

RIDGE

PROPERTY & CONSTRUCTION CONSULTANTS



PRE-CONSTRUCTION INFORMATION

HMS BELFAST REPLACEMENT OF SEWAGE PUMPS & FOUL DRAINAGE

6th December 2016

Prepared for

Imperial War Museum London
Lambeth Road
London
SE1 6HZ

Tel: 020 7416 5000

Prepared by

Ridge and Partners LLP
Harling House
47-51 Great Suffolk St.
London SE1 0BS

Tel: 020 7593 3400

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Introduction

In compliance with the Construction (Design and Management Regulations) 2015, Ridge & Partners LLP have been appointed by Imperial War Museums as the Principal Designer for the HMS Belfast – replacement of sewage pumps & foul drainage works.

In accordance with the above regulations, the Client wishes to minimise risk to all parties involved in the contract, use and maintenance of the ship. Following the completion of the project, a Health and Safety File will be handed to the Client to keep for inspection by anybody who needs to make use of the information gained during the development of the project.

The Health and Safety Plan and File are provided for the purpose of conveying information provided by others to those who have a duty to ensure the health and safety of any person at work, any person who is carrying out work or will carry out construction work, maintenance or cleaning work in or on the structure, or any person who may be affected by such work.

Ridge and Partners LLP does not accept any responsibility for the accuracy and currency of the documentation provided by others.

Note: For construction purposes the latest issue of documentation from the designers should always be used.

ISSUE RECORD

Version	Description	Date issued	Prepared by	Checked by
1.0	PCI first issue	29/11/2016	M Allen	P Wilkinson
1.2	PCI Final Issue	06/12/2016	P Wilkinson	M Allen

1. PROJECT INFORMATION

1.1 Project Description

Constructed between 1936-38, HMS Belfast was launched in March 1938 as a Royal Navy light cruiser. Displacing 11,550 tons, she is approximately 189m in length and has been commissioned across the world including the Arctic (1943), North Cape (1943), Normandy (1944) and Korea (1950-52).

The ship underwent extensive modernization between 1956-59, before entering reserve in 1963. In 1971 HMS Belfast was transferred to the HMS Belfast Trust for preservation and moved to her present mooring on The Thames. Opened to the public in the same year, she later became a branch of the Imperial War Museum in 1978 and currently receives over 250,000 visitors per year.

Foul waste currently is pumped from the ship via two macerator pumps –located fore and aft. The sewage pipes are flexible rubber, and run down the side of the ship, across the river bed and up through the river wall to connect into a drain in front of the Pavilion building which accommodates the visitor entrance.

The works comprises of the replacement of the sewage pumps, to supply and install a new insulated stainless steel foul drain across the Brow walkway and connection of same into the foul drain on shore. The existing flexible drainage lines are to be flushed and removed.

This project is to make a more permanent connection to land, of an insulated trace heated stainless steel sewage system across the brow walkway and up to a manhole adjacent to the South side of the entrance pavilion in the paved area.

Please refer to Tender Documentation for a comprehensive scope of the works and the Tender issue drawings produced by the appointed designers.

The Principal Contractor shall note that all appropriate control measures must be taken to ensure site security and construction activities that may generate vibration, dust, fumes, gases or vapours including noisy works. HMS Belfast will remain open to visitors during the works.

Ridge have been appointed by Imperial War Museums to undertake the role of Principal Designer, therefore if any design work continues the construction phase the Principal Contractor must share any relevant information for Health and Safety with the Principal Designer and other members of the project team.

1.2 Project Particulars

CLIENT

Name: Imperial War Museum London

Contact: Steve Rogers (Head of Facilities Management)

Address: Lambeth Road, Southwark, London SE1 6HZ

Telephone: 020 7416 5000

Email: SJRogers@iwm.org.uk

PRINCIPAL DESIGNER

Name: Ridge and Partners LLP

Contact: Paul Wilkinson

Address: Harling House, 47-51 Great Suffolk Street, London SE1 0BS

Telephone: 020 7593 3411 / 07557 315854

Email: plwilkinson@ridge.co.uk

DESIGNER

Name: Unitspark Limited

Address: 150 Great North Road, Hatfield, Hertfordshire AL9 5JN

Telephone: 01707 273111

PRINCIPAL CONTRACTOR

Name: TBC

ADJACENT LANDLORD

Name: More London Estates

Address: 2a More London Riverside, London SE1 2DB

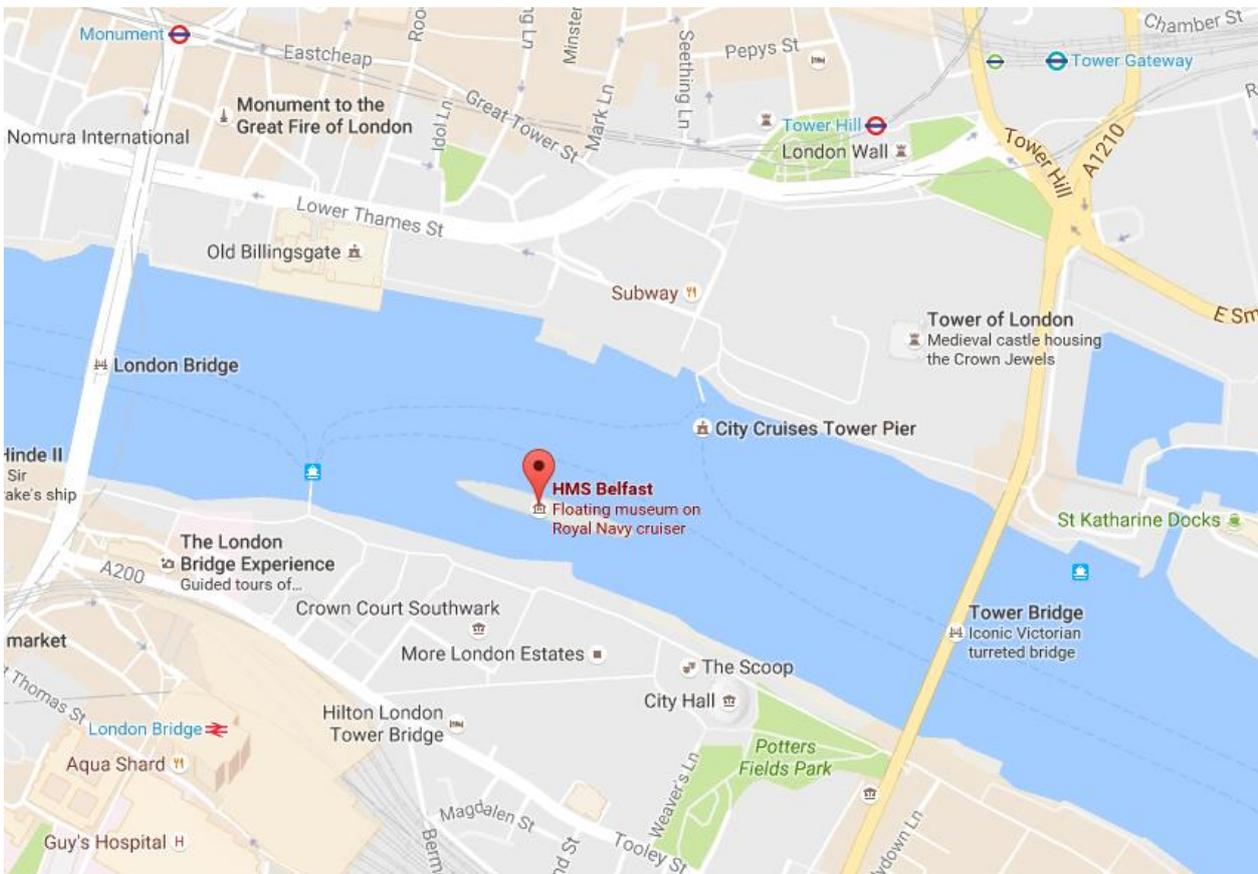
Telephone: 020 7403 4866

The Principal Contractor must provide the Principal Designer with full details of any additional designers associated with the construction phase.

1.3 Site Location

The site is restricted to localized areas of HMS Belfast and the Brow walkway. HMS Belfast is permanently moored at The Queen's Walk, London SE1 2JH, equidistant to London Bridge & Tower Hill Bridge. Access to the ship is via the brow walkway or by river.

The Principal Contractor is to note that there is no adjacent parking and any unloading can only be undertaken early morning by arrangement with the Facilities Manager and adjacent landlord – More London Estates (who own the adjacent paved areas).



Project Programme

The key dates for the Principal Contractor to consider are as follows:-

- Anticipated project start: Early 2017
- Anticipated completion date: TBA

Working Hours are to be agreed with the Client and will include early mornings and evenings. Certain operations such as noisy or disruptive works will need to be undertaken outside of the ship's working hours. The Principal Contractor is to note that the HMS Belfast is open to visitors 7 days a week between 0930–1800 and will remain open during the works.



The Client has proposed programme phases outlined in page 12 of the specification (contract ref IWM/CWP/1582), though the Principal Contractor may submit a revised programme as required.

1.4 Extent and location of existing records and plans

The Principal Contractor must ensure that they are in possession of adequate information prior to the commencement of any works on site.

Extensive asbestos insulation to pipes & ducts and other asbestos containing materials (ACMs) are present throughout the ship. An asbestos register is maintained by the Client and is available from the Facilities Manager.

Care should be taken when working in the vicinity of asbestos to prevent damage of any areas.

Additional protection should be provided where required.

Should any damage occur to asbestos containing materials works should stop and the Client or Clients representative informed immediately

EXISTING RECORDS / PLANS	
IWM Rules for Contractors	Appendix D
Asbestos register	Available from the Facilities Manager
Deck layouts	Issued in tender pack
Brow details	Issued in tender pack
Proposed pipe runs	Issued in tender pack

1.5 Regulatory Requirements

The Construction (Design and Management) Regulations 2015, Workplace (Health, Safety & Welfare) Regulations 1992, Gas Safety Regulations Water, Bye Laws and IEE Regulations will apply to the proposed works.

Any subsequent Principal Contractor design works must also be carried out in accordance with the requirements of the Building Regulations, Fire Regulatory Reform Safety Order and current legislation requirements.

2. CLIENT’S MANAGEMENT REQUIREMENTS

2.1 Management of the Construction Work

The Principal Contractor must ensure compliance with all relevant legislation, approved codes of practice and best practice. The construction phase plan should be developed in consultation with the contractors who will be affected by it, and the Principal Contractor should request any additional information required from the Client’s team for the plan through the Principal Designer.

The Principal Contractor shall submit the construction phase plan and details of the welfare arrangements to the Principal Designer for review at least two weeks before the intended commencement date. A copy of the vetting sheet to be used by the Principal Designer in this respect is included in the appendix. The Principal

Contractor shall not commence any work on site (including site set up) until he has received written confirmation from the client that his construction phase plan and welfare arrangements are satisfactory.

The Principal Contractor is to provide a competent Site Supervisor to receive directions given to him by the Project Manager and remain on site throughout the duration of the contract. The Site Supervisor must assist the Principal Designer in maintaining the health & safety file for this project.

Detailed proposals for the following shall be included in the plan submitted:

- Site access plan
- Site set up method statement and risk assessments (referencing control measures for working over tidal water with strong currents and use of life jackets, safety lines & safety boat, rescue plan etc.)
- Arrangements for working alongside large numbers of visitors, IWM staff and passing public
- Safety and ship protection measures
- Design risk reduction where appropriate
- Restricted access for deliveries and removal of waste
- Site supervision

The Principal Contractor is expected to review and revise his construction phase plan as necessary throughout the construction period. He should note, however, the Regulations do not require such revisions to be approved by either the Client or Principal Designer; however this will be an agenda item during site visits and audits. The Principal Contractor is to ensure that the following provisions are in place:

- Produce and the **Construction Phase Health and Safety Plan** which clearly highlights the procedures for securing safety in planning, consultation with the project teams in accordance with the CDM 2015 Regulations and other relevant statutory regulations.
- **Method of Construction** – with due consideration for dust suppression, extraction, suitable plant and equipment which secures safety and take into account the site constraints. Ensure that there is adequate lighting in all working areas.
- **Lifting arrangements:** all procedures are to be in accordance with LOLER and HSE guidance / best practice. Manual handling arrangements are to take into account (TILE) and Hierarchy of control adopted to ensure that lifts are mechanised where applicable. Arrangements for the use of a barge to lower and raise materials must be outlined if applicable.
- **Waste management** procedures are to be highlighted with the Construction Phase Health and Safety Plan which are to include licensed removals information and Hazardous Waste Consignments. The Principal Contractor shall not be allowed to use ship refuse provisions & containers expect by arrangement with the Facilities Manager. Waste must be removed daily.
- **Site set-up**, method statements and risk assessments to include arrangements for working within a ship and above tidal waters.
- **Design risk reduction** – in accordance with the general Principles of Prevention (where this may be applicable).
- **Site segregation** –Principal Contractor is to clearly detail the demarcation arrangements, access and egress routes as well as the overall site logistics.
- **Welfare provisions** – Compliant with Schedule 2 of the CDM Regulations 2015.
- **Storage & transportation** – Material & equipment storage arrangements to be highlighted in the Construction Phase Health and Safety Plan.
- **Safe working procedures and controls** to be put in place for all high risk operations in accordance with Schedule 3 of the CDM Regulations 2015.

- **Site supervision** - Suitably qualified and experienced person(s) are to be employed to ensure that health and safety is secured throughout the works.
- **Deep clean** – arrangements for the deep clean of all work areas on the ship and brow walkway will be required at the end of the project.
- **Occupied site:** Protocols for Contractors working within close proximity to large numbers of visitors and pedestrians.
- **Ongoing liaison** with the client to ascertain if any other contractors will be working on the site so that this can be coordinated. Alterations to services must be carefully programmed after agreement with the Client so as not to disrupt normal business operations. Kier Workplace is contracted by the Imperial War Museum to maintain the ship’s services and fabric. Their works typically include door entry systems, fire alarms, intruder alarms, CCTV, ICT datalinks, intercoms and telephones, which are not expected to interfere with this project.
- **Signing in system** – All operatives are to sign in prior to accessing the site areas and to undertake an agreed Site Induction. The Project Manager and Facilities Manager will deliver the site induction on the morning of the first day of starting works.

2.2 Progress Safety Report

The Principal Contractor shall include detailed reports on site health and safety management as part of his progress reports, which shall include:

- Accident and incident rate;
- Summary of all accidents/incidents including minor and near misses that have occurred during the reporting period and actions taken to prevent a recurrence of similar incidents;
- Copies of all formal site inspection reports for the period , details of any particular actions taken in consequence of the reports, and a summary of the main findings;
- Report on any significant high risk activities planned to take place over the next reporting period and how the risks will be managed;
- Report on any significant high risk activities that took place over the last period and how the risks were controlled;
- Report on any amendments made to the construction phase plan during the period (review schedule of risk assessments and method statements);
- Confirmation of the number of people inducted during the period;
- Confirmation of toolbox talks and other onsite training undertaken during the period;
- Details of the welfare facilities on site and associated cleaning regime;
- Confirmation of health and safety coordination meetings held in the period e.g. Meetings with the Client’s Site Representative, contractors safety coordination meetings;
- Confirmation of site security arrangements and details of any breaches of site security during the period.

2.3 Health and Safety Goals

The following health and safety goals have been set for this project. Achievement in relation to these goals will be measured as indicated and reported to the client at progress meetings.

TARGET	MEASUREMENT PROCEDURE	TIMESCALE
No lost-time accidents	Accidents/near misses to be recorded	Ongoing
All personnel to receive site induction prior to	Principal Contractor to keep induction records available for	Prior to commencement & ongoing

TARGET	MEASUREMENT PROCEDURE	TIMESCALE
commencement of work	inspection	
Weekly formal site health and safety inspections	Principal Contractor to keep records of inspections available on site and include copies with his progress reports	Weekly
Appropriate PPE to be worn at all times as identified during risk assessments	Principal Contractors regular site safety inspections Observation by Client and consultants visiting site.	Ongoing
Positive feedback from Client	Client feedback to be on agenda for progress and project review meetings	Ongoing
Noise & Vibration	Principal Contractor is to plan the works so that disruption is minimised to visitors of the site, staff and pedestrians	Ongoing

2.4 Site Rules

- Display Statutory Notices, F10 Project Notification (if applicable), PI Insurance, Health & Safety at Work Act Law Poster, emergency procedures, key contact information for site manager and first aider.
- Deliveries and waste removals to be agreed and restricted in agreement with the Client and adjacent Landlord.
- Expected standards of professional behaviour to be maintained at all times by all site operatives
- Use of radios / music prohibited on site
- No smoking within any areas on site
- No dropping/bombing of materials will be tolerated
- No accumulation of debris/waste materials etc.
- Stringent housekeeping measures to be adhered to by all site operatives
- PPE as determined by risk assessment to be worn at all times when within site working areas and hard hats are to be enforced where there is the potential risk of any head injuries.
- Contractors must adhere to the Safe Working Conditions and Protection of Staff, Visitors and Collection rules operated by the Imperial War Museum. **See appendix D.**

2.5 Communications

Good communication is vital to ensure that the project will be well managed and minimise risks to health and safety. It is the responsibility of all Designers, Contractors and the Principal Contractor to liaise with the Principal Designer through the duration of the pre-construction phase, i.e. *any phase in which design is undertaken*. To ensure work is co-ordinated properly all duty holders must attend design and progress meetings as required in order to ensure that details of health and safety risks are shared amongst the project team.

The Principal Contractor should highlight any risk information which has not previously been recorded as soon as it becomes available / known to him. The Principal Contractor will be required to speak to the Principal Designer on a regular basis and keep him apprised of forthcoming works that may affect:

- The operations of the Client;
- Any third parties including visitors to the site;
- The safe undertaking of the project;;
- The safe management (i.e. cleaning and maintenance) of the final project.

In accordance with **Regulation 14** of the **CDM 2015 Regulations** the Principal Contractor must consult and engage with the workforce to ensure that measures for their health, safety and welfare are developed, promoted and checked for effectiveness. Consultation must be carried out in a timely manner.

Health and safety will be on the agenda for all progress meetings. This should include a discussion of any key up and coming health or safety risks / issues, as well as a report on achievement with respect to project health and safety targets.

2.6 Existing Features & Damage

HMS Belfast is a grade 2* listed ship. The Principal Contractor is to ensure that all necessary precautions are taken to prevent damage to existing ship structure, bulk heads, fittings, historic equipment and any other part of the ship features which are to remain in position during the execution of the works.

The maneuvering of plant and machinery in particular must be planned so as to cause minimal disturbance to adjacent areas.

2.7 Welfare Provision / First Aid

Welfare

The Principal Contractor is required to provide welfare facilities which meet the minimum requirements set out in Schedule 2 of the CDM Regulations 2015. This duty only extends to the provision of welfare facilities for the contractor's own employees who are working on a construction site or anyone else working under their control. Facilities must be made available before any construction work starts and should be maintained until the end of the project.

To assist with this, the Client has afforded the use of the existing designated staff toilet and washing facilities (including a shower) for use by the Principal Contractor. An area will be made available which can be used as a rest room. Usage of one of the maintenance welding bays and staff mess room/toilets will be possible by arrangement with local FM manager – although space available is limited.

First Aid

Provisions for first aid must include an adequate number of first aiders/appointed persons and first aid kits, as well as other facilities appropriate to the risks faced by those on site. First aid boxes should be strategically sited in relation to the work area and be conspicuously marked.

The person in charge of the box should ensure that it is kept properly stocked and in a clean, serviceable condition. Details of first aid provisions are to be included in the Principal Contractor's Construction Phase Plan and displayed on the site notice board.

2.8 Hoarding Requirements and any Additional Security Measures

The client requires that all contractors staff need to have security clearance prior to undertaking any works on site.

Security forms are available from the main IWM guardroom and must be completed and returned at least three weeks in advance of works commencing.

The Principal Contractor will be responsible for security of the designated work area. The Principal Contractor shall provide and maintain all necessary signage, plus any necessary additional barriers, screens, planked footways, guard rails, gantries and similar, to segregate his working area(s) from third parties. Signs advising that construction works are in progress should be displayed.

At the end of each day the Principal Contractor shall ensure that the area of works or contractor's areas are secured as appropriate and that no materials etc. are left in a position that would cause injury or obstructions. The continual maintenance of site security and staff, visitor & pedestrian safety is vital throughout the Contract period.

2.9 Site Compound and Parking Restrictions

The Principal Contractor should detail the site logistics for the compound areas / storage areas on the sites.

The site logistics should include marked up details of the extent of fencing around the sites, the proposed parking locations for contractor's vehicles, traffic management and the unobstructed routes to be maintained for Emergency Services vehicles and refuse collection.

HMS Belfast will remain open to large numbers of visitors, including children and vulnerable persons during the works, therefore strong consideration must be given to ensuring third party safety at all times.

2.10 Fire and Emergency Procedures and Means of Escape

. The Principal Contractor must adhere to the current fire and emergency procedures of the site.

The Principal Contractor shall ensure that sufficient qualified first aiders and/or appointed persons are available at all times. All contractors, sub contractors and visitors shall be made aware of the identity of these people. Suitable means of ensuring that first aiders and appointed persons can be readily identified include displaying their names on the site notice board and requiring them to wear suitable labels on their hard hats.

The Principal Contractor shall keep records of all accidents and near misses that occur on site, including copies of any forms sent by contractors to the HSE under RIDDOR. All major occurrences shall be notified to the Principal Designer as soon as possible, and a copy of all accidents / near miss records shall be included in the Principal Contractor's regular progress reports.

Whilst certain areas of the site will have momentary restrictions in terms of works area segregation, this will in no way affect or interfere with fire exits / emergency routes/staircases to the fire assembly points.

2.11 Permits to Work / Authorisation Requirements

The Principal Contractor is note that the Imperial War Museum operates a permit to work system. Before any works can commence, the Principal Contractor is to complete the Authorisation to Work permit available from the Contract Administrator. More details of this procedure are available in section 7 of the Client document “**Instructions and Guidelines for Contractors Working In IWM Premises**” provided in appendix D

2.12 Smoking Restrictions

Smoking is not permitted in any area of the site.

2.13 Noise Restrictions

The playing of radios will not be permitted on site at any time.

3. MANAGEMENT OF HEALTH AND SAFETY HAZARDS OF THE SITE

3.1 Site Boundaries, Access, and Restrictions on Deliveries and Storage

The Principal Contractor shall ensure that access for emergency vehicles is maintained at all times during the construction period and that during the taking of deliveries all local roads are kept clear.

The appointed Principal Contractor will be required to take into account all existing traffic restrictions or hazards inherent to the site area and develop a safe system of works to control this. Preventative measures must be taken to ensure that working areas are segregated, well signed and segregated to ensure that accidental access into working areas are eliminated.

The Principal Contractor will be required to assess the risks inherent with the area so that any risks can be avoided which should include but not limited to: weight / size restrictions (plant), access restrictions e.g. any road closures or works being carried out within close proximity to the site.

Access to the lower decks (pump rooms and engineering bays) is restricted to near vertical ladders and narrow corridors with low head room.

The Client has advised that the following restrictions for deliveries & removals are in operation:

- Van & lorry access to be arranged via the Facilities Manager and adjacent Landlord;
- Delivery vehicles must be removed before 0730;
- Loads must not exceed 4 tonnes;
- All deliveries and removals must take place outside of the ships opening hours;
- Materials can be raised and lowered to a barge by arrangement with the Client.

3.2 Transport Arrangements and Vehicle Movement Restrictions

The Principal Contractor shall submit a traffic management plan for review, which shall include details on control of delivery vehicles. The Principal Contractor shall adopt good practice in planning the site layout and consider the following:

- Reversing should be minimised wherever possible;
- Parking should be made available away from lay-down areas;
- Pedestrians and vehicles should be segregated;
- A one way system should be implemented if possible.

3.3 Adjacent Land Uses

During the planning stages of any project the ship's neighbours & the use of that land is to be considered. Liaison with adjacent Landlord / building operators throughout the works shall ensure that neither the adjacent land use nor the construction works themselves adversely affect each other.

Works adjacent to or in public areas shall be executed using HS(G) 151 – 'Protecting the public, your next move' as a guideline throughout.

The Principal Contractor should make a suitable assessment with regard to adjacent land uses prior to construction.

3.4 Existing Service Locations

The Principal Contractor is to satisfy themselves of all service locations prior to undertake live works to existing electrical, gas and water services, or any intrusive works.

A detailed survey of the service installations has been undertaken by the Client and shared with the Principal Contractor in the tender documentation.

The Principal Contractor is to ensure that all live services are disconnected / isolated prior to any intrusive works e.g. If any cables have to be moved or relocated then this must be done by a suitably skilled person. Any disconnections must be subject to an isolations certificate being retained by the competent person(s) responsible for the isolation.

3.5 Existing Structures

The current scope of work will involve interfering with existing structures on the site therefore suitable and sufficient procedures are to be adopted to manage risk.

The Principal Contractor is to satisfy themselves of all structure loadings prior to undertaking any works. Should structural works be required, the Principal Contractor will also be required to forward Designers risk assessments and the dimensions and weight of materials which are proposed.

The Principal Contractor is to ensure that their Structural Engineer proof reads all structural related design or RAMs and ensure that any temporary works and RAMs is confirmed by them prior to the installation of any temporary work / propping on site.

The Principal Contractor will also need to ensure that a temporary works coordinator is appointed to ensure that all industry standards / HSE guidance is adhered to for the duration of the temporary works.

3.6 Existing Plant & Equipment

The appointed Principal Contractor will be required to undertake suitable and sufficient site investigations to assess the access requirements as well as the location of existing plant and equipment. The Principal Contractor is to also assess the access requirements into plant room / areas.

The Principal Contractor's site manager is to ensure that good communication is maintained with the Client, Contract Administrator and Principal Designer throughout the duration of the works.

3.7 Fire Precautions

The Principal Contractor shall take all necessary precautions to prevent fires from occurring and to minimise effects should there be a fire. He shall work in accordance with the HSE publication "HSG 168 Fire Safety in Construction", available via pdf download at HSE books:

<http://books.hse.gov.uk/hse/public/saleproduct.jsf?catalogueCode=9780717663453>

3.8 Fire and Emergency Procedures and Means of Escape

The Principal Contractor shall draw up emergency procedures for the site, which should be explained to everyone during induction and posted on the site notice board.

The Principal Contractor shall ensure that sufficient qualified first aiders and/or appointed persons are available at all times. All contractors, sub contractors and visitors shall be made aware of the identity of these people. Suitable means of ensuring that first aiders and appointed persons can be readily identified include displaying their names on the site notice board and requiring them to wear suitable labels on their hard hats.

The Principal Contractor shall keep records of all accidents and near misses that occur on site, including copies of any forms sent by contractors to the HSE under RIDDOR. All major occurrences shall be notified to the Principal Designer as soon as possible, and a copy of all accidents / near miss records shall be included in the Principal Contractor's regular progress reports.

4. HEALTH HAZARDS AND RESTRICTIONS

4.1 Asbestos

Extensive asbestos insulation to pipes & ducts and other asbestos containing materials (ACMs) are present throughout the ship. ACMs have been identified in the aft pump room and the Client has advised that this will be encapsulated and the area subject to an environmental clean prior to the works commencing.

An asbestos register is maintained by the Client and is available from the Facilities Manager.

ACMs present on the ship are general sealed, secured and identified via warning stickers & signs and therefore should not create undue hazard. Air testing is conducted regularly with results confirming that asbestos fibres present in the atmosphere are far below the control limit recognised by the HSE.

The Principal Contractor must ensure that particular care is taken whilst manoeuvring equipment along corridors or through areas containing asbestos to avoid causing physical damage.

The following recommendations are advised to be undertaken where applicable to the project:

- All site operatives are to be asbestos awareness trained
- Licensed removals contractor is to be used for licensed removals and waste consignment notes retained as well as 4-stage clearance where applicable (re-occupation certificate)
- The licensed asbestos contractor shall submit the ASB5 notification where applicable (14 day notification of works)
- Site management to review all intrusive elements of the project to ensure that any gaps in survey information are filled prior to demolition or intrusive works. Should any further testing be required this must be planned in coordination with the Facilities Manager and a suitable asbestos demolition/refurbishment survey is in place (undertaken by a UKAS accredited asbestos contractor in accordance with HSG264).

4.2 Existing Storage of Hazardous Materials

The Client will advise as to the locations of any potentially hazardous materials that are stored on site prior to works commencing and at induction.

4.3 Health Risks Arising From Client Activities

The Principal Contractor must make adequate provisions that any health risk arising will be notified and appropriate measures will be taken to ensure safe working conditions for the operatives.

Any unforeseen eventualities during the construction phase must be brought to the attention of the Client / Principal Designer as soon as possible.

5. DESIGN AND CONSTRUCTION HAZARDS

5.1 Significant Risks Identified During Design

Other than that which is already identified within this document, the design team has not identified any further risks associated with the project which are non-obvious to a competent contractor.

Contractors must take all necessary precautions to deal with normal construction risks, such as:

- Occupied adjacent buildings with restricted areas, entrances and fire exits that are to be kept clear at all times
- Site Security
- Lifting operations
- Traffic Management, deliveries to site
- Removal of waste/debris materials
- Working at Height (edge protection or lack of)
- Manual handling
- Slips and trips, particularly on the Brow and metal decks
- Waste disposal;
- Noise, dust, vibration etc.
- Fumes/vapours
- Hazardous materials
- Asbestos containing materials

Note the above list is not exhaustive.

5.2 Significant Design Assumptions or Suggested Work Methods etc.

Any decommissioning of plant and the like must be in strict consultation with the designers and client to ascertain if there are any suggested or preferred / suggested work methods however ultimately the Principal Contractor will be required to ensure that a suitably skilled workforce undertakes all isolations, decommissioning of plant etc.

5.3 Ongoing Design Work and Design Changes

The principles of prevention must be applied to any ongoing design work, particularly considering:

- Construction/maintenance workers engaged directly in the hazardous activity;
- Other construction/maintenance workers who may be affected, e.g. those working below high level working;
- General public, including visitors.

Full details of any design risk management steps taken by the Principal Contractor should be provided to the Principal Designer. Any design changes which have an impact on health and safety, particularly those which are made on site, must be assessed by the design team, and provided to the Principal Designer for comment prior to construction work being undertaken on the change.

5.4 Working over tidal water / moving walkway

The Principal Contractor shall establish suitable protective measures to protect workers in the event of a fall into water. These proposals must be provided for review and comment in the construction phase plan prior to works commencing on site.

The ship is moored on tidal waters which cause the Brow walkway to move as the tide ebbs and flows. All works undertaken close to this area and works underneath the pavilion must be coordinated with the tides; information is available from the Project Manager. The contractor is to be aware that particular areas of the walkway may present crush hazards as they move with tidal motion. The contractor shall be advised of these areas and will make this information available to all his operatives.

The Principal Contractor is to be aware that air temperatures are likely to be lower than the surrounding environment when working above tidal water.

5.5 Preventing falls / Fragile Surfaces

The Principal Contractor is to ensure that the hierarchy of control is employed when planning and carrying out any work at height operations and that all works at height are strictly in accordance with the Work at Height Regulations 2005.

The following provisions are to be undertaken when using the following (if applicable):

Ladders

Ladder work should only be permitted for low risk, short duration works. Only aluminum, Class I, heavy duty stepladders may be used, with the exception of when electrical works are being carried out, in which case wooden or fiberglass, (minimum EN131) industrial stepladders should be used. Further information about the correct use of ladders and stepladders can be found in guidance issued by the HSE

<http://www.hse.gov.uk/pubns/indg455.pdf>

Scaffolding

Scaffolding will be required to facilitate the connection of the new drain to the existing (adjacent to the pavilion). The Principal Contractor must ensure that all scaffolding is erected, altered, maintained and dismantled by competent persons in accordance with The Work at Height Regulations 2005 and TG20:13 and SG4. The Principal Contractor must ensure that risk assessments and method statements are developed and forwarded by the scaffolding contractor. A handover certificate will need to be provided to the Principal Contractor and retained on site prior to the use of the scaffold.

The Principal Contractor is to note that scaffold is not permitted to be erected off the brow except with the specific consent of the Contract Administrator. This consent will not be given unless full information on the scaffold and loading implications (dead, live, wind etc.) are clearly stated. The Client will wish to review scaffold designs and seek advice from an independent structural engineer prior to giving consent. The gang way and brow is not designed to accommodate high loads.

All scaffolding must be inspected by a competent person and the results recorded on a "scaffold inspection report form / scaffold tag". Inspections are to be carried out every seven days and thereafter:

- Any substantial addition, dismantling or other alteration.
- After any event likely to have effect the strength or stability of the scaffold e.g. inclement weather.

- A record of inspections is to be kept on site by either a scaff tag or scaffolding inspection register. The Principal Contractor is to assess the advised requirement for the following:
 - Protective fans / netting.
 - Protective sheath on vertical standards (Ground level access / egress paths) as required.
 - Lighting in access / egress areas (if applicable).
 - Exclusion zones (if applicable).
 - Safety open shut gates.
 - Lifting hoist (to be considered or an alternative method of transporting materials to the top lift / roof level forwarded) as required.

Mobile Tower

The Principal Contractor is to ensure that where a mobile platform is required, a PASMA or equivalent trained person erects the platform. Platforms must be inspected by a competent person in accordance with the requirements of The Work at Height Regulations 2005 and the results recorded. Access to mobile towers must be internally via access traps only. Towers must not be used unless brakes are applied and the outriggers are in position, if required.

Podiums

The Principal Contractor is to ensure that podiums are not used unless assembled by a competent person in accordance with the manufacturer's instructions. When in use all wheels must be locked with barriers/gates in place and operable. Operatives must dismount any podium before moving it to a new position. Hop ups are for low level access only as determined by risk assessment.

Mobile Elevated Work Platforms (MEWPs)

The Principal Contractor must ensure that MEWP operators have undergone a recognised operator training course (such as IPAF) for the specific type of MEWP they are using and that the expiry date for their renewal / refresher training has been checked. A suitable & sufficient risk assessment must be undertaken, hazards identified and control measures / safe system of work put in place before use.

The Principal Contractor is to ensure that all operations are undertaken in accordance with the Working at Height Regulations 2005 and that a programme of daily visual checks, regular inspections and servicing schedules is maintained as per the requirements of LOLER.

5.6 Cranes / Mechanical lifting of heavy items

The Principal Contractor is to ensure that any cranes used are to comply with the requirements of the LOLER. All lifting appliances and gear must have certificates of test and thorough examination available on site.

5.7 Noise

The Principal Contractor is to ensure that appropriate control measures are implemented to ensure that noisy works are controlled to prevent disturbance to visitors, staff, pedestrians and others within the vicinity of the works. Noisy works must take place out of normal business working hours.

Short & long term hearing loss can be caused by frequent or infrequent exposure to loud noise within the workplace. The requirements of the Control of Noise at Work Regulations 2005 must be met at all times. The Principal Contractor shall ensure that all operations are risk assessed and measures identified to eliminate or

reduce risks from exposure to noise to protect the hearing of operatives. Hearing protection must be available / provided and the mandatory use of enforced (as determined by the exposure limit / exposure action values calculated).

The HSE have produced guidance material for employers on controlling the risks of noise at work - <http://www.hse.gov.uk/pubns/indg362.pdf>

5.8 Vibration (hand-arm)

Hand-held power tools transmit vibration to the user. Regular and frequent exposure to hand-arm vibration can cause operatives to develop permanent health effects, such as hand-arm vibration syndrome (HAVS – a collective term for a range of conditions) and carpal tunnel syndrome.

The Principal Contractor is to ensure that the requirements of the Control of Vibration at Work Regulations 2005 are adhered to. Basic control measures to reduce vibration from power tools must be applied and information, training and health surveillance must be sufficiently provided.

Information about the vibration magnitude transmitted by power tools is available from the manufacturer / hiring company. Employers should use this information to calculate exposure levels, the HSE provide guidance and a calculator tool to assist with this:

<http://www.hse.gov.uk/VIBRATION/hav/vibrationcalc.htm> - Hand-vibration calculator to calculate precise vibration exposure, and;

<http://www.hse.gov.uk/VIBRATION/hav/readyreckoner.htm> - Basic guidance table for quick reference

5.9 Dust

During these works, various types of dust are likely to be produced and persons on site potentially exposed to. Some of the most harmful types of dust are invisible to the human eye and health effects only apparent many years after exposure.

The Principal Contractor is to ensure that where dust is generated, the requirements of the Control of Substances Hazardous to Health (COSHH) Regulations 2002 are met. Specific control measures shall be identified during the undertaking of task specific risk assessments, but the Principal Contractor shall maintain the following general control measures where appropriate:

- Area / material to be dampened down
- Dust sheets, polythene covers and sealed work areas to be used as required
- Equipment to be fitted with on-tool extraction
- Local exhaust ventilation to be installed
- Provide information, training & guidance to operatives on the hazards & risks of substances and equipment used
- Provide suitable PPE & RPE

Dust and debris must not be allowed to travel, especially whilst works above water are undertaken.

5.10 Leptospirosis and other Bacterial Infections

Due to the works being undertaken in direct proximity of the Thames and the works involving sewerage and drainage pipework the Principal Contractor should make his operatives aware of the symptoms of Leptospirosis (Weill's Disease) and other bacterial infections.

The Principal Contractor should make a sufficient assessment of the risk involved in these works and provide suitable protective equipment and clothing as necessary.

The Principal Contractor shall ensure his operatives employ good hygiene practices at all times throughout the course of the works and especially at break/mealtimes.

5.11 Lone working / Confined spaces

A confined space is not just determined by its size but by the nature of the risk it could pose such as intoxication, suffocation or explosion.

The Principal Contractor shall refer to the Confined Spaces Regulations 1997 to determine if an area of work can be considered a confined space. Where this is the case they will impose a Permit to Work System supported by risk assessments and method statements.

The lower decks spaces in which the works are to be undertaken are very restricted with limited space available for storage and movement of materials & equipment. The Principal Contractor is to ensure that the works in this area is carefully managed such that the area does not become a confined space as defined in the regulations referred to above.

Although lone working is not envisaged on this project, the Principal Contractor must carry out a suitable Lone Working Risk Assessment if any lone working takes place.

5.12 Structural Stability / Temporary works

Should structural works form part of the scope of works the Principal Contractor is to ensure that the works are undertaken in strict consultation and adherence to the structural engineer's drawings, sequence or recommendations.

Should temporary works be required the Principal Contractor will be required to ensure that temporary works procedures are secured and that an appointed temporary works coordinator is appointed in order to comply with best practice. Details of design loads may be obtained from the Facilities Manager.

Should temporary works be used the Principal Contractor will be required to ensure that the principles of BS5975 are in place:

- Ensuring a competent designer/adviser is in place to supply an engineered solution

- Adequate communication
- Design checking to an appropriate level
- Suitable checks on erection/installation
- Someone coordinating the whole process

The Principal Contractor's RAMS is to take account of load bearing elements, any phasing requirements or sequencing as to secure health and safety. Dust suppression and waste management should dovetail into this as well as provisions for dealing with design changes in transport of heavy items.

5.13 Electrical, Gas & other Services safety

Where possible battery operated portable equipment and hand tools shall be used. All other portable equipment and hand held tools must be 110V rated. The supply for this equipment is obtained from an isolating transformer having its centre tapped and earthed. All socket outlets, plugs and connectors must comply with BS 4343. Note – this requirement is applicable even if an RCD is installed at the origin of the supply.

- Only operatives certified and capable of working to the 17 Edition IEE Regulations can undertake electrical works. Electrical contractors must hold appropriate membership of NICEIC or ECA with Technical Assessment.
- The sewage pipes are located close to gas pipes servicing the ship. Hot works are forbidden near to the gas pipes and gas contractors must hold appropriate membership with Gas Safe.
- Mechanical contractors undertaking heating, plumbing and ventilation works must be members of the Heating & Ventilating Contractors Association (HVCA).
- Persons will not be permitted to work on services except for testing and commissioning under strictly controlled conditions, under a permit to work system after a detailed risk assessment and method statement has been produced.
- Any works on live services shall be undertaken in accordance with the Electricity at Work Regulations 1989 and The Gas Safety (Installation and Use) Regulations 1998 as applicable.
- Electrical & gas contractors are to provide test certificates for all new installations and provide copies of manuals and maintenance procedures.

5.14 Inclement weather

Operatives working outdoors or in areas of the ship open to the elements will be susceptible to the effects of cold weather. Ice and snow can present hazards from slips & trips, the metal decks and adjacent Brow walkway are particularly susceptible to the affects of inclement weather.

The Principal Contractor is to ensure that general steps are taken as appropriate to ensuring the health, safety & welfare of all persons on site and those who may come into contact with the works during periods of cold weather, such as:

- Laying rock salt (grit) or similar in areas prone to be slippery in frosty / icy conditions
- Covering walkways to prevent snow from settling
- Monitoring walkways & access/egress routes and prevent / restrict use
- Place warning signs
- Ensuring operatives are suitably dressed for the weather conditions
- Monitor the weather forecast daily and plan accordingly
- Prevent / restrict access to parts of the site and work activities where ice is present and unable to be cleared until conditions are more favourable
- Allow frequent breaks and provide facilities to enable operatives to warm up
- Providing information to operatives about recognizing the early symptoms of cold stress

6. THE HEALTH AND SAFETY FILE

The Health & Safety File provides information needed to allow future construction work, which includes cleaning, maintenance, alterations, refurbishment and demolition, to be carried out safely. The information in the file should alert those doing the work to the risks involved and help them to decide how to work safely. The file is a separate document to any other documents required under the contract, such as the building manual and / or operating and maintenance manuals.

The Principal Designer is responsible for preparing the Health and Safety File and handing it to the Principal Contractor for completion at the end of the project. All designers and contractors have duties under the CDM Regulations to promptly provide information for the file.

A list of information required to be included in the file is included in the appendix to this document. A detailed schedule and programme of information to be provided by individual contractors and designers shall be drawn up by the Principal Designer in consultation with those organisations/ persons. This schedule will be reviewed at regular intervals during the construction period to ensure that all necessary information will be compiled into the file prior to completion. **The health and safety file must be provided a minimum of two weeks prior to practical completion.**

APPENDIX A – FORM F10 NOTIFICATION

The works are unlikely to meet the threshold for notification to the HSE. The numbers of operatives working on the project will be monitored and notification to the HSE lodged if required. A copy will be provided to the Principal Contractor for display on site

APPENDIX B – CONTENTS OF THE H&S FILE

To include the below as applicable:

- Key Structural Design Principles, to include all structural drawings (including steelwork contractor), and key design calculations/parameters, all safe working loads for floors and roofs, including plant enclosures, summary of piling design, identification of areas where loadings may preclude the locating of heavy plant, machinery or scaffolding;
- All residual risk information, to include items including but not limited to details of buried services, deleterious materials left in-situ, any hazardous finishes or coatings which require specific control measures during maintenance, repair or removal, sources of stored energy, extra-heavy items of installed plant, areas of restricted access or confined spaces;
- Details of the consideration given to reducing any residual risks, including those noted above and any others not listed which may be present within the structure or which may be present during the maintenance, cleaning, repair or demolition of the structure;
- Design criteria for all mechanical and electrical installations;
- Maintenance access strategy for key items of plant and equipment, to include a schedule of all items of installed plant, along with details of access for maintenance for each;
- Information on the removal / dismantling of plant and equipment (e.g. lifting arrangements; special instructions for dismantling), based on information received from all sub-contractors, to include, but not limited to, details of lifting eyes, lifting techniques, dismantling sequencing, de-gassing requirements;
- All relevant health and safety information in relation to the cleaning and maintaining of and safe access to the structure;
- The nature, location and markings of significant services, including underground cables; gas supply equipment; fire-fighting services etc., marked up on appropriate drawings;
- Originals of all key safety critical certification, including, but not limited to electrical safety certificates, emergency lighting certificates, fire warning and detection certificates, man-safe testing certificates, gas safety certificates, lifting equipment certificates (thorough inspection as required by LOLER), chlorination certificates;
- Fire strategy drawing, identifying emergency escape and fire appliance routes, compartmentation, fire resisting doors, location of emergency alarm and fire fighting systems, services, shut off valves switches, etc.
- Drawings identifying all key access points for maintenance and repair.

APPENDIX C – CONSTRUCTION PHASE PLAN CHECK LIST

DOES THE PRINCIPAL CONTRACTOR'S CONSTRUCTION STAGE SAFETY PLAN INCLUDE: -	INFORMATION AVAILABLE	COMMENTS
1.0 DESCRIPTION OF PROJECT		
(a) Project description and programme details including any key dates.		
(b) Details of client, Principal Designer, designers, Principal Contractor and other consultants.		
(c) Extent and location of existing records and plans that are relevant to health and safety on site, including information about existing structures when appropriate		
2.0 MANAGEMENT OF THE WORKS		
(a) Management structure and responsibilities.		
(b) Health and safety goals for the project and arrangements for monitoring and review of health and safety performance.		
(c) (i) Arrangements for regular liaison between parties on site,		
(c) (ii) Arrangements for consultation with the workforce,		
(c) (iii) Arrangements for the exchange of design information between the client, designers, Principal Designer and contractors on site.		
(c) (iv) Arrangements for handling design changes during the project.		
(c) (v) Arrangements for the selection and control of contractors,		
(c) (vi) Arrangements for the exchange of health and safety information between contractors,		
(c) (vii) Arrangements for site security,		
(c) (viii) Arrangements for site induction,		
(c) (ix) Arrangements for onsite training,		
(c) (x) Arrangements for welfare facilities and first aid,		
(c) (xi) Arrangements for the reporting and investigation of accidents and incidents including near misses,		
(c) (xii) Arrangements for the production and approval of risk assessments and written systems of work		
(d) Site rules (including drug and alcohol policy)		
(e) Fire and emergency procedures		

3.0	ARRANGEMENTS FOR CONTROLLING SIGNIFICANT SITE RISKS	INFORMATION AVAILABLE	COMMENTS
(a)	Safety risks, including:		
(a)(i)	Delivery and removal of materials (including waste*) and work equipment taking account of any risks to the public, for example during access to or egress from the site,		
(a)(ii)	Dealing with services - water, electricity and gas, including overhead power lines and temporary electrical installations.		
(a)(iii)	Accommodating adjacent land use.		
(a)(iv)	Stability of structures whilst carrying out construction work, including temporary structures and existing unstable structures.		
(a)(v)	Preventing falls.		
(a)(vi)	Work with or near fragile materials.		
(a)(vii)	Control of lifting operations,		
(a)(viii)	The maintenance of plant and equipment.		
(a)(ix)	Work on excavations and work where there are poor ground conditions.		
(a)(x)	Work on wells, underground earthworks and tunnels.		
(a)(xi)	Work on or near water where there is a risk of drowning.		
(a)(xii)	Work involving diving.		
(a)(xiii)	Work in a caisson or compressed air working.		
(a)(xiv)	Work involving explosives.		
(a)(xv)	Traffic routes and segregation of vehicles and pedestrians.		
(a)(xvi)	Storage of materials (particularly hazardous materials) and work Equipment.		
(a)(xvii)	Any other significant safety risks.		
(b)	Health risks, including:		
(b)(i)	The removal of asbestos,		
(b)(ii)	Dealing with contaminated land,		
(b)(iii)	Manual handling,		

3.0	ARRANGEMENTS FOR CONTROLLING SIGNIFICANT SITE RISKS	INFORMATION AVAILABLE	COMMENTS
(b)(iv)	Use of hazardous substances, particularly where there is a need for health monitoring.		
(b)(v)	Reducing noise and vibration.		
(b)(vi)	Work with ionising radiation.		
(b)(vii)	Exposure to UV radiation (from the sun).		
(b)(viii)	Any other significant health risks.		
4.0 THE HEALTH AND SAFETY FILE			
4.(a)	Layout and format.		
4.(b)	Arrangements for the collection and gathering of information.		
4.(c)	Storage of information.		



**APPENDIX D. INSTRUCTIONS AND GUIDANCE FOR CONTRACTORS WORKING ON OR IN
IWM PREMISES**





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