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| Contract Specification  | Logo |

**Title:** **ISO 11 Incinerator Life Extension Project – WP 5 Refractory Replacement**

**Project Ref: BC22-004**

**Date: 9th September 2024**

**Procurement: John Nixon**

**Owner: Anthony Clarke**

**Client: The Pirbright Institute**

# Scope of Works History

## Document Location

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## Revision History

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| **Version** | **Date** | **Details** | **Author** |
| 1 | 05/09/24 | First Issue | VB |
| 2 | 24/09/24 | Second Issue to include scope for CDM | VB |

Changes from previous version are highlighted yellow.

## Approvals

This document requires the following approvals.

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Title** | **Version** | **Date** |
| Anthony Clarke | Capability Operations – Projects Sponsor | 1 | 09/09/24 |
| John Nixon | Project Finance – Procurement Buyer | 1 | 09/09/24 |
| Anthony Clarke | Capability Operations – Projects Sponsor | 2 | 24/09/24 |
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## Issue History

In addition to the approvers, this document has been issued to:

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| **Name** | **Title** | **Version** | **Date** |
| Part of ‘Contracts Finder’ & ‘Find a Tender’ Invitation to Tender | Part of ‘Contracts Finder’ & ‘Find a Tender’ Invitation to Tender | 1 | 09/09/24 |
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# Introduction

## Document Purpose

The primary purpose of this version of the document is intended to:

* Give details of works required to potential suppliers so they can submit a quotation and programme of works.
* Fulfil the client brief and pre-construction information aspects of construction design management (CDM) regulations 2015.

For comparison only, this version of the document could be aligned with Royal Institute of British Architecture (RIBA) Plan of work 2020 Stage 1 (Preparation & Brief).

As the project progresses, this document will be updated to contain more detailed information on the proposed design and delivery of the works.

Should changes to the scope occur, these will always be recorded in meeting notes and the scope document will be updated and re-issued if appropriate.

This document details the envisaged requirements of the works but should not been seen as restrictive.

## Summary Description of works

The contract is for a single supplier to provide Design and Build of Work Package 5 - Incinerator Kiln Refractory Lining Upgrade to the Primary and Secondary Combustion Chambers, as per the user requirement specification (URS) for The Pirbright Institute (Pirbright), Ash Road, Pirbright, Surrey, GU24 0NF.

## Specification Type

The specification for this contract will be of a performance specification type.

## Contract Duration

The contract duration will be **19th November 2024 – 31st December 2025**.

## Contact Details

The primary contact for queries relating to this Invitation to Tender process is:

John Nixon

Procurement Buyer

The Pirbright Institute

Procurement.department@pirbright.ac.uk

## Location of Works

These works will take place at the following addresses:

The Pirbright Institute

Ash road,

Pirbright,

Woking,

GU24 0NF

# General requirements

This section describes the general requirements related to delivering these works at The Pirbright Institute (Pirbright).

## Health & Safety Requirements

All works related to this specification should be performed in line with site Health & Safety (H&S) rules and the Health and Safety at Work Act 1974.

The following documents are attached in Appendix E1 and detail the site rules to be considered when tendering and when works are performed on site:

* RISK-SOP-7: Management of Contractors
* R&A-COP-3: Contractor Site Handbook
* R&A-FORM-4: Pirbright Site Rules Overview
* EMS-WI-085: Permit to work
* EMS-FORM-100: Point of Work Risk Assessment (POWRA)
* EMS-FORM-098: Permit to Work Part A, Part B & Part C
* EMS-WI-82: EMS Lockout/Tagout Work Instruction
* EMS-FORM-126 RAMS for Planned Work on Bio Containment Systems (PWBCS)

If required, further training on the procedures detailed in the above documents can be given on site.

The above documents detail Pirbright’s management of H&S for construction works, the following sections highlight aspects requiring particular attention.

### Risk Assessments & Method Statements

Any works on the site must be preceded by a risk assessment and method statement (RAMS). These must be submitted to the Pirbright responsible person at least 5 days in advance of the works.

RAMS must be specific to the task and date of the works and should include a detailed step by step method.

RAMS are never “approved” but will be “reviewed” by Pirbright personnel, and feedback will be given. A permit to work will not be issued if the RAMS are deemed to be inappropriate.

Where appropriate, RAMS should be accompanied by drawings to help explain their context.

Details of the competent person performing works and their relevant training records should be included and/or referenced in the RAMS.

### Tools and Equipment

Contractors should always provide their own tools and equipment they require to complete their works. Pirbright will not issue equipment to contractors.

Equipment which must be supplied by the contractor is as follows. Should tool be taken into areas where virus works take place, the equipment must be suitable for fumigation or can be disposed of. This would be risk assessed as part of the works. All items of test equipment must have a current calibration certificate.

Equipment used by contractors should be in good working order and comply with all relevant legislation.

Electrical equipment should be PAT tested.

Equipment brought into Pirbright’s restricted areas will need to be suitable for fumigation or disposal, based on a specific risk assessment.

Where appropriate calibration, inspection and testing certificates of equipment being used should be issued to the responsible person before works commence. PPE

Contractors should provide their own personal protective equipment (PPE). PPE used should be suitable for the works and specific type/specification of PPE should be detailed in the RAMS.

### PPE

Contractors should provide their own personal protective equipment (PPE). PPE used should be suitable for the works and specific type/specification of PPE should be detailed in the RAMS.

### Barriers and Warning Signs.

Where necessary, areas of works must be cordoned off with suitable barriers and warning signs to deter unauthorised pedestrian/vehicle access during work activities.

Contractors must provide their own barriers and warning signs.

### Access Equipment

Contractors should arrange scaffolding required. Pirbright preferred suppliers can be utilised. Contractors should ensure that scaffolding is inspected and tagged on a weekly basis once erected.

Contractors should provide all temporary access equipment required such as ladders. The equipment should be in good working order and should be of a class 1 (industrial) certification standard.

Contractors should provide mobile access equipment and driver/operator required. The equipment should be in good working order and copies of Inspection certificates (less than 12 months old) should be issued to the Pirbright responsible person before works commence. Copies of qualifications/training records/licenses for drivers operating the equipment should be issued to the Pirbright responsible person before the works commence.

Pirbright will not issue any of the above access equipment to contractors.

### Lifting Equipment

Contractors should provide their own lifting equipment and driver/operator if required to complete works detailed in this specification. The equipment should be in good working order and copies of Inspection certificates (less than 12 months old) should be issued to the Pirbright responsible person before works commence. Copies of qualifications/training records/licenses for drivers operating the equipment should be issued to the Pirbright responsible person before the works commence.

Pirbright will not issue any of the above access equipment to contractors.

### Equipment Certification

Where appropriate, evidence of inspection / testing / commissioning of equipment supplied or used for installation works should be provided.

### Permits

All works performed by contractors require a permit to work.

See EMS-WI-085: Permit to Work WI and EMS-FORM-098: Permit to work (Appendix E1) for further details.

Note: The application of the safe system of work and permits to the construction works with relevant members of Capability EMS as advised by the project sponsor in advance of works commencing.

All works affecting Pirbright Bio-Containment systems must be carried out under EMS-FORM-126: RAMS for Planned Work on Biocontainment Systems (PWBCS).

### Isolations

As detailed in the EMS Lock out/Tag out Work Instruction, Isolations must be performed under permit by Pirbright maintenance technicians and should be witnessed by the contractor performing the work who then add their own locks to the isolation.

### Asbestos

The site asbestos register is available on request.

If any suspected asbestos is identified during the works, then works in the area should be stopped and it should be highlighted to the site contact, who will arrange sampling to take place.

### Emergency Procedures

If an emergency event is discovered, such as a fire or medical emergency, the site gatehouse should be contacted for assistance on the emergency extension number 1000 or on radio channel 1.

On discovering a fire, the area should be evacuated, and all personnel should go to the fire assembly point. If safe to do so, fire alarm call points should be activated on the way out of the area.

In the event of a fire alarm, works should stop immediately, and contractors should make their way to their fire assembly point (to be given by the project manager).

### Accident Reporting

Accidents should be reported to the Pirbright responsible person

### CDM Regulations

The contractor will comply with the Construction (Design and Management) Regulations currently in force, where applicable.

## Security and Site Access Requirements

RISK-SOP-7: Management of Contractors (Appendix E1) details site access requirements.

The following sections highlight aspects to be considered.

### Photos

Photos on site can only be taken with prior agreement from the Pirbright responsible person. Any photos taken should not include any faces or vehicle number plates.

### Site Access

To gain access to site, all contractors must have visitor forms raised for them by their site host before arrival on site, therefore a full names and dates of all personnel attending site must be provided at least 24h in advance.

Contractors must report to the gatehouse and present photo ID each time they access site. Photo card driving license and passport are the only forms of ID that will be accepted.

### Site Inductions

An additional 30 min video induction and associated test should be completed by contractors working within any restricted areas.

### Approved Contractors and Escort Requirements

Contractors must be fully escorted by Pirbright personnel unless there are approved contractors within the team.

Therefore, it is recommended that an appropriate number of contractors in each team should complete an institute security check (performed by Agenda). The cost of this is covered by the institute. This process can take up to 2 weeks to complete. To initiate this process, provide full names and an email address specific to the person to the site contact.

1 approved contractor may escort up to 3 unapproved contractors if working in the same area.

All contractors, including approved contractors must be escorted within restricted areas.

### Vehicle Movements

Vehicle movements on site roads is subject to a speed limit of 10 mph which must be observed at all times extra caution should be taken by drivers on site roads due to shared use of roads by pedestrians, bicycles and vehicles.

Vehicle access to the site is through the main entrance at the north boundary of the site.

### Welfare Facilities

Welfare facilities will be provided within the CDM Construction Site set up as part of this project.

### Working Hours

Contractors will be able to access site from 0700h – 1900h Mon - Fri. works outside of these hours need to be arranged with the Pirbright Responsible Person.

Consideration should be given to the use of temporary lighting requirements if working in poor light.

### Construction site management

The construction site should be prepared and managed by the principal contractor delivering the abatement equipment work package.

This construction site should be separated from the wider Pirbright site via barriers etc.

Note: the principal contractor is expected to arrange any equipment required for construction site management such as track way, barriers, site vehicles etc. as part of their works.

Access to the construction site should only be to people who have completed a construction site induction.

This construction site induction should be created by the Pirbright project manager and agreed with the principal contractor.

This induction will initially be delivered by the Pirbright project manager to the principal contractors and internal personnel after which the induction can be delivered by the principal contractor.

Note: The construction site management plan should be agreed with relevant members of Capability EMS as advised by the project sponsor in advance of works commencing.

## Bio Safety Quarantine and Decontamination Requirements

### Quarantine Requirements

Personnel and equipment working within restricted areas will be subject to a 3-day quarantine period. During this period, they or their equipment mustn’t visit zoos, farms, safari parks or other locations likely to house susceptible species of animal.

Further details will be given in the restricted area induction. Quarantine of equipment will be subject to a risk assessment for the specific task.

### Fumigation Requirements

Equipment used for the works within the restricted areas will need to be fumigated out, this is usually performed overnight so allowances must be made for collection of this equipment the next day or on the next visit. This also means that equipment taken into the restricted area should not include absorbent materials as these cannot be fumigated out, this often requires straps / packaging materials to be removed from equipment.

This also means that paper cannot be removed from restricted area (arrangements to scan and e-mail paperwork can be made in advance).

## Design Requirements

### Design Responsibility

Detailed design work for all mechanical, electrical, civils and controls works should be carried out for all works. Final design responsibility will always be with the supplier as appointed by the client.

### Standards and Specifications

All equipment supplied an installed should be manufactured, installed, tested and commissioned in accordance with all applicable national and international standards, manufacturer’s instructions. These should be referenced in any quotation documentation and RAMS documents.

### Design Review & SWIFT Analysis

The proposed design should be reviewed with appropriate Capability EMS personnel and external consultants. The Principal Designer and any appropriate sub designers must attend and provide any information requested in advance.

The Project Manager shall arrange for a full DQ exercise to be undertaken in respect of all detailed designs submitted as part of this project.

### Documentation

The common platform for all project documentation between contracting teams and the client (Pirbright) will be the cloud-based construction management software, “Procore”. System familiarisation and access will be provided to the Project Manager following appointment.

The following documentation should be issued before works commence:

* Design Drawings
* Control Philosophies
* Design calculations, or statements confirming they are not required.
* Relevant safety certificates for equipment being used to perform the works.
* Contractor Risk Assessment / Method Statements.
* Scopes / schedules of works
* Any lifting plans.
* Any waste storage / disposal plans.
* Other statutory documentation, as required.

## Completion of works

The following sections detail what will constitute the completion of the works.

### Inspection and Testing

Any records relating to the inspection, testing and commissioning of an installation should be provided to the project manager. Were appropriate, witnessing of these by a member of the Pirbright engineering team may be required.

### Commissioning, Verification & Validation (CVV)

Commissioning of equipment must take place to prove that requirements as detailed by this scope of works have been successfully met. CVV requirements must be drafted during the Design development phase of the project and finalised during the detailed design phase of the project.

### End Users Training

Appropriate end users training must have taken place to a level that the end user feels they can successfully operate and maintain any equipment.

### Snagging Surveys

All works, they must be visually inspected by an appropriate member of the institute engineering team. Any snags identified shall be listed on a project snagging schedule by the project manager and reviewed with the principal contractor and project sponsor to agree where responsibility for remedial works lies. Performance and documentation defects/deficiencies can also be recorded and traced on this schedule.

### Project Information File (PIF)

Final handover to the Pirbright operations team includes the completion of a Project Information File (PIF). This includes information from the contractors. Details of what is to be included in the PIF are shown in the PIF check sheet included in Appendix E1.

All project documentation is to be handed over using Pirbright’s document naming convention

A full list of assets disinvested and new assets will be provided in accordance with Pirbright’s asset naming convention

Pirbright’s document management system is the cloud-based “Procore” system and this will be used for the sharing of all design information, handover, etc to ensure traceability.

The Following documents apply and are included in Appendix E1:

* EMS-WI-230 - Technical Library Principles of Use
	+ EMS Document Naming Convention
	+ Procore Disciplines

### Operations Handover Workshops

Operational handover workshops should take place between once the activities in the sections above have been completed, this should be facilitated by the Project Manager and should involve the following people:

* Capability EMS Leader Operations and Maintenance
* Capability Operations Projects Manager
* Appropriate Capability EMS Specialist Equipment Owners
* Capability EMS BMS Owner
* EMS Technical Coordinator
* Maintenance Supervisor(s)
* Science Users (if applicable)
* IT representatives (if applicable)
* HSBS representatives (if applicable)

All project and Handover documentation will be accessed on “Procore”, the cloud-based system which Pirbright use for their document and drawing management.

All documentation for review will be uploaded to Procore and will be organised according to Pirbright’s stated document naming convention, which is attached in Appendix E1.

### Project Completion Sign Off

Once all the activities in the above sections have been completed, then a project completion sign off sheet should be signed by those that attended the handover workshops.

This marks the completion of the project and any new equipment installed is now managed by Capability EMS Operations and Maintenance.

### Waste Management

A project will not be signed off if waste from the works remains on site, contractors must dispose of waste from the works via appropriate means.

Pirbright waste streams must not be used without prior agreement.

It is envisaged that no Pirbright waste streams will be used for the delivery of these works.

All waste spoil created by the works must be removed from site by the contractor and disposed of in an appropriate manner. However, this must be confirmed in writing with the Pirbright Biosafety team as spoil from some areas of site must be stored and/or sampled on site before disposal.

Any waste skips/bins/collections must be arranged by the contractor.

Waste management for this project will be based on a risk assessment.

## Commercial Requirements

Quotations will be gathered through the appropriate procurement procedure. Orders can only be placed with approval from the Project Sponsor (as budget holder).

Raising POs and co-ordination of any competitive Request for a Quote process will be by EMS Administration.

Contractor capability should be reviewed before works are awarded based on the requirements set out in the Invitation to Tender pack.

## Project Management Requirements

### Project Meetings

Regular project progress meetings between the project manager will take place with the principal designers / contractors and any other relevant personnel required regularly. Technical Working Group meetings to be held weekly.

### Project Risk Register

A project risk register will be created and will be reviewed at Technical Working Group meetings.

The risk register should include design, H&S, cost and operational risks and details of mitigation measures to be taken.

### Project Programme

The works can only take place during agreed shutdown, which are:

* 23rd December 2024 – 14th February 2025
* 26th August 2025 – 10th October 2025

A live project programme will be agreed in the detailed design phase and then further agreed once contractors are procured. Contractors should provide a delivery and installation programme associated with any works they are quoting for. The Project Manager should own and maintain the overarching project programme and Principal Contractors/Designers should provide information on their elements of works as required.

### Documentation Storage

All project documentation will be stored by the site contact the works in the project file on the Pirbright server.

### Project Co-Ordination

The following activities will ensure project co-ordination:

* Regular project management meetings, primarily between the Pirbright client representative and the principal contractor/designer.
* Regular (weekly) Technical Working Groups with project stakeholders to drive progress.
* Regular site checks to see progress and ensure works are taking place in a safe manner.
* Toolbox talks: Principal Contractor or Project Manager to conduct Toolbox Talks with all subcontractors as and when required to highlight any site issues for awareness.
* Regular updates from the Pirbright Project Sponsor overseeing the works to the Pirbright Capability Estates Management Services team.

### Client Representative

Pirbright Project Manager will be acting as the Client Representative in terms of CDM responsibilities.

### Governance and Working Groups

This project will be delivered through a Construction Management procurement route with the procurement of Work Packages to be managed by the Pirbright appointed Project Manager, through the Pirbright procurement department, using Pirbright’s procurement process.

The following Working Groups and project boards will be required to deliver the project:

* Weekly Technical Working Group: Emphasis on Project and design technical issues and problem solving.
* Monthly Operations Project Board: Present overview of monthly Project Highlight Report and answer questions, take direction, discuss any issues.
* Monthly site coordination meeting: Site coordination with other projects and operations, deconfliction as required.

# Particular Requirements

This section describes the particular requirements of each works package of the scope of works.

This is not restrictive or fully detailed and the designers/contractors should provide additional detail where required and suggest alternatives if appropriate.

## Work Package 5 – Design and Build of Incinerator Kiln Refractory Lining replacement for the Primary and Secondary Combustion Chambers

Overview:

The aim of this work is to replace the Kiln Refractory Lining for the Primary and Secondary Incinerator Chambers to ensure that the ISO 11 incinerator remains available to operate, safe, reliable and will serve the building for a minimum of 10 years.

Scope of Works:

* Detailed design and configuration of the new refractory lining and anchors based on the existing plant, drawings and documentation.
* Supply and delivery of all refractory materials and anchors.
	+ This would include any materials used for forming, moulding, and support structure (e.g. wood, polystyrene) and 1 tonne waste bags with sealable tops.
* Deconstruction of existing refractory lining and Anchors (Disposal of waste by others)
* Installation of the new anchors and refractory lining as per agreed detailed design.
* Management of drying out and curing of the lining.
* Management of all subcontractors employed by the supplier to complete these works.
* On completion, an O&M is to be submitted which provides details of works from design to completion. The O&M should include all relevant items shown in the PIF and a separate section which provides details of the following
	+ Brief Description of the works being carried out.
	+ Project Risk Assessment.
	+ Key structural principals.
	+ Hazardous materials used.
	+ Information on the future removal of installed plant.
	+ H&S information about equipment provided for cleaning or maintaining installed plant.
	+ The nature, location and markings of significant services.
	+ Information and as built drawings of buildings, plant and equipment.
	+ Step by step activities to carry out the works.
	+ Lesson Learnt, challenges met and how they were overcome.
	+ Details on how the curing burners are set up and how the ventilation and ID fans are set up to draw away the heat.
* As part of the works, the supplier should also provide the following:
	+ Provision to ensure safe access and egress to confined spaces (Gas monitors, Rescue Personnel, Outside Watchman, etc)
	+ All provisions for the deconstruction, installation and drying / curing of the refractory, including but not limited to:
		- All necessary machinery and equipment required for the works.
		- Provision of lighting in the individual plant sections.
		- Provision of transport vehicles required for the works which is not listed as part of the CDM site below.
		- Provision of weather protection for any equipment and materials used/stored outside.
		- Air compressor and fuel.
		- Extraction fans and filtration to minimise dust generation within area of works.
		- All PPE required for safe working during all works.
		- Equipment and fuel required for drying and curing of the refractory lining. Recommend diesel burner as gas would be difficult to arrange on site.
* A CDM construction site will be required to be set up as part of these works. Based on the scenario that the work can be delivered in the first shutdown (23rd December 2024 – 14th February 2025), the supplier is requested to provide a cost for the supply and management of the CDM site required for the refractory works only. It is expected that the supplier should allow for the following at a minimum:
	+ Acting as Principal Designer & Principal Contractor for Work Package 5
	+ Site Supervision
	+ Site Establishment
	+ HERRAS fencing and appropriate signage around CDM area
	+ Site Office
	+ Welfare Office
	+ Waste skips
	+ Access Equipment
	+ CDM documentation / inductions / daily logs / management of RAMS
	+ Management of Works Package Contractors

Design Basis & User Requirement Specification (URS)

* Technical Datasheets for the materials used for the recent installation of the Front Plate Refractory is available in Appendix E2 & E3. This information is to be used for guidance as part of the material selection, but the supplier can propose alternatives if appropriate.
* Dimensional information of the existing incinerator is shown in Drawing P012-CIR-INC-XX-SCT-001. This provides key dimensions, but the supplier is responsible for checking and taking their own measurements.
* The table below shows the URS for this contract:

|  |  |  |  |
| --- | --- | --- | --- |
| **Requirement** | **Type** | **Priority** | **Method to Measure and / or Test Requirement** |
| The refractory needs to withstand temperatures between -10°C to 1,200°C | Functional Requirement | Must Have | Confirm by datasheet for materials being used at design stage and confirmation during installation |
| The refractory needs to withstand cool down and heat up cycles at maximum once per week during operation and 3 times for one week every 6 months. | Functional Requirement | Must Have | Confirm by datasheet for materials being used at design stage and monitor during warranty period |
| The refractory needs to be able to withstand burning of animal fats which can cause areas of sudden intense temperatures. | Functional Requirement | Must Have | Monitor during first burns (at least 3 burns) |
| The gap between the fixed face and rotating face needs to accommodate heat expansion between the operating temperatures whilst minimising waste to the catchbox | Functional Requirement | Must Have | Monitor during first burns (at least 3 burns) |
| The refractory needs to be supported with anchors suitable for the operating conditions of the incinerator. | Functional Requirement | Must Have | Confirm location and method to fixed anchors during design stage and verify during installation that these are located and fixed as per agreed design |
| The curing process needs to be completed with independently controlled heaters which uses diesel oil and cannot use the incinerator burners. | Technical Requirement | Should Have | To be confirmed during design stage and verified during drying/curing |

* Below is a table which shows some issues found in March 2024 and how these were overcome. This is to be used as a guide for this tender.

|  |
| --- |
| Issues found in March 2024 |
|  | **Issues found:** | **How it was solved:** | **For next time:** |
| Compressed air  | Catch box got extremely hot in which in could have melted. | Comp air was added to catch box to keep cool. | Do this ahead of time. |
| Air compressor nearly ran out of fuel  | Topped up using our bowser and then a delivery of fuel later on by external party. | Fuel monitored closely, can use the same process if needed. |
| Burners | miscommunication of fuel supply on site. Moller assumed we has Nat gas at incinerator due to Brooksby and therefore hire Nat gas burners. | Enough Nat gas was purchased in cylinders to accommodate the curing time. | Red diesel fuelled burners used instead |
| Nat gas manifold proved difficult for bottle changes | Unknown. | Red diesel fuelled burners used instead |
| Nat gas cylinders storage. No appropriate location for storage. | Spread around the external area of the abatement and PMINCIN. | Red diesel fuelled burners used instead. Separate storage tank supplied. |
| Nat Gas cylinder removal post completion of works. | Collected eventually and invoiced for used amount. | Order as much as is required with 10% extra for contingency. |
| Confined Space | Lack of qualified personnel on site to meeting confined space minimum requirements. | * Overtime for TPI personnel when required.
* Voluntary Cancellation of annual leave to ensure enough personnel on site.
* Moller PCI supervisor acted as a rescue man if required.
 | Contractors to supplied full confined space team including top man and rescue team. |
| Ventilation | Excessive dust build up in loading and unloading hall due to the charge end being replaced. No seal form the inside during this time.  | Once removal of existing refractory was performed a blank was fixed to the ram/firedoor opening to prevent further dust entering the loading hall. | Seal opening before starting works.  |
| ID fans were not pulling enough for adequate ventilation  | Rammed up ID fans but little difference. | Sufficient separate ventilation provided. |
| Weather | Raining and cold therefore damp and frozen materials. | * Large tent was supplied by Moller to cover materials.
* Used large heras fencing and covers and heaters to create a dry and warm environment for the materials being used.
 | Larger tent with a separate location or room for used materials and heating.Needs to be fixed to the ground. |
| Storage of materials being used | Not enough room for the refractory materials being | Used large heras fencing and covers and heaters to create a dry and warm environment for the materials being used, between the unloading hall and abatement building. | Larger tent with a separate location or room for used materials and heating.Needs to be fixed to the ground. |
| Power supply | Lack of 3 phase supply for Moller equipment | * Installed 3 phase supply for Moller equipment.
* Transfers used too.
 | I suggest contractors come to site before to ensure they have enough power source for the equipment required. |
| Movement of waste refractory | Movement of refractory waste form PPC gantry to waste bags on ground floor | 1 tonne dumper with height extension bucket used for lowers and transport. | Same process or a form of conveyer. |

# CDM requirements

This section outlines the CDM specific requirements for the project.

## Client Brief

This scope document forms the client brief.

## Duty Holders

**Client**

The client is The Pirbright Institute; represented by the TPI project manager (TBC) and as such will:

* Appoint the principal contractor and designer in writing.
* Take reasonable steps to satisfy themselves that appointees have H&S skills, knowledge and experience.
* Complete HSE notification if required and display the notification at a location all contractors can see it.
* Update HSE notification if required.
* Provide Pre-Construction information as required.
* Ensure a construction phase plan is drawn up before works commence and ensure it is updated throughout the project.
* Ensure a health and safety file is drawn up before works commence and ensure it is updated throughout the project.
* Take reasonable steps to ensure the principal contractor and designer are fulfilling their responsibilities.

**Principal Designer – This role will ~~not~~ be formally appointed to the contractor, ~~but~~ and the work will be carried out in accordance with the CDM Construction Site set up for this project**

The principal designers will:

* Manage all Work Package designers.
* Produce a health and safety file and update it throughout the project.
* Provide pre-construction information as required.

The Designer for each work package is to be confirmed.

The designers will:

* Manage all sub-designers.
* Produce a health and safety file and update it throughout the project.
* Provide pre-construction information as required.

**Principal Contractor – This role will ~~not~~ be formally appointed to the contractor, ~~but~~ and the work will be carried out in accordance with the CDM Construction Site set up for this project**

The principal contractors will:

* Manage all Work Package contractors.
* Produce a construction phase plan and update it throughout the project.
* Provide pre-construction information as required.

The Contractor for each work package is to be confirmed.

The contractors will:

* Manage all sub-contractors.
* Ensure that all parties working on the construction adhere to The Pirbright Institute Safe Systems of Work.
* Provide pre-construction information as required.

## Pre-Construction Information

This document forms the pre-construction information and will be updated and re-issued as appropriate.

## Management Arrangements

Section 4 outlines the management arrangements for the project.

## Notification to HSE

If applicable, HSE notification will be done by the client representative.

## Construction Phase Plan

Separate construction phase plans for each work package will be written and issued by the relevant Principal Contractor. This must be reviewed with the client before any works can begin.

The construction phase plan should include the following sections (relevant sections of this document are also referenced):

* The health and safety aims for the project
* The site rules
* Arrangements to ensure co-operation between project team members
* Co-ordination of their work, such as regular site meetings
* Arrangements for involving workers
* Site induction
* Welfare facilities
* Emergency procedures, such as fire and first aid
* The control of any of the specific site risks relevant to the project

## Health and Safety File

Each work package should have a health and safety file maintained by the relevant principal designer throughout the project and issued to the client as a standalone document on the completion of works.

It should include the following information:

* Brief Description of the works being carried out.
* Project Risk Assessment.
* Key structural principals.
* Hazardous materials used.
* Information on the future removal of installed plant.
* H&S information about equipment provided for cleaning or maintaining installed plant.
* The nature, location and markings of significant services.
* Information and as built drawings of buildings, plant and equipment.

## Application of CDM to this project

~~As part of this contract specification, the supplier is not expected to take the role of Principal Designer (PD) or Principal Contractor (PC). These roles will be appointed separately. The supplier is required to maintain communications with the PD for any health and safety aspects relating to the design of the work package in this contract. When working on the CDM site, the supplier is required to follow the site rules, obtain permits for their work from the PC, maintain communications with the PC on a daily basis to discuss the works being carried out and raise and concerns with the PC.~~

As part of this contract specification, the supplier is expected to take the role of Principal Designer (PD) and Principal Contractor (PC). The supplier is required to maintain communications with the Client Project Manager for any health and safety aspects relating to the design of the work package in this contract. When working on the CDM site, the supplier is required to manage the site rules, provide permits for their work from the CDM Site Supervisor, maintain communications with the CDM Site Supervisor on a daily basis to discuss the works being carried out and raise and concerns with the CDM Site Supervisor.

Technical detailed design and the health and safety of personnel working on this work package within the CDM site are the responsibility of the supplier.