-grass)	2.0
Festuca rubra (red fescue)	28.0
Festuca pratensis (meadow fescue)	5.0
Wildflowers	
Althaea officinalis (marsh-mallow)	1.0
Barbarea vulgaris (winter cress)	2.5
Caltha palustris (marsh marigold)	0.1
Centaurea nigra (common knapweed)	2.3
Dipsacus pilosus (small teasel)	0.1
Eupatorium cannabinum (hemp agrimony)	0.8
Filipendula ulmaria (meadowsweet)	1.5
Iris pseudacorus (yellow iris)	5.5
Lycopus europaeus (gypsywort)	1.0
Lysimachia vulgaris (yellow loosestrife)	0.1
Oenanthe pimpinelloides (corky-fruited water-dropwort)	2.4
Prunella vulgaris (selfheal)	2.5
Pulicaria dysenterica (common fleabane)	0.2
Thalictrum flavum (common meadow-rue)	0.2

Ecological pond planting (water vole ponds)

2.1.45 Pre-planted (one year established) coir matting rolls (water vole mix) will be planted around the wet margins of ponds and ditches. The water vole mix includes:

- *Carex acutiformis* (lesser pond sedge)
- *Iris pseudacorus* (yellow flag iris)
- *Glyceria maxima* (reed sweet grass)
- *Phalaris arundinacea* (reed canary grass)
- *Schoenoplectus lacustris* (common club rush)
- *Mentha aquatica* (water mint)
- *Lythrum salicaria* (purple loosestrife).

Ecological planting (great crested newt ponds)

2.1.46 Pre-planted (one year established) coir matting pallets (newt mix) will be planted for great crested newts (GCN) in their ponds. The newt mix includes:

- *Apium nodiflorum* (fool's watercress)
- *Lythrum salicaria* (purple loosestrife)
- *Potamogeton natans* (broad-leaved pondweed)
- *Mentha aquatica* (water mint)
- *Myosotis scorpioides* (water forget-me-not)
- *Veronica beccabunga* (brooklime).

Existing woodland

2.1.47 There is a small area of existing woodland in Works Area 6. This will be protected during construction and included in the new woodland planting and maintenance regime.

New woodland with scrub

2.1.48 New woodland with scrub will be planted in Works Area 4, 5, 6, 8, 9 and 10 to provide landscape integration, visual screening and connectivity between existing habitats. The planting mix has been selected to provide a wide variety of species to improve the resilience of the woodland to climate change and disease. Cambridge Past, Present and Future advised that oak, beech and ash are not adapting well to the recent drier summers and, especially ash, are vulnerable to disease. A small amount of oak has been included as the areas of woodland which are proposed in the river valley where the soil is deeper and slightly damper than on the chalk slopes of the Gog Magog Hills. The woodland and scrub species are listed in the table below.

Table A2.2.8 Planting mix for new native species woodland with scrub

Species	Specification	Percentage mix (%)
Acer campestre (field maple)	Transplant:1+2:3 breaks (brks): BR: 68/80cm	10
Corylus avellana (hazel)	Transplant:1+1:3 brks: BR: 60-80cm	10
Crataegus monogyna (common hawthorn)	Transplant:1+2:3 brks: BR: 60-80cm	15
Malus sylvestris (crab apple)	Transplant:1+2:3 brks: BR: 68/80cm	10
Prunus avium (wild cherry)	Transplant:1+2:3 brks: BR: 68/80cm	10
Populus alba (white poplar)	Feathered tree: 175/200cm BR	5
Quercus robur (English oak)	Feathered tree: 175/200cm RB	5
Rosa canina (dog rose)	Transplant:1+2:3 brks: BR: 68/80cm	5
Sambucus nigra (elder)	Transplant:1+1:3 brks: BR: 68/80cm	5
Sorbus aucuparia (rowan)	Transplant:1+2:3 brks: BR: 68/80cm	10
Tilia cordata (small-leaved lime)	Feathered tree: 175/200cm BR	15

Important hedgerow

2.1.49 The Proposed Development will cross hedgerow classified as Important Hedgerows in three places. These are in Works Areas 4/5, 6 and 9.

2.1.50 Where the Proposed Development crosses an Important Hedgerow, the hedgerow to be removed will be carefully transplanted prior to construction to a permanent new location as close to its original position as possible. Ideally, the hedgerow would be transplanted during the dormant season, between November and March, but before the bird breeding season begins in February. The work will be carried out by specialist contractors with experience of the process.

New hedgerow

2.1.51 New hedgerows will be planted along the Proposed Development and within the A11 Travel Hub, in Works Areas 2 to 10, to provide landscape integration and visual screening. They will also provide wildlife corridors, maintaining and improving the integrity of the hedgerow network and avoiding habitat fragmentation following construction in the long term.

2.1.52 The species mix shown in Table A2.2.9 will be used across the whole Proposed Development and will be beneficial to invertebrates and birds. It will provide spring blossoming and fruiting species of scrub such as blackthorn *Prunus spinosa*, common hawthorn *Crataegus monogyna*, field maple *Acer campestre* and dog rose *Rosa canina*. It will also include native woody species, including those listed as Woody Species on Schedule 3 of the Hedgerow Regulations (1997).

Table A2.2.9 Species mix for new hedgerow

Species	Specification	Percentage mix (%)
Cornus sanguinea (common dogwood)	1+1: Branched:3 brks:BR:80-100cm	10
Corylus avellana (hazel)	1+1: Branched:3 brks: BR: 80-100cm	15
Crataegus monogyna (common hawthorn)	1+2: Transplant:3 brks: BR: 80-100cm	40
Viburnum lantana (wayfaring tree)	1+1: Branched:3 brks: BR: 80-100cm	5
Prunus spinosa (blackthorn)	1+1: Branched:3 brks: BR: 80-100cm	20
Rosa canina (dog rose)	1+1: Branched:3 brks: BR: 80-100cm	10

Ditch creation

2.1.53 New ditches design to support aquatic species and provide habitat for water vole will be created in two areas as compensation for the loss of approximately 108 m of ditch. These areas are:

- Approximately 170 m length of ditches connecting wildlife ponds south of the Travel Hub (OSNGR TL 5181 4953); and
- Approximately 489 m of ditches adjoining the River Granta (Stapleford) crossing (OSNGR TL 4846 5117). This will connect to the River Granta.

2.1.54 Ditches will have a 6 m wide top width to allow a variable section to be incorporated into the design and an invert level that will maintain sufficient depth throughout the year (minimum summer depth of 50 cm) to support a range of emergent, submerged and floating-leaved plants.

2.1.55 One side of the ditch will have shallow banks (at gradients of 1:3 or 1:4) with a berm created at 100 mm below the average water level to create areas for the growth of marginal emergent plants. The other side of the ditch will be steep, with a gradient of 1:1 or 1:2, to allow water voles to burrow. There will be a buffer of at least 2 m between adjacent land use and the ditch.

2.1.56 No vegetation will be planted within the new ditch, instead plants will be left to colonise naturally from nearby ditches and the existing seed bank. Figure A2.2.1 shows the proposed typical cross section of the new ditches.

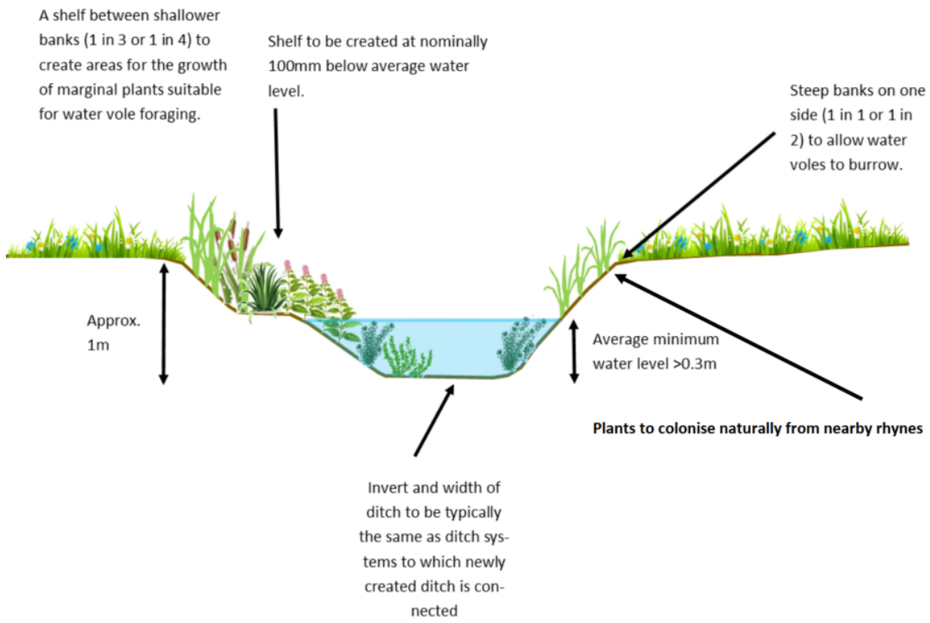


Figure A2.2.1 Typical cross section of proposed ditches

Management regime for planted areas

Wildflower Meadow – Works Areas 2, 3, 4, 5, 6, 7, 8, 9 and 10

2.1.57 Most sown wildflower and grass species are perennial; they will be slow to germinate and grow and will not usually flower in their first growing season. There may be a flush of annual weeds from the existing seedbank in the soil during the first growing season which may grow up and shade out the wildflower and grass seedlings beneath.

2.1.58 Mow the grassland three times in the first 12 months – the arisings to be collected and removed. Thereafter cut the meadow twice a year, once in July / early August and once in late October to keep the sward at a suitable length so that in the following growing season, grass species do not out-compete the wildflowers in the meadow. This cutting regime may be changed if seasonal variation results in an advanced or delayed growing season, to better suit the requirements of the emerging habitat or if the growth in the meadow does not justify a second cut. Dig out perennial weeds such as docks.

Amenity Grassland – Works Areas 1, 1A, 4 and 6

2.1.59 Mow areas to be maintained for amenity use six times during the growing season. The cuttings should be dispersed evenly over the sward.

Damp Grassland – Works Areas 6 and 8

2.1.60 As stated above, most sown wildflower and grass species are perennial, will be slow to germinate and will not usually flower in their first growing season.

2.1.61 Mow the grassland three times in the first 12 months to prevent annual weeds shading out the new wildflower and grassland seedlings – the arisings to be collected and removed. Thereafter cut the meadow twice a year, once in July / early August and once in late October to keep the sward at a suitable length so that in the following growing season, grass species do not out-compete the wildflowers in the meadow. This cutting regime may be changed if the growth in the meadow does not justify a second cut. Dig out perennial weeds such as docks.

Chalk Grassland – Works Area 5

2.1.62 As stated above, most sown wildflower and grass species are perennial, will be slow to germinate and will not usually flower in their first growing season.

2.1.63 Mow the grassland three times in the first 12 months – the arisings to be collected and removed. Thereafter cut the grassland twice a year, once in July / early August and once in late October to keep the sward at a suitable length so that in the following growing season, grass species do not out-compete the wildflowers in the meadow. This cutting regime may be changed if the growth in the meadow does not justify a second cut.

Enhanced margins (Wild Bird Seed Mix HF02) – Works Areas 2, 3, and 4

2.1.64 Every two years, in April, the margins will be cultivated and harrowed to create a seed bed and reseeded with the HF02 seed mix.

Tussock Mixture – Works Areas 2, 3, 6, 8 and 9

2.1.65 Mow regularly throughout the first year of establishment to a height of 40-60mm, removing cuttings, if dense. This will control annual weeds and help maintain balance between faster growing grasses and slower developing wildflowers.

2.1.66 Avoid cutting in the spring and early summer if the mixture has been sown with a nurse cover of cornfield annuals. These sown annuals should be allowed to flower, then in mid-summer cut back and the cut vegetation removed. It is important to cut back cornfield annuals before they die back, set seed or collapse: this cut will reveal the developing meadow mixture and give it the space it needs to develop. Dig out perennial weeds such as docks.

New woodland with scrub and existing woodland – Works Areas 4, 5, 6, 8, 9 and 10

2.1.67 During the first three years, a weed-free area of 1m in diameter around the base of each tree and shrub will be maintained throughout the year, until trees and shrubs are fully established and shade out groundcover species. Stakes and guards will be checked regularly to ensure they have not been lost or damaged. Tree ties will be inspected and adjusted to prevent chafing of the bark.

2.1.68 The planting will be inspected annually during the first five years and any dead or diseased trees or shrubs will be replaced in the following planting season (November to March) in compliance with the planting specification above.

2.1.69 After the first three years, trees will be inspected every five years to determine if any formative pruning is required. Tree stakes and all guards should be removed when trees and shrub trees are sufficiently established to withstand grazing by deer, rabbits and hares.

2.1.70 Existing woodland will be carefully managed to maintain its condition unless a different regime is advised to enhance biodiversity.

Hedgerow and transplanted hedgerow – Works Areas 2, 2A, 3, 3B, 4, 5, 6, 7, 8, 9 and 10

2.1.71 During the first three years, a weed-free area 2m wide along the base of new and transplanted hedgerows will be maintained throughout the year, until the hedgerows are fully established and can withstand competition for water with groundcover species. During the first five years after planting, all hedges will be lightly cut annually to encourage the development of a dense hedge.

2.1.72 The hedgerow will be inspected annually during the first five years and any dead or diseased plants will be replaced in the following planting season (November to March) in compliance with the planting specification above.

2.1.73 Hedgerows will be maintained to a minimum width of 2m and a minimum height of 2m and allowed to grow taller and wider between cuts, once established. Management should ensure there are no gaps so as to provide connectivity of habitats and commuting routes for bats.

2.1.74 Management regimes must ensure maximum fruiting to provide a food resource for over-wintering birds. Trimming and cutting back of the hedgerows should be undertaken on a two- / three-year rotation to allow for the establishment of thick nesting cover for breeding birds. Any old, dead or dying trees should be maintained to be used by invertebrate communities.

Trees (within verges and hedgerows and stand-alone trees) – Works Areas 1 - 10

2.1.75 During the first three years, a weed-free area of 1m in diameter around the base of each tree will be maintained throughout the year, until trees are fully established and can withstand competition for water with groundcover species. The mulch around the base of each tree should be topped up annually until end of the maintenance period (at which point individual trees may need further mulching). Stakes and guards should be checked regularly to ensure they have not been lost or damaged. Tree ties should be inspected and adjusted to prevent chafing of the bark.

2.1.76 The trees will be inspected annually during the first five years and any dead or diseased trees will be replaced in the following planting season (November to March) in compliance with the planting specification above.

2.1.77 Following the initial three years, trees will be inspected every five years to determine if any formative pruning is required. Tree stakes and guards should be removed when trees are sufficiently established to withstand grazing by deer, rabbits and hares.

Ecological ponds – Works Areas 2, 3, 6, 8 and 9

Water vole ponds (three)

2.1.78 The pre-established coir pallets should be allowed to establish naturally. However, they will be regularly inspected during each growing season to assess their condition, focusing on vegetation (density and weed growth) and silt levels. If the ponds start to silt up, they should be deepened in accordance with an appropriate methodology approved by Cambridgeshire County Council. If the water vole pond requires weeding or pruning, this should be carried out in the appropriate season to minimise adverse impacts on wildlife.

Great crested newt ponds (two)

2.1.79 The pre-established coir pallets will be allowed to establish naturally. However, they will be regularly inspected during each growing season to assess their condition, focusing on vegetation (density and weed growth) and silt levels. If the ponds start to silt up they should be deepened in accordance with an appropriate methodology approved by Cambridgeshire County Council.

Ecology ponds (three)

2.1.80 The willows, reeds and marginal planting will be regularly inspected during each growing season to assess the condition of the reed bed, focusing on vegetation (density and weed growth) and silt levels. If the ponds require weeding, pruning or mowing, this should be carried out in the appropriate season to minimise adverse impacts on wildlife.

2.1.81 Variation in structure can be achieved by cutting back and removing short sections of vegetation every two to three years in rotation. With ponds, vegetation needs to be removed as a wedge, like removing a slice of cake. Dense stands of single species (e.g., yellow iris) may benefit from selective thinning. Vegetation removal causes the least disruption to wildlife when carried out between September and November. Machines and heavy equipment should be used with care on wet sites to avoid damage to soil and vegetation.

Ditches – Works Areas 6, 8, 9, 10, 11, 12, 13

2.1.82 Once the ditches have been constructed, the objective of the on-going management will be to prevent the ditches becoming dominated by emergent plants and scrub i.e. to support the development of a structurally diverse bank sward and in-channel/marginal aquatic plant assemblage.

2.1.83 Ditches shall be inspected annually for the first three years in the summer to assess their establishment and to ascertain requirements for ongoing maintenance. During the annual inspection any invasive plant species e.g. Himalayan balsam, will be removed and disposed of appropriately. Vegetation maintenance of the bankside habitat will be undertaken in the autumn annually for the first three years, to avoid impact to nesting and wintering birds. Vegetation maintenance should be targeted to encourage vegetation regrowth and should alternate between banks each year.

2.1.84 Depending on the rate of vegetation establishment there may be a requirement to clear in-channel/marginal vegetation and bankside vegetation on a two to five-yearly basis after the first three years of establishment. The rate and frequency of this clearance will be dependent on the rate of establishment of plants in each ditch.

2.1.85 However, it is likely that in order to maintain a diverse ditch assemblage, aquatic and marginal plants will need to be cut from the full width of the ditch, alternating with sections where aquatic plants are left uncut. Cut and uncut sections should typically alternate in blocks of 20 m and 10 m respectively.

Rivers and streams – Works Areas 6, 8, 9, 10, 11, 12, 13

2.1.86 The Biodiversity Net Gain assessment (Volume 3, Appendix 10.12) has identified that there will be a loss of -1.32% in biodiversity value for the rivers and streams metric. A scenarios modelling assessment (Volume 3, Appendix 10.13) has determined that it is unlikely that the required minimum 20% biodiversity net gain can be achieved within the Site. Biodiversity credits will need to be purchased to achieve the required score.

Managing ecological measures for species

Birds

2.1.87 The landscape planting will lead to the overall net gain in hedgerow habitats with maintenance of these habitats undertaken to benefit breeding and over-wintering birds.

2.1.88 The loss of potential roosting opportunities for barn owls *Tyto alba*, within trees, will be mitigated by the erection of additional barn owl boxes (in pairs) at sites currently used by barn owls to enhance their population. Barn owl boxes will ideally be located at Netherhall Farm, Bury Farm, Reedbed Farm and Chalk Hill Granary subject to landowner approval.

2.1.89 In order to minimise disturbance to kingfishers *Alcedo atthis* during construction, the construction works in the two bridge locations, if feasible, will be undertaken outside of the kingfisher breeding season (core season February to September). If the breeding season cannot be avoided during construction, an ornithologist will be present during the works to monitor sections of the river within 50 m of the construction activities for possible nesting locations and observing kingfisher activity. Data will be logged, and the design / timings / programming will be shifted in a responsive manner so as to ensure no disturbance occurs.

2.1.90 To enhance the existing habitat, four kingfisher tunnels will be installed (two in each river location) in pre-identified suitable habitat. One pair will be located east of the River Granta (Stapleford) crossing at TL488512, the other south of the River Granta (Babraham) crossing between TL515496 and TL516496. These will require appropriate landowner approvals.

2.1.91 Vegetation clearance should be undertaken outside the nesting bird season to avoid effects of direct impacts on breeding birds. The nesting bird season is weather dependent but generally extends between March and September inclusive. If this is not possible, any vegetation that is to be removed or disturbed should be checked by an experienced ecologist for nesting birds immediately prior to works commencing, including ground nesting birds. If birds are found to be nesting, any works which may affect them will have to be delayed until the young have fledged, and the nest has been abandoned naturally. This timing of works has been incorporated into the CEMP (Volume 3, Appendix 2.4) and CoCP (Volume 3, Appendix 2.3) and will be implemented throughout the construction phase.

2.1.92 Twenty bird boxes will be erected in retained woodland across the Proposed Development. The locations of these are shown on the landscape and ecological masterplan (Annex A).

Bats

2.1.93 Planting on the Proposed Development will result in a significant increase in areas of biodiverse native habitats. This includes new, interlinked, species-rich hedgerows and new native broadleaved woodland planting, which will provide wildlife corridors around the Proposed Development, maintaining and enhancing the integrity of the hedgerow network. The landscape plan also includes extensive areas of species-rich grassland along the corridor of the Proposed Development. Once established, the Proposed Development corridor will provide a significant increase in high quality bat foraging and commuting habitat. Additional potential habitat creation, including an area of new water meadow adjacent to the River Granta, will further enhance habitat for foraging bats.

2.1.94 Where the route crosses existing linear features used by commuting and foraging bats at grade (i.e., no bridges) the landscape plan incorporates the planting of taller, more mature trees to encourage bats to fly at height over the route. These tall trees will be associated with linear tree and shrub planting to create bat hop-overs.

2.1.95 Embedded mitigation will see the use of very low UV emitting lights with a warm colour temperature of 2700-3000K. The low UV component and warm colour spectrum is less attractive to invertebrates, minimising any flight to light behaviour by insect prey and minimising any reduction in quality of foraging habitat in the wider area, which will reduce the impacts of light spillage.

2.1.96 Enhancements in the form of bat roost boxes will be installed within retained woodland adjacent to the Proposed Development. The proposed locations are shown on the landscape and ecological masterplan (Annex A).

Badgers

2.1.97 Landscape planting in the form of hedgerows, woodland and species-rich grassland will provide enhancements to the existing habitats and ensure connectivity is maintained.

2.1.98 Badger setts to be lost to the Proposed Development will be closed using badger gates outside of the badger breeding season (June to November inclusive). Setts will be closed under a licence agreed with Natural England which will detail appropriate timings and methods for the works.

2.1.99 During construction all open excavations will be covered or fitted with mammal ladders (planks of wood at either end) to allow animals to climb out if they fall in and prevent the trapping of animals, including badgers.

2.1.100 Embedded mitigation will include an oversized culvert to the north of the Riva Granta (Stapleford) crossing to ensure connectivity of the clan associated with WUS06 is maintained.

Great crested newts

2.1.101 A detailed mitigation strategy will be implemented which will ensure that the risk of killing and injuring GCN is minimised during construction and that the favourable conservation status of the local GCN population is maintained. Due to the impacts on GCN, a European Protected Species Mitigation (EPSM) Licence will also need to be applied for from Natural England.

2.1.102 The mitigation strategy will include a capture and translocation programme for Ponds WB57, WB45 and ditch WB15 as well as sensitive timing of works to ensure that no GCN are within the construction footprint. Two hibernacula will be provided at the newly created ponds, located within the red line boundary.

2.1.103 Subject to landowner agreement a hibernaculum will be provided at ponds WB57, WB45. Furthermore, two hibernacula will be provided at WB08, which will be used as a receptor pond for GCN and due to the loss of WB15.

2.1.104 Figure A2.2.2, extracted from the great crested newt survey report (Volume 3, Appendix 10.10), shows the location of the ponds surveyed for great crested newts.

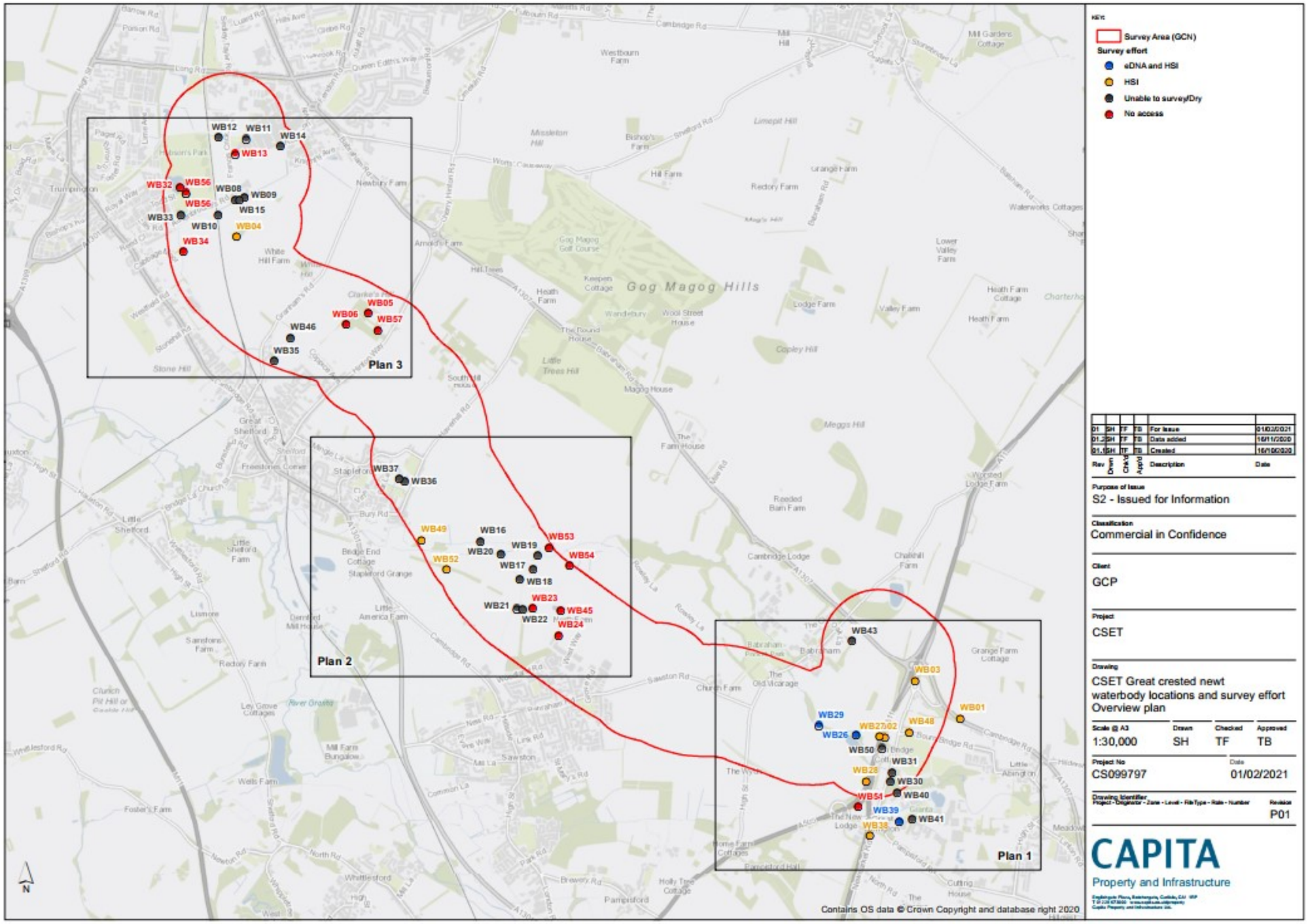


Figure A2.2.2 Location of ponds within the study area

Water voles

2.1.105 To mitigate direct mortality of water voles, the bridge structures have been designed to allow water voles to easily pass underneath and to ensure that water vole populations do not become isolated or allow habitat to be fragmented. Indirect impacts, such as runoff from the vehicles using the route which could pollute the watercourses and in turn impact the water vole population, will be managed. The drainage design will include the use of filter drains and sustainable drainage systems (SuDS), which will ensure that there is no increase in outfall of road runoff and associated pollutants into the watercourse.

2.1.106 In order to mitigate impacts, such as disturbance (noise and vibration) and direct mortality during the construction of the bridges and associated temporary bridges to facilitate construction, water vole displacement will be implemented.

2.1.107 The embedded lighting design mitigation has sought to minimise light spill outside the Proposed Development through the use of appropriate mounting angles, light shields and baffles and reduced lighting column heights to minimise up-lighting and to ensure that no light spills onto water vole habitat.

2.1.108 New wetland habitat is to be created at Hobson's Brook, the River Granta (Stapleford) crossing and the River Granta (Babraham) crossing to compensate for the degradation of habitat under the bridges due to shading. The choice of aquatic and marginal plant species will be tailored to water voles to ensure they successfully colonise the areas of habitat creation. The proposed locations are shown on the landscape and ecological masterplan (Annex A).

Hedgehogs, polecats and toads

2.1.109 To avoid killing or injury to hedgehogs that may be present within hedgerows, scrub and other dense vegetation, suitable habitat will be hand-searched for mammals and amphibians including hedgehogs, polecats and toads prior to its clearance.

2.1.110 Piles of cut vegetation, such as brash piles, will also be searched as they can be used as shelter by these species. Any animals found will be moved to a suitable release site away from the development within scrub, hedgerow or other dense cover.

2.1.111 In addition, open excavations will be covered to stop animals falling in and becoming trapped.

Reptiles

2.1.112 Working methods during construction will minimise the risk of death or injury to reptile species. These methods will include the following:

- Two stage vegetation clearance of reptile habitat to facilitate the temporary bridge at the River Granta (Stapleford) crossing and the construction works at the River Granta (Babraham) crossing, whereby areas of suitable habitat for reptiles are cut down to a height of 300 mm, left for a period to enable reptiles to disperse, and then cut to ground level under ecological supervision
- Removal of all other natural refugia by hand where safe to do so, or otherwise undertaken methodically using plant under ecological supervision
- Plant and machinery to be kept to defined access routes around the Proposed Development area which are unsuitable for reptiles, until suitable habitat in the works area has been removed
- Fitting of open excavations with mammal ladders (planks of wood at either end) to allow animals to climb out if they fall in and prevent the trapping of animals including reptiles.

2.1.113 Additional habitat enhancements that will be undertaken as part of the works will include the creation of three hibernacula using log piles and deadwood.

Invertebrates

2.1.114 The landscaping for the Proposed Development will create habitat valuable to invertebrates. Wildflower meadow along with the replacement of lost hedgerows and scrub with diverse native and species-rich hedgerows that contain a good range of flowering species, such as hawthorn, blackthorn and dogwood *Cornus sanguinea*, will provide habitats of value to invertebrates. Trees and hedgerows felled or removed as part of the works will be retained, cut up and appropriately positioned within the site to offer deadwood piles for invertebrates.

Harvest mice

2.1.115 To avoid killing or injury to harvest mice that may be present within long grass or arable crops, suitable habitat will be hand-searched for harvest mice prior to its clearance. Harvest mice found will be moved to a suitable release site away from the construction footprint into suitable habitat.

Brown Hare

2.1.116 Open excavations will be covered or fitted with mammal ladders to prevent the trapping of animals including hares.

Management and monitoring

Responsibility

2.1.117 Cambridge County Council will be responsible for the implementation of this LEMP. The precise mechanism for completing the management works during operations will be determined in due course.

2.1.118 Under the Cambridge South West Transport scheme, the County intends to appoint a contractor to deliver the LEMP for that Scheme, possibly under a rolling five year management contract. It is envisaged something similar might be suitable for CSET.

2.1.119 The precise management arrangements will be developed by the County and documented in the updated LEMP in due course.

LEMP Approval prior to construction commencing

2.1.120 Once approval from the Secretary of State (SoS) for the Scheme is received this document will be updated to take into account any requirements set by SoS. The updated LEMP will need approval by the local planning authority prior to works commencing on site.

Landscape and ecological management and monitoring

2.1.121 The landscape and ecological management and maintenance requirements are presented in Table A2.2.10 below. The management and maintenance regime will apply during the time the Proposed Development is in operation. Ecological monitoring requirements are set out in Table A2.2.11.

Table A2.2.10 Landscape management and maintenance requirements

Landscape element	Requirement	Action	Duration of activity	Notes
Grassland	Inspect for injurious / unwanted weeds, e.g., ragwort	Identification of injurious / unwanted weeds.	Annually Years 1-5 and then every five years.	Long-term maintenance to be caried out for as long as CSET is operational
	Selective weed control	Establishment of maintenance requirement.	Four times per annum in Years 1-5 and then every five years.	To be undertaken during the growing season to ensure areas are kept in a weed-free condition.
	Assess vegetation for establishment and species composition	Identification of more than 5% bare ground within the grassland.	Years 2, 3, 5 and 10 post seeding.	
	General grass maintenance – cutting frequency	Detailed in management regime section above.	Each year during the operation of CSET	Maintenance to be caried out for as long as CSET is operational
	General grass maintenance – arisings	Arisings in all but short grass areas shall be raked off and removed off site.	Each year during the operation of CSET	Maintenance to be caried out for as long as CSET is operational
Transplanted Hedgerow	General hedgerow maintenance – watering and selective weed control	A weed-free area 2m wide along the base of transplanted hedgerows will be maintained throughout the year,	Weed control for three years after transplanting.	Once established, maintain as for new hedgerow.
New Hedgerow	Condition assessment: Assess height, growth condition, thickness. Assess for failures or damage which interrupts connectivity of hedgerow.	A weed-free area 2m wide along the base of new hedgerows will be maintained throughout the year. Trim annually until well established. Maintain to heights detailed in the management regime section above.	Weed control in Years 1-3. Annual light trim until fully established by Year 5. Long-term maintenance post establishment on two to three year rotation during the operation of CSET.	Hedgerow to be maintained so that it becomes bushy and dense. Long-term maintenance to be caried out for as long as CSET is operational
	General hedgerow maintenance – stakes / tubes / ties	Condition of stakes, tubes and ties to be inspected and adjusted for growth of plant as necessary.	Inspect twice per annum in Years 1-5.	Long-term maintenance to be caried out for as long as CSET is operational
	General hedgerow maintenance – selective weed control	Spot application for weed control for all newly seeded and planted species four times per annum during the growing season to ensure that invasive species are controlled.	Four times per annum in Years 1-5.	Long-term maintenance to be caried out for as long as CSET is operational
	General hedgerow maintenance – hand- weeding	Hand-weeding of tree and shrub shelters shall be undertaken across the Proposed Development.	Annually in Years 1-5.	
	General hedgerow maintenance – mulch application	Mulch to be inspected and topped up.	Annually in Years 1-5.	
	General hedgerow maintenance – shelter and stake removal	Growth of plants to be inspected to identify whether shelters and stakes can be removed	All shelters and stakes to be removed by Year 5.	
	Replacement planting	Planting to be inspected, and any missing / damaged / dying plants to be replaced as well as those without satisfactory growth.	Annually in Years 1-5.	

Landscape element	Requirement	Action	Duration of activity	Notes
Trees	General tree maintenance – stakes / tubes / ties	Condition of stakes, tubes and ties to be inspected and adjusted for growth of plant as necessary.	Twice per annum in Years 1-5.	
	General tree maintenance – selective weed control	Keep a weed-free circle of 1m in diameter at base of each tree for first five years.	Twice per annum in Years 1-5.	
	General tree maintenance – hand weeding	Hand-weeding of tree and shrub shelters shall be undertaken across the Proposed Development.	Annually in Years 1-5.	
	General tree maintenance – mulch application	Mulch to be inspected and topped up.	Annually in Years 1-5.	
	General tree maintenance – shelter and stake removal	Growth of plants to be inspected to identify whether shelters and stakes can be removed.	Annually in Years 1-5, all remaining shelters and stakes to be removed at Year 5.	
	Replacement planting	Planting to be inspected and any missing / damaged / dying plants to be replaced as well as those without satisfactory growth.	Annually in Years 1-5.	
New Woodland	General tree maintenance – stakes / tubes / ties	Condition of stakes, tubes and ties to be inspected and adjusted for growth of plant as necessary.	Twice per annum in Years 1-5.	
	General tree maintenance – selective weed control	Keep a weed-free circle of 1m in diameter at base of each tree for first five years. Control invasive species.	Twice per annum in Years 1-5.	
	General tree maintenance – hand-weeding	Hand-weeding of tree and shrub shelters shall be undertaken across the Proposed Development.	Annually in Years 1-5.	
	General tree maintenance – mulch application	Mulch to be inspected and topped up.	Annually in Years 1-5.	
	General tree maintenance – shelter and stake removal	Growth of plants to be inspected to identify whether shelters and stakes can be removed.	All shelters and stakes to be removed by Year 5.	
	Replacement planting	Planting to be inspected and any missing / damaged / dying plants to be replaced, as well as those without satisfactory growth.	Annually in Years 1-5.	
Ditches	Assess vegetation for establishment and species composition	Inspect vegetation to assess its establishment and to ascertain requirements for ongoing maintenance.	Annually for the first three years	
	Invasive plant management	During the annual inspection any invasive plant species e.g. Himalayan balsam, will be removed and disposed of appropriately.	Annually for the first three years	
	General vegetation management	Depending on the rate of vegetation establishment there may be a requirement to clear in-channel/marginal	Rate and frequency will depend on rate of vegetation	

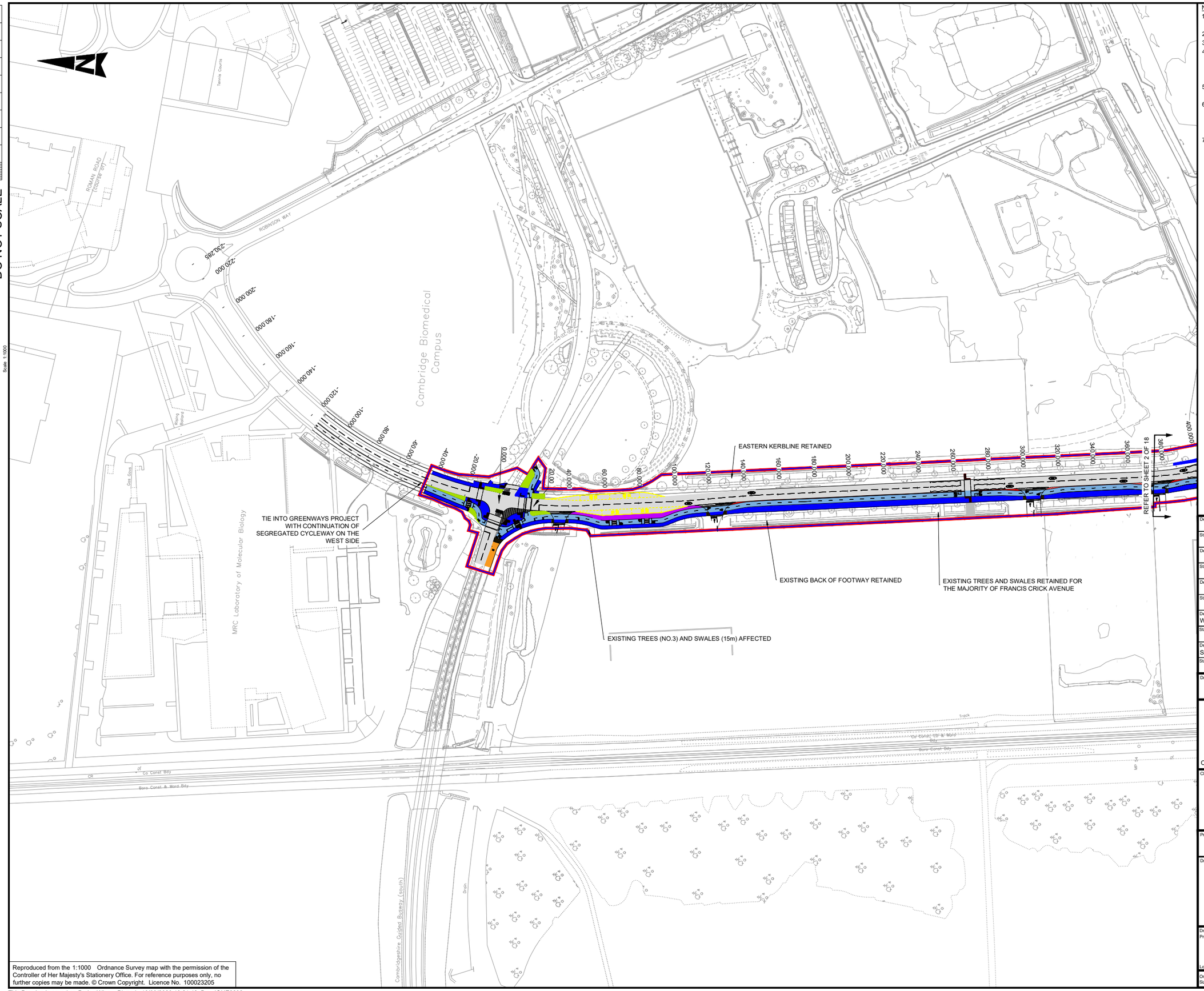
Landscape element	Requirement	Action	Duration of activity	Notes
		vegetation and bankside vegetation. Cutting of aquatic and marginal plants from the full length of ditch, alternating with sections where plants are left uncut.	establishment. Likely to be on a 2-5 yearly basis after the first 3 years of establishment.	

Table A2.2.11 Ecological monitoring

Ecological Feature	Requirement	Action	Duration of Activity	Notes
Habitat	A review of the biodiversity loss / gain calculations will be required to ensure that the distinctiveness and condition have been met for the allocated BDU scores.	Site visit to confirm the distinctiveness and condition of the habitats is created or enhanced	1, 5 and 10 years post construction	Recommendations will be made to remedy the habitats if the desired targets are not achieved.
	Manage for wildflower diversity.	National Vegetation Classification survey.	One year post construction.	Surveys will be timed between April and September.
Hedgerows	Check of habitat connectivity.	Survey of hedgerows to ensure connectivity.	One year post construction. Three years post construction.	
	Hedgerow survey.	Assess the species-richness of the hedgerow.	One year post construction. Three years post construction.	Surveys will be timed between April and September.
Badgers	Check sett for collapse and planting establishment.	Site visit to assess the condition of grass and scrub planted around sett, watering regime.	One year post construction.	
Bats	Determine impacts of new lighting and gaps in hedgerows from the new junctions.	Static bat activity surveys along identified commuting routes.	One year post construction.	Surveys must be undertaken within the core bat active season (April – September).
	Determine usage of artificial bat boxes.	Manual check of bat roost boxes for evidence of bats (i.e., droppings, individual sightings).	One year post construction.	

Annex A Landscape and ecological masterplan

Low



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KEY:

- WILDFLOWER MEADOW
- CARRIAGEWAY
- FOOTWAY
- CYCLEWAY
- 0.3M CARRIAGEWAY BUFFER
- SHARED FOOTWAY/ CYCLEWAY
- BUS BORDER AREA
- KERBLINE
- TEMPORARY LAND TAKE

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Work in Progress	A1	C01	AH	RE	AH	GB	14/09/23
Second Issue	A1	C02	RE	US	AH	GB	19/09/23

Drawing Suitability: APPROVED - PUBLISHED — Status: A1

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Client: GREATER CAMBRIDGE PARTNERSHIP

Project Title: CSET PHASE 2

Drawing Title: Cambridge South East Transport Phase 2 TWAO Application Public Transport and Active Travel Corridor -Landscape Layout Sheet 1 of 18

Drawing Number: Project 5212868 - Originator ATK - Volume ELS - WHL_AL_SCHME - Type DR - Role LL - Number 000001

Location

Original Size: A1 | Scale: 1:1000 | Project Ref. No: 5212868 | Sheet: 1 of 18 | Rev: C02

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7. FOR FULL SCHEME DETAILS PLEASE REFER TO DRAWING 5212868-ATK-HGN-WHL_AL_SCHME-DR-CH-000002.
8. FOR DETAILS OF THE STRUCTURES IN THIS DRAWING PLEASE REFER TO DRAWING 5212868-ATK-SGN-WHL_AL_SCHME-DR-CB-000006 AND 5212868-ATK-SGN-WHL_AL_SCHME-DR-CB-000001.

KEY:

- SPECIMEN TREE
- WOODLAND
- HEDGEROW
- WILDFLOWER MEADOW
- AMENITY GRASS
- ACTIVE TRAVEL ROUTE
- PUBLIC TRANSPORT ROUTE (PTR)
- CARRIAGEWAY
- FOOTWAY
- SEGREGATED CYCLEWAY
- SHARED FOOTWAY/ CYCLEWAY
- PRIVATE ACCESS ROAD
- 0.3M CARRIAGEWAY BUFFER
- POND MAINTENANCE TRACK
- TEMPORARY LAND REQUIRED FOR CONSTRUCTION TO BE RETURNED TO AGRICULTURAL USE
- PERMANENT LAND TAKE
- TEMPORARY LAND TAKE
- KERBLINE
- TIMBER POST AND RAIL FENCE
- SWALES
- ATTENUATION PONDS
- ECOLOGY PONDS
- 4M WIDE GATE
- VEHICLE RESTRAINT SYSTEM
- RETAINING WALL
- WARNING PAVING
- BLOCK PAVING (OVERUN AREA)
- KERB TO ALLOW OVERRUN (TYPE TBC)
- CAR TRAP
- DUTCH ENTRANCE KERB
- EMBANKMENT FILL / CUTTING
- CULVERT
- GATE

Proposed fencing to tie into existing

Escape area for unauthorised vehicles to return to roundabout

Additional gates to prevent unauthorised access to NR/CSET/White hill farm

Proposed retaining wall

Great crested newt hibernacula

Culvert 2

Ecology Pond 1

Site compound required for construction

Ecology Pond 3. Pond to provide additional habitat for water voles

Attenuation Pond 1

William Farm Access

Ecology Pond 2

Hobson's Conduit Structure

Proposed retaining wall

Culvert 1

Great crested newt hibernacula

Culvert 3

Headwall

Diversion of existing DNA path onto CSET maintenance track

Location for Bat Hop-Over

Network Rail/CSET maintenance access

Addenbrooke's Road

Track

Spring

Monument

Local Nature Reserve

REFER TO SHEET 1 OF 18

REFER TO SHEET 3 OF 18

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Description

Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date

Description

Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date

Description

Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date

Description: Work in Progress

Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
A1	C01	AH	RE	AH	GB	14/09/23

Description: Second Issue

Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
A1	C02	RE	US	AH	GB	19/09/23

Drawing Suitability: APPROVED - PUBLISHED

Status: A1

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Project Title: CSET PHASE 2

Drawing Title: Cambridge South East Transport Phase 2 TWAO Application Public Transport and Active Travel Corridor -Landscape Layout Sheet 2 of 18

Drawing Number

Project	Originator	Volume	Location	Type	Role	Number
5212868	ATK	ELS	WHL_AL_SCHME	DR	LL	000002

Original Size:	Scale:	Project Ref. No:	Sheet:	Rev:
A1	1:1000	5212868	2 of 18	C02

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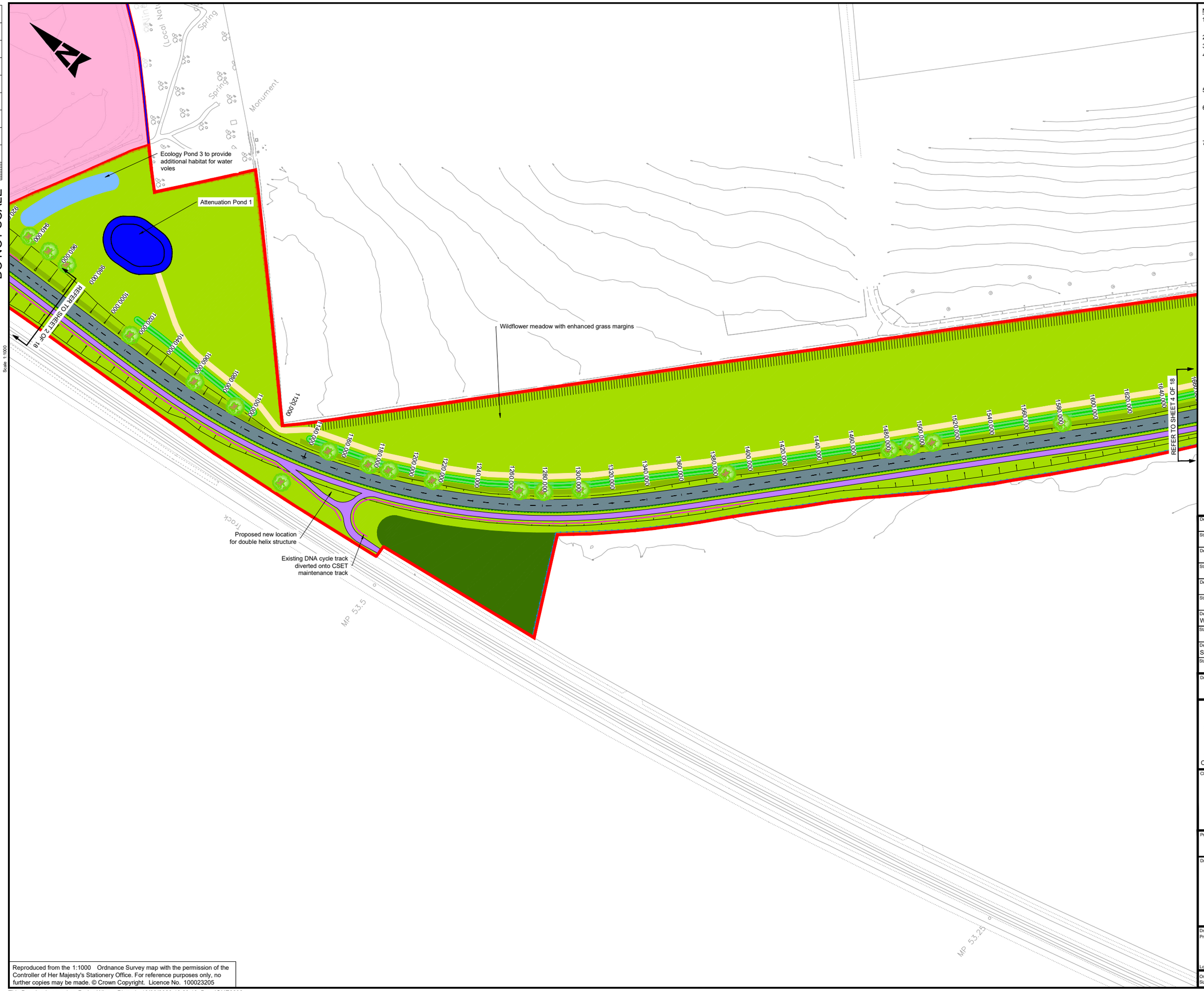

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KEY:

- SPECIMEN TREE
- WOODLAND
- HEDGEROW
- ENHANCED GRASS MARGINS
- WILDFLOWER MEADOW
- ACTIVE TRAVEL ROUTE
- PUBLIC TRANSPORT ROUTE (PTR)
- POND MAINTENANCE TRACK
- TEMPORARY LAND REQUIRED FOR CONSTRUCTION TO BE RETURNED TO AGRICULTURAL USE
- TEMPORARY LAND TAKE
- PERMANENT LAND TAKE
- KERBLINE
- SWALES
- ATTENUATION POND
- ECOLOGY POND
- VEHICLE RESTRAINT SYSTEM
- EMBANKMENT FILL / CUTTING
- TIMBER POST AND RAIL FENCE
- RABBIT FENCE

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Work in Progress	A1	C01	AH	RE	AH	GB	14/09/23
Second Issue	A1	C02	RE	US	AH	GB	19/09/23

Drawing Suitability: APPROVED - PUBLISHED — Status: A1

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Client: GREATER CAMBRIDGE PARTNERSHIP

Project Title: CSET PHASE 2

Drawing Title: Cambridge South East Transport Phase 2 TWAO Application Public Transport and Active Travel Corridor -Landscape Layout Sheet 3 of 18

Drawing Number: Project 5212868 - Originator ATK - Volume ELS - Location WHL_AL_SCHME - Type DR - Role LL - Number 000003

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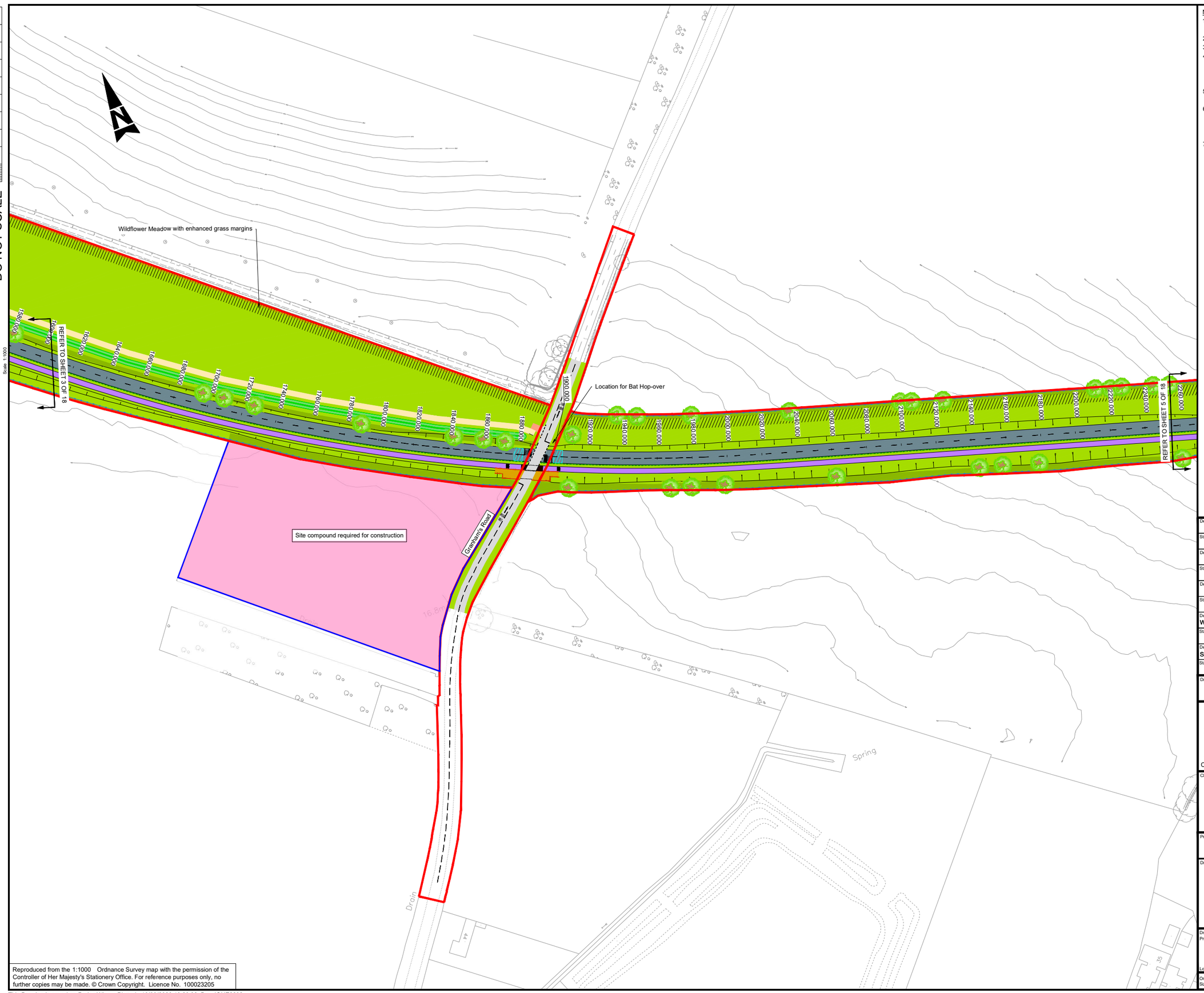

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KEY:

- SPECIMEN TREE
- HEDGEROW
- WILDFLOWER MEADOW
- ENHANCED GRASS MARGINS
- ACTIVE TRAVEL ROUTE
- PUBLIC TRANSPORT ROUTE (PTR)
- CARRIAGEWAY
- FOOTWAY
- SEGREGATED CYCLEWAY
- EQUESTRIAN CROSSING
- MAINTENANCE TRACK ROUTE
- PRIVATE ROAD
- HARDSTANDING - GRASSCRETE OR SIMILAR
- TEMPORARY LAND REQUIRED FOR CONSTRUCTION TO BE RETURNED TO AGRICULTURAL USE
- PERMANENT LAND TAKE
- TEMPORARY LAND TAKE
- KERBLINE
- SWALES
- 4M WIDE GATE
- VEHICLE RESTRAINT SYSTEM
- EMBANKMENT FILL / CUTTING
- EQUESTRIAN CROSSING FENCE
- TIMBER POST AND RAIL FENCE
- RABBIT FENCE

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Work in Progres	A1	C01	AH	RE	AH	GB	14/09/23
Second Issue	A1	C02	RE	US	AH	GB	19/09/23

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Project Title: CSET PHASE 2

Drawing Title: Cambridge South East Transport Phase 2 TWAO Application Public Transport and Active Travel Corridor -Landscape Layout Sheet 4 of 18

Drawing Number: Project 5212868 - Originator ATK - Volume ELS - WHL_AL_SCHME - Type DR - Role LL - Number 000004

Location

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A1	1:1000	5212868	4 of 18	C02

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KEY:

- SPECIMEN TREE
- WOODLAND PLANTING
- HEDGEROW PLANTING
- WILDFLOWER MEADOW PLANTING
- AMENITY GRASS PLANTING
- ENHANCED GRASS MARGINS PLANTING
- ACTIVE TRAVEL ROUTE
- PUBLIC TRANSPORT ROUTE (PTR)
- CARRIAGEWAY
- FOOTWAY
- EQUESTRIAN CROSSING
- PRIVATE ROAD
- TEMPORARY LAND REQUIRED FOR CONSTRUCTION TO BE RETURNED TO AGRICULTURAL USE
- PERMANENT LAND TAKE
- TEMPORARY LAND TAKE
- KERBLINE
- 4M WIDE GATE
- EMBANKMENT FILL / CUTTING
- NOISE FENCING
- EQUESTRIAN CROSSING FENCE
- TIMBER POST AND RAIL FENCE
- RABBIT MESH FENCE

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Work in Progress	A1	C01	AH	RE	AH	GB	14/09/23
Second Issue	A1	C02	RE	US	AH	GB	19/09/23

Drawing Suitability: APPROVED - PUBLISHED — Status: A1

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Project Title: CSET PHASE 2

Drawing Title: Cambridge South East Transport Phase 2 TWAO Application Public Transport and Active Travel Corridor -Landscape Layout Sheet 5 of 18

Drawing Number: Project 5212868 - Originator ATK - Volume ELS - Location WHL_AL_SCHME - Type DR - Role LL - Number 000005

Original Size: A1 | Scale: 1:1000 | Project Ref. No: 5212868 | Sheet: 5 of 18 | Rev: C02

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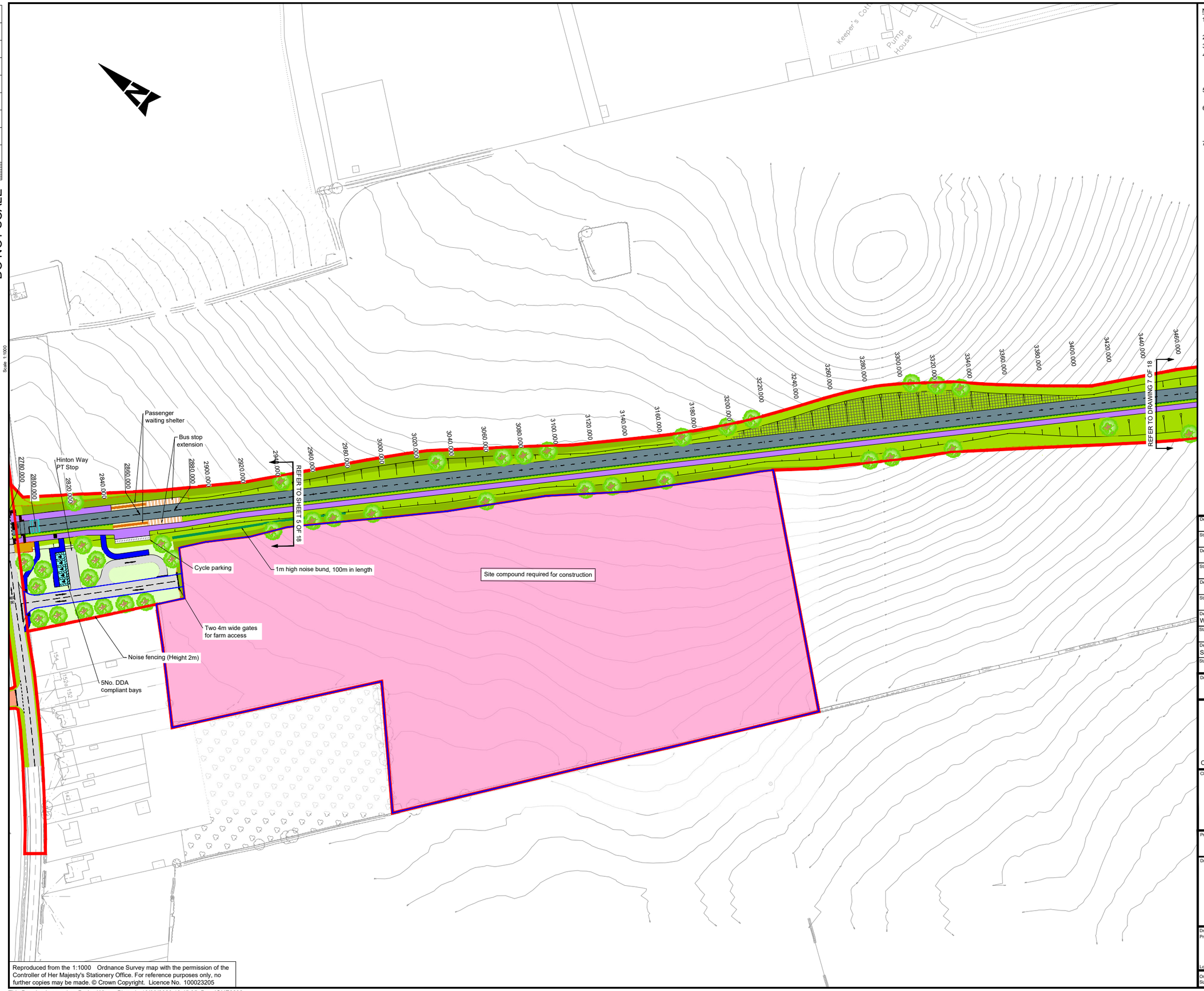

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KEY:

- SPECIMEN TREE
- WOODLAND PLANTING
- HEDGEROW PLANTING
- WILDFLOWER MEADOW PLANTING
- AMENITY GRASS PLANTING
- CHALK GRASS PLANTING
- ACTIVE TRAVEL ROUTE
- PUBLIC TRANSPORT ROUTE (PTR)
- CARRIAGEWAY
- FOOTWAY
- EQUESTRIAN CROSSING
- TEMPORARY LAND REQUIRED FOR CONSTRUCTION TO BE RETURNED TO AGRICULTURAL USE
- NOISE BUND
- PERMANENT LAND TAKE
- TEMPORARY LAND TAKE
- KERBLINE
- 4M WIDE GATE
- EMBANKMENT FILL / CUTTING
- NOISE FENCING
- EQUESTRIAN CROSSING FENCE
- TIMBER POST AND RAIL FENCE

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Work in Progress	A1	C01	AH	RE	AH	GB	14/09/23
Second Issue	A1	C02	RE	US	AH	GB	19/09/23

Drawing Suitability: APPROVED - PUBLISHED

Status: A1

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Project Title: CSET PHASE 2

Drawing Title:

Cambridge South East Transport Phase 2
TWAO Application Public Transport and Active Travel Corridor -Landscape Layout
Sheet 6 of 18

Drawing Number

Project	Originator	Volume	Location	Type	Role	Number
5212868	ATK	ELS	WHL_AL_SCHME	DR	LL	000006

Original Size:	Scale:	Project Ref. No.	Sheet:	Rev:
A1	1:1000	5212868	6 of 18	C02

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Scale 1:1000 10m 0m 10m 20m 30m 40m 50m 60m 70m

Haverhill Road

Country park footpath to tie into proposed controlled crossing

Location for Bat Hop-Over

Site compound required for construction

Passenger waiting shelter

Cycle parking

Bus stop extension

1m high noise bund , 180m in length

Indicative footpath linking to retirement village

Indicative footpath linking to retirement village

5 No. DDA compliant bays

Existing farm access to be relocated

Haverhill Road PT stop

Rangeford Retirement Village Access shall be constructed prior to CSET construction

Haverhill Road

Site compound required for construction

Existing farm access to be maintained

REFER TO SHEET 6 OF 18

REFER TO SHEET 8 OF 18

3420.000 3440.000 3460.000 3480.000 3500.000 3520.000 3540.000 3560.000 3580.000 3600.000 3620.000 3640.000 3660.000 3680.000 3700.000 3720.000 3740.000 3760.000 3780.000 3800.000 3820.000 3840.000 3860.000 3880.000 3900.000 3920.000 3940.000 3960.000 3980.000 4000.000 4020.000 4040.000 4060.000 4080.000 4100.000 4120.000 4140.000

CHALK HILL

Play Area

Recreation Ground

Stapleford Jubilee Pavilion

Tennis Courts

Area

NOTES:

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KEY:

- SPECIMEN TREE
- HEDGEROW
- SPECIES RICH GRASS
- AMENITY GRASS
- ACTIVE TRAVEL ROUTE
- PUBLIC TRANSPORT ROUTE (PTR)
- CARRIAGEWAY
- FOOTWAY
- PERMANENT LAND TAKE
- TEMPORARY LAND TAKE
- KERBLINE
- TIMBER FENCING
- SWALES
- 4M WIDE GATE
- EQUESTRIAN CROSSING
- EQUESTRIAN CROSSING FENCE
- PRIVATE ROAD
- TEMPORARY LAND REQUIRED FOR CONSTRUCTION TO BE RETURNED TO AGRICULTURAL USE
- NOISE BUND
- EMBANKMENT FILL / CUTTING

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Work in Progress	A1	C01	AH	RE	AH	GB	14/09/23
Second Issue	A1	C02	RE	US	AH	GB	19/09/23

Drawing Suitability: APPROVED - PUBLISHED

Status: A1

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Project Title: CSET PHASE 2

Drawing Title: Cambridge South East Transport Phase 2 TWAO Application Public Transport and Active Travel Corridor -Landscape Layout Sheet 7 of 18

Drawing Number: Project 5212868 - Originator ATK - Volume ELS - WHL_AL_SCHME - Type DR - Role LL - Number 000007

Location

Original Size: A1 | Scale: 1:1000 | Project Ref. No: 5212868 | Sheet: 7 of 18 | Rev: C02

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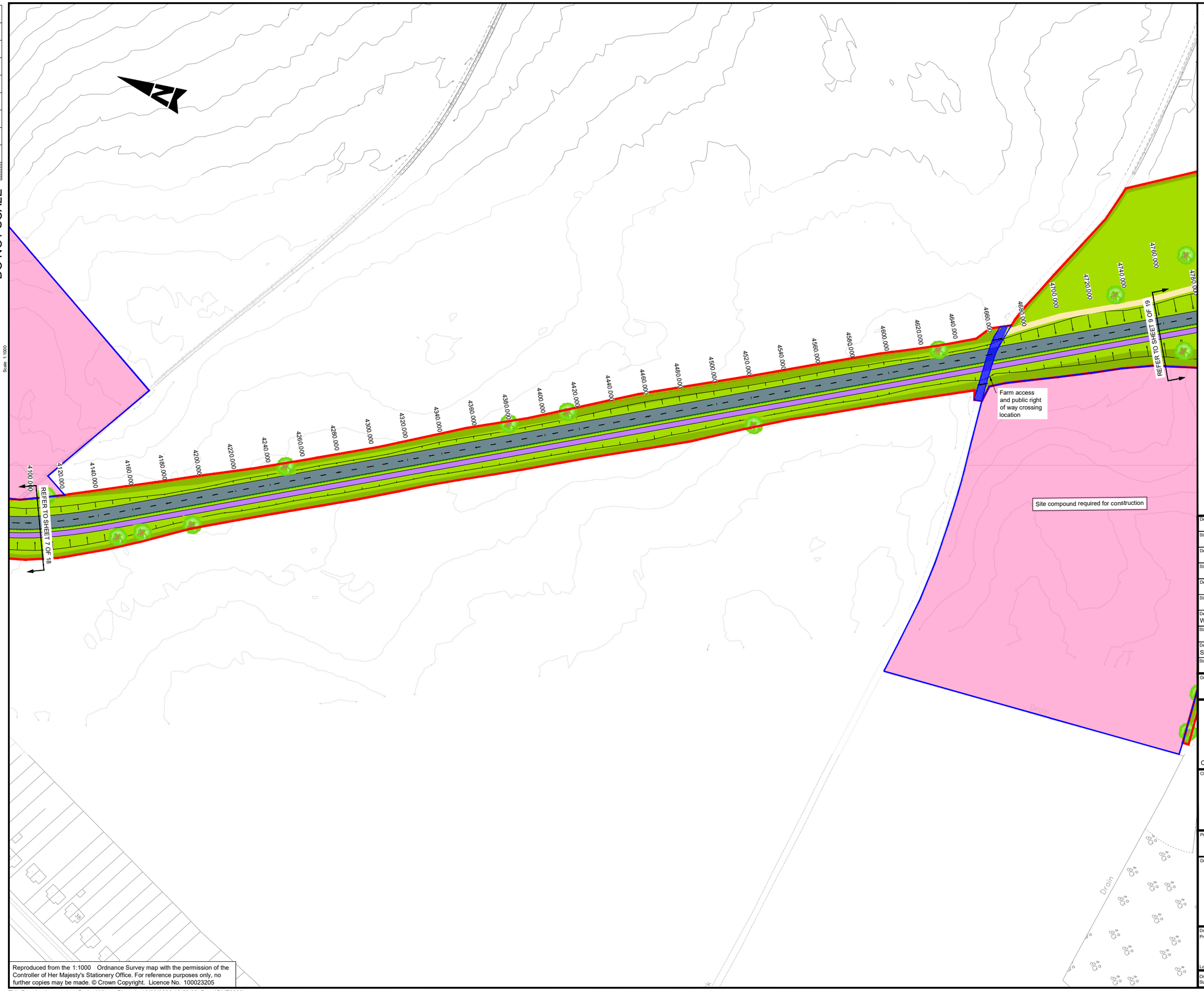

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7. FOR FULL SCHEME DETAILS PLEASE REFER TO DRAWING 5212868-ATK-HGN-WHL_AL_SCHME-DR-CH-000008.

KEY:

- SPECIMEN TREE
- HEDGEROW
- WILDFLOWER MEADOW
- ACTIVE TRAVEL ROUTE
- PUBLIC TRANSPORT ROUTE (PTR)
- PRIVATE ACCESS ROAD
- POND MAINTENANCE TRACK
- PERMANENT LAND TAKE
- TEMPORARY LAND TAKE
- KERBLINE
- TIMBER FENCING
- TEMPORARY LAND REQUIRED FOR CONSTRUCTION TO BE RETURNED TO AGRICULTURAL USE
- PUBLIC RIGHT OF WAY TO BE RETAINED
- EMBANKMENT FILL / CUTTING

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Work in Progress	A1	C01	AH	RE	AH	GB	14/09/23
Second Issue	A1	C02	RE	US	AH	GB	19/09/23

Drawing Suitability: APPROVED - PUBLISHED — Status: A1

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www.atkinsglobal.com

Client: GREATER CAMBRIDGE PARTNERSHIP

Project Title: CSET PHASE 2

Drawing Title: Cambridge South East Transport Phase 2 TWAO Application Public Transport and Active Travel Corridor -Landscape Layout Sheet 8 of 18

Drawing Number: Project 5212868 - Originator ATK - Volume ELS - Location WHL_AL_SCHME - Type DR - Role LL - Number 000008

Original Size: A1 | Scale: 1:1000 | Project Ref. No: 5212868 | Sheet: 8 of 18 | Rev: C02

This Drawing is saved on ProjectWise. Plotted: 19/09/2023 13:52:05 By: JONE2282

Low

Millimetres 100 10 0

DO NOT SCALE

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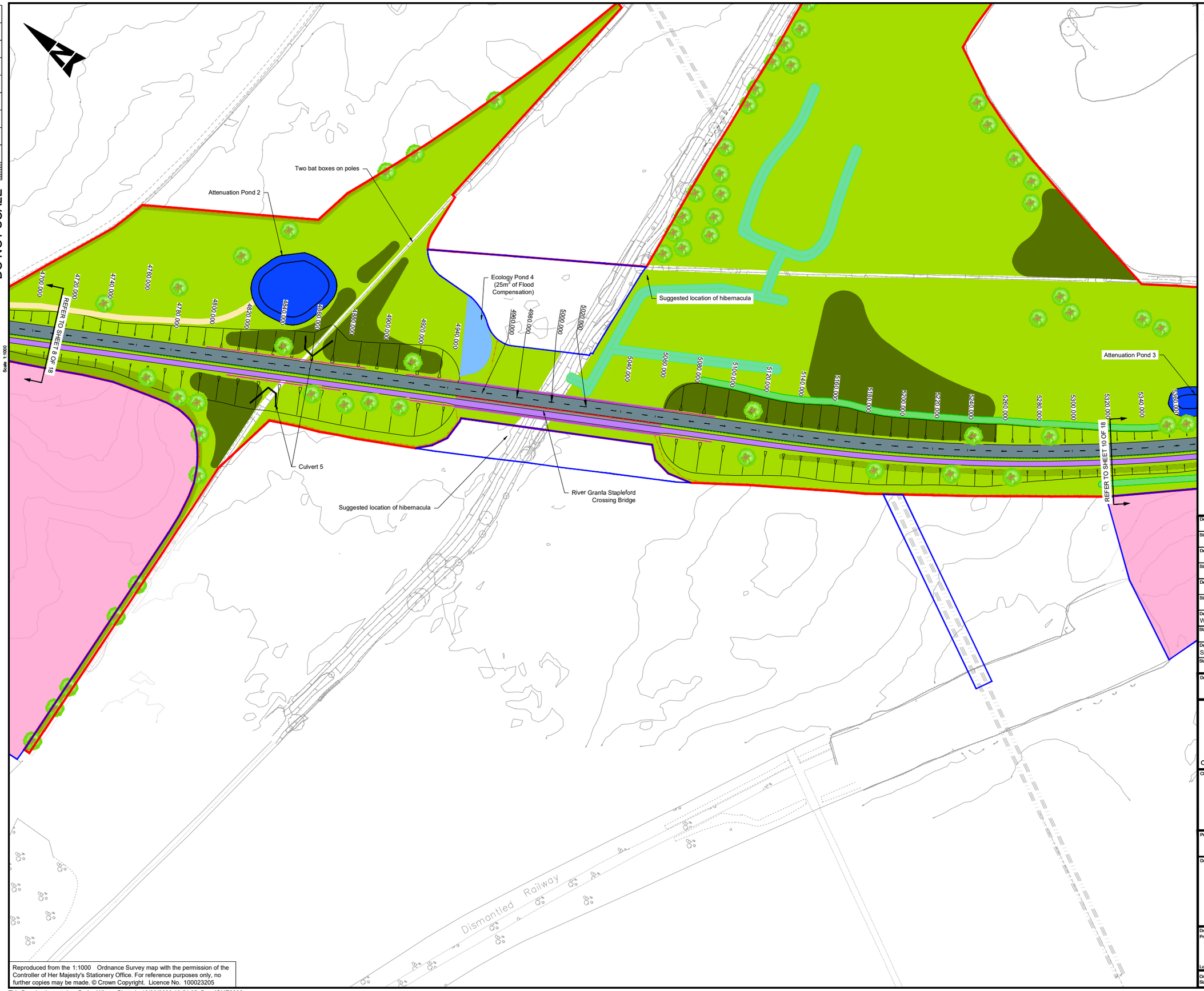

NOTES:

1. ALL DIMENSIONS ARE IN METRES UNLESS STATED OTHERWISE.
2. DO NOT SCALE FROM THIS DRAWING.
3. DRAWING TO BE PRINTED IN COLOUR.
4. PRELIMINARY ROUTE ALIGNMENT SHOWN IS BASED ON THE HIGHWAY DESIGN PRINCIPLES SETOUT IN THE DESIGN MANUAL FOR ROADS AND BRIDGES (DMRB). THESE DRAWINGS ARE SUBJECT TO FURTHER DETAILED DESIGN.
5. ALL STREET WORKS ARE SUBJECT TO STREET AUTHORITY APPROVAL.
6. A DESIGN SPEED REVIEW HAS BEEN UNDERTAKEN TO JUSTIFY THE DESIGN SPEEDS. PLEASE REFER TO TECHNICAL NOTE 5212868-ATK-HEN-WHL-AL_SCHEME-RP-CH-000001 FOR DETAILS.
7. FOR FULL SCHEME DETAILS PLEASE REFER TO DRAWING 5212868-ATK-HGN-WHL_AL_SCHME-DR-CH-000009.
8. FOR DETAILS OF THE STRUCTURES IN THIS DRAWING PLEASE REFER TO DRAWING 5212868-ATK-SGN-WHL_AL_SCHME-DR-CB-000007 AND 5212868-ATK-SGN-WHL_AL_SCHME-DR-CB-000003.

KEY:

- SPECIMEN TREE
- WOODLAND
- HEDGEROW
- WILDFLOWER MEADOW
- ACTIVE TRAVEL ROUTE
- PUBLIC TRANSPORT ROUTE (PTR)
- CARRIAGEWAY
- POND MAINTENANCE TRACK
- PERMANENT LAND TAKE
- TEMPORARY LAND TAKE
- KERBLINE
- TIMBER FENCING
- SWALES
- ATTENUATION PONDS
- 4M WIDE GATE
- VEHICLE RESTRAINT SYSTEM
- CULVERT
- EMBANKMENT FILL / CUTTING
- ECOLOGY POND
- TEMPORARY LAND REQUIRED FOR CONSTRUCTION TO BE RETURNED TO AGRICULTURAL USE

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Work in Progress	A1	C01	AH	RE	AH	GB	14/09/23
Second Issue	A1	C02	RE	US	AH	GB	19/09/23

Drawing Suitability: APPROVED - PUBLISHED — Status: A1

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Client: GREATER CAMBRIDGE PARTNERSHIP

Project Title: CSET PHASE 2

Drawing Title: Cambridge South East Transport Phase 2 TWAO Application Public Transport and Active Travel Corridor -Landscape Layout Sheet 9 of 18

Drawing Number: Project 5212868 - Originator ATK - Volume ELS - Location WHL_AL_SCHME - Type DR - Role LL - Number 000009

Original Size: A1 | Scale: 1:1000 | Project Ref. No.: 5212868 | Sheet: 9 of 18 | Rev: C02

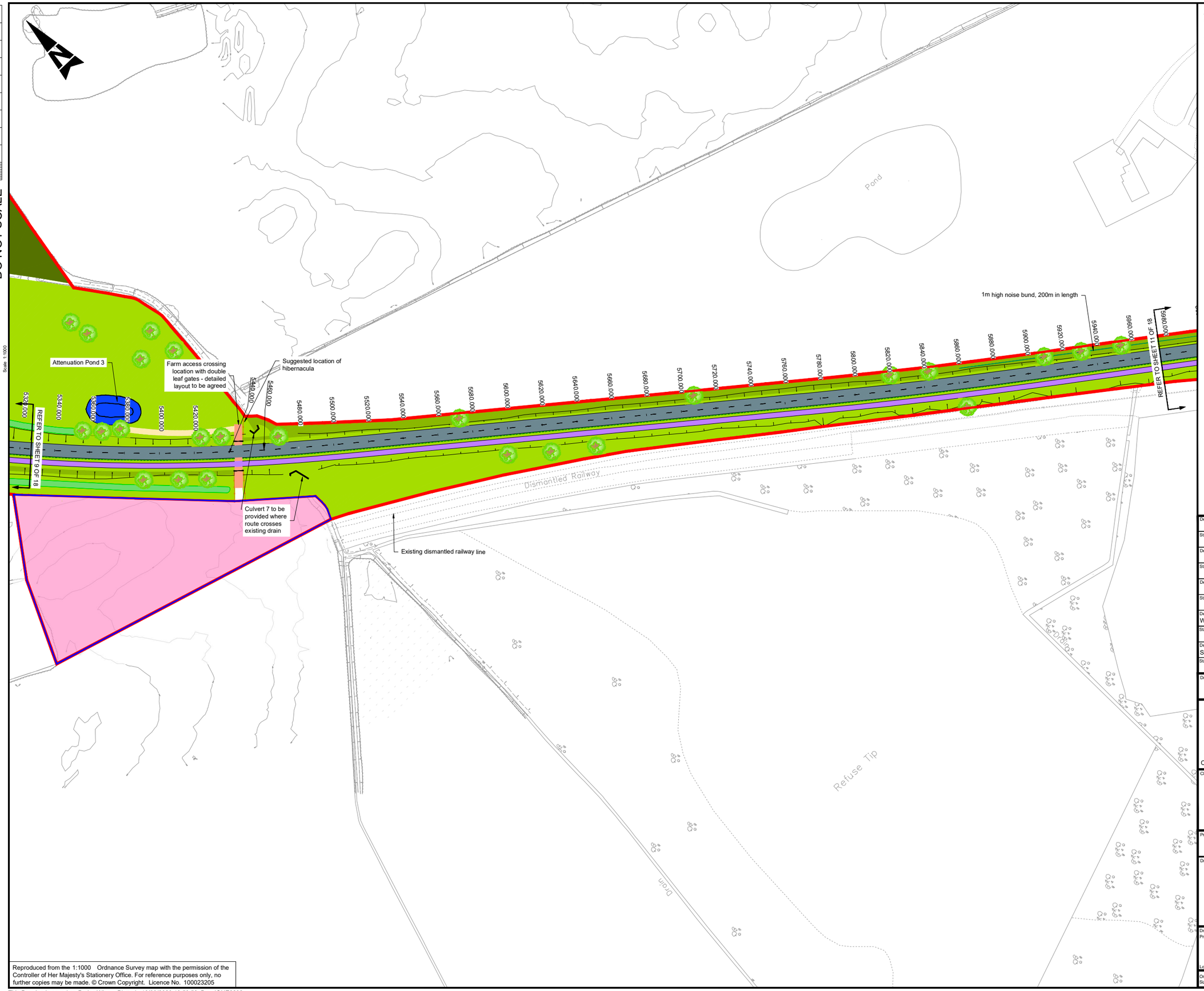
This Drawing is saved on ProjectWise. Plotted: 19/09/2023 13:54:08 By: JONE2282

Low

Millimetres 100 10 0

DO NOT SCALE

Scale 1:1000 10m 0m 10m 20m 30m 40m 50m 60m 70m



NOTES:

1. ALL DIMENSIONS ARE IN METRES UNLESS STATED OTHERWISE.
2. DO NOT SCALE FROM THIS DRAWING.
3. DRAWING TO BE PRINTED IN COLOUR.
4. PRELIMINARY ROUTE ALIGNMENT SHOWN IS BASED ON THE HIGHWAY DESIGN PRINCIPLES SETOUT IN THE DESIGN MANUAL FOR ROADS AND BRIDGES (DMRB). THESE DRAWINGS ARE SUBJECT TO FURTHER DETAILED DESIGN.
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7. FOR FULL SCHEME DETAILS PLEASE REFER TO DRAWING 5212868-ATK-HGN-WHL_AL_SCHME-DR-CH-000010.
8. FOR DETAILS OF THE STRUCTURES IN THIS DRAWING PLEASE REFER TO DRAWING 5212868-ATK-SGN-WHL_AL_SCHME-DR-CB-000008.

KEY:

- SPECIMEN TREE
- WOODLAND
- HEDGEROW
- WILDFLOWER MEADOW
- ACTIVE TRAVEL ROUTE
- PUBLIC TRANSPORT ROUTE (PTR)
- CARRIAGEWAY
- POND MAINTENANCE TRACK
- PERMANENT LAND TAKE
- TEMPORARY LAND TAKE
- KERBLINE
- TIMBER FENCING
- SWALES
- ATTENUATION PONDS
- 4M WIDE GATE
- CULVERT
- EMBANKMENT FILL / CUTTING
- TEMPORARY LAND REQUIRED FOR CONSTRUCTION TO BE RETURNED TO AGRICULTURAL USE

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Work in Progress	A1	C01	AH	RE	AH	GB	14/09/23
Second Issue	A1	C02	RE	US	AH	GB	19/09/23

Drawing Suitability: APPROVED - PUBLISHED

Status: A1

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www.atkinsglobal.com

Client: GREATER CAMBRIDGE PARTNERSHIP

Project Title: CSET PHASE 2

Drawing Title: Cambridge South East Transport Phase 2 TWAO Application Public Transport and Active Travel Corridor -Landscape Layout Sheet 10 of 18

Drawing Number: Project 5212868 - Originator ATK - Volume ELS - WHL_AL_SCHME - Type DR - Role LL - Number 000010

Location

Original Size: A1 | Scale: 1:1000 | Project Ref. No: 5212868 | Sheet: 10 of 18 | Rev: C02

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Low

DO NOT SCALE

Millimetres 100 10 0

Scale 1:1000 10m 0m 10m 20m 30m 40m 50m 60m 70m

Site compound required for construction

Access to both North Farm and fields to be maintained. Security gate / fencing to be considered at the detailed design stage

Location for Bat Hop-Over

Access to existing PROW to be maintained

REFER TO SHEET 10 OF 18

REFER TO SHEET 12 OF 18

5920.000 5940.000 5960.000 5980.000 6000.000 6020.000 6040.000 6060.000 6080.000 6100.000 6120.000 6140.000 6160.000 6180.000 6200.000 6220.000 6240.000 6260.000 6280.000 6300.000 6320.000 6340.000 6360.000 6380.000 6400.000 6420.000 6440.000 6460.000 6480.000 6500.000 6520.000 6540.000 6560.000 6580.000 6600.000

North Farm

Track

Tanks

Tank

Conveyor

Travelling Crane

El Sub Sta

WEST WAY

MIDDLE WAY

EAST WAY

GROVE ROAD

Dales Manor Business Park

Ashwell Point

FAIRFIELDS

Most

WAKELIN AVENUE

1.22m RH

NOTES:

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7. FOR FULL SCHEME DETAILS PLEASE REFER TO DRAWING 5212868-ATK-HGN-WHL_AL_SCHME-DR-CH-000011.

KEY:

- SPECIMEN TREE
- WOODLAND
- HEDGEROW
- WILDFLOWER MEADOW
- ACTIVE TRAVEL ROUTE
- PUBLIC TRANSPORT ROUTE (PTR)
- PRIVATE ACCESS ROAD
- TEMPORARY LAND REQUIRED FOR CONSTRUCTION TO BE RETURNED TO AGRICULTURAL USE
- PUBLIC RIGHT OF WAY TO BE RETAINED
- PERMANENT LAND TAKE
- TEMPORARY LAND TAKE
- KERBLINE
- TIMBER FENCING
- SWALES
- 4M WIDE GATE
- NOISE FENCING
- NOISE BUND
- EMBANKMENT FILL / CUTTING

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Work in Progress	A1	C01	AH	RE	AH	GB	14/09/23
Second Issue	A1	C02	RE	US	AH	GB	19/09/23

Drawing Suitability: APPROVED - PUBLISHED

Status: A1

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Client: GREATER CAMBRIDGE PARTNERSHIP

Project Title: CSET PHASE 2

Drawing Title: Cambridge South East Transport Phase 2 TWAO Application Public Transport and Active Travel Corridor -Landscape Layout Sheet 11 of 18

Drawing Number: Project 5212868 - Originator ATK - Volume ELS - Location WHL_AL_SCHME - Type DR - Role LL - Number 000011

Original Size: A1 | Scale: 1:1000 | Project Ref. No: 5212868 | Sheet: 11 of 18 | Rev: C02

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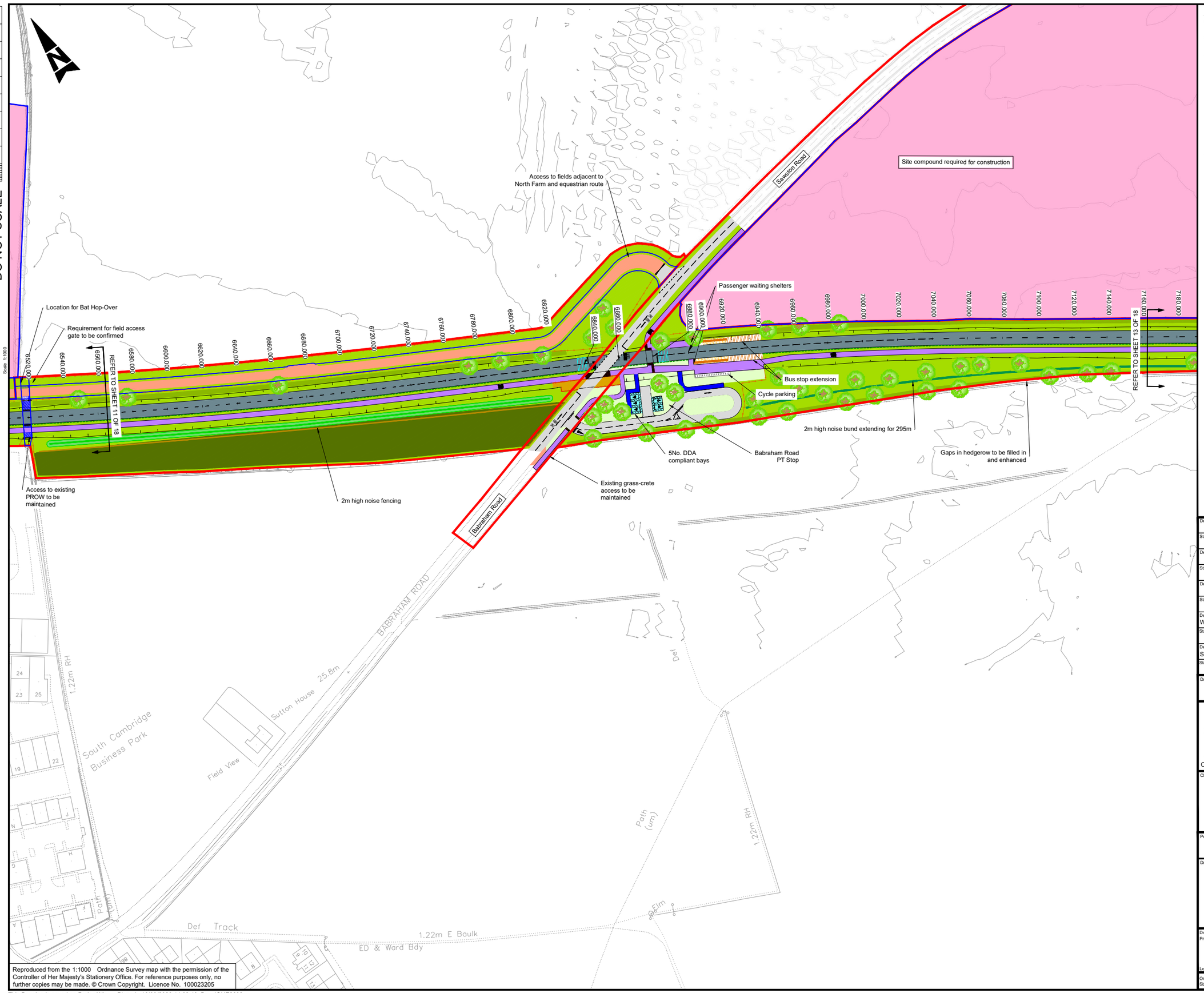

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7. FOR FULL SCHEME DETAILS PLEASE REFER TO DRAWING 5212868-ATK-HGN-WHL_AL_SCHME-DR-CH-000012.

KEY:

- SPECIMEN TREE
- WOODLAND
- HEDGEROW
- WILDFLOWER MEADOW
- AMENITY GRASS
- ACTIVE TRAVEL ROUTE
- PUBLIC TRANSPORT ROUTE (PTR)
- CARRIAGEWAY
- FOOTWAY
- PRIVATE ACCESS ROAD
- EQUESTRIAN CROSSING
- PERMANENT LAND TAKE
- TEMPORARY LAND TAKE
- KERBLINE
- TIMBER FENCING
- SWALES
- 4M WIDE GATE
- VEHICLE RESTRAINT SYSTEM
- EMBANKMENT FILL / CUTTING
- TEMPORARY LAND REQUIRED FOR CONSTRUCTION TO BE RETURNED TO AGRICULTURAL USE
- PUBLIC RIGHT OF WAY TO BE RETAINED
- NOISE FENCING
- NOISE BUND

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Work in Progress	A1	C01	AH	RE	AH	GB	14/09/23
Second Issue	A1	C02	RE	US	AH	GB	19/09/23

Drawing Suitability: APPROVED - PUBLISHED — Status: A1

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www.atkinsglobal.com

Client: GREATER CAMBRIDGE PARTNERSHIP

Project Title: CSET PHASE 2

Drawing Title: Cambridge South East Transport Phase 2 TWAO Application Public Transport and Active Travel Corridor -Landscape Layout Sheet 12 of 18

Drawing Number: Project 5212868 - Originator ATK - Volume ELS - WHL_AL_SCHME - Type DR - Role LL - Number 000012

Original Size:	Scale:	Project Ref. No:	Sheet:	Rev:
A1	1:1000	5212868	12 of 18	C02

This Drawing is saved on ProjectWise. Plotted: 19/09/2023 14:02:43 By: JONE2282

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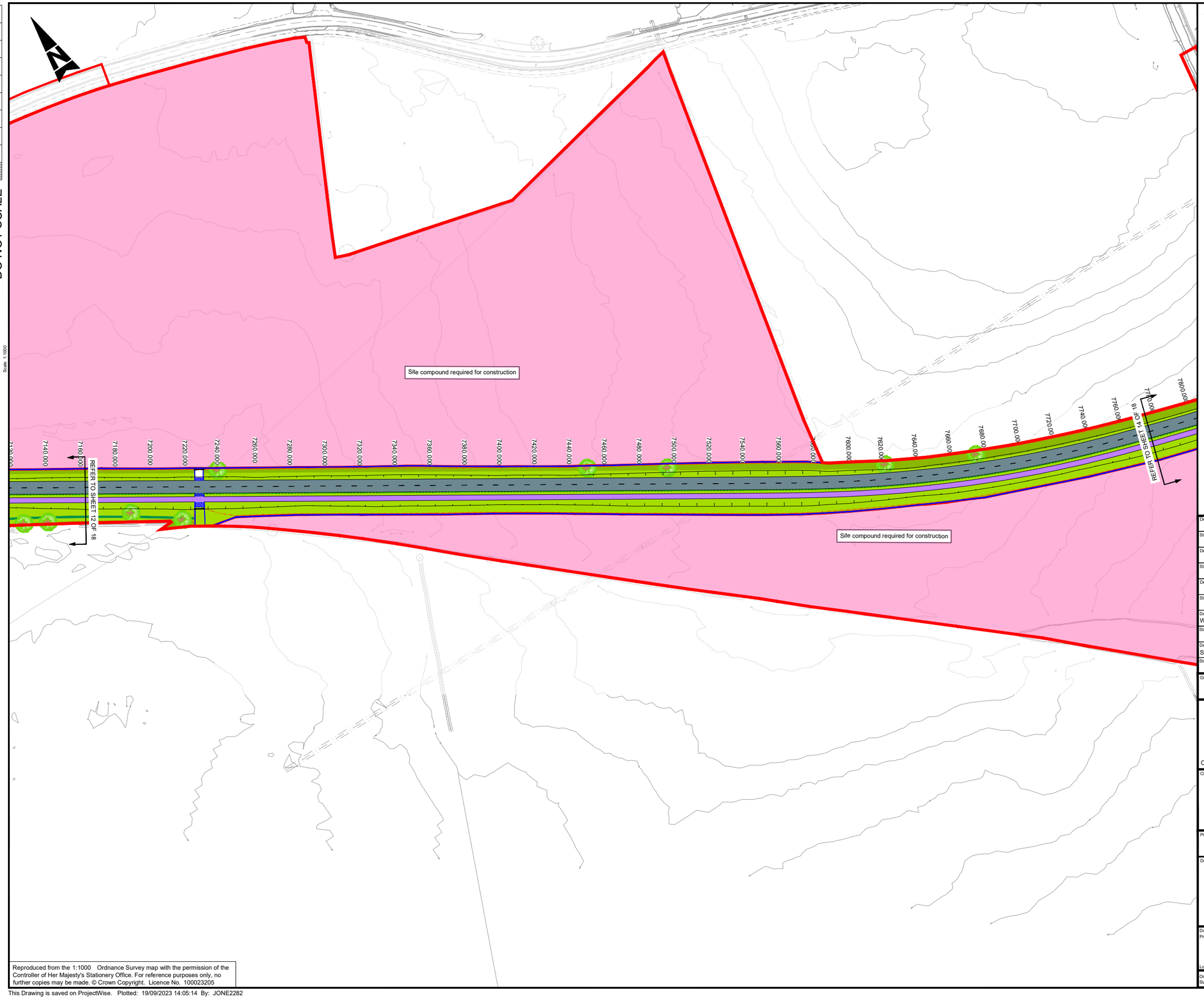

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7. FOR FULL SCHEME DETAILS PLEASE REFER TO DRAWING 5212868-ATK-HGN-WHL_AL_SCHME-DR-CH-000013.

KEY:

- SPECIMEN TREE
- HEDGEROW
- WILDFLOWER MEADOW
- ACTIVE TRAVEL ROUTE
- PUBLIC TRANSPORT ROUTE (PTR)
- PRIVATE ACCESS ROAD
- TEMPORARY LAND REQUIRED FOR CONSTRUCTION TO BE RETURNED TO AGRICULTURAL USE
- PUBLIC RIGHT OF WAY TO BE RETAINED
- NOISE BUND
- PERMANENT LAND TAKE
- TEMPORARY LAND TAKE
- KERBLINE
- TIMBER FENCING
- 4M WIDE GATE
- EMBANKMENT FILL / CUTTING

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Work in Progress	A1	C01	AH	RE	AH	GB	14/09/23
Second Issue	A1	C02	RE	US	AH	GB	19/09/23

Drawing Suitability: APPROVED - PUBLISHED

Status: A1

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Client: GREATER CAMBRIDGE PARTNERSHIP

Project Title: CSET PHASE 2

Drawing Title: Cambridge South East Transport Phase 2 TWAO Application Public Transport and Active Travel Corridor -Landscape Layout Sheet 13 of 18

Drawing Number

Project	Originator	Volume	Location	Type	Role	Number
5212868	ATK	ELS	WHL_AL_SCHME	DR	LL	000013

Original Size:	Scale:	Project Ref. No.	Sheet:	Rev:
A1	1:1000	5212868	13 of 18	C02

This Drawing is saved on ProjectWise. Plotted: 19/09/2023 14:05:14 By: JONE2282

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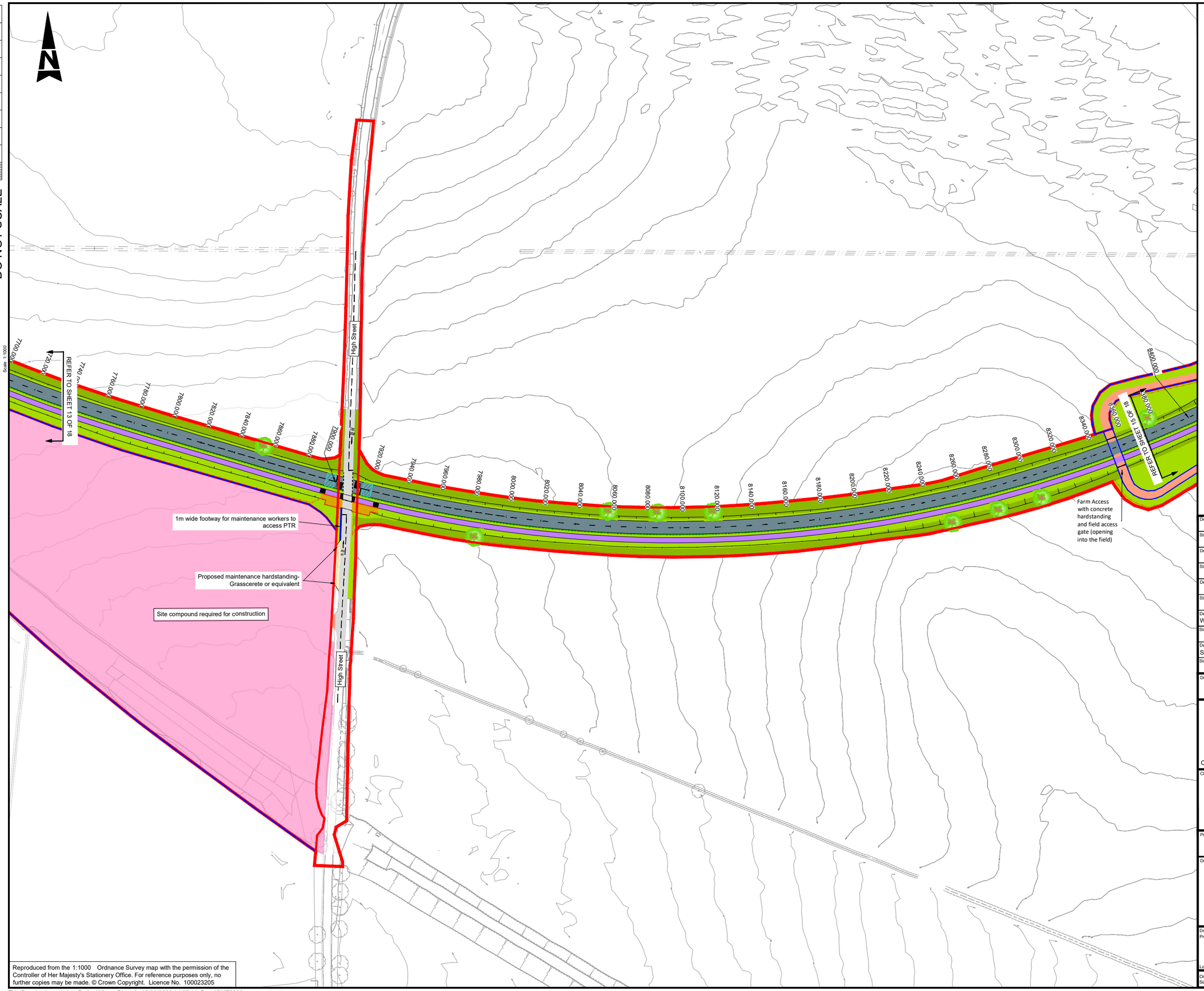

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7. FOR FULL SCHEME DETAILS PLEASE REFER TO DRAWING 5212868-ATK-HGN-WHL_AL_SCHME-DR-CH-000014.

KEY:

- SPECIMEN TREE
- HEDGEROW
- WILDFLOWER MEADOW
- HARDSTANDING
- ACTIVE TRAVEL ROUTE
- PUBLIC TRANSPORT ROUTE (PTR)
- PRIVATE ACCESS ROAD
- EQUESTRIAN CROSSING
- TEMPORARY LAND REQUIRED FOR CONSTRUCTION TO BE RETURNED TO AGRICULTURAL USE
- PERMANENT LAND TAKE
- TEMPORARY LAND TAKE
- KERBLINE
- TIMBER FENCING
- 4M WIDE GATE
- EMBANKMENT FILL / CUTTING

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Work in Progress	A1	C01	AH	RE	AH	GB	14/09/23
Second Issue	A1	C02	RE	US	AH	GB	19/09/23

Drawing Suitability: APPROVED - PUBLISHED — Status: A1

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www.atkinsglobal.com

Client: GREATER CAMBRIDGE PARTNERSHIP

Project Title: CSET PHASE 2

Drawing Title: Cambridge South East Transport Phase 2 TWAO Application Public Transport and Active Travel Corridor -Landscape Layout Sheet 14 of 18

Drawing Number: Project 5212868 - Originator ATK - Volume ELS - WHL_AL_SCHME - Type DR - Role LL - Number 000014

Location

Original Size: A1 | Scale: 1:1000 | Project Ref. No: 5212868 | Sheet: 14 of 18 | Rev: C02

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Low

Millimetres 100 10 0

DO NOT SCALE

Scale 1:1000 10m 0m 10m 20m 30m 40m 50m 60m 70m

N

River Mill Hole

Track

REFER TO SHEET 14 OF 18

REFER TO SHEET 16 OF 18

8220.000 8240.000 8260.000 8280.000 8300.000 8320.000 8340.000 8360.000 8380.000 8400.000 8420.000 8440.000 8460.000 8480.000 8500.000 8520.000 8540.000 8560.000 8580.000 8600.000 8620.000 8640.000 8660.000 8680.000 8700.000 8720.000 8740.000 8760.000 8780.000 8800.000 8820.000 8840.000 8860.000 8880.000 8900.000

Bat Hop-Over

Ecology Pond 6 (65m³ of Flood Compensation)

Ecology Pond 6 (65m³ of Flood Compensation)

River Granta Babraham crossing bridge

Farm Access with concrete hardstanding and field access gate (opening into the field)

Ecology Pond 5

Attenuation Pond 4

Suggested location of hibernacula

NOTES:

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8. FOR DETAILS OF THE STRUCTURES IN THIS DRAWING PLEASE REFER TO DRAWING 5212868-ATK-SGN-WHL_AL_SCHME-DR-CB-000009.

KEY:

- SPECIMEN TREE
- HEDGEROW
- WILDFLOWER MEADOW
- ENHANCED GRASS MARGINS
- ACTIVE TRAVEL ROUTE
- PUBLIC TRANSPORT ROUTE (PTR)
- PRIVATE ACCESS ROAD
- POND MAINTENANCE TRACK
- PERMANENT LAND TAKE
- TEMPORARY LAND TAKE
- KERBLINE
- TIMBER FENCING
- ATTENUATION PONDS
- 4M WIDE GATE
- VEHICLE RESTRAINT SYSTEM
- ECOLOGY POND

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Work in Progress	A1	C01	AH	RE	AH	GB	14/09/23
Second Issue	A1	C02	RE	US	AH	GB	19/09/23

Drawing Suitability: APPROVED - PUBLISHED

Status: A1

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www.atkinsglobal.com

Client: GREATER CAMBRIDGE PARTNERSHIP

Project Title: CSET PHASE 2

Drawing Title: Cambridge South East Transport Phase 2 TWAO Application Public Transport and Active Travel Corridor -Landscape Layout Sheet 15 of 18

Drawing Number: Project 5212868 - Originator ATK - Volume ELS - WHL_AL_SCHME - Type DR - Role LL - Number 000015

Location | Original Size: A1 | Scale: 1:1000 | Project Ref. No: 5212868 | Sheet: 15 of 18 | Rev: C02

This Drawing is saved on ProjectWise. Plotted: 19/09/2023 14:17:42 By: JONE2282

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DO NOT SCALE

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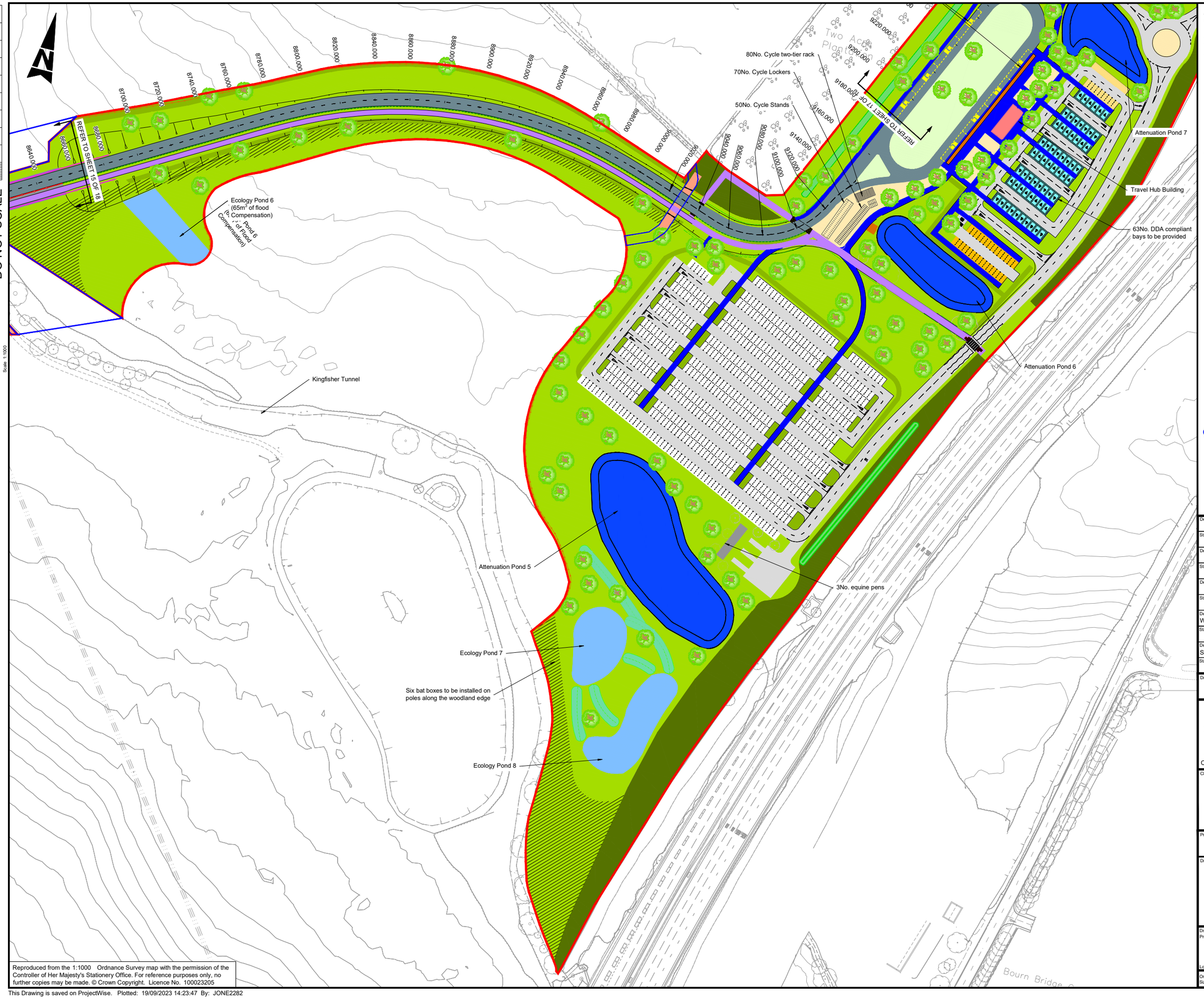

NOTES:

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7. FOR FULL SCHEME DETAILS PLEASE REFER TO DRAWING 5212868-ATK-HGN-WHL_AL_SCHME-DR-CH-000016.

KEY:

- SPECIMEN TREE
- WOODLAND
- HEDGEROW
- WILDFLOWER MEADOW
- ENHANCED GRASS MARGINS
- AMENITY GRASS
- ACTIVE TRAVEL ROUTE
- PUBLIC TRANSPORT ROUTE (PTR)
- CARRIAGEWAY
- FOOTWAY
- PRIVATE ACCESS ROAD
- HARDSTANDING
- PERMANENT LAND TAKE
- TEMPORARY LAND TAKE
- KERBLINE
- TIMBER FENCING
- SWALES
- ATTENUATION PONDS
- 4M WIDE GATE
- ECOLOGY POND

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Work in Progress	A1	C01	AH	RE	AH	GB	14/09/23
Second Issue	A1	C02	RE	US	AH	GB	19/09/23

Drawing Suitability: APPROVED - PUBLISHED — Status: A1

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www.atkinsglobal.com

Client: GREATER CAMBRIDGE PARTNERSHIP

Project Title: CSET PHASE 2

Drawing Title: Cambridge South East Transport Phase 2 TWAO Application Public Transport and Active Travel Corridor -Landscape Layout Sheet 16 of 18

Drawing Number: Project 5212868 - Originator ATK - Volume ELS - WHL_AL_SCHME - Type DR - Role LL - Number 000016

Location

Original Size: A1 | Scale: 1:1000 | Project Ref. No: 5212868 | Sheet: 16 of 18 | Rev: C02

This Drawing is saved on ProjectWise. Plotted: 19/09/2023 14:23:47 By: JONE2282

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DO NOT SCALE

Millimetres 100 0 10

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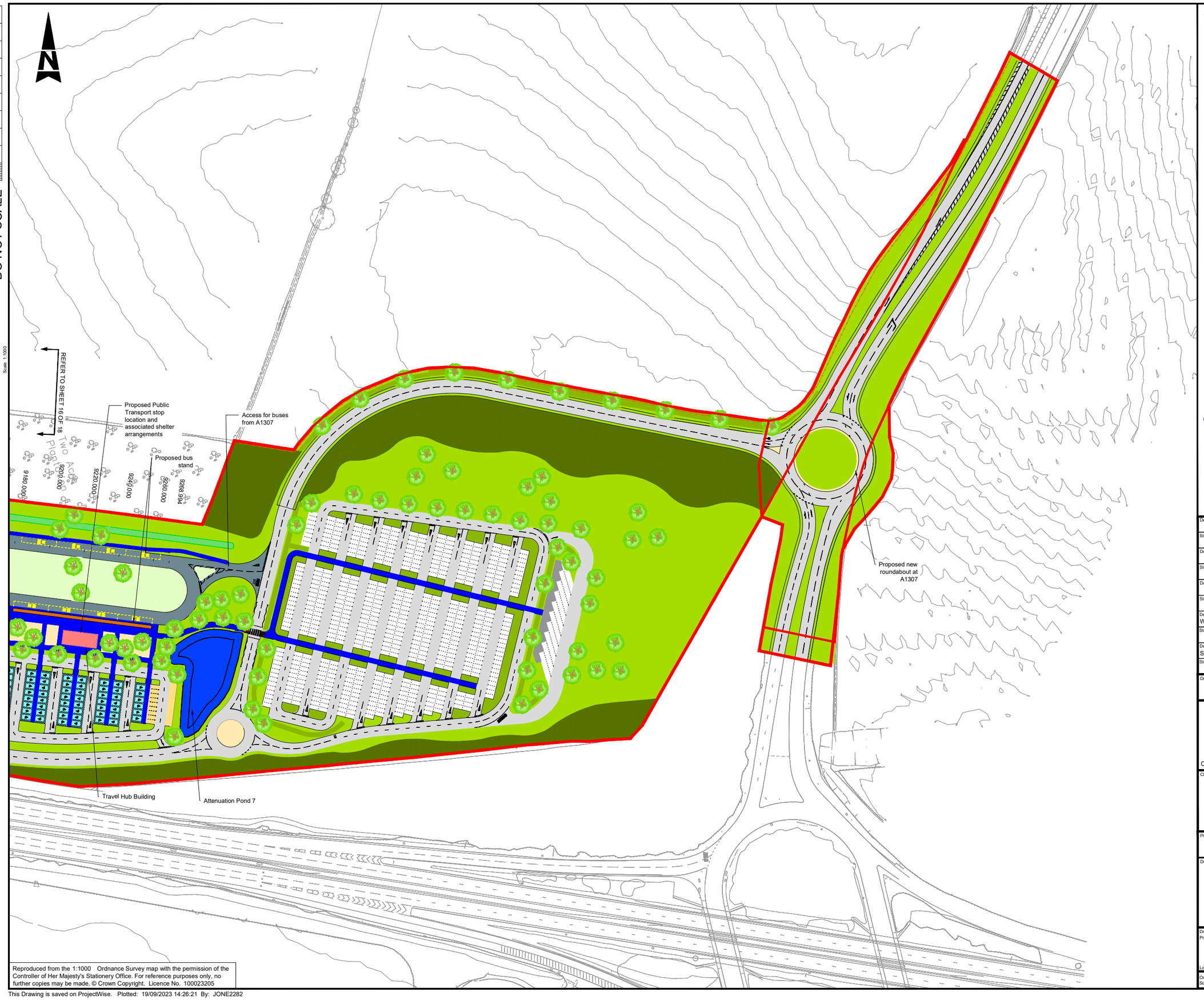

NOTES:

1. ALL DIMENSIONS ARE IN METRES UNLESS STATED OTHERWISE.
2. DO NOT SCALE FROM THIS DRAWING.
3. DRAWING TO BE PRINTED IN COLOUR.
4. PRELIMINARY ROUTE ALIGNMENT SHOWN IS BASED ON THE HIGHWAY DESIGN PRINCIPLES SETOUT IN THE DESIGN MANUAL FOR ROADS AND BRIDGES (DMRB). THESE DRAWINGS ARE SUBJECT TO FURTHER DETAILED DESIGN.
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7. FOR FULL SCHEME DETAILS PLEASE REFER TO DRAWING 5212868-ATK-HGN-WHL_AL_SCHME-DR-CH-000017.

KEY:

- SPECIMEN TREE
- WOODLAND
- HEDGEROW
- WILDFLOWER MEADOW
- AMENITY GRASS
- ACTIVE TRAVEL ROUTE
- PUBLIC TRANSPORT ROUTE (PTR)
- CARRIAGEWAY
- FOOTWAY
- PRIVATE ACCESS ROAD
- HARDSTANDING
- PERMANENT LAND TAKE
- TEMPORARY LAND TAKE
- KERBLINE
- TIMBER FENCING
- SWALES
- ATTENUATION PONDS

Description

Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date

Description

Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date

Description

Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date

Description

Work in Progress

Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
A1	C01	AH	RE	AH	GB	14/09/23

Description

Second Issue

Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
A1	C02	RE	US	AH	GB	19/09/23

Drawing Suitability: APPROVED - PUBLISHED — Status: A1

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Client: GREATER CAMBRIDGE PARTNERSHIP

Project Title: CSET PHASE 2

Drawing Title:

Cambridge South East Transport Phase 2
TWAO Application Public Transport and Active Travel Corridor -Landscape Layout
Sheet 17 of 18

Drawing Number

Project	Originator	Volume				
5212868	- ATK	- ELS	-			
WHL_AL_SCHME	- DR	- LL	- 000017			
Location		Type	Role	Number		

Original Size:	Scale:	Project Ref. No:	Sheet:	Rev:
A1	1:1000	5212868	17 of 18	C02

This Drawing is saved on ProjectWise. Plotted: 19/09/2023 14:26:21 By: JONE2282

Low

DO NOT SCALE

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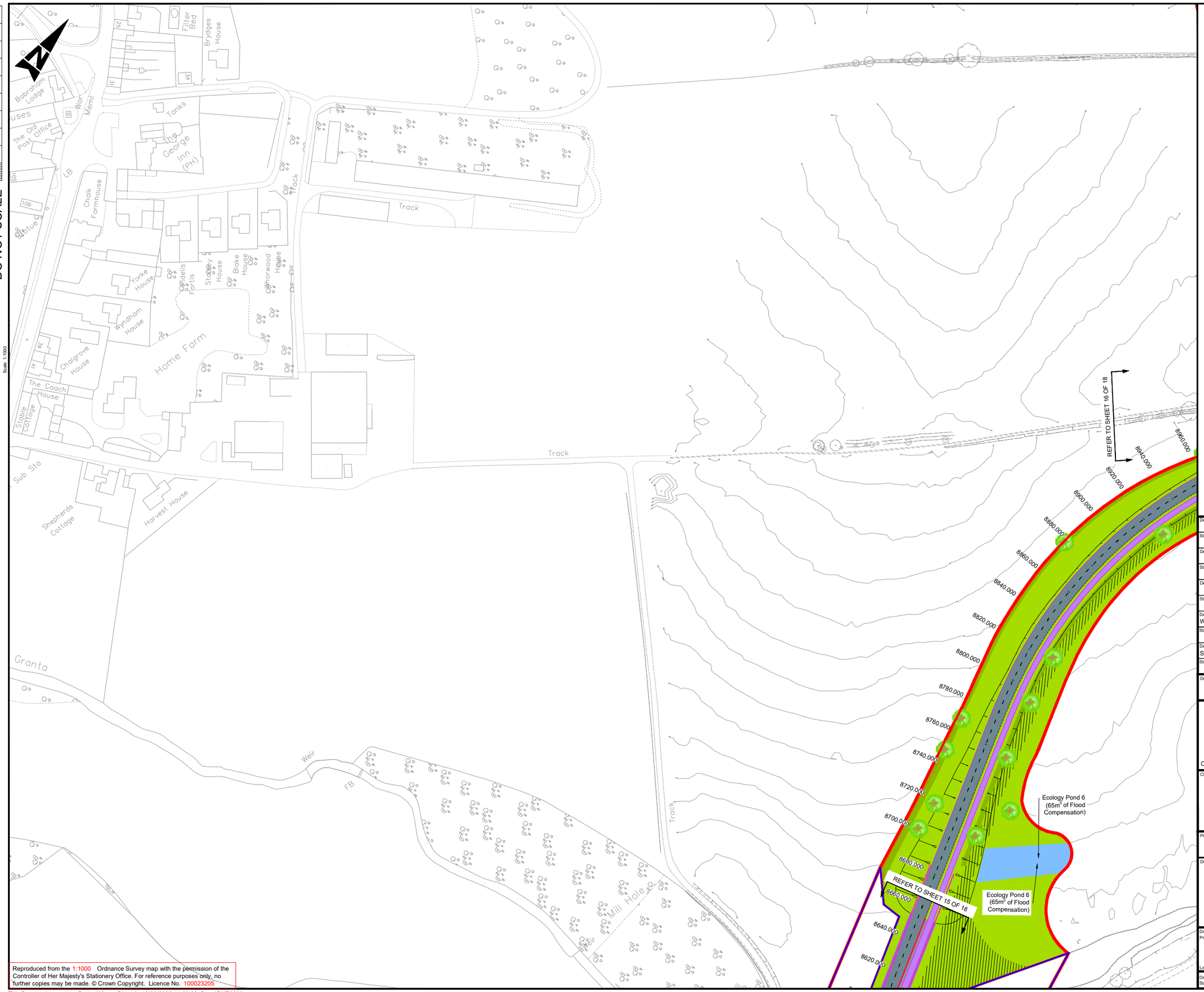

NOTES:

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7. FOR FULL SCHEME DETAILS PLEASE REFER TO DRAWING 5212868-ATK-HGN-WHL_AL_SCHME-DR-CH-000018.

KEY:

- SPECIMEN TREE
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- ENHANCED GRASS MARGINS
- ACTIVE TRAVEL ROUTE
- PUBLIC TRANSPORT ROUTE (PTR)
- PERMANENT LAND TAKE
- TEMPORARY LAND TAKE
- KERBLINE
- TIMBER FENCING
- EMBANKMENT FILL / CUTTING
- ECOLOGY POND

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Work in Progress	A1	C01	AH	RE	AH	GB	14/09/23
Second Issue	A1	C02	RE	US	AH	GB	19/09/23

Drawing Suitability: APPROVED - PUBLISHED — Status: A1

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Client: GREATER CAMBRIDGE PARTNERSHIP

Project Title: CSET PHASE 2

Drawing Title: Cambridge South East Transport Phase 2 TWAO Application Public Transport and Active Travel Corridor -Landscape Layout Sheet 18 of 18

Drawing Number: Project 5212868 - Originator ATK - Volume ELS - Location WHL_AL_SCHME - Type DR - Role LL - Number 000018

Original Size: A1 | Scale: 1:1000 | Project Ref. No.: 5212868 | Sheet: 18 of 18 | Rev: C02

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