



Registered Charity Number 204644

Hobson's Conduit Trust

The Guildhall

Cambridge

Please reply to

26, Highfield Avenue

CB4 2AL

19th September 2025

Secretary of State for Transport

Department for Transport

Great Minster House

33 Horseferry Road

London

SW1P 4DR

Attn: Transport Infrastructure Planning Unit

BY EMAIL ONLY: transportinfrastructure@dft.gov.uk

Dear Secretary of State,

Re CAMBRIDGE SOUTH EAST TRANSPORT ORDER

HOBSON'S CONDUIT TRUST STATEMENT OF CASE

I write to confirm that we consider that we have already set out our case in full in our objection letter dated 7th March 2025.

We therefore request that our objection letter be treated as our Statement of Case.

Since 7th March 2025 we have not received any firm written confirmation from the Applicants or their advisers in relation to revisions to the proposed boundaries for Construction Compound 7 to move these away from Nine Wells and the Brook. The potential impacts of this Construction Compound therefore remain a major issue for the Trust, thus far unresolved.

Therefore, the possible removal of our objections to Construction Compound 7 and the mitigation some of the risks and potential deleterious impacts created by it that we set out in paragraphs 111 and 112 of our Letter of Objection of 7th March is not operative. Pending receipt of specific proposals from the Applicants in writing, the full related objections and concerns remain as set out previously in our Letter of Objection.

We set out below riders to the following paragraphs of our letter of 7th March:

Paragraph 92

We include below a photograph taken on 8th March 2021 when an exploratory trench very similar in location and dimensions to the proposed Ecology Pond 3 was dug on behalf of the Applicants. This photograph shows that the trench filled with groundwater very quickly.

Rainfall at the time was wholly insufficient to have filled this trench, as the relevant records confirm. We made this point at the time to the Applicants and to Mott MacDonald who were then advising them.

We therefore consider it beyond any doubt that Ecology Pond 3 as proposed, and most probably also the nearby Attenuation Pond 1, will impact the groundwater and hydrology around Nine Wells.

We have attached to this letter a report from GWP Consultants dated 19th September 2025 and entitled 'Water-related Concerns of Vulnerability of Nine Wells springs to the CSET'.



Photograph taken at 10.43 am on 8th March 2021 by J. A. Latham looking towards Nine Wells from the DNA path. Hobson's Brook is to the left of the view.

Paragraph 109

We will be providing an expert report on Landscape from Alison Farmer Associates. This will expand on the points that we have made in relation to Landscape.

Paragraph 109 (b)

We note the comments at paragraphs 7.15 and 7.16 in relation to River crossings made by the Joint Planning Service of South Cambridgeshire and the City of Cambridge in Appendix 1 to their report on CSET to South Cambridgeshire Council cabinet dated 24th June 2025.

‘River crossings

7.15. The Design Principles document should explain how these structures have been designed to integrate into the landscape and contribute to a cohesive identity for the busway across the project. Materials, finishes, and colours should be considered and included.

7.16. There are potential challenges in establishing planting alongside bridges and other structures due to local ground conditions and dry weather patterns which should be explored. The Design Principles document should explain the types of planting proposed, particularly the differentiation between reinforced embankments with geotextiles and unreinforced embankments. Details should also be provided on the design of vegetated retaining walls and noise attenuation bunds and how these will be effectively integrated and planted within the landscape as much as possible.’

Paragraph 110

We note the following comment made by the Joint Planning Service of South Cambridgeshire and the City of Cambridge in Appendix 1 to their report on CSET to South Cambridgeshire Council cabinet dated 24th June 2025.

‘7.14 The visualisations show bright and prominent barriers alongside the busway and maintenance track, which could accentuate the impact of the busway on the landscape. Alternative materials should be explored and referenced in the Design Principles document to guide the detailed design and selection of materials.’

We have been requesting exactly this, the use of alternative materials for the crash barriers to be used in sight of Nine Wells (VP 6), for some considerable time. We have suggested alternatives used successfully elsewhere in the United Kingdom and Europe. Indeed, this would apply to other elevated locations with barriers along the proposed route.

That remains our request.

Paragraphs 116 and 118

We believe that we have now identified the drawings relating to the proposed temporary structure referred to, which we now believe to be a footbridge intended to carry the temporarily re-routed DNA cycle and pedestrian path during construction. We are concerned that the excavations for the concrete pads intended to support the bridge in this location will be potentially harmful to the hydrology of Nine Wells, and we will therefore want to see careful analysis of the relevant areas of ground and the intended construction method before we can agree to this proposal.

If the boundary of Construction Compound 7 is moved, as we have requested, some distance away to the north west of Nine Wells LNR, and away from the Brook, there will be no reason why this temporary bridge and the re-routed DNA path cannot also be moved to the north west, away from the immediate surrounds of Nine Wells.

However, even if that were to be done, we still wish to see careful analysis of the anticipated impact of the related excavations before giving this further consideration with a view to approving the structure. We note that in relation to the Cambridge South project (CSIE TWAO) we have been asked by Network Rail in accordance with the Protective Provisions in the CSIE TWAO to provide our prior agreement for such details of **all** such bridge structures over the Brook to the west of the railway, and we have done so promptly.

Paragraph 123

We have now identified in the drawings the proposed structure plan for a 45 metre long culvert for the South Ditch.

This length of culvert is excessive, unnecessary and unacceptable. It will be a deterrent to free movement of animals, such as Water Voles, and will present maintenance difficulties.

It should be two much shorter culverts presenting a less daunting route for wildlife with a suitably profiled and planted section of open channel between them. The Trust's concerns outlined in paragraphs 122 and 123 remain.

Paragraph 125

There is evidence that Water Voles are present along the South Ditch. We have attached a report on Ecology from Bioscan (UK) Ltd 'Hobson's Conduit and Nine Wells Independent Ecological Appraisal' Bioscan Report No.E2256/1 dated July 2025 and in this regard we refer to paragraph 5.2.2.1 of that report.

The report from Bioscan should, however, be read in conjunction with our Letter of Objection/Statement of Case as a whole, as it provides a comprehensive assessment of the potential impacts of the proposals on the ecology along the relevant stretch of the Brook from Nine Wells to the railway and in the immediate vicinity, and demonstrates serious weaknesses in the applicants' submissions on ecology.

In this context we again refer to Appendix 1 of the report on CSET to South Cambridgeshire Council cabinet dated 24th June 2025 by the Joint Planning Service of South Cambridgeshire and the City of Cambridge .

We consider that the whole of Section 9 Biodiversity and Ecology of that report should be read alongside our Statement of Case, and the range of commentaries, stipulations, concerns and recommendations made in that Section in relation to shortfalls in the surveys offered by the Applicants should be attended to forthwith, and appropriate actions and amendments to the Applicants' proposals should follow, ideally before the planned Public Inquiry.

Finally, coherent with the Trust's Case, we wish to highlight the following paragraphs from that section of the Joint Planning Service's report to South Cambridgeshire Council:

'9.14. The Councils raised in their representation concerns about the impact on Hobson's Brook and Nine Wells LNR resulting from the construction and operational phases. Hobson's Brook is an Awarded Watercourse to the City Council [and is owned

through the Tripartite Indenture of 1610 by Hobson's Conduit Trust] (*but within SCDC administrative area within this location*) and a designated chalk stream. It becomes a CiWS once it enters the city boundary. The City Council has been actively engaged in its restoration through the Greater Cambridge Chalk Stream Project. The Nine Wells LNR has the springhead which is the source of the brook. Therefore, construction and operational works within the area of the LNR and the brook have the potential to impact on this important chalk stream.

9.15. The proposed construction compound to the north of Hobson's Brook is positioned in close proximity to the Nine Wells LNR and its boundary encompasses the brook on its southern side. A temporary bridge crossing Hobson's Brook is also proposed in a sensitive location where the brook exits the Nine Wells LNR. The brook becomes a CWS approximately 300 metres downstream from the proposed temporary crossing and 175 metres from the boundary of the works and compound. The potential for debris and runoff from the construction compound and the temporary crossing entering the brook poses a significant risk of pollution during construction. The ES notes the use of "best practice mitigation" will be sufficient mitigation, however, this does not provide confidence that the potential impacts have been fully considered.

9.16. The Councils have therefore requested further information on whether alternative locations have been considered for the construction compound in areas further away from Hobson's Brook to mitigate the potential environmental risks. If an alternative location is not possible, then the site compound boundary should be set back from Hobson's Brook as much as possible, excluding the brook's banks and allowing sufficient easement to maintain access and wildlife corridor. Further discussions will be

required on the detailed wording of an appropriate condition to secure surface water drainage mitigation measures to avoid pollution entering the brook during construction.

9.17. During the operational phase, the proposed Attenuation Pond 1 and Ecology Pond to the south of Hobsons' Brook would be in close proximity to the Nine Wells springhead. The location of these ponds may influence groundwater levels, potentially affecting the Nine Wells springhead and subsequently the flow of the brook. This could adversely affect the ecological value of this important chalk stream. In addition, as groundwater levels are relatively high in this location, safeguards need to be put in place to make sure that no pollutants will enter the groundwater system. The Council has requested further assessment of the impact of the ponds on groundwater levels, flow into the brook and the potential for pollutants to enter the brook to be carried out. The Councils have also requested that the ponds are repositioned further from the Nine Wells springhead and Hobson's Brook if possible to avoid any potential issues.

9.18. Therefore, the Councils are not currently satisfied that the application has demonstrated the proposal would have an acceptable impact on sites of ecological importance as required by SCLP policy NH/5 and CLP 2018 policy 69, or that the proposal would not harm the quality of ground or surface water as required by SCLP 2018 policy CC/7. The Councils have requested further information, assessment and mitigation measures to be provided for review before further comments can be made.'

Yours sincerely

J. A. Latham.

John A Latham

Chairman,

Hobson's Conduit Trust

Attachments

1. Report on Ecology: Bioscan (UK) Ltd 'Hobson's Conduit and Nine Wells Independent Ecological Appraisal' Bioscan Report No.E2256/1 dated July 2025
2. Report on Hydrology: GWP Consultants LLP Letter Report No: 250912 'Water-related Concerns of Vulnerability of Nine Wells springs to the CSET' dated 19th September 2025
3. *To follow:* Alison Farmer Associates 'Hobson's Brook and Nine Wells – Landscape Appraisal in the Context of CSET Proposals'



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Dear Secretary of State,

Re CAMBRIDGE SOUTH EAST TRANSPORT ORDER

HOBSON'S CONDUIT TRUST OBJECTIONS

I, John Arthur Latham, of 26, Highfield Avenue Cambridge CB4 2AL, am writing as Chairman of Hobson's Conduit Trust to state the Trust's formal objections to the

application for a Transport and Works Act Order to the Department for Transport (DfT) for a new busway to the southeast of Cambridge, as submitted by Cambridgeshire County Council with the Greater Cambridge Partnership on 9th January 2025, the ‘Cambridge South East Transport Order’, covering a scheme also referred to below as CSET2.

2. The Trustees’ Objections are set out in detail below.

3. Instead of the proposed CSET2 scheme the Trustees much prefer the alternative, mainly on-road route proposed by Better Ways for Busways, all of whose objections we support. This alternative route would cause no damage whatsoever to Hobson’s Brook or to the character of the highly sensitive area of and around Nine Wells, the principal source of Hobson’s Brook. By using the existing A1307 route, building sections of bus lane adjacent to the A1307 and 1 mile of new road (busway) and repurposing existing road lanes, this much cheaper alternative would avoid the unnecessary taking of green belt land in such a vital, sensitive and crucial landscape close the edge of Cambridge. The alternative would involve much less heavy engineering, with much lower embedded carbon. It would be much quicker to build and implement, obviating the need for the Order being sought for CSET2, provides analogous advantages, and would thus offer much faster relief for inbound movement into the Addenbrooke’s and Biomedical Campus sites from the south eastern axis.

4. The Trustees therefore contend that the proposed construction of 5 miles of new bus road through open countryside and Cambridge’s green belt is unnecessary in order to deliver needed improvements in transport. We contend that similar transport and economic benefits can be achieved by building a version of the much lower cost on-road scheme proposed by the applicant (Greater Cambridge Partnership) in 2018, but since discarded by the applicant in favour of the CSET2

scheme set out in the draft TWAO and related documents. We do not believe that the applicants have demonstrated clearly or convincingly in their application the reasons why they have not pursued the lower cost alternative which was also favoured by respondents to earlier consultations. Nor have they taken into account significant relevant changes including for example the post-pandemic changes in working and traffic patterns, or the forthcoming opening of Cambridge South Station. We note too the anticipated further housing developments on County Council land close to Babraham Road and planned developments associated with Phases 3 and 4 of the Biomedical campus, including the access road.

5. If the alternative scheme were to be pursued instead of the scheme set out in the draft CAMBRIDGE SOUTH EAST TRANSPORT ORDER (CSET2), the damaging impact of CSET2 on Nine Wells and Hobson's Brook would not take place because the alternative route completely avoids Nine Wells and Hobson's Brook. For the Trustees this fact is compelling, and would not give rise to the range of objections from the Trustees that are set out below.

6. The Trustees consider that the proposed construction method for CSET2 places an unexplained and unjustified emphasis on the use of concrete and cement bound aggregate in construction of the busway. As well as adding still further to the high embedded carbon of the CSET2 scheme, the use of such extravagant volumes of concrete and cement bound aggregate in the build-up of the road, as well as concrete for bridge structures, creates serious risk to the riverine and wider environment and has a high toll in embedded carbon. This high carbon toll would take years to mitigate through lower car emissions from any modal shift away from car use that may be generated by CSET2. Such vehicle emissions would in any case be expected to be falling in that period through well understood general measures that are current UK Government policy, and consequent trends in car propulsion systems.

7. Hobson's Brook and Conduit form a unique Chalk Stream and ancient man-made watercourse that rises at Nine Wells, and continues to the River Cam via Vicar's Brook, and then brings water to the centre of Cambridge via Hobson's Conduit.

8. Hobson's Conduit Trust and its predecessors have for nearly four centuries been responsible for the care, maintenance and enhancement of Hobson's Brook and Conduit and the associated historic structures. The Trust is a registered Charity Number 204644.

9. The CAMBRIDGE SOUTH EAST TRANSPORT ORDER (CSET2) proposals would directly impact Hobson's Brook and Conduit as well as Nine Wells. Our own objections relate specifically to impacts at and around Nine Wells, including the proposed CSET2 bridge over the Brook and the anticipated impacts on hydrogeology of the proposed Bridge and Ecology Pond 3 and Attenuation Pond 1, the proposed Construction Compound 7, the scale and extent of the related proposed Compulsory Purchase and the proposed Protective Provisions for Hobson's Conduit Trust.

10. The Trustees do not believe that these and related impacts of the proposed CSET2 scheme can be fully mitigated so as to offer adequate and comprehensive protection for Hobson's Brook and Nine Wells.

11. However, in our Letter of Objection set out below, where appropriate, we specify mitigations against many of the specific impacts and issues arising to which we object. We wish to clarify at the outset that these mitigations would apply in circumstances where the Secretary of State is minded to grant the CEST2 TWAO. If this were to transpire, then these are the mitigations that we would be seeking during (1) the construction phase and (2) during the operative phase. The proposed mitigations do not detract from the strength of the related Objections made by the Trust.

12. We have provided the applicants with the Tripartite Indenture of 1610 which establishes our 1,000 year tenure of the watercourse and rights over land six feet either side of it, and sets out the related maintenance obligations carried out by Trust with specialised assistance. We are the only local entity with such wide and continuing responsibilities, and we are one of three prominent local charities that are specifically interested in conservation and protection of the landscape to the south of Cambridge.

13. We are solely responsible for ensuring the continuous supply of high quality clean water to the lake in the registered Cambridge University Botanic Garden and the water features in the registered gardens of Emmanuel and Christ's Colleges via Hobson's Conduit.

14. The Brook and Conduit are important habitat for fish, birds, animals, notably Water Voles, and invertebrates along the whole watercourse from Nine Wells to the City Centre. The watercourse is a prized and unique chalk stream environment and is the vital core of a green corridor that is continuous up to Lensfield Road.

15. It is therefore of the highest importance to the Trustees that every possible care is taken to maintain the highest possible quality of water entering the Brook at all times, and to ensure that new developments that contribute surface water and ground water flows to the Brook and its tributaries, notably the North and South Ditches from the Addenbrooke's site and the Cambridge Biomedical Campus, are so arranged that risk of pollution is minimised, and flow rates are kept within the site-wide maxima. These considerations are set out in the enduring legal agreements (Deeds) between the Trust and other parties covering the whole site including surface water drainage from Francis Crick Avenue and all of Phase 2 of the Cambridge Biomedical Campus, both highly relevant for CSET2, as well as covering the whole Clay Farm residential development.

16. In order to protect the springs that feed the watercourse, Nine Wells was purchased jointly by the University and the Borough of Cambridge in 1835 under the Great Shelford Enclosure Act. This shared endeavour at Nine Wells mirrors the original joint venture between the University and the Town that underlay the creation of Hobson's Conduit. The Local Nature Reserve is managed by Cambridge City Council, but as set out above it is clearly axiomatic that the Trust is very specifically and outstandingly concerned with the protection of Nine Wells and its environs.

17. In order to protect the flows to Hobson's Brook from the springheads at Nine Wells, a long-sought augmentation scheme was commissioned by Cambridge Water Company under the auspices of the Environment Agency in 2020. This augmentation scheme involves a pipeline from Cambridge Water's PWS borehole in Babraham, and recognises the fragility of the aquifer and flows of spring water at Nine Wells. The existence of this major environmental protection scheme adds to the importance of avoiding actions in the vicinity of Nine Wells that could damage the hydrogeology around the springs and the Brook. The CSET2 scheme creates various new intrinsic risks to the springs and flow in the Brook which must be avoided, and any related potential risk to continuity of augmentation flow must be avoided.

18. The Trustees are therefore dismayed that the draft Order documents place insufficient weight and emphasis on the protection of Hobson's Brook and Nine Wells and their surrounds, indeed, repeatedly and notably throughout the Environmental Statements the applicants seek to dismiss or downplay these matters and the range of treats to them from the CSET2 scheme. We require that suitable additional analysis and protection work be performed and exhibited by the applicants and additional safeguards are inserted before the TWAO is given any approval.

19. The Trustees work with the Environment Agency among others to protect the Brook and Conduit, but we simply do not accept the various contentions that are made by the

applicants that the Environment Agency will be in a position to provide day-to-day oversight during construction. The Trustees have the required knowledge, experience, focus and the latest technology for real-time and regular monitoring of flow and water quality at key locations at Nine Wells and in Hobson's Brook and its tributaries.

20. We are also highly experienced in reviewing and authorising by way of Deeds of Grant and Licences, construction activities all over the Cambridge Biomedical Campus and Addenbrooke's sites where surface water drainage to the Brook or dewatering features. In essence that involves us in frequent discussions with the developers and managers of every new building and piece of construction on these sites, and with their advisors.

21. The Trustees contend that whilst the Environment Agency's role is widely understood, it does not extend to the type of in-advance or contemporaneous comprehensive critiquing and policing role that the applicants seek to portray in the draft Order's supporting documents, notably the Environmental Statement. This demonstrates either ignorance on the part of the applicants, or a wilful attempt to avoid ongoing scrutiny by seeking to place reliance on an entity that is neither staffed nor resourced to offer such ongoing oversight and acceptance services.

22. No doubt the Environment Agency will need to be asked to consider and in due course to give its permission for the bridge piling and dewatering elements of the proposals. Typically, the Trustees would base our own permissions and licence on any such licence given by the Environment Agency.

23. We consider that the Water Resources Act 1991, Section 24 and the Water Abstraction and Impounding (Exemptions) Regulations 2017, especially Regulation 5 (2), will be relevant in relation to the proposed piling of the proposed bridge over Hobson's Brook, and an Environment Agency licence will be required.

24. We also note that the Environment Agency will be particularly concerned if, as we do, they anticipate, among other things:-

- discharge of silty water containing fine or coarse suspended solids into surface water
- discharge of site drainage from surface areas such as haul roads, storage or working areas
- pollution of surface water
- discharge of water containing any chemical dosing agents, flocculants or coagulants
- discharge from a site which is contaminated by oil, metals, hydrocarbons, solvents or pesticides or other polluting substances
- any flooding from surface water
- erosion of the banks or bed of Hobson's Brook as receiving watercourse
- any discharge of concrete wash water even if it has been treated
- any discharge from a site with naturally elevated concentrations of substances which exceed environmental quality standards

We note, in these regards, inter alia, page 161 of the Environmental Statement.

25. These concerns relate particularly to construction of the proposed bridge over Hobson's Brook, and activities at the proposed nearby Construction Compound 7 and along haul and access roads draining into Hobson's Brook, and are matters that we will be raising with the Environment Agency.

26. As well as being a Local Nature Reserve, and the source of the spring water from the chalk that forms the base flow of the Brook, Nine Wells is a prized and much-loved community asset and haven of tranquillity, not only for residents, but importantly for those who work at Addenbrooke's and on the Biomedical Campus. The presence of

CSET2 with its wholly inadequate mitigation measures will debase the great value and growing importance of Nine Wells to the local community.

27. Hobson's Conduit Trust (HCT) has multiple objections to the CSET2 scheme, as currently set out in the draft Cambridge South East Transport Order and associated documents. As outlined above, these apply to the overall scheme and also specifically to the section from Francis Crick Avenue at the north end to the south end of the triangular field west of Nine Wells Local Nature Reserve (LNR) and Local Geology Site (LGS) and to the proposed busway drainage arrangements south of there, to the south towards Granham's Road with significant drainage flow towards Hobson's Brook.

28. Our Objections are set out below but in summary are:

A. General Objections

1. General objection to the route
2. HCT's Legal Rights regarding drainage are ignored
3. The TWAO and its associated documents seek to extinguish or over-ride the Trust's rights

B. Specific Objections

4. Insufficient weight is given to the historic and ecological importance of the Brook and Nine Wells
5. The proposed Compulsory Purchase land take area outlined in the submitted plans includes Hobson's Brook from Nine Wells to the eastern edge of the railway. This is excessive and is completely unacceptable to HCT.

6. Some aspects of the design of the busway and its immediate surroundings in the specified area would cause significant harm to Nine Wells, the Brook and their immediate surroundings.
7. The TWAO in its present wording, with associated plans and diagrams, fails to acknowledge and provide mitigation measures for the probable significant harm caused to Nine Wells, the Brook and their immediate surroundings in the specified area during both the construction phase and the operational phase.
8. The proposed Protective Provisions provide an inadequate scale of protection for the Brook.

A. GENERAL OBJECTIONS

OBJECTION 1

29. Hobson's Conduit Trust (HCT) has a general objection to the route of the CSET2 busway where the busway passes close to Nine Wells and over Hobson's Brook, and to related features such as the proposed bridge over the Brook, the embankment, and Construction Compound 7, and the ancillary features related to them.

30. HCT's objection stems from the proposed route of the busway where it passes close to Nine Wells and Hobson's Conduit, hereafter referred to in that vicinity as Hobson's Brook. This proximity would be seriously damaging to both, and their setting, in many ways (see further Objections). In overall terms it would have a massive adverse impact on the general character of the landscape surrounding Nine Wells and Hobson's Brook, which is currently rural, quiet, open and attractive, with the Biomedical Campus in the distant background to the north and the railway line, with trains passing by, to the west. This last has been a feature of the area for nearly two centuries.

31. To the east of Nine Wells the ground rises in a prominent and important feature, White Hill, which is in agricultural use. This has been found, through aerial photography and field survey, to be the site of a significant prehistoric site and is therefore archaeologically sensitive (Boreham, Boreham and Billington 2018; Boreham, Boreham and Billington 2021).

32. The intrusion into this peaceful, largely rural area of a huge, manmade, industrial structure, much of it raised above ground level (2.4 m height of the underside of the bridge deck above the Brook, plus a similar combined height of the bridge structures above that) with the busway running along a massive new embankment either side topped by crash barriers, involving extensive use of concrete, to take the busway past Nine Wells and over Hobson's Brook. This massive intrusion would completely alter the character of the area.

33. Nine Wells, a Local Nature Reserve and Local Geological Site, would be hemmed in. Hobson's Brook would have to pass under a 14.5 m wide, 15 m long concrete bridge deck which will create a dark, sterile cavern with little sunlight penetrating for most of the day. This will be unattractive to fish and will deter other wildlife movement.

34. The busway would visually and physically dominate this relatively small, at present rural, area. The landscape setting of Nine Wells and Hobson's Brook would undergo immense long-term, irreparable harm. The change in character would lessen the historical and ecological values of Nine Wells and Hobson's Brook as well as diminish their amenity value.

35. At present the surroundings of Hobson's Brook and Nine Wells, and Nine Wells LNR itself, are a much used, much loved peaceful refuge and recreational area for the many

people living locally and employed on the Addenbrooke's and Biomedical Campus sites. The amenity value of the area is high at present. The intrusion of the busway, on its massive embankment, and passing buses, would seriously reduce the area's value and tranquil attractiveness in this respect.

36. We do not accept or agree that the proposed route is the correct response to the ever-increasing needs for access and transport to Addenbrooke's and the Biomedical Campus.

37. We are fully aware of the urgent and growing need for improved and expanded sustainable transport provision, and the Trustees do support more appropriate schemes. Our full support for Cambridge South Station and related infrastructure is a matter of record.

38. As we have stated above, previously and over an extended period, the Trustees would much prefer a route for improved bus services that completely avoids Nine Wells, and the A1307 on-road alternative offers precisely that (Strategies 2 and 3 in Section 4 of the Environmental Statement).

39. It is not evident to us that this much lower cost alternative, both in monetary and environmental terms, requiring far less intrusive heavy engineering and embedded greenhouse gasses, has been properly assessed and weighed against the CSET2 scheme.

40. As the body responsible for an important local watercourse we are naturally also concerned about the River Granta and we deplore the impact that the proposed scheme will have on the Granta valley. This too would be avoided by the lower cost A1307 alternative. We are also acutely aware of the importance and fragility of the

landscape around the Gog Magogs, not only as the catchment for flows at Nine Wells. This would be widely and negatively impacted by the CSET2 scheme.

41. We reiterate the Trustees' concern that the proposed CSET2 scheme will have a permanent irreparable deleterious impact on the setting of the Brook to the east of the railway, and on Nine Wells Local Nature Reserve and Local Geological Site, and on its amenity value and to the Grade II listed monument.

OBJECTION 2

HCT's established legal rights regarding drainage are ignored

42. HCT has an over-arching set of powers covering the whole Addenbrooke's, Cambridge Biomedical Campus (and Clay Farm) sites in relation to surface water drainage, which includes both Francis Crick Avenue and Dame Mary Archer Way, as well as Discovery Drive, and all buildings constructed and to be constructed in the area delineated in the initial such Deeds.

43. All entities seeking new construction in the area covered by the Deeds are required to agree the details of surface water drainage arrangements with HCT and to keep to the limitations set by the over-arching Deeds. Once the Trust is satisfied with such details we may agree a Deed of Grant for an individual construction project. For de-watering during construction we may agree to offer a licence.

44. These legal arrangements include land comprising part of Phase 2 of Cambridge Biomedical Campus near to the Addenbrooke's Road Roundabout through which the

proposed busway passes. Therefore, we require that Cambridgeshire County Council or other Undertaker in due course shall enter into specific drainage arrangements that will also be legally binding on any contractors. Such arrangements will need to be sufficiently robust that they will satisfy the Trustees.

45. The Trustees are perturbed that no mention is made in the TWAO and related documents of such well-understood legal arrangements that are on the Public Register and are consistently and carefully complied with by every developer operating on the sites covered by the Deeds. These are fully understood as is the need for them, and the underlying concepts and restrictions are all fully accepted by all of them and their respective legal advisors.

46. These legal arrangements cannot be unknown to the advisors, solicitors and agents involved in the preparation of the draft TWAO and we see their omission as, at best, a serious oversight.

OBJECTION 3

The TWAO and related documents seek to extinguish or over-ride the Trust's rights

47. Examples are Articles 18, 33, 34 and 35 (2) of the Draft Order and the diagrams showing the Construction Compound 7 adjacent to Nine Wells, but there are many other detailed examples. All and any such concepts are oppressive, inappropriate, unnecessary and completely unacceptable to the Trust.

B. SPECIFIC OBJECTIONS

OBJECTION 4

The TWAO and associated submissions do not give sufficient weight to the historic and ecological importance of Hobson's Brook and Nine Wells

48. The TWAO seriously underplays the importance of Hobson's Brook and Nine Wells in terms of their historic, ecological, hydrological, geological and visual value. These values are high and have been well set out in various documents (Bushell 1938, Whittle 2017) and in Tony Eva's film '*Pure, Clean Water*', 2023. The serious detrimental effects of the CSET2 scheme on the Brook and Nine Wells are consistently downplayed to levels such as 'negligible' in tables in the Environmental Statement describing the impacts of the CSET2 scheme.

49. We object to such dismissive terminology as 'Negligible' and 'Neutral / Slight adverse Not significant' being used repeatedly in Section 8.5, Impact Assessment, of the Environmental Statement Volume 2 to describe the significance of potential impacts. The 'Residual effects' column sets out in detail a range of deleterious effects, any of which could have major and enduring impacts downstream including on the considerable fish populations, which we can confirm, extend up to Nine Wells through the Brook section impacted by CSET2. Impacts of pollution of the Brook could easily extend to the River Cam via Vicar's Brook which is fed by Hobson's Brook, as well as the lakes and water features in the Cambridge University Botanic Garden, and Emmanuel and Christ's Colleges.

50. At this juncture we would expect to see a less dismissive, and much more meticulous assessment and recognition of detailed identified environmental risks to the

Brook and Nine Wells, and the potential for damage, and site and risk specific, rather than generalised and generic avoidance and mitigation measures, with what amounts to little more than wishful thinking about the effectiveness of proposed precautions and mitigations if the Secretary of State were minded to grant the CSET2 TWAO measures.

51. In the Environmental Statement Volume 2 at page 39 Figure 3.21 the only offered photograph of Nine Wells appears. This appears to the Trustees to have been purposefully and carefully selected for inclusion so that the normally limpid quality of the water issuing from the spring heads is not captured. On the contrary.

52. Since 2017, interrupted by the pandemic, the Trust has undertaken annual Bioblitz (effectively a series of 24 hour location specific) surveys, and other surveys including by use of eDNA. The Bioblitz events involve species experts investigating specific areas along the green corridor centred on the Brook and Conduit from Nine Wells, and taken together these various surveys now cover all but one part of the whole length. Species identified in each Bioblitz have averaged over 200, but in each study location a different mix has emerged. There are therefore species found to be present at Nine Wells, and along the Brook to the east of the railway that have not been identified elsewhere along the Brook. This underlines the quality and diversity of the ecology to be found along the whole length of the Brook, but highlights the unique habitat at and close to Nine Wells. We also commission regular professional Water Vole and other ecological surveys before undertaking maintenance work.

53. The Trustees are also actively involved with A-Level studies at the Cambridge Academy of Science and Technology, with students' field study work focused on the Brook. The Trust is also looking forward to soon commencing sponsorship of a postgraduate student at Anglia Ruskin University whose PhD will focus on managing the Brook for optimised ecological value. It will therefore be obvious that the Brook has recognised value as an educational resource, and for citizen science.

4 (i) Hobson's Brook

54. Throughout the draft TWAO and related documents the great historic importance of Hobson's Brook is underplayed, if not forgotten. It is not referred to as an historic watercourse at any point but is called a ditch or culvert. For instance, in Figure 10 (p.13) Hobson's Brook is referred to as a culvert and ditch. In the Environmental Statement Volume 2 page 154 it is stated that the watercourse [Hobson's Brook] 'is most adequately described as a ditch'. This is gratuitous, inappropriate, and at best misleading.

55. Hobson's Brook, constructed for the most part as an artificial waterway 4.6 km long in the first decade of the 17th century, over 400 years ago, is of immense local, regional and national historical importance. It is a rare and very early example of an artificial watercourse, constructed to bring fresh, clean water into an urban area for public use. In the early 17th century Cambridge was a town of very poor public health, mainly owing to the lack of clean drinking water. The Brook is a very carefully and cleverly engineered construction, with a very small fall of only 2.36 m. in level from its source, Nine Wells, to its overground termination, Hobson's Conduit Head. On the way it supplies water to the lake in the Cambridge University Botanic Garden. From the Conduit Head water from the Brook feeds the two runnels in Trumpington Street (Listed Buildings, Grade II) and flows in underground channels and pipes to several destinations, principally the lakes and water features in the Registered historic gardens of Emmanuel and Christ's Colleges.

56. Hobson's Brook is a chalk stream. Chalk streams are rare and often endangered. There are estimated to be only 200 - 280 in the world, of which 85% are in the UK. Their water is exceptionally pure and they are home to a rich and varied wildlife

57. The TWAO also gives insufficient weight to the high ecological value of Hobson's Brook.

58. There is no acknowledgement of Hobson's Brook as being of high ecological value. The TWAO documents state that the only water courses (within the TWAO corridor) seem to be 'rivers, ditches'. The Brook is not designated in the TWAO and the related documents as a *protected ecological site*. It is the view of HCT that there is sufficient evidence to show that it should be given this high level of protection.

59. The entire length of Hobson's Brook has been found, through various ecological surveys, to be of high ecological value (Boreham 1990, Hobson's Bioblitz at Nine Wells 2017, MKA Ecology water vole surveys for Hobson's Conduit Trust). Water quality and eDNA surveys have shown that the Brook is very biodiverse and therefore of great ecological and biodiversity value. This high value applies to the section of Brook between Nine Wells and the railway line to the west. It is particularly vulnerable to damage through pollution and disturbance.

60. The Trustees are therefore greatly concerned that insufficient care and seriousness of intent has been shown by the applicants in the taking, and ensuring implementation by contractors, of specific and careful measures to safeguard Hobson's Brook. In that regard too, the Protective Provisions are inadequate, and the proposed reliance on the Environment Agency to provide ongoing monitoring of construction methods and activity is wholly inappropriate and glib.

4 (ii) Nine Wells

61. The TWAO also gives insufficient weight to the importance and sensitivity of Nine Wells and downplays the serious detrimental effects that the CSET2 scheme would

have on it. This is evident in the analyses of these effects in the Environmental Statement. Nine Wells is a small area of mixed woodland in which several chalk springs arise. The water from the springs converges at the south end of the area and flows northwards in Hobson's Brook.

62. Nine Wells is designated as a Local Nature Reserve (LNR) for its rich and varied aquatic, terrestrial and avian wildlife. It is also designated as a Local Geological Site (LGS) 'for its unique blend of geology, geomorphology, hydrology, ecology, history and education value' (<https://www.cambsgeology.org/local-sites/ninewells>). HCT notes that the TWAO mentions the fact that Nine Wells is a LNR several times but only fleetingly mentions its designation as an LGS. This is a serious omission and indicates that insufficient weight is given to these values of Nine Wells.

63. Nine Wells is also of great historical importance in two ways: first, water from its chalk springs is the main source of water for the historic watercourse of Hobson's Brook. Secondly it contains an important monument, in the form of a stone obelisk on a plinth, to the benefactors who gave money for the construction of Hobson's Conduit. This obelisk was erected in 1861, by public subscription, and is protected as a Listed Building, Grade II. It was sited so as to be seen from trains on the adjacent railway.

64. Although the TWAO documents mention the Listed monument, no reference is made to the fact that the Nine Wells springs supply the water to the historic Hobson's Conduit, and the fact that the two are inextricably linked.

Proposed mitigation if the Secretary of State were to grant the CSET2 TWAO

65. The TWAO and its associated documents must recognise the high historical and ecological importance of Hobson's Brook and the ecological, geological and historical value of Nine Wells. These aspects of Nine Wells and Hobson's Brook should be given far more weight in the Environmental Statement and elsewhere.

66. Nine Wells, Hobson's Brook and their immediate surroundings should be removed from the Granta Valley LCA and be given a separate LCA, with a 'high sensitivity' value. See paragraph 109 below.

67. Stronger measures should be included to protect the area from harm during both the construction phase and the operational phase, including by widening and strengthening the Protective Provisions.

68. Terminology throughout the TWAO should be changed to recognise the Brook's significance. 'Ditch' and 'Culvert' should be changed to 'Brook', 'historic watercourse' and so on.

69. At no point in the TWAO is the South Ditch, an important feeder ditch which drains water from the Biomedical Campus into Hobson's Brook, named or given proper consideration. In the Environmental Statement, p. 39, Section 3.1.9 states that the Site crosses a Drainage Ditch. This is the South Ditch and should be referred to throughout as such.

70. Hobson's Brook, Nine Wells and their immediate surroundings should be designated as a *protected ecological site*, or sites, in the TWAO and related documents.

71. The surroundings should include the field to the north of both, to be used as a temporary construction site compound, Construction Compound 7, which has been shown through survey work (Meed 2022) to be rich in wildlife, particularly bird life. They should also include the triangular field to the west, south of the compound, where two ponds are proposed (Ecology Pond 3 and Attenuation Pond 1). They should also include the small area at the north end of the compound where two ponds (Ecology Ponds 1 and 2) are proposed. They should also include the South Ditch, an important feeder to Hobson's Brook, which runs south-westwards and then south from the Biomedical Campus to join Hobson's Brook just east of the railway.

OBJECTION 5

As delineated on Sheet 2 of the Works and Land Plan and elsewhere, the proposed land take area outlined in the plans includes Hobson's Brook from Nine Wells to the eastern edge of the railway. This is completely unacceptable to HCT.

72. HCT is the owner and custodian of the whole of Hobson's Brook, with rights and obligations attaching to six feet on either side of the Brook, from its source at Nine Wells to its overland termination at Hobson's Conduit Head, in the centre of Cambridge, a distance of about 4.6 km, and from there the listed Runnels and the underground pipes and culverts. The Trust must keep the Brook and its banks (6 ft on either side) in good condition and provide a constant supply of clean, fresh water to various users in Cambridge. The principal relevant ownership rights, and the related obligations, relied upon and discharged by the Trust, are set out in a Tripartite Indenture of 1610. The Trust has existed since 1868, the trustees previously being known as the Feoffees.

73. In order for HCT to fulfil its obligations in respect of the Brook it needs to have control over and access to the Brook and Conduit's whole length. The Trust's primary obligation is to maintain a continuous supply of clean water along the Brook. This requires regular maintenance in the form of desilting, vegetation clearance and repair of leaks and other defects where necessary. Were a section of the Brook to be taken out of HCT's ownership we would no longer be able to fulfil these obligations. Maintenance of this section of the Brook and its flanking banks would become impossible. It is therefore totally unacceptable for ownership of the section of the Brook adjacent to the proposed busway to be taken out of our hands. HCT sees no reason why Cambridgeshire County Council or other undertaker would want to own this stretch of Brook and we object in the strongest terms to this.

74. Equally, the Greater Cambridge Partnership has never shown us any justification for seeking ownership of this section of Hobson's Brook.

75. HCT therefore demands that the temporary Land Take boundary be moved north westwards away from the Brook, and that the permanent Land Take boundary on the south western bank of the Brook as shown in the TWAO draft documents be pushed back south-westwards from Hobson's Brook by at least 5m. This would ensure the continuity of HCT ownership and access the need for which is set out in paragraph 73 and would give HCT room for necessary maintenance, water monitoring and the maintenance of a wildlife corridor in and beside the Brook. This is especially important in view of the proposed enclosure of the triangular field with new fencing to which we also object (see paragraph 76).

Proposed mitigation if the Secretary of State were to grant the CSET2 TWAO

76. Both the temporary and permanent land take boundaries must be moved away from the Brook to preserve the Trustees' access rights under the 1610 Tripartite Indenture. The fencing proposed around the triangular field should be moved closer to the foot of the proposed embankment, aligned instead with the busway, with a gate access from the track from Granham's Road for pond maintenance during the operational phase. This would be consistent with the Trustees' long-held vision for expanding Nine Wells, and would benefit public access to the additional triangular open area currently shown to include Ecology Pond 3 and Attenuation Pond 1, which would otherwise be denied by the proposed fence.

OBJECTION 6

Various aspects of the design of the busway and its immediate surroundings in the specified area would cause significant harm to Nine Wells, the Brook and their immediate surroundings.

77. It is the view of HCT that various aspects of the design of the busway and its ancillary features should be altered in order to reduce harmful impacts on Nine Wells, the Brook and their immediate surroundings. These harmful effects would be on drainage, ecology and landscape.

6 (i) Drainage and pollution

78. It is acknowledged in the documents, e.g. at 10.1.1 p140 of the Environmental Statement, that once the busway is operational there would be increased surface water runoff which could include pollutants from buses. This is of serious concern to HCT. Polluted runoff from the busway surface not captured by built-in drains, traps and other pollution control measures, or via any infiltration from swales, would be included in flows that would then pass into attenuation ponds, and would then drain into Hobson's Brook, the South Ditch and the feeder ditch along the west side of Francis Crick Avenue. This polluted runoff would have serious adverse consequences for the ecological health of the Brook and ditches, and potentially also for the important downstream water features (e.g. in the Cambridge University Botanic Garden and Emmanuel College) that are reliant on the Brook's high quality water.

79. It is the view of HCT that drainage design in the vicinity of Hobson's Brook and the tributary ditches as presently shown in the draft TWAO documents is inadequate to capture and polish all potential surface water run-off. Pollution of Hobson's Brook and its banks from salt that is currently expected to be used in de-icing of the busway track is also of concern. Use of salt for de-icing would harm the biological environment of the Brook and its banks.

80. The swale along the west side of Francis Crick Avenue, which runs into the attenuation pond at its south end, drains surface and ground water from adjacent areas and buildings eventually, after passing through the attenuation ponds, into Hobson's Brook. On p. 21 of the TWAO Planning Statement, section 3.16, it is stated that the existing drainage features (i.e. the infiltrating swales) along Francis Crick Avenue will need to be locally altered due to changes to the busway layout although existing swales will be retained. There are no details in the TWAO as to how these carefully designed and structured drainage arrangements will be altered, either in route or form.

81. As stated above, we have established legal rights in this regard and we expect these to be respected.

82. The construction of the busway bridge over Hobson's Brook has the potential to cause serious harm to the purity of water in the Brook. Construction works would include large amounts of concrete and significant piling close to the Brook and could damage flow. Spill of concrete into the Brook would cause serious harm to its wildlife and purity. Piling has the potential to disrupt flow, and to damage and pollute the aquifer. By disturbing the watercourse and underlying and adjacent areas piling activity could drain down the Brook and Conduit, with disastrous consequences. See also paragraph 102 below.

Proposed mitigation if the Secretary of State were to grant the CSET2 TWAO

83. In order to prevent pollution of Nine Wells and the Brook, the capacity and detailed arrangements for drainage infrastructure built into the busway in the vicinity of Nine Wells and Hobson's Brook should be increased and modified to a sufficient level to be able to cope with predicted flows during maximum periods of run-off, keeping these within the agreed site-wide maximum of 2 litres/sec/ha, and to ensure that to the best extent achievable pollutants in run-off are trapped before they can enter the watercourse

84. Salt should not be used in de-icing the busway and the Multi User Path and we object to this. There are alternatives which are much less harmful to the environment.

85. We require to see only de-icing compounds with less noxious effects on fish than rock salt, white salt and brine employed along at least the relevant parts of the Busway, and we look for specific undertakings in this regard. For example Sodium or Potassium Formate-based proprietary de-icing compounds would be acceptable to the Trustees.

86. Construction of the bridge should require specific working methods that will remove the possibility of contamination of the Brook by concrete spillage and of the aquifer by piling, and appropriate method statements shall be agreed with the Trustees and our advisors.

87. The adoption of a smaller, lighter more elegant bridge structure design using materials other than concrete, and splitting the multi-user path bridge from the busway bridge, for which we have been asking consistently, would facilitate much less intrusive foundation work close to the Brook and Nine Wells.

88. The drainage ditch along the west side of Francis Crick Avenue should not be obstructed in any way and HCT wish to be advised in advance of any proposed altered course and any changes to infiltration arrangements, details not at present shown in the TWAO documents. The Trustees and our advisors will wish to have prior knowledge and oversight of the detailed proposals for any modifications before they are implemented, which we gather may be in advance of and any Public Inquiry or the TWAO taking effect.

6 (ii) Ecology Pond 3, Attenuation Pond 1 and Ecology Ponds 1 and 2

89. The excavations of Ecology Pond 3 and Attenuation Pond 1 in their present locations as shown in the TWAO could have a serious adverse impact on flow from Nine Wells springs into Hobson's Brook. It is known that some of the present flow also issues through the southern bank of Hobson's Brook via the field in which these two proposed ponds are located. Any excavation close to either Nine Wells enclosure or Hobson's Brook could disrupt the flow of spring water into the Brook.

90. It is abundantly clear to the Trustees that insufficient research has taken place, both in relation to proposed piling for the bridge structure, and in relation to Ecology Pond 3 and Attenuation Pond 1. It is not adequate or acceptable for the applicants to offer a generalised cross section 'sketch' which purports to show that the hydrology of the spring heads will not be impacted.

91. We have compelling evidence that spring water is prone to flow through fissures out of the southern bank of the Brook near the exit channel from Nine Wells, bypassing the springheads and emerging through the south bank of the Brook very close to the proposed location for Ecology Pond 3.

92. We have also previously pointed out specifically that when a CSET2 test excavation trench was dug earlier at the site of Ecology Pond 3, it filled up rapidly with water, and this was clearly not rainwater. We therefore require that Ecology Pond 3 be moved away from Nine Wells and the Brook, and that Attenuation Pond 1 be moved and so designed and arranged that excavation for its creation is minimised.

93. Ecology Ponds 1 and 2, as shown in the TWAO, are in the wrong location and are too small to be helpful. They would not intercept urban runoff from the Biomedical Campus or the South Drain and do not have the scale or capacity to attract an optimally wide range of wildlife.

Proposed mitigation if the Secretary of State were to grant the CSET2 TWAO

94. Ecology Pond 3 should be moved further away from Hobson's Brook, possibly out of the field in which it is currently proposed.

95 . Attenuation Pond 1 should also be moved away from the south-west corner of the Nine Wells enclosure, possibly further south.

96. Ecology Ponds 1 and 2 should be much larger attenuation ponds, located so as to intercept urban run-off from the Biomedical Campus South Drain and other inputs including busway drainage. Sufficient space exists for this to the west of the busway and east of the railway, to the south of Addenbrooke's Road where the current triangular Network Rail/J Murphy & Sons Ltd CSIE compound is situated.

Summary

97. HCT does not accept that the pollution control and mitigation measures proposed for the construction phase or the operational phase are sufficient or rigorous enough. The Trust rejects the proposals and indications in the documents, notably the Environmental Statement, that the Environment Agency will be able to act in an ongoing, real-time policing role in these regards.

98. We acknowledge that any significant pollution incident could be reported by us or Cambridge City Council to the Environment Agency, but this would inevitably be retrospective. By the time action were to be taken damage to the precious ecology of the Brook, including precious and highly publicly visible water features downstream, would be significantly and potentially irreparably harmed.

99. The Trust is therefore unwilling to accept the attempts at offering such assurances as are set out in the TWAO and associated documents. Mitigation and avoidance measures set out in this letter should be put in place to prevent unacceptable damage.

6 (iii) Harm to Ecology

100. While the TWAO has included a number of measures that are aimed at safeguarding and enhancing the high ecological value of Nine Wells, and Hobson's Brook and their immediate surroundings, HCT is of the opinion that some aspects of the design of the busway and its ancillary features would cause serious ecological harm.

101. The main source of potential ecological harm, pollution, has been dealt with in Section 6 (i) of this Objection (Drainage and pollution) above, from paragraph 78.

102. A second source would be potential physical damage to the channel of Hobson's Brook and the impacts on flow and water quality, if, for example, the piling of the bridge were to impact flows from the springs or in the Brook, or still worse, drain down the Brook. Severe ecological damage would occur downstream along the whole length of the Brook and Conduit and the recipient water bodies. Any pollution incident, including spills of concrete, cement or chemicals, and/or turbidity would have dire and highly publicly visible ecological effects, these could include impacts on the River Cam as it flows through Central Cambridge.

103. As shown in Figure 10, p.13 of the Design and Access Statement,[and at] a number ancillary features of the busway would be close enough to cause this harm.

104. The close proximity of Ecology Pond 3 to Nine Wells and the Brook, as shown on Figure 10, as stated above has the potential to abstract and divert flow from the springheads at Nine Wells, and to cause physical harm to the Brook's channel and its south-west margin. See paragraph 89.

105. The extreme width (14.5m) and length (15 m) of the proposed bridge deck over Hobson's Brook is of concern in relation to the ecology of the Brook underneath the

bridge. This will create a dark, tunnel-like environment in which the wildlife of the Brook and its banks would be unlikely to thrive.

Proposed mitigation if the Secretary of State were to grant the CSET2 TWAO

106. HCT requires that careful and thorough research be undertaken to ascertain the effects of the proposed bridge on the ecology of Hobson's Brook, its margins and the airspace above it. Were the results to show that the effect would be harmful, HCT would wish to see a redesign of the bridge, ideally splitting it into two bridges each of smaller width (for the busway and the multi-user path separately), to reduce or eliminate the harm.

107. The extensive scale of the concrete deck of the current bridge design creates an industrial structure out of scale and out of keeping with the surrounding environment. We have stated repeatedly that we would much prefer to see a more elegant bridge structure, ideally with two smaller bridges, with a gap between them, and the multi user path on a much smaller separate structure. The scale of the deck is made even wider by the inclusion of both the multi-user path and the two metre concrete 'safety verge' plus steel safety barrier along the 'verge'. This addition is an example of over-engineering and is wholly unnecessary across the bridge, making the already colossal bridge deck even more so. Part of the 5 metre bearing maintenance access space that is understood to be required between two bridges instead of one would be provided by the eliminated 2 metre verge.

108. With East West Rail now having chosen to place its proposed additional two tracks to the west of the West Anglia Main Line, we believe that there is sufficient space to the east of the railway for the multi-user path to cross the Brook on a smaller separate bridge structure from the Busway, ideally one that is more elegant and similar to the existing wooden DNA path bridge over the Brook. We can see no good reason why the

multi-user path needs to be incorporated in the Busway Bridge over Hobson's Brook. If this separation were implemented the width of the concrete bridge deck would be reduced by at least 5 metres which would benefit ecology as well as landscape, as would the clear gap between the two bridges, bringing in light and air to the Brook. These measures could we believe be implemented well within the proposed line of deviation.

6 (iv) Landscape

109. The overall harm to the landscape surrounding Nine Wells and Hobson's Brook has been set out above. However, there are two further specific objections that HCT wishes to make:

- (a) The LVIA (Landscape and Visual Impact Assessment) makes sweeping generalisations about the character of the landscape through which the busway would run.**

The Landscape Character Area (LCA) within which Nine Wells and Hobson's Brook and their setting have been placed in the TWAO documents is 'Granta Valley' in the LVIA. This is a very disparate area of low-lying ground, not all of which is in the Granta Valley. The Granta Valley LCA is given a value of 'medium sensitivity'. First, Nine Wells and Hobson's Brook are not in the Granta Valley. Secondly, on all counts, including landscape value, we contend that they should be classed in the 'high sensitivity' category. The LCA value given to them is therefore not accurate and downgrades their evident sensitivity.

- (b) The elevated embankment on which the busway will run for most of the stretch adjacent to Nine Wells and Hobson's Brook is visually alien to the whole Nine Wells and Hobson's Brook area, which is flat. The embankment would be topped**

with galvanised steel crash barriers both sides of the busway, and a steel fencing safety barrier along the concrete 2 metre safety verge across the bridge deck. Mitigation planting of screening trees on and around the busway's embankments has been proposed, together with a new hedgerow to be planted along the top of the embankments on the eastern side, visible from Nine Wells (VP 6). However, on at 11.8.3 (p 228) of the Environmental Statement the applicants seek to convey that the landscape impact at Nine Wells will no longer be moderate adverse and significant. We object to this assessment and its implications.

Proposed mitigation if the Secretary of State were to grant the CSET2 TWAO

110. We reiterate that we believe that the visually intrusive crash barriers on the eastern side of the embankment closest to and most visible from Nine Wells should be of a more sympathetic, natural-looking material than standard Armco, ideally wood-clad barriers of appropriate strength, as used in other sensitive locations in the UK and Europe. On the western side of the embankment, notwithstanding our concerns about excessive use of concrete in construction, we would prefer a concrete crash barrier to be used rather than galvanised steel for the taller west side crash barrier required to protect the railway as we judge that this would have a lesser visual impact from Nine Wells, and would look similar to the parapets of the Addenbrooke's Road bridge over the railway, the related receptor being VP 6

OBJECTION 7

The TWAO and related documents and diagrams, fail to acknowledge and provide mitigation measures for the probable significant harm caused to Nine Wells, the Brook and their immediate surroundings in the specified area during the construction phase.

Note

111. **Since publication of the draft Order and related documents, there has been a suggestion, made by GCP, that Works Compound 7, in the field to the north of Nine Wells, might be moved to a smaller area in the same field, away from Nine Wells and Hobson's Brook.** This would make use of and cover the present Cambridge South (Network Rail/CSIE/J Murphy & Sons Ltd) triangular works compound and possibly a small part of the field to its south-east.

112. Were this possible move to take place, with the size of the Compound significantly reduced and moved away from Nine Wells and the Brook, that part of our objections to the proposed Construction Compound 7, set out below, specifically related to its excessive size and proximity to Nine Wells and Hobson's Brook of Construction Compound 7 would be removed, but only in these regards.

113. Until we have greater certainty about this possible reshaping of Construction Compound 7, and the concomitant shrinkage of the perimeter proposed for the related Compulsory Purchase, the Trustees maintain the following Objection to the scale and range of possible uses of Construction Compound 7.

114. The construction phase of the development has the potential to cause serious harm to the ecological health of both Nine Wells and Hobson's Brook. HCT wishes to see more in-depth analysis of these risks and stronger mitigation measures to counter them, including expansion of the 'regulated zone' under the Protective Provisions (see Objection 8 below)

7 (i) Construction Compound 7 is too large and too close to Nine Wells and Hobson's Brook, with the potential to cause major environmental damage

115. In the Environmental Statement Volume 1 p. 18, Section 4, 'Significant environmental effects during operational phase', and at equally relevant points elsewhere in the Environmental Statement Volume 2, there is no mention of Nine Wells or Hobson's Brook. This is a serious omission that downplays their importance. This should be rectified.

(a) The proposed Construction site Compound 7 comes damagingly close to Nine Wells and Hobson's Brook.

(b) The Compound is drawn in Figure 10, p.13 of the Design and Access Statement and on other plans such as the Proposed Site Plans, to include the Brook and both its banks on its south-west boundary. This is unacceptable to the Trustees, and could lead to serious harm both to the Brook's structure and to its ecology, through pollution from operations, vehicles operating within the compound and along the haul roads, and run-off into the Brook causing destruction of wildlife habitat. Although the compound would be temporary the damage thus caused is likely to be more long-lasting, possibly permanent.

(c) Compound 7 is also delineated as running right up to the boundary of Nine Wells. A ditch runs along this boundary, with water from it feeding into Hobson's Brook. Run-off from the Compound could enter this ditch and therefore Hobson's Brook. If this contains contaminants the result would be serious harm to the purity and wildlife of the Brook. This too is unacceptable to the Trustees.

116. We have found no explanation of, description of or rationale behind a 'temporary structure' over the south end of Hobson's Brook marked on the plans where the spring

water emerges from Nine Wells. This would have the potential to cause structural harm to the Brook. Pollution of the spring water in the Brook would occur should the 'structure' be used for vehicular access.

Proposed mitigation if the Secretary of State were to grant the CSET2 TWAO

117. The boundary of Construction Compound 7 should be moved well away from the Brook and Nine Wells, leaving room for a wildlife corridor and access to Nine Wells, as well as the Trustees' required maintenance access. Continuous bunds should be constructed along the perimeter of the compound to prevent runoff from the compound and haul roads reaching the Brook and Nine Wells.

118. The applicants must explain the need, nature and use of the 'temporary structure' crossing the Brook. These are at present lacking.

7 (ii) Construction Compound 7 threatens the ditch along the north west side of Nine Wells which then joins Hobson's Brook at the outflow channel from Nine Wells

119. The proposed compound boundary on the south-east side runs alongside the ditch along the north-west side of the Nine Wells LNR and LGS. When it is present water from this ditch runs into Hobson's Brook at its south end. The same objections concerning the potential for damage to the structure of the ditch, pollution and destruction of wildlife habitat apply here. In addition, the boundary of the compound appears to include the north-west edge of the LNR and LGS. The probability of damage to a protected wildlife site (LNR) and geological site (LGS) therefore arises.

Proposed mitigation if the Secretary of State were to grant the CSET2 TWAO

120. The boundary of the compound should be moved away from this ditch, in the same way and for the same reasons as (1) and (2) above. A continuous protective bund should be constructed all the way along both banks of the Brook and along the ditch on the north western edge of Nine Wells to prevent polluted run-off into the ditch.

7 (iii) Surface water run-off from the Compound threatens the Brook, including via the South Ditch. The South Ditch is an increasingly important tributary of Hobson's Brook, and is also threatened by run-off from Construction Compound 7 and vehicle movements along the proposed haul/access road from Addenbrooke's Road roundabout. Too little detail is offered about culverting and the treatment of the relevant section of the South Ditch

121. More clarity is needed over the drainage of the area on the north side of the compound and how its creation and use will affect this drainage. We anticipate that without appropriate measures this will be to the detriment of water quality in the South Ditch and consequently in Hobson's Brook.

122. Most importantly it is not clear how the South Ditch will be treated and safeguarded during construction. This is a drainage ditch that feeds water from the Biomedical Campus to the north of the Compound into Hobson's Brook. Running north-east to south-west and then north to south, it meets the Brook just east of the railway line. This is an increasingly important feeder of surface water into the Brook in this area, including from new buildings constructed on Phase 2 of the Biomedical Campus.

123. We note that it is proposed to culvert the South Ditch where the Busway would pass over it. We require a much clearer understanding of what these arrangements are, and how they will relate to other drainage flows in this vicinity, and the proposed working method for construction of the culvert for the South Ditch.

Proposed mitigation if the Secretary of State were to grant the CSET2 TWAO

124. The South Ditch carries important surface water flows from new construction, e.g. new buildings under construction and planned along Discovery Drive (CBC Phase 2). We require to understand what measures will be taken to ensure that flows along the South Ditch will be safeguarded.

125. Measures should be included in the TWAO to protect the South Ditch and the quality of the water running in it from harm due to the proximity of the works compound. This harm could be in terms of pollution, structural damage to the ditch and loss of wildlife habitat. We will wish to be satisfied with pollution control measures for any run-off into the South Ditch during both the construction and operational phases.

126. We expect to see the boundaries of the haul/access roads and the northern side of Construction Compound 7 fully bunded. We require to know that the South Ditch will be fully protected from run-off and that inappropriate activities will not be allowed to take place in proximity to the South Ditch during the construction phase.

7 (iv) No refuelling of vehicles will be acceptable

127. The Trustees object strenuously to any refuelling of construction vehicles taking place either in the Construction Compound 7 area as set out in the TWAO documents, or on the haul or access roads, or indeed in the possible smaller Construction Compound to be taken over from Network Rail and J Murphy & Sons Ltd, if this transpires.

128. We also note that this smaller compound has hitherto only been used for storage of dry materials for the Cambridge South Station project. The Trustees wish to ensure that only dry materials will be stored and handled at this site under the CSET2 project.

Proposed mitigation if the Secretary of State were to grant the CSET2 TWAO

129. A ban on any operations within the compound that could threaten to pollute the Brook and its feeder ditches.

130. Those possible activities included in the TWAO's related documents such as the Environmental Statement include concrete handling, storage of chemicals and fuels and washing of vehicle wheels. Run-off from operations such as these would have a detrimental effect on water quality and wildlife in the Brook and its feeder ditches, and should be prohibited.

131. Operating procedures to be agreed with contractors must ban refuelling of vehicles at the Construction Compound. Measures to be included in the TWAO to reduce or eliminate these harmful effects should restrict storage exclusively to dry materials; the banning of wheel washing and its removal to alternative construction

compounds or locations away from Hobson's Brook. No vehicle refuelling to be permitted.

7 (v) Use of artificial lighting must be minimised, and location and design of lighting agreed with the Trustees

132. Artificial lighting within the compound would have a harmful effect on wildlife, particularly that of birds. The applicants have indicated that some construction activity would be intended to take place after sunset.

Proposed mitigation if Secretary of State were to grant the CSET2 TWAO

133. Use of artificial lighting must be minimised, and the lighting arrangements so designed that leakage of artificial light towards Nine Wells is avoided. Artificial lighting close to Nine Wells LNR is unacceptable. Artificial lighting must be switched off when the construction compound is not in use.

7 (vi) Proposed use of Bailey Bridges requires limitation. Full bridge decks are required.

134. Proposed haul roads and bailey bridges in the vicinity of Hobson's Brook and Nine Wells have the potential to cause polluting run-off from them into the Brook and its feeder ditches. The Trustees are concerned that excessive use will be made of the haul road route to and from the major Granham's Road compound to the compound

adjacent to Nine Wells, with excessive crossing of the Brook by construction vehicles, each vehicle crossing bringing a risk of run-off, debris and pollution.

Proposed mitigation if the Secretary of State were to grant the CSET2 TWAO

135. Haul roads should be kept as far as possible away from Hobson's Brook and its feeder ditches and be fully bunded on both sides. Bailey Bridges over the Brook will only be acceptable if constructed with sealed full decks and no gaps. This measure is intended to minimize run-off and pollution of the Brook, and as much as possible to avoid mud and other debris falling into the Brook from vehicles passing over the temporary bridges. Construction traffic patterns and flows should be set up to minimise the need for vehicles to cross the Brook

OBJECTION 8.

The proposed Protective Provisions provide an inadequate scale of protection for the Brook.

136. The Trustees welcome and are grateful for the inclusion of Protective Provisions for the Trust in the draft TWAO.

137. However, as we have stated repeatedly, we do not accept that a 'regulated zone' extending 5 metres either side of the Brook is adequate.

138. We note that Network Rail willingly offered the Trust 16 metres either side in the Cambridge South Infrastructure Enhancements (CSIE) TWAO Protective Provisions, and

we are not aware of any impediment, delay or hindrance that this has caused to the good progress of that project. We have continued a consistently productive dialogue with both Network Rail and their main Contractor J Murphy & Sons Ltd, and agreement has quickly been reached on all matters.

139. As outlined above, the Trustees are alarmed by the likely impacts of piling for and construction of the bridge over the Brook, and it is obvious that restricting the regulated zone to 5 metres either side is simply a ploy by the applicants to avoid the Trust being in a position reasonably to intervene in the process of bridge construction, including in relation to piling.

140. This restriction in the Protective Provisions to 5 metres around Hobson's Brook is therefore unacceptable to the Trust. We object to it, and we require 16 metres, consistent with the high standard of protection set by Network Rail and the Secretary of State in the CSIE TWAO.

Yours sincerely

J. A. Latham.

John A Latham

Chairman

Hobson's Conduit Trust

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Hobson's Conduit Trust
c/o
Mr John Latham (Chairman)

GWP Report No: 250912

Our ref: jl150925
Your ref:

By email only: jlatham@hobsonsconduittrust.org

17 September 2025

Dear Mr Latham

Water-related Concerns of Vulnerability of Nine Wells springs to the CSET

This Report Letter has been prepared to report on the findings of an initial review of the impact of the proposed Cambridge South East Transport (CSET) development on the Nine Wells springs which supply groundwater to the Hobson's Conduit and Hobsons Brook. This independent assessment has been commissioned by the Hobson's Conduit Trust (HCT).

The objective of the review is to assess potential for impact on the Nine Wells springs of the CSET scheme, specifically the creation of excavations, below ground structures, drainage infrastructure; and to advise on the adequacy or otherwise of the documentation and analysis submitted by the Applicant.

Cambridge South East Transport Phase 2 (CSET2) is a proposed new bus route, consisting of a busway, parallel service track, bridges, including a 14m to 15m wide bridge over the Hobson's Conduit, with associated road drainage, including storm water attenuation ponds, swales and outfalls.

The bus route and bridge over the Hobson's Conduit pass is within approximately 100m from the Nine Wells springs. These are naturally occurring Chalk springs located within and supporting the Nine Wells Local Nature Reserve (LNR), with the spring flows sustaining the Hobson's Conduit and Hobson Brook chalk stream. The stream is designated an Ordinary Watercourse. Drainage infrastructure associated with the CSET, is to be excavated and installed within 50m of these chalk springs.

HCT are specifically concerned about the impact on the groundwater regime, and hence the spring flows from:

- Attenuation Pond 1 – which will be excavated up to 1.5m deep within an approximate area of 800m²;
- Ecology Pond 3 – with an area of approximately 600m² and a likely depth of 1.5m to 2m given it is meant to be fed by, and return water to the adjacent Hobson Brook;
- Piling associated with the Busway bridge over Hobson's Conduit; and
- Compound 7 – located adjacent to the Nine Wells LNR area.

For the avoidance of doubt, the following documents have been reviewed:

- CSET Environmental Statement Volume 2: Main Report. January 2025.
- CSET Environmental Statement Appendix 2.1: Drainage Strategy. January 2025.
- CSET Environmental Statement Appendix 8.1: Flood Risk Assessment. January 2025.
- CSET Environmental Statement Appendix 8.1: Ground Investigation (Analysis) Report. January 2025.
- CSET Environmental Statement Appendix 9.2: Tetra Tech (Ground Investigation Data) Report. January 2025
- Technical Note (on Groundwater Impacts) of CSET2. Atkins Realis, May 2025

Qualifications and Experience – Clive Carpenter

My name is Clive Carpenter. I have a BSc (Hons) 2.1 in Geology (Bristol, 1989), a MSc in Hydrogeology and Groundwater Resources (Birmingham, 1992) and more than 30 years of post-graduate experience in water management and impact assessment projects in the UK.

I am a Fellow of the Geological Society (FGS), Chartered Geologist (CGeol), European Geologist (EurGeol) and a Chartered (C.WEM) Member (MCIWEM) of the Chartered Institute of the Water and Environmental Management. I am also an Associate Member of the Academy of Experts (AMAE).

I am a member of the International Association of Hydrogeologists (IAH), was an IAH British Chapter Committee Member (2005 – 2012) and have been the IAH British Chapter Secretary (2007 – 2012).

Hydrogeology of Nine Wells Springs

The Nine Wells springs are naturally occurring springs flowing from the Chalk aquifer, a permeable regional limestone, which is the source for numerous public water supply boreholes supplying Cambridge with potable drinking water.

Public Domain Information and Analysis

Regional geological and hydrogeological mapping shows the location of the springs to discharge from near to the Totternhoe Stone horizon of the Chalk aquifer, with groundwater presumably perched on the underlying by the lower permeability Melbury Marl Chalk Formation.

Regional geological hydrogeological mapping shows the Chalk to extend 3km to the west of Nine Wells, with a north-south tract of a permeable sands and gravels overlying the Chalk 500m to the west, but no sands or clays mapped at the spring locations nor the land between and at the CSET alignment west of the springs.

The hydrogeological mapping shows the springs are fed by groundwater flow from the southeast, with an estimated minimum groundwater level at the Nine Wells location of approximately of 12m to 13mAOD (metres above Ordnance Datum).

The presence of the springs (by definition being groundwater discharging at ground surface) means groundwater levels in the surrounding area will be very shallow.

The HCT, which is responsible for the management and preservation of the Nine Wells springs, advise a new spring has recently appeared on the banks of the Hobson's Brook.

Any regional mapping is recognised as not being sufficiently accurate to have confidence in the detailed geology at a specific location. Scientific geological research (Gale and Kennedy) identified by HCT, reports on the West Melbury Formation - Totternhoe Stone boundary being highly variable with erosion channels in the former resulting in the geological contact between the two being up to 40m lower than the regional mapping would suggest. The consequence of this would be the geological contact between the two strata, which is associated with groundwater flow, can be up to several kilometres further west. This to say that the more permeable Totternhoe Chalk above the lower permeability Marl, could be present at the Nine Wells and Busway locations.

Public domain geological records of 2 of 3 No. boreholes located 400m to 600m north of the Nine Wells springs report shallow 1m to 3m thickness of sands and gravels, overlying 10m or more of clays. These borehole records are inconsistent with the regional geological mapping.

Groundwater levels in these three boreholes are reported to be as shallow as 3.2m below ground level (mbgl).

Shallow groundwater levels are known to have historically been problematic in the surrounding area, interfering with below-ground structures. The Applicants' Flood Risk Assessment refers to groundwater flooding in basements and tunnels associated with the Addenbrooke Hospital.

The Applicant appears to be aware of the above information, with the exception of Gale and Kennedy research identifying the erosion channels in the Totternhoe-Marl geological contact.

Project Specific Information Analysis

The Ground Investigation Report (Appendix 9.1) identifies West Melbury Marly Chalk Formation as Principal Aquifer (EA designation) and Highly Productive Aquifer.

The geological logs for these, the closest project investigation boreholes (BH-PTR-07, 08 and 10) are summarised as approximately 2m of sandy alluvial clay overlying structureless Chalk (reported uncertainly to be the West Melbury Marly Chalk) – that is to say no shallow permeable sands and gravels were recorded – with groundwater encountered in the shallow Chalk.

The ground investigation reports on groundwater level monitoring in three of the closest project investigation boreholes (BH-PTR-07, 08 and 10) as having groundwater levels as shallow as 0.24m to 0.36mbgl (Oct 2021), deepening to 0.62mbgl to 0.79mbgl later in the year.

These observations are important, as the varying groundwater levels with time demonstrate an active groundwater system within the marly Chalk, with rainfall recharge entering the aquifer and then flowing from it.

Water quality testing of groundwater measured electrical conductivities of 490 uS/cm to 858 uS/cm, consistent with flowing groundwater in permeable strata and inconsistent with immobile pore water in low permeability strata.

Whilst the Applicant will have had access to this information, they appear not to have understood its significance in terms of what it demonstrates about the structureless chalk permeability and therefore the potential for excavations and structures within it to impact the groundwater potentially in hydraulic connection with the Chalk aquifer at Nine Wells springs.

Adequacy of Applicant's Nine Wells Springs Groundwater Impact Assessment

The Applicant's analysis of groundwater impact on Nine Wells Springs is mentioned in the Environmental Statement Main Report and in a supplementary 3-page Technical Note.

The analysis appears to largely use the public domain information, to conclude conceptually that because the Busway is located on the perceived low permeability West Melbury Group Marl Formation there will be no hydraulic link to the Nine Wells springs fed by the overlying more permeable strata, and therefore there will be no impact.

This analysis consists of one paragraph in Chapter 9 of the Environmental Statement Main Report and the one-page Technical Note, the latter referring to a nearby borehole (assumed to be from the project ground investigation) which contained alluvial clay above structureless Chalk (*i.e.* both assumed to be low permeability). The Technical Note attributes any groundwater encountered west of the Nine Wells as within the alluvium *i.e.* not in hydraulic connection with the Nine Well springs and therefore they conclude any project construction and permanent infrastructure cannot impact the springs.

Our observations in the section above on fluctuating groundwater levels and fresh groundwater quality in the monitoring boreholes located (near the proposed bridge crossing over the Hobson's Conduit) nearest to Nine Wells springs, demonstrates that the Applicant's assumption of there being no possibility of a groundwater hydraulic connection between the Busway and the Nine Wells springs, to be incorrect.

It is noteworthy the Technical Note concludes:

Further ground investigation (GI) will need to be undertaken at the detailed design stage to confirm this assumption, the potential interaction between groundwater flow and the pond will be taken into consideration during this stage.

And the Drainage Strategy states:

'... it is recommended that additional research be conducted ... by measuring groundwater table with a new borehole in the proposed location of Pond 1 ...'

Additionally, the Main Report does identify potential impacts (groundwater flow truncation) from piling and the need for future Piling Risk Assessments to inform detailed design. There is however no consideration of piling impact as part of the Environmental Statement. Furthermore, the Environmental Statement Main Report does

not appear to identify that the piling technique proposed, will use a concrete poured into an augered or drilled hole. There is no consideration of grout escape from the piling migrating to the Hobson Brook nor a grout curtain forming between the piles which could truncate groundwater flow.

To conclude the groundwater impact assessment analysis undertaken is minimal and essentially 'screens out' the impact, on the basis of low permeability strata existing around the Busway and related structures. This is not supported by the Applicant's ground investigation data, which identifies flowing fresh groundwater (and therefore permeable strata) to exist under the Busway alignment.

Additionally, there are no boreholes near to the drainage and ecology ponds, which is recognised by the Applicant (see above), and therefore the groundwater assessment cannot be considered adequate. The Applicant is effectively stating they have no information on geology at these pond locations, nor data on groundwater occurrence and groundwater depth and its fluctuation with seasons. They do not understand the hydrogeological regime at the location of these assets, located as they are between the Nine Wells springs and the Busway drainage infrastructure.

Non-Identified Potential Impacts

The consequence of an incorrect conceptualisation of the hydrogeological regime by the Applicant, results in their conclusion the Busway and associated infrastructure are in low permeability strata not in hydraulic connection with the Nine Wells springs as being wrong, whereas their own ground investigation data demonstrates active groundwater flow beneath the Busway alignment, and therefore logically to exist between the Busway and Nine Well springs.

The following Busway associated infrastructure therefore has the potential to impact the groundwater regime around the Nine Well springs:

Attenuation Pond 1

The Drainage Strategy report identifies this proposed pond excavation to be approximately 1.5m deep, with a discharge pipe invert level of 12.90mAOD, in a location where groundwater is at least as high as 13.61mAOD, *i.e.* the invert will be more than 0.70mbgl. If the pond is unlined, it will therefore dewater the aquifer reducing groundwater levels by 0.70m and in all likelihood significantly reducing spring flows at the Nine Wells springs.

Whilst it is reported the pond will be lined with an impermeable membrane, which will prevent groundwater ingress when the pond contains stormwater runoff, when the pond is empty after rainfall events, there will be uplift pressures from the underlying Chalk aquifer, which may puncture or rupture the pond liner, resulting in an uncontrolled groundwater discharge, which will reduce flow at the nearby springs. This risk will be difficult to mitigate. The liner will also act as a barrier to groundwater flow.

Additionally dewatering will still be required during the construction excavation phase of the pond, which will impact the spring flows. This will be unavoidable.

These risks have not been identified by the Applicant.

Ecology Pond 3

It is understood Ecology Pond 3 will be fed by water being diverted from Hobson's Brook into the Pond before exiting back to the Brook. Observations of water levels in the Brook by HCT are that the usual depth of water is 10cm to 15cm. The Applicant appears to have no water level data themselves for the Brook. Given the observed (by HCT) incised depth of the Brook relative to surrounding ground levels, such a stream water level would necessitate an invert for the inflow pipe of perhaps 1.5 metres below surrounding ground levels, if the Brook is to provide freshwater water to the Pond during summer months. Given that low groundwater levels reported at the nearest monitoring borehole are no more than 0.79mbgl, this suggests the inflow channel will intercept, and actively dewater, the local groundwater regime, in all likelihood reducing flows at the Nine Wells springs.

Whilst no details have been identified on Pond depth, it is logical the pond depth itself will be of the order of 1.5m depth (given the invert of the inflow channel will have to be at a higher elevation) and therefore the Pond will itself be within the groundwater. This may have consequences for surrounding groundwater quality if the Pond contains vegetation which will degrade and generate anoxic chemical conditions in the base of the Pond, not found in Chalk groundwaters.

There are no details of whether the Pond is to be lined with an impermeable liner. If it is, then this will act as a barrier to groundwater flow and alter groundwater flows entering the Nine Wells springs and Hobson's Brook.

It is also unclear what the outflow arrangements are for the pond and the extent to which outflows are controlled by weirs or simply allowed to flow from the pond without control. This will affect the extent to which the Pond will effectively dewater the groundwater body, by lowering its water levels.

The impact of the Ecology Pond 3 on groundwater levels, flows and quality has not been assessed by the Applicant.

Bridge Piling

The Applicant has identified the potential for bridge piling impacting the groundwater by truncating groundwater flow but dismisses this on the basis of their perception of low permeability strata at the piling location, as well as opportunity for any groundwater to flow around the piles.

We contend however that the site around the bridge piles is underlain by permeable Chalk and that the piling technique stated (which will involve using augered holes and poured cement grout) has the potential to create a grout curtain and truncate groundwater flow, altering the groundwater flow directions and potentially the groundwater flows to the Nine Wells springs.

Summary Conclusions

The following findings are arrived at from the above independent review of the Applicant documentation, augmented by observations by HCT:

- The Nine Wells Springs, associated Local Nature Reserve and Hobson's Conduit and Brook are supplied by and reliant upon Chalk springs discharging from the Chalk aquifer, a Principal aquifer;
- The springs are associated with the geological contact between the permeable Totternhoe Stone and the underlying lower permeability West Melbury Marl Formation;
- The location and depth of this geological contact is considerably more variable than shown on regional geological and hydrogeological mapping, meaning the permeable strata could extend west beneath the Busway. The Applicant appears to be unaware of this information;
- Regional hydrogeological mapping and local experience of building basement construction, as well as the existence of the springs themselves, confirm groundwater levels are very shallow in the local area;
- Ground investigations undertaken as part of the project studies, reveal the Chalk beneath the Busway to be more permeable and to support groundwater flows within the Chalk. The Applicant has misinterpreted the project ground investigation and instead concluded the strata beneath the Busway is low permeability.
- The Applicant's interpretation of the hydrogeological investigations results in them to conclude construction of infrastructure into the groundwater at the Busway cannot impact the Nine Well springs and Hobson's Conduit;
- Consequently, not only is their groundwater impact assessment unacceptably minimal, but it technically inadequate and inaccurate;
- Notwithstanding the above, the Applicant has sufficient concern of impacts on the Nine Wells springs and Hobson's Conduit, so as to state that additional groundwater investigation is needed in proximity to the springs where excavations and barriers in the groundwater are proposed as part of the CSET drainage and ecological mitigation infrastructure;
- Furthermore, the Applicant also recognises the requirement for Piling Risk Assessments, that is to say the Applicant recognises impact risks exist;
- It is clear, and admitted as much by the Applicant, that insufficient hydrogeological investigation and groundwater monitoring has been undertaken, around the proposed infrastructure locations (specifically the Attenuation Pond 1, Ecological Pond 3 and Hobsons' Conduit Bridge), the area between these and Nine Wells springs and Hobson's Brook to characterise the hydrogeological connectivity between these sites, to enable the impact of the CSET to be properly understood;
- Based upon our previous experience, we would expect the Environment Agency to request a minimum of two years of groundwater level and conduit/brook level and flow monitoring, as a requirement to inform an appropriate impact assessment;
- Without a robust understanding of the impact of the CSET on the Nine Wells springs and Hobson's Conduit, it is not possible to identify viable impact mitigation measures, assuming such effective mitigation measures exist;
- In the absence of understanding the impacts and hence whether adequate mitigation measures are viable, it is not possible to conclude impacts of the CSET on the Nine Wells springs and Hobson's Conduit and Brook are achievable.

- In the absence of impact mitigation certainty, it is difficult to conclude how planning can be granted.

Yours sincerely



Clive Carpenter

Partner and Head of Water Management

BSc (Hons) MSc FGS C.Geol Eur.Geol MCIWEM C.WEM AMAE



Hobson's Conduit and Nine Wells

Independent Ecological Appraisal

July 2025



Commissioned by:
Hobson's Conduit Trust

Written by: Chloe Tucker MRes
Approved by: Dominic Woodfield CEcol CEnv MCIEEM

Hobson's Conduit and Nine Wells Independent Ecological Appraisal

July 2025

Bioscan Report No.
E2256/1

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FIGURES

Figure 1. Habitat survey results

APPENDICES

Appendix 1. Habitat condition assessments (where applicable)

Appendix 2. List of vascular plant species observed on the survey

Appendix 3. Engineering drawings of proposed structures

Appendix 4. WSP baseline habitat map

Appendix 5: Atkins baseline habitat map

Appendix 6: Atkins proposed habitat map

Appendix 7: Greater Cambridge Partnership habitat creation map from LEMP

Appendix 8: Atkins location of proposed drainage features

Appendix 9: WSP Barn owl habitat suitability map

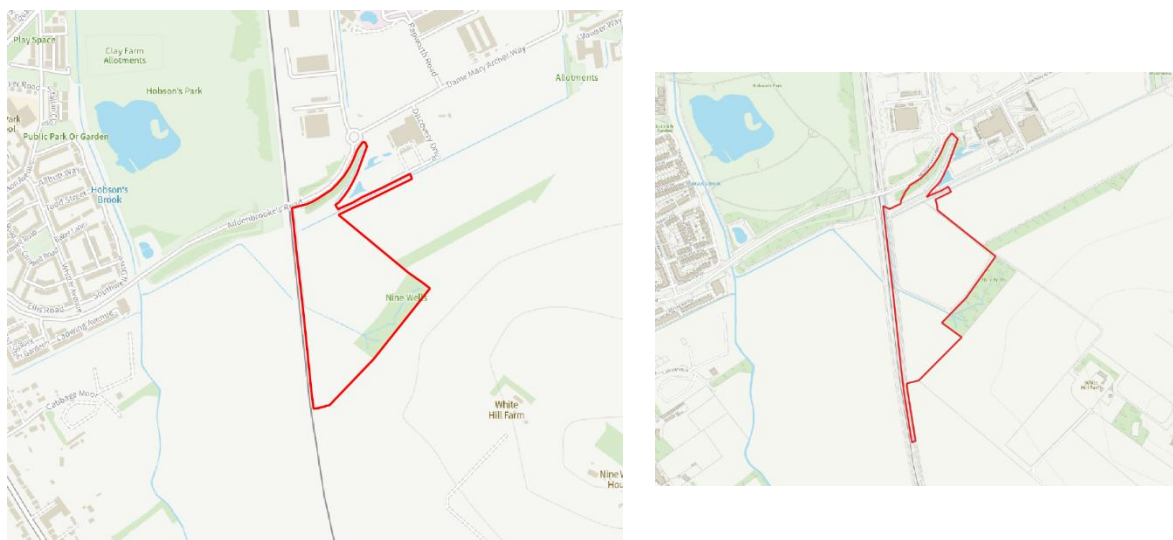
Appendix 10: WSP badger sett map

1 INTRODUCTION AND PURPOSE OF THIS REPORT

1.1 Background

- 1.1.1 Hobson's Conduit Trust ("HCT") commissioned Bioscan (UK) Limited to carry out an independent ecological assessment of land in and around Nine Wells Local Nature Reserve (LNR) in the context of concerns that the Cambridge South East Transport 2 (CSET2) project (essentially comprising a guided busway which would run close to the LNR) carries a risk of impacts to the LNR and/or Hobson's Brook that are greater than assessed by that project's proponents to date.
- 1.1.2 Bioscan carried out a survey of the LNR and surrounding land (survey area outlined in **Image 1** below, henceforth referred to as 'the survey area') on the 20th May 2025. The results have been compared with the results of surveys and assessments completed by Atkins, Capita, WSP, and WYG in support of the CSET2 project, and the conclusions arising are presented in this report.
- 1.1.3 The area covered by the Bioscan survey encompassed some land outside the relevant section of the CSET2 proposed development area (comparison at **Image 1** below). While the results for this wider area (which includes Nine Wells LNR itself) are included in this report for completeness, it should be noted that for the purposes of the quantitative and comparative Biodiversity Net Gain (BNG) calculations discussed later in this report, such land outside the CSET2 scheme has been excluded so that the comparisons are 'like for like'.

Image 1: Bioscan survey boundary (left) relative to comparable portion of CSET project (right)



1.2 Report aims

- 1.2.1 The aims of the study and of this report are:
 - 1. To independently assess the baseline value and condition of the habitats in and adjoining Nine Wells LNR that are likely to be directly or indirectly affected by the proposed CSET2 project, as far as access was available.

2. To independently assess the likely ecological impact that the CSET2 project would have on the Nine Wells LNR and the associated Hobson's Brook and other watercourses.
3. To determine if the conclusions for this area drawn by the CSET2 commissioned ecological consultants, and as set out in the Environmental Statement for the CSET2 scheme, are robust for the purposes of decisions about whether to award consent for that project.

2 OUTLINE OF CSET2 PROPOSALS AS THEY RELATE TO THE NINE WELLS STUDY AREA

2.1 *Proposals plans*

- 2.1.1 The section of the busway relating to the land around Nine Wells is proposed to run adjacent to the railway line to the west of the LNR, but other land more proximal to the LNR is also intended to be used temporarily for construction. The busway will cross Hobson's Brook via a new permanent bridging structure immediately to the east of the railway line with a further permanent bridge and culvert proposed across the South Ditch to the north of the site, south of Addenbrookes Road (see **Appendix 7**). A temporary works compound is also proposed for a field east of the proposed busway and immediately adjacent to Nine Wells LNR which includes the creation of a temporary bridge directly outside of the LNR as part of a diversion for the "DNA" cycle path (part of the Sustrans national cycle network). A further field adjoining the LNR to the south-west is proposed for compensatory habitat creation, and the creation of surface water drainage features, including two new ponds. This section of the CSET2 scheme is anticipated to begin construction in months 1 to 12 of the project.
- 2.1.2 More detail is provided on the bridging structures below, given the sensitivity of Hobson's Brook and its tributary ditches.
- 2.1.3 **Permanent bridging structures:** The proposed bridge spanning Hobson's Brook near the railway line will be 14.4m wide, 15m long and 2.4m high (structure 4, see **Appendix 7**, detailed in 2.1.26 of CSET2 ES Volume 2 Main Report). It will be reinforced with concrete wingwalls on either side and the busway road itself will be contained with 1.8m high 'motorway style' metal barriers. There will be a footway that leads underneath it and connects to the existing Sustrans cycle path.
- 2.1.4 The bridges to the north of the site (structures 1 / 2 and 3, see **Appendix 7**, detailed in 2.1.27 and 2.1.28 of CSET2 ES Volume 2 Main Report) include a footbridge (structure 3) similar to the one currently carrying the DNA cycle path across Hobson's Brook, and a culvert running underneath the new busway and the existing railway track. The culvert will be 45m long, 1m high, and 2m wide. It is proposed to be a concrete box culvert with mammal shelves built into the design.
- 2.1.5 Drainage from the new road will run through a series of filter drains and swales aimed at diffusing pollution and allowing some infiltration to ground before being discharged into detention basins and thence into Hobson's Brook (detailed in 2.1.40 – 2.1.42 of CSET2 ES Volume 2 Main Report, and **Appendix 8**). There is a single attenuation feature detailed in the CSET2 ES Appendix 2.2 LEMP and **Appendix 6**. The feature is south of the stretch of Hobson's Brook between Nine Wells and the railway line, and west of Nine Wells LNR.
- 2.1.6 **Temporary activity and structures:** A temporary works compound will be established in the field to the northwest of Nine Wells LNR. The Sustrans cycle path will be diverted eastwards to run along the eastern side of this compound and the north-western edge of Nine Wells, with a temporary bridge across the Hobson's Brook constructed just outside the LNR (see **Appendix 7**, detailed in 13.6.5 of CSET2 ES Volume 2 Main Report). This temporary bridge will be 8m long, 3.2m wide, and have railings 1.425m high. Blocks will be dug into the banks of the brook, and the resulting structure will mostly be made of wood.

- 2.1.7 The CEMP accompanying the TWA application has very limited and nebulous detail on plans to mitigate disturbance and/or other impacts on the Nine Wells LNR from the use of this temporary compound, the related diversion of the cycle path and the construction of the temporary bridge across Hobson's Brook. For example, CSET2 ES, Appendix 2.5 CEMP 11.4.1 states:

"Compound 7 is to be located on land to the north of the Nine Wells LNR. The Contractor will ensure that the compound set up takes into account the need to avoid disturbance to the setting of the reserve as much as possible. This means avoiding placing noisy and intrusive activities along the boundary of the compound closest to the reserve. Security fencing will be required to ensure the compound activities are further screened from the reserve itself."

- 2.1.8 **Compensatory habitat creation:** As well as the busway itself, and the permanent and temporary landtake/structures discussed above, there are various elements of compensatory habitat creation proposed across the CSET2 project which are intended to ensure the project delivers a quantitative net gain in biodiversity by reference to the Statutory Biodiversity Metric. In the Nine Wells area, this mostly entails the proposed creation of 'other neutral grassland' (per UKHab terminology¹) along the railway line and in the field south-west of the Nine Wells LNR.
- 2.1.9 There will also be the creation of four ponds in the locality of Nine Wells. Two of these are proposed near the Hobson's Brook in the field south-west of Nine Wells, one of which is a proposed attenuation pond, and one of which is aimed at creating compensatory water vole habitat. There are two additional smaller ponds to the north of the site, one of which is adjacent to a proposed great crested newt hibernaculum (detailed in CSET2 ES Appendix 2.2: LEMP, see **Appendix 6**). Somewhat puzzlingly, an existing pond nearby is proposed as the receptor site for great crested newts (GCN) in the ditch known locally as 'the South Ditch' (ditch W2 in **Appendix 3**). However, there are no records of GCN being found in this ditch².
- 2.1.10 In addition to these, a new hedgerow and trees will be planted alongside the east of the new busway (see **Appendix 6**).
- 2.1.11 **Biodiversity Net Gain (BNG):** The proposed habitat creation elements discussed above are part of a project-wide compensation scheme intended to offset the habitat loss impacts of the scheme. The CSET2 proponents' calculations of the balance of habitat losses and degradation versus proposed compensation and/or enhancement are set out quantitatively in the project BNG calculation (CSET2 ES: Appendix 10.12 BNG Assessment, see **Appendix 5**). These calculations show a 65.63% net gain for area-based habitat units, a 105.62% net gain for hedgerows, and a -1.34% net loss for watercourses.

¹ UKHab Ltd (2023). *UK Habitat Classification Version 2.0* (at <https://www.ukhab.org>)

² There are three waterbodies (referred to as P36, P45 and P57 in CSET2 ES Appendix 10.10 GCN Surveys) that were found to have GCN across the scheme, but all are over 2km away from the surveyed area and none are to be destroyed by the scheme. A translocation programme is also planned for two of these ponds to ensure that no newts are found within the construction footprint, but details of the programme have not been released.

3 METHODOLOGY

3.1 *Important note about approach and limitations*

- 3.1.1 The purpose of the commission was to undertake an independent expert assessment of the conclusions and claims of the CSET2 project proponents, as presented in the Environmental Statement and related documents, in order to check their robustness and veracity in the light of HCT's concerns about the adequacy of the assessment of risks and impacts to the Nine Wells LNR and Hobson's Brook to date.
- 3.1.2 Empirical data collection was therefore tailored to be sufficient for that purpose – it was not intended to collect a comprehensive competing dataset (nor is it HCT's role in the decision-making process to do so, even if time and resources had permitted) but merely to amass sufficient data for the comparative and fact-checking purpose. This should be borne in mind when considering the below. The survey work carried out by Bioscan also should not be appropriated to attempt to rectify the deficiencies identified, not least as only a small part of the scheme has been looked at³, and the types of error identified are considered likely to be replicated elsewhere.

3.2 *Desk study scope and methodology*

- 3.2.1 A review of relevant literature was conducted. This included, in particular, a review of the CSET2 Environmental statement documents from 2023. These include CSET2 ES Volume 1 Non-Technical Summary, CSET2 ES Volume 2 Main Report, Appendix 2.2 LEMP, Appendix 2.5 CEMP, Appendix 10.1 to 10.13 relating to habitats and protected species (excluding Appendix 10.11 HRA), CSET-12-DP4B proposed site plans, and CSET-11-DO3-00 Engineering Drawings of Permanent and Temporary Structures.
- 3.2.2 In addition, various data and documentary resources provided by the HCT were reviewed, including eDNA results from 2023 and 2025 of vertebrates, invertebrates and microbes, a relevant book chapter⁴, past presentations and documents produced by Steve Boreham^{5, 6, 7} results from local ornithologist John Meed's observations in 2024⁸, and the results from an HCT-led 'Bioblitz' survey from 2017 which included data from 40 volunteers and experts⁹. Finally, relevant open access resources including MAGIC¹⁰ were consulted.

3.3 *UKHab, MoRPh surveys and condition assessments*

- 3.3.1 Bioscan's habitat survey took place on 20th May 2025. The habitats on site were mapped and classified according to UKHab and Biodiversity Net Gain methodology and guidance^{11,12}. The terrestrial habitat surveys were completed by Dominic Woodfield with river condition assessments of the watercourses, in accordance with Modular River Physical (MoRPh) survey methodology, carried out by Chloe Tucker¹³.
- 3.3.2 The habitat surveys included consideration of whether any of the habitats present qualified as representations of Priority habitat¹⁴, by reference to the established industry definitions¹⁵.

³ The part of the project area investigated by Bioscan for HCT is 7.55ha which is approximately 6.6% of the area of the total scheme.

⁴ Mark Hill (2022) *The Nature of Cambridge* pp. 262-265.

⁵ Steve Boreham (2020). *Hobson's Brook: A Cambridge Chalk Stream* [Accessed 15/04/25]

⁶ Steve Boreham (undated presentation) *Hobson's Conduit: A View from Nine Wells* [Accessed 15/04/25]

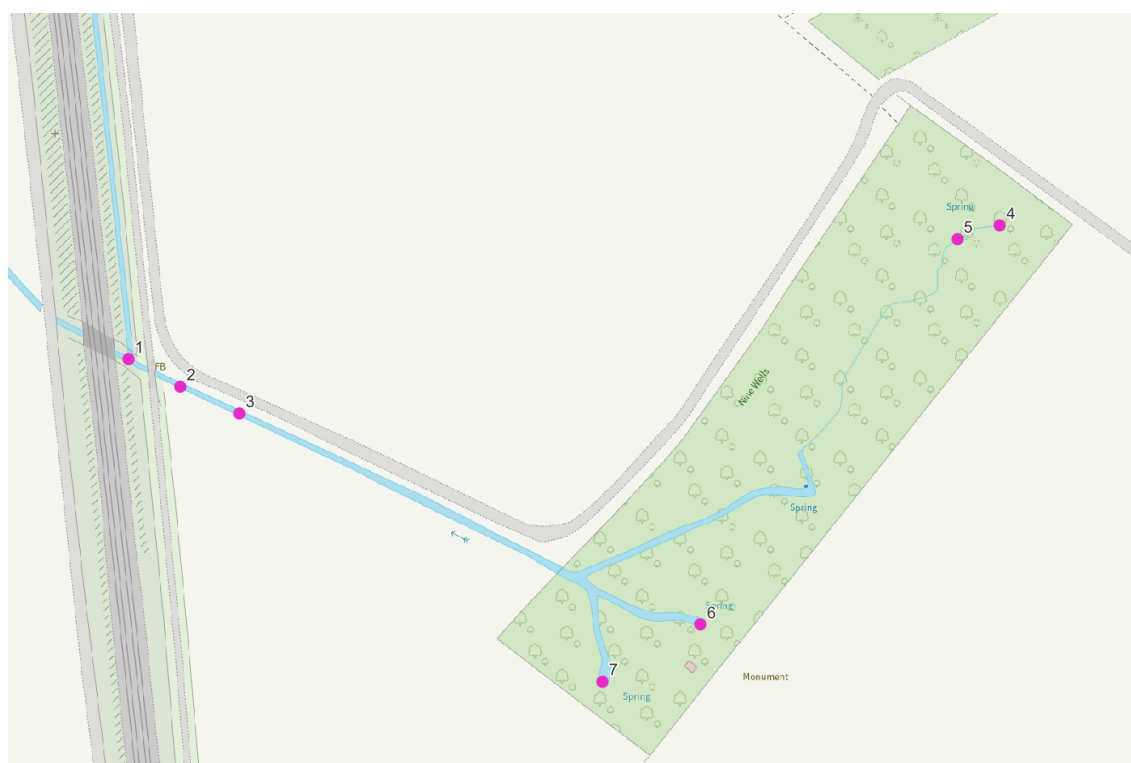
⁷ Steve Boreham (undated presentation) *Biodiversity of the Hobson's Brook Corridor* [Accessed 15/04/25]

⁸ John Meed (2025) *The value of green belt south of Cambridge to populations of farmland birds*

⁹ Steve Boreham (2020). *Hobson's Brook: A Cambridge Chalk Stream* [Accessed 15/04/25]

- 3.3.3 MoRPh surveys of the Hobson's Brook were carried out at the main impact site (where the proposed new bridge carrying the guided busway is intended to cross Hobson's Brook) and along the headwaters within the LNR, as well as one module upstream of the impact site and one downstream of the furthest headwater (see **Image 2** below). River widths at headwaters were measured at the narrowest point where the headwater meets the brook. Survey 3 and 5 (**Image 2** below) were taken to be representative of each sub-reach and duplicated 3 and 4 times respectively to make up a complete MoRPh5 survey to approximate river quality. Modules 6 and 7 were taken as supplementary data but were not used for the final reach analysis. The Cartographer app was used to complete this calculation¹⁶.

Image 2: MoRPh river survey locations



- 3.3.4 The river type assessment was made assuming a reach of the Hobson's Brook extending from the easternmost spring within Nine Wells LNR to where the Brook meets the main channel at TL45554,54220 offsite to the west. The desk study was conducted using the MoRPh field data and aerial photography from Google Earth using best practice guidance¹⁷.

¹⁰MAGIC (Multi-Agency Geographic Information for the Countryside) website. [Accessed at <http://magic.defra.gov.uk/MagicMap.aspx>]

¹¹ UKHab Ltd (2023). *UK Habitat Classification Version 2.0* (at <https://www.ukhab.org>)

¹²Natural England (2021). *The Biodiversity Metric Supporting Documents (JP039)* [Accessed 14/04/25: <https://publications.naturalengland.org.uk/publication/6049804846366720>]

¹³ Voluntary experience completing MoRPh surveys but as yet not formally accredited

¹⁴ i.e. habitats of Principal Importance further to sections 40-41 of the Natural Environment and Rural Communities Act 2006 (as amended)

¹⁵ UK Biodiversity Action Plan: Priority Habitat Descriptions. BRIG (ed. Ant Maddock) 2008. (Updated Dec 2011)

¹⁶ Cartographer (2025), *Cartographer* [Accessed 20.05.2025 at <https://cartographer.io/>]

¹⁷ A. Gurnell et al. (2024), *A Guide to Assessing River Condition*

3.4 Faunal survey

- 3.4.1 During the site visit on 20th May 2025, searches were conducted for evidence and suitable habitat for protected species, and incidental observations for all other species were noted down. Particular focus was on searching for field sign evidence of species that might use the watercourses including water vole *Arvicola amphibius*, otter *Lutra lutra* and kingfisher *Alcedo atthis* as well as on badgers, the potential for reptiles and on any trees with bat roosting potential. Invertebrate species were not examined in detail for this survey, though incidental observations of Lepidoptera were noted.

4 PRE-EXISTING INFORMATION AND BACKGROUND RECORDS

4.1 Designations

- 4.1.1 The 1.18ha woodland block of Nine Wells itself is a designated Local Nature Reserve, formally declared in 2005. Formerly it was a SSSI assigned for presence of the rare flatworm *Crenobia alpina* (a glacial relict) and the cased-caddisfly *Agapetus fuscipes*¹⁸. However, following a period of agricultural activity and drought these were lost in 1976¹⁹ and the SSSI subsequently de-notified. In 2004-2005 a management plan was created, and the site was declared a Local Nature Reserve²⁰. Since then, an artificial surcharging system has been implemented to support the flowrate at times of low flow.
- 4.1.2 MAGIC was searched for any other nature conservation designations within 2km of Nine Wells. The search revealed two Sites of Special Scientific Interest and one other Local Nature Reserve, the details of which are summarised in **Table 1** below. Also summarised are non-statutory designated sites within 2km of the survey area, extrapolated from Table A10.12.6 in CSET2 ES Appendix 10.10 BNG Assessment.

Table 1: Local nature conservation designations within 2km of the survey area.

Site name	Designation	Reason for designation	Approximate distance from survey area
Statutory designated sites			
Nine Wells	Local Nature Reserve	Chalk springs. Historically, freshwater invertebrates which have since been lost.	On-site
Gog Magog Golf Course	Site of Special Scientific Interest	Calcareous grassland, grass and herb species, moon carrot <i>Seseli libanotis</i> , perennial flax <i>Linum anglicum</i> , invertebrates.	1.80km east
Byron's Pool	Local Nature Reserve	Woodland, ponds, birds and other wildlife.	1.82km west
Cherry Hinton pit	Site of Special Scientific Interest	Herb-rich chalk grassland, great pignut <i>Bunium bulbocastanum</i> , moon carrot <i>Seseli libanotis</i> and grape hyacinth <i>Muscari neglectum</i> , perennial flax <i>Linum perenne</i> ssp. <i>Anglicum</i> , upright brome <i>Bromus erectus</i> , wild thyme <i>Thymus praecox</i> , yellow-wort <i>Blackstonia perfoliata</i> and kidney vetch <i>Anthyllis vulneraria</i> .	1.94km northeast
Non statutory designated sites (as extracted from CSET2 ES Appendix 10.12 BNG Assessment Table A10.12.6)			
Hobson's Brook South	City Wildlife Site	"Chalk stream together with adjacent semi-natural habitat that has not been grossly modified through canalisation and/or poor water quality."	350m west

¹⁸ Steve Boreham (2020). *Hobson's Brook: A Cambridge Chalk Stream* [Accessed 15/04/25]

¹⁹ Mark Hill (2022). *The Nature of Cambridge* p262-265.

²⁰Natural England (2005). Nine Wells LNR Designated sites view
[<https://designatedsites.naturalengland.org.uk/SiteLNRDetail.aspx?SiteCode=L1084816>]

Hobson's brook mid	City Wildlife Site	"Chalk stream together with adjacent semi-natural habitat that has not been grossly modified through canalisation and/or poor water quality."	400m west
Long Road Plantation	City Wildlife Site	"Recent woodland 1 ha or more in area and with five or more woodland plants."	900m north
Red Cross Lane Drain	City Wildlife Site	"Supports five or more neutral grassland indicator species in frequent numbers."	1.0km northeast
Magog Downs Chalk Grassland	Country Wildlife Site	"No description."	1.2km southeast
Magog Down and Stapleford Pit	Country Wildlife Site	"The site qualifies for habitat mosaic (over 10 ha in size supporting three or more habitat features), has an invertebrate index exceeding 500 and contains calcareous grassland supporting at least 0.05 ha of CG3 (upright brome) grassland."	1.2km southeast
Wandlebury	Country Wildlife Site	"The site qualifies for habitat mosaic (over 10 ha in size supporting three or more habitat features), has an invertebrate index exceeding 500 and contains calcareous grassland supporting at least 0.05 ha of CG3 (upright brome) grassland."	1.2km southeast
Hedgerow West of Babraham Road	City Wildlife Site	"Hedgerow at least 100 m in length and 2 m in width at its widest point with four or more woody species."	1.2km east
Triangle North of Long Road	Country Wildlife Site	"The site qualifies as a CWS because of the presence of a Nationally Scarce vascular plant species (<i>Torilis arvensis</i>)."	1.4km north
Wort's Causeway Road Site Verge	Country Wildlife Site/ Protected Road Verge	"Contains more than 0.05 ha of CG3 upright brome <i>Bromus erectus</i> calcareous grassland community. Supports frequent numbers of at least eight neutral grassland indicator species."	1.4km northeast
Hobson's Conduit / Vicar's Brook	City Wildlife Site	"Chalk stream together with adjacent semi-natural habitat that has not been grossly modified through canalisation and/or poor water quality. Also supports a small group of pollard willows in a semi-natural setting."	1.6km northwest
Clare Wood	City Wildlife Site	"Scrub over 0.5 ha in area with four or more woody species. Also qualifies as semi-natural habitat adjacent to a chalk stream."	1.6km northwest
Trumpington Road Woodland	City Wildlife Site	"Woodland 1 ha or more in area with five or more woodland plants."	1.8km northwest
Grantchester Road Plantations	City Wildlife Site	"Woodland over 1 ha in area and with five or more woodland plants."	1.8km northwest

Stapleford Chalk Pit	Country Wildlife Site	“The pit is a site of significance in the wider landscape as it is one of many former chalk quarries in villages across the county, that are now a network of chalk grassland fragments.”	2.0km southeast
Bentley Road Paddocks	City Wildlife Site	“Neutral grassland with two or more strong neutral grassland indicator species in frequent numbers.”	2.0km northwest
Eight Acre Wood and Seven Acres Wood	City Wildlife Site	“Woodland over 1 ha in area and with five or more woodland plants.”	2.0km northwest

4.2 *Priority Habitats*

4.2.1 The closest ‘Priority’ habitats²¹ mapped on Magic within 2km of the site include ‘Chalk Stream’ (approximately 380m east of the site), ‘Traditional Orchard’ (approximately 564m southwest of the site), ‘Deciduous Woodland’²² (on site), ‘Lowland Fen’ (approximately 1.80km northwest of the site), ‘Lowland Calcareous Grassland’ (approximately 1.39m northeast of the site), and ‘Coastal and Floodplain Grazing Marsh’ (approximately 1.92km northwest of the site).

4.2.2 The statutory main river map, MAGIC and internal drainage data did not identify any of the watercourses within the study area as Priority habitat. The Cambridge watercourse mapping tool identifies the brook leaving Nine Wells as an ‘awarded watercourse,’ which is managed by Cambridge City Council.

4.3 *Habitats and Flora*

Hobson’s Conduit Trust information:

4.3.1 The data collected via the 2017 ‘bioblitz’ ran by HCT contains records of 74 plant species (including mosses) and 16 lichen/ algae species. None are listed as protected on the Wildlife and Countryside Act 1981, or on BSBI’s Cambridgeshire rare plant register²³, or the BLS Rare and Threatened Lichens list²⁴.

4.3.2 In 2024, HCT sampled the Brook within Nine Wells LNR and between Nine Wells and the railway for a range of water quality indicators. The results are summarised in **Table 2** below. Ammonia and phosphate levels were found to be relatively low in the section immediately east of the railway but lower within the Nine Wells LNR. Both areas have relatively high oxygen levels, although as the survey was completed on a low-flow day it has been commented that these would usually be higher. Turbidity was relatively low in both areas, although higher east of the railway.

²¹ Further to NERC Act 2006 S41. Also known as ‘Habitats of Principal Importance’.

²² Presumably ‘Lowland Mixed Deciduous Woodland’

²³ BSBI (2019), *Cambridgeshire (v.c.29) Rare Plant Register*. [Accessed 24.06.25, Rare Plant Registers – Botanical Society of Britain & Ireland]

²⁴ BLS (2011), BLS Rare and Threatened Lichens List

Table 2: Summary of water quality data from The Hobson's Conduit Trust 2024.

Water quality indicator	Sampled area and quantity	
	Nine Wells	Hobson's Brook east of the railway
Dissolved oxygen mg/l	9-10	7-8
Phosphate mg/l	0-0.05	>0.25
Turbidity FTU	0-0.5	2-2.5
Ammonia-N mg/l	0-0.05	>0.25

CSET2 supporting information:

- 4.3.3 Habitat surveys by Atkins and WSP for the CSET2 project EIA identify the study area as including the following UKHab types: ditches, modified grassland, other neutral grassland, other broadleaved woodland, developed land sealed surface, non-cereal crops, cereal crops, and hedgerow. The habitat mapping from WSP is shown in **Appendix 3**, and the mapping based on this that was used for Atkins' BNG calculation is shown in **Appendix 4**. With the exception of the watercourses, Atkins adopted WSPs survey results into the BNG calculation. Further discussion of the WSP and Atkins classifications for each of these habitats is given below:

Watercourses:

- 4.3.3.1 It is notable that WSP categorised all watercourses on the site as ditches, including the section of Hobson's Brook between Nine Wells and the railway line (D4 in **Appendix 3**), which was classed as a 0.144km long ditch of 'moderate' condition. This classification and condition assessment was arrived at despite WSP noting that the watercourse is spring fed. Atkins later corrected this somewhat, reclassifying it as 'other rivers and streams' of 'fairly poor' condition based on WSP's ditch condition assessment, aerial imagery, MoRPh results from the River Granta (not from the Brook itself), and the Water Framework Directive status of the local system generally.
- 4.3.4 WSP classed part of ditch W2 (see map at **Appendix 3**) as dry ditch or modified grassland. The survey took place during a particularly dry year, so they assumed that the ditches usually hold water for more than four months of the year. The WSP condition assessments for the watercourses within the study area are summarised in **Table 3** below.

Table 3: Summary of WSP report on survey area watercourses taken from CSET2 ES Appendix 10.1 Habitats Survey

Reference from Appendix 3	River type	Length (km)	Condition	Comments
W2	Ditches	0.153	Moderate	"Dry currently, water levels normally higher. Abundant Phragmites".
D4	Ditches	0.144	Moderate	"Connected to spring. Water levels normally higher. Hobson's Conduit at Nine Wells (spring fed)".
W27	Ditches	0.118	Good (Atkins downgraded to poor for BNG assessment)	"Precautionary assessment, as no field survey for BNG purposes as outside the boundary (based on the red line boundary version of RLB 26.09.11) used for field survey."
W8	Ditches	0.153	Poor	"Wet ditch."

Grasslands:

- 4.3.5 The WSP habitat plan classed most grass verges alongside most ditches and streams, and the railway line, as modified grassland of either 'poor' or 'good' condition. Verges towards the north of the site were classed as 'other neutral grassland' of 'good' condition.

Other broadleaved woodland:

- 4.3.6 WSP classed the area adjoining Addenbrookes Road to the north of the site (U097 in **Appendix 3**) as 'other broadleaved woodland' of 'poor' condition.

Cropland:

- 4.3.7 WSP recorded both fields within the study area as arable, the northernmost with a cereal crop and the southernmost with non-cereal crop.

Hedgerow:

- 4.3.8 The hedgerow to the east of the study area, north-west of Nine Wells, was classed as native species rich hedgerow of good condition by WSP in 2022. WSP do not note that the hedgerow is a priority habitat, but Atkins highlights that hedgerows are listed as a priority in Cambridge City Council's Biodiversity Strategy 2022-2030 and therefore deem them as high strategic significance.
- 4.3.9 There is an additional native hedgerow identified by WSP and Atkins to the southeast of Nine Wells LNR. This is excluded from the survey here as the majority of it lies outside of the survey boundary (see H026 in **Appendix 3**).

4.4 Protected species

4.4.1 Relevant pre-existing information on protected species is detailed below, including information from MAGIC, the CSET2 ecological reports, and information provided by the HCT.

Bats:

4.4.2 The 2017 Bioblitz identified three bat species at Nine Wells including two common pipistrelle *Pipistrellus pipistrellus*, a soprano pipistrelle *Pipistrellus pygmaeus*, and a noctule bat *Nyctalus noctula*. Other sources provided by the Trust identified serotine *Eptesicus serotinus* in Clare College playing field approximately 2km north of Nine Wells²⁵.

4.4.3 MAGIC identified three European Protected Species licences within a 2km radius of the site, summarised in **Table 4** below. The species listed include brown long eared bat *Plecotus auritus*, common pipistrelle, and soprano pipistrelle, all licences are over 1km away from the site.

Table 4: Known European Protected Species licences for bats within 2km of Nine Wells (source: Magic).

Licence number	Year	Species	Licence reason	Distance from site
2015-10635-EPS-MIT	2015-2020	Brown long eared bat and common pipistrelle	Destruction of a resting place	1.5km northwest
2015-14437-EPS-MIT	2015-2020	Brown long eared bat, soprano pipistrelle, and common pipistrelle	Affecting and destroying a breeding place, destruction of a resting place.	1.5km northwest

4.4.4 Bat surveys were completed for the CSET2 project by WYG, WSP and Capita between 2018 and 2022. The most recent of these were undertaken by WSP in 2022, who completed preliminary roost inspections of trees, ground level tree assessments, night-time bat walkovers and static detector surveys. These surveys deemed Nine Wells to be a high bat activity area with noctule/serotine/Leisler's (specific species not determined), common pipistrelle, soprano pipistrelle and, notably, barbastelle *Barbastella barbastellus* registrations recorded. WSP found no trees with roosting potential within the area, but WYG deemed the southwest corner of Nine Wells to have moderate roosting potential in 2020.

²⁵ Steve Boreham (2020). *Hobson's Brook: A Cambridge Chalk Stream* [Accessed 15/04/25]

Badger:

- 4.4.5 No badgers *Meles meles* were identified in the 2017 Bioblitz, although historically badger has been identified on site^{26,27}. The 2023 eDNA survey identified badgers downstream of Nine Wells in Hobson's Park. Local ornithologist John Meed has regularly recorded badger signs around White Hill (including two killed by road traffic) and has recorded badger via camera trap from within 150 metres of the proposed CSET compound²⁸.
- 4.4.6 Capita, WYG and WSP completed badger surveys from 2020 to 2022. WYG completed a badger survey in 2020, with the closest sett to Nine Wells being an outlier sett approximately 400m south of Nine Wells. This was deemed to be well used in 2020. In 2021, Capita completed a badger bait marking survey, but no badger signs were associated with Nine Wells. WSP completed badger surveys in 2022. They found an additional outlier sett to the north of the South Ditch in the northernmost part of the survey area (see **Appendix 10**).

Water vole:

- 4.4.7 The 2017 Bioblitz did not identify water vole *Arvicola amphibius* at Nine Wells, but other information sent by the Trust refers to water vole just downstream at Hobson's Park²⁹.
- 4.4.8 The 2025 eDNA survey organised by HCT identified water vole DNA from samples taken from Hobson's Brook between Nine Wells and the railway line. In 2025 and 2023 no water voles were identified within the Nine Wells LNR itself by eDNA sampling, but water voles were identified both years at a downstream location (Hobson's Park).
- 4.4.9 Water vole surveys for the CSET2 project were completed in 2021 and 2022 by Capita and WSP respectively. Both completed in-channel surveys of affected parts of Hobson's Brook where possible and put out floats between Nine Wells and the railway line for latrine detection. WSP put out nine floats from August to October and Capita put out eight floats from July to September.
- 4.4.10 WSP recorded two live sightings and a burrow between Nine Wells and the railway line, and a burrow and a latrine within the Nine Wells LNR. The float surveys by WSP found no water vole signs. They noted that there was a drought in 2022 which could have caused the distribution of water vole populations to change generally.
- 4.4.11 Capita found seven potential burrows between Nine Wells and the railway line, most which were closer to the railway line. The float survey found one survey with no droppings on floats, and one survey where all floats had droppings. John Meed observed the floats on his visits to Nine Wells in August/September 2020 and provided photos of probable water vole droppings on three occasions to the Capita surveyor. Activity appeared to be higher towards the end of the year. Although weather conditions were acceptable on the specific dates of the Capita surveys, members of the HCT have advised that Capita were observed to have checked the floats soon after rain on more than one occasion, which may have compromised the efficacy of these surveys.

²⁶ Steve Boreham (2020). *Hobson's Brook: A Cambridge Chalk Stream* [Accessed 15/04/25]

²⁷ Steve Boreham (undated presentation) *Hobson's Conduit: A View from Nine Wells* [Accessed 15/04/25]

²⁸ John Meed (2025), *Personal communication*.

²⁹ Steve Boreham (undated presentation) *Biodiversity of the Hobson's Brook Corridor* [Accessed 15/04/25]

Other mammals:

- 4.4.12 The only other mammal identified by the 2025 and 2023 eDNA data at Nine Wells was grey squirrel *Sciurus carolinensis*. Between Nine Wells and the railway line no mammals other than water vole were identified by the 2025 eDNA sampling.
- 4.4.13 The 2017 Bioblitz identified a single record of brown hare *Lepus europaeus* which is supported by other data provided by the Trust⁸. Other mammals identified on site included fox *Vulpes vulpes*, rabbit *Oryctolagus cuniculus*, muntjac deer *Muntiacus reevesi*, and grey squirrel.
- 4.4.14 A report by John Meed from 2025 reported 20 brown hare in the surrounding area, including the field south of Nine Wells³⁰.
- 4.4.15 John Meed also reported otter spraint on one of the water vole floats, and there are recent records of spraint from downstream sections of Hobson's Brook³¹. The area was surveyed for otter signs in 2022 by WSP, but no evidence of otter was found.
- 4.4.16 In 2021 Capita completed a survey for hedgehogs using footprint tunnels and trail cameras. Three tubes were placed to the west of the Nine Wells woodland, but no hedgehog signs were found in them. John Meed reported one record of a hedgehog on site³².
- 4.4.17 The 2022 WSP water vole survey found mink scat along Hobson's Brook.

Birds:

- 4.4.18 In the 2017 Bioblitz, 55 records of 35 bird species were identified by John Meed and Guy Belcher. These included no species listed on Schedule 1 of The Wildlife and Countryside Act 1981. There were nine species listed on schedule 40 and 41 of the NERC Act 2006 including bullfinch *Pyrrhula pyrrhula*, corn bunting *Emberiza calandra*, dunnoek *Prunella modularis*, herring gull *Larus argentatus*, linnet *Linaria cannabina*, reed bunting *Emberiza schoeniclus*, skylark *Alauda arvensis*, song thrush *Turdus philomelos*, and yellowhammer *Emberiza citrinella*. There were eight species on the red list of birds of conservation concern including corn bunting, greenfinch *Chloris chloris*, herring gull, house martin *Delichon urbica*, linnet, skylark, swift *Apus apus*, and yellowhammer. There were ten species listed on the amber list of birds of conservation concern including black-headed gull *Chroicocephalus ridibundus*, bullfinch, dunnoek, mallard *Anas platyrhynchos*, reed bunting, tawny owl *Strix aluco*, whitethroat *Sylvia communis*, willow warbler *Phylloscopus trochilus*, woodpigeon *Columba palumbus*, and wren *Troglodytes troglodytes*.
- 4.4.19 The 2025 eDNA sampling identified song thrush in the Nine Wells LNR, as well as unidentified pigeon/dove and duck species. Samples from the stretch of the brook between Nine Wells and the railway yielded DNA from common moorhen *Gallinula chloropus*, jay *Garrulus glandarius*, and song thrush, in addition to further unidentified bird species. Three additional species were found downstream.
- 4.4.20 The 2023 eDNA sampling identified three species at Nine Wells including common moorhen and two unidentified species. Downstream an additional twelve species were identified.

³⁰ John Meed (2025) *The value of green belt south of Cambridge to populations of farmland birds*

³¹ John Meed (2025), *Personal communication*.

³² John Meed (2025), *Personal communication*.

- 4.4.21 John Meed identified 83 species of birds on and around the Nine Wells area in 2024³³. These included 18 species on the current red list of birds of conservation concern (BOCC)³⁴, 24 amber BOCC list species, 16 farmland indicator species, and 46 breeding species. Results are summarised in **Table 5** below, taken from the report. It includes records of 10 species listed on Schedule 1 of the Wildlife and Countryside Act 1981 in 2024 including barn owl *Tyto alba*, black redstart *Phoenicurus ochrurus*, brambling *Fringilla montifringilla*, fieldfare *Turdus pilaris*, hobby *Falco subbuteo*, kingfisher *Alcedo atthis*, merlin *Falco columbarius*, peregrine *Falco peregrinus*, red kite *Milvus milvus* and whimbrel *Numenius phaeopus*. He also identified a further Schedule 1 species: green sandpiper *Tringa ochropus*, in previous years.
- 4.4.22 The 2025 report also highlights the presence of bird territories in the field where the CSET2 compound is to be located. These include the declining farmland species grey partridge, yellowhammer, and skylark.

Table 5: Bird species recorded by John Meed in the Nine Wells area³⁵

This list shows the 107 bird species recorded over the last 13 years: 25 red list birds, 34 amber list birds, and 48 green list species. The numbers show the number of breeding pairs/territories (except n/c where not counted); (S) denotes summer visitor, (W) winter visitor, (P) passage migrant and *italic* = not recorded in 2024.

Species		Species		Species		Species	
Barn owl		Garden warbler	1 (S)	Little egret	W	<i>Short-eared owl</i>	W
<i>Barnacle goose</i>	W	Goldcrest	2	<i>Little ringed plover</i>	P	Siskin	W
Black redstart	P	Golden plover	W	Long-tailed tit	c5	Skylark	60
Black-headed gull		Goldfinch	c6	Magpie	c8	Snipe	W
Blackbird	7	Great black-back gull	W	Mallard	3	Song thrush	5
Blackcap	8 (S)	Gt spot woodpecker	2	<i>Marsh harrier</i>		Sparrowhawk	
Blue tit	c12	Great tit	c12	Meadow pipit	W	Starling	c6
Brambling	W	Green woodpecker	2	Merlin	W	Stock dove	3
<i>Bullfinch</i>		<i>Greenfinch</i>	8	<i>Mistle thrush</i>	–	<i>Stonechat</i>	W
Buzzard	1	<i>Green sandpiper</i>	P	Moorhen	3	Swallow	2
Canada goose	W	Grey heron		Mute swan		Swift	S
Carriion crow	c8	Greylag goose		Oystercatcher	W	<i>Tawny owl</i>	?
Chaffinch	W	Grey partridge	14	Peregrine		<i>Teal</i>	W
Chiffchaff	11 (S)	Herring gull	W	Pheasant	3	<i>Tree pipit</i>	P
Coal tit	1	<i>Hobby</i>	P	Pied wagtail	3	<i>Turtle dove</i>	P
<i>Collared dove</i>		House martin	1? (S)	Raven		<i>Water rail</i>	W
Common gull	W	House sparrow	2	Red kite	1	Waxwing	W
Common tern	S	<i>Jack snipe</i>		<i>Red-legged partridge</i>	n/c	Wheatear	P
Coot		Jackdaw	n/c	<i>Redstart</i>	P	Whimbrel	P
Cormorant		Jay	2	Redwing	W	<i>Whinchat</i>	P
Corn bunting	11	Kestrel	1	Reed bunting	3	Whitethroat	20
<i>Crane</i>		Kingfisher	W	<i>Reed warbler</i>	2	Willow warbler	P
Cuckoo	S	<i>Lapwing</i>	-	<i>Ring ouzel</i>	P	Wood pigeon	n/c
Dunnock	24	Lesser black-back gull	W	Robin	33	Wren	c15
<i>Egyptian goose</i>		<i>Lesser redpoll</i>	W	Rook		<i>Yellow wagtail</i>	1
Feral pigeon	n/c	Lesser whitethroat	4	<i>Sand martin</i>	P	<i>Yellowhammer</i>	10
Fieldfare	W	Linnet	c8	<i>Sedge warbler</i>	P		

³³ John Meed (2025) *The value of green belt south of Cambridge to populations of farmland birds*

³⁴ Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. (2021). The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. *British Birds* 114: 723-747.

³⁵ John Meed (2025) *The value of green belt south of Cambridge to populations of farmland birds*

- 4.4.23 Capita, WYG and WSP completed bird surveys for the CSET2 project ES between 2020 and 2023. These included breeding and wintering bird surveys. Bird species recorded adjacent or within Nine Wells include barnacle goose *Branta leucopsis*, black headed gull, blackbird *Turdus merula*, blackcap *Sylvia atricapilla*, blue tit *Cyanistes caeruleus*, carrion crow *Corvus corone*, chaffinch *Fringilla coelebs*, dunnoek, feral pigeon *Columba livia domestica*, goldcrest *Regulus regulus*, golden plover *Pluvialis apricaria*, goldfinch *Carduelis carduelis*, great tit *Parus major*, greenfinch, kingfisher, linnet, little egret *Egretta garzetta*, long tailed tit *Aegithalos caudatus*, magpie *Pica pica*, meadow pipit *Anthus pratensis*, moorhen, red-legged partridge *Alectoris rufa*, redwing *Turdus iliacus*, reed bunting, reed warbler *Acrocephalus scirpaceus*, robin *Erithacus rubecula*, rook *Corvus frugilegus*, skylark, song thrush *Turdus philomelos*, sparrowhawk *Accipiter nisus*, stock dove *Columba oenas*, whitethroat, woodpigeon *Columba palumbus*, wren, and yellowhammer.
- 4.4.24 Birds observed in families by CSET2 ecologists, indicating breeding, included blackcap, blue tit, greenfinch, rook, and wren.
- 4.4.25 Capita and WSP also completed specific surveys for barn owl and kingfisher in 2021 and 2022 respectively. The area around Nine Wells was deemed poor habitat for field voles and therefore of low value to barn owl by WSP (CSET2 ES Appendix 10.3 Bird surveys. See **Appendix 9**). However, an active barn owl roost was found in a building at Whitehill Farm approximately 310m southeast of the survey area. Capita found two potential kingfisher perching places and one historic burrow (approximate grid reference TL 46032 54150) was found in the brook between Nine Wells and the railway. There was a live sighting of a kingfisher between Ninewells and the railway by WSP in November 2022.
- 4.4.26 A report by John Meed from 2019 is included as an appendix within the CSET2 bird report. It outlines the importance of the fields around Nine Wells to grey partridge and corn bunting populations, as well as other bird populations.

Amphibians:

- 4.4.27 The 2023 and 2025 eDNA results identified no amphibians at Nine Wells. Common frog *Rana temporaria* was identified in the stretch of the Brook between Nine Wells and the railway in 2025.
- 4.4.28 No great crested newts *Triturus cristatus* were identified at any point along the Brook in 2025 or 2023 eDNA results. No amphibians were identified during the 2017 bioblitz. Information from Steve Boreham includes records of common frog and common toad *Bufo bufo* at Nine Wells, but the details of these observations are unclear³⁶. John Meed's report from 2024 includes a record of common frog³⁷.
- 4.4.29 MAGIC identified six European protected species licences for great crested newt within 2km of the site, summarised in **Table 6** below. All are over 1km from the site.

³⁶ Steve Boreham (2020). *Hobson's Brook: A Cambridge Chalk Stream* [Accessed 15/04/25]

³⁷ John Meed (2025) *The value of green belt south of Cambridge to populations of farmland birds*

Table 6: European protected species licences for great crested newt within 2km of the site.

Licence number	Year	Species	Licence reason	Distance from site
2017-30442-EPS-MIT-1	2018-2021	Great Crested newt	Damage and destruction of a resting place	1.55km south
2017-30442-EPS-MIT	2017-2021	Great crested newt	Damage and destruction of a resting place	1.55km south
4071	2015	Great crested newt	Survey	1.28km southeast
7834	2015	Great crested newt	Survey	1.48km southeast
23582	2015	Great crested newt	Survey	1.48km southeast
7876	2017	Great crested newt	Survey	1.57km south

- 4.4.30 OS colour mapping and aerial photography were examined for nearby ponds within a 500m radius of the site. Four ponds were identified within 250m of the site (approximately 13m, 51m, 63m and 64m northeast of the site). These ponds were created as part of the construction of the Abcam Ltd. Building approximately 250m northeast of the site between 2017 and 2020 (Planning reference: 16/0176/OUT).
- 4.4.31 An additional three ponds were identified within 500m of the site (approximately 333m northwest, 334m west and 367m northeast of the site). The pond 334m northwest is a larger body of water within Hobson's Park which is likely habitat to waterfowl and so unlikely to provide good habitat for great crested newt.
- 4.4.32 In 2020 and 2021, Capita completed great crested newt surveys for the CSET2 project. Across the scheme they identified 58 waterbodies but were only able to conduct eDNA testing at 4 waterbodies each year mostly due to low water levels.
- 4.4.33 Three waterbodies were identified by Capita within the survey area, including a pond within Nine Wells and the two ditches to the North of the site (W2 and W8 in **Appendix 3**). In 2020, they calculated a HSI for the pond within Nine Wells (below average suitability) and in 2021, they calculated a HSI for the northern most ditch (W8 in **Appendix 3**, poor suitability). No water bodies on site were tested for eDNA due to being dry or otherwise not being able to follow standard water sampling procedures.
- 4.4.34 The triangular pond immediately to the northwest of the survey area returned a negative eDNA result (HSI average suitability).
- 4.4.35 Across the wider scheme, three ponds tested positive for GCN eDNA, but all are over 2km southwest of the survey area and are outside the proposed development area.

Reptiles:

- 4.4.36 In 2019, WYG completed a habitat suitability assessment for reptiles and in 2020, Capita completed a reptile survey on the sites deemed suitable as a result of that process. The Nine Wells area was not deemed suitable for reptiles (CSET2 ES: Appendix 10.7 Reptile Surveys). However, local ornithologist John Meed recorded a grass snake crossing the cycle path in 2024,³⁸ a grass snake near one of the Nine Wells housing estate ponds, and two records of common lizards near the Sustans cycle path bridge³⁹.

³⁸ John Meed (2025) *The value of green belt south of Cambridge to populations of farmland birds*

³⁹ John Meed (2025), *Personal communication*.

Fish:

- 4.4.37 The 2025 eDNA sampling identified stone loach *Barbatula barbatula*, three-spined stickleback *Gasterosteus aculeatus*, nine-spined stickleback *Pungitius pungitius*, and European bullhead *Cottus gobio* within the Nine Wells LNR. The stretch of brook between the railway and Nine Wells had gudgeon *Gobio gobio*, Eurasian minnow *Phoxinus Phoxinus*, roach *Rutilus rutilus*, stone loach, three-spined stickleback and European bullhead. Downstream, additional species identified included common dace *Leuciscus leuciscus*, common rudd *Scardinius erythrophthalmus*, common chub *Squalius cephalus*, and northern pike *Esox lucius*. European bullhead is an Annex II species under the European Habitats Directive and capable of being the basis for Special Area of Conservation designations.
- 4.4.38 The 2023 eDNA sampling identified three species of fish including stone loach, three-spined stickleback and bullhead. An additional eight species were identified downstream of Nine Wells. The 2017 Bioblitz data identified two fish species: three-spined stickleback and bullhead.
- 4.4.39 There is no mention of any fish surveys being commissioned by CSET2 in support of the EIA of that project.

Invertebrates:

- 4.4.40 Historically, Nine Wells LNR and the Hobson's Brook has contained the rare glacial relict flatworm *Crenobia alpina* and the cased-caddisfly *Agapetus fuscipes*⁴⁰. These species have however not been found since 1974.
- 4.4.41 More recently, the 2017 Bioblitz found 50 invertebrate species including 14 aquatic species and 36 species in moth traps. Aquatic species included the leech *Glossiphonia complanate*, water mite *Hydracharina*, the freshwater shrimps *Gammarus pulex*, and *Crangonyx pseudogracilis*, water hoglouse *Asellus aquaticus*, New Zealand mud snail (Jenkins' spire shell) *Potamopyrgus antipodarum (jenkinsi)*, wandering snail *Radix balthica (Lymnaea peregra)*, riffle beetle *Elmis sp.*, water beetle larvae *Dytiscidae*, cased caddis *Limnephilus sp.*, damselfly nymph *Agria sp.*, biting midge larvae *Ceratopogon*, non-biting midge larvae *Chironomidae*, and stream skater *Velia caprai*.
- 4.4.42 The 2025 eDNA survey results found 50 invertebrate taxa at Nine Wells including golden springtail *Sminthurinus elegans*, green drake mayfly *Ephemera Danical*, sawfly *Dolerus haematodesl*. There were two species of stonefly including *Nemurella pictetii* and *Chaetopteryx villosal*, and three species of beetle including black clock beetle *Pterostichus madidu*, cereal leaf beetle *Oulema melanopus*, and click beetle *Agriotes sputator*. There were also fly species including several species of non-biting midges. Fly species included St Mark's fly *Bibio marci*, *Apsectrotanypus trifascipennis*, *Arctopelopia barbitarsis*, *Corynoneura lobata*, *Prodiamesa olivacea*, *Rheocricotopus fuscipes*, *Stempellina bausei*, *Trissopelopia longimanus*, *Empis nuntia*, spotted crane fly *Nephrotoma appendiculata* and *Tipula signatal*. In addition, several unidentified species were found. In 2023, invertebrate metabarcoding was attempted but was not successful at Nine Wells.
- 4.4.43 A report by John Meed published in 2025 identifies 19 species of butterfly including brown argus *Aricia agestis*, common blue *Polyommatus icarus*, holly blue *Celastrina argiolus* and orange tip *Anthocharis cardamines*, 11 species of dragonfly and damselfly' and other groups of insects including moths, grasshoppers, crickets, beetles, flies, ants, bees and wasps⁴¹. A full species list of butterflies, damselflies and dragonflies recorded is summarised in **Table 7** overleaf, taken from that report.

4.4.44 Whilst a 2020 invertebrate survey by Ecology Link was commissioned by Capita in support of the CSET2 ES, this focused on grassland habitats and did not include any within or neighbouring the Nine Wells area. WSP completed eDNA sampling within Nine Wells for white clawed crayfish in 2022. The results were negative; however, sampling was only completed within the Nine Wells woodland which is upstream of the remaining survey area. More recent eDNA testing in 2025 not aimed specifically at white clawed crayfish also did not identify it in the area. eDNA sampling aimed at identifying American signal crayfish taken in 2025 also yielded a negative result.

Table 7: A summary of butterfly, damselfly, and dragonfly species in and around the Nine Wells Nature Reserve, observed by John Meed⁴². Those in italics were not identified in 2024.

Butterflies			
Brimstone	Green-veined white	<i>Painted lady</i>	Small tortoiseshell
Brown argus	Holly blue	Peacock	Small white
<i>Clouded yellow</i>	<i>Large skipper</i>	Red admiral	Speckled wood
Comma	Large white	<i>Ringlet</i>	
Common blue	<i>Marbled white</i>	Small copper	
Essex skipper	Meadow brown	Small heath	
Gatekeeper	Orange tip	Small skipper	
Dragonflies			
Azure damselfly	<i>Broad-bodied chaser</i>	Emperor	Ruddy darter
<i>Banded demoiselle</i>	Brown hawker	Four-spotted chaser	<i>Small red-eyed damselfly</i>
Black-tailed skimmer	<i>Common blue damselfly</i>	Large red damselfly	Southern hawker
Blue-tailed damselfly	Common darter	Migrant hawker	<i>Willow emerald</i>

⁴⁰ Steve Boreham (2020). *Hobson's Brook: A Cambridge Chalk Stream* [Accessed 15/04/25]

⁴¹ John Meed (2025) *The value of green belt south of Cambridge to populations of farmland birds*

⁴² John Meed (2025) *The value of green belt south of Cambridge to populations of farmland birds*

5 BIOSCAN SURVEY RESULTS 2025

5.1 Habitats

5.1.1 *Habitat Types*

5.1.1.1 The following habitat types (listed here with their UKHab codes) were recorded within the study area. The habitats and habitat descriptions in grey relate to Nine Wells LNR itself, which was covered as part of the wider survey area but is not specifically included within the development site and is therefore excluded from the BNG calculations in **Section 7**.

- R2a- Priority river
- R2b50- Ditch
- G3c- Other neutral grassland
- G2c- Other calcareous grassland
- C1d/c1c- Arable
- U1b- Developed land- sealed surface
- U1c- Artificial unvegetated, unsealed surface
- H3h and H2a- Scrub and hedgerow
- U81 - Sparsely vegetated land, Ephemeral/ruderal
- W1c- Lowland beech and yew woodland

5.1.1.2 The distribution of each of the above habitats is shown on the attached Figure 1 and described in more detail below. The habitat condition assessments (where relevant) for each are summarised in Appendix 1 :

5.1.2 *Priority river*

5.1.2.1 Based on the results of Bioscan's survey on 25 May 2025, and the JNCC UK BAP Priority Habitat Descriptions , the affected reach of the Hobson's Brook qualifies as a 'Priority river' under the criterion 'Headwaters'. These are defined as:

"A watercourse within 2.5km of its furthest source as marked with a blue line on Ordnance Survey (OS) maps at a scale of 1:50,000. Note that each tributary of a river will have its own headwater, so there will be more than one (sometimes many more) per catchment. Headwaters which have been significantly altered from their natural state are however not included."

5.1.2.2 The furthest reach of Hobson's Brook surveyed from the furthest spring visible on OS mapping at this scale is approximately 265m, well below the 2.5km threshold.

5.1.2.3 This reach could also qualify under the 'Chalk stream' criterion as the bedrock is chalk, as is very evident within the Nine Wells LNR. In addition, the brook is fed from groundwater aquifers which were visible during the survey. Close to the proposed busway bridge there was also an abundance of mid-channel starwort *Callitriche obtusangula* which is often associated with or even characteristic of chalk stream habitats.

5.1.2.4 A condition assessment was estimated for two sub reaches, one around the proposed permanent development works (i.e. the busway crossing) (subreach 1), and one within the Nine Wells LNR, extending from the easternmost headwater (subreach 2). Methods and results are summarised in **Appendix 1**.

5.1.2.5 Subreach 1 started from the edge of the railway bridge and was classified as ‘moderate’ condition. It had a channel bed of deep silt with largely undercut banks (see **Image 4**). The flow consisted of pools and riffles largely created by vegetation. There were points where vegetation almost covered the entire width. On the left side (looking downstream) was a small line of scrub with a grown-out ley behind and to the right was an unvegetated track surrounded by neutral grassland field edges and with an arable rape *Brassica napus* subsp. *oleifera* crop in the field proper. Between the existing cycleway bridge and the railway bridge the main channel is joined by a wet ditch from the north (right bank) (the ‘South Ditch’). The main channel is also reinforced here on both sides by brick walls. The extant wooden bridge for the cycle path over the river is approximately 2m wide and there is a small amount of concrete bank reinforcement around the bridge. In-channel vegetation included watercress *Nasturtium officinale*, greater spearwort *Ranunculus lingua*, fool’s watercress *Helosciadium nodiflorum* and blunt-fruited water starwort *Callitriche obtusangula*, with stands of great willowherb *Epilobium hirsutum* at the margins and spreading up the banks.

Image 4: Subreach 1 looking downstream (west). The bridge carrying the “DNA” Sustrans cycle path is visible in the background.



5.1.2.6 Luxuriant macrophyte vegetation was visible on the downstream (west) side of the railway bridge indicating that the river is also of at least moderate quality further downstream, however this area was not accessed.

5.1.2.7 Subreach 2 was within the Nine Wells LNR and is overshadowed by woodland. The bed was largely silt and dead plant material (see **Image 5** below). The surveyed area included the easternmost spring (see **Image 6** below). However, there are at least three discrete springs and additional water feeding more diffusely into the brook throughout the Nine Wells LNR. Past channel management has included the creation of side bars made from dead wood (visible in **Image 5** below), but there was also additional dead wood overhanging the channel. The water was largely still within the springs themselves and flowed slowly and smoothly throughout most of the LNR. However, occasional flows were visibly emerging from the bedrock to the sides of the brook. Chalk cobble and bedrock were visible to the edges of the brook. In-channel vegetation is sparse due to overshadowing, but included occasional stands of yellow flag *Iris pseudacorus*, watercress, greater willowherb and very locally marsh marigold *Caltha palustris*.

Image 5: Subreach 2 within Nine Wells LNR looking upstream (north-east), with artificially created wooden sidebar visible to the right of the frame.



Image 6: The easternmost spring within Nine Wells LNR. Chalk bedrock is evident.



5.1.2.8 Two other springs were surveyed (see **Image 7** and **Image 8** below). These contained more silt than the easternmost spring with similar bank composition.

Image 7: The westernmost spring within Nine Wells LNR.



Image 8: The central terminal spring at Nine Wells LNR. The silt has been kicked up during the survey.



- 5.1.2.9 The area where the temporary cyclepath bridge is proposed (close to the point where the Brook leaves the Nine Wells LNR) was not formally surveyed but is likely to be of at least moderate quality because it was similar to subreach 1 (see **Image 9 and 10** below). A circular flow was observed near this area where the three reaches within Nine Wells converge. In the area where the temporary bridge is being built, the flow rate seems to be supported by additional spring water coming from the bedrock. The bed here was mostly silt and the vegetation was similar to subreach 1 except for an increased abundance of linear leaved vegetation within the channel. This was mostly common reed *Phragmites australis* (there is a distinct stand here visible in Image 9 below) with other in-channel or marginal species including greater willowherb, yellow flag, stinging nettle *Urtica dioica* and bittersweet *Solanum dulcumara*.

Image 9: View downstream (west) towards the railway where the channel exits Nine Wells LNR.



Image 10: View southwards across the bank near the exit of Nine Wells LNR.



5.1.2.10 Encroachment is limited to small amounts of bank reinforcement to the east of the railway bridge, and a small concrete bank reinforcement on the right bank east of the cyclepath bridge. However, these accounted for less than 5% of the reach. The access track to Nine Wells running along the northern side of the brook accounted for approximately 20% of the riparian zone, and therefore it translates to 'moderate' riparian encroachment.

5.1.3 ***Ditch***

5.1.3.1 Three ditches fall within the study area. For ease of cross-referencing they have been given the same reference numbers as used on WSPs earlier habitat mapping, as reproduced at **Appendix 3** of this report. From north to south they are as follows:

- W8: A feature of fairly recent origin constructed around 2008 in connection with highways construction works (the embanked approach to the Addenbrooke's Road overbridge)
- W2: Known locally as "the South Ditch" this is two connected stretches of former field boundary ditch running NE-SW and then turning southwards to run along the eastern side of the railway before discharging into Hobson's Brook. Since 2008 this feature has been affected by construction of the Sustrans cyclepath and the Abcam Building, and currently the northern section adjoins and is crossed by a haul road and construction compound related to current railway works.
- W27: This is a section of ditch running along the north-western boundary of the Nine Wells woodland and LNR; it also discharges southwards into Hobson's Brook.

- 5.1.3.2 In accordance with MoRPh methodology, W2 was assigned 'no-encroachment' on a precautionary basis, as the culverts within the Murphy compound could not be fully inspected, but take up approximately 5% of the length of the ditch according to aerial photography. None of the other ditches had in-channel encroachment, and bank revetment was less than 5% of the ditch lengths. As touched upon above, the footpaths and cycle way have caused major riparian encroachment of ditches W2 and W8.
- 5.1.3.3 **W8:** This is a drainage channel of fairly recent origin, dug around 2008 as part of the highways construction works in the northern part of the study area and now sat within an area dominated by the calcareous grassland and scrub described elsewhere. It comprises a straight and fairly shallowly banked and unshaded feature, which was largely dry on the day of the survey. Emergent vegetation includes reedmace, common spike rush *Eleocharis palustris*, greater spearwort, yellow flag and hard rush *Juncus inflexus*. Reed bunting appeared to be holding territory here. It comes out as 'poor' condition using the relevant BNG criteria.
- 5.1.3.4 **W2:** Due to access restrictions associated with the railway works and related Murphy compound, only the NE-SW aligned section of the South Ditch was surveyed, and not the section adjoining the railway line. The former comprises of a straight, steep sided channel which was dry on the day of the survey, albeit the sediment at the base was still moist and yielding. Aquatic vegetation is not continuous but includes locally abundant water horsetail *Equisetum fluviatile* and more localised reedmace *Typha latifolia*, branched bur-reed *Sparganium erectum*, common water starwort *Callitriche stagnalis*, fool's watercress and greater willowherb. The banks are dominated by a low tangle of dewberry *Rubus caesius* with stands of greater willowherb and species such as water figwort *Scrophularia auriculata*. There is also scattered scrub of hawthorn *Crataegus monogyna*, rose *Rosa canina* and spindle *Euonymus europeaus*. Numerous badger prints were found in the soft mud and some very old water vole signs (dried droppings and a latrine site). At the time of survey, it was partially dry towards the north, but it believed to usually be wet, especially towards the south. Therefore, it is assigned 'moderate' condition using the BNG criteria.
- 5.1.3.5 **W27:** This drainage ditch runs along the north-western edge of the Nine Wells Reserve. It is a straight, steep sided and fairly heavily shaded feature with scant marginal or emergent vegetation and low water levels on the day of the survey. The banks are dominated by dewberry and coarse grassland with ruderals and bittersweet and great willowherb were the only wetland species noted in the channel. It comes out as 'poor' condition using the BNG criteria.
- 5.1.4 **Other neutral grassland**
- 5.1.4.1 This occurs around the margins of the arable field north-west of the Nine Wells reserve, along adjacent path verges, and more extensively in a former arable field to the south which has evidently been sown as a ley or fodder crop in the past but is now a closed-sward grassland.

- 5.1.4.2 These are coarse grassland communities with varying affinities to MG1 *Arrhenatherum* grassland, and with a varying herb diversity. The most depauperate examples are dominated by false oat-grass *Arrhenatherum elatius*, cocksfoot *Dactylis glomerata*, barren brome *Anisantha sterilis*, soft brome *Bromus hordaceus* and rough meadow grass *Poa trivialis* with couch *Elytrigia repens* locally abundant and typical associates being stinging nettle *Urtica dioica*, cow parsley *Anthriscus sylvestris*, hogweed *Heracleum sphondylium* and cleavers *Galium aparine*. Along the margins closer to Hobson's Brook and at the edges of the cycleway there is more interest, with a broad range of additional herb species found here including beaked hawk's-beard *Crepis vesicaria*, common sorrel *Rumex acetosa*, hedge bedstraw *Galium mollugo*, goat's-beard *Tragopogon pratensis*, hoary ragwort *Jacobaea erucifolia* and others. Of note in these examples is the localised presence of vervain *Verbena officinalis*, greater knapweed *Centaurea scabiosa*, stone parsley *Sison amomum*, lady's bedstraw *Galium verum*, knapweed and ox-eye daisy *Leucanthemum vulgare* indicating a transition towards the MG1a *Centaurea scabiosa* sub-community and variant.
- 5.1.4.3 All examples fail to achieve above 'poor' condition due to factors such as lack of sward height diversity and species richness.
- 5.1.5 **Other calcareous grassland**
- 5.1.5.1 This habitat occurs alongside scattered and locally more dense scrub on recently disturbed and engineered banks and slopes associated with the approach embankments to the Addenbrookes Rd railway overbridge, and also on similarly disturbed calcareous soils alongside the north-eastern reach of the South Ditch. It is possible the community here originates in part from seeding of an appropriate calcareous and/or wildflower mix on completion of the highways works, but in any event what has developed here is a quite sparse but flower-rich grassland with a significant calcicolous component. Characteristic species include ox-eye daisy, glaucous sedge *Carex flacca*, greater knapweed, bird's-foot trefoil *Lotus corniculatus*, cowslip *Primula veris*, yellow rattle *Rhinanthus minor*, hoary plantain *Plantago media*, small scabious *Scabiosa columbaria*, field scabious *Knautia arvensis*, red fescue *Festuca rubra*, salad burnet *Sanguisorba minor*, wild marjoram *Origanum vulgare*, blue fleabane *Erigeron acer*, hairy tare *Vicia hirsuta* and rough hawkbit *Leontodon hispidus*. In Bioscan's Metric calculations, this has been classed as lowland calcareous grassland of poor condition as there is no 'other calcareous grassland' category consistent with UKHab. What it certainly is not, despite being mapped and classified by WSP as such, is a uniform block of 'other woodland, broadleaved'.
- 5.1.6 **Arable**
- 5.1.6.1 The main field within the study area (and proposed for the temporary CSET2 compound) supported an oilseed rape crop on the day of the survey. Other than the crop, the arable weed assemblage was unremarkable, although some wild pansy *Viola arvensis* was present. The southern field, though cultivated as arable in the past, is no longer that habitat, and therefore the WSP mapping and classification (as cropland) is out of date.
- 5.1.7 **Developed land: sealed surface.**
- 5.1.7.1 The study area encompasses two main paved pathways. These include the Sustrans cycle track and a section of paved road leading to/from the Addenbrookes Road roundabout.

5.1.8 ***Artificial unvegetated, unsealed surface***

- 5.1.8.1 This habitat was visible within the Murphy compound and along parts of the unmade access track leading up to it. The compound was not accessible though the vegetation at the margins could be seen through the perimeter fence and is discussed under 'ephemeral/ruderal' below.

5.1.9 ***Scrub and hedgerow***

- 5.1.9.1 Scattered scrub of hawthorn, elder, spindle and bramble or dewberry occurs alongside the cyclepath and along the Hobson's Brook and more densely and extensively on the rail embankment at the western edge of the study area. Scrub of planted origin occurs on the more recently constructed Addenbrookes Road embankments in the north, where it is scattered within the calcareous grassland here but is locally closing canopy into a defined block. Component species include hawthorn, blackthorn, wild privet, dogwood *Cornus sanguinea*, dog rose *Rosa canina* and field maple *Acer campestre*. The scrub was classed as moderate condition.
- 5.1.9.2 The hedgerow along the NE edge of the arable field is an intact feature trimmed to around 20 feet in height, and averages around 5 species per 30 metres, with hawthorn, wayfaring tree *Viburnum lantana*, field maple, blackthorn, ash, dog rose and dogwood all present. The hedgerow was classed native species rich hedgerow of good condition.

5.1.10 ***Ephemeral/ruderal***

- 5.1.10.1 Small pockets of this habitat occur at the northern edge of the main arable field within the study area, and at the margins of the active construction compound just to the west of here. A broad suite of disturbed ground species are found in these areas, ranging from common and ubiquitous disturbed ground associates such as smooth sow thistle *Sonchus oleraceus*, blackgrass *Alopecurus myosuroides* and annual meadow grass *Poa annua*, through to more notable species at the edges of the construction compound such as weld *Reseda luteola*, wild mignonette *Reseda lutea*, great mullein *Verbascum thapsus* and calicoles such as viper's bugloss *Echium vulgare*, greater knapweed and blue fleabane. It comes out as 'good' condition using the BNG criteria.

5.1.11 **Lowland beech and yew woodland**

5.1.11.1 The Nine Wells LNR is outside the CSET2 redline area but was surveyed for completeness and in accordance with HCTs instructions. As it is not included in the comparative analysis and BNG calculation later in this report, grey text is used here to differentiate it from habitats and features that fall within the CSET2 red line boundary.

5.1.11.2 The LNR is dominated by mature woodland, partly of planted origin. It is possible that planting in the 19th Century or earlier (including of the many impressive beeches) has imposed a beech and yew character onto a semi-natural community more akin to W8 ash woodland, with elements of both locally dominant today. Accordingly, the canopy is locally dominated by beech *Fagus sylvatica*, with ash *Fraxinus excelsior* more locally dominant nearer the brook channels within, and other species such as downy birch *Betula pubescens*, wild cherry *Prunus avium* and whitebeam *Sorbus aria* agg. also present. The understorey is well formed and fairly diverse, with yew *Taxus baccata* localised, and other areas comprising hawthorn, wild privet *Ligustrum vulgare*, spindle and holly *Ilex aquifolium* and more rarely elder *Sambucus nigra*, hazel *Corylus avellana* and blackthorn *Prunus spinosa*. The field layer is typically dominated by ivy and is locally bare under the larger beech, with dense cover of dewberry where there is greater light ingress, and other constituents including wood false brome *Brachypodium sylvaticum*, dog rose, field rose *Rosa arvensis*, black bryony *Dioscorea communis*, stinking iris *Iris foetidissima*, traveller's joy *Clematis vitalba*, wood dock *Rumex sanguineus*, lords and ladies *Arum maculatum* and wood avens *Geum urbanum*. Of note is the presence, locally, of deadly nightshade *Atropa belladonna*. Other species of more local occurrence include redcurrant *Ribes rubrum*, male fern *Dryopteris filix-mas*, sweet violet *Viola odorata* and hedge woundwort *Stachys sylvatica*. The woodland was classed as in 'good' condition.

5.2 **Fauna**

5.2.1 During the survey, all bird species seen or heard were recorded, and all butterfly observations were similarly noted. A particular effort was made to search for field signs of protected water vole (and/or otter) along the watercourses within the study area and field sign evidence and/or suitable habitat for other protected or notable species, such as badgers or reptiles, was also searched for. The results are summarised below:

5.2.2 **Water vole (and otter)**

5.2.2.1 Searches of the affected section of Hobson's Brook for water vole on 20th May 2025 did not find any conclusive field signs but a number of burrows in the banks were noted of a character consistent with that species, which were deemed to potentially be indicative of intermittent presence. In addition, old field signs (very dried out droppings associated with an old latrine site) were found in the north-eastern section of the South Ditch, indicating that at times when this feature has a more permanent standing or flowing water complement, the species may expand into it from local population nuclei. As previously mentioned, it was also noted during the survey that emergent vegetation in the brook downstream of the railway bridge appeared luxuriant and this may be more likely to support a frequent or semi-permanent water vole presence.

5.2.2.2 No signs of otter, new or old, were found on the survey.

5.2.3 ***Badger***

- 5.2.3.1 Numerous recent badger prints were found in soft sediment at the base of the north-eastern reach of South Ditch (W2) in association with points at which badgers evidently cross this feature, judging by prominent paths in the adjoining grassland and scrub. This activity may indicate that the 'outlier' sett close to here and previously recorded by WSP in 2022 may be currently active. Prominent paths were also found in the calcareous grassland and scrub north-west of this location. No signs of resident badger presence were found within Nine Wells LNR, nor conclusively in the rest of the study area, though the rail-side land and Murphy compound could not of course be accessed. Mammal holes noted in parts of Nine Wells LNR all appeared to be of fox and/or rabbit origin.

5.2.4 ***Other mammals***

- 5.2.4.1 Bat surveys were beyond the scope of the commission, but during the survey on 20th May 2025 attention was paid to the presence of any trees with features capable of supporting bat roosts. None were noted that are at risk of direct impact from the proposals, but numerous trees in Nine Wells LNR were observed to have cavities, splits or other features capable of (and indeed likely to) harbour bat roosts.
- 5.2.4.2 Other mammals observed on the site or for which field-sign evidence was found included grey squirrel, rabbit, red fox, bank vole and common shrew.

5.2.5 ***Birds***

- 5.2.5.1 A suite of farmland and urban fringe bird species were noted during the survey, including a number of species of that, due to recent population and/or range declines, are of elevated conservation status ('Priority' species under NERC Act 2006 S41 or Red/Amber List birds of conservation concern⁴³). **Table 8** below sets out the bird species that were noted on the day with notes on their location within the study area and their conservation status.

5.2.6 ***Invertebrates***

- 5.2.6.1 Incidental observations of Lepidoptera made during the course of the survey included the somewhat localised species brown argus, which is often associated with species-rich grasslands and/or diverse early successional communities.

⁴³ Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. 2021. The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. *British Birds* 114: 723-747

Table 8: Bird species observed during Bioscan's 20th May 2025 survey

Species	Common name	Location	Conservation status/notes
<i>Acropcephalus scirpaceus</i>	Reed warbler	Territory in sparse reed stand in Hobson's Brook	
<i>Aegithalos caudatus</i>	Long-tailed tit	Nine Wells LNR	
<i>Alauda arvensis</i>	Skylark	Territory centred on southern field	Priority species / Red List
<i>Carduelis carduelis</i>	Goldfinch	Throughout	
<i>Columba palumbus</i>	Woodpigeon	Frequent throughout	Amber List
<i>Cyanistes caeruleus</i>	Blue tit	Mainly Nine Wells LNR	
<i>Delichon urbica</i>	House martin	Common over the site	Red List
<i>Emberiza citrinella</i>	Yellowhammer	Territory in rape field in central part of study area	Priority species / Red List
<i>Emberiza schoeniclus</i>	Reed bunting	Two territories, one centred on rape field and one on northern ditch adj. Adenbrooke's Way	Priority species / Amber List
<i>Erithacus rubecula</i>	Robin	Mainly Nine Wells LNR	
<i>Garrulus glandarius</i>	Jay	Nine Wells LNR	
<i>Linaria cannabina</i>	Linnet	At least one territory centred on scrub bordering Hobson's Conduit	Priority species / Red List
<i>Phylloscopus collybita</i>	Chiffchaff	Several territories in Nine Wells LNR	
<i>Prunella modularis</i>	Dunnock	Rail-side scrub and Nine Wells LNR	Priority species / Amber List
<i>Sylvia atricapilla</i>	Blackcap	Several territories in Nine Wells LNR	
<i>Sylvia communis</i>	Whitethroat	Several territories in scrub	Amber List
<i>Troglodytes troglodytes</i>	Wren	Frequent throughout	Amber List
<i>Turdus merula</i>	Blackbird	Several territories in Nine Wells LNR	
<i>Turdus philomelos</i>	Song thrush	Nine Wells LNR	Priority / Amber List

6 COMPARISON WITH CSET2 SUBMISSION MATERIAL

6.1 *Relevance of errors and omissions to the CSET2 consenting process*

- 6.1.1 The CSET2 scheme is promoted as being compliant with BNG policy and regulation, with the Environmental Statement stating that *"The biodiversity value of the habitats within the landscape design is improved, compared to the habitats that are being replaced, resulting in a 65.53% Biodiversity Net Gain (BNG) for habitat areas, 105.62% BNG for hedgerows, and 32.06% BNG for ditches."* (Environmental Statement Volume 2: para 2.1.80). Such figures, if robust, would be sufficient for regulatory and both national and local policy compliance and therefore their veracity is an important matter for determination. On rivers and streams, the ES accepts a deficit situation of -1.32%, but offers a commitment to purchase off-site BNG credits sufficient to obtain a +20% result figure.
- 6.1.2 The accuracy of these figures is therefore important if the CSET2 scheme is to achieve its policy objectives and be delivered in a manner that ensures sufficient compensation for unavoidable impacts, in line with both policy and statute. Such considerations are directly relevant to the decision-making process.
- 6.1.3 It is of concern, therefore, that within the part of the CSET2 project area that has been considered by Bioscan in this commission, a number of misclassifications, errors and/or inconsistencies have been unearthed which call the robustness of the figures presented in the Environmental Statement into doubt. These are dealt with below:

6.2 *Water courses - baseline*

- 6.2.1 Atkins' BNG assessment classes the Hobson's Brook as 'other rivers and streams' of fairly poor condition (CSET2 ES Appendix 10.12 BNG Assessment Table A10.11.12). Whilst this is an improvement on an earlier misclassification of this feature by WSP as merely a 'ditch', it remains a misclassification. We found that it is a 'priority river' of at least moderate condition largely on the basis of proximity to headwaters. A 'Priority' habitat, capable of being a material consideration in its own right, has therefore been overlooked and omitted from full and rigorous assessment.
- 6.2.2 In addition, part of ditch W2 was assessed as a dry ditch and the length of the ditch stated as 153m. We deem the whole ditch is wet, as the sediment was moist at the driest end despite 2025 being a drought year, and water could clearly be seen where it meets Hobson's Brook. The length of ditch W2 measured was 337m.

6.3 *Terrestrial Habitats - baseline*

- 6.3.1 Our classification and/or condition assessment of the area-based habitats on site also differed significantly to the data produced by Atkins and WSP for the CSET2 EIA.
- 6.3.2 Neither Atkins nor WSP appear to have recognised the expanse of calcareous grassland in the north of the site, with both seemingly classifying this area as woodland or scrub. WSP had classed the whole area as 'other deciduous woodland', when the tree/shrub component will have in fact been even smaller at the time of their survey.

- 6.3.3 The other big discrepancy was in the classification of the southern field of the study area. WSP classed this field (south of Hobson's Brook) as arable. It may once have been, but aerial photography and current composition indicate that it has not been for some considerable time. Today it is a closed-sward grassland dominated by a fairly wide variety of herb and grass species, not crop species or fallow weeds.
- 6.3.4 Other more minor discrepancies include the misclassification of verges as 'modified' grasslands when they are actually clear representations of 'other neutral grassland'. There were also a few small areas where ruderal/ephemeral vegetation has been omitted.
- 6.3.5 We believe the effect of these baseline mapping and classification errors on the accuracy of the applicant's BNG calculation is compounded by additional issues with WSP/Atkins' proposed habitat mapping and suggested habitat creation, as discussed in **Section 7** below.

6.4 Fauna - baseline

- 6.4.1 On the matter of protected species, it is evident that water voles use Hobson's Brook, and seasonal and year-on-year fluctuations probably allow populations to expand upstream towards Nine Wells LNR and evidently into the South Ditch in some years and seasons. Badgers are also present, and the 'outlier' sett noted in the north of the site by WSP in 2022 may now be more permanently active. Additionally, hedgehog was observed on site by John Meed. Such factors have implications for the robustness of the Environmental Statement conclusions about the scope for impact on these species.
- 6.4.2 In relation to birds, we note the study area was deemed to be low quality habitat for barn owl on the basis of it being poor habitat for field voles (CSET2 ES Appendix 10.3 Bird surveys. See **Appendix 9**). This appears to arise from a misconception arising from WSP mapping and classification errors about the quality of the grassland verges and the nature of the southern field, which is not arable but a permanent long grassland. Put together with the fact that the nearest known barn owl roost is only approximately 310m away, it is far more conceivable that barn owls do use the site than they don't (which is the position assumed in the ES). We note that local ornithologist John Meed's 2024 report includes a nearby barn owl.
- 6.4.3 The study area was deemed by WSP and Atkins to be of low potential for reptiles and therefore no detailed surveys have been completed. In our view, the scrub along the railway line creates good connectivity for reptiles and there are recent records of grass snake and common lizard from John Meed, demonstrating that reptiles do in fact use the site.
- 6.4.4 Overall, we consider that there are areas where further study by the proponents of the CSET2 project would significantly improve the robustness of the EIA and any conclusions and/or decisions derived from it.

7 IMPLICATIONS OF ERRORS/OMISSIONS FOR ASSESSMENT AND DECISION-MAKING

7.1 *Overview*

- 7.1.1 The errors and omissions above are consistently in one direction – towards undervaluing the baseline habitats and species in this part of the CSET2 project area. This raises the possibility, or even likelihood, that there are wider errors outside of the survey area and across the entirety of the project.
- 7.1.2 The part of the project area investigated by Bioscan for HCT is 7.55ha which is approximately 6.6% of the area of the total scheme. The cumulative effect of such errors and omissions could therefore be very significant, both for the accuracy of the applicant's BNG calculations and claims, for the adequacy of its compensation proposals as a means to avoid net loss of biodiversity and deliver net gain, and for its EIA conclusions more generally, including those around the implications of the project for protected species.
- 7.1.3 The implications of the identified errors and omissions are discussed in more detail below, with specific reference to their implications for the applicant's BNG assessment.

7.2 *Implications for assessment of impact on watercourses*

- 7.2.1 Atkins stated that there will be no impact on the Hobson's Brook on the basis that 'scenario modelling' of creation of structures over some sections of the River Granta had no impact on condition class (CSET2 ES Appendix 10.12 BNG Assessment 10.10.106-10.10.108, CSET2 ES Appendix 10.13 Scenario Modelling for Rivers BNG 10.13.14 and 10.13.16). However, given that no MoRPh surveys were completed on Hobson's Brook and the baseline habitat type, river type and condition is inaccurately represented by the CSET2 project, such assumptions are manifestly unsafe and fail normal industry practice standards which require that impact assessments be based on empirical and site-specific information. It is further conceivable given what we have found within the study area that the baseline and therefore scenario modelling of the River Granta sections have similar inconsistencies and are similarly unsafe. It would be a very worrying development if such 'extrapolated' assessments were accepted by decision-makers as representative or robust of actual environmental implications.
- 7.2.2 The 'CSET2 ES Volume 2 Main Report 2.1.16' states that the new bridge over Hobson's Brook will be 14.4m wide. Therefore, at least 14.4m of the brook will be impacted.
- 7.2.3 WSP deemed the River Granta to be river type H, whereas Hobson's Brook is river type K due to lack of sand. The survey methodology involves obtaining a condition score using the MoRPh survey results, in this case the reach between Nine Wells and the railway line obtained a score of 0.425 (see **Appendix 1**). These scores are compared to thresholds which differ according to river type. In the case of 'K' type rivers, the threshold score between moderate and fairly poor condition is 0.2, and between moderate and fairly good condition is 1.2. Therefore, a score of 0.425 is closer to the lower end of moderate condition and could conceivably drop into fairly poor condition if impacted.
- 7.2.4 The types of impacts that could cause this drop in condition due to the new permanent bridge could include, but are not limited to:
 - Shading causing in-channel vegetation to die and habitats to be lost.

- Inevitable increase of riparian encroachment (impacts within 10m of the bank top).
 - Removal of vegetation including shrubs from the banks and the riparian zone (10m of the bank top).
 - Potential collapse of undercut banks throughout the works, caused by vegetation clearance or other. This could lead to changes in flow type and loss of habitat.
- 7.2.5 In addition, the Brook will be further impacted by other related works proposed by the development, including:
- The temporary structure assembled adjacent to the Nine Wells LNR that is to be 3.2m wide and dug into the banks. This would damage the banks and produce temporary shading, in addition to increasing footfall and therefore potential human impacts to the area (for example litter).
 - Drainage the brook will receive from the busway after it has passed through the filter drains, swales and attenuation basins (precise locations of outfalls are unclear, but lie east of the railway line, see **Appendix 8**). This has the potential to impact water quality and therefore aquatic organisms. At times of heavy rainfall, this could also create a temporarily high flow rate that could damage the banks.
 - Proposed nearby water-filled features, including swales to be created either side of the busway (see **Appendix 6**), and ponds including an attenuation pond, and a pond aimed at supporting water voles, both sited just south of the Hobson's Brook between Nine Wells and the railway line. HCT have expressed concerns that these features could draw surface and/or ground water away from the brook and reduce flow rate, this exacerbating an issue that is already challenging the brook system and posing a risk of decreasing the quality of habitat further.
- 7.2.6 In respect of ditch W2, the proposals plans indicate that there will be a culvert of 45m and an additional 2m wide footbridge, resulting in a loss of 47m of ditch W2. Part of the new busway extends over the whole of ditch W8. Proposals (see **Appendix 7**) do not indicate other structures created here so it is assumed that the ditch will be entirely lost. These are both accurately reflected in Atkin's BNG calculation.
- 7.2.7 Bioscan has produced a baseline BNG score for these watercourses based on the findings of our survey (**Table 10**). We have also extracted BNG data for relevant watercourses within the development boundary nearby Nine Wells (see **Figure 1, Table 9**). These are compared to give an indication of the scale of impact that the errors outlined above would have within the context of BNG.
- 7.2.8 Our BNG baseline calculated was 4.98 units, a 72% increase in baseline value on the Atkins figure of 2.89 units. Extrapolating this margin of error to the 21.57 (12.53+ 9.04) units of watercourses across the whole 1.226km (0.986km + 0.24km) of watercourses across the whole CSET2 development site, this would suggest the overall baseline once corrected for error could be 37.16 units, a difference of 15.59 units.

Table 9: Atkins BNG calculations for watercourses within the survey area

Parcel reference	Habitat type	Condition	Length (Km)	Encroachment	Riparian encroachment	Baseline BNG units	BNG units lost
W2	Ditch	Moderate	0.153	No encroachment	Major	0.46	0.14
W8	Ditch	Poor	0.153	No encroachment	Major	0.46	0.46
W27	Ditch	Poor	0.175	No encroachment	No encroachment	0.7	0
D4	Other rivers and streams	Fairly poor	0.144	No encroachment	Moderate	1.27	0
Total			0.625			2.89	0.6

Table 10: Bioscan BNG calculations for watercourses within the survey area

Parcel reference	Habitat type	Condition	Length (Km)	Encroachment	Riparian encroachment	Baseline BNG units	Estimated BNG units lost
W2	Ditch	Moderate	0.337	No encroachment	Major	2.02	0.29
W8	Ditch	Poor	0.153	No encroachment	Major	0.46	0.46
W27	Ditch	Poor	0.175	No encroachment	No encroachment	0.70	0
D4	Priority river	Moderate	0.144	Minor	Moderate	1.80	0.09 (based on retaining 0.1296km and creation of 0.0144km of poor condition priority river)
Total			0.809			4.98	0.84

7.2.9 As shown by the right-hand column of **Tables 9** and **10**, our corrected BNG calculation indicates that the Atkins assessment results in a 29% underestimation on the number of watercourse units lost due to the project within the study area. These losses include loss of 'Priority' river habitat, which is classed as 'very high distinctiveness' according to the statutory metric tool⁴⁴. The guidance for the statutory metric states that for watercourses of very high distinctiveness baseline:

'Priority should be given to replacing losses with area habitat units of the same habitat type'

7.2.10 The scheme does not currently intend this (nor recognise the difficulty in so doing) and therefore as submitted the scheme fails the trading rules and other protocols surrounding the statutory BNG regime.

⁴⁴ The Department for Environment, Food and Rural Affairs (2024) The Statutory Biodiversity Metric User Guide. Last updated 3rd July 2025.

7.3 *Implications for assessment of impact on other habitats*

- 7.3.1 Comparisons of Bioscan BNG calculations of the balance of loss versus gain in area-based habitat units on the development site with those extrapolated from the Atkins report also show an undervaluation of the baseline by Atkins (see **Table 11 and 12** overleaf and **Appendix 4 and 6**). Based on our corrected habitat classifications and condition assessments, a baseline value of 22.00 biodiversity units applies to the 7.55ha study area as compared to Atkins' figure of 18.08. We therefore calculate the baseline value of the study area to be 3.92 more units than determined by Atkins, or 22% higher. Once again, if this margin of error is extrapolated to the 278.23 baseline units reported by Atkins across the entire CSET2 project area, then there could be an actual baseline of 338.55 units.
- 7.3.2 A 10% gain on 338.55 would require the delivery of 372.41 units. Cambridgeshire requires a 20% gain according to the local plan⁴⁵. A 20% gain on a baseline of 338.55 units would require a resulting 406.26 units. While Atkins' current post-development scheme is calculated by them to result in a total of 440.08 habitat units, it should be noted that we have not scrutinised the veracity and/or realism of their compensation plan. If similar issues are found with its accuracy, the project might well be found to currently be incapable of achieving a BNG output of +10% or +20%, which would put it at odds with both national and local policy and statute.
- 7.3.3 The inaccuracies in the baseline habitat survey also mean that some losses of important habitat will not be replaced with like habitat, generating 'trading rules' errors. For example, other deciduous woodland identified to the north of the site is proposed to be compensated by expanding the woodland north of Hinton Way. However, this is in reality a mixture of other calcareous grassland and scrub habitat for which such compensation is not appropriate. Another example is the scrub habitat east of the railway line, which is not recognised by Atkins and is proposed to be replaced with other-neutral grassland.
- 7.3.4 The Atkins proposed habitat creation in their BNG assessment (CSET ES Appendix 10.12 BNG Assessment Table A10.12.15, and **Appendix 5**) is also inconsistent with the LEMP (**Appendix 6**) and habitats that are likely to be created. The table outlining habitat creation is erroneous, as broad habitat types do not match with proposed habitats. We have also noted that Atkins' proposed total on-site habitat creation area does not include the habitat type for the busway itself (developed land: sealed surface). The total proposed area is 110.40ha where the total baseline area is 114.17ha, a discrepancy that results in an error message if put through the metric calculator tool. Given that the area of the sealed surfaces for the survey site alone was 1.13ha, it seems likely that more than 3.77ha of this habitat type would be created overall. Finally, the figure of proposed habitats for the area lacks the detail of the LEMP, which (for example) describes a pond not detailed in Atkins BNG figure (comparing **Appendix 5** and **Appendix 6**).
- 7.3.5 The Atkins BNG habitat creation proposals also appear to rely on erroneous, overly ambitious and/or unrealistic suppositions. One example of error is the suggestion that under the scheme the field south-west of Nine Wells will be enhanced/converted into other neutral grassland. Specifically, this converts 1.9159 ha of non-cereal crop (3.83 units) into other neutral grassland of moderate condition (15.33 units), which is a (significant) 11.5 unit uplift. In fact, this field is already other neutral grassland of poor condition (7.66 units) so enhancing this area will only generate 7.67 units. If these types of over-inflation of habitat uplift are replicated elsewhere, there will be additional and significant implications for the accuracy of the project's overall BNG score.

Table 11: Atkins and WSP BNG calculations for area-based habitats within the survey area

Parcel reference	Habitat type	Condition	Area (ha)	Total area of habitat type within the site (ha)	Proportion of total area of each habitat type (Area divided by total area of habitat type within the site) (2sf)	Total site baseline units of each habitat type	Baseline BNG units (Proportion of total area of each habitat type multiplied by Total site baseline units of each habitat type) (2dp)	Comments
U074	Cereal crops	NA	3.9906	57.215 ₂	0.070	114.43	7.98	
U075	Cereal crops	NA	0.0539	57.215 ₂	0.00094	114.43	0.11	
U077	Other neutral grassland	Good	0.096	0.2921	0.33	3.86	1.27	
U082	Developed land, sealed surface	N/A	0.0007	4.145	0.00017	0	0	
U097	Other woodland broadleaved	Poor	0.5268	1.1491	0.46	5.06	2.32	
U111	Developed land, sealed surface	NA	0.5725	4.145	0.14	0	0	Subtracted 0.9662ha to account for difference in area cause by most of this habitat being off the surveyed site.
U122	Modified grassland	Poor	0.0058	0.1852	0.031	0.41	0.013	
U129	Non-cereal crops	NA	1.9159	21.813 ₂	0.088	43.63	3.83	
U130	Modified grassland	Good	0.1609	1.857	0.087	12.26	1.06	
U131	Modified grassland	Good	0.0648	1.857	0.035	12.26	0.43	
U139	Modified grassland	Good	0.1621	1.857	0.087	12.26	1.07	
Total			7.55	151.73 ₁		318.6	18.08	

⁴⁵ Great Cambridge Shared Planning (undated) Policy BG/BG: Biodiversity and geodiversity [Accessed at <https://consultations.greatercambridgeplanning.org/greater-cambridge-local-plan-first-proposals/explore-theme/biodiversity-and-green-spaces/policy>, on 10/07/25]

Table 12: Bioscan BNG calculations for area-based habitats within the survey area

Habitat type	Area (ha)	Condition	Baseline BNG units (2dp)
Non-cereal crops	3.2238	Condition Assessment N/A	6.45
Lowland calcareous grassland	0.261	Poor	1.73
Other neutral grassland	0.0269	Poor	10.05
Mixed scrub	0.4571	Moderate	3.66
Ruderal/Ephemeral	0.0293	Moderate	0.12
Artificial unvegetated, unsealed surface	0.8962	N/A - Other	0
Developed land; sealed surface	0.1471	N/A - Other	0
Total	7.55		22.00

7.4 Hedgerow

- 7.4.1 There was only one hedgerow on site, which was recorded accurately by WSP and Atkins. This hedgerow is to be retained. We have noted that within the study area, some hedgerow creation appears to be being proposed at the expense of extant scrub.

7.5 Protected species

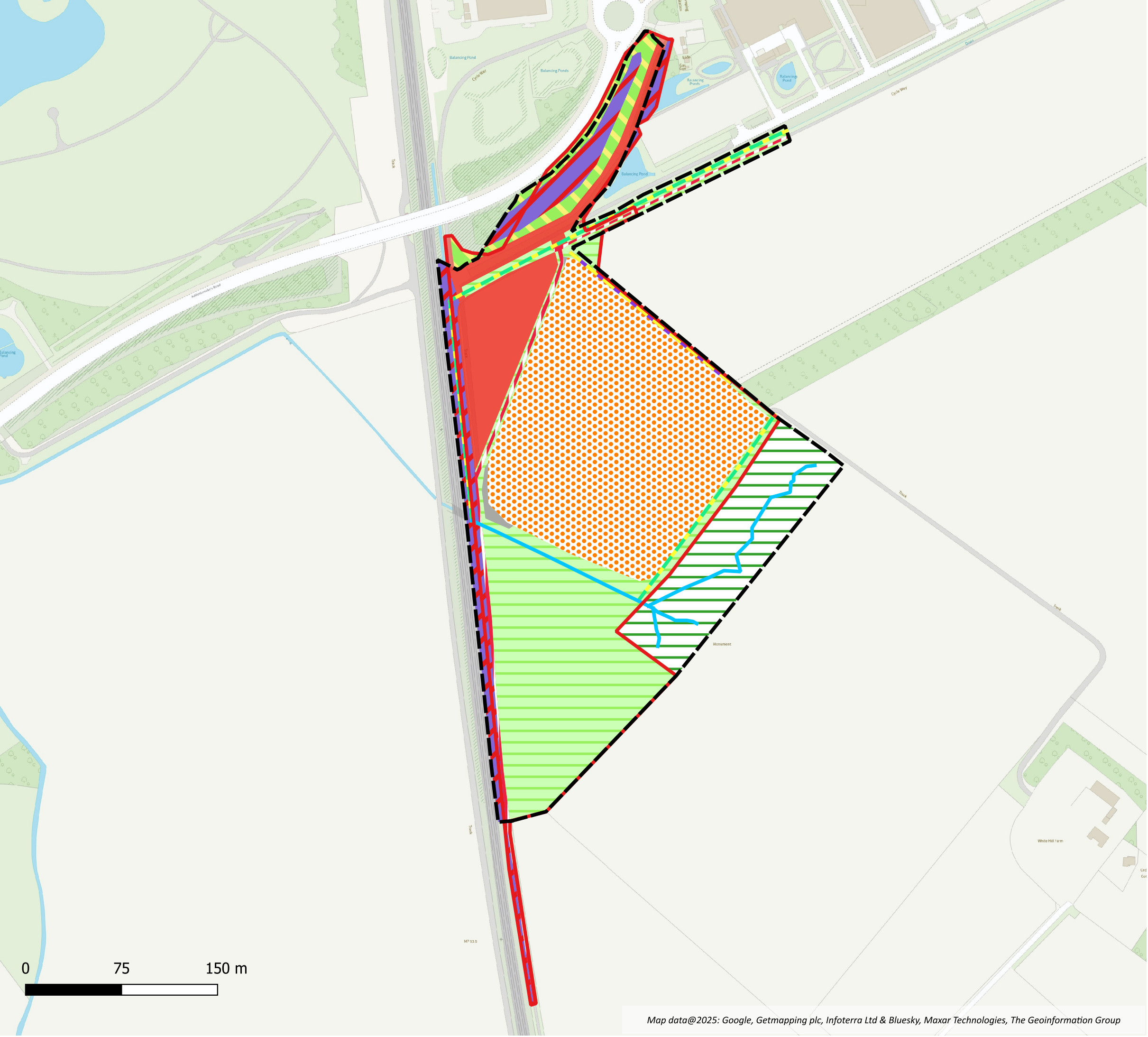
- 7.5.1 Atkins and SNC Lavalin outline plans to mitigate and compensate for disturbance and destruction of habitat for protected species in CSET 2 ES Appendix 2.2 LEMP and Appendix 2.5 CEMP. Brief comments on the adequacy of survey information and related understanding of potential or likely impacts are given below, along with comment on the adequacy of mitigation and compensation measures proposed.
- 7.5.2 **Bats:** The LEMP created by Atkins describes wildlife corridors and increased linear features such as the hedgerow in the region proposed near the Nine Wells area (see **Appendix 6**). They propose to use 'low UV emitting lights with a warm colour temperature of 2700-3000K' and to add bat boxes, although none in the Nine Wells area. However, the details of the lighting and noise around the compound adjacent to Nine Wells have not been provided and the risk of significant impacts from light spill may not have been adequately assessed. This is particularly significant in the context that the rare barbastelle bat has been recorded from Nine Wells. It is unclear whether the use of the site by this species is in any way linked to the populations underpinning the European Site of Eversden and Wimpole Woods SAC, around 11km to the west of the study area, or to satellite colonies of conservation importance. This could be regarded as a shortfall in the ES.
- 7.5.3 **Badger:** The LEMP and CEMP produced for CSET2 describes closing badger setts under an appropriate licence, but give scant regard to assessing the impact of such closures on social group cohesion and matters such as severance of foraging area. We found badger prints suggesting that badger presence within the study area may be higher than assessed in the ES.

- 7.5.4 **Water vole:** The Atkins LEMP proposes creation of a pond for water voles with specific plants for foraging resource. It also includes bridge design features such as drainage systems and places for voles to easily pass underneath bridges. Throughout construction, there are plans to erect water vole proof fencing around the construction area. There is mention of a water vole displacement plan, but details of methods are not released. There are also plans to reduce impact of lighting, noise and vibration which are similarly scant on detail.
- 7.5.5 We consider that the temporary impacts of the development are likely to displace water voles from the study area. This includes the creation of the temporary bridge for the replacement Sustrans bicycle route which will be dug into the banks of the brook. There is no mention of mitigation relevant to this aspect of the project which, along with the permanent bridging structure, is the most likely to directly impact water voles.
- 7.5.6 HCT are further concerned that the compensatory ponds and other created watercourse features proposed south of the Brook will cause further pressure on the flow rate of the existing brook thereby damaging and not enhancing existing water vole habitat.
- 7.5.7 **Hedgehog:** The Atkins LEMP highlights that suitable habitat will be searched prior to clearance to minimise impact on hedgehog, harvest mouse and polecat. Additionally, open excavations will be covered to prevent animals becoming trapped. John Meed presented a record of hedgehog using the site which was not included in the CSET2 assessment. Therefore, hedgehog presence within the study area may be higher than assessed in the ES.
- 7.5.8 **Birds:** The Atkins LEMP includes the placement of bird boxes (although none in the Nine Wells area) and creation of hedgerows to provide bird habitat, however there do not appear to be specific habitat compensation measures proposed for open country farmland species such as skylark, corn bunting or grey partridge. There is reference to provision of a seed mix in the enhanced grass margins which contains foraging resource for birds. However, we found that many of the margins were already 'other neutral grassland' or 'ruderal or ephemeral' where WSP and Atkins classed them as 'modified grassland' or included them within adjacent cropland habitats, so this enhancement may be exaggerated. On balance we do not consider the proposals offer sufficient detail or comfort to conclude that net negative effects on declining farmland birds, including 'Priority' species under the NERC Act 2006 (as amended), will be avoided.
- 7.5.9 **Reptiles:** The LEMP and CEMP suggest a precautionary method statement involving two-stage vegetation clearance, removal of refugia by hand or under ecological supervision, fitting mammal ladders on open excavations, moving vehicles on defined paths, and giving toolbox talks. These appear broadly sensible however the scope for impact on reptiles is left somewhat unclear by the decision to scope out surveys for the ES, despite local records and recent sightings of (e.g.) grass snake and common lizard.
- 7.5.10 **Fish:** There is no mention of fish in the CEMP or LEMP, except for the statement 'Due to an abundance of fish...along stretches of... Hobson's Brook, it makes the area also highly likely to support kingfishers.' within the section 11.7 of the CEMP.
- 7.5.11 Fish were observed in the brook in May 2025, and the eDNA sampling found several fish species in the area, including European bullhead which is an Annex II species. This provides sufficient grounds to suggest that greater survey effort and clearer detail of mitigation are required for this taxonomic group.

8 CONCLUSIONS

- 8.1.1 Bioscan were commissioned by Hobson's Conduit Trust (HCT) to review the adequacy of the CSET2 project's Environmental Impact Assessment (EIA) information for the area around Nine Wells LNR by means of independent survey and assessment, in the light of HCTs concerns about the adequacy of the EIA process and the mitigation and compensation measures proposed.
- 8.1.2 We have determined that the EIA material presented in the project Environmental Statement (and the surveys behind it) are flawed in a number of respects as regards the area in question. Perhaps most of all, the baseline habitat classifications are subject to significant error which has a consistent and cumulative effect of suppressing the baseline value of the study area, both subjectively and (via application of the statutory BNG scheme) quantitatively.
- 8.1.3 The margin of error includes a 35% underestimation in baseline habitat value and a 72% underestimation in the baseline value of watercourse units within the study area. If this magnitude of error is extrapolated beyond the focus of the study area and applied to the entirety of the land within the wider project, serious questions are raised about the ability of the CSET scheme to achieve compliance with statute, and with national and local policy around avoiding net biodiversity loss and delivering net gain. This is before one examines the practicality and veracity of the claimed enhancement and compensation measures.
- 8.1.4 We conclude, overall, that the applicant's BNG assessment as it currently stands is unsafe and should not be relied upon for determination of compliance with policy and statute and, by extension, decisions as to whether the project should be consented. We consider that the BNG assessment (and the surveys it is predicated upon) needs to be substantially corrected for multiple errors, not just within the area around Nine Wells, but (we anticipate) throughout the project area as a whole. At the same time, we consider that the baseline information around protected and otherwise notable species should be improved, including a particular focus on arriving at a much better understanding of impacts upon aquatic and riparian systems associated with the watercourse systems that are impacted, in order to add credence and robustness to the impact assessments presented in the ES.

FIGURES



Key

Survey area boundary

Development site boundary

Habitats
Linear habitats

Native hedgerow

Priority river

Ditch

Area based habitats

Artificial unvegetated, unsealed surface

Developed land; sealed surface

Lowland beech and yew woodland

Lowland calcareous grassland

Mixed scrub

Non-cereal crops

Other neutral grassland

Ruderal/Ephemeral

Title Habitat survey results		
Project Hobson's Conduit and Nine Wells	Client The Hobson's Conduit Trust	
Drawing No. 1	Revision -	Project No. E2256
Drawn CT	Checked DW	Date 28 May 2025

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Appendix 1: Habitat Condition Assessments

Condition assessments of habitats

Table A1: A summary of condition assessments made by BioscanUK.

Feature	Condition	Comments
Priority river	Moderate	Based on extrapolated MoRPh survey
Ditch W2	Poor	
Ditch W27	Good	
Ditch W8	Poor	
Other neutral grassland	Poor	
Other calcareous grassland	N/a	Classed as lowland calcareous grassland 'poor' condition in the statutory metric tool.
Lowland beech and yew woodland	Moderate	
Native hedgerow	Moderate	
Mixed scrub	Moderate	
Ruderal/ ephemeral	Good	

River condition assessment

1. An approximate river condition assessment was estimated based on MoRPh survey results and a river type survey desk study.
2. The river reach was taken as from the easternmost pool at Nine Wells to where the brook meets the larger watercourse west of the railway, although the latter section could not be accessed. The study indicated that the brook is straight or sinuous (see **Table A2** below). The largest sediment type in channel was cobble, but this only occurred within the Nine Wells LNR which was not representative of most of the reach. On the decision tree, this leads to the most abundant sediment being gravel, cobble, or sand which would result in river type H, characterised by sandy sediment and often has vegetated side bars. The surveyed stretch was overwhelmingly silt sediment, which was present almost along the whole bed, whereas cobble was only in a discrete area (see **Image A1**). Therefore, the decision has been made to characterise the watercourse as type K, which has a silt bed and typically in-bed vegetation- which was abundant along most of the channel, visibly from aerial photography.

Table A2: River type survey of Hobson's Brook

Indicator code	Value	Rationale
A1- Braiding index	1	There is a single channel.
A2- Sinuosity index	1.270	The river is straight. Reach river length is approximately 0.827 and reach valley length is approximately 0.651. The area is almost entirely flat according to OS 1:25 mapping so a line was drawn directly from the easternmost spring to where the reach meets the main Hobson's Brook.
A3- Anabranching index	1	There is a single channel for all the parts surveyed, satellite imagery shows plants in the channel but these are unlikely to stop water flow.
A4- Level of confinement	Unconfined	The valley is barely visible because the area is flat, therefore the bank is not in contact with the valley edge
A5- Valley gradient	0.00768	Upstream elevation is 17m and downstream is 12m.
A6- Bedrock reach	No	Bedrock was barely visible for most of the survey.
A7- Coarsest material size class	Cobble	Cobble was the largest across both MoRPh5, but this only occurred in the channel bed within the Nine Wells reserve.
A8- Average Alluvial bed material size class	Silt	Silt was the Average Alluvial bed material size class across the MoRPh5 closest to the bridge, which was the sub-reach most representative of the whole river.
River type	K- straight sinuous with silt or clay	The coarsest material was cobble, but silt was much more abundant and sand was almost absent so the river is deemed K above H.

Image A1: Left (southern) bank of module 4 of the river survey, close to the midpoint of the river reach. Silt sediment and vegetation within the river channel is visible to the left of the frame.



3. The MoRPh survey was duplicated to estimate condition class. The app 'Cartographer' was used to estimate preliminary MoRPh condition, and the table within the guidance was used to assess condition based on river type. The assessment showed the reach between Nine Wells and the railway (subreach 1) to be of moderate quality and the reach within Nine Wells (subreach 2) to be of fairly good quality (see **Table A3** below). The duplication of MoRPh surveys means this is only an estimation, but it is more accurate than an estimation based on a ditch condition assessment and MoRPh survey of a different reach. Further, it is likely to be an underestimation for reach 1 as the most artificially modified section of the river was surveyed.

Table A3: Condition score of priority river on site.

Section	Estimated preliminary MoRPh condition score	Thresholds for river type K	Estimated condition score
Between Nine Wells and the railway (Subreach 1)	0.425	Moderate is at least a condition score of 0.2, but no higher than 1.2	Moderate
Between The easternmost spring and the exit of Nine Wells (Subreach 2)	1.874	Fairly good is at least a condition score of 1.2, but no higher than 1.9	Fairly good

Appendix 2: Vascular Plant Species Noted on The Survey

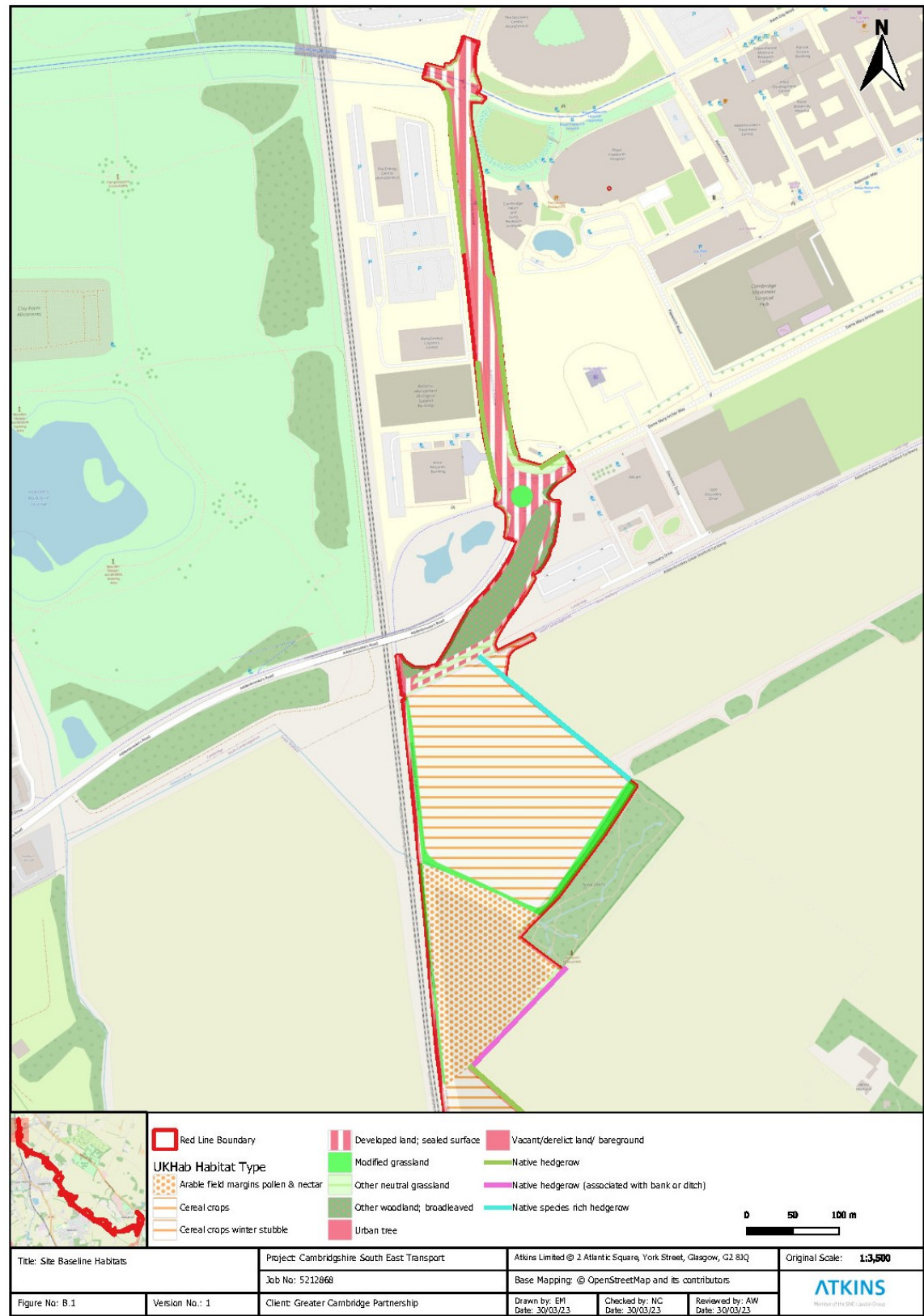
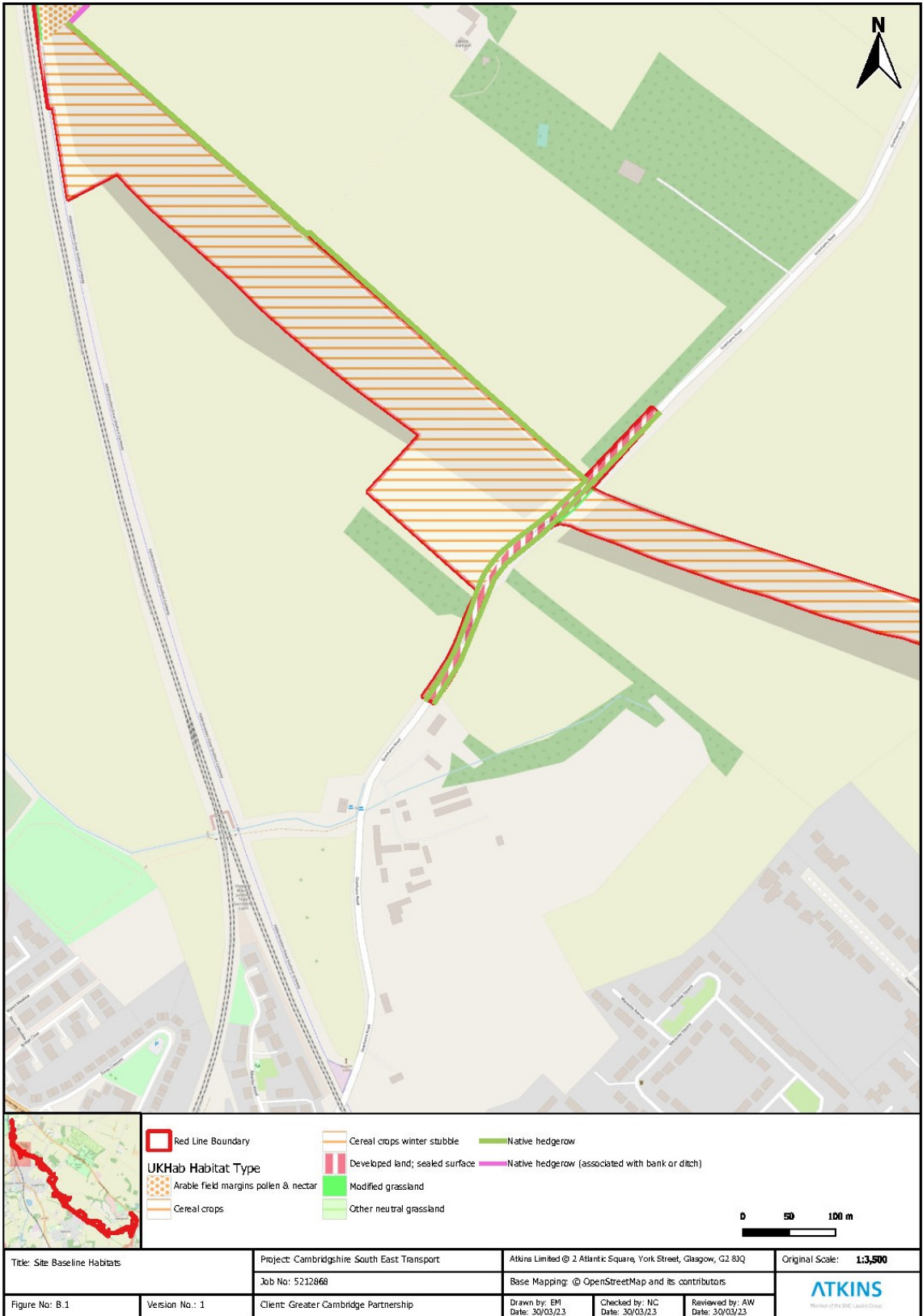
Annual meadow grass *Poa annua*
 Ash *Fraxinus excelsior*
 Barren brome *Anisantha sterilis*
 Beech *Fagus sylvatica*
 Bird's-foot trefoil *Lotus corniculatus*
 Bittersweet *Solanum dulcumara*
 Black bryony *Dioscorea communis*
 Blackgrass *Alopecurus myosuroides*
 Blackthorn *Prunus spinosa*
 Blue fleabane *Erigeron acer*
 Blunt-leaved water starwort *Callitriche obtusangula*
 Bramble *Rubus fruticosus* agg.
 Branched bur-reed *Sparganium erectum*
 Cleavers *Galium aparine*
 Cocksfoot *Dactylis glomerata*
 Common reed *Phragmites australis*
 Common sorrel *Rumex acetosa*
 Common spike rush *Eleocharis palustris*
 Common water starwort *Callitriche stagnalis*
 Couch *Elytrigia repens*
 Cow parsley *Anthriscus sylvestris*
 Cowslip *Primula veris*
 Deadly nightshade *Atropa belladonna*
 Dewberry *Runus idaeus*
 Dog rose *Rosa canina*
 Dogwood *Cornus sanguinea*
 Downy birch *Betula pubescens*
 Elder *Sambucus nigra*
 False oat-grass *Arrhenatheruim elatius*
 Field maple *Acer campestre*
 Field rose *Rosa arvensis*
 Field scabious *Knautia arvensis*
 Fool's watercress *Helosciadium nodiflorum*
 Glaucous sedge *Carex flacca*
 Goat's-beard *Tragopogon pratensis*
 Great mullein *Verbascum thapsus*
 Greater knapweed *Centaurea scabiosa*
 Greater spearwort *Ranunculus lingua*
 Greater willowherb *Epilobium hirsutum*
 Hairy tare *Vicia hirsute*
 Hard rush *Juncus inflexus*.
 Hawk's-beard *Crepis vesicaria*
 Hawthorn *Crataegus monogyna*
 Hazel *Corylus avellana*
 Hedge bedstraw *Galium mollugo*
 Hedge woundwort *Stachys sylvatica*

Hoary plantain *Plantago media*
 Hoary ragwort *Jacobaea erucifolia*
 Hogweed *Heracleum sphondylium*
 Holly *Ilex aquifolium*
 Ivy *Hedera helix*
 Lady's bedstraw *Galium verum*
 Lords and ladies *Arum maculatum*
 Male fern *Dryopteris filix-mas*
 Marsh marigold *Caltha palustris* ox-eye daisy *Leucanthemum vulgare*
 Oilseed rape *Brassica napus* subsp. *oleifera*
 Red fescue *Festuca rubra*
 Redcurrant *Ribes rubrum*
 Reedmace *Typha latifolia*
 Rough hawkbit *Leontodon hispidus*.
 Rough Meadow grass *Poa trivialis*
 Salad burnet *Sanguisorba minor*
 Small scabious *Scabiosa columbaria*
 Smooth sow thistle *Sonchus oleraceus*
 Soft brome *Bromus hordaceus*
 Spindle *Euonymus europaeus*
 Stinging nettle *Urtica dioica*
 Stinking iris *Iris foetidissima*
 Stone parsley *Sison amomum*
 Sweet violet *Viola odorata*
 Traveller's joy *Clematis vitalba*
 Vervain *Verbena officinalis*
 Viper's bugloss *Echium vulgare*
 Water figwort *Scrophularia auriculata*
 Water horsetail *Equisetum fluviatile*
 Watercress *Nasturtium officinale*
 Wayfaring tree *Viburnum lantana*
 Weld *Reseda luteola*
 Whitebeam *Sorbus* subg. *Aria*
 Wild cherry *Prunus avium*
 Wild marjoram *Origanum vulgare*
 Wild mignonette *Reseda lutea*
 Wild privet *Ligustrum vulgare*
 Wood avens *Geum urbanum*
 Wood dock *Rumex sanguineus*
 Wood false brome *Brachypodium sylvaticum*
 Yellow flag *Iris pseudacorus*
 Yellow rattle *Rhinanthus minor*
 Yew *Taxus baccata*

APPENDIX 3

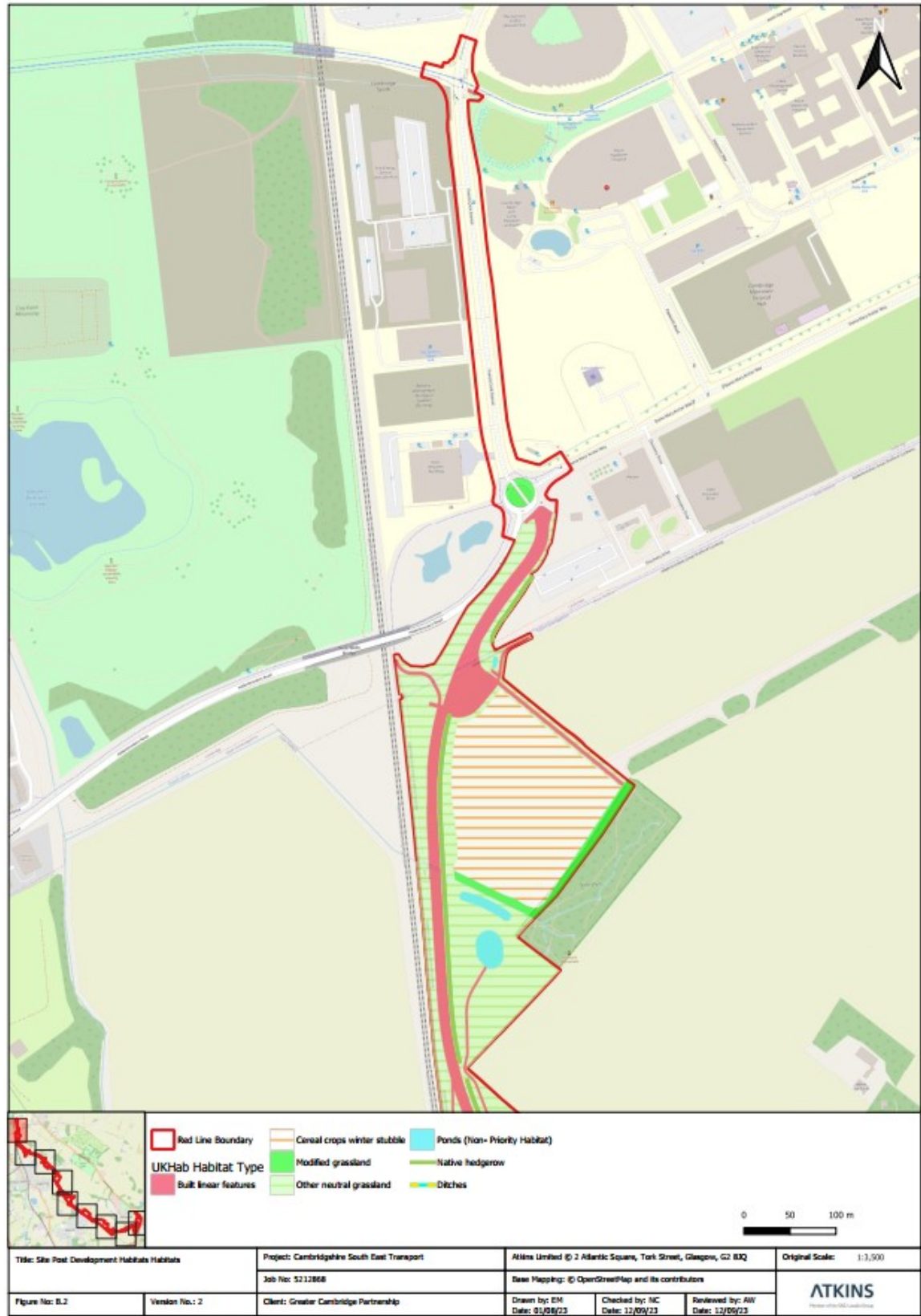
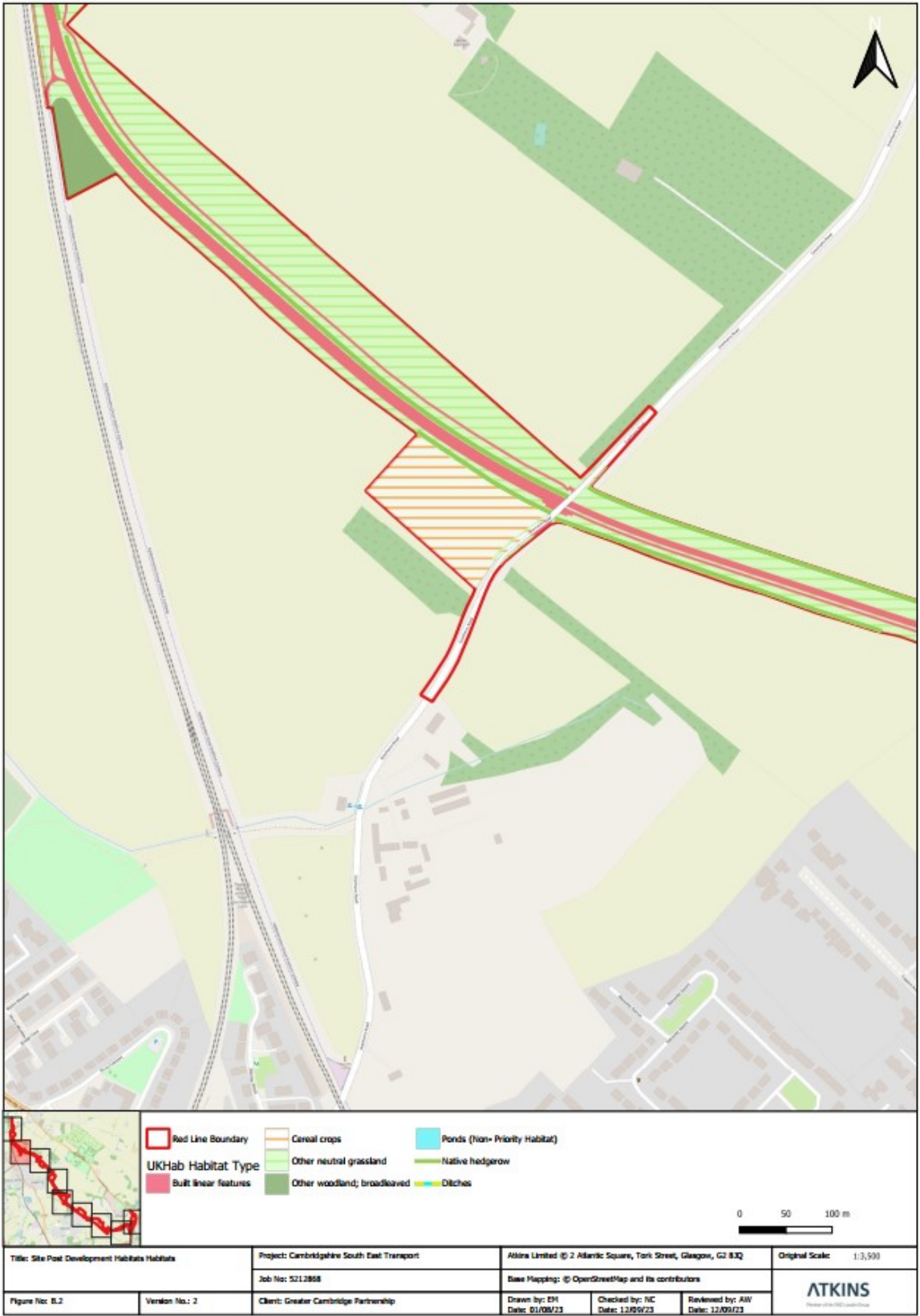
APPENDIX 4

ANNEX A SITE BASELINE HABITAT MAPS

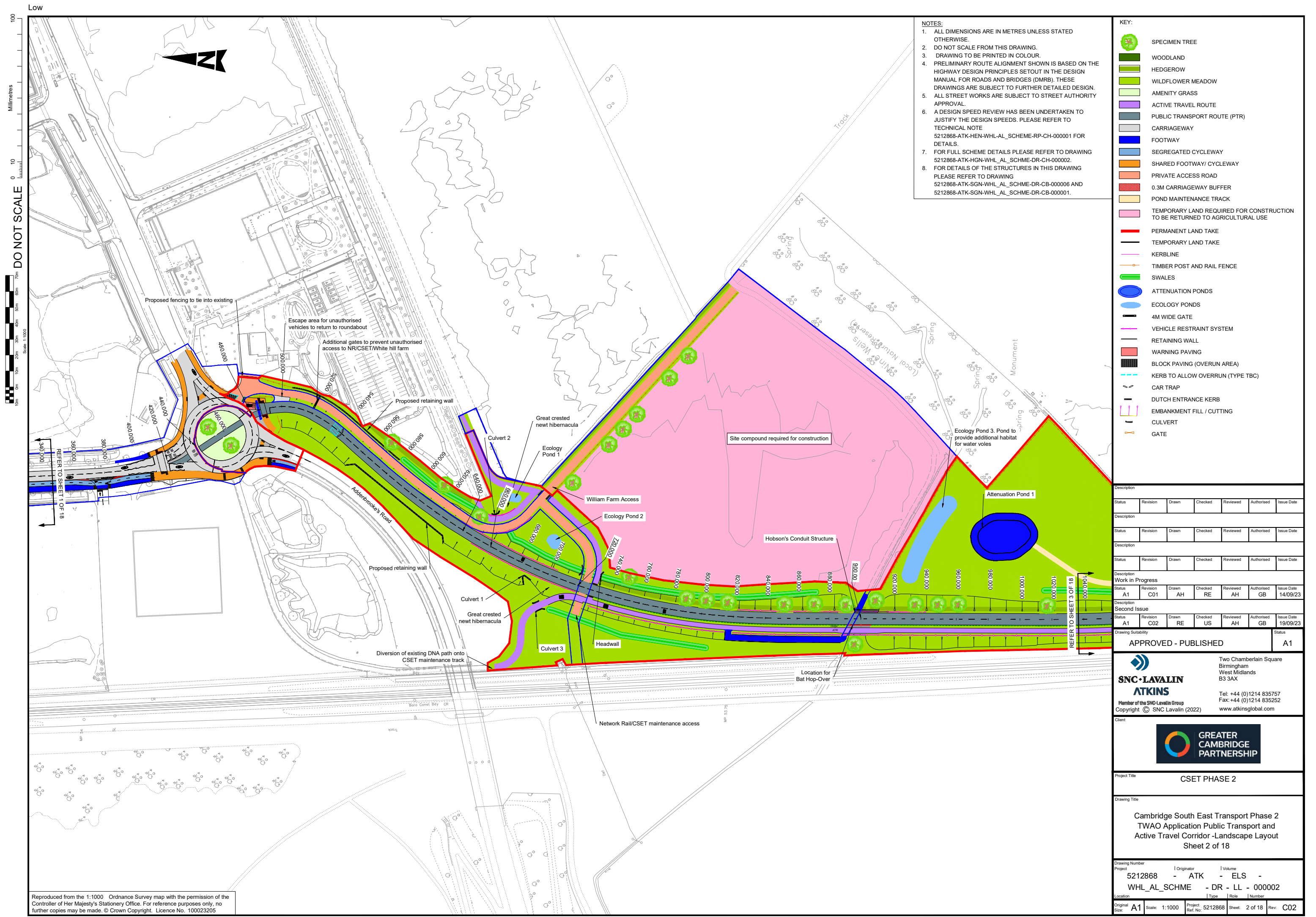


APPENDIX 5

ANNEX B SITE HABITAT CREATION



APPENDIX 6



- 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_SCHEME-DR-CH-000002.
 8. FOR DETAILS OF THE STRUCTURES IN THIS DRAWING PLEASE REFER TO DRAWING 5212868-ATK-SGN-WHL-AL_SCHEME-DR-CB-000006 AND 5212868-ATK-SGN-WHL-AL_SCHEME-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

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						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
A1	C01	AH	RE	AH	GB	14/09/23
Second Issue						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
A1	C02	RE	US	AH	GB	19/09/23
Drawing Suitability						Status
APPROVED - PUBLISHED						A1

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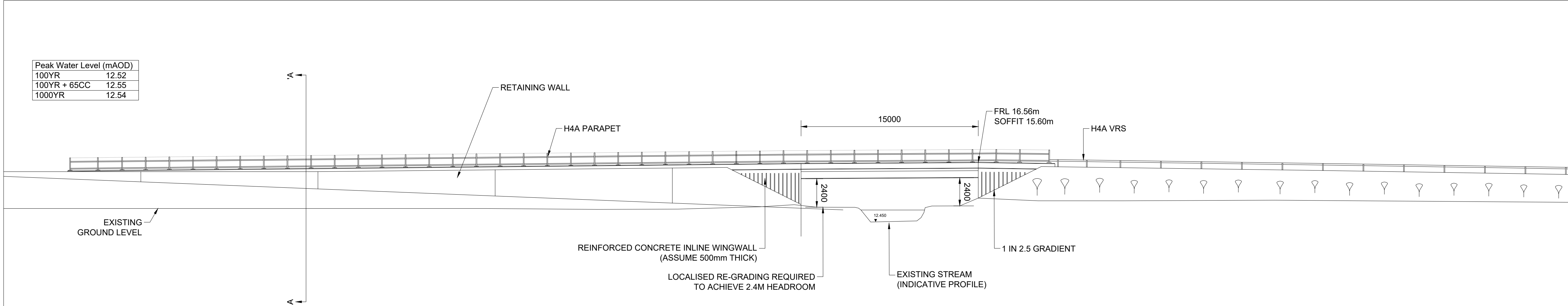


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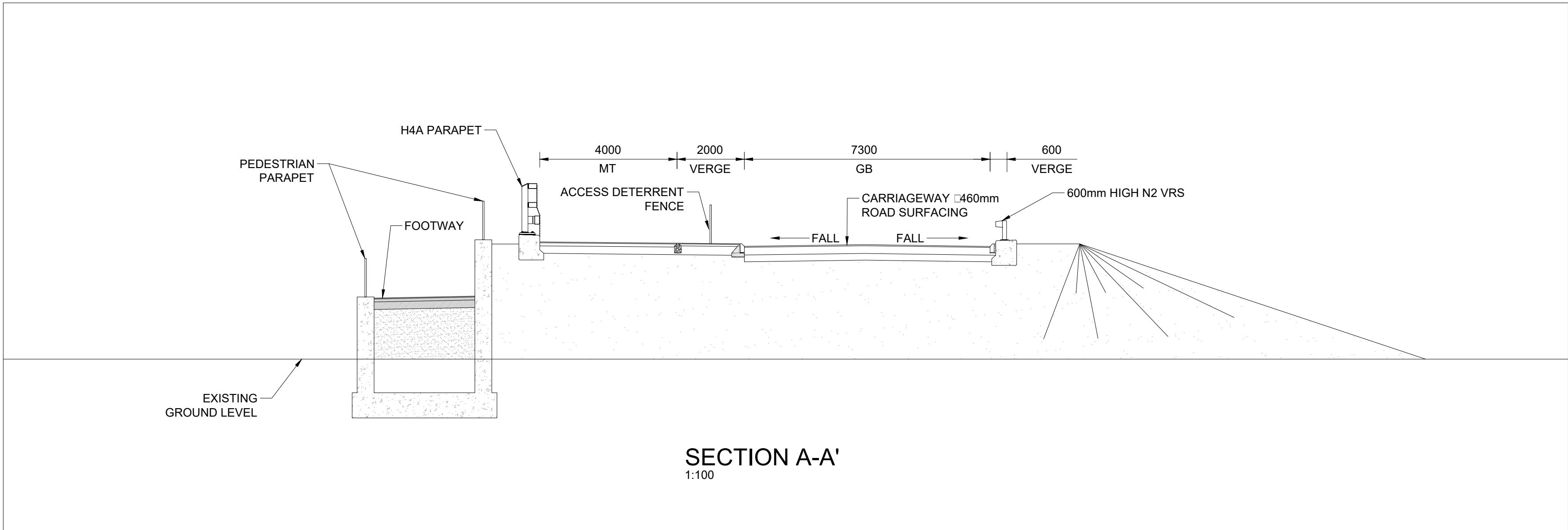
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APPENDIX 7

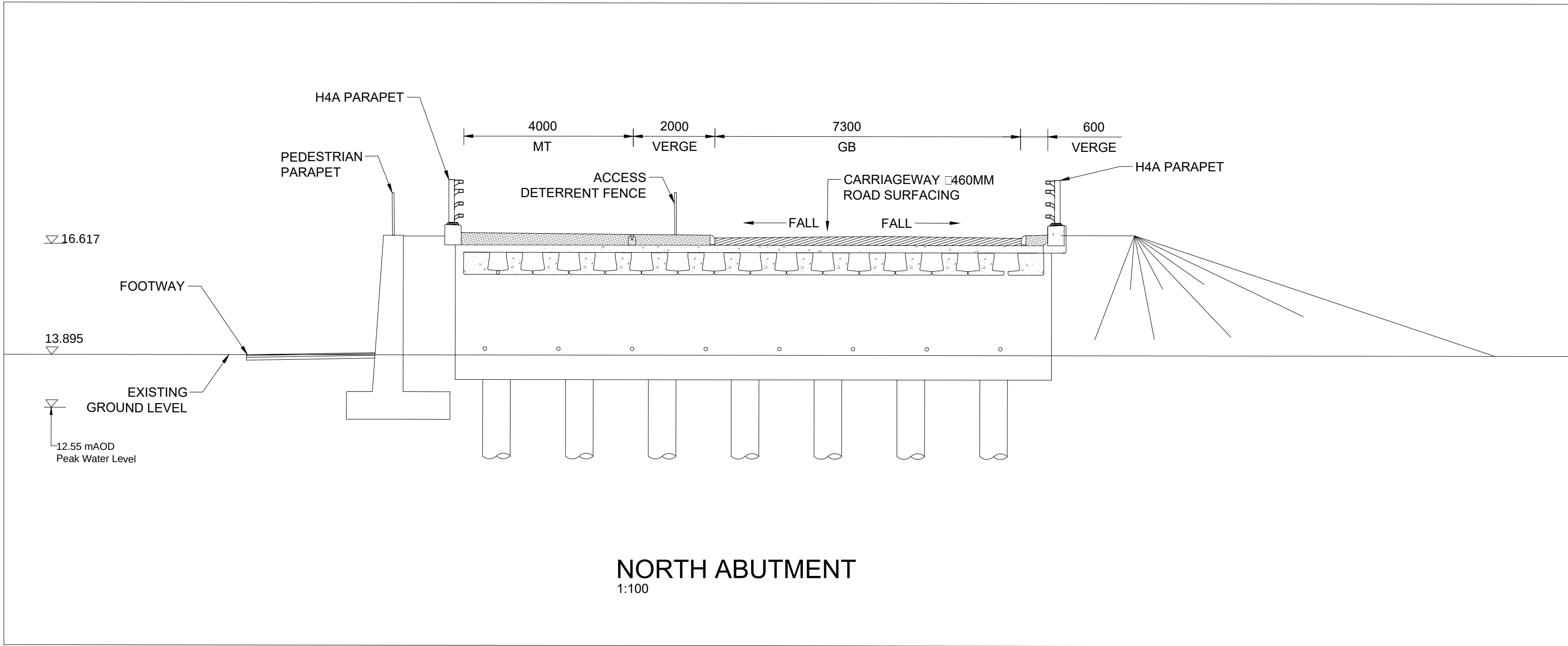
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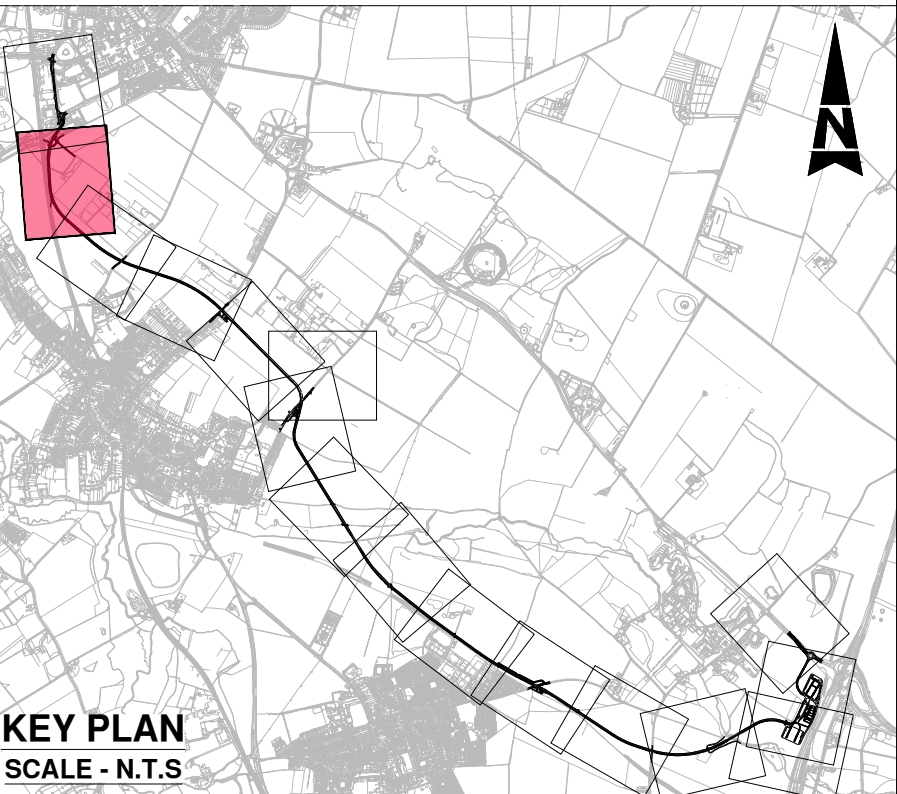
SECTION A-A'
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NORTH ABUTMENT
1:100

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS STATED OTHERWISE.
2. THE STRUCTURE AND LAYOUT SHOWN IS AT A PRELIMINARY DESIGN LEVEL OF DETAIL ONLY. DETAILED DIMENSIONS AND LEVELS SHOWN ARE INDICATIVE ONLY AND SUBJECT TO CHANGE AT THE NEXT DESIGN STAGE.
3. ASSUME EARTH EMBANKMENTS CONSTRUCTED FROM ACCEPTABLE MATERIAL, WITH 1:4 SIDE SLOPES. REQUIREMENTS FOR ANY GROUND IMPROVEMENT FOR APPROACH EMBANKMENTS TO BE CONFIRMED.
4. RRRAP ASSESSMENT AND THE DECK EDGE DETAILS ARE TO BE REVIEWED AT THE NEXT DESIGN STAGE TO ENSURE THEY ARE APPROPRIATE AND COMPATIBLE.
5. DESIGN FLOOD LEVELS TO BE REVIEWED AT THE NEXT DESIGN STAGE.
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GB - GUIDED BUSWAY
VRS - VEHICLE RESTRAINT SYSTEM
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8. FOR LOCATION PLAN REFER TO DRAWING NUMBER 5212868-ATK-GEN-WHL_AL-DR-ZL-000017.



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First issue						
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FIRST ISSUE						
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Description						
TWA0 JANUARY 2025						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
A1	C04	AK	KS	EK	EK	07/01/25
Drawing Suitability						Status
APPROVED - PUBLISHED						A1

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Client

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CSET PHASE 2

Drawing Title
CAMBRIDGE SOUTH EAST TRANSPORT
PHASE 2
STRUCTURE 4 HOBSON'S CONDUIT
GENERAL ARRANGEMENT

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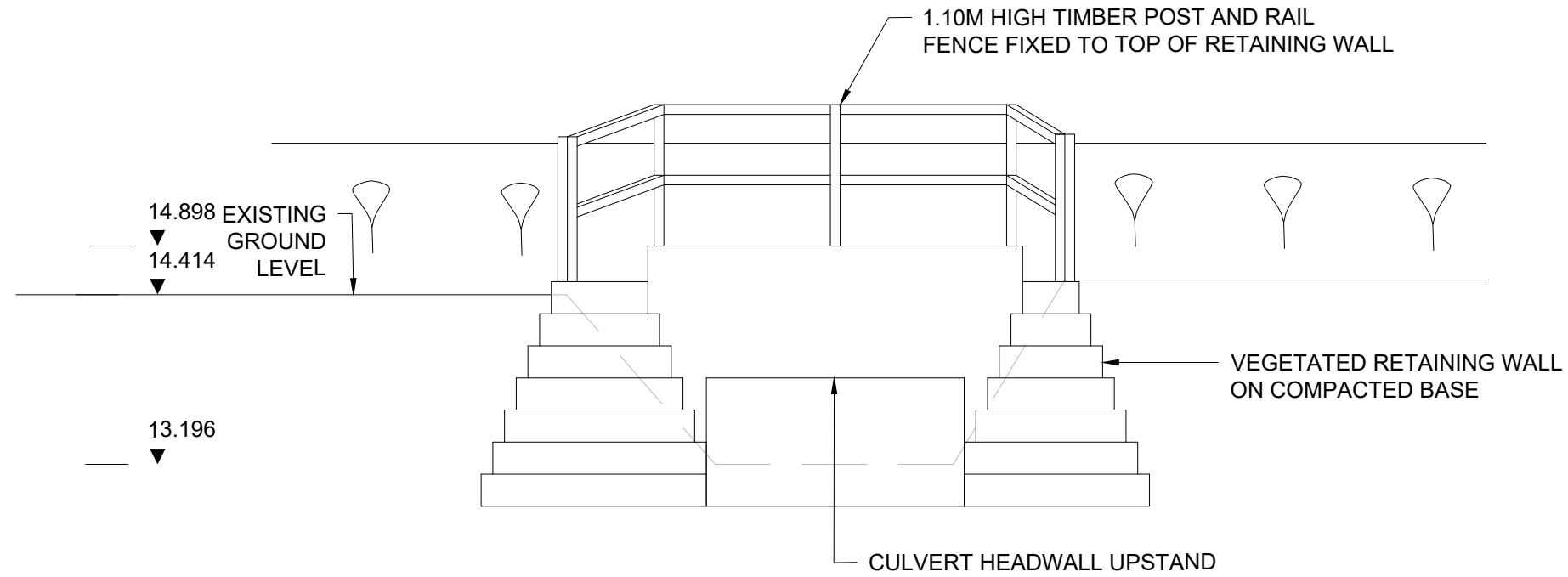
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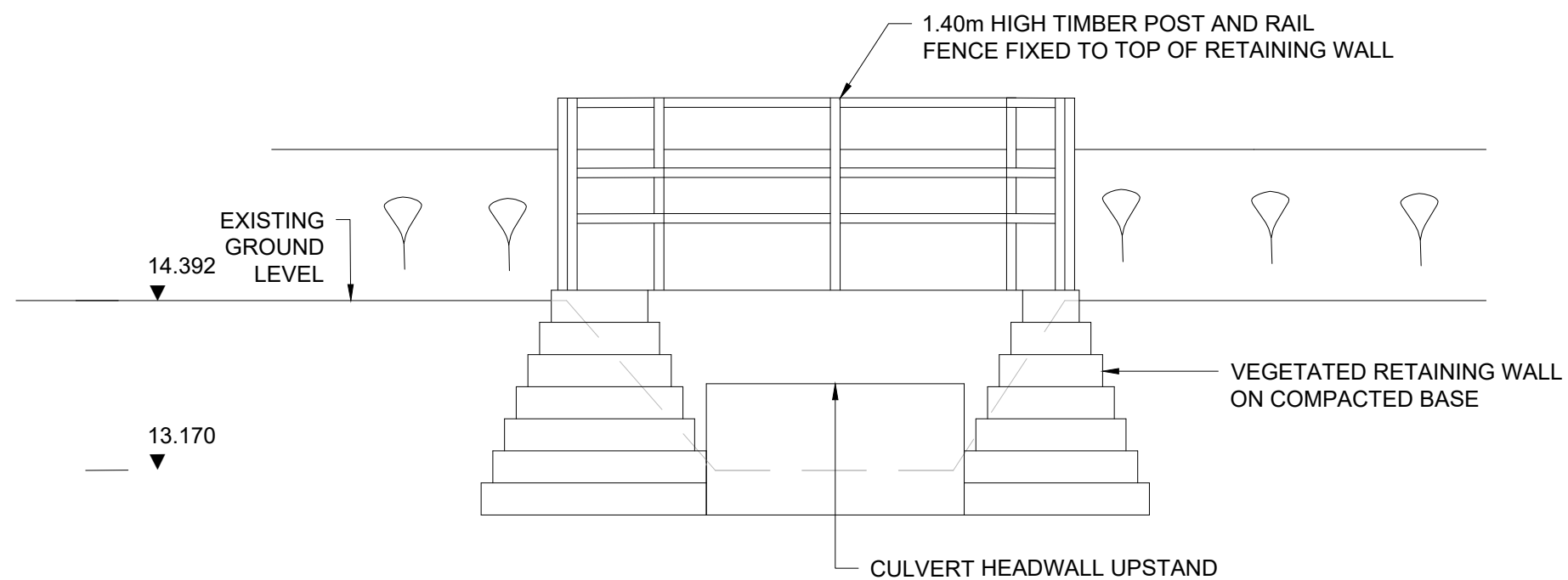
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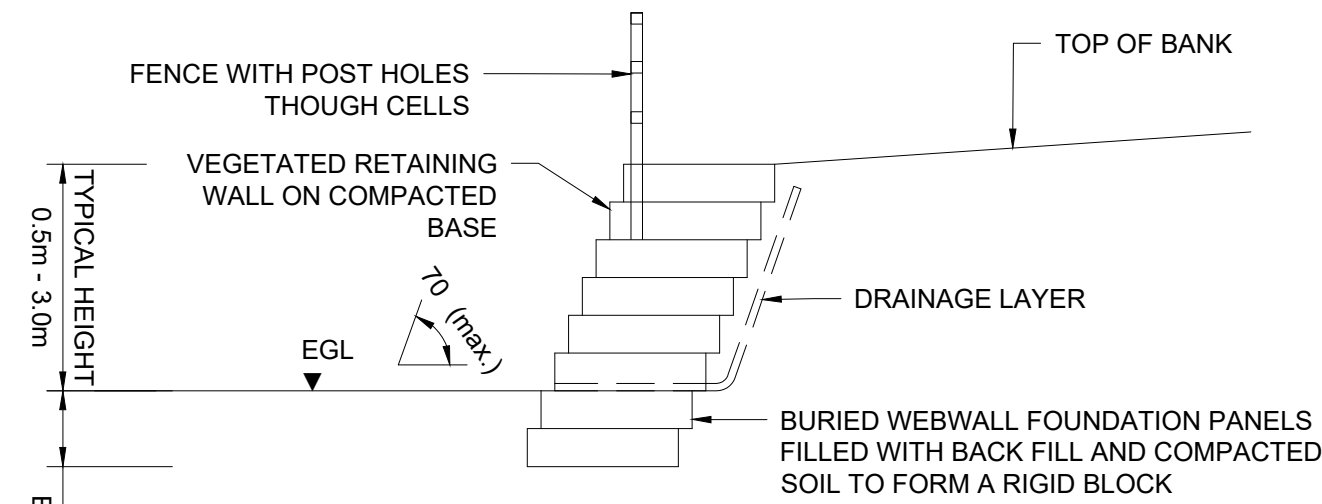
WEST ELEVATION

1:50



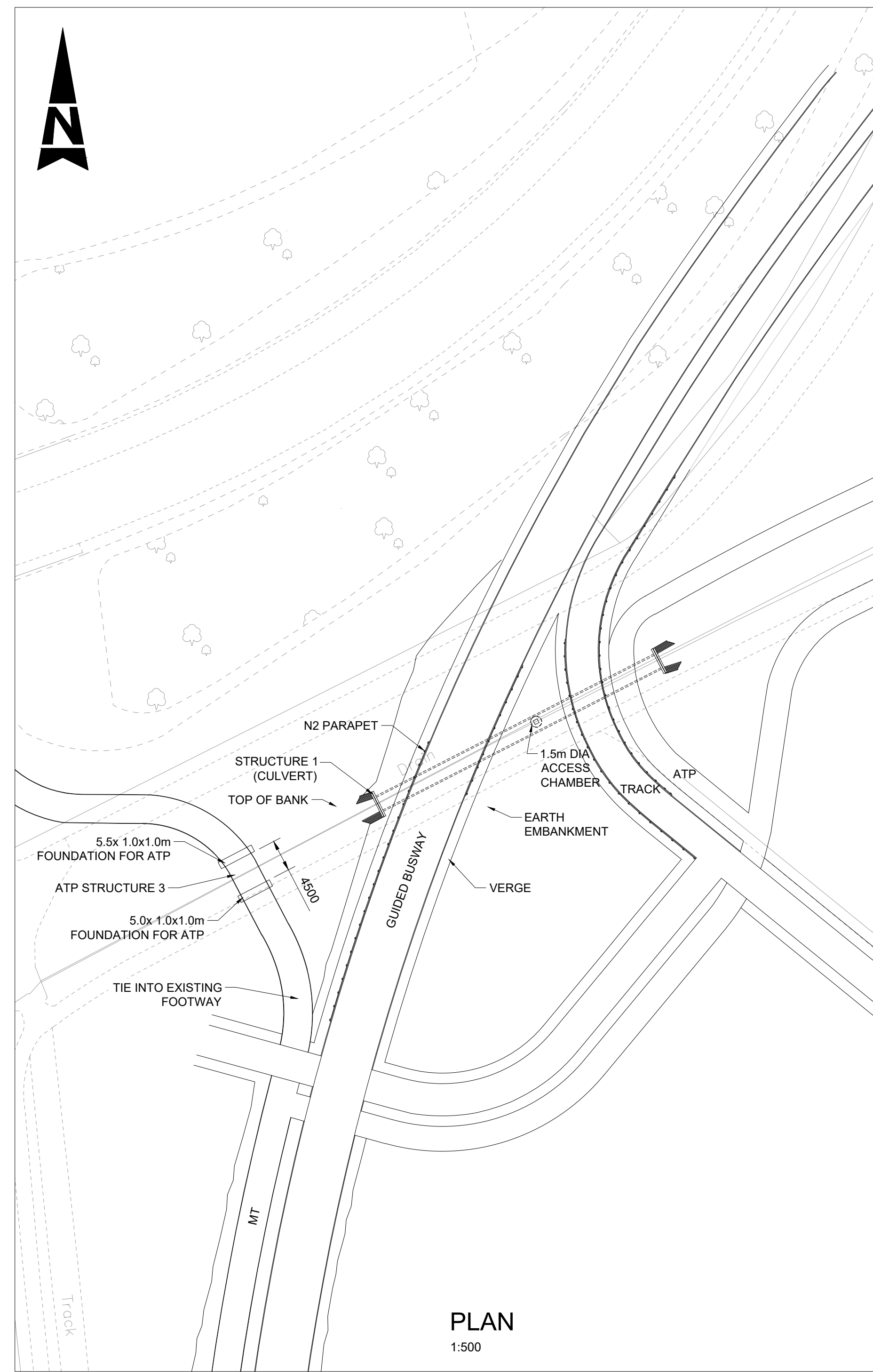
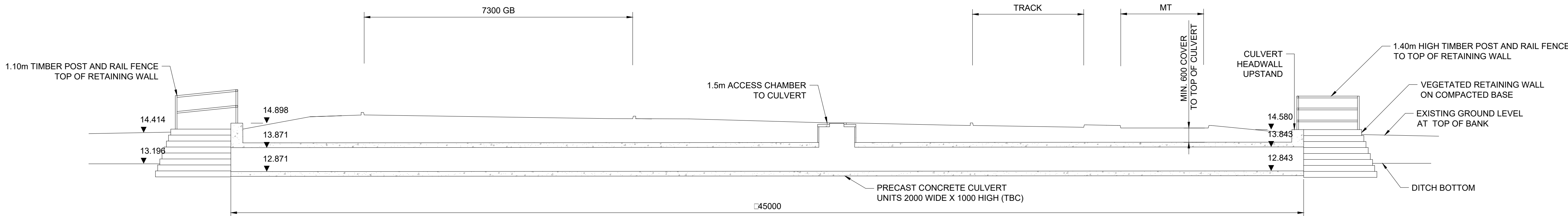
EAST ELEVATION

1:50



VEGETATED RETAINING WALL - TYPICAL DETAIL

1:50

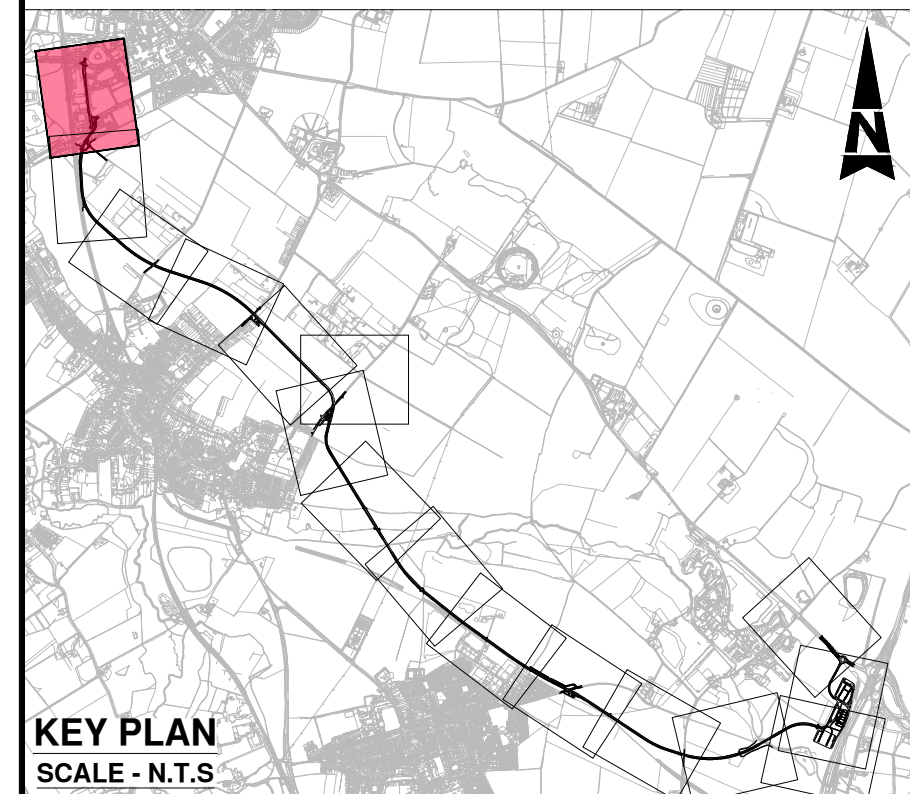


TYPICAL SECTION

1:100

NOTES:

- ALL DIMENSIONS ARE IN MILLIMETRES AND ALL LEVELS ARE IN METRES UNLESS NOTED OTHERWISE.
- THE STRUCTURE AND LAYOUT SHOWN IS AT A PRELIMINARY DESIGN LEVEL OF DETAIL ONLY. DETAILED DIMENSIONS AND LEVELS SHOWN ARE INDICATIVE ONLY AND SUBJECT TO CHANGE AT THE NEXT DESIGN STAGE.
- ASSUME EARTH EMBANKMENTS CONSTRUCTED FROM CLASS 1 OR 2 MATERIAL WITH 1:4 SIDE SLOPES. REQUIREMENTS FOR ANY GROUND IMPROVEMENTS TO BE CONFIRMED.
- HYDRAULIC AND ECOLOGICAL CHARACTERISTICS OF THE CULVERT ARE TO BE CONFIRMED AT THE NEXT DESIGN STAGE.
- DESIGN FLOOD LEVELS ARE STILL TO BE CONFIRMED.
- THE REQUIREMENTS FOR STRUCTURE 3 FOUNDATIONS AND SUPERSTRUCTURE ARE TO BE CONFIRMED.
- MT - EMERGENCY AND MAINTENANCE ACCESS TRACK
GB - GUIDED BUSWAY
VRS - VEHICLE RESTRAINT SYSTEM
EGL - EXISTING GROUND LEVEL
- FOR DEEMED PLAN REFER TO DRAWING NUMBER 5212868-ATK-GEN-WHL_AL-DR-ZL-000001.
- FOR LOCATION PLAN REFER TO DRAWING NUMBER 5212868-ATK-GEN-WHL_AL-DR-ZL-000017.



KEY PLAN
SCALE - N.T.S.

Description						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description						
FOR ISSUE						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
A1	CO1	RF	ST	DW	GB	15/11/22
Description						
TWA0 Application Oct 2024 Submission						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
A1	CO2	AK	KS	RJ	EK	04/10/24
Description						
TWA0 JANUARY 2025						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
A1	CO3	AK	KS	EK	EK	07/01/25

Drawing Suitability	Status
APPROVED - PUBLISHED	A1



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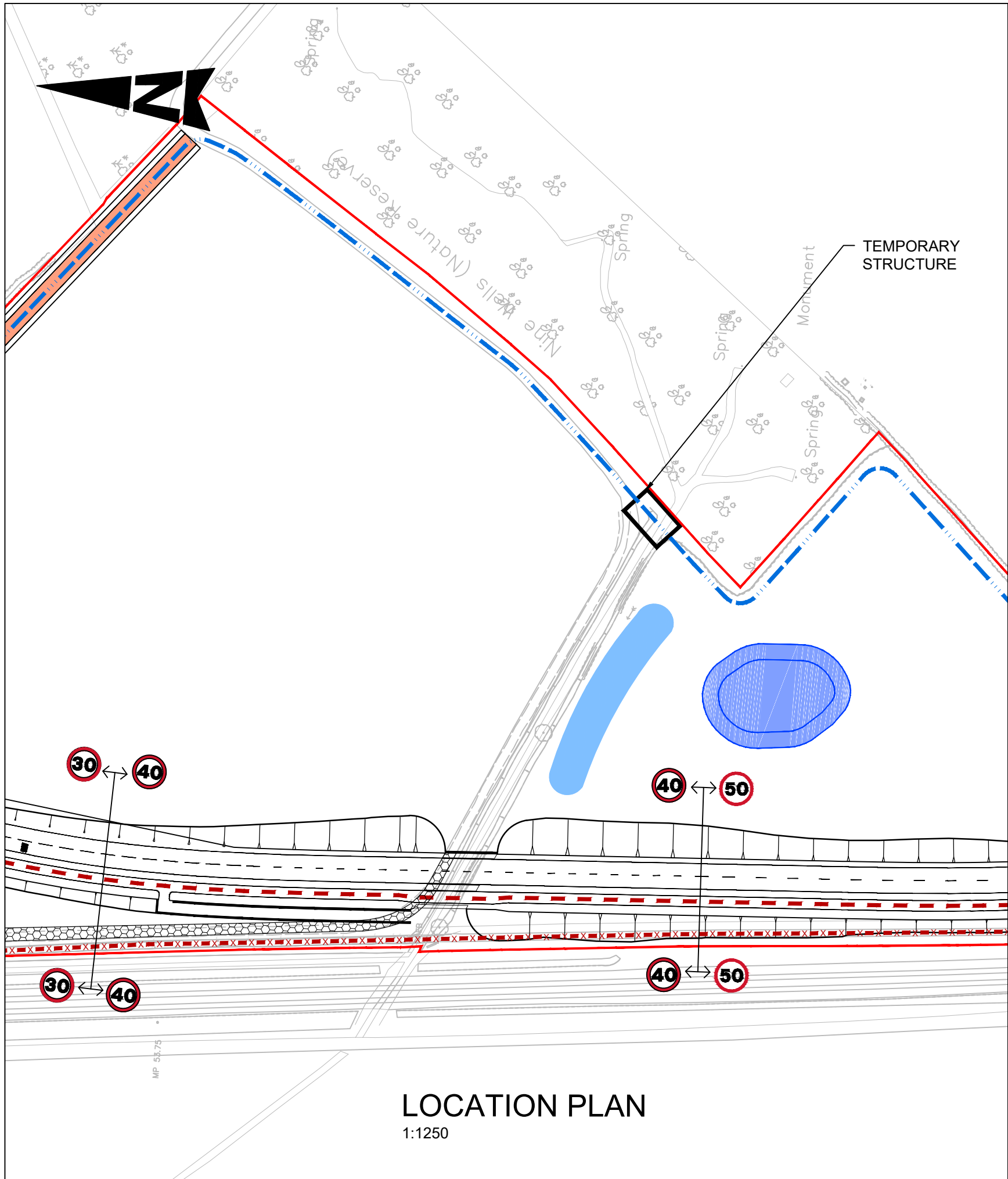
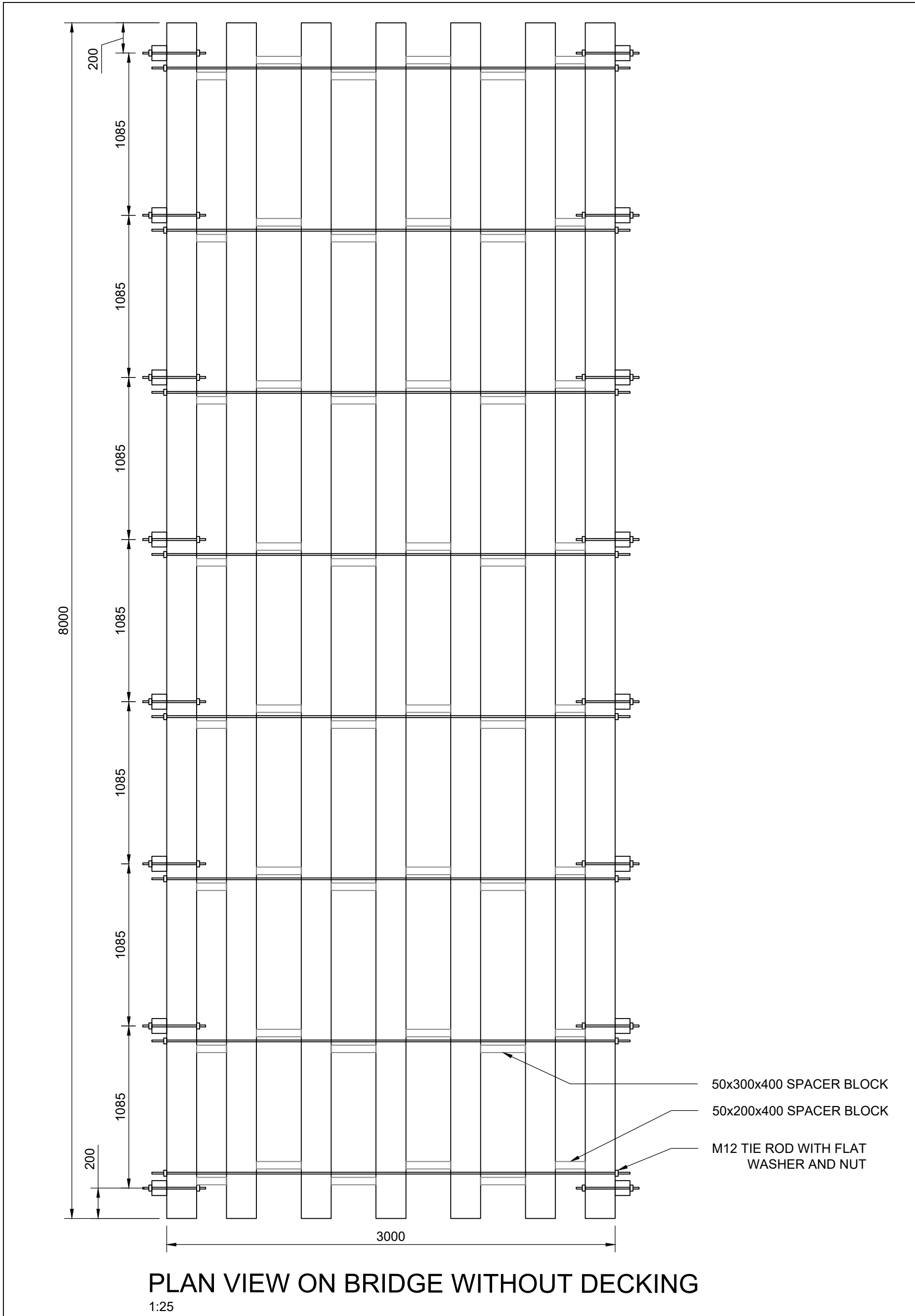
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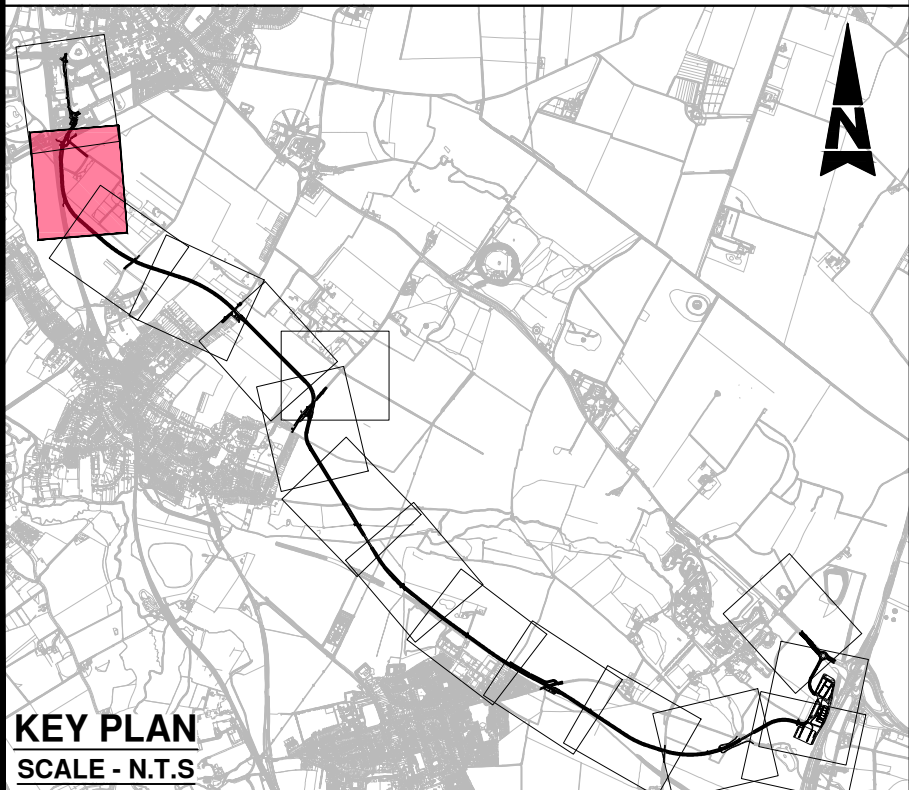
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Drawing Title
CAMBRIDGE SOUTH EAST TRANSPORT
PHASE 2
STRUCTURES 1-3
GENERAL ARRANGEMENT

Drawing Number		Project		Originator		Volume	
5212868		- ATK		- SGN		-	
Location		Type		Role		Number	
WHL_AL_SCHME		- DR - CB		- 000006			
Original Size:	A1	Scale:	AS SHOWN	Project Ref. No.:	5212868	Sheet:	1 of 1
						Rev:	C03



- NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS STATED OTHERWISE.
 2. THE STRUCTURE AND LAYOUT SHOWN IS AT A PRELIMINARY DESIGN LEVEL OF DETAIL ONLY. DETAILED DIMENSIONS AND LEVELS SHOWN ARE INDICATIVE ONLY AND SUBJECT TO CHANGE AT THE NEXT DESIGN STAGE.
 3. RRRAP ASSESSMENT AND THE DECK EDGE DETAILS ARE TO BE REVIEWED AT THE NEXT DESIGN STAGE TO ENSURE THEY ARE APPROPRIATE AND COMPATIBLE.
 4. DESIGN FLOOD LEVELS ARE TAKEN FROM DRAWING 5212868-ATK-SGN-WHL_AL-SCHME-DR-DB-000001 AND ARE TO BE REVIEWED AT THE NEXT DESIGN STAGE.



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
Description						
TWA0 JANUARY 2025						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
A1	CO1	VK	KS	EK	EK	08/01/25
Drawing Suitability						Status
APPROVED - PUBLISHED						A1

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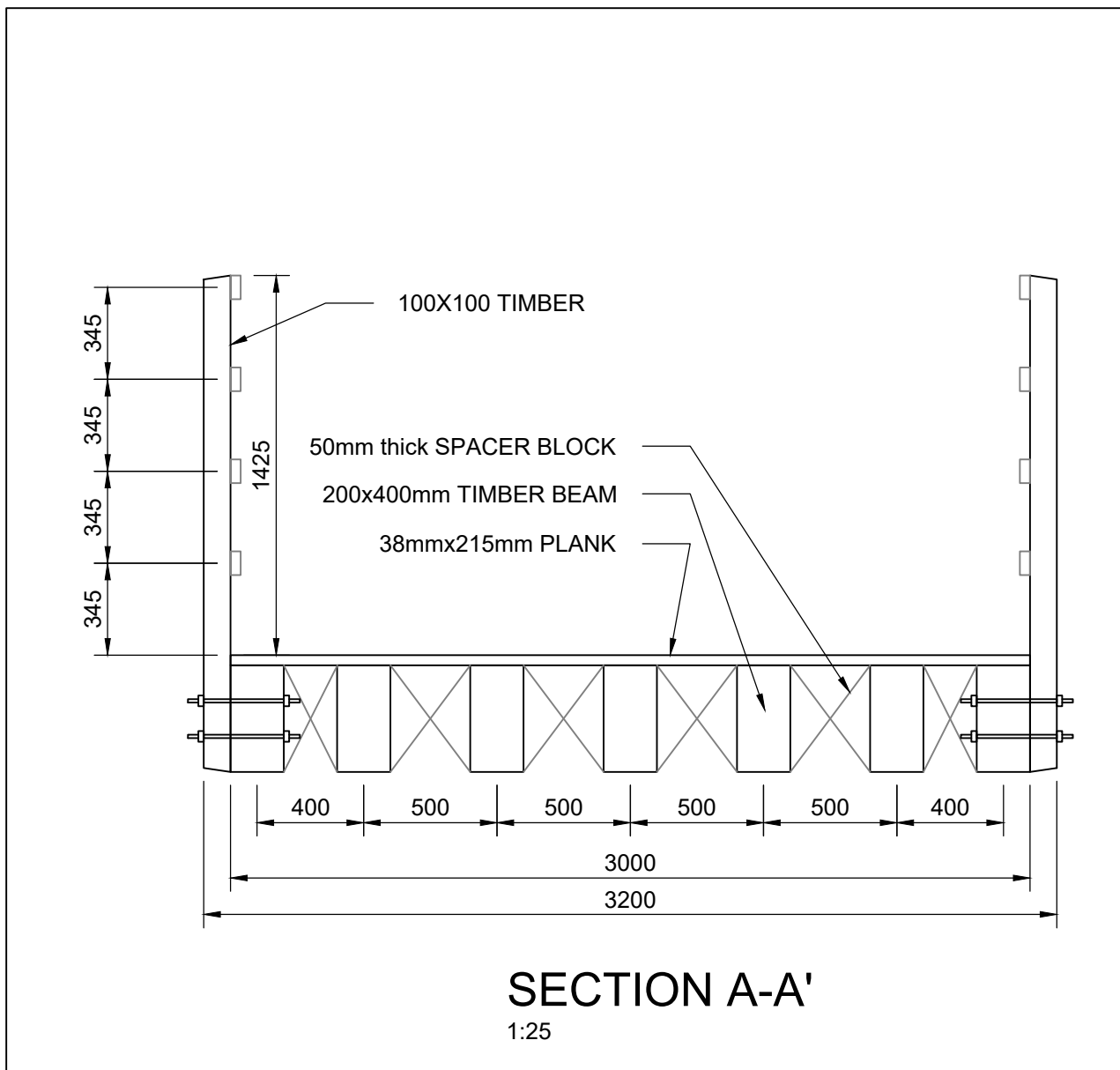
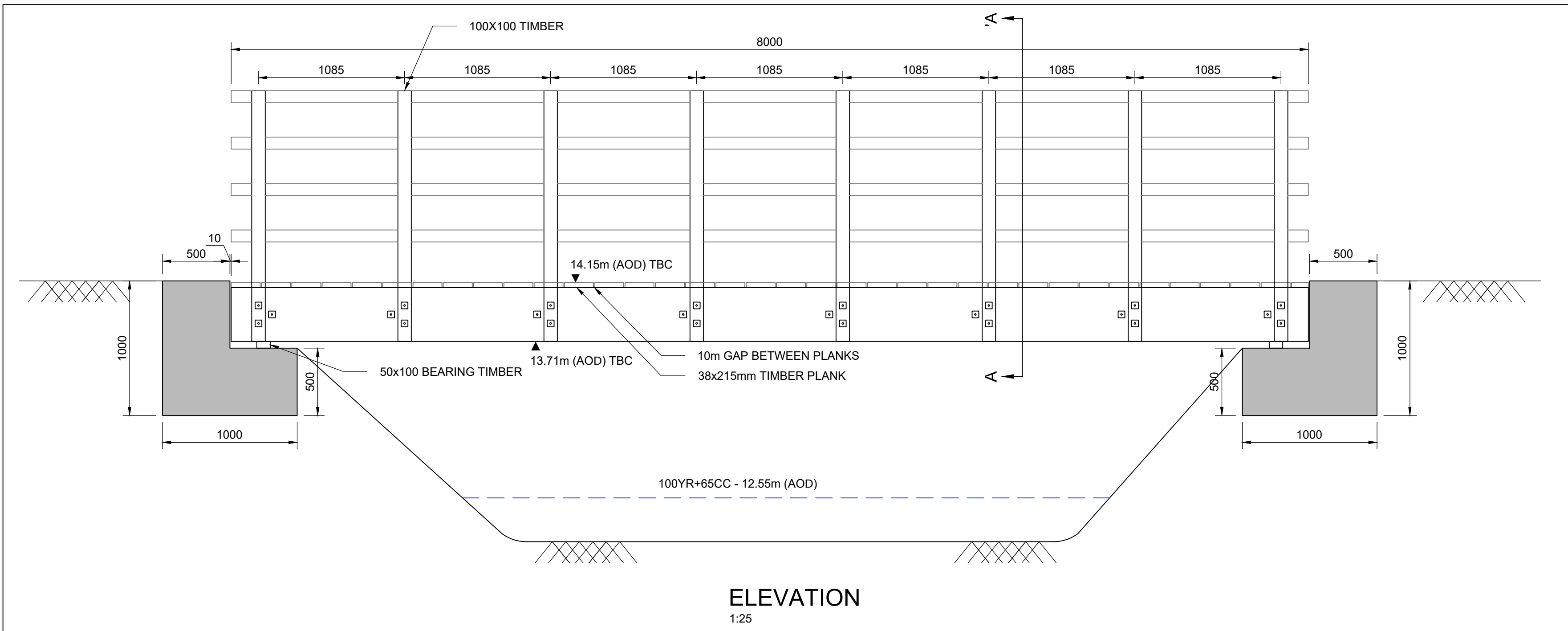
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CSET PHASE 2

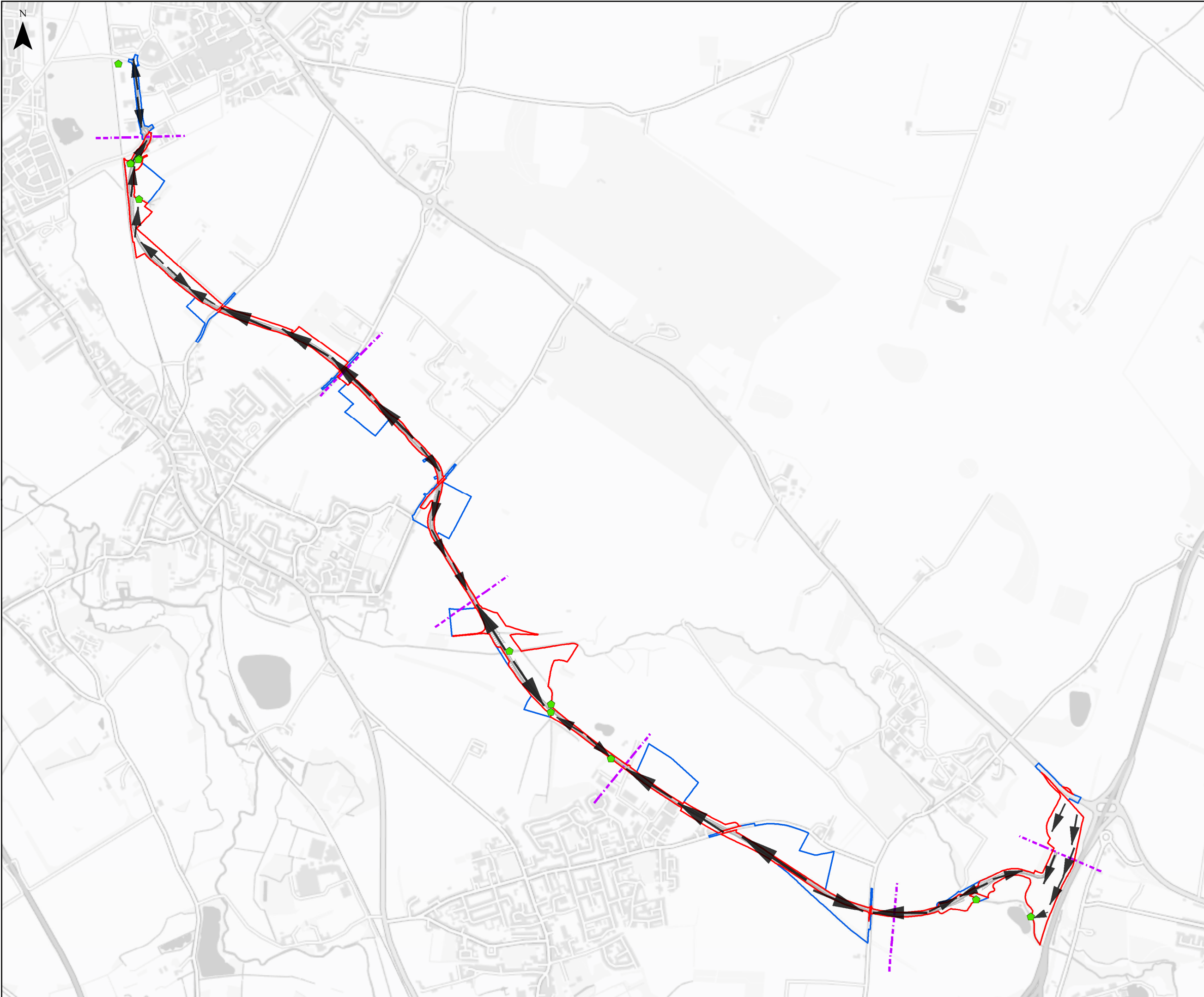
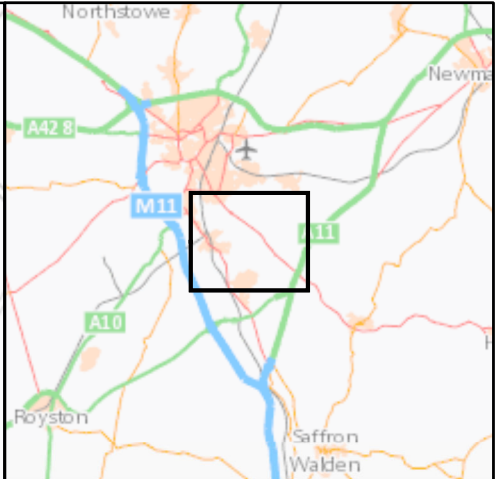
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**CAMBRIDGE SOUTH EAST TRANSPORT PHASE 2
TEMPORARY HOBSON'S CONDUIT CROSSING
GENERAL ARRANGEMENT**

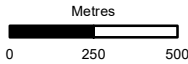
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Project		- ATK		- SGN	
5212868		- DR - CB		- 000011	
Location		Type	Role	Number	
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APPENDIX 8



- Permanent Site Boundary
- Temporary Site Boundary
- Route Alignment
- Scheme Outfalls
- Surface Water Flow Direction
- Catchment boundary



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Member of the SNC-Lavalin Group

Client



Project

CAMBRIDGE SOUTH EAST TRANSPORT
PHASE 2

Title

LOCATION OF PROPOSED
DRAINAGE FEATURES

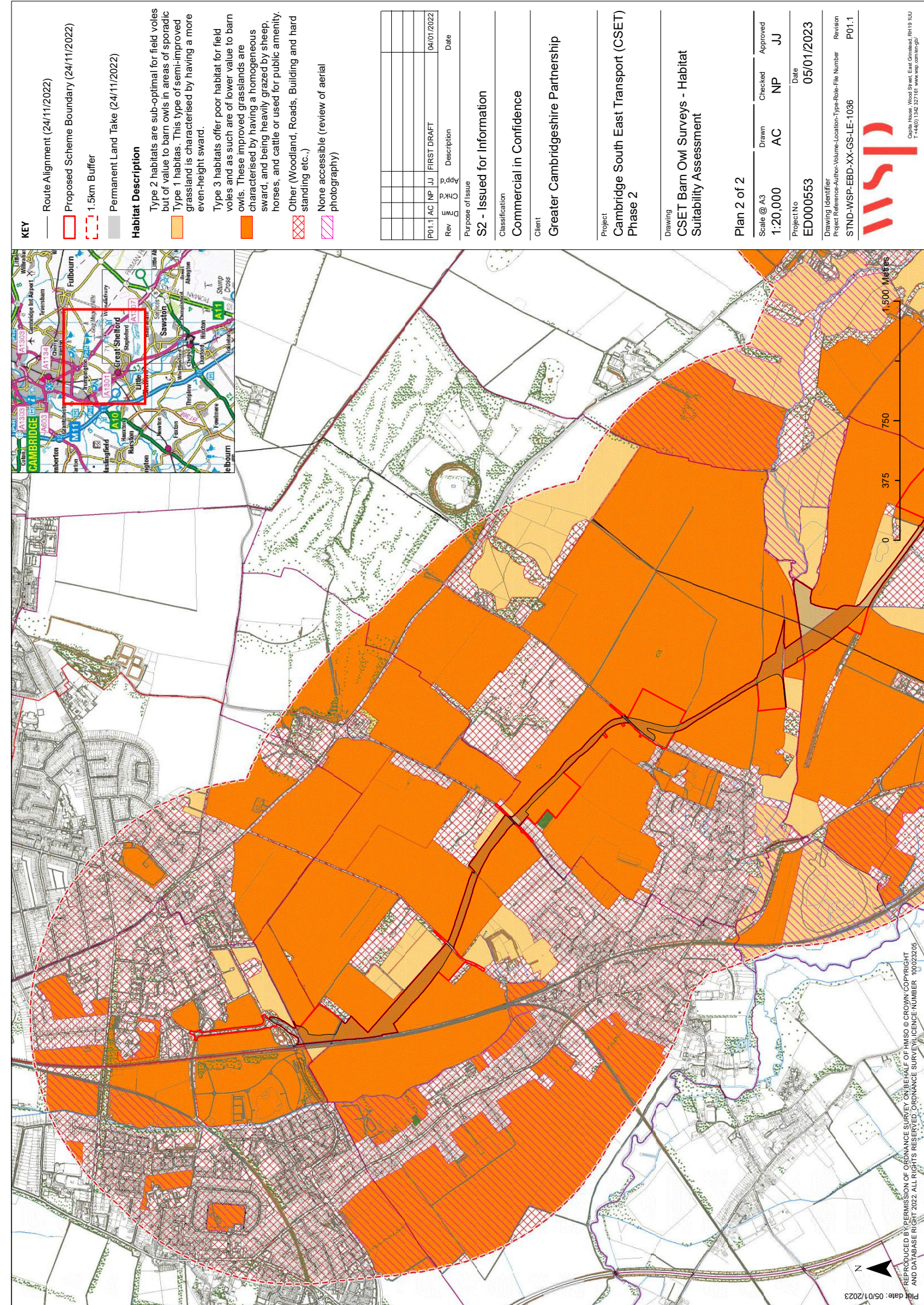
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Drawing Number FIGURE 2.14				Rev 00

APPENDIX 9

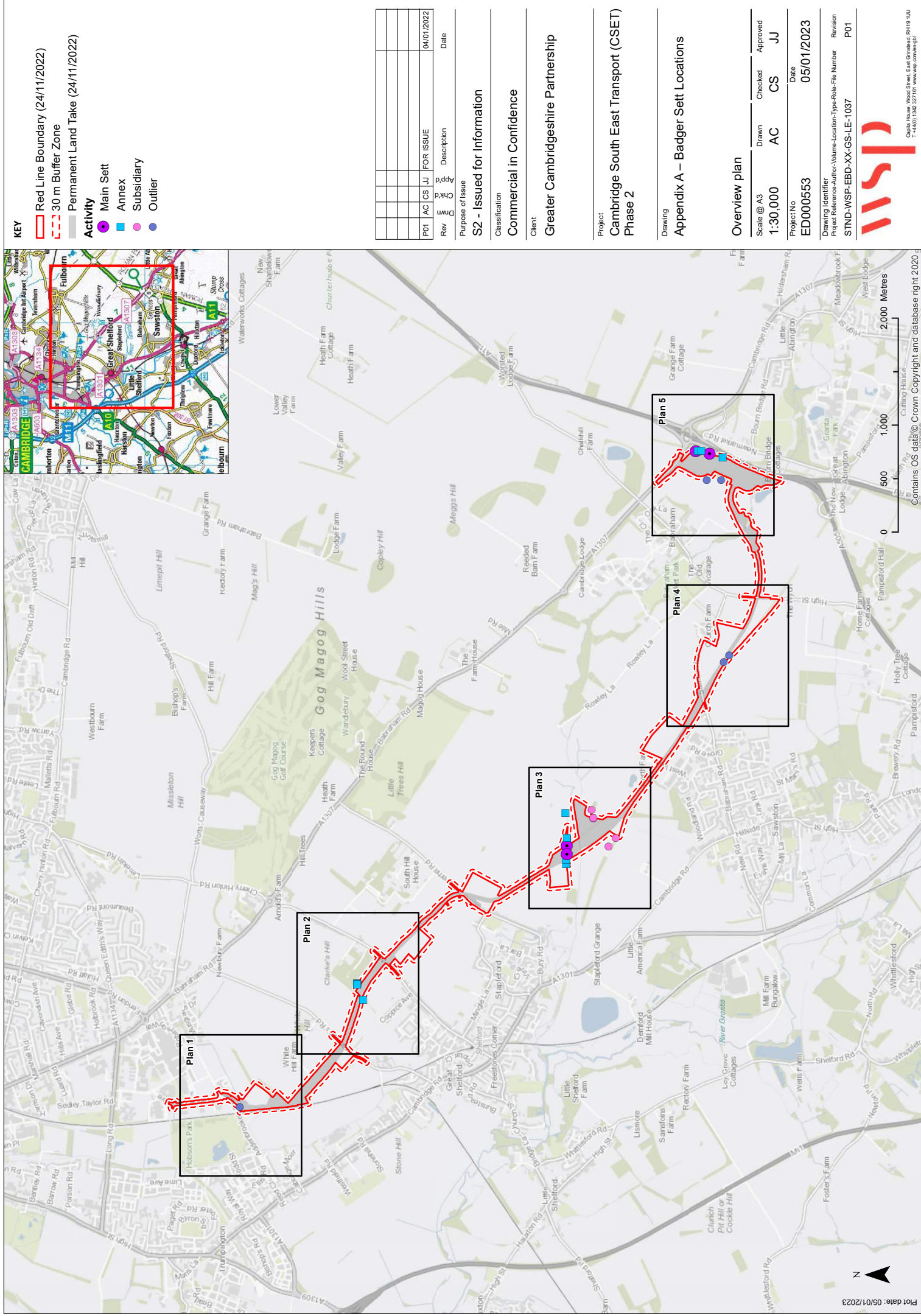
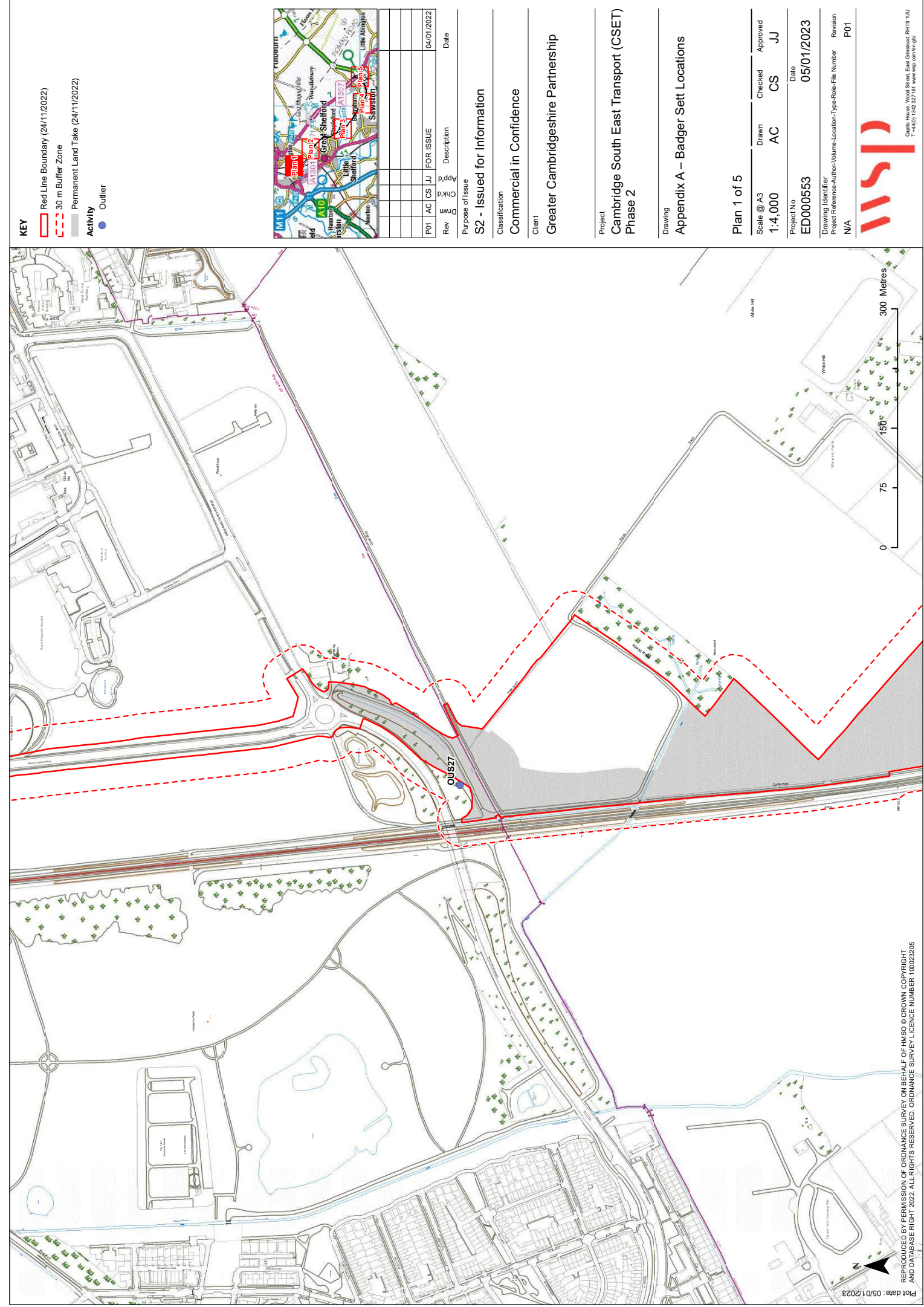
Habitat Suitability Plan 2022



Public



APPENDIX 10





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