Appendix B: 20266 River Avon Remediation PEA

River Avon South Bank Remediation

Prepared by: IKM Consulting Ltd.

For: INEOS

Site: Grangemouth

Date: 28/03/2024

Document Ref: 20266 PEA

Revision-00

PRELIMINARY ECOLOGICAL APPRAISAL

PROJECT TITLE:	River Avon South Bank Remediation	**PROJECT NO:**	20266

START DATE/TIME:	**SITE:**	**POSTCODE, OSGR, NEAREST TOWN:**	**COMPLETED DATE/TIME:**
22/02/2024 09:00	River Avon South Bank, KG plant Grangemouth	INEOS Grangemouth	22/02/2024 12:00
WEATHER:	Dry and breezy	**TEMPERATURE:**	6°C

SITE COMMENTS

GENERAL

IKM Consulting Limited (IKM) was commissioned by INEOS FPS to undertake an update Preliminary Ecological Appraisal (PEA) survey to determine the potential and confirmed ecological constraints along the banks of the River Avon, prior to their remediation works at an area of collapsed riverbank. IKM have previously undertaken a PEA of this area in 2022 (IKM, 2022), but an update survey was requested to ensure that the baseline ecological conditions remain up to date.

The works will include remediation of the area of collapsed bank adjacent to the INEOS FPS terminal, as shown in **Figure 1** below. Timescales for the remediation is not known at this time.

METHODOLOGY

Desk Study

A search for designated sites within 5km of the site was undertaken using NatureScot SiteLink, and a review of areas of ancient woodland within 1km of the site was made through the Ancient Woodland Inventory (AWI).

Field Study

A PEA survey of the collapsed riverbank area and adjacent habitats, where safe access was available, was undertaken by IKM Senior Ecologist Carolyn Drane and Environmental Scientist Isla Craig on 22nd February 2024, to ascertain potential and confirmed ecological constraints and to provide recommended mitigations to facilitate the proposed works. The survey area included the area of collapsed bank and immediate surrounds, which was extended 250m upstream and downstream. This area is hereby referred to as the 'Study Area'. Photographs of specific features are provided at the end of this report.

The Phase 1 habitat survey involved identifying and mapping the dominant habitat types following the Phase 1 Habitat survey methodology recommended by NatureScot (JNCC, 2010). The habitats and any features of note were

recorded and mapped. Dominant plant species were noted, as were any uncommon species or species indicative of particular habitat types, but no attempt was made to compile exhaustive species lists.

The watercourse and habitats within the study area were assessed in terms of their suitability for protected species including, but not restricted to, otter (*Lutra lutra*), bats, badger (*Meles meles*), birds and reptiles. Any evidence of the presence of these species, including sightings, feeding signs, droppings, and resting places were recorded. The relevant legislation pertaining to the protection of these species, their habitat or resting/breeding places can be found in **Appendix A**.

Protected species such as beaver (*Castor fiber*), freshwater pearl mussel (*Margaritifera margaritifera*), red squirrel (*Sciurus vulgaris*), pine marten (*Martes martes*), great crested newt (*Triturus cristatus*), water vole (*Arvicola amphibious*) and Scottish wildcat (*Felis silvestris*) have been scoped out of this survey as either the Study Area is not within the known distribution of these species, or the Study Area lacked any suitable habitat for these species.

The value of any structures and trees within the Study Area were assessed in terms of suitability for roosting bats in line with current best practice guidance (Collins, 2023). Where necessary, these features were scrutinised with binoculars. Any signs of roosting bats such as staining, and droppings were recorded, and droppings were to be collected for further analysis. No detailed internal inspections of tree roost features have been undertaken, but an external ground-based assessment was completed.

During this inspection an assessment was also made to assess the potential or current use of any structures and surrounding vegetation by nesting birds which included a search for current nests, evidence of previous nesting attempts and evidence of presence of birds, including roosting individuals and droppings.

Non-native and invasive species such as Japanese knotweed (*Fallopia japonica*), giant hogweed (*Heracleum mantegazzianum*) and Himalayan balsam (*Impatiens glandulifera*) were also identified and mapped as far as possible, as well as other non-native plant species relevant to the Wildlife and Natural Environment (Scotland) Act (WANE) 2011.

LIMITATIONS

This survey represents a 'snapshot' of the species present at the time of the survey. The absence of evidence of a protected species from the survey does not always indicate that a species is absent from any given area where suitable habitat is present.

The assessment aims to provide a baseline of potential or confirmed (where possible) ecological constraints and is not designed to replace the need for further detailed surveys, where considered necessary, based on the project proposals and assumptions. The survey was completed during an acceptable survey season for the receptors potentially present at this location and further survey has been recommended where necessary.

Invasive, non-native Himalayan balsam generally dies back completely during the winter months and is not always detectable during a PEA survey undertaken out with the growing season, unless it occupies a large, extensive area where dead stems may be visible. Smaller stands or scattered plants cannot always be detected out with the growing

season. Dead stems of Japanese knotweed and giant hogweed can often persist throughout the winter months, but not always.

Only the southern bank of the River Avon was accessed as part of this Study due to access issues. The northern bank of the river was surveyed using binoculars from the opposite bank. There were also areas upstream from the Study Area, which could not be safely accessed due to the dense scrub and very soft sediment along bank. This was not considered to be a significant limitation to the study as many of these areas which could not be directly accessed offered only limited suitability to support otter resting sites. These areas may have features suitable for couches, however, none were found throughout the rest of the study area surveyed with similar suitability.

Road Bridge 33 could not be fully inspected during this survey. The northern abutment and the section of the structure over the river was not accessible during this survey, but all other area of the structure were accessed as far as possible.

The survey was completed following best practice guidelines, with the survey undertaken during a period of suitable weather, with no rain preceding the survey, and the survey led by an experienced ecologist who holds a NatureScot otter survey licence.

The local Biological Records Centre was not consulted for any protected species records as part of this study.

RESULTS

Desk Study

Designated Sites

There were four designated sites within 5km of the Study Area, as detailed in **Table 1** below.

Table 1: Designated Sites within 5km of the Study Area

Designated Site	Reason for Designation	Distance and Direction from the Study Area
Firth of Forth RAMSAR, Special Protection Area (SPA) and Site of Special Scientific Interest (SSSI)	This site holds three designations and supports important habitats including maritime cliff, saltmarsh, sand dunes, mudflats, saline lagoon, lowland neutral grassland, transition grassland, as well as vascular plant and beetle assemblages. The site also supports important populations of non-breeding and breeding wading and migratory birds, as well as regularly supporting in excess of 20,000 individual waterfowl.	0.8km northeast
Avon Gorge SSSI	This site supports one of the few remaining ancient, semi-natural woodland sites in the Falkirk area.	0.7km southeast

Ancient Woodland

There were four areas of ancient woodland within 1km of the Study Area, as detailed in **Table 2** below.

Table 2: Ancient Woodland within 1km of the Study Area

Ancient Woodland	OSGR Location	Distance and Direction from the Study Area
Unnamed woodland (long-Established (of plantation origin)) ID 32593	NS 945 795	0.8km southwest
Avon Banks Wood (long-Established (of plantation origin)) ID 32590	NS 953 797	0.6km southeast
Avon Banks Wood (Ancient (of semi-natural origin)) ID 32592	NS 962 791	0.8km southeast
Unnamed woodland (long-Established (of plantation origin)) ID 32765	NS 962 801	0.7km southeast

Field Survey

Habitats

The riverbank fauna was composed of scattered broadleaved trees including hawthorn (*Crataegus monogyna*), dense scrub, mainly bramble (*Rubus fruticosus*) and gorse (*Ulex europaeus*) with a strip of inundation vegetation dominated by common reed (*Phragmites* sp.), as shown in **Photographs 1 and 2** below. Beyond this is an area of disturbed ground utilised as a rough access track with areas of bare ground and low growing ephemeral species bordered by dense bramble scrub, as shown in **Photograph 3** below.

Protected Species

Badger

No evidence of badger was identified within the Study Area. The Study Area, although it supports small areas of natural habitat along the banks of the River Avon, was surrounded by heavily modified and disturbed industrial areas which are generally considered to be unsuitable for supporting this species. This species will not be considered any further in this appraisal.

Bats

Road Bridge 33 Structure

Road 33 Overbridge was located to the west of the Study Area. This structure comprised a large concrete precast structure which carried a road over the River Avon, as shown in **Photograph 4** below and as Target Note B01 on Figure 2 below. In general, the southern abutment of the bridge, which could be inspected during this survey, appeared to be in a well-sealed condition, where the potential for roosting bats was limited to expansion gaps underneath the deck of the structure. The structure is however, surrounded by heavily modified, constantly lit and disturbed industrial areas, which will likely limit its suitability to support roosting bats. This structure was assessed as supporting ***Negligible*** bat roost potential for both active season roosting and hibernation.

Trees

There were no trees with features beyond ***Negligible*** potential to support roosting bats within the Study Area. In general, the trees within the Study Area were not of an age to support features, with the majority showing no evidence of damage or disease that may lead to cavities or potential roost features that could be exploited by roosting bats.

The River Avon riparian corridor and areas of scattered woodland to the south, may offer some suitable habitat for foraging and commuting bats, albeit within a heavily modified and disturbed landscape.

Birds

Two old nesting attempts (old nests) were identified within the Study Area, one considered to be a magpie (*Pica pica*) nest and one considered to be wood pigeon (*Columba palumbus*), with the locations shown as **Target Note TN02** and **TN03 on Figure 2**.

A pair of grey wagtail (*Motacilla cinerea*) were noted foraging along the rock armour adjacent to the Road Bridge 33, as noted as **Target Note 01 on Figure 2**. Mallard (*Anas platyrhynchos*), teal (*Anas crecca*) and goosander (*Mergus merganser*) were also all noted along the River Avon during the survey.

The vegetation with the Study Area, including scattered broadleaved trees, common reed and dense bramble scrub all may provide suitable habitat for supporting nesting birds common to the geographical area. The rock armour along the riverbank noted adjacent to the Road Bridge 33 may offer some suitable nesting habitat for birds closely associated with water, such as grey wagtail.

Otter

No evidence of otter was recorded during this survey. No resting sites were identified, but the banks of the river, included areas of dense scrub vegetation may offer suitability for temporary resting sites, such as couches, and suitability for temporary resting places cannot be ruled out from this survey alone.

Reptiles

No evidence of common reptile species was identified within the Study Area. There is some suitable habitat, including areas of dense scrub along the banks of the River Avon, but generally, the wider landscape is surrounded by heavily modified and disturbed industrial areas which are generally considered to be unsuitable for supporting reptiles. Reptiles will not be considered any further in this appraisal.

Invasive, Non-native Species (INNS)

A large stand of Japanese knotweed was recorded to the west of the Road 33 Bridge, out with the repair area. This stand was approximately 5x5m in size, and located at **Target Note 04, on Figure 2**, and shown in **Photograph 5**, but the full extent of the stand could not be determined at the time of the survey.

Both Japanese knotweed and giant hogweed were identified within the Study Area during the 2022 survey, and these results have also been included in this report, as detailed in **Table 3**. The location of each feature is shown on **Figure 2**.

Table 3: INNS survey results from 2022 PEA survey

Feature	OSGR Location	Target Note Number	Findings
Japanese knotweed	NS 95130 80441	TN01	Dead stems of Japanese knotweed on riverbank. Full extent of stand not currently known.
Japanese knotweed	NS 94670 80377	TN05	Very large area of Japanese knotweed on riverbank, full extent not known but may be up to 20x20m.
Japanese knotweed	NS 94825 80390	TN03	Large stand of Japanese knotweed approximately 5x5m with new growth stems present. This stand was also identified during the 2024 PEA survey.
Giant hogweed	NS 95100 80434	TN02	Suspected single dead giant hogweed stem on riverbank.
Giant hogweed	NS 94731 80385	TN04	Dead giant hogweed stem on riverbank.

Next Steps

Designated Sites

The bank remediation works are not likely to have any direct impacts on the designated sites within 5km but may be indirectly impacted due to the connectivity between the River Avon directly adjacent to the remediation site.

The location of the works is typically out with the general non-breeding disturbance buffer for many of the species (geese being the most sensitive and is generally considered to be around 600m) and therefore the works are unlikely to disturb waterfowl species within the boundary of the SPA. As the River Avon is tidal, there may be some minor feeding by species associated with the SPA, but the works area is not considered critical to the designation or offering significant opportunities. Furthermore, the proposed works are short term and temporary with no significant changes to the baseline foraging and roosting opportunities expected, so no further mitigation is considered necessary.

All works in or near the river must follow best practice measures to ensure its protection against pollution, silting and erosion. It is recommended that a pollution prevention plan is prepared for the works to manage and mitigate against potential surface water and chemical / oil pollution. It is also recommended that a soil management plan is prepared for the works which should include measures for any soil storage and final bunding is sufficient that any material does not fall back in to the river.

Ancient Woodland

The proposed remediation works are not likely to impact the areas of Ancient Woodland within 1km, as they are considered to be of a sufficient distance so as to not to result in an impact to these sites.

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Habitats

The vegetation surrounding the collapsed bank comprises common species which are widespread within the wider landscape, but if any trees are to be lost to accommodate the works, this will result in a high impact, given the time it takes for trees to reach maturity. All trees must be retained where possible. It is recommended that only the absolute minimum of vegetation is removed, and a scheme of replacement considered.

It is recommended that for any temporary compounds or access routes to be utilised for the remediation works, existing areas of hardstanding are utilised, or suitable measures are put in place to re-instate the land to as before values either through ground protection (i.e., temporary roadway or protection matting) to allow full re-establishment in the shortest time possible.

Protected Species

Bats

Road Bridge 33 Structure

The Road Bridge 33 structure located within the Study Area was assessed as supporting ***Negligible*** BRP, as such in accordance with best practice, no further survey effort is required for the proposed riverbank remediation works.

If in the case that the SI/GI works have not commenced within 12 months of this survey (i.e. by February 2025) then a further survey will be required to ensure baseline conditions have not changed.

General

The River Avon riparian corridor may be used on occasion as commuting routes or by foraging bats, if at any stage during the remediation works a bat, or suspected bat is found, all works within 30m must stop, the area made safe, and a licenced bat worker contacted for advice immediately.

For any proposed night-time working (if applicable to these works), a lighting plan should be in place to ensure that site lighting is restricted to the works area only with minimal light spill to the wider area and riparian corridor. The area should not be lit when site staff are not in attendance.

Birds

If any vegetation removal is required to accommodate the works, and this is to be undertaken within the recognised breeding season (considered to be March to August, inclusive in Scotland) a nesting bird check must be carried out of all areas to be cleared, no more than 48 hours ahead of the clearance, by a suitably qualified ecologist.

If nesting birds are confirmed to be present, then all works in the vicinity of any nest must be delayed until the young have fledged, and that an ecologist has confirmed the nest is no longer in use. An appropriate exclusion area will also be put in place, which will be species dependant and the topography on the ground. This will be determined by the ecologist at the time of the discovery.

Otter

No evidence of otter was identified during this survey, the River Avon will likely be used by otter. The vegetation along the banks of the river offered areas of dense scrub vegetation which may offer suitability for temporary resting sites, such as couches.

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The following mitigations should be followed during all remediation works:

- All works in or near the river must follow best practice measures to ensure its protection against pollution, silting and erosion;
- Any temporarily exposed excavations, trenches or holes must be provided with mammal exit ramps e.g. wooden planks or earth ramps when Contractors are off site to allow animals to escape;
- All works should be timed to avoid the periods around dusk and dawn when otters are most active; and
- An emergency procedure should be implemented by site workers if otters or potential otter shelters are unexpectedly encountered. All work within 30m (100m for high noise/vibration activities) or 200m for breeding sites will cease until a suitably qualified ecologist has inspected the site and determined the appropriate course of action.

Invasive, Non-native Species (INNS)

It is recommended that an invasive species survey is undertaken during the growing season (between May and August) to determine the full extent of all invasive species within the Study Area.

Where INNS are present within the proposed works areas, a 7m exclusion zone from all stands should be marked out and no works, storage or passing through should take place within these zones.

Where works within these exclusion zones are required, it is recommended that an invasive species specialist contractor is contacted to develop an invasive non-native species management plan for the proposed remediation works. This may include the removal or treatment of the species.

During the works, it is also recommended that a toolbox talk is provided to all site personnel and any sub-contractors. This must cover the location of the plants on site, identification of the species on site, health and safety issues (giant hogweed) and legal implications of the spread of invasive non-native plant species.

REFERENCES

CIEEM (2017) Guidelines for Preliminary Ecological Appraisal. 2nd Edition, Chartered Institute of Ecology and Environmental Management, Hampshire.

Collins, J. (ed) (2023) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (4th Edition). The Bat Conservation Trust, London.

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NatureScot SiteLink. Available: https://sitelink.nature.scot/map Accessed 25/03/24

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SURVEYED BY:	Carolyn Drane and Isla Craig	**DATE:**	22/02/24
COMPLETED BY:	Carolyn Drane	**DATE:**	25/03/24
CHECKED BY:	Simon Inger	**DATE:**	27/03/24

PRELIMINARY ECOLOGICAL APPRAISAL

Appendix A - Relevant Ecology Legislation

Bats

All UK bat species are European Protected Species. They are legally protected by the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended). Under this legislation it is an offence to deliberately or recklessly:

- Kill, injure or (capture) a bat;
- Harass a bat or group of bats;
- Disturb a bat in its roost (any structure or place it uses for shelter or protection) or whilst it is rearing or otherwise caring for its young;
- Disturb a bat in a manner that is, or in circumstances which are, likely to significantly affect the local distribution or abundance of the species, or impair its ability to survive, breed or reproduce, or rear or otherwise care for its young;
- Disturb a bat while it is migrating or hibernating;
- Obstruct access to a roost or otherwise deny bats the use of a roost.

It is also an offence to damage or destroy a bat roost (note, it does not need to be deliberate or reckless to constitute an offence).

Otter

Otter are a European Protected Species. They are legally protected by the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended). Under this legislation it is an offence to deliberately or recklessly:

- Capture, injure or kill an otter;
- Harass an otter or group of otters;
- Disturb an otter in a holt or any other structure or place it uses for shelter or protection;
- Disturb an otter while it is rearing or otherwise caring for its young;
- Obstruct access to a holt or other structure or place otters use for shelter or protection, or otherwise deny an otter use of that place;
- Disturb an otter in a manner or in circumstances likely to significantly affect the local distribution or abundance of the species, and;

- Disturb an otter in a manner or in circumstances likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for its young.

It is also an offence to:

- Damage or destroy a breeding site or resting place of such an animal (whether or not deliberately or recklessly).

Otter shelters are legally protected whether or not an otter is present.

Birds

All wild birds in the UK are protected by the Wildlife and Countryside Act 1981 (as amended) whereby it is illegal to intentionally or recklessly:

- Kill, injure or take a bird;
- Take, damage, destroy or interfere with a nest of any bird while it is in use or being built;
- Obstruct or prevent any bird from using its nest;
- Take or destroy an egg of any bird.

Any wild bird species listed on Schedule 1 are also afforded further protection, which makes it an offence to disturb:

- Any bird while it is building a nest;
- Any bird while is in, on, or near a nest containing eggs or young;
- Any bird while lekking;
- The dependent young of any bird.

For any wild bird species listed on Schedule 1A, it's an offence to intentionally or recklessly harass any bird.

For any wild bird species listed on Schedule A1, it's an offence to intentionally or recklessly take, damage, destroy or interfere at any time with a nest habitually used by any bird.

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Badger

Badger and their setts are protected by the Protection of Badgers Act 1992 (as amended by the Wildlife and Natural Environment (Scotland) Act 2011). It is an offence to:

- Willfully kill, injure, take or attempt to kill a badger;
- Intentional or reckless interference with a badger sett;
- Possess a dead badger or any part of a dead badger;
- Cruelly ill-treat a badger.

It is also an offence to interfere with a badger sett by intentionally or recklessly causing or allowing:

- Damage to a sett or any part of it;
- Destruction of a sett;
- Obstruction of a sett or any entrance of a sett;
- Disturb a badger whilst it is occupying a sett.

Reptiles

Adder, slow worm and common lizard are all protected by the Wildlife and Countryside Act 1981 (as amended). Under this legislation these species are protected against:

- Intentional or reckless killing or injury.

Invasive Non-native Species

The law on non-native species is covered by the Wildlife and Countryside Act 1981 (as amended by the Wildlife and Natural Environment (Scotland) Act 2012.)

In Scotland, it's an offence to:

- Release an animal to a location outside its native range;
- Plant, or otherwise cause to grow, a plant in the wild at a location outside its native range.

'Native range' is defined in the 1981 Act as:

"The locality to which the animal or plant of that type is indigenous and does not refer to any locality to which that type of animal or plant has been imported (whether intentionally or otherwise) by any person."

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Site Photographs

Photograph 1: Dense bramble scrub along riverbank

Photograph 2: View of River Avon looking downstream, with bankside vegetation

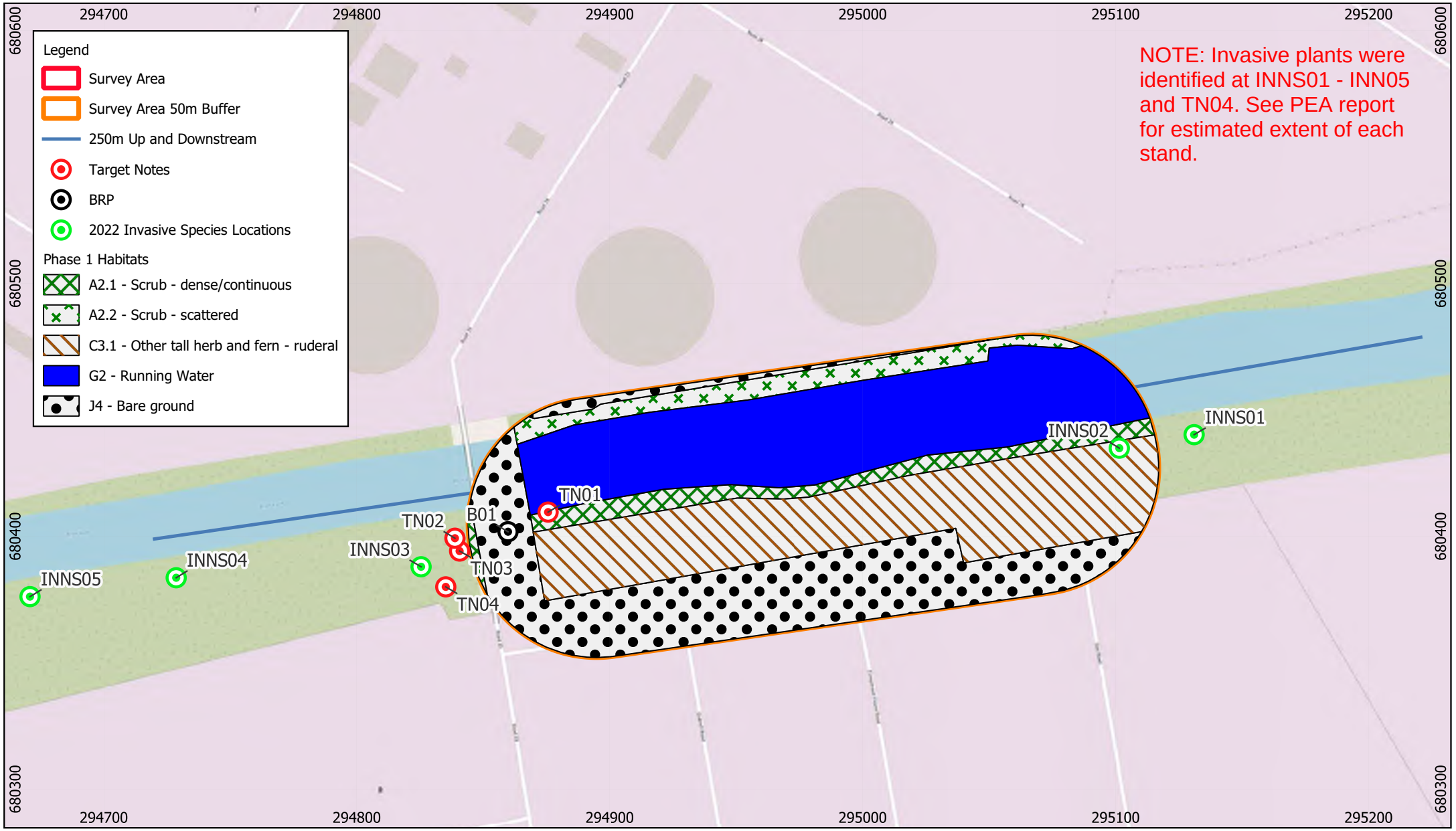
Photograph 3: Rough access track along riverbank

Photograph 4: View of Road 33 Bridge

Photograph 5: Stand of Japanese knotweed within Study Area

PRELIMINARY ECOLOGICAL APPRAISAL

Figure 1: Proposed location of riverbank remediation works



Project	Drawing Title	Scale	Status
20622	Update PEA Survey Results	1:2,000	ISSUE
Project Title	**Client**	**Drawing**	
River Avon Remediation	INEOS FPS	Figure 2	

Rev	Date	By	App	Details
-	-	-	-	Contains OS data © Crown copyright and database right 2024
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0	26/03/24	JM	CD	

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