

Appendix A

Continued Sections

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Continued Sections

5.0 Project Details

C) Proposed start date

Activity- Temporary works – Rock Bag Safeguarding

Start date: 07/10/24

D) Proposed completion date

Activity - Temporary works – Rock bag safeguarding

End date: 31/12/2024.

F) Location

Site Photographs



Figure 1: Site location plan



Figure 2: Recent photographs showing deterioration of the site – cable significantly exposed and no longer buried in the river bank

Site Latitude and Longitude Co-ordinates

Table 1: Activity to be authorised latitude and longitude co-ordinates

Activity : Rock bag	
56°00.309'N	003°41.156'W
56°00.310'N	003°41.141'W
56°00.313'N	003°41.136'W
56°00.314'N	003°41.136'W
56°00.313'N	003°41.143'W
56°00.313'N	003°41.151'W
56°00.312'N	003°41.160'W
56°00.312'N	003°41.163'W
56°00.310'N	003°41.163'W

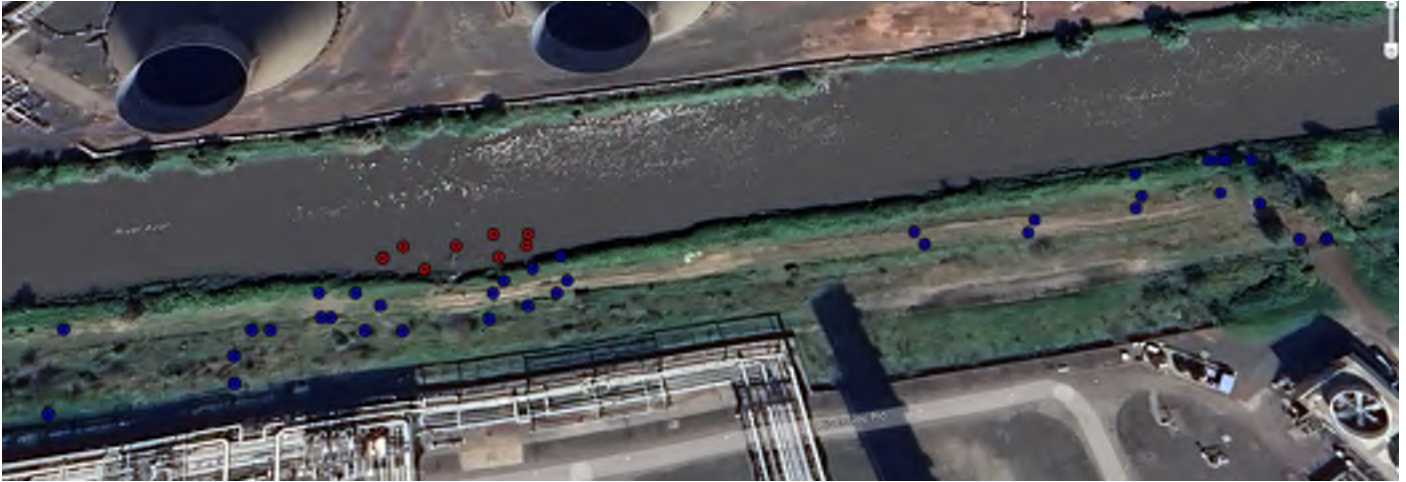


Figure 3: Activity - rock bag installation (approximate) (red points) and associated haul road (blue points).

H) Method Statements

Construction Activity to be authorised. In Stream

Rock bag method statement – Extract (See Full Method Statement attached as Appendix D)

1. Haki stairs will be set up in a safe area close to the area of the scour. This will allow safe access and egress for an operative to gain access into the river and unhook the rock bags from the excavator.
 - 1.1.1 The Haki stairs will be secured using 2 x ground anchors to avoid the need to fix into the ground on top of the riverbank.
 - 1.1.2 A pontoon with stretcher and small inflatable safety boat will be positioned at the bottom of the stairs.
2. The rock bags will be delivered in quantities of 14 per flatbed Lorry.
 - 2.1.1. The Lorry of rock bags will be reversed down the haul road while being watched by a banksman.
 - 2.1.2. The rock bags initially will be unloaded using the long reach excavator that will be sat adjacent to the scoured area on the haul road.
3. Placing of the rock bags. The rock bags will be placed from the bottom up in a tiered configuration as per the design provided by IKM. The rock bags will be carefully arranged from upstream to downstream, seamlessly blending into the upstream bank to ensure a smooth flow without any blunt ends interrupting the river's current.
 - 3.1.1. For the first bottom row of bags, we will be targeting low water. This will ensure we have maximum visibility to allow us to place the bags as accurately and efficiently as possible.
 - 3.1.2. One bag will be lifted at a time. A slinger signaller will attach the drop chain connected to the excavator to the ring on the top of the rock bag. The slinger will then direct the machine operative using hand signals or radio, guiding the rock bag into position. The bag will be checked that it is laid in the correct position, before being unhooked.
 - 3.1.3. This process will continue along the first row of bags. Once the first row is positioned, the second row will be placed on top. This will continue until all the layers are complete.
 - 3.1.4. Care should be taken to follow the design, and not to step the bags too far over the top of the bag bellow.

Our primary aim is minimizing any excavation work along the riverbank wherever possible. We do not anticipate needing much, if any excavation. However, if a section of the bank is overhanging and unstable, it will need to be graded back to allow for the safe placement of the rock bags and to reduce

the risk of bank collapse during nearby work.

Minor reshaping may also be needed to again allow the bags to be placed stable and safe. These points outline our strategy for managing the minor reshaping and bag placement while prioritising environmental protection:

Minor reshaping for stability: Only where necessary or required minor reshaping will be carried out. This will enable the safe placement of the rock bags, ensuring the stability of both the bank and the bags.

Silt containment measures: If minor reshaping is needed in the lower section of the bank or in an area that doesn't stay above the lowest water line, we will implement localized silt curtains to contain any potential silt migration.

Timing for minor reshaping: Any minor reshaping required further up the bank will be conducted when the water level is below that specific area.

Immediate bag placement: Once an area has been reshaped as needed, the bag will be promptly placed. This immediate action will decrease the likelihood of silt migration into the water course once the tide reaches that level.

5. Any material that needed to be removed will be taken to the laydown area with the dumper. It will then be collected and disposed of correctly.

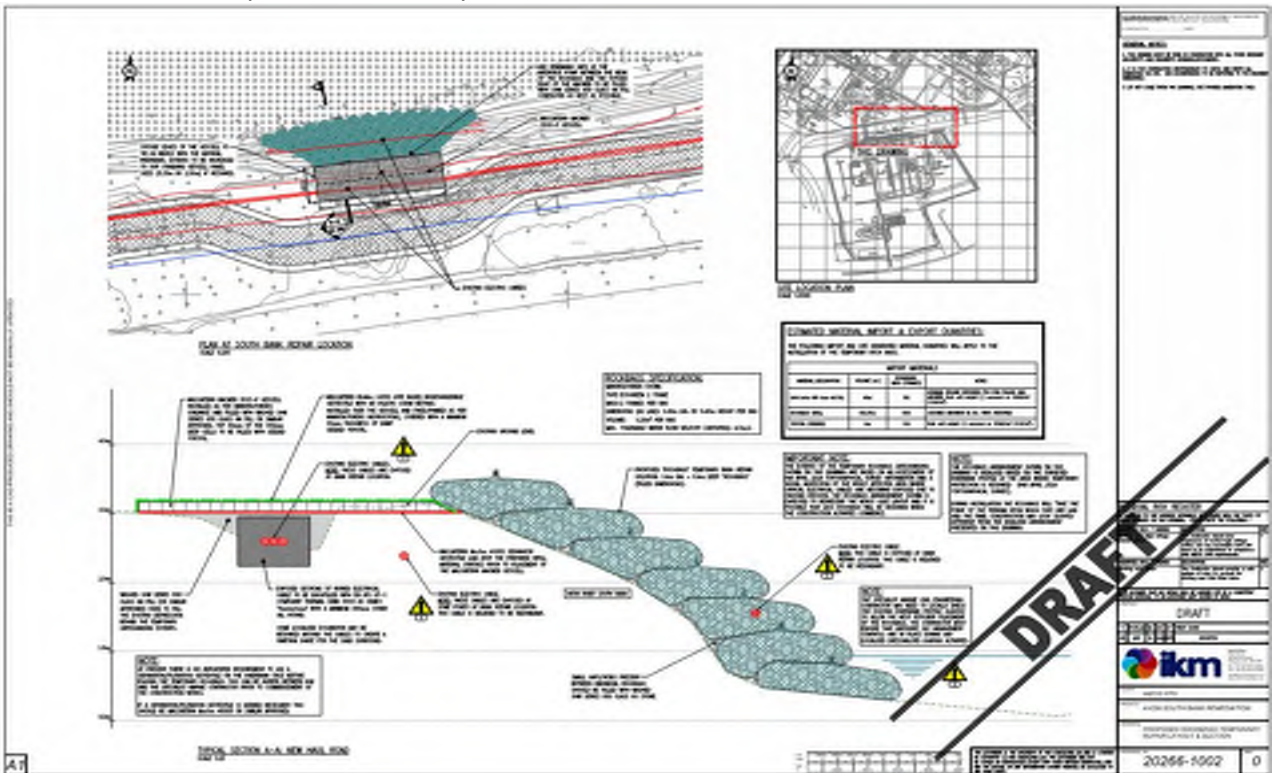


Figure 4: Rock bag installation drawing

Associated Construction Activities
Access/Haul road method statement.

See Full Method Statement attached as Appendix D

Method of Preventing Pollution

- Prior to the commencement of any works, IKM will obtain all relevant Licenses and permits from Marine Scotland and any other regulatory authority. All works will be carried out in accordance with the above Licenses and permits. Works will also be conducted in line with SEPA Best Practices
- All plant delivered to site will be sourced from a trusted reputable company and upon ordering, will enforce the notion that any plant to be delivered will need to be cleaned and fit for purpose (no leaks or damaged pipelines or hoses).
- All materials to be used for installation will be inert and will not contain toxic elements which may be harmful to the marine environment.
- Upon arrival to site, the site supervisor will proceed to inspect the plant for any visible signs of leaks or uncleanliness that could potentially harm the environment.
- All plant will also come with spill kits which all personnel are trained in the use of.
- All plant that is to be used on the riverbank will be fitted with bio-degradable hydraulic oil where possible to negate any potential environmental harm in the unlikely event of a spillage or leak.
- No refuelling procedures or fuel storage are to be carried out or situated within 10m of the water course as per GPP 2 'Above ground oil storage tanks'.
- All equipment and liquids being used near to the watercourse will be appropriately 'bundled' to prevent any possible spillages from harming the local ecology and wildlife.
- If any protected species are found within the vicinity of the works, works will cease, and the client will be informed. Works will not recommence until permission is granted by the client.

All construction activities must be in accordance with Guidance for Pollution Prevention (GPP) and General Binding Rules (GBRs). Relevant GPPs and GBRs which will be adhered to include, GPP 1; GPP 5; GPP 21; GBR2; GBR8; GBR9; GBR10B; 10D; GBR11; GBR22; GBR26; and GBR28. Site works, and surface water management will be carried out and implemented in such a way that these GBR's and GPP's are complied with.

Water Quality Monitoring

Prior to commencing any works onsite the site EnCOW will identify appropriate water quality monitoring locations. These identified locations will be visually monitored throughout the works and will be located upstream and downstream of the works and will also concentrate on site drainage and refuelling locations etc. There will also be identified water quality triggers, which could indicate a pollution event, which may warrant further investigation. Water quality triggers will include but not be limited to discolouration, foam, and hydrocarbon on the surface of the water.

On a daily basis, a specified site operative will undertake daily visual inspections of the River Avon upstream and downstream of the works. Findings from these visual inspections will be recorded, held onsite, and will be made available for inspection if requested by Marine Scotland or SEPA. The frequency of the visual inspections may increase during the rock bag placement.

Table 2: Water Monitoring Triggers

Water Quality Parameter	Trigger for Further Monitoring
Discolouration	Water directly downstream of the works is a different colour from the water upstream of the works (could be due to fines or silts escaping the temporary dam).

Foam	Foam caused by construction activities (and not natural) will appear white in colour and will only occur in a local area near the source of discharge and usually will not accumulate over large distances.
pH	Using a pH meter or similar, when the pH is 1 unit greater than the level measured upstream.
Hydrocarbon	Iridescence noted on the surface of the river, directly downstream of the temporary dam or any discharge points from site drainage or water treatment measures on site.

Table 3: Potential Sources to Inform Mitigation and Environmental Management

Source of Information	Available Guidance
SEPA Pollution Prevention Guidelines and Guidance for Pollution Prevention	GPP 1 Understand your Environmental Responsibilities – Good Environmental Practices GPP2 Above Ground Oil Storage Tanks GPP4 Treatment and Disposal of Wastewater Where There is No Connection to the Public Foul Sewer GPP5 Works and Maintenance In or Near Water GPP6 Working at Construction and Demolition Sites PPG7 Safe Storage – The Safe Operation of Refuelling Facilities GPP8 Safe Storage and Disposal of Used Oil GPP21 Polluting Incident Response Planning GPP22 Dealing with Spills

<p>SEPA The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended)</p>	<p>GBR2: Discharge of surface water from water bound roads and tracks, including during the construction and maintenance of such roads and tracks.</p> <p>GBR9: Operating any vehicle, plant or other equipment (machinery) in or near any surface water or wetland for the purpose of undertaking any other GBR activity or for the purpose of maintaining an existing man-made structure in or near any surface water or wetland.</p> <p>GBR10B: Discharge of water run-off from a surface water drainage system to the water environment from buildings, roads other than water bound roads, yards or any other built development constructed on or after 1 April 2007, unless covered by one of the listed exceptions.</p> <p>GBR22: Discharge of surface water from water bound roads and tracks, including during the construction and maintenance of such roads and tracks.</p> <p>GBR26: The storage of oil in a portable container with a capacity of less than 200 liters.</p> <p>GBR28: All other storage of oil which meets specified standards for container suitability, secondary containment, ancillary equipment and monitoring.</p>
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Source of Information	Available Guidance
SEPA Position Statements	WAT-SG-78 Sediment Management Authorisation CIRIA C692 Environmental Good Practice on Site (third edition)
Construction Industry Research and Information Association	CIRIA C532 Control of Water Pollution from Construction Sites CIRIA C648 Control of Water Pollution from Linear Construction Projects CIRIA C689 Culvert Design and Operation Guide
Other Guideline	River Crossings and Migratory Fish: Design Guidance, A Consultation Paper, The Scottish Executive WAT-SG-23: SEPA (2008), Engineering in the Water Environment, Good Practice Guide - Bank Protection Rivers and Lochs, Version1 WAT-SG-26: SEPA (2010), Engineering in the Water Environment, Good Practice Guide, Sediment Management, Version 1 WAT-SG-31: SEPA, (2006) Special Requirements for Civil Engineering Contracts for the Prevention of Pollution, Version 2

Table 4: Activity Specific Mitigation Measures

Activity	Risks/Potential Impact	Mitigation
Site clearance/ devegetation	Run-off into watercourses from exposed areas Fuel spills entering surface / groundwater. Plant debris entering surface waters. Silt run off to surface waters from stripped areas. Potential spread of invasive non-native plant species	Site walkover to identify drainage channels Silt fencing to be installed at work areas (dug in at ground level) and next to watercourses to remove silt run-off, if runoff is noted after works commence. Refuelling and oil storage carried out in line with GBR 26 and 28. Avoid unnecessary vegetation clearance Where possible maintain a buffer zone of vegetation on the bank of the watercourse Consult ecological constraints report and implement a buffer area around nearby INNS. Follow controls outlined in the INNS Management Plan (to be developed). Clear all vegetation required to facilitate the works outside of breeding bird season (March- August), where possible. Nests checks should be done no more than 48 hours before clearance. If nest is found, site team should stop work and contact environmental team. Plant debris removed from watercourses on completion of work or netting installed to prevent debris falling into waterbody.
Associated activity haul road construction	Fuel/biodegradable hydraulic oil pollution from plant. Run-off entering existing drains or watercourses	Refuelling and oil storage carried out in line with Story and GBR 26 and 28. All plant to have spill kits for cleaning and containing spills. Spill response procedures to be in place in the event of an emergency or spills. No refuelling of plant/equipment within 10m of a watercourse All plant and equipment to be removed at the end of every working shift to a safe location, set back from the river – at least 10m. Visual daily monitoring for oil leaks on plant or spills in the watercourse.
Activity to be Authorised - Rock bag installation	Silt or fines entering the watercourse. Contamination of water environment through uncontrolled spillage or discharge. Fuel/biodegradable hydraulic oil pollution from plant.	Rock bags to be placed one at a time in a controlled manner. Placement will only take place during suitable river conditions i.e. not in spate or during high tide. Visual daily monitoring for oil leaks on plant or spills in the watercourse. Daily water monitoring for silts in the river caused by the works. Should any bank regrading be required, as silt curtain will be installed in the watercourse to prevent fines from being carried away Refuelling and oil storage carried out in line with Story and GBR 26 and 28.

		<p>All plant to have spill kits for cleaning and containing spills. Spill response procedures to be in place in the event of an emergency or spills.</p> <p>No refuelling of plant/equipment within 10m of a watercourse.</p>
Waste	Degradation of the environment with waste materials being left in situ	<p>All waste materials to be removed from site following the completion of works.</p> <p>Waste materials to be appropriately re-used, recycled or disposed of in the appropriate manner by a licensed waste disposal company.</p>
General construction	<p>Runoff from construction sites can contain toxic elements, which could have adverse effects on in-stream flora and fauna. Such toxic elements may build up on the stream bed and remain in situ for some time before they are degraded or dispersed.</p> <p>Intense or prolonged periods of inclement weather have the potential to exacerbate most of the potential risks related to flooding and suspended solids.</p> <p>Equipment used on site could introduce INNS if it has not been thoroughly disinfected and cleaned before being used onsite.</p> <p>Increased sedimentation within the water can result in fish gills becoming blocked and can result in mortalities.</p>	<p>Daily visual monitoring of the River Avon and adherence to discussed guidance above in table 3 to protect the watercourse from degradation.</p> <p>Frequent monitoring of weather forecast and tides, mitigation measures such as silt fencing properly installed prior to works being carried out. No devegetation during heavy rain.</p> <p>Adhere to INNS exclusion zones and management plans / biosecurity controls.</p> <p>Silt fencing installed at perimeters of work areas (properly dug in at ground level) and next/adjacent to the watercourses/drains to remove silt from any run-off.</p> <p>Appropriate measures will be implemented to provide protection to bare areas of soil, including modified areas of riverbank, in proximity to the watercourse.</p> <p>This may include the installation of biodegradable matting, or silt fencing remaining in place until vegetation has re-established.</p>

i) Potential impacts and proposed mitigation in response to potential impacts

The Firth of Forth RAMSAR, Special Protection Area (SPA) and Site of Special Scientific Interest (SSSI) are located approximately 0.8km north-east of the point of interest. This site has three designations and supports important habitats including maritime cliff, salt marsh, transition grassland, as well as vascular plant and beetle assemblages. The site supports important populations of non-breeding and breeding wading and migratory birds. The site regulatory supports in excess of 20,000 individual waterfowl. Avon Gorge SSSI is located approximately 0.7km south-east of the site of interest. This site supports one of the remaining ancient, semi-natural woodland sites in the Falkirk council area.

The PEA concluded that the remediation work is not likely to have any direct or indirect impact on designated sites within 5km, nor on the ancient woodland within 1km, as they are sufficiently distant from the proposed site location. The vegetation of the proposed site is widespread and so a non-significant amount of habitat loss to accommodate the proposed works will have a limited impact. Where vegetation removal is required, it is recommended that it is kept to a minimum and a replacement vegetation scheme is considered.

The main risks from the proposed construction activities is the potential for run-off, silt or fines to enter the water environment.

The site operatives will be briefed ahead of works commencing on site to highlight the importance of good housekeeping and management of oils and chemicals. Protective measure will be prepared and implemented in the event of inclement weather. Weather forecasts and tide times will be closely monitored so the mitigation measures can be implemented in preparation. Visual water monitoring will be undertaken daily to ensure efficiency of mitigation measures.

Works will be programmed around tide times, avoiding high tides and times when the watercourse is in spate.

The proposed works do not encroach into the river channel. Therefore, the passage of fish through the channel should not be restricted by the proposed works. The site operatives will be briefed that at no point should they undertake any activities that will inhibit the free passage of fish through the river channel.

The location of the works in relation to the designated sites and 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 rock bag installation is 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. Site operatives will be briefed on soil management best practices in line with the GPPS and GBRs, which should include measures for any soil storage and final bunding is sufficient that any material does not fall back in to the river.

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

Protected Species

There was no evidence of badger, otter, or reptiles during the Preliminary Ecological Appraisal survey which was carried out by IKM on 22nd February 2024. 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.

The following mitigations should be followed during all remediation works for any commuting otters:

- 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.

INNS

A large area of Japanese Knotweed was recorded to the west of Road 33 Bridge, out with the repair area. This stand was approximately 5x5m in size.

Where INNS are present within the proposed works areas, a 4 or 7m (dependant on species) 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.

The site PEA has been attached as Appendix F.

Appendix B

Correspondence

Isla Craig

From: Board <board@forthdsfb.org>
Sent: 24 October 2023 11:37
To: Dawn Findlay
Subject: External - RE: IKM Project 20266 River Avon Proposed Instream Works

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Thanks Dawn, for consulting us at an early stage of the process.

You are correct to identify the June- September period as the preferred instream working period to reduce potential risks to migratory fish. We also need to take into account that this is a tidal area and it is better if sediment disturbed by the works is effectively flushed from the area by the high tides and isn't allowed to accumulate in the water column. Certainly, enhanced sediment management is important whenever the works occur and ensuring effective fish passage at all times is a given.

Best regards

Jamie

From: Dawn Findlay <dawn@ikmconsulting.co.uk>
Sent: Monday, October 23, 2023 2:08 PM
To: Board <board@forthdsfb.org>
Subject: IKM Project 20266 River Avon Proposed Instream Works

Good afternoon,

Looking for a bit of advice please, regarding a site on the River Avon in Grangemouth (a different site from the site I emailed about last year). Our client has various electric cables on a section of the riverbank that is eroding, with sections of cables now becoming exposed. In summary approximately 200m of the banking will need some sort of protection installed. At the location the river is tidal, (approx. site location NS 94892 80411) and any works would require a Marine Licence. Our client is in the process of developing an options appraisal and then the selected remedial design will go out to tender and Marine licence applied for etc.

We are anticipating that the works will be undertaken behind a cofferdam and will involve the placement of rock armour or erosion protection matting and that a proportion of the river will remain open for fish passage for the duration of the works.

In advance of this, I am looking to feed into this process with suitable timescales and environmental constraints. Can you advise on the following:

- What would be the preference for instream working time periods at this location? Would this be June – September? (just looking for a steer to see if this will fit with the works programme).
- If works were to fall outside of this preferred time period, but could be conducted behind a cofferdam with enhanced pollution prevention measures and allows fish passage, would this be suitable? A DCMS would be shared with the board at the earliest opportunity.
- Are there any points you would like us to consider as part of the development of the DCMS?

Thank you in advance.

Kind regards

Dawn



Dawn Findlay
Geo-Environmental Principal (Environmental Management)

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Isla Craig

From: Sharon Agnew <sharon.agnew@falkirk.gov.uk>
Sent: 22 December 2023 13:45
To: Soutar, Mark
Cc: Harrison, Ros; Dickie, Sarah; Chris Torbet; grangemouthfps
Subject: External - Ineos request for info from Grangemouth Flood Protection scheme Part
Attachments: INEOS FPS_Defences.zip; INEOS_FPS_In-channel flood levels, flow and velocity data.zip; Kinneil flares_model boundaries.zip; Kinneil flares_Out of bank flood water level maps.zip; Content summary.docx; INEOS FPS_Cross sections.zip

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Mark

Flood Risk Information –Ineos request for info from Grangemouth Protection Scheme

I refer to your request below for information in relation to your organisation has requested:

“Available Cross Sections & Topo/Bathymetry Data

Getting a copy of the Jacobs model output will be essential to see the flood water levels and the proposed flood walls. On the only available Jacobs drawing for the Ineos FPS reach (Jacobs Ref. B2386100-JEC-C05-XXX-DR-C-0008 Sheet 8 of 17 Rev. P02 dated June 2021) there appeared to be only one split cross section shown (section S20/S21) and the drawing only showed the riverbanks where the flood wall will be located. With this in mind, we would appreciate confirmation on the following points:

- *Are there any more cross sections in the Ineos FPS reach which FC/Jacobs can share with us? If so, can these please be provided (preferably in AutoCAD .dwg format if possible)?*
- *What topographical and bathymetry data does FC/Jacobs have for the Ineos FPS reach spanning from the Road 33 bridge (KG Bridge) to the Versalis owned pipe bridge? Can this information please be shared (preferably in AutoCAD .dwg format if possible)?*

Our intention is to have access to the same dataset as Jacobs wherever possible to ensure that our permanent cable protection design solution takes account of the same input factors and limitations as the wider Grangemouth FPS design, while avoiding any clashes with the expected engineering performance of the Grangemouth FPS solution.

Flood Modelling Outputs

In addition to the queries above, we would also like to request the following information:

- *All available cross sections within the Ineos FPS reach shown as a full width of the channel i.e., including the centre of the channel (preferably in AutoCAD .dwg format if possible).*
- *Levels and positions of the flood walls either shown on the available cross sections or provided in a separate format such as a Microsoft Excel spreadsheet.*
- *Data tables of flow, maximum water level and velocity for the 1 in 2, 50, 200 and 500 year return period flows.*
- *Same data tables but with climate change allowances added to the flows.*
- *Same data tables for the flows but with scenarios of the fluvial floods coinciding with the 200 year coastal flood (tide).”*

Further to the information attached we also have prepared a folder containing all the topographic data you require which unfortunately due to its size cannot be emailed. If you could kindly provide a sharefile link we will upload this .

As noted, that the information was produced for the sole purpose of developing the Grangemouth Flood Protection Scheme we concluded that the attached information can be released by Falkirk Council to Ineos FPS under the Re-use of Public Sector Information Regulations 2015 subject to your acceptance of the [Open Government Licence](#). A copy of the Licence is also attached.

Please refer to the enclosed leaflet which explains your right to complain about the handling of your request and the decision made.

Regards

Sharon

From: Soutar, Mark <mark.soutar@ineos.com>

Sent: Monday, November 27, 2023 3:36 PM

To: Sharon Agnew <sharon.agnew@falkirk.gov.uk>

Cc: Harrison, Ros <ROS.HARRISON@INEOS.COM>; Dickie, Sarah <sarah.dickie@ineos.com>; Chris Torbet <chris@ikmconsulting.co.uk>

Subject: Ineos request for info from Grangemouth Flood Protection scheme

Sharon

Good to meet you earlier in the month to discuss the Grangemouth Flood Protection Scheme and the interface with the works required by Ineos FPS to protect their electrical cables running along the embankment of the River Avon.

At the meeting you kindly agree to pass on as much information from the development of your project as you can, if requested by Ineos FPS to allow us to develop our embankment protection scope

The information we require for this scope is as below:-

“Available Cross Sections & Topo/Bathymetry Data

Getting a copy of the Jacobs model output will be essential to see the flood water levels and the proposed flood walls. On the only available Jacobs drawing for the Ineos FPS reach (Jacobs Ref. B2386100-JEC-C05-XXX-DR-C-0008 Sheet 8 of 17 Rev. P02 dated June 2021) there appeared to be only one split cross section shown (section S20/S21) and the drawing only showed the riverbanks where the flood wall will be located. With this in mind, we would appreciate confirmation on the following points:

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Our intention is to have access to the same dataset as Jacobs wherever possible to ensure that our permanent cable protection design solution takes account of the same input factors and limitations as the wider Grangemouth FPS design, while avoiding any clashes with the expected engineering performance of the Grangemouth FPS solution.

Flood Modelling Outputs

In addition to the queries above, we would also like to request the following information:

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- Levels and positions of the flood walls either shown on the available cross sections or provided in a separate format such as a Microsoft Excel spreadsheet.
- Data tables of flow, maximum water level and velocity for the 1 in 2, 50, 200 and 500 year return period flows.
- Same data tables but with climate change allowances added to the flows.
- Same data tables for the flows but with scenarios of the fluvial floods coinciding with the 200 year coastal flood (tide).

Brief Comment on Ineos FPS Cable Protection Solution

During the recent meeting, Richard Meeson of Jacobs observed that the length of the proposed Ineos FPS cable protection solution (at around 200m) is minor compared to the wider Grangemouth FPS scheme. Richard noted that the flood water would simply flow around the Ineos FPS structure due to its limited length and isolated position along the historically trained straight section of the River Avon.

Richard stated that so long as the Ineos FPS solution is limited to a height which matches the existing riverbank, there would be no long-term effect on the existing river modelling work undertaken by Jacobs, or any impact on the current Jacobs design for the proposed flood wall which is to be constructed around 15-20m behind any IFPS cable protection solution. Can you please get confirmation from Jacobs that this is the case and a scheme to purely protect the embankment between Road 33 and A904 (Grangemouth Road) will not will have any significant impact on the wider Grangemouth FPS scheme.

Ineos FPS has another project which also requires information from the Grangemouth Flood Protection scheme - The Kinneil ground flares project.

For the Kinneil ground flares project, we would like to request the output from the Grangemouth flood model for the area that covers the red line boundary in the attached drawing 5206470-0001-T-43-DWG-0701-01_Rev-01_IFA. We would like fluvial, tidal and pluvial flood scenarios for the following return periods: 5yr, 10yr, 20yr, 50yr, 100yr, 200yr and 200yr plus climate change allowance. For the ground flares project, SEPA has requested that we provide "consideration of joint-probability events to capture the impacts of the coastal influence on the level of the River Avon", if this data is available from the Grangemouth model, could you please provide us with that.

SEPA has also requested that we provide "details of the hydraulic model including the design flows, roughness coefficient, downstream boundary and sensitivity analyses conducted", so we would like to request this data. I have attached the data that were provided under our previous open licence request and we would like this new request to contain the same file types.

I trust that you are able to provide this information to us as early as possible

Any questions please get back to me on by e-mail or my mobile **Redacted**

Regards

Mark

Mark Soutar
Project Engineer - Civils [|mark.soutar@ineos.com|](mailto:mark.soutar@ineos.com)

DD 01224 036149

Redacted
INEOS FPS

Prime Four Business Park
Kingswells
Aberdeen
AB15 8PU

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Isla Craig

From: Chris Torbet
Sent: 08 April 2024 16:27
To: Dawn Findlay
Subject: FW: External - RE: Bank sour River Avon- INEOS FPS

Hi Dawn,

As promised. This is the second of the two MS responses we received. I'll dig out the first one now.

Regards

Chris



Chris Torbet
Principal



Head Office

Park House, 39 Bo'ness Road, Grangemouth, FK3 8AN
T: +44 (0)1324 878 822



chris@ikmconsulting.co.uk



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Regional Office

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, Weston, Runcorn, WA7 4QX
T: +44 (0)1928 511 043

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Dear Ms Bush,

Thank you for your enquiry into marine licencing requirements for scour protection in the River Avon.

Having looked at the details provided, MD-LOT are of the opinion that a marine licence is required to carry out all of the proposed works.

We advise that a marine licence application is submitted as soon as possible for the rock bags, with all details completed as required in the form (including the correct format of coordinates, the quantities of materials and the proposed timescales for the works).

As for the permanent works of rip-rap installation it would be best for details of the proposal are submitted to MD-LOT once more information is known, so we can provide proposal specific advice rather than hypothetical advice.

When submitting the marine licence application I advise that a contingency time period for the deposit of the materials is included. Experience shows that often these “temporary deposits” end up being in situ longer than anticipated and this would require an extension to any marine licence if this should be the case.

I hope this is sufficient information for you to proceed.

Kind regards,

Claire

Claire Crookston
Licensing Officer, Licensing Operations Team, Marine Directorate
Scottish Government, Marine Laboratory, Aberdeen, AB11 9DB
T: 0300 244 5046
E: MD.MarineLicensing@gov.scot

The Scottish Government



Integrity



Inclusivity



Innovation



Collaboration



Kindness

To see how we use your personal data, please view our [privacy notice](#)

[Marine Directorate](#) | [Marine Directorate Blog](#) | [@ScotGovMarine](#) | [Marine Directorate LinkedIn](#)

Isla Craig

From: Chris Torbet
Sent: 08 April 2024 16:29
To: Dawn Findlay
Subject: FW: External - RE: Bank sour River Avon- INEOS FPS

Hi Dawn,

Please see below the first response we received from MS.

Predicated, great word.

Regards

Chris



Chris Torbet
Principal



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Park House, 39 Bo'ness Road, Grangemouth, FK3 8AN
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chris@ikmconsulting.co.uk



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From: Amber Bush <amber@ikmconsulting.co.uk>
Sent: Thursday, February 22, 2024 1:39 PM
To: Chris Torbet <chris@ikmconsulting.co.uk>
Subject: FW: External - RE: Bank sour River Avon- INEOS FPS

Hi Chris,

As predicated.

Do you want to give me a call to discuss.

Thanks

Amber



Amber Bush
Associate (Environmental)



Head Office
Park House, 39 Bo'ness Road, Grangemouth, FK3 8AN
T: +44 (0)1324 878 822



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From: MD.MarineLicensing@gov.scot <MD.MarineLicensing@gov.scot>

Sent: Thursday, February 22, 2024 12:26 PM

To: Amber Bush <amber@ikmconsulting.co.uk>

Subject: External - RE: Bank sour River Avon- INEOS FPS

You don't often get email from md.marinelicensing@gov.scot. [Learn why this is important](#)

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good Afternoon

Thank you for your email.

Having reviewed the information provided Marine Directorate are of the view that the temporary deposit of rock is a Marine Licensable Activity and will require a licence. I have provided a link below to our online forms.

The application that you require is construction. I would advise that you review the guidance to applicants as it contains useful information to support the application.

[Marine licensing: applications and guidance - gov.scot \(www.gov.scot\)](#)

Marine Directorate will endeavour to expedite the application however this will be balanced against resources available.

In regards to the question on EIA screening, we will require further information in order to provide a definitive answer. Once the design is available then feel free to contact Marine Directorate to provide further guidance.

Maureen

Maureen McIntyre
Marine Licensing and Consenting Casework Officer
Licensing and Operations Team
Marine Directorate

The Scottish Government

Website: [Marine environment: licensing and consenting requirements - gov.scot \(www.gov.scot\)](#)



To see how we use your personal data, please view our [Marine licensing and consenting: privacy notice - gov.scot \(www.gov.scot\)](#)

Appendix C

Grangemouth Flood Protection Details

Appendix D

Programme of Works

Item	Code	Description	Unit	Quantity	Price	Total
1	001
2	002
3	003
4	004
5	005
6	006
7	007
8	008
9	009
10	010
11	011
12	012
13	013
14	014
15	015
16	016
17	017
18	018
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98	098
99	099
100	100



Appendix E



Kaymac Construction RAMS



IKM – River Afon –
Grangemouth – Outline
RAMs.

17th May
2024

Haul Road Installation &
Temporary Safeguarding
Protection.

Document Control Sheet										
Title				Document No.						
IKM – HAUL ROAD INSTALLATION & TEMPORARY SAFEGUARDING PROTECTION– GRANGEMOUTH.				KM-IKM-TSGP-RAMS-17-05-24						
Originator				Client						
 Kaymac Marine & Civil Engineering Ltd Osprey Business Park Byng Street Landore Swansea SA1 2NR Tel: 01792 301818				 Head Office Park House, 39 Bo'ness Road, Grangemouth, FK3 : T: +44 (0)1324 878 822						
Authorisation										
Prepared by:	Joshua Burgess	Redacted			Date			17/05/2024		
Checked By:	Jon Colcombe	Redacted			Date			16/05/2024		
Approved by:	Rhys Colcombe	Signature Redacted			Date			17/05/2024		
Distribution and Revision Status										
Issue Date	Document Description				Status/Revision					
17/05/2024	This document details the Method and associated risks of installing a haul road and temporary rock bag protection along the river Avon.				Draft	Project Issue	1	2	3	4
Copy No.	Issued to									
1	Kaymac Marine Records				/					
2	IKM				/					
3										
4										
5										
6										

Amendments Table		
Revision No.	Amendment	Date
1	Addition of Geocell, topsoil and thermal sand after receiving the draft design.	20/05/2024
2	Amendments to rock bag installation.	24/05/2024

Contents	
Section No.	Title
1.0	Introduction
1.1	Description & Purpose of the Project
2.0	Project Details
2.1	Project Site Location Details
2.2	Site Location Map
2.3	Access to site
3.0	Legislative and Site-Specific Compliance
3.1	Statutory Legislation
3.2	Additional Site-Specific Compliance
3.3	Environmental Considerations
4.0	Project Resources
4.1	Site Personnel
4.2	Site Welfare and Storage
4.3	Site Plant & Equipment
4.4	Materials
4.5	Personnel Protective Equipment (PPE)
5.0	Project Directory
5.1	General Contact Numbers
5.2	Emergency Contact Numbers
6.0	Method Statement
7.0	Emergency Procedures
7.1	Local Hospital Details
7.2	Hospital Location Map
7.3	Actions on Minor Injuries
7.4	Actions on Major Injuries
7.5	Reporting Accidents, Work Related Diseases and Dangerous Occurrences
8.0	Risk Assessment Record
9.0	Briefing Attendance Record

Section 1.0	Introduction
1.1	Description & Purpose of Project
<p>The Central Belt's River Avon rises in the moors east of Cumbernauld and flows northeast, eventually joining the Firth of Forth at Grangemouth. The river passes the one of INEOS' largest manufacturing sites by volume of products. It is home to Scotland's only crude oil refinery and produces the bulk of fuels used in Scotland. Over time, the south riverbank adjacent to the KG plant has been eroded. Ongoing erosion presents a threat to the integrity of the riverbank, the surrounding areas, and the buried utilities in the areas. Kaymac Marine and Civil Engineering Ltd have been contracted by IKM under ECI to develop the methodology for the installation of a temporary safeguard to the south bank of the river. Kaymac's team is tasked with developing the method for the installation of a haul road for access along the riverbank, along with the placement of KYOWA rock bags to protect the riverbank from further scour until a permanent solution is installed.</p>	

Section 2.0	Site Location
2.1	Project Site Location Details
Nearest Address	INEOS site, Riverside Road, Grangemouth, Scotland.
Post Code	FK3 9XE
What3words	///toenail.register.bleaker
2.2	Site Location Map



Blue box marking the approximate location of the haul road. The red circle indicating the approximate location of the temporary safeguarding rock bags.

2.3

Site Access

Van Access.



Access will be gained via gate 7 off the A904. The red line indicated above will then be followed to the area marked as 'Site Access Egress'. This area will be used to unload any equipment needed. The vans will then be parked in front of the permit office.

Heavy Plant and Stone Deliveries.



Kaymac proposes using the gate off the A905 for all heavy plant access.

Section 3.0	Legislative and Site-Specific Compliance
3.1	Statutory Legislation
<p>This document has been prepared to comply with, as far as reasonably practicable, the following current relevant legislation (as applicable):</p> <ul style="list-style-type: none"> • The Health & Safety at Work etc. Act 1974 • The Management of Health & Safety at Work Regulations 1999 • The Health & Safety (First Aid) Regulations 1981 • The Lifting Operations and Lifting Equipment Regulations 1998 • The Work at Height Regulations 2005 • The Personal Protective Equipment at Work Regulations 1992 • The Manual Handling Regulations 2002 • The Control of Substances Hazardous to Health Regulations 2002 • The Reporting of Injuries, Diseases & Dangerous Occurrences (RIDDOR) Regulations 2013 • The Environmental Protection Act 1990 • The Lifting Operations and Lifting Equipment Regulations 1998 (LOLER) 	

3.2	Additional Site-Specific Compliance
<ul style="list-style-type: none"> • Fire Retardant Protective Overalls (EN 531) • High Visibility Vests or Jackets (EN 471) • Gloves (For manual handling) • Safety boots (EN 345-53 and EN 149.1) • Safety Glasses • Ear Defenders 	

3.3	Environmental Considerations
<p>Throughout all aspects of the works, Kaymac will actively aim to conduct activities in a manner that will cause minimum detrimental effects to the local ecology and wildlife and as a result, we will carry out the works with the following Environmental Actions:</p> <ul style="list-style-type: none"> • Prior to the commencement of any works, IKM will obtain all relevant Licenses and permits from SEPA and any other regulatory authority. All works will be carried out in accordance with the above Licenses and permits. • All plant delivered to site will be sourced from a trusted reputable company and upon ordering, Kaymac will enforce the notion that any plant to be delivered will need to be cleaned and fit for purpose (no leaks or damaged pipelines, hoses, etc). • All materials to be used for installation will be inert and will not contain toxic elements which may be harmful to the marine environment, the living resources which it supports or human health. • Upon arrival to site, the Kaymac Supervisor will proceed to inspect the plant for any visible signs of leaks or un-cleanliness that could potentially damage the ecology. All plant will also come with spill kits which all Kaymac Personnel are trained in the use of. • All plant that is to be used on the riverbank will be fitted with bio-degradable hydraulic oil where possible to negate any environmental issues in the unlikely event of a spillage or leak. • No refuelling procedures are to be carried out within 10m of the water course. • All equipment being used near to the watercourse will be appropriately 'bunded' to prevent any possible spillages from harming the local ecology and wildlife. • If any protected species are found within the vicinity of the works, works will cease, and the Client will be informed. Works will not recommence until permission is granted by the Client. 	

- Any waste and unused materials will be removed from site in a safe manner by a licensed waste carrier upon completion of the works.
- The waste hierarchy (Reduce, Reuse, Recycle and Dispose) will be employed throughout the construction works.
- Care will be taken to only order the correct quantity of required materials, reducing disposal of unused materials.
- Any COSHH waste and special waste will be removed from site by a specialised waste carrier. COSHH waste should not be mixed with general waste and/or other recyclables.

Section 4.0	Project Resources
-------------	-------------------

4.1	Kaymac Site Personnel
-----	-----------------------

- 1 x Site manager/Safety boat operator (CSCS/SMSTS).
- 2 x 360 operators (CPCS).
- 1 X Dumper operators (CPCS).
- 2 x slinger signallers (CPCS).
- 1 x Telehandler driver (CPCS).

4.2	Site Welfare & Storage
-----	------------------------

- Towable Welfare unit.
- Small stores and COSHH box.

4.3	Site Plant & Equipment
-----	------------------------

- Emergency stretcher for recovery.
- 35T (18M) Long reach excavator.
- 20T 360 excavator.
- 8T excavator.
- 9T Dual view dumper.
- 4T Roller.
- Tele Handler.
- Fuel Bowser.
- Drop Chain.
- 2-way radios.
- Silt curtain.
- CAT and Genny.
- Insulated hand tools.
- Compactor plate.

4.4	Materials
-----	-----------

- 2T filled single skin 0.4mx1.9m rock bags.
- 6F2 Granular fill.
- Type 1.
- MACCAFERRI MACTEX H1000 GEOTEXTILE SEPERATOR.
- MACCAFERRI MACGRID EG40S GEOGRID (OR EQUAL APPROVED).
- MACCAFERRI MACGRID EG30S GEOGRID (OR EQUAL APPROVED).
- MACCAFERRI MACWEB 3015-P geocell.
- MACCAFERRI BioMac CJ350 Jute based biodegradable geotextile.
- Seeded topsoil.

4.5	Personal Protective Equipment (PPE)
<p>The <u>minimum</u> PPE requirements for the site will be:</p> <ul style="list-style-type: none"> • Safety Helmet to BS EN397:2012 • Safety Boots (or Wellington Boots) to ISO 20345:2011 • High Visibility Jacket/waistcoat to EN471:2003 • Flame retardant overalls. • Safety Glasses to EN166 • Closed cell neoprene Dry Suits • Life jacket 275N to EN ISO 12402-2:2010 / EN ISO 12401:2009 	

Section 5.0	Project Directory	
5.1	General Contact Numbers	
IKM – Chris Torbet		01324 878 822
IKM –		
IKM –		
Kaymac Site Manager – Gareth Price		Redacted
Kaymac Marine & Civil Engineering Ltd-Swansea Office		01792 301818
Kaymac Operations Director-Jeff Lippiett		Redacted
Kaymac Project Director-Rhys Colcombe		Redacted
Kaymac Senior Project Manager – Jon Colcombe		Redacted
Kaymac Assistant Project Manager – Josh Burgess		Redacted
Kaymac Project Engineer – Charley Hawkins		Redacted
Kaymac Project Coordinator-Jon Dean		01792 301818
5.2	Emergency Contact Numbers	
Forth Valley Royal Hospital		01324566000
HSE Incident Contact Centre		0845 3009923
HSE Infoline		08701 545500
Kaymac Health & Safety Manager-Gareth Crees		Redacted
Ambulance, Police or Fire & Rescue Service		999

Section 6.0	Method Statement
<p>Kaymac will be required to carry out the main site induction and local inductions (Utilities & KG) prior to the site survey dates. These are required to gain access to Gate 7.</p> <p>On the first day Kaymac staff will meet IKM representatives at the IKM Grangemouth office and then proceed to site.</p> <p style="background-color: red; color: black;">It is essential that a task briefing is given, read, and understood by all at the start of every shift.</p> <p><u>Mobilisation.</u></p> <p>Kaymac will arrive on site and take delivery of all plant and machinery needed for the project. We intend on setting up a perimeter fence (Heras) to keep our work site separated from the INEOS site (as pictured below). A site compound will be set up in the orange box pictured below. This will have the site welfare, parking for plant</p>	

and vehicles and a lay down area for buffer stone storage.

All plant will be delivered to site and checked prior to use for that they are be clean and fit for purpose (no leaks or damaged pipelines, hoses, etc).



Haul Road installation.

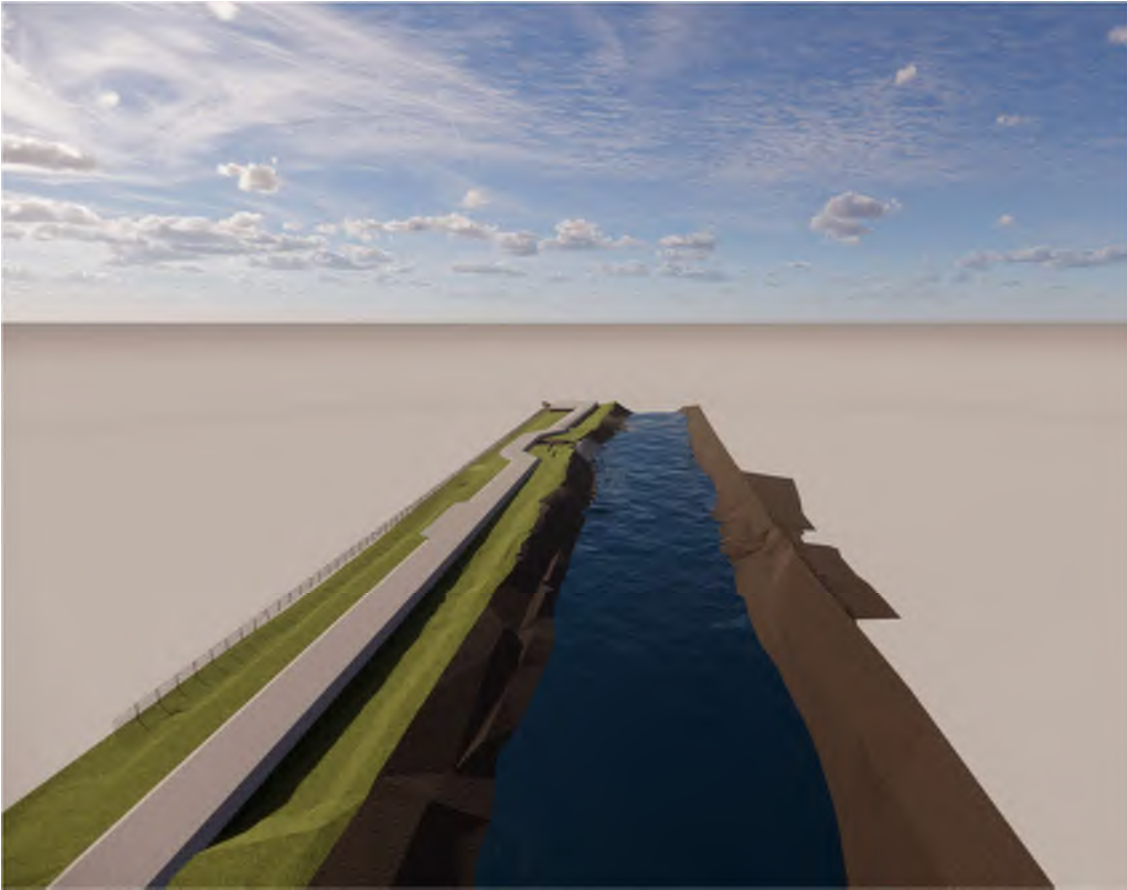
Prior to the riverbank temporary safeguarding works a haul road must be constructed to allow heavy plant to safely pass along the riverbank without damaging any buried services. All Maccaferri equipment will be unloaded from lorries using the telehandler and stored in the laydown area until needed.

IKM have provided us with a 'NEW HAUL ROAD LAYOUT' drawing. The steps for the haul road installation are as follows:

1. All vegetation at surface shall be stripped prior to placing granular fill for the haul road, where permitted by INEOS control of work (CoW) procedures. The expected maximum surface scrape depth is 50mm. The area for the new haul road will be marked out by a designer, as per the design drawings.
 - 1.1. The 8t excavator will be used to carefully strip vegetation from the surface of the bank. Updated service drawing will need to be provided along with a permit to dig prior to breaking ground. A CAT will also be used prior to breaking ground.
 - 1.2. The excavated vegetation will be loaded into the dumper and stored downstream of the haul road ready for collection.
 - 1.3. The excess material and vegetation will be loaded into wagons and disposed of correctly off site.
2. All existing rutting damage is to be repaired by filling with type 1 granular material to create a level surface.
 - 2.1. A measurement will be taken of all the existing rutting prior to the vegetation removal. Enough type 1 can then be ordered and delivered to the site laydown area prior to the rutting infill works.
 - 2.2. The 35t excavator will be used to load up the dumper with stone. The dumper will then travel to the areas needing infill.

- 2.3. Depending on the size of the infill area, the dumper will either tip straight into the area or the machine operator will take buckets from the dumper.
- 2.4. The operator will then level off the area to create a level surface prior to the MACTEX H1000 being installed.
3. MACCAFERRI MACTEX H1000 GEOTEXTILE SEPERATOR will be installed on top of the pre stripped and filled ground.
 - 3.1. MACCAFERRI MACTEX H1000 GEOTEXTILE SEPERATOR will be rolled out along the length of the haul road. If the Maccaferri isn't as wide as the haul road, it will need to be overlapped. Overlaps range from 0.5 – 1m depending on soil conditions. **To be confirmed by designer.**
 - 3.2. Where possible a continuous roll should be used ensuring the recommended overlap is achieved all the way along.
4. MACCAFERRI MACGRID EG40S GEOGRID (OR EQUAL APPROVED) will be placed on top of the geotextile separator.
 - 4.1. MacGrid EG will be rolled out along the haul road. If the MacGrid isn't as wide as the haul road, it will need to be overlapped. Overlaps range from 0.3 – 1m dependant on soil conditions and underlying CBR. **To be confirmed by designer.**
 - 4.2. Where possible a continuous roll should be used ensuring the recommended overlap is achieved all the way along.
5. A layer of 6F2 granular fill (as per clause 803 of SHW) will next be installed on top of the previously installed Geogrid.
 - 5.1. There is a 300mm section of 6F2 to be installed before the next section of MACGRID EG30S needs to be installed.
 - 5.2. The first layer will be installed at 150mm thick. The roller (over 4300 kg up to 5000kg) will then pass over the granular fill 4 times (SHW 802 TABLE 8/4: (02/16) Compaction Requirements for Unbound Mixtures).
 - 5.3. The next 150mm layer will be installed the same as the step above.
6. MACCAFERRI MACGRID EG30S GEOGRID (OR EQUAL APPROVED) will be placed on top of the previously compacted layer of granular fill.
 - 6.1. MacGrid EG will be rolled out along the haul road. If the MacGrid isn't as wide as the haul road, it will need to be overlapped. Overlaps range from 0.3 – 1m dependant on soil conditions and underlying CBR. **To be confirmed by designer.**
 - 6.2. Where possible a continuous roll should be used ensuring the recommended overlap is achieved all the way along.
7. A layer of 6F2 granular fill (as per clause 803 of SHW) will next be installed on top of the previously installed Geogrid.
 - 7.1. A layer of 6F2 granular fill (as per clause 803 of SHW) will next be installed on top of the previously installed Geogrid.
 - 7.2. A 150mm thick layer of granular fill will be installed. The roller (over 4300 kg up to 5000kg) will then pass over the granular fill 4 times (SHW 802 TABLE 8/4: (02/16) Compaction Requirements for Unbound Mixtures).
8. A final layer of Type 1 Granular fill (as per clause 803 of SHW) will be added.
 - 8.1. This layer will also be placed 150mm thick. Again, the roller (over 4300 kg up to 5000kg) will pass over the granular fill 4 times (SHW 802 TABLE 8/4: (02/16) Compaction Requirements for Unbound Mixtures).

Note: Side slopes of the haul road to be no steeper than 1.0V : 1.0H.

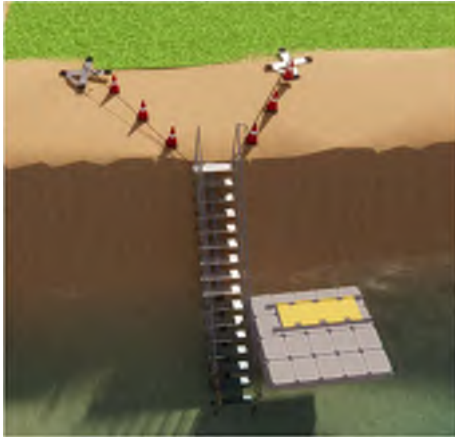


Temporary safeguarding works – Rock bag installation.

There is a 25m section of the riverbank that has been eroded over time. As a temporary protection approximately 84 rock bags are going to be installed. The method for this is as follows:

1. Haki stairs will be set up in a safe area close to the area of the scour. This will allow safe access and egress for an operative to gain access into the river and unhook the rock bags from the excavator.
 - 1.1.1. The Haki stairs will be secured using 2 x ground anchors to avoid the need to fix into the ground on top of the riverbank.

- 1.1.2. A pontoon with stretcher and small inflatable safety boat will be positioned at the bottom of the stairs. The Kaymac team will follow the rescue plan if an incident that requires a rescue arises.



2. The rock bags will be delivered in quantities of 14 per flat bed Lorry.
- 1.2.1. The Lorry of rock bags will be reversed down the haul road while being watched by a banksman.
- 1.2.2. The rock bags initially will be unloaded using the long reach excavator that will be sat adjacent to the scoured area on the haul road. He long reach will unload the lorry and the banksman will watch the lorry back out to the safe area off the riverbank.
- 1.2.3. If another lorry turns up while the long reach is still placing bags, the other excavator will unload the bags. The bags will either be offloaded next to the work area or in the laydown area and transported using the dumper to the scour site as and when needed.
3. Placing of the rock bags. The rock bags will be placed from the bottom up in a tiered Configuration as per the design 'PROPOSED ROCKBAGS TEMPORARY REPAIR LAYOUT & SECTION' provided by IKM. The rock bags will be carefully arranged from upstream to downstream, seamlessly blending into the upstream bank to ensure a smooth flow without any blunt ends interrupting the river's current.
- 1.3.1. For the first bottom row of bags, we will be targeting low water. This will ensure we have maximum visibility to allow us to place the bags as accurately and efficiently as possible.
- 1.3.2. One bag will be lifted at a time. A slinger signaller will attach the drop chain connected to the excavator to the ring on the top of the rock bag. The slinger will then direct the machine operative using hand signals or radio, guiding the rock bag into position. The bag will be checked that it is laid in the correct position, before being unhooked.
- 1.3.3. This process will continue along the first row of bags. Once the first row is positioned, the second row will be placed on top. This will continue until all the layers are complete.
- 1.3.4. Care should be taken to follow the design, and not to step the bags too far over the top of the bag bellow.
- 1.3.5. Any small gaps/voids present between individual rock bags should be filled with washed SHW 600 class 6G stone.

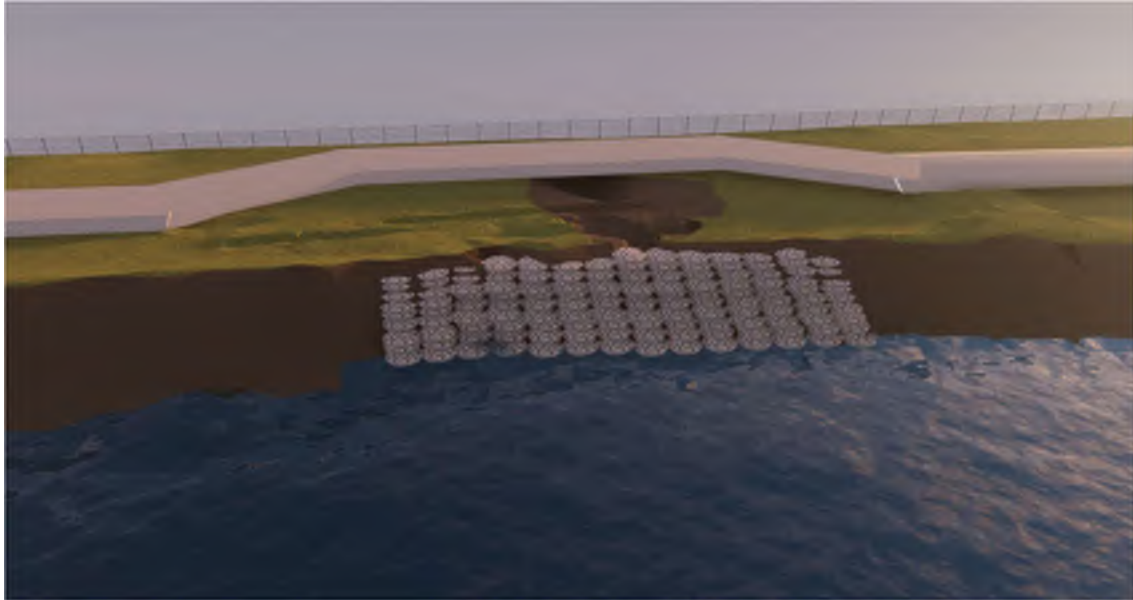
4. Our primary aim is minimizing any excavation work along the riverbank wherever possible. We do not anticipate needing much, if any excavation. However, if a section of the bank is overhanging and unstable, it will need to be graded back to allow for the safe placement of the rock bags and to reduce the risk of bank collapse during nearby work. Minor reshaping may also be needed to again allow the bags to be placed stable and safe. These points outline our strategy for managing the minor reshaping and bag placement while prioritizing environmental protection:
 - 1.4.1. **Minor reshaping for stability:** Only where necessary or required minor reshaping will be carried out. This will enable the safe placement of the rock bags, ensuring the stability of both the bank and the bags.
 - 1.4.2. **Silt containment measures:** If minor reshaping is needed in the lower section of the bank or in an area that doesn't stay above the lowest water line, we will implement localized silt curtains to contain any potential silt migration.
 - 1.4.3. **Timing for minor reshaping:** Any minor reshaping required further up the bank will be conducted when the water level is below that specific area.
 - 1.4.4. **Immediate bag placement:** Once an area has been reshaped as needed, the bag will be promptly placed. This immediate action will decrease the likelihood of silt migration into the water course once the tide reaches that level.
5. Any material that needed to be removed will be taken to the laydown area with the dumper. It will then be collected and disposed of correctly.

Exposed sections of buried electrical cable.

At the bank repair location there are exposed sections of buried cables. These need to be addressed prior to the top layer or layers of bags are installed.

1. Exposed sections of buried electrical cable to be back filled with EN ATS 97-1 compliant thermal sand. With a minimum 300mm cover all round.
 - 1.1. Some localised hand excavation may be required around the cables to create a uniform shape for the sand surround.
 - 1.2. Excavation should be carried out carefully and follow safe digging practices.
 - 1.3. Excavate along side the service rather than directly above it. Horizontal digging is recommended, as the force applied to hand tools can be controlled more effectively.
 - 1.4. Insulated tools should be used when hand digging near electrical cables.
2. The remaining depression behind the temporary safeguarding extents and beyond the 300mm minimum cover of thermal sand is to be filled with SHW SERIES 800 CLASS 6N (OR SIMMILAR APPROVED). **IKM to confirm whether this needs to be compacted.**
3. MACCAFERRI MacTex H1000 separator geotextile is to be laid on top of the prepared infill material.
4. Next MACCAFERRI MACWEB 3015-P geocell will be installed as per manufactures guidance. It will be filled with 100mm washed SHW SERIES 600 CLASS 6N fill or similar approved.

5. The Final 50mm will be filled with seeded topsoil.
6. MACCAFERRI BioMac CJ350 Jute based biodegradable geotextile with no plastic scrim netting to be installed over the geocell. This will be fixed and pinned as per manufactures instructions. A covering of 10mm minimum thickness damp seeded topsoil will be added on top.
7. Any remaining gaps at the interface point between the rear of the rock bags and the outside edge of the macweb to be filled with SHW series 600 class 6N fill and compacted as best as possible.



Rescue Plan.

The river is subject to tidal conditions. There will be a need for an operative to enter the watercourse to unhook the rock bags from the excavator. If the operative in the water course needs assistance or to be rescued the steps are as follows:

Wading rescue –

1. **Assessment and Communication:** Assess the situation from a safe location and communicate with the individual in the water to determine their condition and needs. Ensure that emergency services are notified if necessary. **IKM will notify the relevant INEOS plant staff of the incident by use of a site radio.**
2. **Don Personal Protective Equipment (PPE):** Before entering the water, don appropriate personal protective equipment such as a life jacket, dry suit, and any other necessary safety gear. At least one member of the rescue team will be ready in waiting wearing their dry suit.
3. **Evaluate the Rescue Options:** Determine the best method of rescue based on the individual's location, condition, and any hazards present in the environment.
4. **Throw Rescue Equipment:** If the individual is struggling to stay afloat and is within reach, attempt to throw them the life buoy

attached to the rescue line, to assist them in staying afloat until further assistance arrives (the individual throwing the line needs to remain two meters back from the edge of the bank).

5. **Enter the Water Safely:** If it is safe to do so, wade into the water to reach the individual. Ensure that you always maintain your own safety and avoid entering fast-moving water or areas with hidden hazards.
6. **Approach the Individual:** Approach the individual calmly and reassure them that help is on the way. Maintain clear communication throughout the rescue process.
7. **Assist the Individual:** If the individual is able to move, assist them in making their way to shore by providing support and guidance as needed. If necessary, use a rescue buoy to help them stay buoyant.
8. **Call for Additional Assistance:** If the individual is unable to self-rescue or if the situation becomes more serious, call for additional assistance from the other rescue personnel. Two of the rescue team will then carry the individual with use of the persons buoyancy aid and life buoy to the pontoon at the bottom of the Haki stairs. If needed the individual will be placed on the stretcher and carried up the stairs using the three Kaymac rescue team and other IKM survey team member.
9. **Ensure Safety During Extraction:** Once the individual is safely on shore, assess their condition and provide any necessary first aid until further medical assistance arrives.
10. **Evaluate and debrief:** If the individual requires only minor first aid and can either resume their task safely or be replaced by another IKM team member, work may proceed as planned. However, if the individual requires transportation off-site for further medical attention, work should be halted immediately. An investigation should then be conducted before work can resume, and additional safety measures may need to be implemented. All accidents should be recorded in the accident book and HSE reporting rules should be followed.

Safety boat rescue –

If the operative needs rescuing and the water level is above wading depth or rising beyond that level, we will rescue using the safety boat.

1. **Preparation and Equipment Check:**

- Ensure all personnel involved in the operation are trained in water safety and rescue procedures.
- Verify that all necessary rescue equipment is on board the safety boat, including life jackets, throw ropes, rescue buoys, and first aid supplies.
- Conduct a safety briefing for all personnel involved, emphasizing the importance of wearing life jackets/buoyancy aids and following safety protocols.

2. **Designate Roles and Responsibilities:**

- Assign specific roles to each team member, such as boat operator, rescue person, and communications coordinator.
- Clearly communicate each team member's responsibilities and ensure everyone understands the rescue plan.
- As above one person will be driving the boat, one person will be in the boat in a drysuit to aid with the rescue and the other member carrying out watch on the riverbank (remaining 2m back from the edge).

3. **Maintain Communication:**

- Establish clear communication channels between the safety boat and personnel on the riverbank using mainly verbal and visual communication. If needs be handheld radios or other communication devices.

4. **Immediate Response to Incident:**

- If someone falls into the water, the person on watch on the bank should make the safety boat crew aware (if they aren't already). When possible, **IKM will notify the relevant INEOS plant staff of the incident by use of a site radio.**
- The safety boat should immediately manoeuvre to the location of the person in distress, making sure they approach into the wind or towards the direction of tide/river flow if possible.
- Both the rescue operative and boat operative will keep a visual on the injured person and approach slowly. They will switch the outboard off initially once they have reached the injured person.

- If the injured person is mobile and able the rescue member should assist them getting into the boat.
- If the injured person is incapacitated and or unresponsive, the rescue person should hold onto the injured person and both members on the safety boat should pull the person into the boat.
- If this is not possible the rescue operative should hold onto the persons buoyancy aid and support their head keeping it out of the water and the boat operative should take the boat back to the pontoon.
- Once at the pontoon the further member of the Kaymac rescue team and the other IKM operative should assist the safety boat crew and pull the injured person aboard the pontoon.

5. **Recovery and First Aid:**

Mobile person

- Once the individual is safely back on the safety boat, assess their condition and provide any necessary first aid or medical attention.
- If the person requires further medical assistance, transport them to shore and arrange for emergency services to meet them.

Incapacitated and or unresponsive person.

- If needed the individual will be placed on the stretcher and carried up the stairs using the three Kaymac rescue team and other IKM survey team member.
- Once the individual is safely on shore, assess their condition and provide any necessary first aid until further medical assistance arrives.

6. **Evaluate and debrief:** If the individual requires only minor first aid and can either resume their task safely or be replaced by another IKM team member, work may proceed as planned. However, if the individual requires transportation off-site for further medical attention, work should be halted immediately. An investigation should then be conducted before work can resume, and additional safety measures may need to be implemented. All accidents should be recorded in the accident book and HSE reporting rules should be followed.

Section 7.0	Emergency Procedures
7.1	Local Hospital
<p>Recovery point address and post code: INEOS site, Riverside Road, Grangemouth, Scotland. What3Words: ///impeached.pity.revisits Grid Reference: NS 95142 80423</p> <p>The nearest hospital with a 24-hour accident and emergency unit has been identified as:</p> <p>Forth Valley Royal Hospital Stirling Rd, Larbert</p>	

FK5 4WR

Transfer time by road; 16 minutes (distance: 9.9 miles).

7.2 Hospital Location Map

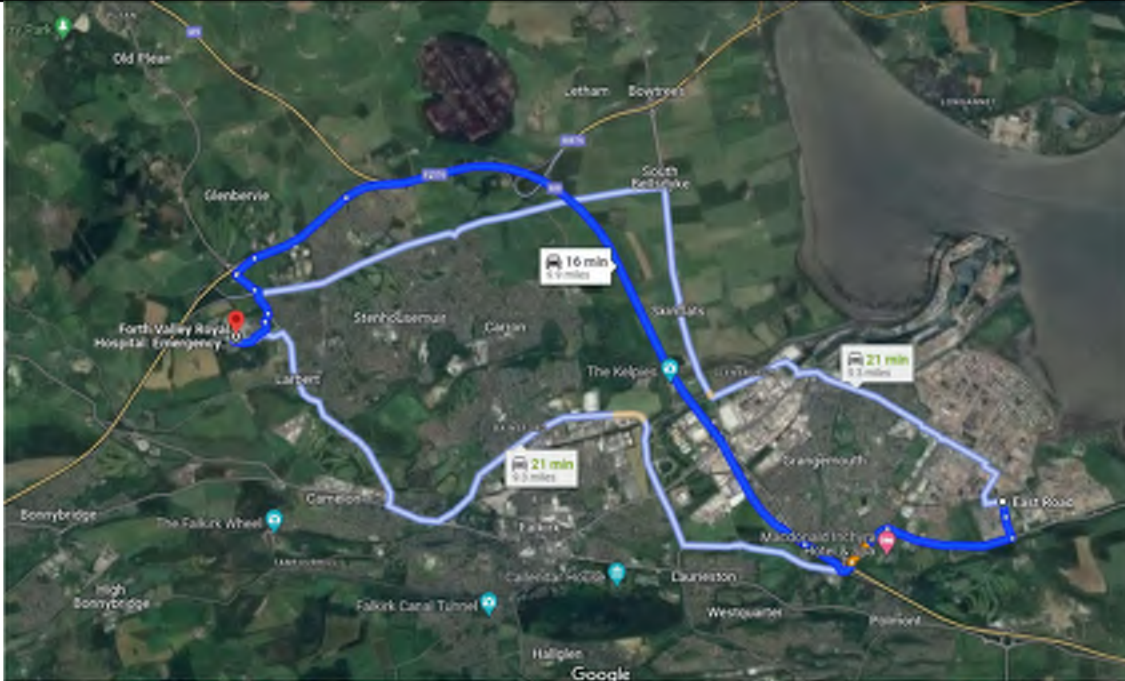


Image courtesy of Google Maps

7.3 Action on Minor Injuries

Administer First Aid on site.

From here the company vehicle will transport the injured person to the local casualty department at the above-mentioned hospital.

A record of the accident is to be entered with all details in the Company Accident Book and notify the client's responsible person.

7.4 Action on Major Injuries

Administer First Aid on site, and then contact the emergency services requesting an ambulance to the site
What3Words: ///impeached.pity.revisits. A record of the accident is to be entered with all details in the Company Accident Book, and notify the client's responsible person. Kaymac Site Manager or his deputy will record on the accident on Kaymac Accident & Incident Report form QPF11 and pass on Kaymac Health and Safety manager who will ensure H.S.E. is informed by way of form F2508.

7.5 Reporting Accidents, Work Related Diseases and Dangerous Occurrences

Reporting procedures

The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 (RIDDOR) require that certain accidents that happen on site must be reported to the Health and Safety Executive. Any of the following types of accidents that occur on site have to be reported in the first instance to the company Safety Officer or Safety Manager who will then notify H.S.E.

Serious or fatal accidents must be notified without delay to HSE, by calling the Incident Contact Centre (ICC) during normal office hours on 0845 300 9923.

Outside these hours, the local HSE office must be contacted. For details of the nearest HSE office, telephone the HSE Infoline on 08701 545500.

This must be followed up with a completed accident report form (F2508) within 10 days. For less serious injuries, where the injured person is unfit (or unable) to do their normal working job for seven consecutive days, excluding the day of the accident, a completed accident report form F2508 must be sent to HSE within ten days.

If a dangerous occurrence happens on site, for example, a building, scaffold or false work collapse, failure of a crane or lifting device or contact with overhead lines, it must be reported immediately, normally by telephone, by calling the Incident Contact Centre (ICC) during normal office hours on 0845 300 9923 or the nearest HSE office. The details must be confirmed within ten days on a completed accident form (F2508).

If a worker suffers from a specified disease associated with their current job, it must be reported to the HSE on a completed disease report form (F2508A).

Keeping records

A record must be kept of any reportable injury, disease or dangerous occurrence. This must include the date and method of reporting; the date, time and place of the event, personal details of those involved and a brief description of the nature of the event or disease. The record can be kept in any form preferred, but each site is supplied with a copy of the Accident Book BI 510 issued by the HSE, and this is the company's preferred method of keeping such records.

Section 8.0		RISK ASSESSMENT RECORD					Page 1 of 4					
RISK ASSESSMENT												
HARM	RISK CALCULATION MATRIX					GUIDE BOX		RISK RATING, REVIEW AND ACTION REQUIRMENTS				
	5	5	10	15	20	25	CATEGORY	HARM	LIKELIHOOD	RISK RATING	<i>Risk rating obtained at intersection of harm and likelihood in Calculation Matrix</i>	
	4	4	8	12	16	20	1	NON-INJURY	ALMOST IMPOSSIBLE		Review period	Action
	3	3	6	9	12	15	2	FIRST AID	UNLIKELY	1-4	12 months	No further immediate action. Review annually.
	2	2	4	6	8	10	3	< 7 DAYS	POSSIBLE	5-9	6 months	No further immediate action. Re-assess during next review.
	1	1	2	3	4	5	4	> 7 DAYS	LIKELY	10-16	3 months	Reduce risk and re-assess within review period.
	1	2	3	4	5	5	MAJOR INJURY	ALMOST CERTAIN	17-25	Immediate	Stop-reduce risks/mitigate effects, re-assess immediately.	
	LIKELIHOOD											
Hazard Identified		Persons at Risk	Controls in Place			Risk Rating before control measure	Actions to Further Reduce Risk	Risk Rating after control measure				
Slips, Trips and Falls resulting in musculoskeletal injuries		Kaymac Site Operatives	Wear appropriate safety boots with good tread; avoid walking on slippery/wet surfaces, be vigilant and probe any soft ground before attempting to walk on it.			10	Take extra precautions when working in wet weather.	5				
Manual Handling; back injuries		Kaymac Site Operatives	Wherever possible, mechanical lifting should be used for lifting loads. If manual lifting is necessary, use kinetic lifting techniques, share the load if possible; ensure ground is level and stable.			10	Carry out a Manual Handling Assessment where necessary; carry out health monitoring for personnel.	5				
Working in/around contaminated water resulting in water borne infections including Leptospirosis.		Kaymac Site Operatives	Cover any cuts or abrasions with waterproof dressing prior to work. Wear gloves! Wash and disinfect hands prior to eating or drinking; report any injuries immediately to site management. Kaymac guidance notes on Leptospirosis to be available to personnel.			7	Report any flu like symptoms 7-10 days after possible infection; seek medical advice.	4				
Exposure to wet or windy conditions		Kaymac Site Operatives	Appropriate clothing to be worn during poor weather conditions-surface swimmers to wear diver's dry suits (if applicable)			6	No further action required.	4				
Sudden increase in water flow or level through rainfall or incoming tide		Kaymac Site Operatives	Check tide table and weather report prior to commencement of works and monitor during duration of shift. If flows or water levels are predicted to/or increase to a point where a risk is perceived, works should cease, and all equipment and personnel should be withdrawn from the site.			10	No further action required.	6				

Noise	Kaymac Site Operatives/Other Site Operatives	Ear defender to be available if noise levels rise to more than 80 dB(A) Daily Personal Exposure Level	9	Noise monitoring to be carried out by site management.	5
Pollution caused by leaking plant and machinery	Kaymac Site Operatives/Other Site Operatives	All plant and machinery to be checked at the start and end of each shift. All plant entering the watercourse will contain environmentally friendly Bio Oil. Spill kits to be available for all items of plant. Plant movements in the water are to be kept to a minimum	8	Checks are to be carried out daily and any issues reported straight to the site manager.	5
Substances hazardous to health i.e., diesel fuels	Kaymac Site Operatives	COSHH Assessments are to be completed and briefed to the workforce upon arrival to site.	10	All chemicals/substances, etc will be stored in a lockable COSHH storage unit on site.	6
Re-fuelling of plant & equipment	Pollution incident	No refuelling is to be carried out within 10m of the watercourse at any time.	9	No further action required.	6
Ecological hazards associated with wildlife	Injury/ death to animals, protected species, etc	WFD and HRA assessments to be undertaken prior to commencement on site.	9	The site will be monitored at all times for evidence of wildlife activity. Any activity will be reported to the site manager.	6
Contact with buried services.	Kaymac Site Operatives	Prior to any excavation or borehole drilling, the area is to be CAT Scanned by a trained operative.	15	Service drawing to be obtained from the Client where possible	5
Movement of company vehicles during access / egress to site	Members of the Public/ Kaymac Site Operatives	Ensure that banksman is in attendance while moving vehicles on site.	15	Ensure site fencing or barriers are erected where required	5
Public interface. Death / injury of public following entry to working area.	Members of the Public	Border around work site to be fenced, preventing public from entering the works site.	15	Kaymac to remain vigilant at all times	5
Poor weather conditions causing high waves - Overturning of floating plant/ Drowning	Kaymac Site Operatives	Weather is to be monitored by the Kaymac supervisor throughout each day. If the conditions are deemed too poor to allow works to be carried out safely, works will cease until conditions improve.	15	No further action required.	5
Falling from safety boat into water	Kaymac/IKM Site Operatives	Operatives to remain seated where possible. Life jackets to be worn by boat crew. Boatman to be trained and lookout always maintained.	8	No further action required.	8
Falling from height	Kaymac/IKM Site Operatives	All operatives to remain 1m back from the edge of the riverbank. Anyone who needs to be within 1m of the edge of the riverbank should use the man anchor system with a harness.	20	No further action required.	5
Working in area with heavy plant items including dumper, excavator, roller and lorries.	Kaymac/IKM Site Operatives	All operatives should be stood in a position of safety when there is plant being used. Plant movements will be controlled with a banksman.	25	All operators will be CPCS trained and qualified. All site staff will be in hi-vis clothing.	4
Lorries running off haul road and overturning.	Kaymac Site Operatives/Other Site Operatives/Drivers	All Lorries making deliveries should be watched and instructed by a banksman. The banks man should remain in a position of safety and in clear line of site of the driver. Lorries should drive up to a maximum speed of 5MPH.	25	All drivers will be briefed on the site and risks before driving on the haul road.	15
Use of lifting equipment while delivering equipment, plant or	Kaymac Site Operatives/Other	A lift plan for the lifting operation provided by Kaymac, lift plan to be briefed to all persons involved in the lifting operations. Telehandler and 360 ops CPCS card to be	10	Designated unloading area for plant, equipment, and materials to be	3

materials to site.	Site Operatives/Drivers	checked. Certificate of thorough examination for plant, certificates for lifting chains and slings checked, copies kept for both documents. Tag lines to be fitted to load when lifting. Personnel to stay clear of the road during lifting operations. Tag lines will be used to control loads.		established by principal contactor segregated from INEOS.	
Other contractors working on site; conflicting operations resulting in risks to all parties.	Kaymac Site Operatives. Other Site Operatives.	The Kaymac Site Manager and client's Site Manager will coordinate the works in such a way as to avoid overlapping operations between different contractors on site. Kaymac will fence off the work and access area to keep the project separate.	5		2
Underground cables.	Kaymac Site Operatives. Other Site Operatives.	Unless confirmed and witnessed always assume services are live. Any cables that need to be exposed further than they already are, should be hand dug. Safe digging practices should be used. Cables not exposed and in the vicinity of any excavation should be clearly marked out by use of drawings and CAT.	15		10

Appendix F

Preliminary Ecological Appraisal

Appendix 01

Continued Co-ordinates



River Avon South Bank Remediation

Prepared by: IKM Consulting Ltd.

For: INEOS

Site: Grangemouth

Date: 28/03/2024

Document Ref: 20266 PEA

Revision-01

PRELIMINARY ECOLOGICAL APPRAISAL

PROJECT TITLE:	River Avon South Bank Remediation	PROJECT NO:	20266
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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
<p>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.</p> <p>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.</p>
METHODOLOGY
<p><u>Desk Study</u></p> <p>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).</p> <p><u>Field Study</u></p> <p>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.</p> <p>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</p>

PRELIMINARY ECOLOGICAL APPRAISAL

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

PRELIMINARY ECOLOGICAL APPRAISAL

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.

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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.

PRELIMINARY ECOLOGICAL APPRAISAL

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 within 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**. **These are shown on Figure 2 as INNS01 – INNS05.**

PRELIMINARY ECOLOGICAL APPRAISAL

Table 3: INNS survey results from 2022 PEA survey

Feature	OSGR Location	Target Note Number	Findings
Japanese knotweed	NS 95130 80441	INNS01	Dead stems of Japanese knotweed on riverbank. Full extent of stand not currently known.
Japanese knotweed	NS 94670 80377	INNS05	Very large area of Japanese knotweed on riverbank, full extent not known but may be up to 20x20m.
Japanese knotweed	NS 94825 80390	INNS03	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	INNS02	Suspected single dead giant hogweed stem on riverbank.
Giant hogweed	NS 94731 80385	INNS04	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.

PRELIMINARY ECOLOGICAL APPRAISAL

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.

PRELIMINARY ECOLOGICAL APPRAISAL

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.

IKM (2022) 18504 River Avon PEA Daily Diary 220422

Joint Nature Conservation Committee (JNCC) (2010) Handbook for Phase 1 Habitat Survey. A technique for environmental audit. Revised re-print. JNCC: Peterborough

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

Scotland's Environment Map. Available: <https://map.environment.gov.scot/sewebmap/> Accessed 25/03/24

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
REVISED BY:	Dawn Findlay	DATE:	29/05/24

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;

PRELIMINARY ECOLOGICAL APPRAISAL

- 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.

PRELIMINARY ECOLOGICAL APPRAISAL

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."

PRELIMINARY ECOLOGICAL APPRAISAL

Site Photographs



Photograph 1: Dense bramble scrub along riverbank

PRELIMINARY ECOLOGICAL APPRAISAL



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

PRELIMINARY ECOLOGICAL APPRAISAL



Photograph 3: Rough access track along riverbank

PRELIMINARY ECOLOGICAL APPRAISAL



Photograph 4: View of Road 33 Bridge

PRELIMINARY ECOLOGICAL APPRAISAL



Photograph 5: Stand of Japanese knotweed within Study Area

PRELIMINARY ECOLOGICAL APPRAISAL

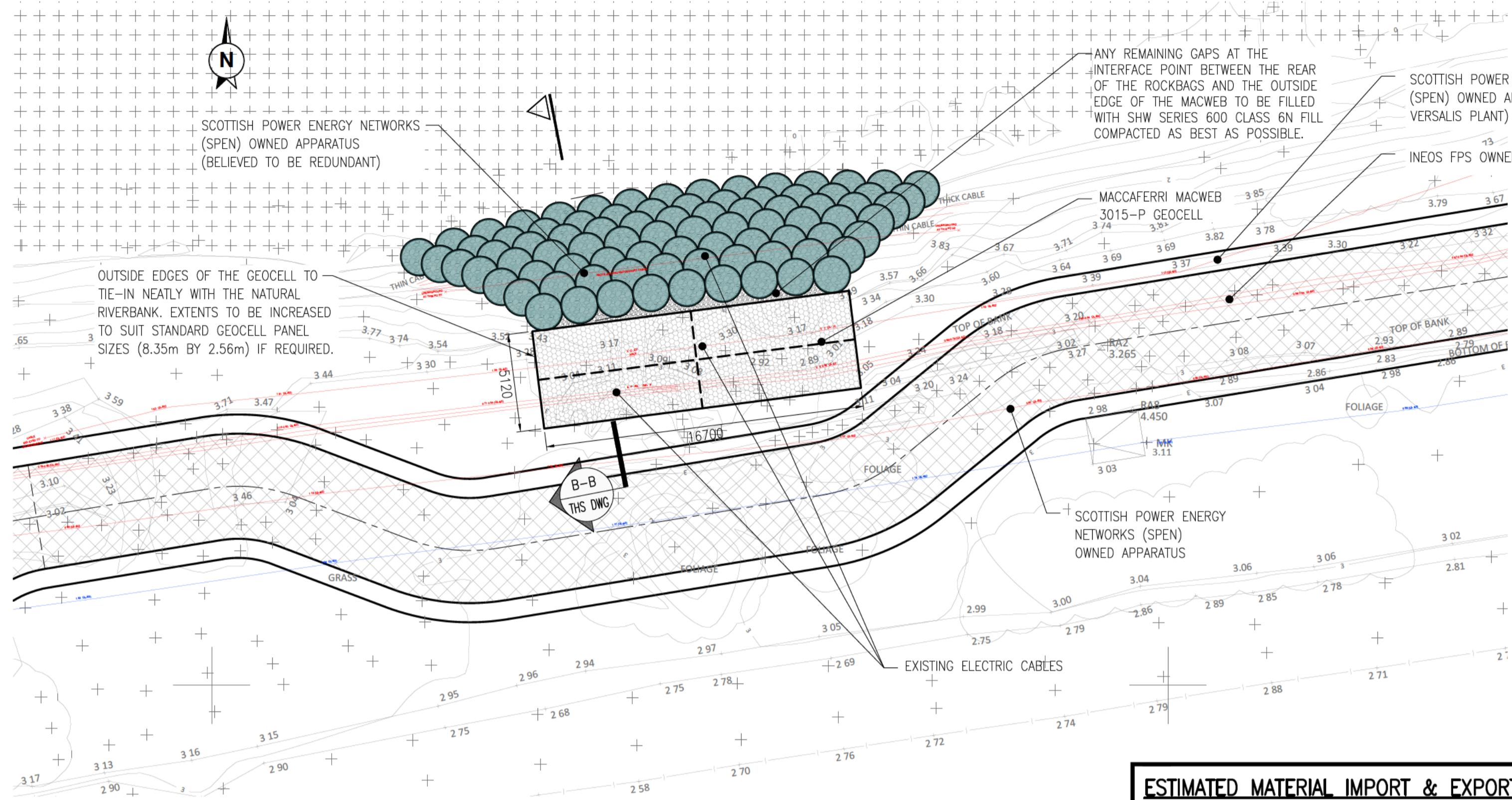
Figure 1: Proposed location of riverbank remediation works



Appendix 02

Activity 1- Temporary Rock bag Installation Design Drawing

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PLAN AT SOUTH BANK REPAIR LOCATION
SCALE 1:200

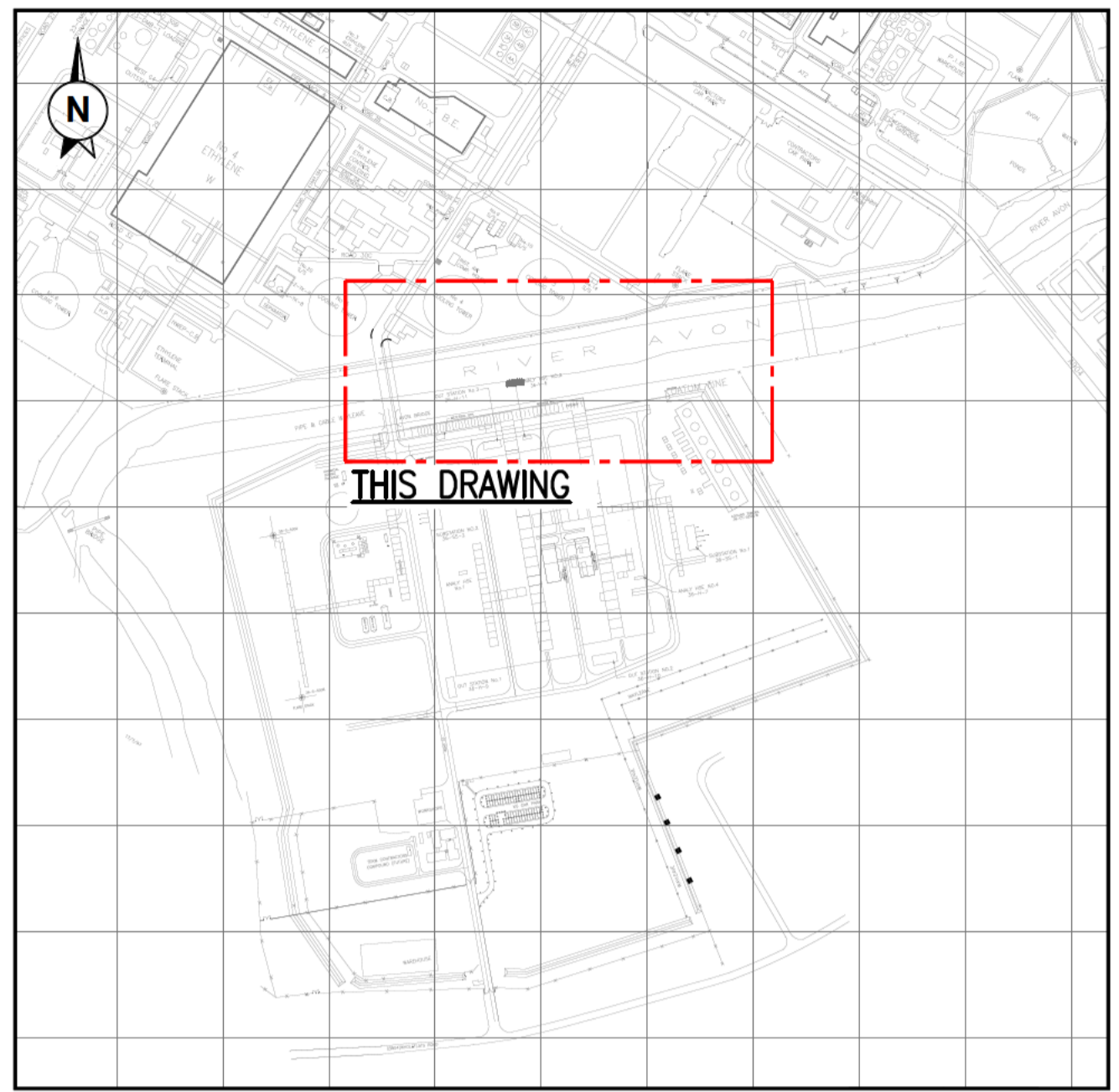
IMPORTANT NOTE:
THE EXTENTS OF THE TEMPORARY ROCKBAGS SAFEGUARDING SHOWN ON THIS DRAWING ARE BASED ON AN ASSESSMENT OF IKM APRIL 2024 TOPOGRAPHICAL SURVEY INFORMATION AND A VISUAL INSPECTION OF THE WORST AFFECTED AREA WHERE CRITICAL ELECTRICAL CABLES ARE BECOMING EXPOSED DUE TO ONGOING EROSION. THE ROCKBAGS ARRANGEMENT SHOWN IS EXPECTED TO REPRESENT THE WORST CASE LAYOUT AND IT IS POSSIBLE THAT LESS ROCKBAGS WILL BE REQUIRED WHEN THE CONSTRUCTION ACTIVITIES COMMENCE.

ROCKBAGS SPECIFICATION:
MANUFACTURER: KYOWA
TYPE: ECOGREEN 2 TONNE
MASS: 2 TONNES PER BAG
DIMENSIONS (AS LAID): 1.90m DIA. BY 0.40m HEIGHT PER BAG
VOLUME: 1.25m³ PER BAG
MAX. TOLERABLE WATER FLOW VELOCITY (GROUPED): 4.7m/s

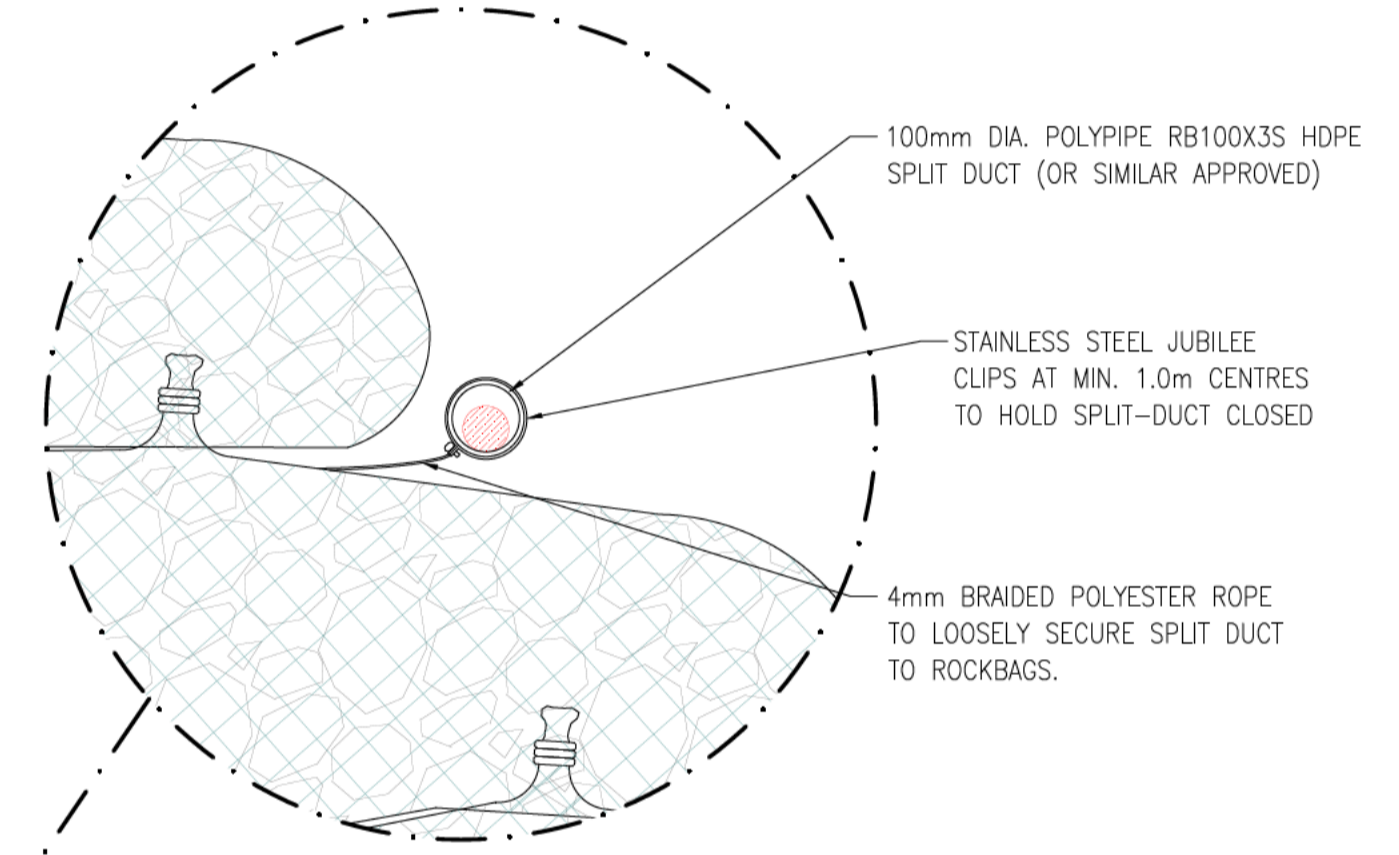
ESTIMATED MATERIAL IMPORT & EXPORT QUANTITIES:

THE FOLLOWING IMPORT AND SITE GENERATED MATERIAL QUANTITIES WILL APPLY TO THE INSTALLATION OF THE TEMPORARY ROCK BAGS.

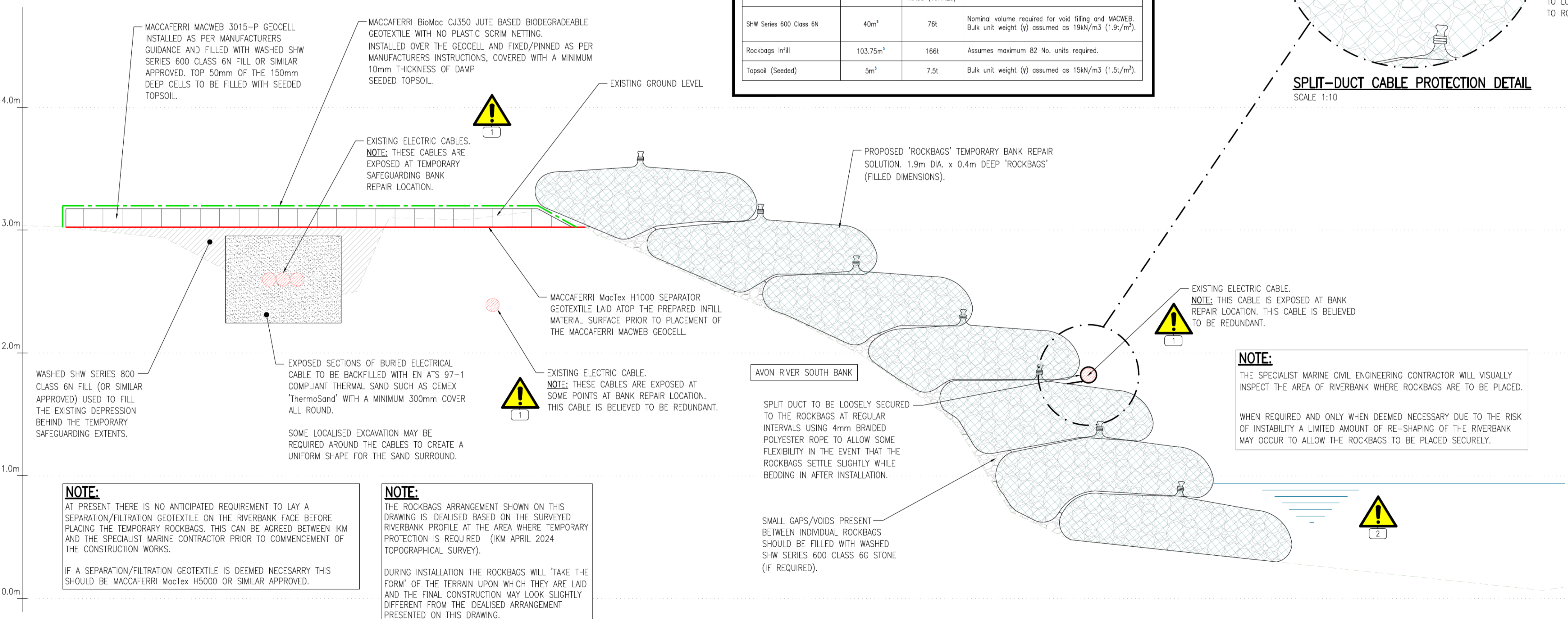
IMPORT MATERIALS			
MATERIAL DESCRIPTION	VOLUME (m³)	EQUIVALENT MASS (TONNES)	NOTES
SHW Series 600 Class 6N	40m³	76t	Nominal volume required for void filling and MACWEB. Bulk unit weight (γ) assumed as 19kN/m³ (1.9t/m³).
Rockbags Infill	103.75m³	166t	Assumes maximum 82 No. units required.
Topsoil (Seeded)	5m³	7.5t	Bulk unit weight (γ) assumed as 15kN/m³ (1.5t/m³).



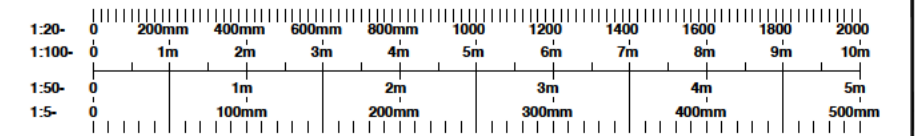
SITE LOCATION PLAN
SCALE 1:5000



SPLIT-DUCT CABLE PROTECTION DETAIL
SCALE 1:10



TYPICAL SECTION B-B: TEMPORARY SAFEGUARDING BANK REPAIR
SCALE 1:20



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PROJECTS: _____ DWG

GENERAL NOTES:

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- DO NOT SCALE FROM THIS DRAWING. USE FIGURED DIMENSIONS ONLY.
- DETAILS OF LEGAL OWNERSHIP OF EXISTING BURIED ELECTRICITY CABLES SHOWN ON THIS DRAWING ARE BASED ON ADVICE PROVIDED TO IKM BY INEOS FPS. IKM IS NOT RESPONSIBLE FOR THE ACCURACY OF THIS INFORMATION.

RESIDUAL RISK REGISTER

IN ADDITION TO THE HAZARDS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING:

IDENTIFIED RISK / HAZARD	DESCRIPTION	REF.
Working near high voltage buried cables.	The Contractor should take cognisance of buried high voltage cables and any excavation work will need to be undertaken in compliance with INEOS CoW requirements.	1
Working near water.	The Contractor should provide a safe system of work to account for working near tidal River Avon.	2

IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT PERSON WORKING TO AN APPROVED SAFE SYSTEM OF WORK

COMMENT

REV	DATE	BY	CHKD	APP'D	DESCRIPTION
0	31.05.24	GA	KK	CT	FIRST ISSUE

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CLIENT: INEOS FPS

PROJECT: AVON SOUTH BANK REMEDIATION

DRAWING: PROPOSED ROCKBAGS TEMPORARY REPAIR LAYOUT & SECTION

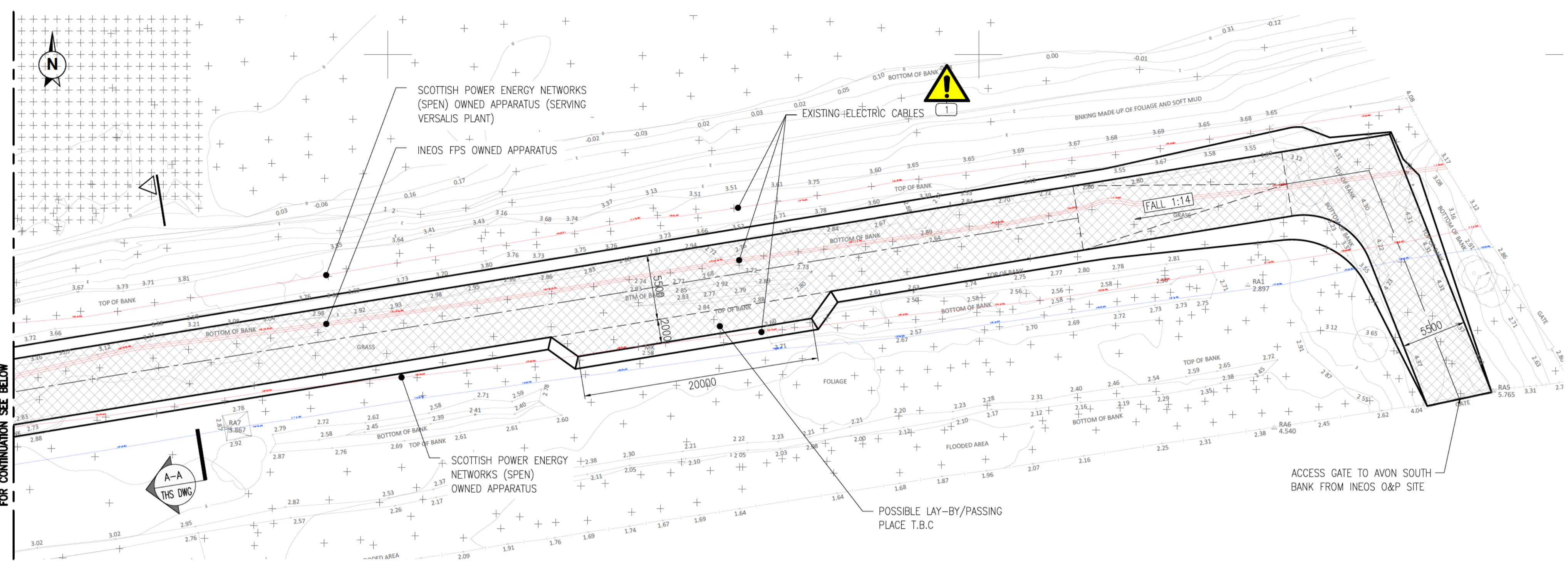
DRAWING No: 20266-1002

REV: 0

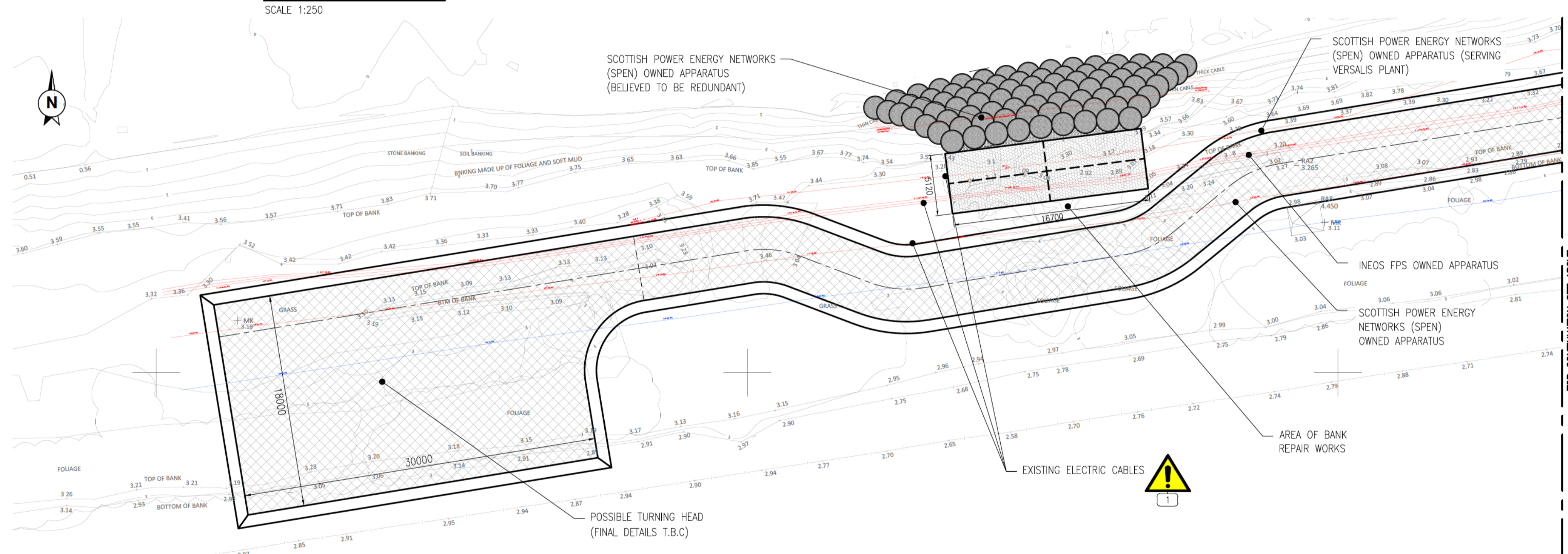
Appendix 03

Activity 2- Haul Road Design Drawing

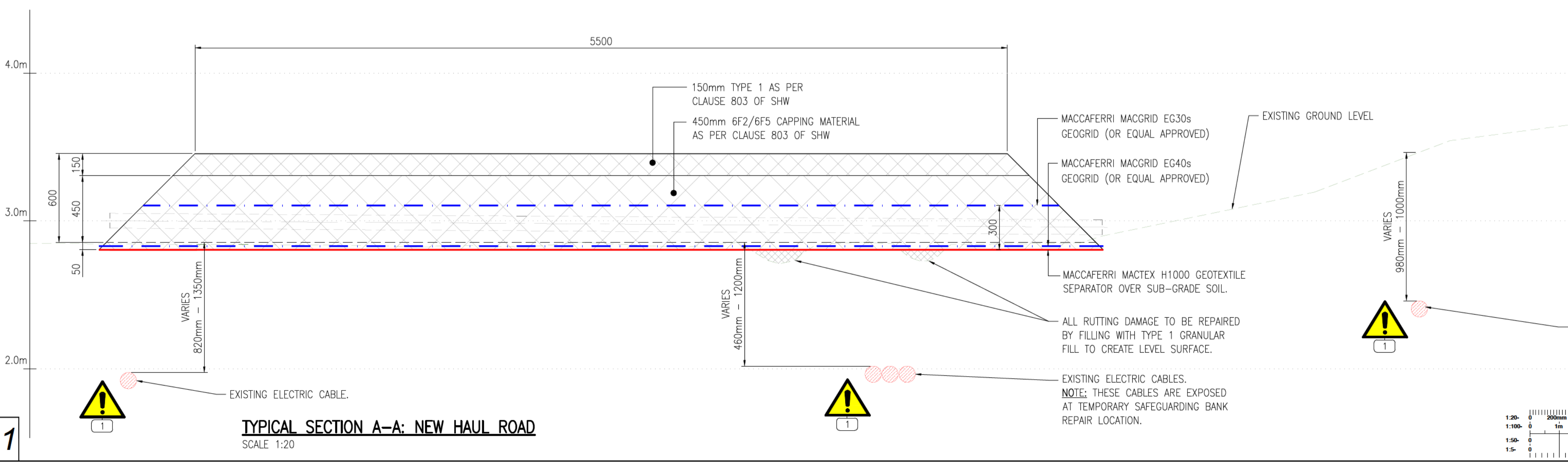
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NEW HAUL ROAD LAYOUT
SCALE 1:250



NEW HAUL ROAD LAYOUT (CONT.)
SCALE 1:250



TYPICAL SECTION A-A: NEW HAUL ROAD
SCALE 1:20



SITE LOCATION PLAN
SCALE 1:5000

NOTES:

1. ALL VEGETATION AT SURFACE SHALL BE STRIPPED PRIOR TO PLACING GRANULAR FILL FOR THE HAUL ROAD WHERE PERMITTED BY INEOS CONTROL OF WORK (CoW) PROCEDURES. EXPECTED MAXIMUM SURFACE SCRAPE DEPTH IS 50mm.
2. ALL EXISTING RUTTING DAMAGE IS TO BE REPAIRED BY CAREFULLY FILLING WITH TYPE 1 GRANULAR MATERIAL TO CREATE A LEVEL SURFACE.
3. SIDE SLOPES OF HAUL ROAD TO BE NO STEEPER THAN 1.0V : 1.0H.
4. 6F2 GRANULAR FILL SHALL COMPLY WITH REQUIREMENTS IN SERIES 800 OF SHW TABLE 8/6o.
5. TYPE 1 GRANULAR FILL SHALL COMPLY WITH REQUIREMENTS OF CLAUSE 803 OF DOT SHW.
6. CLASS 6F2/6F5 FILL SHALL COMPLY WITH THE REQUIREMENTS IN SERIES 600 OF SHW TABLE 6/1 AND 6/2.

ESTIMATED MATERIAL IMPORT & EXPORT QUANTITIES:

THE FOLLOWING IMPORT AND SITE GENERATED MATERIAL QUANTITIES WILL APPLY TO THE CONSTRUCTION OF THE HAUL ROAD.

IMPORT MATERIALS			
MATERIAL DESCRIPTION	VOLUME (m³)	EQUIVALENT MASS (TONNES)	NOTES
SHW Series 600 Class 6F2/6F5	1066m³	2025t	Bulk unit weight (γ) assumed as 19kN/m³ (1.9t/m³).
SHW Series 800 Type 1	356m³	676t	Bulk unit weight (γ) assumed as 19kN/m³ (1.9t/m³).

SITE GENERATED MATERIALS			
MATERIAL DESCRIPTION	VOLUME (m³)	EQUIVALENT MASS (TONNES)	NOTES
Site scrape material (expected to comprise poor quality clean TOPSOIL with roots and rootlets)	118m³	177t	Bulk unit weight (γ) assumed as 15kN/m³ (1.5t/m³).

EXTERNAL REFERENCES: BELOW IS A LIST OF EXTERNALLY REFERENCED DRAWINGS REQUIRED TO VIEW AND PLOT THIS DRAWING.

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1. THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECT'S AND ENGINEER'S DRAWINGS/DOCUMENTS.
 2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CHECK AND VERIFY ALL DIMENSIONS ON SITE. ANY DISCREPANCIES TO BE REPORTED TO THE ENGINEER IMMEDIATELY.
 3. DO NOT SCALE FROM THIS DRAWING, USE FIGURED DIMENSIONS ONLY.
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IDENTIFIED RISK / HAZARD	DESCRIPTION	REF.
Working near high voltage buried cables.	The Contractor should take cognisance of buried high voltage cables and any excavation work will need to be undertaken in compliance with INEOS CoW requirements.	1

IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT PERSON WORKING TO AN APPROVED SAFE SYSTEM OF WORK.

COMMENT

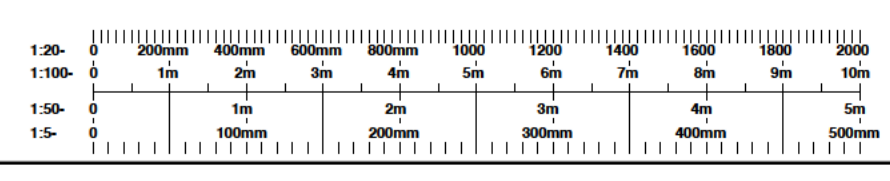
REV	DATE	BY	CHKD	APP'D	DESCRIPTION
0	31.05.24	GA	KK	CT	FIRST ISSUE



CLIENT: INEOS FPS
PROJECT: AVON SOUTH BANK REMEDIATION
DRAWING: NEW HAUL ROAD LAYOUT

DRAWING No: 20266-1001
REV: 0

A1



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