

Intended for
British Antarctic Survey (BAS)

Document type
Report

Date
26th March 2024

**BRITISH ANTARCTIC
SURVEY
ROTHERA
MODERNISATION
PHASE 1 – RMP/
SITEWIDE SERVICES
MARCH 2024
PRELIMINARY
ENVIRONMENTAL
ASSESSMENT (PEA)**

**BRITISH ANTARCTIC SURVEY
ROTHERA MODERNISATION PHASE 1 – RMP/ SITEWIDE
SERVICES MARCH 2024 PRELIMINARY ENVIRONMENTAL
ASSESSMENT (PEA)**

Project name **Rothera Modernisation Phase 1 – Discovery Earthing and Vehicles Fuel Tank
Installation 23-24 Season**

Project no. **1620013003-001**
Client **British Antarctic Survey**
Version **P01**

Prepared by **Eliot Perez**
Checked by **Matt Ivory**
Approved by **Matt Ivory**

Suitability	Revision Code	Date	Purpose Suitability Description	/	Approved By	Comments

INTRODUCTION

The completion of an Environmental Impact Assessment (EIA) is a requirement of the Protocol on Environmental Protection to the Antarctic Treaty (1991)¹, the provisions of the Antarctic Act (1994, 2013)², and accompanying Antarctic Regulations 1995/490³. The minimum level of EIA required is the completion of a Preliminary Environmental Assessment (PEA). This document is a review of Rothera Modernisation Phase 1 – RMP Sitewide Services 23-24 Season PEA.


Privacy Notice: The British Antarctic Survey (BAS), a constituent organisation of the Natural Environment Research Council (NERC), will retain the personal data provided as confirmation of agreement with the conditions in this PEA and Specialist Activity Permit Application Form. A copy of the completed form may be circulated to all or any of the named participants, internally to BAS colleagues and to the Foreign and Commonwealth Development Office (FCDO)/or other relevant permitting authority in accordance with the guidelines set out in the Antarctic Act, 1994 & 2013. No personal data will be supplied to any other third party without consent. The personal data on this form and all other information provided will be retained for long-term environmental monitoring purposes.

¹ BAS, 1991. Protocol on Environmental Protection to the Antarctic Treaty (1991). [Online] Available at: <https://www.bas.ac.uk/about/antarctica/the-antarctic-treaty/environmental-protocol/protocol-on-environmental-protection-to-the-antarctic-treaty-1991/>

² Legislation.gov.uk, 1994. Antarctic Act 1994. [Online] Available at: <https://www.legislation.gov.uk/ukpga/1994/15>

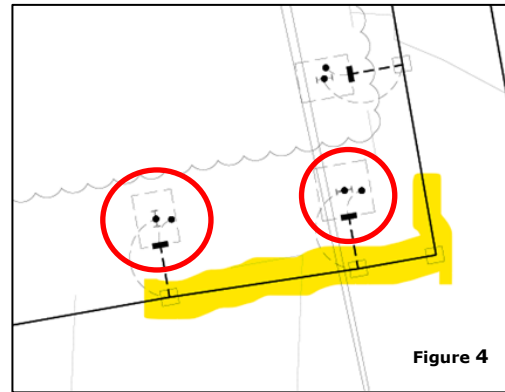
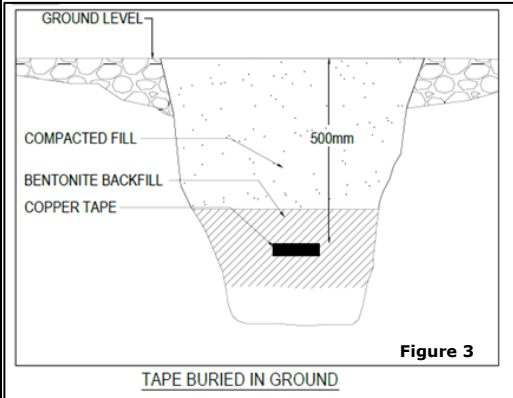
³ Legislation.gov.uk, 1995. The Antarctic Regulations 1995. [Online] Available at: <https://www.legislation.gov.uk/uksi/1995/490/made>

1. PROJECT DESCRIPTION

1.1. OSPQ number <i>(where applicable¹/ known)</i>		1.2. Title of Project	Rothera Modernisation Phase 1 – RMP/ Sitewide Services 23-24 Season
1.3. Personnel involved. Please provide names, organisation and job titles of all personnel involved and identify their specific project role e.g., Principal Investigator/Project Lead, Field Leader, external collaborators/contractors etc.			
Full Name	Organisation and Job Title		Project Role
Dave Brand	BAS – Rothera Modernisation Senior Project Manager		Project Lead
Matt Ivory	BAS – Rothera Modernisation Construction & Commissioning Manager		Site Supervision Lead
Robert Kerr	BAM – Project Manager		BAM PM
Eliot Perez	BAS – Assistant Project Manager		Assistant Site Supervisor
Matthew Watson	BAM – Section Engineer		Section Engineer
1.4. Location Name each location to be visited with a description of the area, and state whether the site has been visited before.			
Location Name <i>(including depot sites)</i>	Location Description <i>(e.g. coastal, ice-free, glacier, open ocean etc.)</i>		Has the location been visited previously? <i>Please provide detail.</i>
Rothera Station	External Discovery building perimeter: North East corner		Yes – Rothera Station
1.5. Please provide a brief description of your project including:			
(1) Proposed dates and duration of your project;			
27/03/2024 – 21/04/24 Likely duration of construction works associated with this PEA 3-5 days			
(2) Summary of the main aims (scientific of otherwise) of your project;			
As part of the Rothera Modernisation project, the specified works form a part of the Discovery buildings external slab and earthing arrangement.			
(3) Outline of project plan (e.g., referring to locations as above, route and mode of travel, number of persons and time spent at each location);			
Works being conducted by BAM and GA Barnies (BAM sub-contractor) as part of the RMP (Phase 1). 4-6 persons will be allocated to construction in support of this task. These personnel will be part of the wider construction team are on station anyway to deliver other RMP works (covered by project EIA).			
(4) Details of methodology (including equipment required); and			
<p>Prior to this application:</p> <p>1 excavator and 2no of operatives have entered the excavation zone via the North haul road to dig a 10m (length) x 1m (width) x 0.7m (depth) trench on GL on the Northeast perimeter of the Discovery building (Figure 1). The trench has produced approximately 7m3 of type 6N aggregate which has been temporarily stockpiled adjacent to the works zone (Figure 2). The methodology included a CAT scan of the area and hand dug trial pits before proceeding with mechanical excavation. Hand digging was then readopted when completing works in close proximity to the perimeter of the building.</p>			
<p>Figure 1</p> <p>Figure 2</p>			

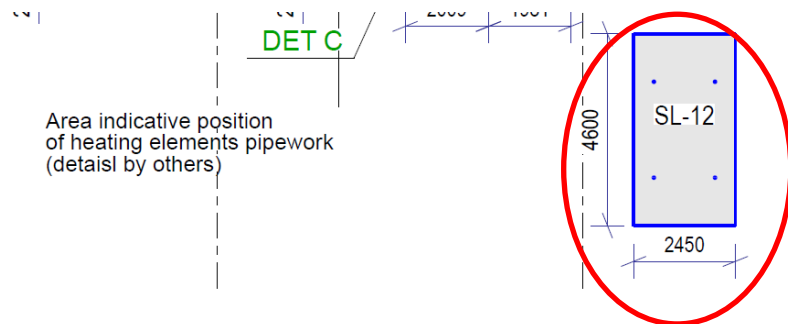
Excavation, earthing and backfill:

2no of operatives will enter the open excavation on GL10 A/B and hand dig the remaining material to expose the earthing connection points at the foot of Discovery. The nominal amount of material required for removal will be added to the existing temporary stockpile (adjacent to the trench) in preparation for backfilling post completion of the works. The 25mm x 3mm copper earthing tape will then be buried into the excavation with a 100mm Bentonite surround (Figure 3). This will then be tied in at 2 locations with the 2 exposed precast concrete pads already installed as part of the Discovery's foundations (Figure 4). After the earthing has been installed, the 7m3 of excavated aggregate will be mechanically backfilled using an excavator. This will then be compacted using a whacker plate to achieve the desired compaction. There is a potential requirement for a roller to mechanically compact the made-up ground.

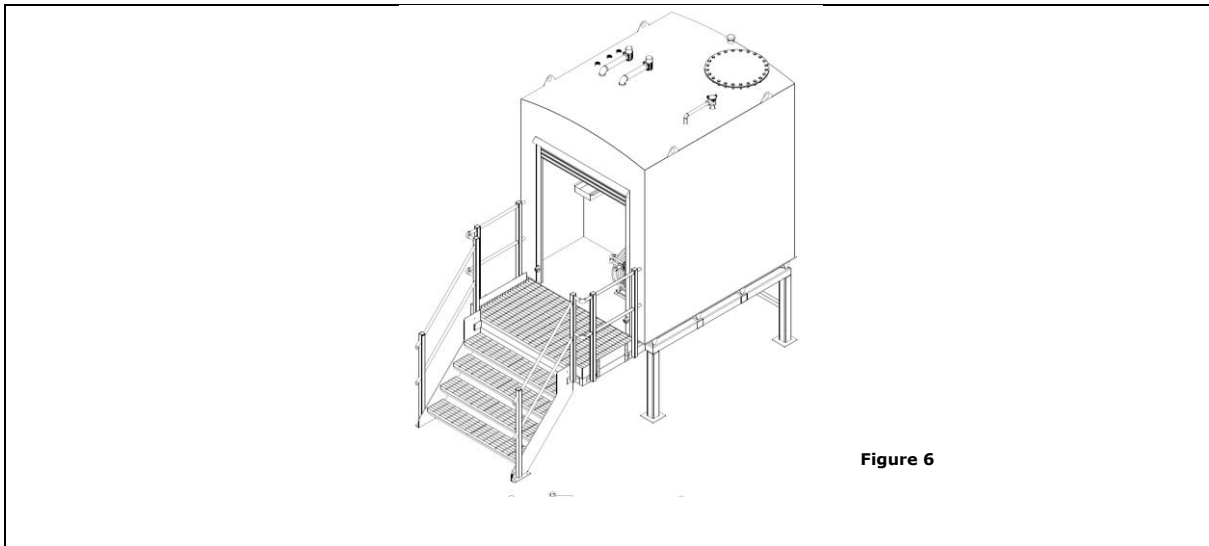


Installing the External slab:

Approximately 6m3 of 6N aggregate will be taken from the stockpile located to the west side of Admirals (between Admirals and the Runway) and transported around the North haul road to the location of the slab (northeast corner of Discovery). This stockpiled material originates from works conducted under permit no. 12/2019-20 (Specialist Activity permit for Rothera Works). In order to build up the ground, an excavator will lay the 6m3 of aggregate across an area of 4.6m (length) x 2.5m (width) before this is compacted using a whacker plate or roller. The compacted material will then receive a layer of fines material (approximately 1.3m3); this is to be extracted from the existing fines stockpile in proximity to the BAM fitters workshop. This material also originated from permit no. 12/2019-20 (Specialist Activity permit for Rothera Works). After this, a BAM excavator will then deliver the 4.6m x 2.45m precast concrete slab (Figure 5) from the Wharf via the North haul road. The BAM crane will then lift the slab into its final position on GL10 A/B before it is lined and levelled on site.



Following the installation of the concrete slab, the vehicle refuelling tank will be installed on the slab. This tank will have a capacity of 5,000 litres and will be used to refuel BAS vehicles following the handover of the Discovery building from March 2025 (eventually replacing the existing vehicles refuelling tank located outside the current Rothera vehicles garage). The tank is banded (double skinned) in order to prevent any leakage into the local environment. It is also fitted with a High level alarm and a High High level alarm for further protection against over-filling. There is also a bund alarm which will alert personnel in the event that fuel is present between the two skins of the tank. Figure 6 below shows the design of the pre-fabricated fuel tank to be installed.



(5) *Brief justification of the environmental impact, as applicable*

As paragraph 1 of section 4 outlines, approximately 7m³ of material has been excavated at the Northeast of Discovery to deliver a section of the earthing and slab works for RMP.

Incorrectly, the enabling works for this task had mistakenly proceeded without the sign off a section 6 permit. This trench had not been covered in this season’s PEA or explicitly outlined in the initial IEE. The BAS supervision team had not given the approval of this works. As soon as one of the BAS supervisors saw, it was halted immediately and reported back to the UK for further instruction. The failing is likely due to a communication breakdown caused by a changeover in BAM staff. This work had originally been planned for season 6 but had been bought forward by BAM as an opportunity. This was not communicated with the BAS supervision team, who would have prevented this happening prior to a permit being assigned.

The proposal to proceed with this works seems justified as the succeeding works require no further excavation. Furthermore, all excavated material will be returned to the trench and all new material required for the works has been previously processed under a permit. As a result, the environmental impact for proceeding with the works seems justified against the alternative of backfilling and re-disturbing the ground in Season 6.

The works outlined in this PEA are required in order to deliver the agreed the final design and capability delivery of the Discovery building as required by BAS. This specific area of works was originally planned to be completed in the 24/25 season, however being able to conduct these works this season will provide additional contingency in next year’s programme and de-risk the construction team’s ability to deliver the planned handover date of Mar 2025, which is critical to BAS operation.

2. IDENTIFICATION OF POTENTIAL IMPACTS

<p>2.1. Chemicals and Hazardous Substances If you intend to use any chemicals, hazardous substances, radioactive material or stable isotopes you must submit a CAR form (with the associated RAs, COSHH assessments & SOPs) to the BAS Laboratory Manager for review and approval (Station/Field projects: emfi@bas.ac.uk; SDA projects: SDALabManager@bas.ac.uk).</p> <p>Please also contact Kath Nicholson for advice on how to package hazardous goods and hazardous waste for shipping - kani@bas.ac.uk</p>		
2.1.1.	Do you intend to use any chemicals, radioactive material or stable isotopes likely to interact with the environment outside of the laboratory/ in the field? If so, please provide detail here (or attach a copy of your CAR form for our information only) explaining how you intend to use them and list the mitigation measures you intend to use to safeguard the environment.	No
2.1.2.	Do you intend to use any other hazardous substances e.g. paints, batteries etc.?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
2.1.3.	If so, please list substances likely to interact with the environment here and provide detail on how you intend to use them listing the mitigation measures you intend to use to safeguard the environment.	
<p>2.2. Waste Management Please refer to the BAS Waste Management Handbook for further information on waste packaging and consignment.</p>		
2.2.1.	How much waste (hazardous, radioactive and/or non-hazardous) will the project produce? <ul style="list-style-type: none"> Please include approximate weights/volumes (and radioactive levels where applicable) by waste type anticipated. 	None
2.2.2.	Is your project taking place on a BAS station or supported by BAS in the field?	YES <input checked="" type="checkbox"/> Please go to 2.2.3 NO <input type="checkbox"/> Please go to 2.2.4
2.2.3.	Please indicate the anticipated quantities and type(s) of waste packaging required, in particular for hazardous waste. <ul style="list-style-type: none"> Environment Office will review this against the standard station supply and advise whether additional waste packaging for your project is required. 	No additional packaging required
2.2.4.	Is your project taking place on the Sir David Attenborough or other NERC vessel?	YES <input type="checkbox"/> Please go to 2.2.5 NO <input checked="" type="checkbox"/> Please go to 2.2.6
2.2.5.	Please provide the quantities and type(s) of waste packaging required, in particular for hazardous waste. <ul style="list-style-type: none"> BAS Environment Office will procure and provide the necessary waste packaging materials and ensure they are delivered to the vessel. If you do not provide any details here, you will be responsible for organising your own compliant packaging prior to boarding the ship. All project waste produced on the SDA (or NERC vessels supporting BAS science) within the Antarctic should be consigned to the BAS Environmental Manager in the UK for disposal. BAS Environment Office will then organise and pay for the disposal of this waste. However, please note that radioactive waste transport and disposal costs will be charged back to the responsible project. 	N/A
2.2.6.	If your project is logistically supported by a non-BAS Antarctic operator or non-BAS/NERC vessel, please provide further details. <ul style="list-style-type: none"> BAS Environment Office will not supply waste packaging or provide waste disposal. Please confirm that the project/operator/vessel will provide appropriate and compliant waste packaging and 	N/A No Waste

<i>confirm how the waste will be disposed of in accordance with all relevant waste legislation⁴.</i>			
2.3. Oil Spill Response (for field activities only)			
2.3.1.	Please confirm the type and quantity of fuel that will be taken into, used, and stored in the field.	N/A	
2.3.2.	Please confirm that you have discussed your field fuel needs and requirement for spill kits with the BAS Field Operations Manager. All field parties must be familiar with the BAS fuel spill protocols.		
2.4. Deployment and Installation of Equipment			
2.4.1.	Do you intend to install or deploy any equipment in the field or ocean (including data loggers/markers on animals, moorings, gliders, etc.)?	YES <input type="checkbox"/> <i>Please complete questions 2.4.2 – 2.4.6.</i>	NO <input checked="" type="checkbox"/> <i>Please go to 2.5</i>
2.4.2.	Provide a brief description of the equipment including details of the materials, dimensions, weight, and any hazardous substances such as batteries or oils.	N/A	
2.4.3.	Provide a brief summary of the location where equipment will be installed or deployed (including coordinates).	N/A	
2.4.4.	Provide details of how the equipment will be labelled and referenced (equipment should be easily identifiable as science instrumentation and be able to be traced back to the organisation or project).	N/A	
2.4.5.	Describe how and when the equipment is to be maintained and removed. Confirm if funding and operational support is in place for your retrieval plans. <i>If any of the equipment you deploy in the field or ocean is lost or cannot be retrieved as planned you will need to report this at the time of the incident on Maximo⁵ and to the Environment Office on the EIA Post Season Questionnaire.</i>	N/A	
2.4.6.	Is the intention for any of your equipment to remain in the field/ocean permanently (e.g. mooring anchors, buried seismic conduits, etc.)? If, so please detail the equipment to be left behind intentionally and explain why it cannot be retrieved.	N/A	
2.5. Remotely Piloted Aircraft Systems (RPAS) or other remotely operated marine or terrestrial vehicles (ROVs)			
RPAS includes drones, quadcopters or any remotely operated or autonomous aircraft whether rotary or fixed wing. If you are operating RPAS contact Carl Robinson for further advice – carob@bas.ac.uk .			
2.5.1.	Does the project intend to utilise RPAS or other remotely operated marine or terrestrial vehicles? If so, please provide detail including the size, make, model and operating capacity (e.g. maximum wind resilience, flight time, fail safes, etc.)	No	
2.5.2.	Does the project involve Beyond Visual Line of Sight (BVLOS) operations for RPAS? If so, please provide details. If yes, this will require review by the Air Unit.	No	
2.5.3.	Describe the location in which the RPAS/ ROV will be operated (e.g. off a ship, deep field, near a station, over wildlife, etc.)	N/A	
2.5.4.	Do you require BAS Ops to provide the RPAS/ ROV and/or pilot?	N/A	

⁴ Waste (England and Wales) (Amendment) Regulations 2012, The Duty of Care Regulations 1991, and the Hazardous Waste (England and Wales) (Amendment) Regulations 2009. These regulations affect the packaging, containment, storage, transportation and disposal of waste from source to final disposal. This includes transportation from the UK port, where the waste is offloaded from the ship, and to the waste disposal site.

⁵ [Maximo](#) is the BAS Incident Reporting System

	<ul style="list-style-type: none"> ▪ If yes, contact Carl Robinson to coordinate the request and confirm here that you have done so. 	
2.5.5.	Do you intend to provide your own RPAS/ ROV and/or pilot?	N/A
2.5.6.	Confirm the names of all the pilots/vehicle operators.	N/A
2.5.7.	Detail number of hours flown in the last 3 months and number of hours in total flown on proposed platform.	N/A
2.5.8.	Do the pilots hold a General Visual Line of Sight Certificate (GVC) or equivalent? Please provide details of qualifications held.	N/A
2.5.9.	Please confirm you have read and will commit to follow the BAS Regulations on RPAS use in Antarctica .	YES <input checked="" type="checkbox"/>
2.6. Construction and Maintenance Work		
2.6.1.	Do you intend to import natural materials to Antarctica (e.g. untreated wood, aggregate, sand etc.)? Provide details of type, quantity and from where the materials will be sourced. Please refer to Section 4.4 of the BAS Biosecurity Regulations and discuss with Environment Office as appropriate.	No
2.6.2.	Will the work require concrete mixing on site? Provide details of the expected quantity and working methods.	No
2.6.3.	Will the project require the removal of any asbestos? Provide details of the expected quantity.	No
2.6.4.	Do you anticipate the alteration, removal or destruction of equipment, buildings or structures (or parts of buildings or structures) that may be considered to have heritage value?	No
2.7. Biosecurity		
2.7.1.	Please confirm that you have familiarised yourself with the biosecurity guidance provided by BAS in the Biosecurity Regulations and by SCAR in the Environmental code of conduct for terrestrial scientific field research in Antarctica .	YES <input checked="" type="checkbox"/>
2.7.2.	Do you intend to move terrestrial or marine specimens, including unfixated biological samples, soils, sediments, rocks, or other mineral resources between different areas of Antarctica (including returning materials to research stations)? If 'yes', please describe the precautions you will take to prevent the transfer/release of indigenous species between distinct Antarctic Conservation Biogeographic Regions ⁶ (ACBRs) or between Antarctic and sub-Antarctic locations.	No
2.8. Sensitive sites with restrictions or guidelines		
2.8.1.	Do you intend to visit any CCAMLR registered Vulnerable Marine Ecosystems (VMEs), CCAMLR Ecosystem Monitoring Programme (CEMP) Site(s) or Marine Protected Areas (MPAs) ⁷ ? Please provide details.	No
2.8.2.	Do you intend to visit any Important Bird Areas (IBAs)? Please provide details.	No

⁶ Note: On '[Antarctic Conservation Biogeographic Regions](#)' select 'Antarctic conservation biogeographic areas' from the 'Layer List' at the top right hand corner symbol, to see the ACBRs displayed.

⁷ Geographic details (positions, area) of these sites can be viewed in the CCAMLR GIS (select the appropriate designation(s) from the layers list on the left-hand side.

2.8.3.	Do you intend to visit any Antarctic Specially Managed Areas (ASMAs) ? Please provide details.	No
2.8.4.	Do you intend to visit any of the most visited locations in Antarctica (excluding research stations) as identified by the Antarctic Treaty System? Please confirm which locations you will visit and that you have read and understood the associated Visitor Site Guidelines .	N/A

3. IDENTIFICATION OF SPECIALIST ACTIVITIES IN ANTARCTICA

<p>Specialist activities in Antarctica are prohibited without issue of a specialist activity permit under the Antarctic Act 1994; 2013 (Sections 6-10):</p> <ul style="list-style-type: none"> ▪ Mineral resource activities (Section 6 permit) ▪ Disturbance/harmful interaction with fauna and damage to flora (Section 7 permit) ▪ Introduction of non-native species (Section 8 permit) ▪ Entry into protected areas (Section 9 permit) ▪ Damage or disturbance of Historic Sites and Monuments (Section 10 permit) <p>Specialist Activity Permits may be issued by the UK Foreign, Commonwealth and Development Office or by the BAS Director under delegated authority in accordance with the UK Antarctic Act (1994; 2013) or by another competent authority. The BAS Environment Office will advise you upon review of your application.</p>		
<p>3.1. Do you intend to undertake any of the following specialist activities in Antarctica? If you answer 'yes' to any of the below questions please also complete parts 4, 5 and 6 of this form. If you answered 'no' to all of the below questions, you only need to complete parts 4 and 6.</p>		
<p>3.1.1. Do you intend to undertake any of the following mineral resource activities?</p> <ul style="list-style-type: none"> a. Drill, dredge or excavate for mineral resources; or b. Collect/use any samples of mineral resources; or c. Do anything else for the purpose of identifying specific mineral resource occurrences or deposits. 	<p>YES <input checked="" type="checkbox"/></p>	<p>NO <input type="checkbox"/></p>
<p>3.1.2. Do you intend to sample, capture, kill or harmfully interfere with any marine or terrestrial flora or fauna (including invertebrates)?</p>	<p>YES <input type="checkbox"/></p>	<p>NO <input checked="" type="checkbox"/></p>
<p>3.1.3. Do you intend to take to the Antarctic any non-sterile soil or non-native marine or terrestrial animal, plant, microorganism, seed or other propagule?</p>	<p>YES <input type="checkbox"/></p>	<p>NO <input checked="" type="checkbox"/></p>
<p>3.1.4. Do you intend to visit any Antarctic Specially Protected Areas (ASPAs)?</p>	<p>YES <input type="checkbox"/></p>	<p>NO <input checked="" type="checkbox"/></p>
<p>3.1.5. Do you intend to damage or disturb Historic Sites and Monuments and/or their artefacts?</p>	<p>YES <input type="checkbox"/></p>	<p>NO <input checked="" type="checkbox"/></p>

4. ENVIRONMENTAL IMPACT MATRIX

4.1. Environmental Matrix (please complete as per guidance and examples provided in the table below)

Science and logistical activities undertaken as part of your project <i>e.g. collection of samples, deployment of monitoring equipment, storage/ handling of fuels and chemicals, waste production and camping</i>	Identify possible impacts - direct, residual and/or cumulative⁸	Mitigating measures <i>Please provide details of the mitigation measures you intend to implement to ensure that negative impacts are minimised or avoided.</i>
Excavation/Trenching Works	<ul style="list-style-type: none"> • <i>Direct/Cumulative</i> – Noise. Digging and trenching activities will create noise emissions which could disturb wildlife. • <i>Direct/Cumulative</i> – <i>Vibration</i> • <i>Direct/Cumulative</i> - Removal/relocation of rock/mineral material 	<ul style="list-style-type: none"> • Works will only take place between 0800-1800. Area of works is within main station activity zone and is not within proximity to sensitive bird nest sites. Every plant move whereby visibility is restricted includes a banksman who is responsible for ensuring a safe zone around the vehicle, checking to ensure that personnel and animals are not within the operation of the plant. Only trained individuals will move animals from the work area and in accordance with wildlife interaction guidelines. All incidents of interaction are reported. • All material removed during excavation will be stockpiled local to the works area and replaced by backfilling into the trench on completion. <ul style="list-style-type: none"> • <i>Noise and Vibration will be managed by the following mitigation measures:</i> • <i>10 mph speed limit maintained and enforced on site;</i> • <i>Plant items will be positioned to ensure exhaust outlets point away from sensitive receptors;</i> • <i>Regular maintenance of all plant and vehicles to ensure they are working efficiently and generating as little noise as possible; and</i> • <i>A soft-start procedure , outlined in the IEE, will be implemented if necessary as detailed in the IEE. Consideration of the impact of noisy activities to all wildlife in the vicinity will be given.</i> • <i>The removal/relocation of rock/mineral material is a physical or mechanical disturbance on land and will be managed by the following mitigation measures:</i> • <i>Minimise the footprint of works;</i> • <i>Where possible, trenches/excavations will be backfilled at the end of a shift, however if this is not feasible, trenches/ excavations will be suitably covered, fenced, and signed and not be left open for longer than necessary; and</i> • <i>If contamination is encountered during the trenching/excavation, all equipment will be cleaned between trial pits to prevent cross contamination. Any occurrences of contamination to be reported to the BAS Environment Office and recorded in the PVR.</i>

⁸ Direct impacts of your activities on flora, fauna, air quality, water quality (fresh and marine), geology, soils, permanent ice, noise levels or cultural heritage. Residual impacts once your project is complete such as leaving equipment in the field longer term, permanent removal of samples from the field, and impacts on the value of the locality for future science. Cumulative impacts: If you are aware of any other projects or activities in the past, present or foreseeable future then these could, combined with your proposed project, result in a significant environmental impact.

Science and logistical activities undertaken as part of your project <i>e.g. collection of samples, deployment of monitoring equipment, storage/ handling of fuels and chemicals, waste production and camping</i>	Identify possible impacts - direct, residual and/or cumulative⁸	Mitigating measures <i>Please provide details of the mitigation measures you intend to implement to ensure that negative impacts are minimised or avoided.</i>
Installation of underground earth tape and bentonite bedding	<i>Direct/Indirect/Cumulative</i> - Man-made materials will have been introduced underground and will require removal and disposal when they reach end-of-life. Design life planned for 60 years, with first major works 25 years after the Project Completion Date.	Details and locations of all materials installed below ground will be provided to BAS by the Contractor, BAM as part of the as-built drawings, allowing BAS to identify and locate all elements for future removal when they reach end of life, no earlier than 25 years from handover (Mar 2025) . The earthing installation is expected to last significantly longer than 25 years and neither bentonite nor copper earth tape is considered to be a residual hazardous material when future disposal is required.
Laying of gravel/rock bed for concrete slab	<i>Direct/Cumulative</i> - Cables and pipes will be bedded on a fine grade gravel. This will be taken from stockpiles already quarried from the Rothera point location and processed on site. This rock will have been moved from Rothera Point to the Sitewide Services Run A location between the STP and BAM Fitter’s Workshop.	Approximately 6m3 of 6N aggregate and 1.3m3 of fines aggregate will be used to provide a bedding material for the concrete slab. These materials have been sourced locally from within the Rothera area with no significant bio-diversity difference from the location it is to be infilled. All materials to be used have been previously sourced and stockpiled under permit no. 12/2019-20 (Specialist Activity permit for Rothera Works) Volumes will be kept to the minimum required to meet construction specification. Remainder of trench will be infilled with original material that was removed during excavation.
<i>Construction and Maintenance Work</i>	<i>Direct – The generation of Dust</i>	All material to be used must have passed all biosecurity checks. Dust will be managed in by the following mitigation measures: <ul style="list-style-type: none"> • If required dust suppression should be used; • Where practicable, keep activities which create dust downwind of sensitive receptors and avoid close proximity to known vegetation and ice locations; • All routes used by vehicles and plant will be well maintained and have compacted surfaces; • 10 mph speed limit maintained and enforced on site; • All plant and equipment will be maintained on a regular basis; Dust will be monitored using environmental monitors, positioned across the construction site. Any exceedances are recorded and reported to the BAS Environment Team and updated on the Project Variation Register. On immediately being notified by the monitors of an exceedance, the BAM Environmental Manager will investigate, and stop activity creating dust. The BAM Environmental Manager will develop the Activity Plan, with appending Risk Assessment, to include actions to mitigate further excess production of dust. The Activity Plan will be signed off by the BAS Contract Administrator.

Science and logistical activities undertaken as part of your project <i>e.g. collection of samples, deployment of monitoring equipment, storage/ handling of fuels and chemicals, waste production and camping</i>	Identify possible impacts - direct, residual and/or cumulative⁸	Mitigating measures <i>Please provide details of the mitigation measures you intend to implement to ensure that negative impacts are minimised or avoided.</i>
<i>Working in Low Light Conditions</i>	<i>Direct – Light Emissions</i>	<ul style="list-style-type: none"> • All works are planned to be undertaken during daylight hours, therefore it is not anticipated that any site lighting will be required, however given the time of the season and possibility of inclement weather, there is potential that very localised lighting may be required for a limited number of hours at the beginning/end of a shift (site working hours are 0700-1900) • If lighting is required, the following mitigations will be implemented: <ul style="list-style-type: none"> ○ Minimise use of lighting rigs during low light or darkness ○ Rigs to be angled towards the ground, not horizontal. ○ Lights to be turned off when not in use.
Examples		
<i>E.g. Travel on foot between ice-free areas</i>	<i>E.g. Possible introduction or intra-regional spread of non-native species (vegetation and/or invertebrates, including those in soil)</i>	<i>E.g. Biosecurity briefing provided to all team members prior to departure Boots, clothing and equipment to be cleaned thoroughly before departure from the UK. Visual checks/cleaning between sites to check no soil is stuck to boots or equipment. Follow guidelines in Scar Code of Conduct for Terrestrial Scientific Field Research and BAS Biosecurity Regulations.</i>
<i>E.g. Camping on ice sheet</i>	<i>E.g. Generation of domestic waste and human waste</i>	<i>E.g. All team members to read and be briefed on the 'Field Operations Manual' relating to Environmental Management and the BAS Waste Management Handbook. Waste bags and poo bins to be issued by Field Ops Manager. All domestic waste will be segregated in the field and returned to Rothera prior to final disposal outside of the Antarctic. Human waste will be incinerated at Rothera.</i>
<i>E.g. Deploying retrievable sensors in the field</i>	<i>E.g. Impact to wilderness and aesthetic value of the region. Risk of equipment becoming waste if not recovered.</i>	<i>E.g. Design phase of project has identified low toxic materials to be used in the construction of the sensors. The Environment Office will be informed of sensor deployment locations if equipment is not retrieved, and the details will be added to the 'lost equipment' log.</i>
Reference guidance documents <i>Please review the guidance documents provided below (please note that this is not an exhaustive list) and where applicable, reference these and any other environmental guidance relevant to your activities in the mitigation measures in the Environmental Matrix above.</i> <ul style="list-style-type: none"> • SCAR Codes of Conduct for Antarctic field work and the use of animals in Antarctica • BAS Wildlife Interaction Manual • BAS Waste Management Handbook for guidance and advice on waste management in Antarctica • BAS Biosecurity Regulations for guidance and advice on appropriate biosecurity measures 		

5. SPECIALIST ACTIVITY PERMIT APPLICATION

<p><i>If you have answered 'yes' to any of the questions in part 3 you may require a Specialist Activity Permit to carry out your planned activities. You must complete this Specialist Activity Permit application and confirm the details of all personnel involved in the proposed permitted activities.</i></p>				
4.2. Application Details				
	Full Name	Job Title and Organisation/Employer	Nationality (as listed on passport)	
4.2.1.	Permit applicant/holder (this is usually the PI/Project Lead)	Dave Brand	BAS – RMP Senior Project Manager	British
4.2.2.	Full list of people actively participating in sampling/specialist activities	Matt Ivory	BAS – Rothera Modernisation Construction & Commissioning Manager	British
		Eliot Perez	BAS Assistant PM	British
		Robert Kerr	BAM – Project Manager	British
		Matthew Watson	BAM – Section Engineer	British
4.3. Mineral Resource Activities (Section 6 Specialist Activity)				
<i>Mineral resources include (but not exclusively) rock, soil, peat, sediment, seabed nodules, fossils, meteorites and coal.</i>				
4.3.1.	Do you intend to undertake any of the following activities: drilling, dredging or excavating for mineral resources? If so, please describe the activity you plan to undertake, the type of mineral resource and the purpose of the activity.	<p>Excavation:</p> <p>The creation of a trench measuring approximately 10m x 1m x 0.7m, generating approximately 7m3 of aggregate.</p>		
4.3.2.	Do you intend to collect and or use any mineral resources? If so, please provide a description of the mineral resource type and the collection/use activities you intend to undertake.	<p>Material from existing stockpiles:</p> <p>As per permit: 12/2019-20 (Specialist Activity permit for Rothera Works),</p> <p>-6m3 of aggregate taken from the stockpile will be laid across an area of 4.6m (length) x 2.5m (width).</p> <p>-Approximately 1.3m3 of fines material is to be extracted from the existing stockpile in proximity to the BAM fitters workshop.</p>		
4.3.3.	Do you intend to undertake any other activity for the purpose of identifying mineral resource occurrences or deposits? <i>e.g. assessing suitability of ground for use as construction site or suitability of soil or rock as construction material?</i> Please provide a description.	No		
4.3.4.	Do you intend to sample mumiyo (solidified, waxy deposit produced when snow petrels vomit up their stomach oils) during your activities?	No		
4.3.5. Provide information on estimated quantities and volumes or mass of mineral resource samples and the number and location of sampling sites:				
Mineral resource	Estimated number and volume/mass of individual samples to be collected	Total quantity of mineral resource to be collected	Number and locations of sampling sites (please also provide coordinates)	Method of extraction/collection
Surface ground layer adjacent to Discovery building	Single trench measuring approximately 10m x 1m x 0.7m, generating approximately 7m3 of aggregate.	All materials excavated will be backfilled in the same location	1 – Single trench adjacent to north east corner of Discovery Building	Mechanical Excavator and hand digging
Type 6N aggregate from existing Rothera stockpile locate between Admirals and Runway	6m3 Total	6m3 Total	1 – Type 6N aggregate stockpile located between Admirals and Runway	Mechanical Excavator/loader


Fines aggregate from existing stockpile located adjacent to BAM fitters workshop	1.3m3 Total	1.3m3 Total	1- Fines aggregate stockpile located adjacent to BAM fitters workshop	Mechanical Excavator/loader
4.3.6.	Provide a brief justification for the requested quantities of samples.		Essential excavation and material needed to complete the earthing and external slab system for Discovery building	
4.3.7.	Are the mineral resources being requested available, in an appropriate form, from publicly accessible collections outside of the Antarctic Treaty area?		N/A	
4.3.8.	Do you intend to import any biological samples (soil) to the UK?		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	
If you answered 'yes' to the above question, please take note: You must ensure you have read and understood the separate import licence requirements detailed in point 5.3.5.				
4.4. Disturbance/harmful interaction with fauna and damage to flora (Section 7 Specialist Activity)				
4.4.1.	Do you intend to sample, capture, kill or harmfully interfere with any marine or terrestrial flora or fauna (including invertebrates)? Please provide detail of the activities you intend to undertake which involve interaction with flora and fauna.			
4.4.2.	Complete the table below detailing the species that would be affected by the activity. Provide information on estimated quantities and volumes or mass of biological samples and the number and location of sampling sites:			
Species (including sex/life stage, where appropriate)	Estimated: (i) numbers of individuals to be handled or collected and/or (ii) total volume/mass of samples	Individual sample size/mass/volume	Total number of samples to be collected.	Sampling location (please also provide coordinates)
e.g. female breeding adult Gentoo penguin	e.g. 12 x penguins/12ml blood, 12 feathers	e.g. 1 x 1ml blood sample and 1 feather from each penguin handled	e.g. 12 x 1ml blood samples (12ml of blood) and no more than 12 feathers	e.g. Gourlay Peninsula, Signy Island
e.g. colobanthus quitensis	e.g. 10 x plants/c. 50 g total dry weight	e.g. each plant sample is ~ 5g (dry weight)	e.g. 10 x 5g plant samples	e.g. Bernsten Point, Signy Island
4.4.3.	If your project involves working with vertebrates and/or cephalopods, has it been subject to Animal Welfare and Ethics Review? If so, please include details of the reviewing body, date of review and a copy the approval document.		Reviewing body and date of review: Copy of approval document attached YES <input type="checkbox"/> NO <input type="checkbox"/>	
4.4.4.	Do you consider any of your activities as 'biological prospecting'? Do you intend to utilise the requested samples for commercial applications?			
4.4.5.	Do you intend to import any biological specimens (animals or plants) to the UK?		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	
If you answered 'yes' to the above question, please take note: (1) Importation of biological or soil samples to the UK requires a relevant DEFRA/CITES import/export licence which is not covered by this 'Specialist Activities Permit application'. (2) How and where your fauna/flora samples will be stored and curated may have an impact on the import/export licences required. (3) If you require storage at BAS Cambridge, please agree this in advance with the Cambridge Laboratory Team. (4) If samples are to be transferred to another institute, you must ensure you have any required site registration/import permissions in advance of collection. Please contact Elaine Fitzcharles in the first instance: emfi@bas.ac.uk . For details on the protocols and procedures for consigning biological samples from all Antarctic stations and ships please refer to https://www.bas.ac.uk/for-staff/polar-predeployment-prep/intro-guidelines-and-forms/importing-biological-samples-into-the-uk/				
4.5. Introduction of non-native species (Section 8 Specialist Activity)				
4.5.1.	Do you intend to take to the Antarctic any non-sterile soil or non-native marine or terrestrial animal, plant, microorganism, seed or other propagule?		No	

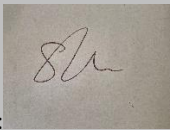
<i>Importation of non-sterile soil into Antarctica is prohibited under the Protocol on Environmental Protection to the Antarctic Treaty.</i>		
4.5.2.	Provide a species list and estimate of quantity and volume.	
4.5.3.	Provide an outline of the scientific purpose of the proposed introduction and why it is considered essential.	
4.5.4.	Outline the measures you will take to prevent escape or spread of the introduced species or their contact with native fauna or flora.	
4.5.5.	Describe the method of removal of the introduced species or its/ their disposal.	
4.6. Entry into Protected Areas (Section 9 Specialist Activity)		
4.6.1.	Do you intend to visit any Antarctic Specially Protected Areas (ASPAs) ? Please provide detail.	No
4.6.2.	Is the reason for your visit to the ASPA(s) for scientific research or for environmental management/conservation activities?	
4.6.3.	What activities do you intend to undertake in the ASPA(s)? Please explain why these activities cannot be carried out outside the protected area.	
4.6.4.	Provide a short justification of how your project meets the requirements of the protected area Management Plan.	
4.7. Damage or Disturbance to Historic Sites and Monuments (Section 10 Specialist Activity)		
4.7.1.	Do you intend to visit any Historic Sites and Monuments (HSMs)? Please provide details and explain the purpose of your visit. Please note that HSMs are protected and any damage to sites or removal of objects is prohibited.	No

6. STATEMENT OF AGREEMENT

In signing this form, you the PI/Project Lead (or other designated deputy) are confirming the following:

- I have read and agree with the 'Privacy Notice'.
- The information provided in this form is accurate and up to date. Any deviation from the information provided in this form will be communicated to the BAS Environment Office at the earliest opportunity.
- The information I have provided in this form, and the mitigation measures including those relating to biosecurity to which I have committed, will be communicated to all members of the project team.
- Should any environmental incidents occur, I will report these on the [Maximo](#).
- I understand that this Preliminary Environmental Assessment (once agreed) and any associated Specialist Activity Permits (once issued) are activity/ person/time specific and are not transferrable to other locations in Antarctica, or to another person and are only valid for the period specified.
- I agree to provide feedback and a retrospective review of my activities by submitting the BAS [EIA Post-Season Questionnaire](#) to the Environment Office upon completion of my project or by the 30th of April (whichever is soonest).
- In accordance with Regulation 2 of the Antarctic (Amendment) Regulations 2008/3066, brief details (applicant name and job title, description of project and planned dates) of all permit applications (issued by the FCDO or the BAS Director) will be published on the FCDO website. My signature below will be taken as consent to publish this information.

Applicant/PI Name	Applicant/PI Signature	Date
Matt Ivory		26/03/2024
		Revision date (s)

This section to be completed by the BAS Environment Office only.	
Project to proceed with mitigating measures in place	<input checked="" type="checkbox"/>
An Initial Environmental Evaluation is required	<input type="checkbox"/>
Project requires Specialist Activity Permit to proceed. The BAS Environment Office will advise.	Section 6 <input type="checkbox"/>
	Section 6 BAS authorisation letter <input type="checkbox"/>
	Section 7 <input type="checkbox"/>
	Section 8 <input type="checkbox"/>
	Section 9 <input type="checkbox"/>
	Section 10 <input type="checkbox"/>
	Project requires permit from another national authority <input type="checkbox"/>
Signature: 	Date: April 5 th 2024 Revision Date(s):