

create valuable wetland habitats for notable and protected species. These features will include swales and lined attenuation ponds for the eastern portion of the Scheme.

- 3.2.17. The SuDS features should be appropriately enhanced to increase their ecological value and subsequently benefit wildlife. Section 3.4 provides enhancement measures for SuDS features.

## **SPECIES-SPECIFIC MITIGATION**

### **Bat Foraging and Commuting**

- 3.2.18. An appropriate lighting strategy will be created for the Application Site as discussed above. In particular, the lighting strategy will require that new permanent lighting is the minimum required and will avoid light spill directly onto retained and newly created ecological features (e.g. hedgerows and woodland) within the Scheme.

- 3.2.19. Bat activity surveys within the Application Site the PRow (Footpath 318) as being sensitive areas for rare bat species, including barbastelle bat. As such, no lighting will be placed within a 15m buffer of the PRow.

### **Bat Roosting**

- 3.2.20. To mitigate for the loss of roosting opportunities across the Application Site, and to enable future monitoring, new roosting opportunities in the form of bat boxes will be installed on retained mature trees in suitable locations, either within the Application Site itself, or within nearby land under the ownership of WSCC.
- 3.2.21. The number of bat boxes installed will at least replicate the number of Potential Roost Features (PRFs) lost from the six moderate/high potential trees (12 PRFs in total), with another five additional PRFs provided as an enhancement measure. Bat boxes should be targeted towards species likely to use the Survey Area, namely tree/woodland dwelling species such as common pipistrelle or noctule. Indicative designs to be included in the mitigation include:
- 2F Schwegler Bat Box – for general purpose;
  - 2FN Schwegler Bat Box – suited to noctule roosting requirements;
  - 1FF Schwegler Bat Box – for general purpose and maternity colonies; and
  - 1FW Bat Hibernation Box – for hibernation.
- 3.2.22. Bat boxes should be installed on mature trees at approximately 4 metres above the ground and placed in a range of locations at slightly different heights and facing in slightly different directions to give a choice of roost site options (Mitchell-Jones, 2004). The direction of the boxes should be selected to avoid facing them into the prevailing weather and will preferably be positioned facing in a southerly direction (i.e. south-west through south to south-east) where they will receive a good degree of sunlight. Bat boxes should be installed in positions where they are out of reach of people from the ground and high enough to deter cats and other predators.
- 3.2.23. Recommended locations for bat box installation include retained orchard and woodland habitat within habitat immediately south of the west of the Application Site as well as along the retained and dark corridor of the PRow (Footpath 318).

## Badger

- 3.2.24. As the use of the Application Site by badgers will likely change over time, with some setts likely to become inactive and new setts likely to be created, a walkover survey will be undertaken prior to commencement of works, and the licence application being submitted.
- 3.2.25. It will be necessary to close the setts under a licence from Natural England. These licences are typically only issued for activities affecting setts to occur between 1st July and 30th November inclusive, in order to avoid the badger breeding season. A suitable mitigation strategy will need to be in place to obtain the licence and is likely to include the installation of one-way badger gates, kept in place for a minimum of 21 days, monitoring of the sett for signs of badgers entering or leaving the sett and destruction of the sett once badgers are excluded to reduce the risk of badgers re-occupying the sett. The area will also be secured against re-entry by badgers by using heavy-gauge chain link fencing.
- 3.2.26. As one of the setts to be lost is a main sett, it will be necessary to install an artificial sett, which will need to be proven to have been occupied by badgers, prior to the closure of their main sett. A preliminary design has been discussed with Natural England through the discretionary advice service, with final design to be refined during the application of the Natural England sett closure licence. This artificial sett is currently scheduled for construction later in 2020 and should be installed at least six months prior to sett closure.
- 3.2.27. Permanent badger fencing will be installed either side of the new road, with an underpass located to the west of the Scheme, close to the current main sett to allow badgers to forage on either side of the road and therefore reducing the risk of vehicle collision. The fencing design will be refined during the application for the sett closure licence, however will be dug deep to prevent badgers tunnelling underneath and also designed to persuade badgers to utilise the underpass.

## Birds

- 3.2.28. To mitigate for the loss of nesting opportunities across the Application Site, at least six bird boxes will be installed in suitable locations within retained habitat.
- 3.2.29. Bird boxes designs should reflect the nesting requirements for species known to use the Scheme and that are local conservation priorities such as house sparrow *Passer domesticus* and starling *Sturnus vulgaris*, as well as common and widespread woodland species. Box dimensions and placement should be tailored to the target species. Indicative designs to be included in the mitigation include:
- 1B Schwegler Nest Box – cavity nest box;
  - 2H Schwegler Robin Box – open fronted box;
  - CedarPlus Triple Sparrow House– for sparrow species; and
  - 3S Schwegler Starling Nest Box– for use by starling and other cavity nesters.
- 3.2.30. In general, boxes should be installed on mature trees 2-4m high and placed to avoid strong sunlight and the wettest winds (usually north to east, depending on the shade level), and the entrance should face slightly downwards to protect from the rain. Boxes should have a clear flight path on the approach and be relatively undisturbed.
- 3.2.31. Indicatively the boxes should be placed within retained woodland and orchard habitat to the south of the Application Site, or within the retained PRow (Footpath 318).

## Reptiles

- 3.2.32. To mitigate for the loss of reptile refuge across the Application Site, at least six refugia/hibernacula will be installed in suitable locations within retained habitat.
- 3.2.33. Refugia piles should be installed within retained grasslands on the edge of scrub habitat. They should be built in line with the Reptile Habitat Management Handbook (Edgar, Foster and Baker 2010), and include brush and log piles to create cover, provide additional structure to existing habitat and enhance prey availability.
- 3.2.34. It is recommended that at least one of the refugia piles also functions as a hibernacula. This hibernacula should also be built in line with the Reptile Habitat Management Handbook (Edgar, Foster and Baker 2010), to provide hibernation opportunities throughout the winter season.

## Invertebrates

- 3.2.35. Dead wood will be retained within woodland habitats where possible to mitigate for the loss of suitable stag beetle habitat. The deadwood should be retained in line with Buglife guidance (Buglife 2011), by leaving standing deadwood in situ, creating log piles and leaving fallen deadwood on the ground.
- 3.2.36. Log piles created as reptile refugia will also serve as invertebrate habitat. These should be placed in grassland and scrub habitats, within sunny positions to benefit invertebrate species.

## 3.3 CONSTRUCTION MEASURES

- 3.3.1. The following measures are recommended during the construction phase of the Scheme to ensure the avoidance and reduction of killing/injury of notable and protected species as well as the protection of retained habitats. This section should be read alongside the CEMP.

### GENERAL CONSTRUCTION MEASURES

- 3.3.2. General environmental protection measures must be implemented during the construction phase of the Scheme as included within the CEMP. Such measures include best environmental practice guidance outlined in the Government's Pollution prevention for businesses (DEFRA, 2019) and those outlined by the Construction Industry Research and Information Association guidance (CIRIA, 2015). The following minimum standards must be adhered to prevent negative ecological effects beyond the Scheme boundary:
- Measures must be taken to prevent dust and other emissions from construction affecting the retained habitats and land beyond the Scheme.
  - Chemicals and fuels must be stored in secure containers located away from watercourses or water bodies. Spill kits must be available.
  - Implementation of a construction-phase drainage strategy to intercept, capture and attenuate surface water runoff.
  - Excavations must be covered or securely fenced (with no potential access points beneath fencing) when the construction site is closed (e.g. overnight) to prevent entrapment of animals, specifically badgers.
  - Retained trees and hedgerow must be protected in accordance with British Standard BS5837:2012 Trees in Relation to Construction, including the erection of robust protective fencing encompassing root protection areas.

- Noise and vibration must be controlled and kept to the minimum necessary, especially with regard to working in close proximity to known active badger setts.
- Lighting used for construction must be kept to a minimum and switched-off when not in use.
- Lighting should be positioned so as not to spill on to adjacent land or retained vegetation within the Scheme.
- Night works should be avoided where possible to reduce lighting of sensitive habitats and disturbance to species.

## **SPECIES SPECIFIC CONSTRUCTION MEASURES**

### **Badger**

- 3.3.3. Badgers use the wider area for foraging and commuting purposes and therefore measures need to be put in place during the construction phase to minimise effects upon badger movement and foraging activity. These will include measures such as:
- fencing dangerous areas of the construction site (e.g. deep excavations) or providing a means of egress from shallow excavations;
  - avoidance of storage of plant and materials on areas of potential foraging habitat (e.g. retained grassland);
  - noise reduction measures during construction;
  - avoidance of night works, unless specifically required, to avoid disturbance by artificial lighting; and
  - where required use of lighting hoods, cowls or shields to avoid light spill onto setts or badger paths.
- 3.3.4. For setts that are located outside the Scheme extent, to ensure they are not affected by the works, a 30m buffer around each sett in which no construction activities can take place will be clearly marked.

### **Bats**

- 3.3.5. All retained trees will be protected in accordance with British Standard BS5837:2012 Trees in Relation to Construction, including the erection of robust protective fencing encompassing root protection areas.
- 3.3.6. To avoid disturbance to retained trees and buildings with suitability to support roosting bats, the CEMP will include best practice construction measures to minimise the effects of noise pollution, dust and air pollution and visual intrusion during construction, as above.
- 3.3.7. Lighting during the construction phase will be kept to a minimum to avoid light spillage on retained habitat that bats will use for foraging and commuting purposes, in line with the measures outlined above.
- 3.3.8. Prior to tree removal, as bats may use PRFs on a transient basis and there will be at least a 12-month time lapse between the most recent surveys (2019) and construction commencing, an updated ground level inspection will be completed to confirm the level of potential for bat roosts to be present. This is to ensure that mitigation is appropriate and based on information current at the time of works. The following approach will then be taken:
- Trees assessed as having low potential to support bat roosts will be soft-felled by suitably qualified arborists, following an at-height inspection of any potential roost features to confirm the absence of roosting bats (and evidence of roosting bats). Contractors with basic bat awareness

should be employed and guidance within British Standard BS8596:2015 Surveying for Bats in Trees and Woodland should be adhered to. In addition, where it is not possible to thoroughly assess PRFs, sectional soft felling methods should be used to remove those features. This involves lowering the whole section of branch with the PRF to the ground, not cross-cutting or fracturing it. The PRF section should then be placed in a suitable location (e.g. within retained woodland) and should be left overnight, with the PRF facing upwards, with free routes of dispersal, for any bats to disperse naturally. As the trees are not likely to offer hibernation potential to bats, felling works should be undertaken in the winter (November – March depending on weather conditions) where possible, when bats can reasonably be assumed to be absent.

- Trees assessed as having moderate or high potential to support bat roosts will be subject to a climbing inspection to enable a thorough assessment of potential and to search for evidence indicating the presence of roosting bats. If at this stage the potential is downgraded to low, the trees will be soft felled by suitably qualified arborists as above.
- In the event that the presence of a bat roost is highlighted at this stage, the requirement for works affecting the roost would be reconsidered to identify whether adverse effects can be avoided. Where possible, in this scenario proposals would be updated to enable retention and protection of the bat roost. In the event that retention is not possible, a licence would be sought from Natural England to permit works to proceed, the licence application would be subject to a detailed method statement.

- 3.3.9. If it is not possible to avoid disturbance effects to Building B5 via careful timing of works, then it may be necessary to obtain a licence from Natural England to permit works to proceed, which would be subject to a detailed method statement. As Building B5 has been assessed as having negligible potential to support hibernating bats, avoidance of impacts would include timing the works to take place between November – February (weather dependent) when bats are likely absent from the roost.
- 3.3.10. In the unlikely event that any bats are encountered or PRF's of moderate/ high suitability for supporting roosting bats are identified during the construction phase, felling works should cease and further professional ecological advice should be sought.

### **Birds**

- 3.3.11. Suitable bird nesting habitat clearance should be undertaken outside of the bird nesting season (indicatively March to September). Where clearance of habitat is not possible outside of the breeding bird season, all areas to be affected will be checked for evidence of nesting birds by an ecologist. The check will be undertaken a maximum of 24 hours prior to the vegetation removal taking place.
- 3.3.12. If any active bird nests are discovered these will be cordoned off with a buffer of at least 5m (this may increase depending on species, proposed works and location) where no potentially disturbing works will take place. The buffer will remain in place until the young have fledged and the nest vacated. Upon fledging, a second nesting bird check would then be undertaken to ensure the vegetation does not contain any further active nests prior to felling or removal works taking place.

### **Small Mammals, Reptiles and Amphibians**

- 3.3.13. Should the removal of any rubble, brash or log piles be required as part of the Scheme then a precautionary methods of work (PMoW) should be employed. This is to ensure compliance with

legislation and planning policy regarding small mammals (including hedgehog), common reptile species and amphibian species listed as NERC priority species.

- 3.3.14. It is advised that all areas of suitable habitat will be treated as potentially supporting reptiles. In all areas of suitable habitat, mitigation will entail the clearance of vegetation outside of the sensitive hibernation season (indicatively November-February inclusive, but weather dependent). Where tall herbaceous vegetation is cleared during the active season for reptiles, then it will be undertaken in two stages over at least two consecutive days and include an initial cut down to 150mm, with the second cut reducing vegetation as close as possible down to ground level in order to progressively render habitat unsuitable for reptiles. Any refugia will be dismantled by hand with all works undertaken under the supervision of a suitably qualified ecologist to minimise the risk of killing or injury to reptiles. Works will be temporarily halted if individual animals are encountered to allow the animal to disperse from the work site.

## 3.4 ECOLOGICAL ENHANCEMENT

### HABITAT CREATION

- 3.4.1. In accordance with national and local planning policy, the Scheme should aim to enhance retained habitats. The landscape strategy will ensure that a variety of habitats will be created including for a diverse species mix. In addition to this the following measures should be considered:
- Inclusion of nectar-rich plant species in soft landscaping areas that are attractive to night-flying insects to enhance foraging opportunities for bats (BCT 2015). For example, these could include oxeye daisy *Leucanthemum vulgare*, knapweed *Centaurea nigra*, primrose *Primula vulgaris*, common mallow *Malva neglecta*, wild marjoram *Origanum vulgare* and wild thyme *Thymus polytrichus*.
  - Creation of refugia/hibernacula - habitat, brash or rubble piles installed in landscaped areas in order to provide refuge and hibernation opportunities small mammals such as hedgehog.
  - Purpose built invertebrate “hotels” could be installed in landscaped areas to provide refuge for specific taxonomic groups, i.e. provision of nesting boxes for solitary bees.
  - Standing water to be incorporated within the SuDs features should provide a permanent source of water for species such as badger, hedgehog, birds, amphibians and invertebrates, where drainage conditions allow. This should incorporate varying depths and slopes within the standing water to provide varying water depths and conditions. A suitable planting regime should also be used, comprising a native species rich mix of submerged, emergent and marginal vegetation to promote aquatic floristic diversity. The swales/ species-rich wet grassland should be planted with an appropriate mix of native marshy grassland species.

## 4 CONCLUSION

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- 4.1.1. This mitigation strategy provides a summary of the ecological baseline for the Scheme. As supported by ecological survey and desk study data, the habitats within the Scheme are considered suitable to support:
- bats (foraging, commuting and roosting);
  - badgers;
  - other small mammals;
  - wintering birds;
  - breeding birds;
  - reptiles; and
  - invertebrates.
- 4.1.2. Ecological mitigation measures required to fulfil legislation and local/national planning policy are outlined. These include:
- a detailed landscape strategy that promotes habitat diversity and with the aim to achieve 10% Biodiversity Net Gain (BNG);
  - a drainage strategy that promotes habitat diversity;
  - a lighting strategy sensitive to ecological features such as foraging and commuting bats;
  - further ecological enhancement measures including bird boxes, bat boxes and habitat features for small mammals, amphibians and invertebrates; and
  - construction measures to avoid the damage/disturbance to notable habitats and killing/injury of notable and protected species.

## 5 REFERENCES

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### PROJECT REFERENCES

- WSP (2019a). A29 Realignment. Bat Report.
- WSP (2019b). A29 Realignment. Badger Report.
- WSP (2019c). A29 Realignment. Hazel Dormouse Report.
- WSP (2019d). A29 Realignment. Breeding Bird Report.
- WSP (2019e). A29 Realignment. Wintering Bird Report.
- WSP (2019f). A29 Realignment. Reptile Report.
- WSP (2019g). A29 Realignment. Great Crested Newt Report.
- WSP (2019h). A29 Realignment. Invertebrate Report.
- WSP (2019i). A29 Realignment. Habitat Regulations Screening Assessment.
- Capita (2020). Surface Water Drainage Strategy (SWDS).
- WSP (2020a). A29 Realignment. Construction Environmental Management Plan.
- WSP (2020b). A29 Realignment. Environmental Statement.
- WSP (2020c). A29 Realignment. Preliminary Ecological Appraisal Report.
- WSP (2020d). A29 Realignment. Environmental Statement. Chapter 10 Landscape and Visual.
- WSP (2020e). A29 Realignment. Biodiversity Net Gain Assessment.
- WSP (2020f). A29 Realignment Landscape Maintenance and Management Plan.
- WSP (2020g). A29 Realignment. Lighting Assessment Report.
- WSP (2020h). A29 Realignment. Environmental Statement. Chapter 11 Water Resources and Flood Risk.
- WSP (2020i). A29 Realignment. Flood Risk Assessment.

### TECHNICAL REFERENCES

- Arun District Council (2018). Adoption Arun Local Plan 2011-2031
- Bat Conservation Trust (BCT) (2015). Encouraging bats. A guide for bat-friendly gardening and living.
- Bat Conservation Trust (2017a). National Bat Monitoring Programme Population Trends | The state of the UK's bats 2017.
- Bat Conservation Trust (2017b). National Bat Monitoring. Annual report 2017.
- British Standards Institution (2012). BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations. BSI, London.
- BSI (2013). Biodiversity code of practice for planning and development: BS42020. BSI. London.
- Buglife (2011). Scottish Invertebrate Habitat Management: Deadwood. Buglife – The Invertebrate Conservation Trust.
- CIEEM (2019). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine.
- CIEEM, CIRIA & IEMA. (2016). Biodiversity Net Gain: Good practice principles for development.
- Collins J. (ed.) (2016). Bat Surveys for Professional Ecologists, Good Practice Guidelines (3rd Edition). The Bat Conservation Trust, London.
- Department for Environment, Food and Rural Affairs (2011). A strategy for England's wildlife and ecosystem services. DEFRA, London.
- Edgar, P., Foster, J. and Baker, J. (2010). Reptile Habitat Management Handbook. Amphibian and Reptile Conservation, Bournemouth.



- HMSO (Her Majesty's Stationary Office) (1981). Wildlife and Countryside Act (as amended by the Countryside and Rights of Way Act 2000). HMSO, Norwich.
- HMSO (1992). The Protection of Badgers Act. (The Badgers Act), HMSO, London.
- HMSO (1996). The Wild Mammals (Protection) Act. HMSO, London.
- HMSO (1997). The Hedgerows Regulations, SI 1997/1160. HMSO, London.
- HMSO (2006). Natural Environment and Rural Communities Act. HMSO, Norwich.
- HMSO (2017). The Conservation of Habitats and Species Regulations 2017 as amended (the Habitat Regulations), HMSO, Norwich.
- Institution of Lighting Professionals (IPL) (2018). Guidance Note 8 Bats and artificial lighting.
- JNCC Biodiversity Reporting and Information Group (2008). UK Biodiversity Action Plan
- JNCC and DEFRA (2012). UK Post 2010 Biodiversity Framework. Available online: <http://jncc.defra.gov.uk/page-6189>. [Accessed July 2014].
- Ministry of Housing, Communities and Local Government (2019). The National Planning Policy Framework.
- Natural England (2019). The Biodiversity Metric 2.0. Available:<http://publications.naturalengland.org.uk/publication/5850908674228224> [Accessed August 2020].
- Office of the Deputy Prime Minister (ODPM) (2005). Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their Impacts within the Planning System.
- West Sussex County Council (2011). West Sussex Transport Plan 2011-2026
- West Sussex County Council (2005). West Sussex Transport Plan 2001-2016

## 6 FIGURES

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**Figure 1 –Scheme Location Plan**

**Figure 2 – Landscape Plan (A29-WSP-LA-GA-005)**

**Figure 3 – Indicative Ecological Mitigation**



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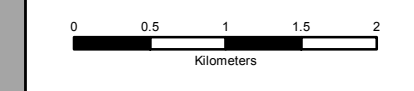
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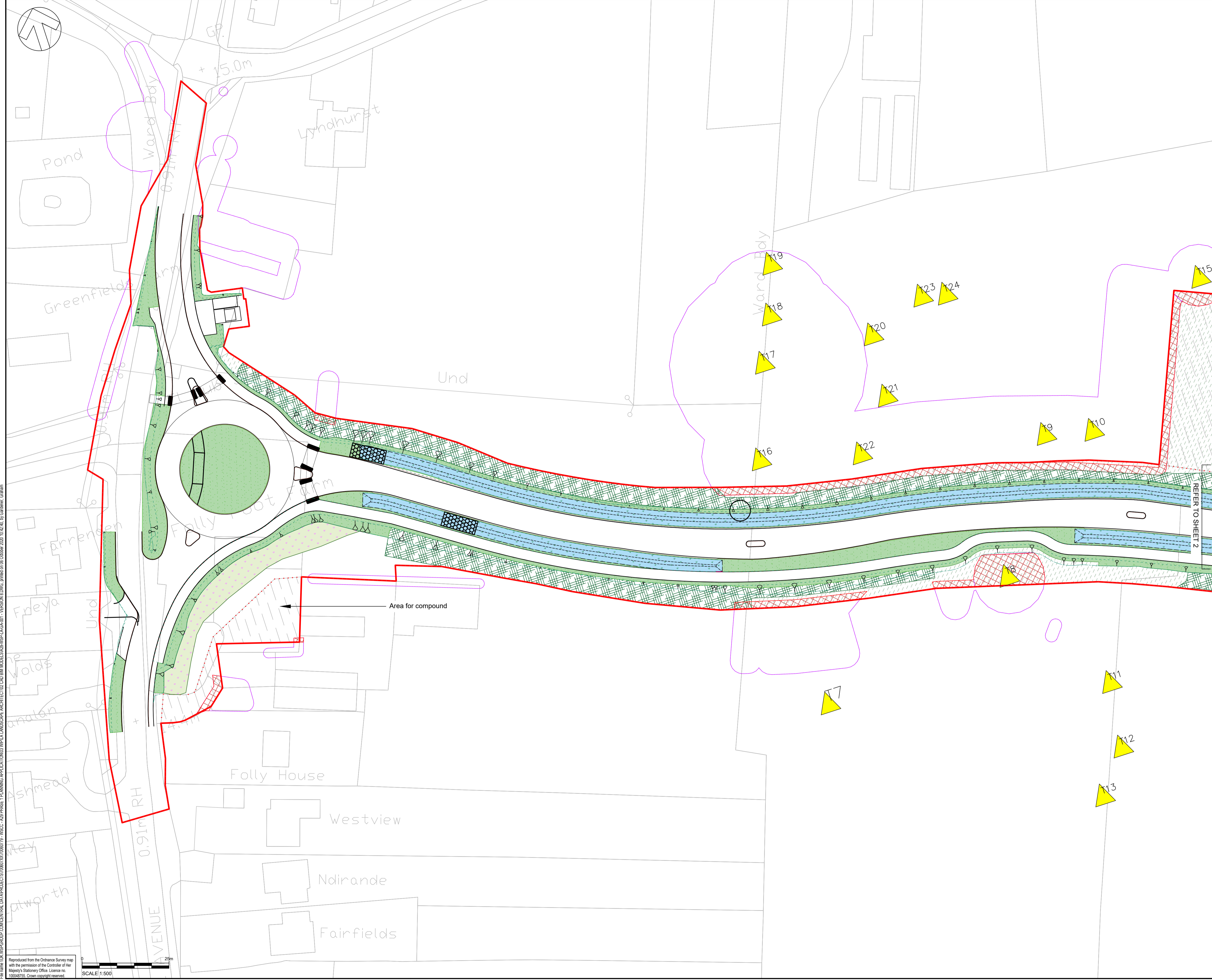
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KEY:

	Extent of works
	Extent of temporary land take
	Temporary use land
	Existing Vegetation
	Specimen Tree
	Shrub
	Woodland Edge
	Woodland Core
	Amenity Grass Mix
	Wildflower Meadow Grass Mix
	Wetland Grass Mix
	Areas to retain maximum feasible amount of existing vegetation where possible
	Root Protection Area - indicative location only
	Tree Preservation Order - indicative location only

REV	DATE	BY	DESCRIPTION	CHK	APP
G	02/10/2020	GG	UPDATE TO LATEST HIGHWAYS LAYOUT & REDLINE BOUNDARY	LG	KM
F	20/08/2020	GG	UPDATE IN LINE WITH NEW POND AND HIGHWAYS LAYOUTS AND REDUCED WILDFLOWER MEADOW	LG	KM
E	06/08/2020	GG	UPDATE TO NEW DRAINAGE LAYOUT	LG	KM
D	21/07/2020	GG	UPDATE TO HEDGE MAINTENANCE REQUIREMENTS	LG	KM
C	20/07/2020	GG	UPDATE TO ORCHARD MAINTENANCE REQUIREMENTS/WOODLAND	LG	KM
B	01/07/2020	GG	UPDATE TO POND LAYOUTS/SOUND BARRIER	LG	KM
A	01/05/2020	GG	FIRST ISSUE	LG	KM

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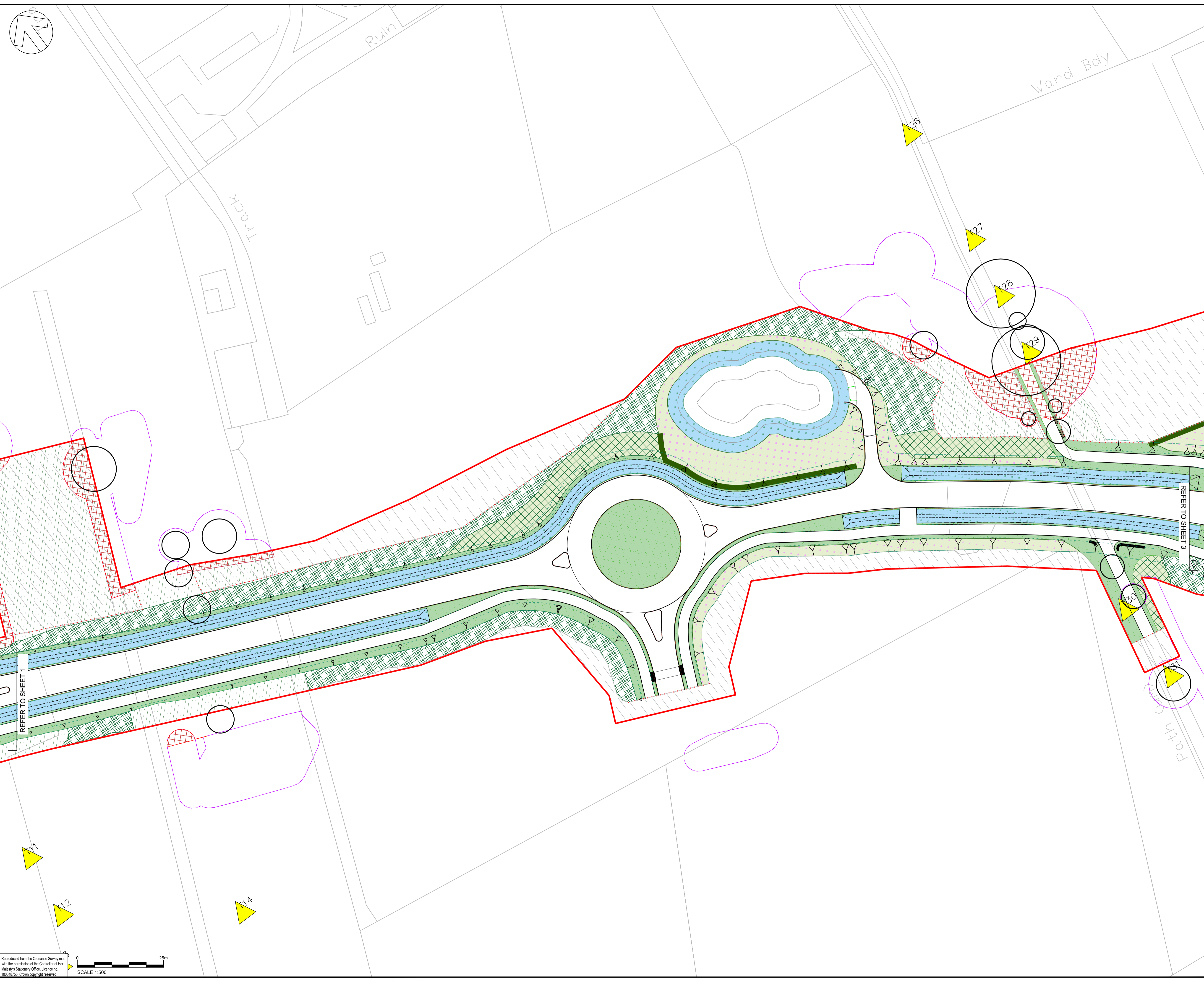
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- Shrub
- Woodland Edge
- Woodland Core
- Amenity Grass Mix
- Wildflower Meadow Grass Mix
- Wetland Grass Mix
- Areas to retain maximum feasible amount of existing vegetation where possible
- Root Protection Area - indicative location only
- Tree Preservation Order - indicative location only
- Proposed Bench

REV	DATE	BY	DESCRIPTION	CHK	APP
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C	20/07/2020	GG	UPDATE TO ORCHARD MAINTENANCE REQUIREMENTS/WOODLAND	LG	KM
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A	01/05/2020	GG	FIRST ISSUE	LG	KM

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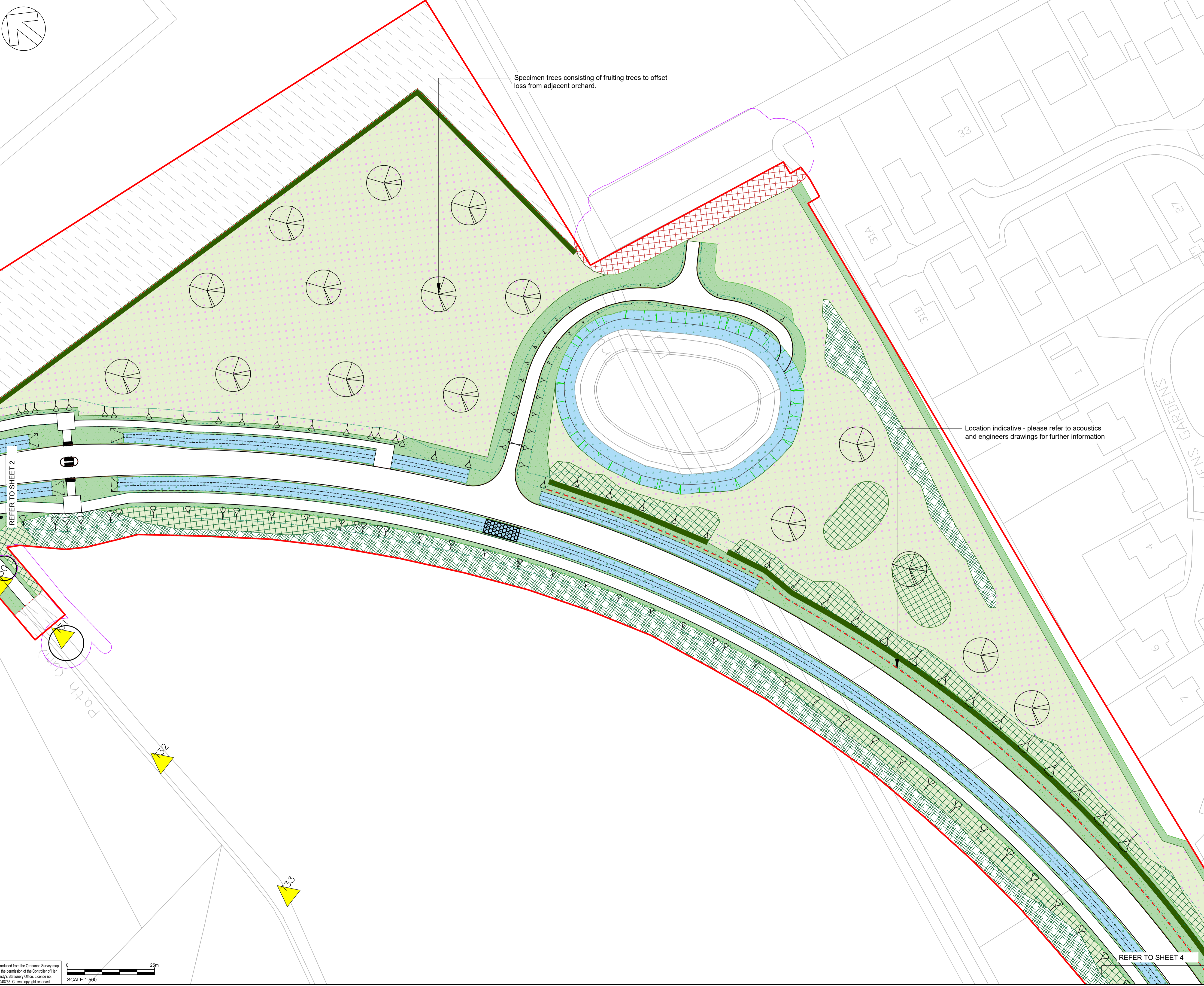
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- Tree Preservation Order - indicative location only
- Acoustic Barrier - indicative location only

REV	DATE	BY	DESCRIPTION	CHK	APP
G	02/10/2020	GG	UPDATE TO LATEST HIGHWAYS LAYOUT & REDLINE BOUNDARY	LG	KM
F	20/08/2020	GG	UPDATE IN LINE WITH NEW POND AND HIGHWAYS LAYOUTS AND REDUCED WILDFLOWER MEADOW	LG	KM
E	06/08/2020	GG	UPDATE TO NEW DRAINAGE LAYOUT	LG	KM
D	21/07/2020	GG	UPDATE TO HEDGE MAINTENANCE REQUIREMENTS	LG	KM
C	20/07/2020	GG	UPDATE TO ORCHARD MAINTENANCE REQUIREMENTS/WOODLAND	LG	KM
B	01/07/2020	GG	UPDATE TO POND LAYOUTS/SOUND BARRIER	LG	KM
A	01/05/2020	GG	FIRST ISSUE	LG	KM

DRAWING STATUS: **S2 - FOR INFORMATION**



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ARCHITECT: -

SITE PROJECT: A29

TITLE: **SOFT LANDSCAPE PLAN  
SHEET 3 OF 5**

SCALE @ A1:	CHECKED:	APPROVED:
1:500	LG	KM
PROJECT NO:	DESIGNED:	DRAWN:
70060779	GG	GG
DRAWING No:	DATE:	REV:
A29-WSP-LA-GA-003	October 20	G

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REFER TO SHEET 2

Location indicative - please refer to acoustics and engineers drawings for further information

Specimen trees consisting of fruiting trees to offset loss from adjacent orchard.

REFER TO SHEET 4

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  4. INDICATIVE LOCATIONS OF ARBORICULTURAL, ECOLOGICAL AND ACOUSTIC ELEMENTS.

KEY:

- Extent of works
- Extent of temporary land take
- Temporary use land
- Hedge
- Specimen Tree
- Shrub
- Woodland Edge
- Amenity Grass Mix
- Wildflower Meadow Grass Mix
- Wetland Grass Mix
- Areas to retain maximum feasible amount of existing vegetation where possible
- Root Protection Area - indicative location only
- Acoustic Barrier - indicative location only
- Tree Preservation Order - indicative location only

REV	DATE	BY	DESCRIPTION	CHK	APP
G	02/10/2020	GG	UPDATE TO LATEST HIGHWAYS LAYOUT & REDLINE BOUNDARY	LG	KM
F	20/08/2020	GG	UPDATE IN LINE WITH NEW POND AND HIGHWAYS LAYOUTS AND REDUCED WILDFLOWER MEADOW	LG	KM
E	06/08/2020	GG	UPDATE TO NEW DRAINAGE LAYOUT	LG	KM
D	21/07/2020	GG	UPDATE TO HEDGE MAINTENANCE REQUIREMENTS	LG	KM
C	20/07/2020	GG	UPDATE TO ORCHARD MAINTENANCE REQUIREMENTS/WOODLAND	LG	KM
B	01/07/2020	GG	UPDATE TO POND LAYOUTS/SOUND BARRIER	LG	KM
A	01/05/2020	GG	FIRST ISSUE	LG	KM

DRAWING STATUS: S2 - FOR INFORMATION

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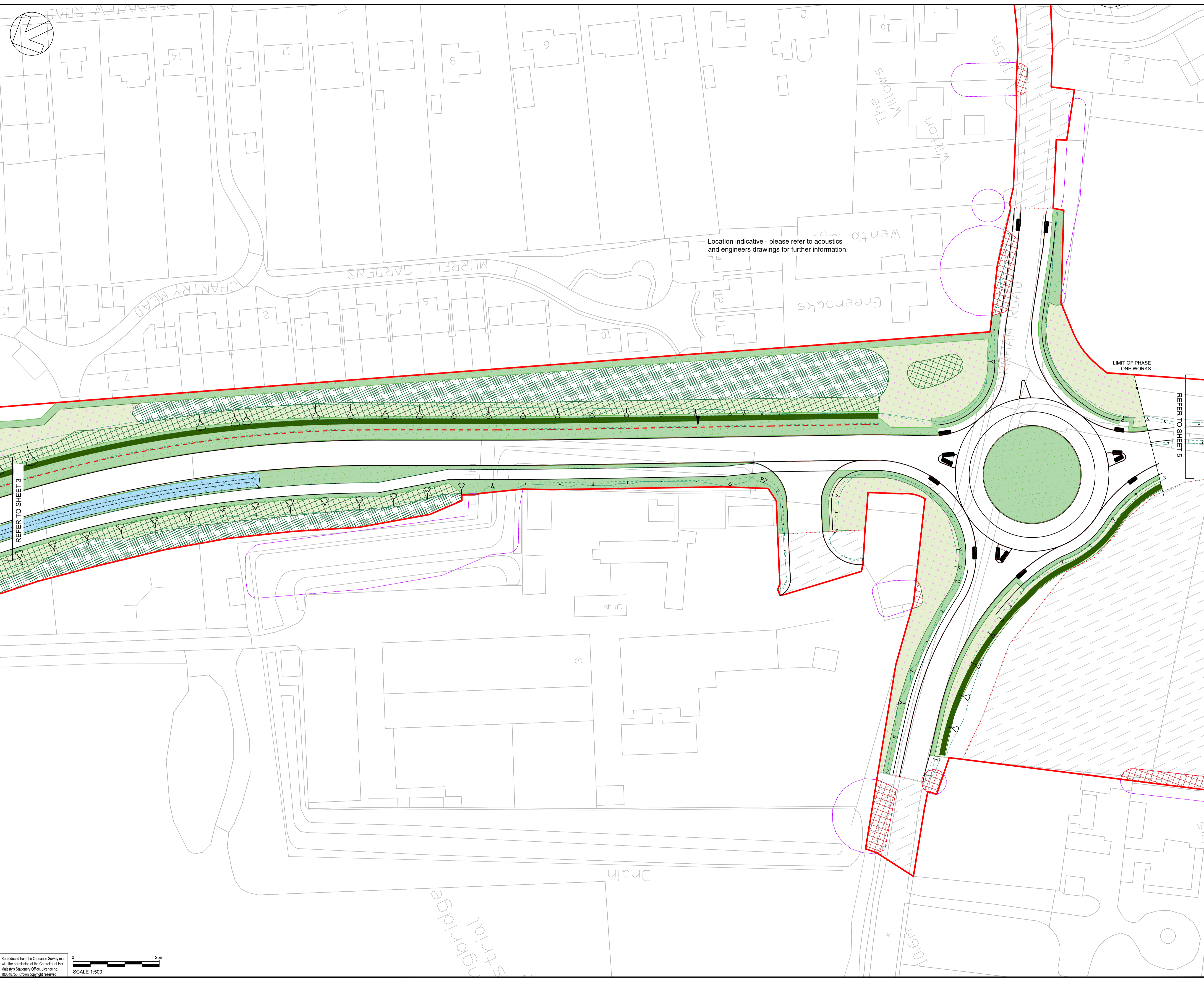
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TITLE: SOFT LANDSCAPE PLAN SHEET 4 OF 5

SCALE @ A1: 1:500	CHECKED: LG	APPROVED: KM
PROJECT NO: 70060779	DESIGNED: GG	DRAWN: GG DATE: October 20

DRAWING No: A29-WSP-LA-GA-004 REV: G

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REFER TO SHEET 3

REFER TO SHEET 5

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  4. INDICATIVE LOCATIONS OF ARBORICULTURAL, ECOLOGICAL AND ACOUSTIC ELEMENTS.
  5. EXTENT AND PROPOSALS FOR FUTURE WORKS CURRENTLY UNKNOWN.
  6. AREA FOR COMPOUND INDICATIVE ONLY, CONTRACTOR TO DETAIL ALLOCATION, ACCESS AND ANY REMEDIAL GROUND WORKS

KEY:

	Extent of works
	Extent of temporary land take
	Temporary use land
	Hedge
	Specimen Tree
	Amenity Grass Mix
	Wildflower Meadow Grass Mix
	Wetland Grass Mix
	Areas to retain maximum feasible amount of existing vegetation where possible
	Root Protection Area - indicative location only

REV	DATE	BY	DESCRIPTION	CHK	APP
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F	20/08/2020	GG	UPDATE IN LINE WITH NEW POND AND HIGHWAYS LAYOUTS AND REDUCED WILDFLOWER MEADOW	LG	KM
E	06/08/2020	GG	UPDATE TO NEW DRAINAGE LAYOUT	LG	KM
D	21/07/2020	GG	UPDATE TO HEDGE MAINTENANCE REQUIREMENTS	LG	KM
C	20/07/2020	GG	UPDATE TO ORCHARD MAINTENANCE REQUIREMENTS/WOODLAND	LG	KM
B	01/07/2020	GG	UPDATE TO POND LAYOUTS/SOUND BARRIER	LG	KM
A	01/05/2020	GG	FIRST ISSUE	LG	KM

DRAWING STATUS: **S4 - FOR CONSTRUCTION APPROVAL**



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SITE PROJECT: **A29**

TITLE: **SOFT LANDSCAPE PLAN**

SCALE @ A1: 1:500	CHECKED: LG	APPROVED: --
PROJECT NO: 70060779	DESIGNED: GG	DRAWN: GG
		DATE: October 20

DRAWING No: **A29-WSP-LA-GA-005** REV: **G**

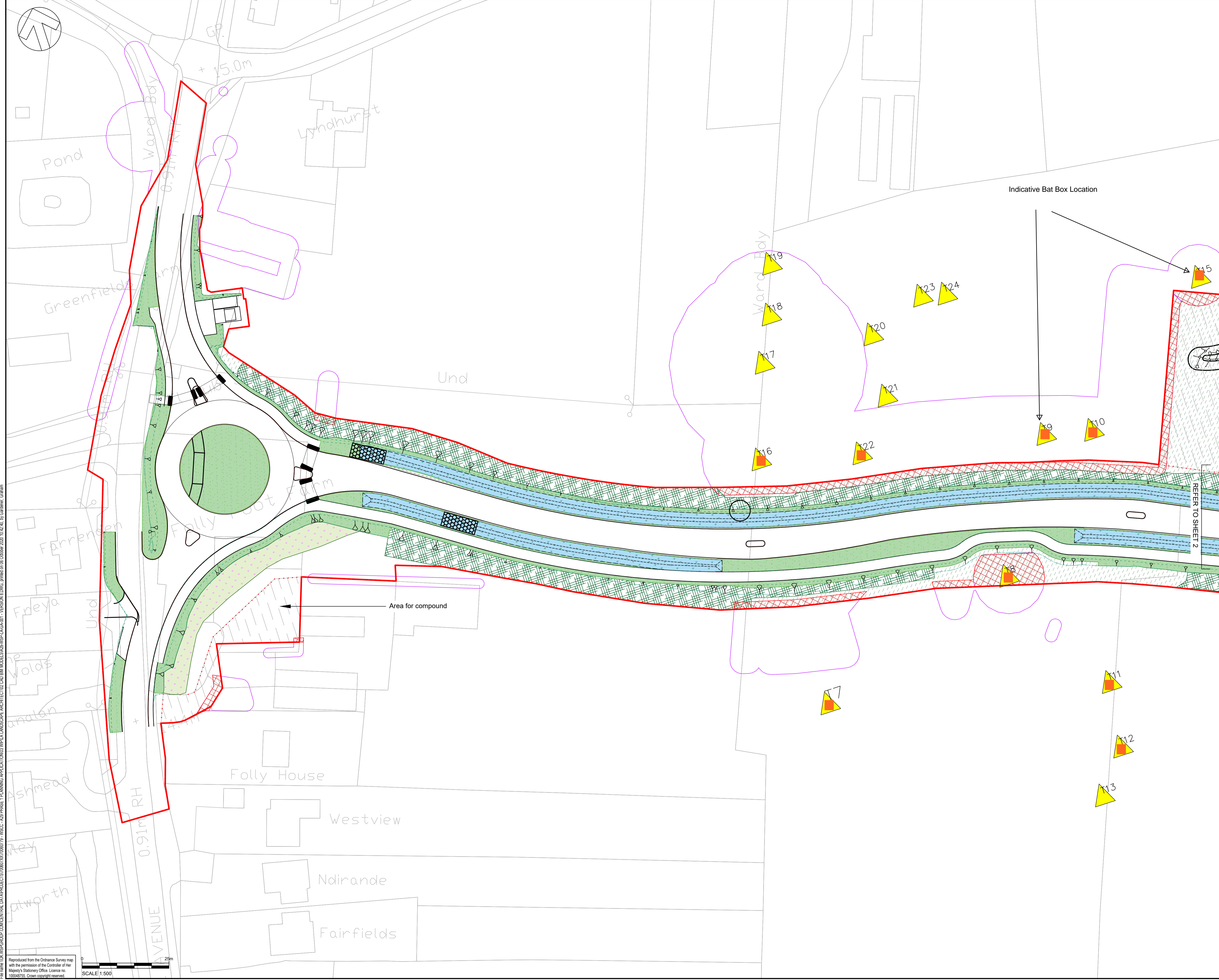
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  - INDICATIVE LOCATIONS OF ARBORICULTURAL, ECOLOGICAL AND ACOUSTIC ELEMENTS.

- KEY:
- Extent of works
  - Extent of temporary land take
  - Temporary use land
  - Existing Vegetation
  - Specimen Tree
  - Shrub
  - Woodland Edge
  - Woodland Core
  - Amenity Grass Mix
  - Wildflower Meadow Grass Mix
  - Wetland Grass Mix
  - Areas to retain maximum feasible amount of existing vegetation where possible
  - Root Protection Area - indicative location only
  - Tree Preservation Order - indicative location only

REV	DATE	BY	DESCRIPTION	CHK	APP
G	02/10/2020	GG	UPDATE TO LATEST HIGHWAYS LAYOUT & REDLINE BOUNDARY	LG	KM
F	20/08/2020	GG	UPDATE IN LINE WITH NEW POND AND HIGHWAYS LAYOUTS AND REDUCED WILDFLOWER MEADOW	LG	KM
E	06/08/2020	GG	UPDATE TO NEW DRAINAGE LAYOUT	LG	KM
D	21/07/2020	GG	UPDATE TO HEDGE MAINTENANCE REQUIREMENTS	LG	KM
C	20/07/2020	GG	UPDATE TO ORCHARD MAINTENANCE REQUIREMENTS/WOODLAND	LG	KM
B	01/07/2020	GG	UPDATE TO POND LAYOUTS/SOUND BARRIER	LG	KM
A	01/05/2020	GG	FIRST ISSUE	LG	KM

DRAWING STATUS: **S2 - FOR INFORMATION**

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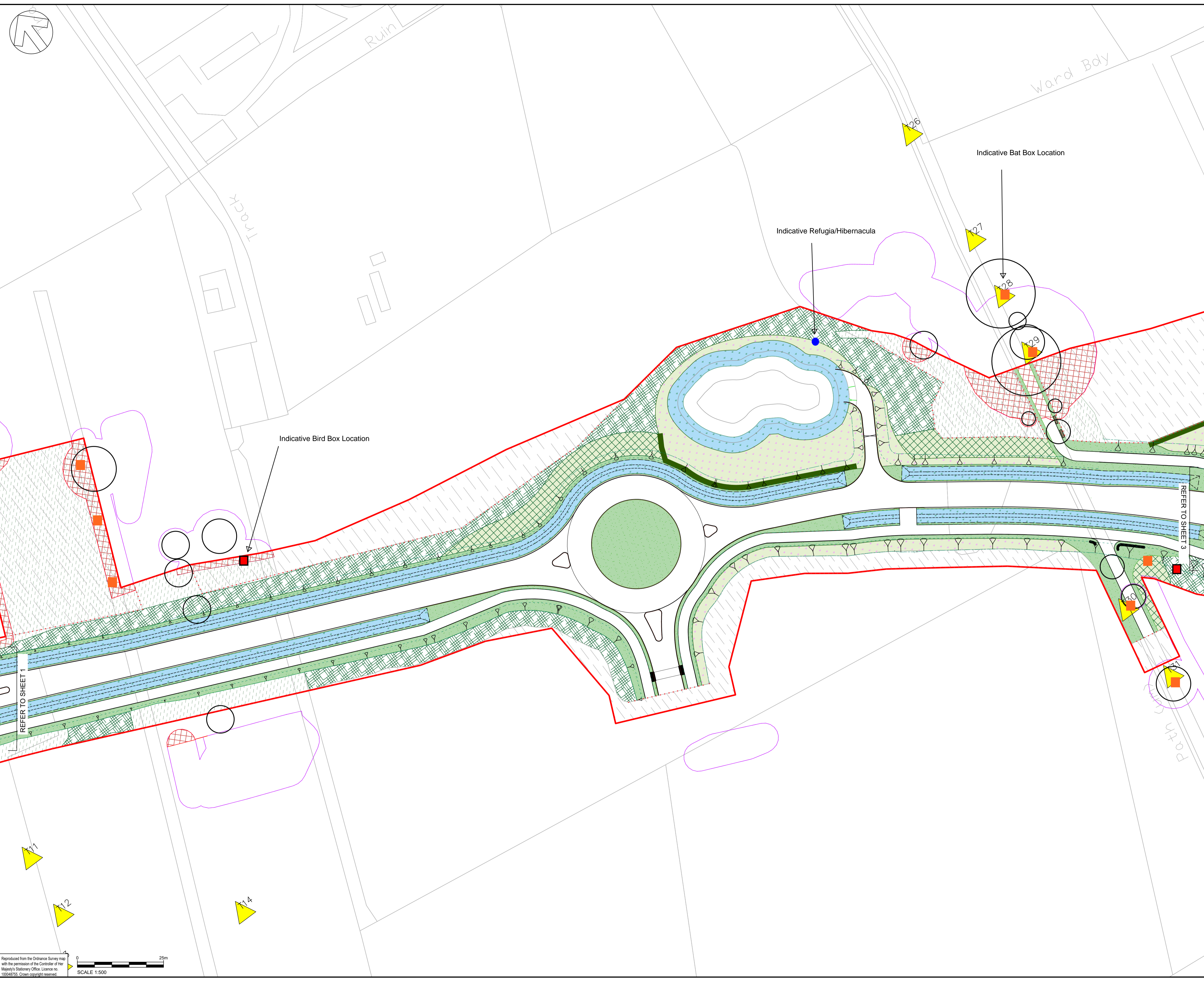
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TITLE: **ECOLOGICAL MITIGATION PLAN SHEET 1 OF 5**

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PROJECT NO: 70060779	DESIGNED: GG	DRAWN: GG
		DATE: October 20
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  4. INDICATIVE LOCATIONS OF ARBORICULTURAL, ECOLOGICAL AND ACOUSTIC ELEMENTS.

KEY:

- Extent of works
- Extent of temporary land take
- Temporary use land
- Existing Vegetation
- Hedge
- Specimen Tree
- Shrub
- Woodland Edge
- Woodland Core
- Amenity Grass Mix
- Wildflower Meadow Grass Mix
- Wetland Grass Mix
- Areas to retain maximum feasible amount of existing vegetation where possible
- Root Protection Area - indicative location only
- Tree Preservation Order - indicative location only
- Proposed Bench

REV	DATE	BY	DESCRIPTION	CHK	APP
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F	20/08/2020	GG	UPDATE IN LINE WITH NEW POND AND HIGHWAYS LAYOUTS AND REDUCED WILDFLOWER MEADOW	LG	KM
E	06/08/2020	GG	UPDATE TO NEW DRAINAGE LAYOUT	LG	KM
D	21/07/2020	GG	UPDATE TO HEDGE MAINTENANCE REQUIREMENTS	LG	KM
C	20/07/2020	GG	UPDATE TO ORCHARD MAINTENANCE REQUIREMENTS/WOODLAND	LG	KM
B	01/07/2020	GG	UPDATE TO POND LAYOUTS/SOUND BARRIER	LG	KM
A	01/05/2020	GG	FIRST ISSUE	LG	KM

DRAWING STATUS: S2 - FOR INFORMATION

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SITE PROJECT: A29

TITLE: ECOLOGICAL MITIGATION PLAN SHEET 2 OF 5

SCALE @ A1: 1:500	CHECKED: LG	APPROVED: KM
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		DATE: October 20

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  4. INDICATIVE LOCATIONS OF ARBORICULTURAL, ECOLOGICAL AND ACOUSTIC ELEMENTS.

- KEY:
- Extent of works
  - Extent of temporary land take
  - Temporary use land
  - Hedge
  - Specimen Tree
  - Shrub
  - Woodland Edge
  - Woodland Core
  - Amenity Grass Mix
  - Wildflower Meadow Grass Mix
  - Wetland Grass Mix
  - Areas to retain maximum feasible amount of existing vegetation where possible
  - Root Protection Area - indicative location only
  - Tree Preservation Order - indicative location only
  - Acoustic Barrier - indicative location only

REV	DATE	BY	DESCRIPTION	CHK	APP
G	02/10/2020	GG	UPDATE TO LATEST HIGHWAYS LAYOUT & REDLINE BOUNDARY	LG	KM
F	20/08/2020	GG	UPDATE IN LINE WITH NEW POND AND HIGHWAYS LAYOUTS AND REDUCED WILDFLOWER MEADOW	LG	KM
E	06/08/2020	GG	UPDATE TO NEW DRAINAGE LAYOUT	LG	KM
D	21/07/2020	GG	UPDATE TO HEDGE MAINTENANCE REQUIREMENTS	LG	KM
C	20/07/2020	GG	UPDATE TO ORCHARD MAINTENANCE REQUIREMENTS/WOODLAND	LG	KM
B	01/07/2020	GG	UPDATE TO POND LAYOUTS/SOUND BARRIER	LG	KM
A	01/05/2020	GG	FIRST ISSUE	LG	KM

DRAWING STATUS: S2 - FOR INFORMATION



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SITE PROJECT: A29

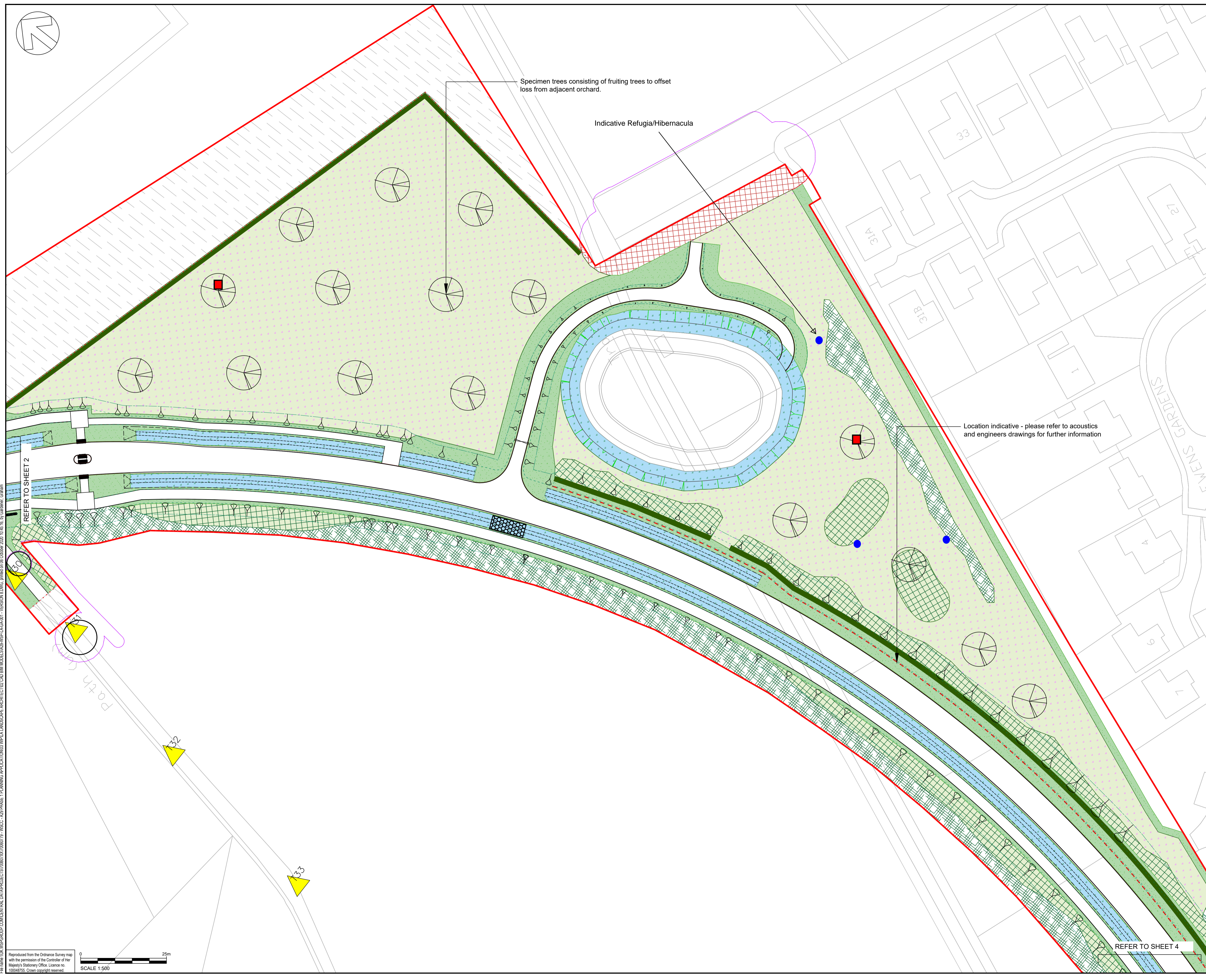
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PROJECT NO: 70060779	DESIGNED: GG	DRAWN: GG
		DATE: October 20

DRAWING No: A29-WSP-LA-GA-003

REV: G

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Specimen trees consisting of fruiting trees to offset loss from adjacent orchard.

Indicative Refugia/Hibernacula


Location indicative - please refer to acoustics and engineers drawings for further information

REFER TO SHEET 2

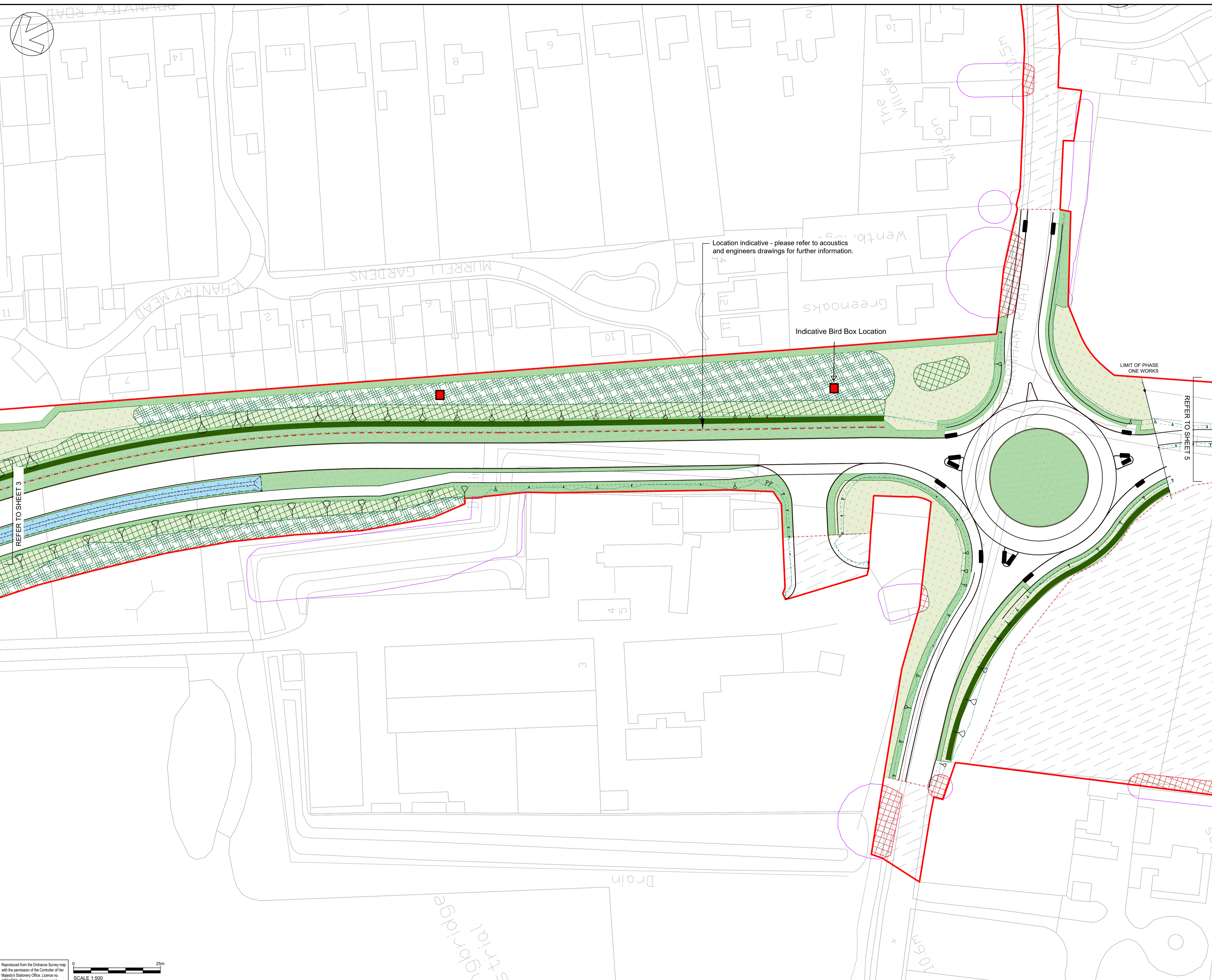
REFER TO SHEET 4

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  4. INDICATIVE LOCATIONS OF ARBORICULTURAL, ECOLOGICAL AND ACOUSTIC ELEMENTS.

- KEY:
- Extent of works
  - Extent of temporary land take
  - Temporary use land
  - Hedge
  - X Specimen Tree
  - Shrub
  - Woodland Edge
  - Amenity Grass Mix
  - Wildflower Meadow Grass Mix
  - Wetland Grass Mix
  - Areas to retain maximum feasible amount of existing vegetation where possible
  - Root Protection Area - indicative location only
  - Acoustic Barrier - indicative location only
  - T13 Tree Preservation Order - indicative location only

REV	DATE	BY	DESCRIPTION	CHK	APP
G	02/10/2020	GG	UPDATE TO LATEST HIGHWAYS LAYOUT & REDLINE BOUNDARY	LG	KM
F	20/08/2020	GG	UPDATE IN LINE WITH NEW POND AND HIGHWAYS LAYOUTS AND REDUCED WILDFLOWER MEADOW	LG	KM
E	06/08/2020	GG	UPDATE TO NEW DRAINAGE LAYOUT	LG	KM
D	21/07/2020	GG	UPDATE TO HEDGE MAINTENANCE REQUIREMENTS	LG	KM
C	20/07/2020	GG	UPDATE TO ORCHARD MAINTENANCE REQUIREMENTS/WOODLAND	LG	KM
B	01/07/2020	GG	UPDATE TO POND LAYOUTS/SOUND BARRIER	LG	KM
A	01/05/2020	GG	FIRST ISSUE	LG	KM

DRAWING STATUS: S2 - FOR INFORMATION



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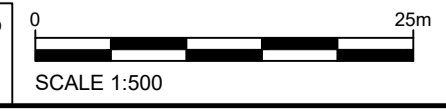
SITE PROJECT: A29

TITLE: ECOLOGICAL MITIGATION PLAN SHEET 4 OF 5

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		DATE: October 20

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  4. INDICATIVE LOCATIONS OF ARBORICULTURAL, ECOLOGICAL AND ACOUSTIC ELEMENTS.
  5. EXTENT AND PROPOSALS FOR FUTURE WORKS CURRENTLY UNKNOWN.
  6. AREA FOR COMPOUND INDICATIVE ONLY, CONTRACTOR TO DETAIL ALLOCATION, ACCESS AND ANY REMEDIAL GROUND WORKS

KEY:

- Extent of works
- Extent of temporary land take
- Temporary use land
- Hedge
- Specimen Tree
- Amenity Grass Mix
- Wildflower Meadow Grass Mix
- Wetland Grass Mix
- Areas to retain maximum feasible amount of existing vegetation where possible
- Root Protection Area - indicative location only

REV	DATE	BY	DESCRIPTION	CHK	APP
G	02/10/2020	GG	UPDATE TO LATEST HIGHWAYS LAYOUT & REDLINE BOUNDARY	LG	KM
F	20/08/2020	GG	UPDATE IN LINE WITH NEW POND AND HIGHWAYS LAYOUTS AND REDUCED WILDFLOWER MEADOW	LG	KM
E	06/08/2020	GG	UPDATE TO NEW DRAINAGE LAYOUT	LG	KM
D	21/07/2020	GG	UPDATE TO HEDGE MAINTENANCE REQUIREMENTS	LG	KM
C	20/07/2020	GG	UPDATE TO ORCHARD MAINTENANCE REQUIREMENTS/WOODLAND	LG	KM
B	01/07/2020	GG	UPDATE TO POND LAYOUTS/SOUND BARRIER	LG	KM
A	01/05/2020	GG	FIRST ISSUE	LG	KM

DRAWING STATUS: S4 - FOR CONSTRUCTION APPROVAL

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TITLE: ECOLOGICAL MITIGATION PLAN SHEET 5 OF 5

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		DATE: October 20

DRAWING No: A29-WSP-LA-GA-005

REV: G

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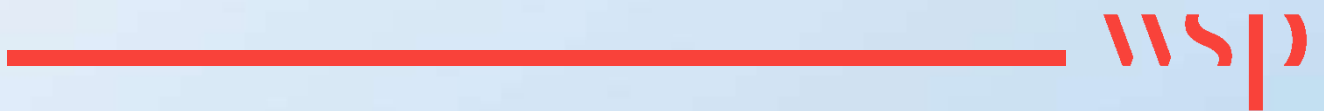
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# Appendix A

## RELEVANT LEGISLATION



## ENGLAND AND WALES LEGISLATION AND POLICY CONTEXT

This report has been compiled with reference to relevant wildlife legislation, planning policy and the UK Biodiversity Framework. An overview and context of relevant legislation is provided, with the relevant protection each species groups or species receives summarised in Table 1.

### **The Wildlife and Countryside Act 1981, (as amended) (WCA)**

Protected birds, animals and plants are listed under Schedules 1, 5, 8 and 9 respectively of the WCA, a description of these Schedules and their meaning is provided below.

Under the WCA (England and Wales) all birds, their nests and eggs (with exception of species listed under Schedule 2) are protected by the WCA. It is an offence to:

- Intentionally kill, injure, or take any wild bird,
- Take or destroy an egg of any wild bird.
- Damage or destroy the nest of any wild bird (whilst being built, or in use). Under the WCA the clearance of vegetation within the survey area boundary, or immediately adjacent to the survey area during the bird nesting season could result in an offence occurring by the disruption or destruction of nest sites. The bird breeding season can be taken to occur between March - August inclusive, although is subject to variations based on species, geographical and seasonal factors.

### **Schedule 1**

Birds listed under Schedule 1 of the WCA<sup>5</sup> are afforded additional protection with regard to intentional or reckless disturbance whilst nest-building, or at a nest containing eggs or young, or disturb the dependent young of such a bird.

### **Schedule 5**

Species listed in Schedule 5 can either be fully protected or be partially protected under Section 9, which makes it unlawful to intentionally:

- Part 1: kill, injure or take;
- Part 2: possess or control (live or dead animal, part or derivative);
- Part 4 (a): damage or destruct any structure used for shelter or protection;
- Part 4 (b): disturb them in a place of shelter or protection;
- Part 4 (c): obstruct access to place of shelter or protection;
- Part 5 (a): sell, offer for sale, possess or transport for the purpose of sale (live or dead animal, part or derivative);
- Part 5 (b): advertise for buying or selling.

---

<sup>5</sup> To view the current list of Schedule 1 listed birds visit:

<http://www.legislation.gov.uk/ukpga/1981/69/schedule/1> [Accessed 01.03.2017].

## **Schedule 8**

The Act makes it an offence (subject to exceptions) to pick, uproot, trade in, or possess (for the purposes of trade) any wild plant listed in Schedule 8, and prohibits the unauthorised intentional uprooting of such plants.

## **Schedule 9**

Invasive species listed under Schedule 9 are prohibited from release into the wild and the Act prohibits planting or “causing to grow” in the wild of any plant species listed in Schedule 9. It should be noted that certain bird species listed on Schedule 1 of the WCA are also listed on Schedule 9 to prevent release of non-native and captive individuals, this includes barn owl, red kite, goshawk and corncrake.

## **Countryside Rights of Way Act 2000 (CRoW Act)**

The CRoW Act has amended the WCA in England and Wales strengthening the protection afforded to Sites of Special Scientific Interest (SSSI) and the legal protection for threatened species. It adds the word ‘reckless’ to the wording of the offences listed under Section 9(4) of the WCA. This alteration makes it an offence to recklessly commit an offence, where previously an offence had to be intentional to result in a breach of legislation.

## **Natural Environment and Rural Communities (NERC) Act 2006**

Species and Habitats of Principal Importance in England and Wales are listed under Section 41 and Section 42 respectively of the NERC Act. The Section 41 and 42 lists detail species that are of principal importance for the conservation of biodiversity in England and Wales, and should be used to guide decision-makers such as local and regional authorities when implementing their duty to have regard for the conservation of biodiversity in the exercise of their normal functions – as required under Section 40 of the NERC Act 2006.

## **The Environment (Wales) Act 2016**

The Environment (Wales) Act 2016 (<http://www.legislation.gov.uk/anaw/2016/3/contents/enacted>) puts in place the legislation needed to plan and manage Wales’ natural resources in a more proactive, sustainable and cohesive way. Section 7 replaces the duty in Section 42 of the NERC Act 2006 and it places a duty on the Welsh Ministers to publish, review and revise lists of living organisms and types of habitats which they consider are of key significance to sustain and improve biodiversity in Wales. The species and habitat lists are identical to those in Section 42 but it should be noted it is currently under review (23.03.2017).

## **The Protection of Badgers Act (1992)**

It is an offence to wilfully take, kill, injure, possess or ill-treat a badger. Under the Act their setts are protected against intentional or reckless interference. Sett interference includes damaging or destroying a sett, obstructing access to any part of the sett, or disturbance of a badger whilst it is occupying a sett. The Act defines a badger sett as ‘any structure or place, which displays signs indicating the current use by a badger’ and Natural England (NE) takes this definition to include



seasonally used setts that are not occupied but that show sign of recent use by badgers (Natural England, 2009<sup>6</sup>).

If impacts to badgers or their setts are unavoidable then authorised sett disturbance requires a licence.

### **The UK Post-2010 Biodiversity Framework (2011-2020) (JNCC and DEFRA, 2012)**

This Framework lists the UK's most threatened species and habitats and sets out targets and objectives for their management and recovery. The UK Biodiversity Action Plan (BAP) process is delivered nationally, regionally and locally and should be used as a guide for decision-makers to have regards for the targets set by the framework and the goals they aim to achieve. The UK BAP has now been replaced by the UK Post-2010 Biodiversity Framework, however, it contains useful information on how to characterise important species assemblages and habitats which is still relevant (UK Post-2010 Biodiversity Framework, 2012<sup>7</sup>).

### **The Conservation of Habitats and Species Regulations 2017**

The Conservation of Habitats and Species Regulations 2017 consolidate the Conservation of Habitats and Species Regulations 2010 with subsequent amendments. The Regulations transpose Council Directive 92/43/EEC, on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive), into national law. They also transpose elements of the EU Wild Birds Directive in England and Wales. The Regulations came into force on 30th November 2017, and extend to England and Wales (including the adjacent territorial sea) and to a limited extent in Scotland (reserved matters) and Northern Ireland (excepted matters). In Scotland, the Habitats Directive is transposed through a combination of the Habitats Regulations 2010 (in relation to reserved matters) and the Conservation (Natural Habitats andc.) Regulations 1994. The Conservation (Natural Habitats, andc) Regulations (Northern Ireland) 1995 (as amended) transpose the Habitats Directive in relation to Northern Ireland.

All species listed under Annex IV of the Habitats Directive require strict protection and are known as European Protected Species (EPS). Under Regulation 42 of the Habitats Regulations it is unlawful to:

- Deliberately kill, capture or disturb;
- Deliberately take or destroy the eggs of; and
- Damage or destroy the breeding site/resting place of any species protected under this legislation.

If the Ecologist determines that impacts to an EPS are unavoidable then the works may need to be carried out under a site specific mitigation licence from Natural England (NE) or Natural Resources

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<sup>6</sup> Natural England, June 2009, Protection of Badgers Act 1992 (as amended), Guidance on 'Current Use' in the definition of a Badger Sett WMLG17, Natural England, Peterborough.

<sup>7</sup> JNCC and Defra (on behalf of the Four Countries' Biodiversity Group), July 2012, UK Post-2010 Biodiversity Framework, Available from: [http://jncc.defra.gov.uk/pdf/UK\\_Post2010\\_Bio-Fwork.pdf](http://jncc.defra.gov.uk/pdf/UK_Post2010_Bio-Fwork.pdf) [Accessed 02.03.2017].

Wales (NRW). Low Impact Class licences are also available in both England and Wales for bats and great crested newts. This enables Registered Low Impact Consultants to undertake certain low impact activities reducing the EPS application paperwork and process length.

Certain EPS are also listed under Annex II of the Habitats Directive and are afforded protection by the establishment of core areas of habitat known as Special Areas of Conservation. This means these species are a relevant consideration in a Habitats Regulations Assessment (HRA).

The Birds Directive seeks to maintain populations of all wild bird species across their natural range (Article 2). All bird species listed under Annex I<sup>8</sup> of the Birds Directive are rare or vulnerable and afforded protection by the classification of Special Protection Areas (SPAs), these are also designated under all regularly occurring migratory species, with regard to the protection of wetlands of international importance (Article 4). This means these bird species and communities are a relevant consideration in HRA.

### **National Planning Policy Framework NPPF**

The NPPF states the following in respect of biodiversity protection under Section 11 Conserving and enhancing the natural environment;

*'The planning system should contribute to and enhance the natural and local environment by:*

- protecting and enhancing valued landscapes, geological conservation interests and soils*
- recognising the wider benefits of ecosystem services*
- minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.'*

### **West Sussex Transport Plan (2011)**

The West Sussex Transport Plan (2011) was subject to a Strategic Environmental Assessment (SEA) at the time of publishing which identified that;

*'Mitigation is required to avoid negative impacts on biodiversity. This will include using green infrastructure to improve the connectivity of hedge lines to reconnect habitats, for example a 'Notable Verge' strategy is already in place;*

*and*

*The impact of the [Local Transport Plan] is dependent on taking opportunities to improve green infrastructure, particularly in new development, and in the [South Downs National Park] where existing green infrastructure can be disjointed.'*

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<sup>8</sup> To view birds listed under Annex I visit:

[http://ec.europa.eu/environment/nature/conservation/wildbirds/threatened/index\\_en.htm](http://ec.europa.eu/environment/nature/conservation/wildbirds/threatened/index_en.htm) [Accessed: 06.04.2017]



## **West Sussex Structure Plan (2005)**

The West Sussex Structure Plan (WSSC 2005) has no formal status, however ‘*Though the Plan has no formal status in the current planning system, it remains our strategic policy statement for future development and land-use planning*’<sup>9</sup>. Policy ERA2 relates to Nature Conservation, stating;

*‘(a) Development should not be permitted unless the wide range of habitats, species and geological features of the County will be protected, conserved and, where possible, enhanced particularly through long-term management mechanisms and habitat creation schemes. A particularly high level of protection should be afforded to sites and features of national and international importance. Proposals for the extension or creation of new habitats should be permitted provided that they are consistent with wider environmental objectives.*

*(b) Local plans will include policies to:*

*(1) ensure that site evaluation is undertaken to establish the nature conservation importance of proposed development sites;*

*(2) protect sites or features of nature conservation importance, including those protected under legislation and prevent development unless there are no alternative solutions and there are overriding reasons which outweigh the need to safeguard the value of sites or features;*

*(3) ensure that where development would result in the loss of an important nature conservation resource, a new resource is provided which is of at least equivalent value, where possible;*

*(4) where appropriate, secure the restoration, creation and management of habitats through development proposals; and*

*(5) where necessary, ensure the investigation and recording of sites and features of nature conservation importance, and, where appropriate, the preservation of any finds.’*

## **Adopted Arun Local Plan (Arun DC, 2018)**

The Adopted Arun Local Plan (Arun DC, 2018) contains a number of policies relating to biodiversity, of which Policy ENV SP1 Natural Environment and Policy ENV DM5 Development and Biodiversity are the most pertinent.

### *Policy ENV SP1, Natural Environment states:*

*‘Arun District Council will encourage and promote the preservation, restoration and enhancement of biodiversity and the natural environment through the development process and particularly through policies for the protection of both designated and non-designated sites. Where possible it shall also promote the creation of new areas for habitats and species. In relation to designated sites,*

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<sup>9</sup> <https://www.westsussex.gov.uk/about-the-council/policies-and-reports/environment-planning-and-waste-policy-and-reports/structure-plan/>



*development will be permitted where it protects sites listed in Tables 17.1-17.6 that are recognised for the species and habitats contained within them.'*

*Policy ENV DM5 Development and Biodiversity states:*

*'Development schemes shall, in the first instance, seek to achieve a net gain in biodiversity and protect existing habitats on site. They shall also however incorporate elements of biodiversity including green walls, roofs, bat and bird boxes as well as landscape features minimising adverse impacts on existing habitats (whether designated or not). Development schemes shall also be appropriately designed to facilitate the emergence of new habitats through the creation of links between habitat areas and open spaces. Together, these provide a network of green spaces which serve to reconnect isolated sites and facilitate species movement.*

*Where there is evidence of a protected species on a proposed development site, planning applications shall include a detailed survey of the subject species, with details of measures to be incorporated into the development scheme to avoid loss of the species. This involves consideration of any impacts that will affect the species directly or indirectly, whether within the application site or in an area outside of the site, which may be indirectly affected by the proposals. All surveys shall be carried out at an appropriate time of year and shall be undertaken by a qualified and, where appropriate, suitably licensed person.*

*All developments shall have regard to Natural England's standing advice for protected species.'*



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## Appendix D

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## Arboricultural Report



### **3.4 ARBORICULTURE REPORT AND TREE PROTECTION PLAN**



West Sussex County Council

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# A29 REALIGNMENT PHASE 1

Arboricultural Report







West Sussex County Council

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# A29 REALIGNMENT PHASE 1

Arboricultural Report

**TYPE OF DOCUMENT (VERSION) PUBLIC**

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**DATE: OCTOBER 2020**

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# 1 INTRODUCTION

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## 1.1 BACKGROUND

- 1.1.1. WSP has been instructed by West Sussex County Council to undertake a tree survey and to subsequently provide an Arboricultural Report in support of an Environmental Statement (ES). The ES is a supporting document in a planning application for the realignment of the A29 (referred to as the 'Scheme'), to the north of Eastergate, north-west of Barnham villages and north of Bognor Regis.
- 1.1.2. The purpose of this report is to identify all trees which may reasonably be affected by the Scheme, to assess the direct and indirect impact of the Scheme upon those trees and to recommend such protection measures as are necessary to ensure the long-term wellbeing of trees which are to be retained.

## 1.2 OVERVIEW OF THE PROPOSED PLANNING APPLICATION

- 1.2.1. The proposed planning application will seek permission for:
- The construction of a 1.25km single carriageway with a 3m wide shared cycleway / footway, four uncontrolled crossings, three roundabouts, landscaping, noise barrier and other associated works.*

## 1.3 SITE DESCRIPTION AND DESCRIPTION OF SCHEME

- 1.3.1. A detailed description of the Scheme location and surrounding area is provided within the **ES Chapter 2: The Existing Site**. Details on the Scheme are presented within the **ES Chapter 3: Description of the Scheme**.

## 1.4 SCOPE OF REPORT

- 1.4.1. The scope and level of detail included within this report is commensurate with that required for the adequate consideration of arboricultural features as part of a detailed planning application. Information provided complies with the requirements of British Standard BS 5837:2012 *Trees in relation to design, demolition and construction – Recommendations* (BS 5837) Table B.1 and includes reference to the following:
- Tree survey;
  - Arboricultural impact assessment;
  - Arboricultural method statement; and
  - Tree protection plan.
- 1.4.2. The BS 5837 'gives recommendations and guidance on the relationship between trees and the design, demolition and construction process. It sets out the principles and procedures to be applied to achieve a harmonious and sustainable relationship between trees and structures'<sup>1</sup>.

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■ <sup>1</sup> British Standards Institute. 2012. *BS 5837: 2012 Trees in relation to design, demolition and construction – Recommendations*. London: BSI.

- 1.4.3. The BS 5837 does not provide explicit parameters for measuring the sensitivity of an arboricultural feature nor does it provide a methodology for the classification of effects. However, it does provide guidance on how to assess the quality of an arboricultural feature and further recommends an evaluation of impacts, both direct and indirect. Impacts should be defined as an assessment of arboricultural removals and identification of matters to be addressed within an arboricultural method statement.

## 1.5 VALIDITY PERIOD

- 1.5.1. Provisional Tree Preservation Orders (TPO) may be made whenever a local planning authority deems it appropriate with only those persons interested in the land served with a copy of the Order. Because of this, any reference to the presence of a TPO is only valid on the date at which the desk study search was undertaken. In instances where works unspecified in this report are to be undertaken, which may impact trees, a further search for the presence of TPOs should be carried out prior to commencement.
- 1.5.2. Trees are dynamic organisms which are influenced by a variety of environmental variables and whose health and condition can rapidly change. Any recommendations made within this report are valid for a period of 24 months from the date of survey, when any site conditions change or pruning or other works unspecified in the report are carried out to, or affecting, the subject trees, whichever is the sooner.

## 1.6 LIMITATIONS

- 1.6.1. This report in no way constitutes a health and safety survey. Where concerns for tree health and safety exist the necessary and appropriate tree inspections should be carried out.

## 1.7 RELEVANT LEGISLATION, POLICY AND GUIDANCE

- 1.7.1. This report has been compiled with reference to the following legislation, policy and guidance. Additional information relating to context and applicability is provided in **Appendix B**.

### LEGISLATIVE FRAMEWORK

- *The Town and Country Planning Act 1990;*
- *The Town and Country Planning (Tree Preservation) (England) Regulations 2012;* and,
- *The Natural Environment and Rural Communities (NERC) Act 2006.*

### POLICY

- *National Planning Policy Framework (NPPF) 2019<sup>2</sup>;* and,
- *Arun Local Plan 2011-2031 (adopted July 2018).*

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<sup>2</sup> Ministry of Housing, Communities & Local Government (2019) *National Planning Policy Framework*. [Online] Available at <https://www.gov.uk/government/publications/national-planning-policy-framework--2> (Last accessed 12 August 2020)

## GUIDANCE

- *British Standards Institute. BS 5837: 2012 Trees in relation to design, demolition and construction – Recommendations. London: BSI.;*
- *Arun Design Guide Supplementary Planning Document Final Draft 2020;*
- *Forestry Commission and Natural England, Ancient woodland, ancient trees and veteran trees: protecting them from development (2018)<sup>3</sup>;*
- *Ancient Tree Forum, Ancient and other veteran trees: further guidance on management (2013)<sup>4</sup>;*
- *Veteran Trees Initiative Specialist Survey Method (1997)<sup>5</sup>and,*
- *Ministry of Housing, Communities & Local Government, Tree Preservation Orders and trees in conservation areas (2014)<sup>6</sup>.*

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<sup>3</sup> Forestry Commission and Natural England (2018) *Ancient woodland, ancient trees and veteran trees: protecting them from development*. [Online] Available at <https://www.gov.uk/guidance/ancient-woodland-and-veteran-trees-protection-surveys-licences> (Last accessed 12 August 2020)

<sup>4</sup> Lonsdale, D., 2013. *Ancient and other veteran trees: further guidance on management*. London: The Tree Council.

<sup>5</sup> Fay, N. & de Berker, N., 1997. *Veteran Trees Initiative Specialist Survey Method*. Peterborough. Veteran Trees Initiative, English Nature.

<sup>6</sup> Ministry of Housing, Communities & Local Government (2014) *Tree Preservation Orders and trees in conservation areas* [Online] Available at <https://www.gov.uk/guidance/tree-preservation-orders-and-trees-in-conservation-areas> (Last accessed 12 August 2020)

## 2 BASELINE ARBORICULTURAL RESOURCE

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### 2.1 BASELINE DATA COLLECTION

2.1.1. Baseline data collection has been undertaken with reference to BS 5837 and has been undertaken using the following data sources:

- An arboricultural desk study, and
- A walkover survey of all arboricultural features within the study area.

2.1.2. Full details of the methodology used to obtain baseline data are provided in **Appendix D**.

### 2.2 STUDY AREA

2.2.1. A study area comprising of the Planning Application Site Boundary and a 50-metre buffer has been utilised for the arboricultural desk study. The purpose of this buffer is to facilitate the identification of ancient and veteran trees whose protection may require the provision of a semi-natural buffer zone with a minimum uncapped radius extending to five metres beyond the canopy or up to 15 times the stem diameter, whichever is greater. As such, semi-natural buffer zones may extend for tens of metres.

2.2.2. A study area comprising of the Planning Application Site Boundary and a 15-metre buffer has been utilised for the walk over survey. The purpose of this buffer is to ensure compliance with BS 5837 which recommends that all trees whose root protection areas (RPAs) extends into the developable area are identified and surveyed. The BS 5837 caps RPAs with a maximum radius of 15-metres. In instances where ancient and veteran trees have been identified outside this area then they have been surveyed in order to enable semi-natural buffer zones to be correctly calculated.

### 2.3 DESK STUDY

2.3.1. The arboricultural desk study confirmed the absence of any conservation areas within the study area. It further identified the absence of any recorded ancient woodland or ancient trees.

2.3.2. The desk study did however identify the presence of a single Tree Preservation Order whilst also identifying records of two of potential veteran trees.

#### TREE PRESERVATION ORDERS

2.3.3. Individual trees, groups of trees or areas of woodland may be afforded statutory protection through inclusion within a Tree Preservation Order (TPO). The legislation governing TPOs is included within Part VIII of the Town and Country Planning Act 1990 as amended by the Town and Country Planning (Tree Preservation) (England) Regulations 2012.

2.3.4. A TPO may be made by a local planning authority where it is believed '*that it is expedient in the interests of amenity to make provision for the preservation of trees or woodlands*'<sup>7</sup>. Subject to certain exemptions, a TPO makes it a statutory offence to cut down, uproot, lop, top, wilfully damage or wilfully destroy a protected tree without formal consent.

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<sup>7</sup> *Town and Country Planning Act 1990*. s.198(1).



**2.3.5.** The arboricultural features listed in **Table 2-1** are located within the study area and have been identified as being afforded statutory protection by virtue of TPO BN/1/20. This Order, administered by Arun District Council, is shown as an irregularly shaped polygon on the Council’s online mapping service<sup>8</sup>. However, more detailed maps provided by the Council on 13 May 2020 indicate an intention to protect specific trees and groups of trees. A copy of the more detailed maps showing the location of individual protected features are included within **Appendix F** of this report.

**Table 2-1 - Arboricultural features covered by a TPO**

Reference number on 1 <sup>st</sup> Schedule <sup>9</sup> TPO	Species	TPO Name	Location
T7	Pedunculate oak ( <i>Quercus robur</i> )	TPO BN/1/20	Land north of Barnham Road, Eastergate, West Sussex PO20 3SJ
T8			
T9			
T10			
T11			
T12			
T15			
T16			
T17			
T18			
T20			
T21			
T22			
T27			

<sup>8</sup> Arun District Council, 2020. *Arun Maps* [online] Available at: <https://www1.arun.gov.uk/webapps/wml/> [Accessed 17 August 2020].

<sup>9</sup> The first schedule forms part of the TPO document and includes a written description of the trees and their location. Within the 1<sup>st</sup> Schedule the following abbreviations are used:

- T – individual tree
- G – group of trees
- W – woodland
- A – area of trees

T28			
T29			
T30			
T31			
T32			
G37	Hornbeam ( <i>Carpinus betulus</i> )		

2.3.6. A total of 19 trees and one tree group have been identified as being afforded protection by virtue of TPO BN/1/20. All of the individual trees are pedunculate oak whilst tree group G37 is recorded as comprising of a number of hornbeam. Features protected by TPO BN/1/20 are located towards the northernmost extent of the Scheme and on land east of Fontwell Avenue and south of Eastergate Lane. The location of these TPO features is shown on the Tree Protection Plan included in **Appendix G**.

### VETERAN TREES

2.3.7. The National Planning Policy Framework (NPPF) defines ancient and veteran trees as ‘A tree which, because of its age, size and condition, is of exceptional biodiversity, cultural or heritage value. All ancient trees are veteran trees. Not all veteran trees are old enough to be ancient but are old relative to other trees of the same species. Very few trees of any species reach the ancient life-stage.’

2.3.8. The desk study identified the individual trees listed in **Table 2-2** as being potential veteran specimens.

**Table 2-2 - Potential veteran trees**

Tree id. (Ancient Tree Inventory)	Species	Status	Recorded girth of stem (m)
97690	Pedunculate oak	Veteran	7.6m at a height of 0.5 metres
97691	Pedunculate oak	Veteran	4.8 at a height of 1.5 metres

2.3.9. By virtue of the definition provided within the NPPF, ancient and veteran trees may be described as those with exceptional biodiversity, cultural or heritage value. Given that veteran trees are of a lesser age than ancient specimens, their main value is likely to lie with the provision of biodiversity rather than being associated with culture or heritage.

2.3.10. Trees 97690 and 97691 are ‘potential’ veteran trees on the basis that their ability to provide exceptional biodiversity remains unknown. As described in the Veteran Trees Initiative Specialist Survey Method (SSM) (Fay and de Burke, 1997) the identification of veteran trees can involve varying levels of technical inspection with only the most comprehensive capable of definitively identifying not just habitat quality but also the species that it supports.

- 2.3.11. In the interests of this assessment, for a tree to be defined as truly veteran, evidence should be available which not only demonstrates that entomological, mycological, floral and faunal surveys have been completed but that it also supports, or is capable of supporting, a diversity of insects, fungi and plants. This level of detail is absent from the desk study data.
- 2.3.12. Potential veteran trees 97690 and 97691 are located on the eastern side of public footpath 318 and towards its northern end. Their positions are identified within the Tree Protection Plan included in **Appendix G**.

## 2.4 SITE VISIT / SURVEY

- 2.4.1. A total of 77 arboricultural features were surveyed details of which are provided within the Arboricultural Survey Schedule included in **Appendix E** of this report. Their location and extent are shown on the Tree Protection Plan included in **Appendix G**. A summary of the surveyed features including their category and designation is provided in **Table 2-3**.

**Table 2-3 - Summary of surveyed arboricultural features**

<b>BS 5837 Category</b>	<b>Quality</b>	<b>Trees</b>	<b>Tree Group</b>	<b>Hedges</b>
A	High	8	0	0
B	Moderate	7	2	0
C	Low	31	23	6
TOTAL		46	25	6

### POTENTIAL VETERAN TREES

- 2.4.2. The walkover survey identified the presence of four veteran trees. These include confirmation of two potential veterans identified during the desk study as well as the identification of two previously unknown specimens.
- 2.4.3. The presence of the two potential veteran oak trees identified during the desk study was confirmed during the course of the walkover survey at which point they were recorded as trees T2 (97691) and T20 (97690).
- 2.4.4. Two additional potential veteran trees were also identified. These are also both oak trees and are located in close proximity to each other within a small treed area to the north of the Planning Application Site Boundary and to the south of Eastergate Lane. These trees are recorded as T23 and T42 within the Arboricultural Survey Schedule.
- 2.4.5. Veteran trees have been identified on the basis of age and size. They are all mature specimens with stem diameters ranging from 1300 to 1900 millimetres. Stem diameters of this size are indicative of aging trees and include a sufficient volume of wood for them to potentially provide irreplaceable deadwood habitat. Veteran trees have not been subject to detailed entomological, mycological, floral or faunal surveys and as such their status should remain provisional until such time as the presence of exceptional biodiversity value is confirmed. Nonetheless, regardless of habitat value, these trees still represent particularly good examples of rural oaks which have potentially taken several centuries to develop. They are therefore high-quality (category A) trees worthy of retention.

2.4.6. All four potential veteran trees are afforded protection by virtue of TPO/BN/1/20. A summary of their statutory status is provided in **Table 2-4**. The fact that these trees are protected by a TPO is indicative of the high level of current and future public amenity value which Arun District Council consider them to possess.

**Table 2-4 – Potential veteran trees**

Reference number (Arboricultural Survey Schedule)	Reference number on 1 <sup>st</sup> Schedule TPO	TPO Name
T2	T29	TPO/BN/1/20
T20	T27	
T23	T18	
T42	T42	

### OTHER HIGH QUALITY ARBORICULTURAL FEATURES

- 2.4.7. Other high-quality features include three pedunculate oaks (T3, T10 and T25) and one evergreen oak (*Quercus ilex*) (T45). Trees T3 and T25 are located to the north of the Planning Application Site Boundary and south of Eastergate Road whilst T10 is positioned within the front garden of a residential property west of the A29 Fontwell Avenue. Evergreen oak T45 is also located within the front garden of a residential property to the north of the B2233 Barnham Road.
- 2.4.8. All four high-quality trees are mature specimens with heights of 15 to 20 metres, stem diameters ranging from 740 millimetres to 1300 millimetres and retention spans in excess of 40 years under current site conditions. They have been variously valued based upon their arboricultural and landscape merits.
- 2.4.9. High-quality trees T3, T10, T25 and T45 represent good examples of their species and positively contribute to the character of the local landscape. Trees T3 and T25 are afforded statutory protection by virtue of TPO/BN/1/20 and are recorded within the Order as T15 and T16 respectively.

### MODERATE QUALITY ARBORICULTURAL FEATURES

2.4.10. A total of nine moderate quality arboricultural features were recorded and include seven individual trees and two tree groups.

#### Individual Trees

- 2.4.11. Of the seven individual trees, four are pedunculate oak, two are evergreen oak and one is a poplar (*Populus sp.*). Again, all are mature specimens and have heights of ten to 18 metres, stem diameters ranging from 350 millimetres to 860 millimetres and retention spans in excess of 20 years under current site conditions. They have been variously valued based upon their landscape merits.
- 2.4.12. Moderate-quality trees are recorded as T5, T7, T11, T39, T40, T50 and T55 and are scattered around the northern and southern ends of the Planning Application Site Boundary. These are specimens which lack the special value associated with high-quality features, but which nonetheless still provide a quantifiable degree of amenity value. This value is reflected in the fact that trees T11 and T39 are included within TPO/BN/1/20 and are respectively recorded as T31 and T8.

## Tree Groups

- 2.4.13. Two moderate-quality tree groups were identified and are recorded as G71 and G85. These two groups are located within, or adjacent to, the northern portion of the Planning Application Site Boundary and predominately comprise Lombardy poplar (*Populus nigra 'Italica'*) (G71) and hornbeam (*Carpinus betulus*) (G85).
- 2.4.14. Moderate-quality tree groups include trees with heights of 12 to 17 metres, stem diameters of 350 to 850 millimetres and collective retention spans in excess of 20 years. They have been valued based upon their visual amenity and contribution to the character of the local landscape.
- 2.4.15. Tree-group G85 is included within TPO/BN/1/20 where it is recorded as 'G37'.

## LOW QUALITY ARBORICULTURAL FEATURES

- 2.4.16. The walkover survey identified 60 low quality features including 31 trees, 23 tree groups and six hedges. Low quality features are formed from a range of predominately native or naturalised tree species including apple (*Malus domestica*), ash (*Fraxinus excelsior*), oak, blackthorn (*Prunus spinosa*), hawthorn (*Crataegus monogyna*), field maple (*Acer campestre*), holly (*Ilex aquifolium*) and beech (*Fagus sylvatica*). Some ornamental species such as Norway maple (*Acer platanoides*) and Lawson cypress (*Chamaecyparis lawsoniana*) are also present.
- 2.4.17. Low quality trees, tree groups and hedges range in age from young to mature, have heights of two to 16 metres, stem diameters ranging from 75 millimetres to 800 millimetres and retention spans in excess of 10 years under current site conditions. They have been valued mainly for their localised visual amenity and limited contribution to the wider landscape.
- 2.4.18. Low-quality tree group G98 includes apple trees which appear to represent the remnants of an old commercial orchard. The variety of apple tree is unknown but may represent one which is no longer commercially available, and which may be rare or of particular local significance. Therefore, although the individual apple trees which form part of G98 may be individually of little value, their propagation may have benefits from an historic and genetic diversity perspective.
- 2.4.19. Low-quality features are located across the length of the Planning Application Site Boundary. They represent features with only minimal or temporary landscape and visual benefits, and none are afforded statutory protection.

## UN-SURVEYED FEATURES

- 2.4.20. There are two un-surveyed arboricultural features present within, or adjacent to, the Planning Application Site Boundary. Access to the land within which these features are located was not available at the time of the walkover survey and as such they could not be surveyed.
- 2.4.21. Un-surveyed features are located at the southernmost end of the Planning Application Site Boundary and around the edge of a piece of land used for glasshouse production. Aerial imagery indicated that these two features are formed from maintained hedgerows. It is considered likely that they are low-quality features offering only low-level and localised screening value.

### 3 ARBORICULTURAL IMPACT ASSESSMENT

3.1.1. The following Arboricultural Impact Assessment (AIA) evaluates the direct and indirect effects associated with construction of the Scheme on existing trees. It further identifies necessary mitigation measures where these are deemed appropriate.

#### ASSUMPTIONS AND LIMITATIONS

3.1.2. This AIA has been compiled on the basis of the following assumptions and limitations:

##### Assumptions

- That all construction activities will be confined to the area within the Planning Application Site Boundary;
- That the area to the rear of the proposed tree protection fencing is defined as ‘an area within which the maximum feasible amount of vegetation will be retained where possible’; and,
- That suitable site fencing will be established around the entirety of the Planning Application Site Boundary.

##### Limitations

- The contractors spatial working requirements remain unknown; and,
- Enabling works (such as the diversion of services by statutory undertakers) have not been considered.

### 3.2 ARBORICULTURAL FEATURES TO BE REMOVED

3.2.1. Arboricultural features selected for removal are clearly identified on the Tree Protection Plan (TPP) included in **Appendix G** of this report. Details of the arboricultural features to be removed are summarised in **Table 3-1**.

**Table 3-1 - Arboricultural features to be removed sub-divided by type and quality**

BS 5837 Category	Quality	Trees	Tree Group	Hedges
B	Moderate	0	1 (part removed)	0
C	Low	22	14 (12 part removed)	4 (2 part removed)
TOTAL		22	15	4

3.2.2. Construction of the Scheme will require the removal of 22 individual trees and the whole or partial removal of 15 tree groups and four hedges. Trees to be removed are all of low-quality and include T1, T6, T12, T14-T19, T21, T24, T26, T31, T33, T34, T51, T52, T54, T57, T58, T63 and T64. Low-quality tree groups G65 and G86 as well as low-quality hedges H66 and H78 will also be completely removed.

3.2.3. A total of 13 tree groups and two hedges will also be partially removed. These include moderate quality tree group G85, low-quality tree groups G73, G74, G76, G82, G88, G93, G95-G98, G104 and G107. Also identified for partial removal are low-quality hedges H75 and H83.

- 3.2.4. In addition to the 22 individual trees which are to be lost, the total removals equate to approximately 192 linear metres of tree groups, 165 linear metres of hedge and 0.7 hectares of tree cover (groups). With the exception of 36 linear metres of moderate-quality tree group G85, all other losses relate solely to low-quality features.
- 3.2.5. Arboricultural removals have been identified on the basis that they are either located directly within the area of construction or that their RPAs cannot be protected such that they can be sustainably retained. Removals have not been specified in areas where construction access can reasonably be excluded or where RPAs can be adequately protected.
- 3.2.6. Moderate-quality tree group G85 is covered by TPO/BN/1/20. This means that a number of protected trees will need to be removed in order to facilitate construction. The trees to be removed are those located at the northernmost end of the group and represent only a small percentage of all protected trees. The removal of these trees will not result in a significant loss of public amenity or landscape value nor will they significantly reduce the visual amenity of the overall tree group. The proposed tree losses can therefore be tolerated without leading to a devaluation of the TPO.
- 3.2.7. An 18-metre-long line of un-surveyed trees has also been identified for possible removal. These trees located at the southernmost end of the Scheme and their removal will be required should access be required to land outside the Planning Application Site Boundary. It is assumed that the line of trees which may require removal are all of low-quality and of little visual value.
- 3.2.8. With the exception of G85, construction of the Scheme will not require the removal of any moderate or high-quality feature covered by a TPO or any tree identified as having veteran potential.

### 3.3 OTHER ARBORICULTURAL IMPACTS

- 3.3.1. Other identified arboricultural impacts associated with the construction of the Scheme are recorded in **Table 3-2**. Other arboricultural impacts are defined as identified activities which have the capacity, if uncontrolled, to cause damage to arboricultural features which are to be retained.
- 3.3.2. **Table 3-2** provides details of the arboricultural features which are at risk of damage, the likely cause of damage and the mitigatory measures which are required. Implementation of the recommended mitigatory measures will be sufficient to ensure that arboricultural features can be retained without significant loss of value or a notable reduction in health or longevity.

**Table 3-2 – Other identified arboricultural impacts, proposed mitigation and likely effects**

Feature	Cause of Impact (construction of)	Potential Impact	Mitigatory Measures
G98 (TPO tree T9)	Construction access within RPA.	Soil compaction and root damage. Loss of vitality and decline in health Reduction in quality of tree / potential death of tree.	Installation of tree protection fencing to protect as much of RPA as possible. Formation of a protected area which is sufficiently large to compensate for any encroachment into the RPA.
G98 (TPO tree T22)			
T25			
T39			

Feature	Cause of Impact (construction of)	Potential Impact	Mitigatory Measures
All other retained trees whose RPA extends across the Planning Application Site Boundary.			Installation of tree protection fencing to protect RPA.

3.3.3. Identified arboricultural impacts include two TPO trees which form part of tree group G98. These trees referenced as 'T9' and 'T22' within the Order, were not individually recorded during the walkover survey and as such are not included within the Arboricultural Survey Schedule. Their locations were however apparent on the topographical survey which also included data on the height, crown spread and stem diameter. Root protection areas for T9 and T22 have therefore been calculated using topographical survey data and are estimated to have a radius of 6.9 and ten metres respectively.

3.3.4. Identified arboricultural impacts include a requirement for construction access within the RPAs of trees T9, T22, T25 and T39. Access is required in order to ensure that construction can take place. Construction access will be limited by the installation of tree protection fencing as specified within the TPP. Subject to installation of protective fencing, encroachment into the RPAs of trees T9, T22, T25 and T39 will be in accordance with the details provided in **Table 3-3**. Encroachments range from 2% for T22 to 15% for T39. These levels of encroachment are believed to be acceptable on the basis that they will only occur on one side of the RPA, are unlikely to impact the tree's structural rootplate and can be offset by the availability of compensatory rooting volume contiguous with the remainder of the RPA. Construction access should not result in the loss, or degradation, of these four trees.

**Table 3-3 – Encroachment into RPAs of retained trees**

Feature	RPA Area (m <sup>2</sup> )	Area of RPA to be lost (m <sup>2</sup> )	Percentage of RPA to be lost
T9	111	7	6.3
T22	341	7	2.0
T25	652	49	7.5
T39	228	34	15.0

3.3.5. Arboricultural features G71, G74, G76, G78, G81, G85, G91, G97, G98, G104, G107, H69, H75, H84, T2, T3, T7, T9, T22, T25, T39, T40, T41, T44-T46, T50, T55 and T59 all have RPAs which extend into the Planning Application Site Boundary. The RPAs of these features can be fully protected through the use of tree protection fencing as specified in the TPP. These features will therefore remain unaffected during construction.

### 3.4 SEMI-NATURAL BUFFERS FOR VETERAN TREES

3.4.1. Standing advice from the Forestry Commission and Natural England recommends that a semi-natural buffer be maintained between veteran trees and any development. This semi-natural buffer



should be calculated as 15 x stem diameter or five metres beyond the tree's canopy, whichever is greater.

- 3.4.2. Semi-natural buffers of 15 x stem diameter have been applied in respect of potential veteran trees T2, T20, T23 and T42. These buffers are shown on the TPP included in **Appendix G**. In each instance these semi-natural buffers can be wholly retained during construction and can be robustly protected through the appropriate use of tree protection fencing.

## 3.5 MITIGATION FOR REMOVED ARBORICULTURAL FEATURES

- 3.5.1. Mitigation for the loss of trees, tree groups and hedges will occur as part of the post-development soft landscaping scheme. This scheme includes the planting of woodland areas, specimen trees, shrubs and hedges. These landscaping elements have been designed to fully integrate into the Scheme and will provide sustainable and high-quality replacements for arboricultural features which have been identified as needing to be removed.

## 3.6 TREE PROTECTION PLAN

- 3.6.1. A Tree Protection Plan (TPP) is included within **Appendix G** of this report. The purpose of the TPP is to identify trees for retention and show the location and extent of any proposed tree protection measures.
- 3.6.2. The TPP has been compiled in accordance with the following specification:

### General

- The TPP shows the position of each feature including its stem/extent, current crown spread and its root protection area. The features have also been coloured based upon the quality category within which they have been placed.

### Location / extent of arboricultural features

- Arboricultural features have been located using topographical survey data where stem locations have been provided. In instances where topographical data is unavailable then features have been positioned using Ordnance survey data and/or aerial imagery. In these instances, locations should be considered as approximate only and will have an assumed accuracy of two to five metres.

### Root Protection Areas (RPA)

- The shape of the RPA shown on the TPP have been modified where barriers to root growth have been identified. For the purposes of this report barriers are defined as any feature with a substantive foundation or which would obviously form a relatively impenetrable barrier to root growth.
- Barriers to root growth have been identified on the basis that in a typical instance approximately 90% of roots occur in the upper one metre of soil<sup>10</sup>. Barriers do not have to prevent all root growth but simply restrict it sufficiently that the area beyond the barrier is unlikely to be critical to maintaining the vitality of the arboricultural feature. Structures such buildings and roads have

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<sup>10</sup> Roberts, J., Jackson, N., Smith, M., 2006. *Tree Roots in the Built Environment*. London: The Stationary Office

been identified as likely to have substantive foundations such that they will limit/prevent substantive root growth.

### **Tree protection measures**

- The TPP shows the location and extent of the following tree protection information:
  - Tree retention and removals (RPAs shown for all retained trees)
  - Tree Protection Fencing

## **3.7 ARBORICULTURAL METHOD STATEMENT**

3.7.1. The Arboricultural Method Statement (AMS) provided within **Appendix G** adopts a precautionary approach to tree protection and addresses all activities which have the potential to cause damage to retained trees. For the purposes of the Scheme this includes reference to the following matters:

- Arboricultural monitoring
- Protective barriers

3.7.2. It is envisaged that the AMS will be reviewed by the design team during the detailed design phase. The review will include a re-assessment of likely impacts and proposed mitigation. It is envisaged that the AMS will be subsequently amended to reflect any changes and to add additional detail in instances where this is required. Matters which are likely to require consideration or updating include the following:

- The phasing of site clearance and construction activities and tree protection measures;
- Arboricultural monitoring and site supervision;
- The location and specification for protective barriers. (Tree protection barriers should be erected prior to any site clearance or construction activities and should remain insitu throughout the construction process. The area to the rear of the protective barriers must be designated as a construction exclusion zone and is an area where all site clearance and construction activities are prohibited);
- The design and construction of boundary fencing;
- The design and construction of surface water drains, ditches and ancillary structures;
- The design and construction of underground services and ducts;
- The design and construction of any structure within the RPA of any retained tree. These should include footpaths, stiles, gates and boundary fencing; and,
- The tree protection measures and working methodology to be applied to soft landscaping activities within the RPA of retained trees.

3.7.3. The AMS must be read in conjunction with the Construction Environmental Management Plan, the Tree Protection Plan and all relevant design drawings, specifications and method statements.

3.7.4. The AMS should be viewed as a 'live' document and should be subject to regular review prior to and during construction.