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**SPECIFICATION FOR THE REPLACEMENT**

**of**

**SEWAGE PUMPS & FOUL DRAINAGE**

on

**‘HMS Belfast.’**

Imperial War Museum,

The Queens Walk,

London,

SE1 2JH.

Contract No:

**IWM/CWP/1582**

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Specification Issue Date: 31 January 2017

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**SECTION 1**

**Preliminary Matters**

**1.0 Introduction**

An Act of Parliament founded the Imperial War Museum in 1920 following the Great War to act as a National War Museum to collect and display material relating to that Great War. Due to the general interest displayed by the Dominion Governments this led to the title “Imperial War Museum” (IWM). The Imperial War Museum was opened in 1920 at a site in Crystal Palace. But eventually acquired its current home at Lambeth Road in July 1936 on the site of the former Bethlem Royal Hospital.

At the commencement of the Second World War the Museum’s terms of reference were extended to cover both the Great War and the Second World War, and again in 1953 to cover all military operations involving British & Commonwealth forces since August 1914. In addition, the IWM provides exhibits of educational and general interest to members of the public.

HMS Belfast became a branch of the Imperial War Museum in 1978. Belfast receives over a quarter of a million visitors per year. As a branch of the Imperial war museum and part of the National Historic Fleet, Belfast is supported by the Department for Culture, Media and Sport, by admissions income, and by the museum's ongoing commercial activities.

IWM Duxford is a former RAF fighter station originally dating from the First World War. It has a long and distinguished history from 1924 until its closure as an RAF Station in 1961 and is particularly famous for its role in the Battle of Britain in 1940.

As of 2017, Imperial War Museum now consists of 5 major public tourist attractions, each of which is open 7 days a week year around except three days at Christmas:

IWMLondon, Lambeth Road

HMS *Belfast* is moored in the Pool of London

Churchill War Rooms

IWM Duxford Airfield, Duxford

IWM North, Trafford, Manchester.

**HMS *Belfast*** is a [museum ship](https://en.wikipedia.org/wiki/Museum_ship), originally a [Royal Navy](https://en.wikipedia.org/wiki/Royal_Navy) [light cruiser](https://en.wikipedia.org/wiki/Light_cruiser), now permanently moored in [London](https://en.wikipedia.org/wiki/London) on the [River Thames](https://en.wikipedia.org/wiki/River_Thames) and operated by the [Imperial War Museum](https://en.wikipedia.org/wiki/Imperial_War_Museum).

Construction of HMS *Belfast*, the first Royal Navy ship to be named after the capital city of [Northern Ireland](https://en.wikipedia.org/wiki/Northern_Ireland), and one of ten [Town-class cruisers](https://en.wikipedia.org/wiki/Town-class_cruiser_%281936%29), began in December 1936. She was launched on [St Patrick's Day](https://en.wikipedia.org/wiki/St_Patrick%27s_Day), 17 March 1938. Commissioned in early August 1939 shortly before the outbreak of the [Second World War](https://en.wikipedia.org/wiki/World_War_II), HMS *Belfast* was initially part of the British naval blockade against Germany. In November 1939 HMS *Belfast* struck a German [mine](https://en.wikipedia.org/wiki/Naval_mine) and spent more than two years undergoing extensive repairs. Belfast returned to action in November 1942 with improved firepower, radar equipment and armor. HMS *Belfast* saw action escorting [Arctic convoys](https://en.wikipedia.org/wiki/Arctic_convoys_of_World_War_II) to the [Soviet Union](https://en.wikipedia.org/wiki/Soviet_Union) during 1943, and in December 1943 played an important role in the [Battle of North Cape](https://en.wikipedia.org/wiki/Battle_of_North_Cape), assisting in the destruction of the German warship. In June 1944 HMS *Belfast* took part in [Operation Overlord](https://en.wikipedia.org/wiki/Operation_Overlord) supporting the. In June 1945 HMS *Belfast* was redeployed to the Far East to join the [British Pacific Fleet](https://en.wikipedia.org/wiki/British_Pacific_Fleet), arriving shortly before the end of the Second World War.

HMS *Belfast* saw further combat action in 1950–52 during the [Korean War](https://en.wikipedia.org/wiki/Korean_War) and underwent an extensive modernization between 1956 and 1959. A number of further overseas commissions followed before HMS *Belfast* entered reserve in 1963.

In 1967, efforts were initiated to avert HMS *Belfast*'s expected scrapping and preserve her as a museum ship. A joint committee of the Imperial War Museum, the [National Maritime Museum](https://en.wikipedia.org/wiki/National_Maritime_Museum) and the [Ministry of Defense](https://en.wikipedia.org/wiki/Ministry_of_Defence_%28UK%29) was established, and reported in June 1968 that preservation was practical. In 1971 the government decided against preservation, prompting the formation of the private HMS *Belfast* Trust to campaign for her preservation. The efforts of the Trust were successful, and the government transferred the ship to the Trust in July 1971. Brought to London, she was moored on the [River Thames](https://en.wikipedia.org/wiki/River_Thames) near [Tower Bridge](https://en.wikipedia.org/wiki/Tower_Bridge) in the [Pool of London](https://en.wikipedia.org/wiki/Pool_of_London), in [Southwark](https://en.wikipedia.org/wiki/Southwark), [London](https://en.wikipedia.org/wiki/London), [England](https://en.wikipedia.org/wiki/England).

Opened to the public in October 1971, **HMS *Belfast*** became a branch of the Imperial War Museum in 1978. A popular tourist attraction, Belfast receives over a quarter of a million visitors per year. As a branch of the Imperial War Museum and part of the [National Historic Fleet](https://en.wikipedia.org/wiki/National_Historic_Fleet), HMS *Belfast* is supported by the [Department for Culture, Media and Sport](https://en.wikipedia.org/wiki/Department_for_Culture%2C_Media_and_Sport).

**1.1 PRELIMINARY PARTICULARS.**

**The Client;-** The Imperial War Museum London,

Lambeth Road, SE1 6HZ.

**The Contract Administrator**  The contract administrator will be a representative of the museums FM department.

**Principal Designer.**  Ridge Property and Construction Consultants

(under CDM Regulations)

**Designer** Unit Spark

150 Great North Road

 Hatfield

 Herts

AL9 5JN

**Site** The site of the works is limited to areas of HMS *Belfast* & the connecting ’Brow’ walkway.

**The Contract (Conditions)** This term shall apply to JCT Minor works with Contractors Design & the Clients Purchase Order including related Terms & Conditions, the particular specification and any condition of contract specified there in and the tender documents.

**Tender Documents** This term shall apply to the Clients Invitation to Tender inclusive of all documents including but not limited to the Contract Conditions, Performance Specification, drawings, schedules and other submittals.

**The Principal Contractor** Shall mean the Company appointed by the Client inclusive of any sub-contractors, agents, suppliers, third party associates and representatives engaged by the Contractor in connection with the works.

**Specified Works** Shall mean all necessary items either specifically specified or incidental as necessary to complete the scope of works as detailed within the Tender Documents.

**1.1.4 General Description of the Works**

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

The Contract comprises:

1. Replacement of the two macerator sewage pumps on the HMS Belfast.
2. Supply and install a new permanent connection to land of insulated, trace heated, stainless steel foul rising main from the pumps, along the ship and across the ‘Brow’ walkway
3. Connection of same into the foul drain on shore to a manhole adjacent to the South side of the entrance pavilion in the paved area.
4. Existing flexible drainage lines are to be flushed and removed. These are weighted down using chains and concrete blocks

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**1.1.5 Location and Access to Site**

HMS *Belfast* is a WW2 light Cruiser anchored in the pool of London, on the south bank of the Thames adjacent to Tower Bridge.

Access to HMS *Belfast* is restricted to the ‘Brow’ walkway or by river.

There is no adjacent parking and any unloading can only be done early morning by arrangement with the local FM manager and local landlords, More London.

 

**1.1.6 Tender Drawings.**

The following drawings form part of this specification and will become contract, deck layouts, Brow details and proposed pipe runs (see attach).

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**1.2 GENERAL MATTERS**

**1.2.1 Limits of HMS *Belfast* site operations**

The contractor shall limit his operations to the immediate area of the works. The brow is the access point for visitors and although this will be restricted by the works it is to remain open for use by the public.

The contractor is not to use a ply hoarding or sheeting on the brow walkway as the wind loading (sail effect) will damage the walkway.

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

The contractor shall be responsible for storing materials, arranging for loading/unloading materials out of hours and organizing his works in a manner that does not interfere with ship visitor access. Van & lorry access must be arranged via the local FM and More London estates who own all the adjacent paved areas. Early morning deliveries will be permitted up to the brow with specific consent of FM (in liaison with More London) although this access is limited to Vans and loads not exceeding 4 tonnes. Vehicles must be removed before 7.30am.

Materials deliveries & rubbish removals arising must be arranged either before the Ship opens at 9.30am or after the museum closes at 18.00pm seven days per week. Materials can be raised and lowered to a barge by arrangement. Some of the work will need to be undertaken outside of working hours, especially those that will interrupt ship operations with noisy works.

**Protection of the ship and collections;- staff, visitors & passing public.**

The Contractor shall provide full and comprehensive risk and method statements, safety and protective measures to the ship and all items of his contract delivery to meet the entire specified works. The Contractor shall include method and risk statements for working over tidal water (with a strong current & undertow) including reference to life jackets, safety lines, safety boat. The Contractor shall note that there are many visitors moving around the ship between 9.30am & 6.0pm. The site specific RAMS will be developed in consultation with the Project Manager and the resident HMS *Belfast* FM Manager.

**Site Disturbance.**

Unless otherwise specified the Contractor shall assume all the occupiers & visitors shall require to continue their business as normal throughout the specified programme.

The Contractor shall make full provision to accommodate this within works scheduling.

Any contract operation involving owner/occupier disturbance such as; Noise, fumes, dust, restricted access, impaired service operation, environmental impact or safety implication shall be managed so as not to disrupt normal business operations.

Out of normal hours working WILL be required and the Contractor will have been deemed to have been included in the Tender submission.

**1.2.2 Safety Boat Attendance Requirements**

The Contractor is to include within his tender return his requirement for safety boat attendance during the execution of the works, this will be booked by the Contractor.

The Contractor will allow for the supply and installation of all required mariners warning and closure signage/notices to comply with PLA requirements.

Allow for the supply & installation of all mandatory site safety signage and required barriers/cordons to perimeter of the works area.

Allow unimpeded access by IWM and/or his Project Manager to undertake the inspection of ongoing and completed works.

**1.2.3 Preliminary investigation**

The Contractor shall be deemed to have:

* visited and inspected the site
* examined any drawings and contract documents
* adequately acquainted himself with local conditions.
* assessed the general accessibility of the ship for the works as it is in several restricted areas.
* Allowed for working over water
* Allowed for deliveries and supply of materials, water, electricity etc.
* Allowed for conditions affecting labour, the availability and supply of materials,

All in relation to the execution of these works, as no claim on basis of ‘want of knowledge’ will be entertained by the client and Project Manager.

**1.2.4 Abbreviations and references**

The following abbreviations, references or terms are used in the Specification.

CP - British Standards Code of Practice

BS - British Standard Specification

The term ‘Contractor’ used throughout this document relates to the Contractor who is contracted to carry out and complete the works. The contractor shall be the ‘Principal Contractor’ under the CDM regulations.

Reference to CA means the Contract Administrator / Project manager or lead consultant, when appointed; with authority under the terms of the contract to act is such a capacity.

The reference to Building Inspector means Building Control Officer, District Surveyor or any other person with authority under statute to require compliance with regulations or byelaws.

The terms ‘Approved’, ‘Selected’, or ‘Directed’ means the approval, selection, or direction of the client Project manager are to be observed at all times.

The term ‘Provided’ means that the item(s) is to be supplied, delivered and fixed at the expense of the contractor.

The term ‘Day Work’ is applicable to the work of an unknown or unforeseen nature that could not be specified and therefore estimated for during the preparation of the schedule of works. Such work is usually paid for on a time and material basis with the Contractor submitting evidence of hours of work and invoices for materials, plant, etc.

**Contractors Responsibilities**

The Contractor shall provide every resource & materials as necessary to ensure the proper execution and completion of the specified works in accordance with the specification. These responsibilities shall include:

1. The provision of all materials either specified or incidental.
2. The provision of all labour either specified or incidental.
3. The provision of all plant, tools and equipment.
4. The testing, commissioning, documentation and actioning of all the specified works.
5. The provision of all necessary documentation for the necessary planning and continuation of the works and all the as-fitted information, operating and maintenance manuals & certificates on completion of the specified works.

**1.3 STATUTORY & GENERAL OBLIGATIONS**

**1.3.1 Safety & Health and Welfare**

The Contractor shall comply with all enactments, regulations and working rules relating to safety, health and welfare of workers. These works are subject to the CDM regulations 2015 but are not considered to be notifiable.

The Contractor’s attention is drawn to Section 2 of this Specification, which covers Health & Safety matters specifically.

**1.3.2 Working Hours**

HMS *Belfast* is open to the public 7 days a week 9.30am – 6.0pm and has 2,000+ visitors a day. The contractor’s programme will need to accommodate some out of hours working for certain parts of the work, and materials deliveries, service alterations etc. will need to be carefully programmed.

Regular liaison will be required with the Project manager & local FM manager to agree out of hours work so that security resource can be allocated & third parties notified.

**1.3.3 Statutory Regulations**

The works must be undertaken in compliance with Statutory Regulations, Building Regulations, Gas Safety Regulations, Water Bye Laws and IEE Regulations. The Contractor is to allow in his tender for compliance, particularly in respect of service installations, which may require contractors design input.

**1.3.4 Noise**

Any contract operation involving owner/occupier disturbance such as; Noise, fumes, dust, restricted access, impaired service operation, environmental impact or safety implication shall be managed so as not to disrupt normal business operations.

**1.3.5 Public and Private Services**

The Contractor will adequately protect, uphold, maintain and prevent damage to all ship services. The Contractor must not interfere with operations without consent of the Project manager, Local FM manager & More London service authorities as appropriate in a public access listed museum ship.

**1.3.6 Existing Features & damage.**

The Contractor shall prevent damage to existing ship structure, bulk heads and fittings and any other of the ship features which are to remain in position during the execution of the works.

The Contractor shall be responsible for properly making good to the satisfaction of the Project Manager & local FM Manager of all areas disturbed during the execution of the works. The Contractor is to plan the works and, in particular, the maneuvering of plant and machinery so as to cause minimal disturbance to adjacent areas.

The Contractor shall make provision for the protection of the ship and its fixtures and fittings, and historic equipment. Any accidental damage or soiling shall be made good upon practical completion at the sole expense of the Contractor. A Condition survey should be carried out jointly by the Contractor & the Project Manager prior to works.

Record photographs may be used to illustrate conditions at contract start and upon completion. The Contractor is responsible for adequate protection throughout all areas of the installation works and all stored materials & equipment.

**1.3.7 Structural Fabric**

The contractor is advised HMS *Belfast* is a light cruiser class battle ship from WW2. Works must be undertaken in a manner that causes the minimum of damage or disturbance to the fabric of the ship, sound echoes through the ship bulkheads.

**1.3.8 Site Cleanliness**

The Contractor shall make provision for daily cleaning and spot cleaning as necessary in all contracted works locations. Where necessary dust sheets, polythene covers, and sealed work areas shall be used to restrict dust & debris travel especially working over water. Upon completion the Contractor shall allow for full Professional clean of all working areas on the ship and across the brow walkway.

**1.3.9 Disposals, Environmental waste and equipment**

The Contractor shall be required to remove from site and safely dispose of all waste in accordance with current legislation such as the Clean Air Act, Control of Pollution Act.

Records of controlled disposals shall be retained for examination by the Project Manager.

The Contractor shall not be allowed to use ship refuse provisions & containers except by arrangement with local FM manager.

**1.4 MANAGEMENT & ADMINISTRATION PROCEDURES**

**1.4.1 Supervision**

The Contractor shall accept responsibility for co-ordination, supervision and administration of the works, including subcontractors. The Contractor shall arrange and monitor a programme with each subcontractor, supplier, Local Authority, Port of London, More London (adj landlords) and statutory undertakings and obtain and supply information as necessary for co-ordination of the work.

The Contractor is to provide a competent person to constantly supervise the works and shall inform the Project Manager of his contact details.

The Contractor’s Site Supervisor is to be able to adequately receive directions given to him by the Project manager and is to remain on site throughout the duration of the contract and shall not be changed without prior approval from the Project manager.

The Site Supervisor is to implement the requirements of the Construction (Design & Management) Regulations 2015 as they apply to this project, and must assist the Principal Designer in maintaining the health and safety file for this project.

**1.4.2 Insurances**

The Contractor shall effect and maintain insurance to the following sums until the expiration of six years from the date of completion:

* Employers Liability - £5m
* Public Liability - £5m
* Professional Liability - £5m

The Contractor shall ensure that any person or organisation commissioned as a consultant by him takes out and maintains appropriate professional indemnity insurance in respect of their businesses generally throughout the period from the date of commencement of their services under the Contract or Commission until the expiration of six years from the date of completion of each project, which insurance may be limited in respect of any one claim (but shall not be limited in any other respect): provided that any such limit under this Clause shall in any event be at least £5m.

The Contractor shall, whenever required by IWM, produce copies of his and/or his sub-contractors insurance certificates stating that their insurance complies with the requirements pursuant to sub-clauses .1 and .2, and is/are currently in date.

If, for whatever reason, the Contractor fails to comply with this clause, or without the approval of IWM obtains a different policy of insurance from that required by IWM at the time when he submitted his tender, IWM may make alternative arrangements necessary to protect their interests and recover loss and damages from the Contractor.

The terms of any insurance or the amount of cover shall not relieve the Contractor or his sub-contractors or Consultants of any liabilities under the Contract, their sub-contracts or their terms of this Contract.

**1.4.3 Programme**

As soon as possible and prior to starting work on site, prepare, in an approved form,

a detailed programme for the works that should make allowance for all:

* Subcontractors works including completion of drawings etc.
* Work resulting from instructions issued with regard to the expenditure of provisional sums
* other work concurrent with the contract.

Proposed programme phases

1. Adapt the existing foul drain adjacent the river wall under the Pavilion ready to receive the new pumped drain line. This drain receives foul waste from the Pavilion (live) so the connection must be temporarily blanked pending connection of the new pumped main.
2. Install new insulated (trace heated) stainless steel bolted soil pipe along the Brow walkway and along the side of the deck and connection of same to new pump sets. Temporarily removing and replacing the mesh infill panels of the brow walkway as work progresses.
3. Disconnect the existing aft macerator pump. Install new pump and make connection to the new sewage pipework and make connection of same to the drain adjacent the river wall.
4. Disconnect the forward end pump. Install new macerator pump and make connection to the new drainage pipework.
5. Flush through the existing flexible rubber drains that run under the river. Remove chains and concrete blocks over pipe and remove pipe and all chains etc.

Remove the flexible pipework from the manhole shore side and plug the existing connections into the existing foul drain.

1. While scaffolding is in place around the pavilion, provide and fix new fixings to secure the gas pipe – fixings to be made into the concrete edge of the pavilion and remove the current fixings (secured to the timber baffle posts).

The above work sequence is suggested only and the contractor is free to submit a revised programme. However it is essential the programme is arranged to minimise disruption to the visitors and operation of the ship.

**1.4.4 Sub-Letting.**

No part of the specified work shall be sub-let without the prior written permission of

IWM. The Contractor shall provide a Schedule of Sub Contractors and self-employed operatives prior to commencement of the specified works.

**1.4.5 Commencement of Work**

Inform Project manager as least seven working days before proposed date for commencement of the work on the ship site.

**1.4.6 Monitoring**

Record progress on site and keep a copy of the programme on site. Update or re-draft without delay if circumstances arise which affect the progress of the works with copies of all revisions to Project Manager.

**1.4.7 Site Meetings**

Hold regular site meetings as necessary for the proper management and co-ordination of the contract and as required by the Project manager.

A site meeting on the ship will be required every week to review progress, discuss issues and check forward planning of work.

**1.4.8 Notice of Completion**

Give Project Manager at least one week’s notice of anticipated dates of practical completion of the whole or parts of the works on the ship.

**1.4.9 Measurements**

Give reasonable notice to the Project manager before covering up exposed work and services, which he requires to be re-measured.

The Contractor shall allow for instruction and training on all systems within the specified works. Operating and Maintenance manuals drawings and certifications must be provided to the Client prior to Practical Completion.

Manufactures Test and Performance Certificates together with Installation Test Certificates must be provided to the Client prior to practical completion and or setting to work.

**1.4.10 Measurement and Quantities**

The Contractor is responsible for his own site measurement and assessment of any quantities with regard to materials either specified or incidental to complete the specified works and to clearly & verifying of any Client issued schedules or quantities.

**1.4.11 Defects Schedule upon Practical Completion**

The Contractor and Project Manager shall agree the content of the initial Contract defects ‘snagging’ schedule. This MUST be agreed and submitted prior to Practical completion Certificate being issued. Defects resulting after Practical Completion shall be added to the initial Contacts Defects list and form part of the Defects Schedule.

The Contractor shall make every effort to complete the scheduled defects within the following periods:

* Safety Defects – **Immediately**
* Items affecting business operation – **Within 3 Days**
* Other defects – **Within 7 Days.**

**1.5 RESOURCES/TEMPORARY WORKS AND SERVICES**

**1.5.1 Accommodation**

It is not practical to provide necessary temporary, offices, mess rooms, sanitary accommodation, and other temporary facilities on the ship required for Contractor’s use.

Existing designated staff toilet and washing facilities can be used by the contractor. A shower also is available for use should this be needed.

The contractor will have access to an area that 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.

Fire escape routes & staircases from the ship must not be obstructed at any time.

**1.5.2 Protection**

Provide temporary fencing, hoardings, screens, vans, planked footways, guard rails, gantries and the like as may be necessary for protecting the public and others, for the proper execution of the works and for meeting the requirements of the Local Authority.

The Contractor’s working & materials storage areas will need to be enclosed by suitable barriers and warning notices.

**1.5.3 Scaffolding**

It is anticipated that scaffold will be required adjacent the pavilion to facilitate the connection of the new drain to the existing. All scaffolds will need to be designed by an appropriately qualified and competent person.

No scaffold will be built 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 gang way and brow is not designed to accommodate high loads.

**1.5.4 Site Water & Electrics**

Electrics & Water for the works are available on site free of charge. Contractor is to make temporary isolations to existing distribution boards around the site as works progress.

HMS *Belfast* still retains some DC equipment and supplies.

**1.5.5 Specialist Contractors**

Electrical Contracts must be members of NICEIC or ECA with Technical assessment. Mechanical contractors heating plumbing and ventilation must be members of HVCA.

Gas contractors shall provide appropriately certified and registered CORGI operatives.

**1.6 THE WORKS GENERALLY**

**1.6.1 Good Practice**

Where and to the extent the materials, products and workmanship are not fully specified they are to be, suitable for the purposes of the work stated in or reasonably to be inferred from the contract documents, and In accordance with good engineering practice including the relevant provisions or current BSI documents.

**1.6.2 Performance Standards**

The Contractor shall allow for all the specified works to be completed in accordance with Best Practice using Trade and Industry performance standards.

Persons carrying out the specified works shall have suitable industry standard, experience, knowledge, training and the relevant practical skills in order to be able to deliver first class premium workmanship.

All specified works shall be designed, installed, commissioned and set to operation in accordance with acknowledged industry and accredited body standards.

**1.6.3 Manufacturers Recommendations**

Handle, store, prepare for use, or fix each product in accordance with manufacturers printed or written instructions/recommendations. Inform the Project manager if there this conflict with any other specified items or requirement.

**1.6.4 Workmanship**

The works to be carried out by, or under the close supervision of, experienced tradesmen, skilled in the particular type of work.

**1.6.5 Service Runs**

Make adequate provisions for working around existing services, including unobstructed routes and especially around historic fixtures and fittings in a practical and tidy manner.

**1.7 PRODUCTS & MATERIALS GENERALLY**

**1.7.1 Products to be New**

Unless otherwise specified. Ensure that the whole quantity of each product and material required to complete the work is of consistent kind, size, quality and overall appearance to try to blend in with ships fittings as far as practical. Handle, store and fix products with care to ensure that they are not damaged when incorporated into the works.

**1.7.2 Or Equivalent Approved**

Means; that the products of different manufacturers may be substituted only if prior approval has been obtained. But the Project manager reserves the right to insist on a named product(s) the rates or prices will be held to be based on the product(s) specified, unless agreed otherwise.

**1.7.3 Proprietary Names**

The phrase ‘or equivalent’ is to be deemed included whenever products are specified by proprietary names.

**1.7.4 Single Source**

Where a choice of manufacturer or source of suppliers is allowed for any particular product or material, the whole quantity required to complete the works must be the same type manufacturer or source not to be changed without approval. The contractor must produce written evidence of sources of sufficient supply as requested by the Project Manager.

**1.7.5 Materials, Equipment Plant and Tools.**

The Contractor shall allow for full provision of all items as detailed in clause 3 either specified or incidental as necessary to complete the specified works.

Materials shall be of good quality, meet appropriate manufacture’s standards (BS, BSEN or equivalent to), and be fit for purpose for the environment and specified application.

Equipment and plant shall be of good quality complete with all safety and plant features. Be operated and maintained within the manufacture’s specification and recommendations.

All equipment shall meet BS codes of practice, BSEN, or approved equivalent.

Appropriate tools of premium quality as required completing these specified works in accordance with accepted trade standards, manufacturer’s requirements and good practice shall be provided by the Contractor.

The Contractor shall ensure that all tools, plant and equipment are correctly used by skilled or instructed persons. Where applicable holding the necessary certification for training, knowledge and experience for that type of equipment.

**1.8 ACCURACY/SETTING OUT**

All dimensions to be confirmed on site prior to ordering fittings & equipment dimensions etc. to be checked and verified by the contractor before installation/fabrication work. The contractor is to liaise with the contract administrator & resident FM manager as to precise locations of fittings and pipe runs.

**1.9 PROTECTION/CONDITION OF WORK/DRYING OUT**

**1.9.1 Site administration and Security**

The contractor will at all times adequately safeguard the site, products, materials, plant, the works and any existing areas of the ship affected by the works from damage and theft. Take all responsible precautions to prevent unauthorized access to the ship.

**1.9.2 Stability**

Accept responsibility for stability and structural integrity of the works during the contract, and support as necessary. Details of design loads may be obtained from local FM.

**1.9.3 Inclement Weather**

It should be noted that working on metal decks & adj Brow will have special slip hazard issues in bad weather. Temperatures tend to be lower on the water & there are tide issues.

**1.9.4 Rubbish & Cleaning.**

Remove rubbish and debris as it accrues from site by van on a daily basis, all the areas must be kept clean & tidy. Additionally a professional cleaning team will be required to do a ‘deep clean’ of all work areas on the ship and brow walkway at the end of the project.

**1.9.5 Drying Out**

Control the drying and humidity of the works and the application of heat to prevent:

1. Blistering and failure of adhesion.

2. Damage due to trapped moisture.

3. Excessive movement.

**1.10 ALTERATIONS / EXTENSIONS / MAINTENANCE WORK**

**1.10.1 Making Good**

Means carry out any local remedial works, including the following as appropriate and necessary to leave the work sound and neat to approval at the end of each day.

**1.11 SAMPLES / APPROVALS / TESTING / INSPECTION**

**1.11.1 Samples - materials**

Where approval of products or materials is specified, submit samples or other evidence of suitability. Do not confirm orders or use materials until approval has been obtained. Retain approved samples on site for comparison with products and materials used in the works. Remove surplus materials from site as and when no longer required for the works.

**1.11.2 Samples - workmanship**

Where samples of finished work are specified, obtain approval of stated characteristics before proceeding with the works.

Retain approved samples on site for comparison with the works. Remove samples which are not part of the finished works when no longer required.

**1.11.3 Approvals**

Inspection of any other action by the Project manager must not be taken as approval of materials, products or work unless the Project manager confirms in writing the express terms referring to:

1. Date of inspection.

2. Part of the work inspected.

3. Respect or characteristics which are approved.

4. Extent and purpose of the approval.

5. Any associated conditions.

**1.12 FIXING/FASTENINGS/ADHESIVES/MORTAR**

**1.12.1 Fixings Generally**

Use fixings and jointing methods and types and spacing’s of fastenings which are suitable having regard to:

1. Nature of compatibility with products/materials being fixed and fixed to.

2. Recommendations of manufacturers of fastenings and manufacturers of products and materials being fixed and fixed to.

3. Materials and loads to be supported.

4. Conditions expected in use.

1. Appearance - being subject to approval.

**1.13 WORK AT COMPLETION/MAKING GOOD DEFECTS**

**1.13.1 Cleaning**

Professional cleaning materials and methods are to be as recommended by manufacturer of product / area being cleaned by a professional cleaner.

In the absence of such recommendations cleaning materials and methods are to be approved by Project Manager.

**1.13.2 Disputes and Contract Determination.**

The Client reserves the right to Determine the Contract, should the Contractor commit an act of gross misconduct, incompetence, non-performance or non- completion.

The Project Manager will issue warnings and give reasonable notice of failure, together with the expected improvement required.

Should disputes between Contractor and Client not be resolved to the satisfaction of both parties by the Project Manager? Matters should be referred to the IWM line Director as necessary. Thereafter if still unresolved, matters will be referred to independent Arbitration.

**1.13.3 Certification**

All interim certificates and final certificate to be signed by the Project manager before the man contractor issues the invoice.

**1.14 CONTRACTUAL MATTERS**

**1.14.1 Form of Contract**

The Form of Contract will be the JCT Agreement for Minor Works with Contractor’s Design 2011 Edition, together with amendments to date, including April 2015 amendments incorporating the CDM Regulations 2015.

The Contractor should include for all costs incurred in compliance with the Terms and Conditions of the Contract.

The Specification and drawings (if any) will become contract documents.

The Contractor must include for all works shown on the drawings, whether referred to in the Specification or not, and for all works which are not included in the Specification, or on the drawings which could reasonably be expected to be included in the works.

**1.14.2 Appendix 1 to these Preliminaries**

Appendix 1 at the end of these Preliminaries describes the contractual details that will be included in the Contract Conditions.

**1.15 CONTINGENCY/ PROVISIONAL/ PRIME COST SUMS**

**1.15.1 Contingency Sum**

Allow the contingency sum of £5000 for works of an unknown or unforeseen nature. Such sum to be expended only on the written instruction of the contract administrator..

Expenditure of such sum shall only be made on express authority of Project manager.

**1.16 WORKS UNDERTAKEN CONCURRENTLY BY OTHERS**

Building services and fabric are maintained on the site by an FM contractor appointed by the IWM ( Kier Workplace) This contractor will be permitted access to the ship at all times.

The normal activities of this contractor are not expected to interfere with these contract works. Including; Door entry systems, Fire alarms, Intruder alarms, CCTV, ICT data links, intercoms, telephones

**1.17 TEMPORARY SIGNAGE AND HAUDINGS.**

The working areas are to be enclosed by temporary barriers/fencing to protect the public and prevent unauthorized entry by the public or staff. Adequate warning signage must be placed to clearly mark working areas and advise against entry into same.

**1.18 SITE RULES**

The Museum operates specific rules for ‘Safe Working’ Conditions and Protection of its Staff, Visitors and Collection’.

The Project manager and local FM will carry out a site induction for all contractors’ operatives on the morning of the first day of starting on the ship/site.

**1.19 SECURITY CLEARANCE**

1.19.1 The Contractor is responsible for the ensuring that all their employees and any sub-contractors, agents etc. who are due to work at the Site, for longer than four weeks in duration in the delivery of the Contract, whether in a continuous period, or over the duration of the Contract, have been security vetted to Basic level, as defined by Disclosure Scotland1.

1 Please note that Disclosure Scotland is the agency that all security vetting providers will approach to undertake the security vetting.

1.19.2 For contractor’s with a small employee base, IWM will be prepared to undertake the security clearance on behalf of the contractor, provided that this is made known at the time of the appointment, and that this agreed by IWM, and that the contractor agrees to pay the administration charge of £41 per clearance, that IWM is charged for this service.

1.19.3 This requirement will apply to an employee who has not worked at an IWM branch, within the previous 12 months.

1.19.4 A minimum of 48 hours before any individual commences work on the Premises, the Contractor is required to complete and submit the Security Notification Form (see Appendix 2) to the Technical Security Manager at IWM London.

1.19.5 Upon arrival at the Premises, each new employee must report individually to the Control Room with a copy of their certificate of proof of vetting, and some form of ID. IWM will note the details of the certificate of proof of vetting, but will not retain any documents.

1.19.6 IWM will accept a certificate of proof of vetting which is dated within 12 months of the date of their site commencement at IWM, although IWM reserves the right to request they are security vetted, at its discretion, which IWM agrees not to action unreasonably.

1.19.7 Failure to comply with this requirement could result In the employee not being granted access to IWM.

**1.20 NEW SUPPLIER**

The successful contractor if not on the museum’s approved supplier system, will be required to complete a ‘New Suppliers Form (Appendix 3) and return it to the Project manager within 5 days of award of contract.

**1.21 AUTHORISATION TO WORK**

IWM operates a permit to work system. Before works can commence, the contractor will require an ‘Authorization to Work’ permit from the contract administrator.

This will require the submission a detailed Construction Phase Plan demonstrating how health and safety will be managed, and will include suitable and sufficient Risk assessments and method statements (RAMS).

These must be submitted at least 2 weeks prior to commencement of works on site.

**APPENDIX 1** – Contract

**JCT CONTRACT;**

The form of contract will be the JCT Agreement for Minor Building Works with contractor’ design 2011 together with any amendments to date.

**Articles of Agreement:**

**Employer** the employer is the Trustees of the Imperial War Museum.

**Contractor** The successful tenderer will become the contractor.

**Recitals:**

**First.** The works;- The removal of two sewage macerator pumps and associated pipework on the HMS Belfast and the provision of new pumps and insulated stainless steel foul drain along the brow including connection to land side pavilion.

**Second.** Contractor design work includes the design of all fixings, supports and connections, fabrication of pipe supports, detailed routing of pipework both fixed and flexible.

**Third**  Contract documents comprise the drawings and specification.

**Fourth.** A priced specification will be required form the contractor by the employer.

**Articles:**

**Article 3** Contract Administrator, TBA

**Article 4** The CDM coordinator is Ridge property and Construction Consultants.

**Article 5** TBA

**Article 7 (and Schedule 1)** the arbitration provisions of article 7 and schedule 1apply.

**Contract Particulars:**

**Base JCT date** N/A

**CIS scheme** The employer is not a contractor.

**CDM regulations** The project is deemed not notifiable.

**Supplemental provisions** Paragraphs 1,2 3 apply.

**Arbitration** Article 7 and schedule 1 apply.

**Clause 1.1** CDM planning period 4 weeks.

**Clause 2.2 Commencement** To be agreed

 **Completion**

**Clause 2.9 Liquidated Damages** N/A.

**Clause 2.1 Rectification Periods** 12months.

* 1. Percentage is 95%
	2. Percentage is 95%
		1. 3 months
	3. Deleted

**5.3.2** Contract Insurance required is £10million minimum

**5.4A & 5.4B** Clause 5.4A applies % addition to cover fees – 20% ( to suit existing project.)

**7.2** Nominator shall be President of the RICS

**Schedule 1** Appointment of arbitrator shall be the President of The Royal Institute of Chartered Surveyors.

**SECTION 2**

**Health & Safety FILE.**

**PRE-CONSTRUCTION H&S INFORMATION.**

**1.0 GENERAL REQUIREMENTS**

The types of works that are the subject of this Specification are subject to the Construction (Design & Management) Regulations 2015. This project however is considered NOT to be notifiable under those regulations.

The Contractor will be required to operate as the ’Principal Contractor’ under those regulations and co-ordinate and manage Health & Safety issues during construction work, and, liaise with the Contract administrator during the course of these works.

Prior to commencement the contractor must ensure a detailed construction phase health and safety plan has been produced, clearly demonstrating how the health and safety aspects of tis projects are to be managed and that shows adequate for provision of welfare have been made.

The Contractor will be responsible for ensuring that subcontractors employed by him operate in a safe manner appropriate to the work they are employed to undertake.

**2.0 INFORMATION ON SHIP/ENVIRONMENT/RISKS.**

The following aspects of the work are considered to represent a risk, either to the person engaged in undertaking that work directly, or to other persons in the area of the works. These are to be addressed in the Principal contractor’s Construction Phase Plan.

**2.1** **Proximity to Public**.

HMS *Belfast* is open to the public and busy. The public access the ship by the ‘Brow’ walkway that moves with the tides is in close proximity to these works. Careful consideration of planning works and providing protection to public is needed.

**2.2** **Restricted working area**.

The lower deck spaces in which the works are to be undertaken are restricted – and there is very limited space for storage on site. Again work needs planning carefully to accommodate timely disposal of materials and deliveries of new materials and equipment, and so as to maintain a safe working environment.

**2.3** **Asbestos.**

Asbestos is located in the aft pump room. This will be encapsulated and the area cleaned prior to the works commencing.

Elsewhere extensive asbestos insulation to pipes ducts etc. is present. This is generally sealed and secure and should not create undue hazard. Regular reassurance air testing on board is undertaken to prove areas are safe to occupy. Particular care should be taken id maneuvering equipment along corridors or through areas containing asbestos so as to avoid causing physical damage.

There is a current asbestos register on the ship available for contractor inspection.

**2.4** **Lower engineering decks – potential restricted / confined space.**

The lower decks contain a variety of plant and equipment – and are a physically restricted space. Some work in this area is required – access to electric distribution board, provision of new water heater, plumbing connections etc. The PC is to ensure the works in this area is carefully managed such that the area does not become a ‘confined space’ as defined under the regulations, and that proper provision is made to ensure operatives are not put at risk.

**2.5** **Materials delivery / disposal**.

Access onto the Belfast is via the Brow walkway via the pavilion & the public highway. The Principal Contractor must ensure arrangements are in place to ensure public are not put at risk as a result of delivery of materials/removals across the public highway and adjacent paved areas.

**2.6 Service pipes / runs**.

A detailed survey of the service installations has been undertaken. The contractor, before commencing work shall make enquiries to ascertain the position of all service distribution mains and pipes; water, gas, electricity, data or telephone, and shall take all precautions necessary to ensure that no damage to such pipes or mains is occasioned. Any damage shall be made good at the Contractor’s expense.

**2.7 Brow loading capabilities**

The brow structure is designed to accommodate the loads which the new pipework will impose.

Any proposals to erect scaffold on the brow or supporting structure will need the have supporting design information – including how loadings will be accommodated by the brow structure. IWM will wish to review these designs and seek independent structural engineering advices prior to agreeing erection of any scaffold of erection on the brow.

**2.8 Access generally and working over water.**

These works clearly entail working over the river Thames, a tidal river with strong current. The pipe routing involves working from the brow and along the side of the ship outside of the guard-railing. The method of working must be clearly detailed in the contractors method statements clearly demonstrating how the works will be undertaken to ensure the safety of operatives. Museum staff and visitors and others.

**3.0 HEALTH & SAFETY INFORMATION.**

The contractor must submit a company policy statement with the tender: Describe the organisation and resources to Safe guard the health and safety of operatives, including those of subcontractors and any person whom the works may affect. Include, a copy of the contractor's health and safety policy document, including risk assessment procedures, to include an accident & sickness record for the past five years, records of previous Health & Safety executive enforcement actions, records of training and training policy, the number and type of staff responsible for health and safety on this project with details of their qualifications & duties.

 **4.0 CONSTRUCTION PHASE PLAN.**

Contractors are required to submit an outline Construction Phase Plan with their tender setting out the arrangements for managing health and safety in delivering these works.

Prior to commencement the Principal Contractor will be required to submit a detailed CPP in accordance with the requirements of the CDM 2015 regulations. These must include identification of the significant risks and how these are to be avoided, reduced or controlled.

Content: Method statements & Risk assessments specific to this project, on how risks from hazards identified in the pre-tender health and safety plan & risk register, plus other hazards identified by the contractor will be addressed including details of the management structure, responsibilities, arrangements for issuing health and safety directions.

The contractor will also provide procedures for informing other contractors & employees of health & safety hazards. Selection procedures for ensuring competency of other contractors, for communications between the project team, other contractors and site operatives & arrangements for co-operation and co-ordination between contractors.

Procedures for carrying out risk assessments, managing and controlling the risk by establishing emergency procedures, including those for fire prevention and escape.

The contractor will ensure that all accidents, illness and dangerous occurrences are recorded correctly.

Arrangements for welfare facilities for operatives & procedures for ensuring that all persons on site have received relevant health and safety information and training, consulting with users on & adjacent to the site.

Arrangements for preparing site rules and drawing them to the attention of all those affected through regular tool box talks and ensuring their on-going compliance.

The Principal Contractor is to monitor procedures to ensure compliance with site rules, selection and management procedures, health and safety standards and statutory requirements are maintained throughout the contract.

**5.0 HEALTH AND SAFETY FILE.**

The Principal Contractor will co-operate with the Principal Designer and Contract Administrator in supplying information for the Health and Safety File.

The Principal Designer will prepare the H&S file, but the PC is to supply relevant information on request.

Information requested and to be provided by Principal Contractor will include:-

Operating manuals for the plant and equipment installed as part of the works together with information as to how it might be carried out.

Maintenance schedules and procedures which detail the safe methods of executing maintenance work/inspection for all plant and equipment installed.

All product data sheets from manufacturers of products specified.

Test and commissioning certification.

‘As installed’ drawings for mechanical and electrical service installations.

**SECTION 3**

**To be read in conjunction with Preliminaries and General Conditions**

**MATERIALS AND WORKMANSHIP AND TRADE PREAMBLES.**

3.1 **Mechanical Installation**

The Contractor shall provide Mechanical Installation in accordance with the Water Industry Mechanical and Electrical Specification (WIMES) 8.03 as published by The Pump Centre, ESR Technology Ltd, 202 Cavendish Place, Birchwood Park, Warrington, Cheshire, WA3 6WU and. as modified by the paragraphs below. Please refer to attached Data Sheet.

The Contractor shall provide Corrosion protection in accordance with the Water Industry Mechanical and Electrical Specification (WIMES) 4.01 as published by The Pump Centre, ESR Technology Ltd, 202 Cavendish Place, Birchwood Park, Warrington, Cheshire, WA3 6WU and. as modified by the paragraphs below. Please refer to attached Data Sheet

3.2 **Valves**

The Contractor shall provide Valves in accordance with the Water Industry Mechanical and Electrical Specification (WIMES) 8.09 as published by The Pump Centre, ESR Technology Ltd, 202 Cavendish Place, Birchwood Park, Warrington, Cheshire, WA3 6WU, and as modified by the paragraphs below. Please refer to attached Data Sheet.

3.3 **Pipework**

3.3.1 **Introduction**

This Specification sets out the requirements for mechanical pipework systems for use in water and wastewater treatment works and pumping stations. The term “pipework” shall mean a pipe or system of pipes together with all associated valves and other pressure containing equipment. This Specification is not for disinfection systems, buried pipelines, hazardous or corrosive chemicals, steam or flammable gases.

This Specification includes pipework fabricated from:

a) Stainless Steel

b) Un-plasticised Polyvinyl Chloride (PVC-U)

3.3.2 **Scope of Work**

The Contractor shall, as required by the Particular Specification or Project Brief and Drawings, provide mechanical pipework systems to convey the fluids specified. Mechanical pipework systems shall be compatible with the fluids conveyed and the installed environment.

The supply of mechanical pipework systems shall include, but not be limited to:

1. designs
2. calculations
3. layouts
4. drawings
5. pipework and valve schedules (summarising all dimensions, materials and corrosion protection coatings)
6. equipment supply and installation
7. inspection and testing
8. operating and maintenance manuals; and
9. training for the Purchaser’s operatives;

all to provide a complete and working installation.

The content of mechanical pipework systems shall include, but not be limited to:

1. pipes;
2. valves;
3. filters;
4. threaded connections;
5. flanges, gaskets, nuts, bolts and washers;
6. flange adaptors, tied and non-tied;
7. solvent welded joints;
8. heating element fusion joints;
9. special connection pieces;
10. hangers, brackets and supports;
11. anchor supports, expansion joints and thrust blocks; and
12. terminal connections.

3.3.3 **General Requirements**

Mechanical pipework systems shall be designed, manufactured, installed, inspected and tested in accordance with Water Industry Mechanical and Electrical Specification (WIMES) 8.03. Where conflict exists between this Specification and WIMES 8.03 the requirements of this Specification shall take precedence.

Pipes greater than 80mm diameter shall be selected from the preferred sizes of 100, 150, 200, 300, 450, 600 and 800mm diameter. Sizes above 800mm diameter shall be selected to give the best whole life cost to the application.

Any “Dead legs” in the pipework shall be avoided. Where this is not possible, provision shall be made for purging, flushing and draining the dead leg, as appropriate. All purging, flushing and drain connections shall be provided with isolation valves. Where the system is classified as pressurised, these valves shall be supplemented by blank flanges bolted to the valve body.

Pipework shall not pass directly in front of, or obstruct access to doors, windows, control equipment or other plant, nor shall pass through unadapted, or adapted windows.

Pipe ends shall be protected from external damage and sealed against the ingress of dirt by caps, plugs or other similar means at all times after fabrication and before installation.

After cleaning and inspection, machined surfaces of all pipes shall be covered with a proprietary preserving fluid or otherwise protected. Each flange shall be fitted with a suitable system to protect it from damage.

Changes in pipe bore diameter shall be effected by proprietary fittings or fabricated sections. Al changes shall be gradual changes by angled reducers no steeper than 45 degrees. Step changes shall not be allowed.

Heavy components, e.g. valves, filters, pumps and strainers, shall be supported independently from pipework, by proprietary support brackets.

All pipework shall be pressure tested to ensure tightness, absence of leaks, etc. before initial operation. Tests shall be hydrostatic or pneumatic, as appropriate. The Contractor shall offer to the Purchaser the opportunity to witness the pressure tests.

Pipework connected to valves and pumps shall incorporate dismantling joints or bellows to allow the removal of the item for maintenance and to prevent loads from misaligned pipe being transmitted to the valve or pump body.

3.3.4 **Pipework systems conveying sewage or sewage derivatives**

All pipework for sewage or liquid sewage derivatives shall be designed and constructed such that blockage clearance is possible for the entire pipework system (e.g. rodding points).

3.3.5 **Pipework systems conveying liquids**

Pipework systems that convey liquids shall:

1. include facilities and all equipment needed for priming, venting, flushing and draining;
2. wherever possible, be vented by continuous rise. Where continuous rise is not possible, automatic air vents shall be provided at high points in the pipework system and vented as appropriate; manual vent valves shall be avoided.
3. be protected from the effects of freezing at temperatures down to an ambient air temperature of -10ºC (or lower where the site is exposed to wind chill), e.g. by insulation and, where needed, trace heating;(See AM-DES-GEN-F26 General Specification).
4. be insulated to protect against harm to personnel where pipe contents are either hot or very cold; and
5. be sized such that the mean fluid velocity does not exceed 2.5 m/sec.

Flushing and drain connections on pipework below 100mm shall be made using proprietary welded fittings with G series internal parallel threads to BS EN ISO 228-1.

These fittings shall be sealed immediately with hexagon headed shouldered plugs and seals. Holes made in pipes shall have all burrs removed and be cleaned through to remove loose particles.

3.3.6 **Stainless Steel Pipework**

3.3.6.1 **Application**

Stainless steel pipework shall be used for general purposes, including (subject to compatibility) aeration, process and potable water, compressed gases and fuel. Reference shall be made to Water Industry Guidance Note IGN 4-25-02 – Applications for Stainless steel in the Water Industry.

3.3.6.2 **Manufacture Grade including Pipe and Fitting Specifications**

Unless specified otherwise on a project specific basis, stainless steel pipe and fittings shall be produced, in accordance with EN 10088, in stainless steel grades 1.4307 (304L), 1.4404 and or 1.4432 (both are 316L grades of stainless steel). The maximum carbon content shall be 0.03% max in accordance with the low carbon design of these grades for welding purposes. The manufacturer shall mark continuously along the length of each pipe and on each fitting the information required by the standard for the pipe and fittings (as detailed below)

EN 1.4404 and or 1.4432 (316L) are the preferred material grade choices however with approval and due consideration to environment / application / service conditions / process controls / system design and life cycle grade 1.4307 (304L) may also be deemed perfectly suitable. Written guidance shall be obtained from the pipe manufacturer for all applications where more than 10m of pipe is being used.

Pipe wall thickness shall be selected as appropriate for the working, surge, vacuum and pressure requirement for each system.

All pipes shall be fabricated in a clean environment dedicated solely to the fabrication of stainless steel where there is no possibility of contamination from carbon steel tools or particles.

The Pressure Equipment Directive (P.E.D. 97/23/EC) applies to any application of 1.5bar. To comply with this, the piping standards for stainless steel pipe, fittings and flanges are as follows:

EN 10217-7 (Welded stainless steel pipes and tubes for pressure purposes)

EN 10253-3 (Stainless steel fittings without specific testing requirements)

EN 10253-4 (Stainless steel fittings with NDT)

EN 1092-1 (Standard for stainless steel weld on flanges, stainless steel pressure rated pressed collars in conjunction with carbon steel fusion bonded epoxy coated backing flanges.

A312 (ANSI thicker walled welded pipe)

A403 (ANSI thicker walled butt weld fittings)

3.3.6.3 **Vacuum**

Where there is a potential for internal pressures less than atmospheric or in cases of a negative differential between external and internal pressures, calculations according to EN 13480-3 should be adopted to calculate min wall thickness and or stiffening ring needs. In all cases max working temperatures must also been considered.

For vacuum applications, thicker walled ANSI Sch.10s minimum wall thickness piping can safely be used as a default choice

3.3.6.4 **Joints**

Pipes and fittings shall be connected together by flanged joints. Flanges shall be slip on welded or joints can be produced by the use of welded stainless steel pressure rated collars with pressure rated loose backing rings as appropriate. They shall be drilled to BS EN 1092-1: 2007 PN16 as a minimum, with higher pressure rating if required for the particular pipework system.

Loose flanges shall be made from carbon steel plate and either hot dip galvanised or FBE Fusion Bonded Epoxy coated with as Scotchkote 206N (Green). Nuts, bolts and washers shall comply with BS EN ISO 3506 (gradesA2 or A4 respectively) and the same grade stainless steel as the pipework.

For existing pipework systems, unless stated otherwise by the Particular Specification or Project Brief, new flanges shall match the existing flanges.

3.3.6.5 **Vibration**

The pipework system installation and supporting system shall minimise vibration to a safe level, in order to prevent pipe cracks due to work hardening.

3.3.6.6 **Welding**

Welds shall be formed by MIG or TIG processes, with argon shielding gas. All welds and heat affected zones, both on internal and external pipe areas, shall be thoroughly pickled and passivated with a proprietary pickling system. Wire brushing shall not be employed. Welds shall be subject to dye penetration and x-ray examination.

3.3.6.7 **Pipe cleaning**

Stainless steel pipes and fittings used in a potable water supply system shall be thoroughly degreased and rinsed prior to installation. On commissioning, should the bacterial sample plate counts be at any point in the process above those in the water conveyed by the pipework, then the Contractor shall at his own expense remove and further degrease the pipework.

 3.3.6.8 **Electrical earth bonding facilities**

The Contractor shall provide electrical earth bonding facilities for the pipework systems and associated equipment, e.g. tapped holes in flange outer edges or welded lugs, as appropriate. Metallic pipework shall be electrically continuous and connected to the electrical installation main earthing terminal. Where insulated joints are provided for galvanic isolation, then galvanic isolators shall be used to prevent the passage of galvanic currents but allow the passage of earth fault currents.

3.3.6.9 **Pipe Support**

The Contractor shall provide all supports for the pipe. Particular regard shall be had to the method of fixing and suitability of pipework supports to ensure loads are properly accommodated and existing supports/fixings are not overloaded.

Full details of pipe supports will be required prior to commencement of works on site.

3.3.6.10 **Mechanical Protection**

The pipe shall be protected from mechanical damage from vehicles and impact from lifting operations and pedestrians.

3.3.6.11 **Vacuum conditions**

The Contractor shall provide protection against vacuum conditions.

**3.4 Materials and workmanship –Generally.**

Materials shall be the best of their respective kind and new. Where not specifically mentioned, they shall comply with the latest issue of the appropriate Regulations together with British Standards including all current amendments and where appropriate Part L of the Building Regulations.

Care shall be taken throughout to conform to agreed standard of workmanship as specified in the appropriate British Standards.

Where appropriate the standards of materials and workmanship shall comply with those defined in the PSA Standard Specifications M&E 3 and M&E 100.

The complete installation shall operate and perform to the requirements of the local statutory authorities and to the satisfaction of the Consulting Engineer.

Note that this Section of the Specification, covering standards of materials and workmanship in general, may contain Clauses that are not directly relevant to the particular project.

**3.5 Flexible Heat Traced Hoses.**

Hoses are to be ContiTech DO20H high tensile reinforced black NBR with black Cr/BR cover. All hose assemblies are to be factory tested and certified.

**3.6 Pressure Testing of pipework.**

All pipework shall be hydraulically pressure tested by the Mechanical Contractor to 1.5 times working pressure or 10 bar whichever is the greater. Compressed air or gas shall not be used for pressure testing. The pressure tests shall be of at least 4 hours duration. Whilst on test the lines shall be thoroughly inspected visually. These tests shall be conducted before pipework joints are concealed by insulation.

The Mechanical Contractor shall give notice of all pressure tests to the Consulting Engineer so that he or his representative can witness such tests.

Pipework must be disconnected or blanked off for any equipment susceptible to damage at the test pressure and from any safety valve or similar rated at lower than that pressure. Pipework discharging to atmosphere shall not be tested.

Where a system or part of a system has to be tested the Mechanical Contractor shall be responsible for locating and effecting the necessary blanking.

The Mechanical Contractor shall keep records of all tests both on site and at his office. These shall also be made available to the Consulting Engineer or his representative.

Prior to testing, all lines shall be blown or flushed out to remove scale or other foreign materials.

Pipework systems shall be checked by the Mechanical Contractor to ensure that the supports are adequate to withstand the extra forces applied during pressure tests. Instrument lines shall be tested but the instruments shall be removed or isolated to prevent damage. Pressure gauges having an adequate range to withstand the test pressure may be left on line.

Test gauges shall be of a proven accuracy and demonstrated to be so prior to their use.

All gaskets used for blanking off lines for test purposes shall be removed and replaced on completion of the tests.

Any line failing the tests shall be fully re-tested after the leak or leaks have been made good. Any alterations or additions carried out to a line after pressure testing shall be re-tested as a whole or as necessary to incorporate the new or altered sections.

**3.7 Thermal insulation and trace heating of pipework**

The lines shall be trace heated with 230Vac constant wattage trace heating cable controlled using an air sensing thermostat. The overall length to be trace heated is close to the maximum circuit length for trace heating cable. Should the pipework be extended it may be necessary to use two trace heating circuits.

Trace heating shall be of the 230v 8Wpm constant wattage parallel type consisting of a polymer core complete with protective tinned-copper over braid within a waterproof outer polymeric sheath. Frost protection systems shall provide protection against freezing by automatically (user set ambient start temperature) maintaining a temperature of +5°C in the working fluid with the ambient air temperature of -15°C and the working fluid stationary.

Power connections and splices shall be within junction boxes IP65 minimum mounted adjacent to any associated lagging and cladding. Trace heating power connection and end seal kits shall be of heat shrinkable type, which forms a semi flexible moisture proof encapsulation. Where the heating tape penetrates the Aluzinc cladding, glands shall be fitted with conduit to protect the cable and prevent moisture ingress.

All of the trace heating installation will be in accordance with: BS 62395-2-2013 Electrical resistance trace heating systems for industrial and commercial applications, “Application guide for system design, installation and maintenance”.

Automatic control of the heating system shall be provided by dedicated ambient sensing thermostats at the shore end of the pipework, these shall be manually adjustable units with digital temperature displays and heating activated indication. The units will be housed within weatherproof enclosures, mounted by us on dedicated support brackets. The total loading will be 2.1kW at 10A.

In the field, all heater cables shall have insulation and continuity tests. The following separate field readings shall be taken on each self-regulating cable.

a. Heater cable shall be tested after installation, but before insulation is applied.

b. Heater cable shall be tested after insulation has been installed.

All of the above field insulation readings shall be greater than 20 meg-ohms. Otherwise, the heater cable is not acceptable and shall be replaced. Field insulation and continuity tests shall be recorded for each heater cable, and certified reports shall be submitted to the user.

Pipework to be insulated using mineral wool bright Class 0 (BCO) foil faced, rigid sectional insulation, secured in position using insulation tape at 50mm thickness. Bends and tees to be insulated with sections mitred and cut to suit.

Cladding to consist of 0.6mm plain mill finish Aluzinc™ sheet, fabricated to suit, secured using stainless steel banding at 300mm centres. Sheet metal cladding material shall be roll formed to suit the diameter of the insulation. Straight casing shall be applied with suitable longitudinal and circumferential overlaps and lap joints to be arranged to shed water. Pipework cladding shall terminate at all flanged joints with suitable clearance to allow bolt removal without the need to remove cladding. Bends shall be fitted with pre-fabricated sections in the form of 90° mitred type elbows or segmented bends as required.

All open ends will have an Aluzinc end cap installed to seal the insulation from moisture ingress. Aluzinc is preferred over stainless steel as it is designed for external applications in coastal environments.

All stainless steel pipe work shall be covered with pure foil prior to insulating, to prevent stress corrosion cracking that can occur due to the minerals/binders within the insulation sections.

All fittings will have removable insulated covers fitted with sufficient overlap onto the insulation, so as to provide additional weather resistance.

All insulation covers shall be heavy weight PVC cloth on the outer face with silicone coated glass cloth on the inner, double stitched to provide extended durability, fastenings will be via “Velcro” type hook and loop fully closing flap with side draw cords, recommended insulation media for this application would be 50mm mineral wool.

**3.8 Pipework cleanliness**

During the storage of pipework materials and during the installation of pipework systems, the Mechanical Contractor shall be responsible for taking all necessary steps to maintain the internal cleanliness of pipework and tanks. Temporarily open ends of stored and installed pipework shall be closed with plastic caps.

Subsequent dismantling of pipework sections to clear blockages caused by foreign materials shall be carried out at the Mechanical Contractor's cost.

**3.9 Identification of plant, valves and fittings**

All pipework shall be identified by colour code banding. Bare, uninsulated pipework shall additionally be top coat painted in the colour identified on the drawings or to be advised. Bands shall be self-adhesive tape fixed over the thermal insulation where appropriate. Pipe and band colours for the respective services shall be in accordance with BS 1710:1984.

Additionally self-adhesive arrows and labels shall be fixed to pipework to indicate the direction of fluid flow and the service carried. A chart giving the key to the colour banding code shall be supplied as a Record Drawing. A further copy shall be encapsulated in plastic and affixed in a suitable location in the plant room.

Pipework system fittings including valves, strainers, check valves, flow measuring devices shall be numbered using a colour coded Traffolyte disc secured with a tie wrap and 10mm Key ring (so as to ensure the labels hang freely), to its handwheel, wrench or as otherwise agreed by the Consulting Engineer or his representative. A separate disc is required on commissioning valve metering stations to denote details of valve size, make & type and kv number. The numbering system and precise colour, shape and style of valve label is to be discussed and approved by the Consulting Engineer.

A valve and fitting identification chart shall be supplied by the Mechanical Contractor as a Record Drawing. A further copy shall be encapsulated in plastic and affixed in a suitable location in the plantroom.

The manufacturer shall supply each item of plant or equipment with a metal identification nameplate securely fixed and clearly stating the manufacturer's name and the equipment's size, model number, and serial number. In the case of electrical equipment the nameplate shall additionally carry electrical supply details, rating in kW, full load current in Amps, and rotational speed in rpm. In the case of pumps and fans the nameplate shall also carry the design duty (flow rate and generated head in S.I. units).

In addition to the above the Mechanical Contractor shall supply and fix rectangular Traffolyte labels (black lettering on white background) to all plant items, local isolators and control components. These labels shall carry the plant or component identification name and reference number as used on the drawings.

All such names and references shall be agreed by the Consulting Engineer. Labels shall be mechanically fixed (i.e. not glued) in place in such a way that differential thermal expansion is accommodated without damage to the label or that to which it is fixed.

The Mechanical Contractor shall supply and fix self-adhesive arrows to indicate the direction of flow to pipework. In addition, self-adhesive labels identifying the area served shall be fixed to ductwork and pipework before it exits plantrooms. The size and style to be equal to that presently affixed to existing ductwork within the Plant room.

**3.10 Protection of plant and equipment.**

The Mechanical Contractor shall take every reasonable precaution to avoid damage to fans, filters, heater and cooler batteries, pumps, control panels and components etc., and all other plant and equipment during off- loading, storage and positioning operations and from other trades' activities and the weather. In particular the fins of air/water heat exchangers shall be combed out if necessary following installation.

Delivery of plant to site earlier than necessary to satisfy the construction programme is not acceptable without the specific approval of the Consulting Engineer. Secure and dry off-site storage shall be provided at the Mechanical Contractor's cost for any item of plant that he chooses to order and procure early.

**3.11 Builder's work**

The Mechanical Contractor shall include in his tender for the supply of all necessary brackets, bolts, anchor plates, nuts, washers, plugs, etc. required for the fixing of the works.

Unless otherwise specified under the respective sections of this Specification, all foundations for engineering plant, structural steelwork, cutting away and making good in walls, floors and ceilings, cutting away for building in of clips, brackets and other supports, removal of ceiling tiles, skirting etc. as may be necessary shall be carried out by the Main Contractor.

The term "cutting away" in the above paragraph shall not include drilling and plugging for small fixing screws, which shall be carried out and allowed for by the Mechanical Contractor.

On no account is any cutting away or alteration work to be undertaken on the gangway without this being the subject of prior written approval of the C.A.

**3.12 Electrical Contractor's Works and Responsibilities**

The Electrical Contractor shall supply, install and connect all the power/control cable or cables complete with lugs, cable gland or glands into the mechanical plant and equipment by means of the cable box, spreader box, terminal chamber or whatever terminating arrangements have been provided by the Mechanical Contractor. Un-drilled gland plates shall be drilled by the Electrical Contractor at his own cost.

The Electrical Contractor shall supply "Free Issue" equipment to the Mechanical Contractor where specified.

All mains fed items of equipment such as heaters, control valves etc., and all motors are to be supplied with terminating facilities appropriate to the cabling defined on the drawings.

The Electrical Contractor shall supply and fix any additional box which may be necessary to convert non flexible wiring cables to flexible or heat resisting cable and shall allow for supplying, installing and connecting such cables into the final terminal box or chamber of the equipment.

Should any mains fed component not be equipped with a terminal box or chamber suitable for direct connection of the specified cabling, the Electrical Contractor shall not proceed with wiring, but shall request instructions from the Consulting Engineer. Small ELV components may be supplied with flexible flying leads; the Electrical Contractor shall supply and fix any additional junction box which may be necessary to make the final connections in these instances and he shall also supply and fix flexible conduits where the ELV component has the facility for accepting the conduit adapter.

The Electrical Contractor shall ensure that final connections to mechanical services equipment does not impair or restrict any anti-vibration measures installed by the Mechanical Contractor.

**3.13 Transfer of Works and Responsibilities**

By mutual arrangement and agreement, with the Consulting Engineer, the Mechanical and the Electrical Contractors shall be free to adjust between themselves the responsibility of providing the terminating accessories, but the cost and technical responsibility shall remain contractually unaltered and any works so transferred shall be paid for by the transferring Services Mechanical Contractor to the transferee as mutually agreed between them.

Any such transfer shall not amend the standards and requirements specified or the cost of the works.

**3.14 Pipework Access**

Pipework access facilities such as rodding eyes and access doors shall be provided where required to allow insertion of temporary test equipment and for clearing blockages.

All such access fittings shall be located where access and future removal can be reasonably achieved from the gangway, without the need of special access equipment.

No access shall face a wall, slab or other obstruction unless there shall be a minimum 1.5 meters work space in between. The access within service ducts shall be 150mm above the overspill of the adjacent sanitary fitting being serviced.

**3.15 Inspection of Materials**

The Mechanical Contractor shall examine all materials upon delivery to the site to ensure that colour shape and finish are of the best quality. Any fittings installed by the Mechanical Contractor, which are found with production defects, or any damage shall be replaced at the Mechanical Contractor’s expense.

**3.16 Record drawings**

The Mechanical Contractor shall maintain a record, via a separate set of the Mechanical Contractor’s Construction drawings, of the dimensions and other particulars of the works as they are actually installed as and when these particulars differ from those shown on the drawings provided by the Consulting Engineer.

These records shall be kept by the Mechanical Contractor on site and shall be available at any reasonable time for inspection and use by the Consulting Engineer or his representative. Immediately on physical completion of the Contract Works, the Mechanical Contractor shall at no extra cost to the works, supply record drawings to the scales not less than those used for contract purposes.

The package of Record Drawings provided by the Mechanical Contractor shall include colour banding chart, valve charts and manufacturers' shop drawings.

**3.17 Cost of Remedial Works and Delays**

If remedial works are required at any stage of the commissioning and testing work as a result of defects with equipment or installation, the costs of such works and any delays associated with them shall be borne by the Main Contractor the Mechanical Contractor and/or the Electrical Contractor in accordance with the terms and conditions of the contract.

**SECTION 4**

**SCHEDULE OF WORKS**

**To be read in conjunction with Preliminaries**

**Preambles and General Conditions.**

The installation works covered by this Mechanical Scope of Works document comprise of the following:

* Removal of the existing 2 no. macerator pumps and removal from site.
* Installation of 2 No new macerator pumps:

**Art. no.2512105 Motor pump MPTK-I 50 5.5 kW-3000 rpm, 100B3**

Manufacture LANDIA

Type MPTK-I

Impeller revolutions 2860 RPM

Weight 61 kg

Exterior and interior seal Mechanical shaft seals

**Pressure side**

Discharge diameter Ø50 mm

Reference circle/bolt holes Ø 90 mm/4xØ10 (DIN 2631)

**Inlet side**

Inlet diameter Ø65 mm

Reference circle/bolt holes without knife system Ø 102 mm/6xM6

Reference circle/bolt holes with knife system Special flange

**Material**

Motor housing and oil chamber Cast iron AISI A48-40B

Pump housing Cast iron AISI A48-40B

Impeller Cast iron AISI A48-40B

Bolts/screws Acidproof AISI 316

Mechanical shaft seals Silicon carbide/Silicon carbide

Surface coating Painted

**Motor**

Manufacture LANDIA

Type M 5,5.2

Rated Effect 5,5 kW

Revolutions 2860 RPM

Phases x voltage, frequency 3 x 400 V, 50 Hz

Start current direct 61 A

Rated operating current 11 A

Power factor, cos(phi) 0,86

Cage class IP55

Minimum voltage allowed 360 V

Insulation class F

**Recommended service interval/oil change max. 2000 hours min. once a year.**

Oil type BP Vanellus C3 Multigrade

Oil quantity 0,7 l

* Modification of plant room pipework to accommodate fitting of the new pumps.
* Modification of pipework under the existing Pavilion café to allow for connection of the new sewage lines into existing sewage system.

A photographic survey of the pipes both under the Pavilion and the inspection chamber on the quayside was undertaken and has been reproduced separately.

The Pavilion drainage runs in cast iron which tees into a 4” plastic pipe which runs through the wall into the inspection chamber on the quayside. The two flexibles from the ship run through the quayside wall and tee into this pipe in the inspection chamber.

It is understood that the other connection into the tee is a redundant connection which came from a manhole before the Pavilion was rebuilt.

This cast iron elbow is to be removed enabling a connection into the tee for the new pipework from the ship. This work will entail working beneath the pavilion.

* Erection of scaffolding to allow safe access for all works to be undertaken.
* The design, supply and fabrication of bespoke pipework bracketry and supports, incorporating any thermal expansion equipment and anchoring.
* Supply, fabrication and installation of sewage pipework in DN50 and DN100 schedule 40, 316 grade s/s. Routes are shown schematically on the drawing included in the tender documentation. However the precise routing must be agreed with the C.A and Ships conservation officer to ensure the pipe routing will not conflict with other services or cause obstruction, particularly at the position of the waste skip and where the pipe passes under the brow where this abuts the ship. Particular attention to detailing is required to ensure the pipe and valves etc are accessible for essential maintenance.
* Supply and installation of heat traced flexible pipework to take up movement of both the ship and the brow in locations shown on drawings.
* The installation of thermal insulation and the heat tracing of pipework.
* Electrical disconnection of existing pumps. Electrical connection of new pumps together with any panel changes required. Electrical connection of new heat tracing.
* Removal of existing flexible sewage lines that currently run from the ship, over the river bed and up the river wall. This will include flushing through as required to avoid discharging of sewage into the river.
* Work is to be undertaken to a specific and pre agreed programme. The forward pumpset is to be tested in-situ for a full week – to prove its operation at all tide levels before the aft pumpset is installed and similarly tested.
* On completion and testing the existing flexible pipework is to be flushed and removed.
* On the shore, the inspection chamber in front of the Pavilion is to be accessed and the flexible pipework disconnected and the sewage pipe suitably capped.
* Documented examination and testing of welds on pipework and pressure testing of pipework.

In addition to the above, the fixing of the gas pipework where it runs along the side of the Pavilion is to be improved. Currently, two of the three fixings are fixed to the timber buttresses and one into the pavilion concrete. The contractor is to allow for the provision of two new fixing brackets to secure the pipework to the concrete, and remove those fixed into the timber.

**SECTION 5**

**Tender Submission**

Tenderers are required to comply with the following in order for their tender to be considered. If the tenderer does not comply fully, then the tender may be rejected by the Museum.

**5.1 Site Tender Visit**

As part of the process the tenderer shall visit site to acquaint themselves with the site, the extent of the work and the conditions under which it is to be carried out.

Tenderers are to contact the Contract Administrator by email to make arrangements to visit site. Contact rconnor@iwm.org.uk.

**5.2 Basis of Prices**

All prices must be quoted on the basis of lump sum fixed price based on no re-measurement, as indicated in the accompanying documents. Quantities given are for guidance only and prices entered should exclude VAT.

**5.3 Supporting Information**

The contractor shall as part of tender submission include the following information:

1. An **outline** contractors Method Statement describing how the works are to be undertaken and what arrangements will be put in place to manage health and safety. The method statement however shall be sufficiently detailed to show how the work is to be undertaken and what measures will be employed to ensure the safety of operatives, IWM staff, visitors and general public.

1. The names & contact details of two references where the company has carried out similar work.
2. Copy of the company’s Health & Safety Statement

.

1. This tender document complete, with each page initialed to indicate reading.
2. The schedule of work items priced up.
3. The tender form properly completed and signed.
4. Proposed programme of works.

**5.4 Award Criteria (other than price)**

The employer does not bind himself to accept the lowest or any tender; when awarding the contract in addition to price the Employer will have regard to the following.

1. Accuracy of submission.
2. Compliance with tender instruction for submission of documentation.
3. Suitability of the Method Statement and Risk assessment referred to above.
4. Contractor’s ability to demonstrate his competence in carrying out works of this nature.

**SECTION 6**

**POINTS OF CONTACT**

Imperial war Museum (IWM) Procurement and Compliance Point of Contact:

Senior Procurement Manager

Jamie Coyle

IWM London

Lambeth Road

London

SE1 6HZ

T: 0207 091 3193

M: 07932 104 436

E: jcoyle@iwm.org.uk

IWM Facilities Management (FM) Point of Contact:

M&E Facilities Manager

Richard Connor

IWM London

Lambeth Road

London

SE1 6HZ

T: 0207 091 3094

E: rconnor@iwm.org.uk

**SECTION 7**

**CONTRACT TIMETABLE**

**7.0 CONTRACT IWM//CWP/1582** **PROGRAMME TIMETABLE**

The following schedule represents the proposed timetable for the appointment of a consultant and commencement of the contract for the services in relation to various external building projects as detailed within the tender documents on behalf of the Trustees of the Imperial War Museum.

|  |  |
| --- | --- |
| **Issue of Tenders:** | 1 February 2017 |
| **Tender Period** | 4 weeks |
| **Tender Submission Date:** | 28 February 2017 |
| **Tender Submission Time:** | Noon |
| **Tender Opening Time:** | 28 February 2017 |
| **Tender Evaluation Period:** | 28 February – 14 March 2017 |
| **Interviews** | wc 20 March 2017 |
| **Contract Award:** | 27 March 2017 |
| **Contract Lead-in Time** | TBA |
| **Contract Start Date:** | TBA |
| **Contract Completion Date:** | TBA |

#### FINAL COST SUMMARY.

**Tender ref IWM/CWP/1582 for;-**

**The Replacement of HMS Belfast pumps and sewage lines.**

The Contractor is to fully price this document and insert the totals for each section to the final summary below.

The IWM reserves the right to omit any section or sections from the contract at the prices stated at no extra cost.

**Preliminaries & Preambles; £…………….**

**Contingency sum £…5000.00**

**Section 4 schedule of works £……………..**

**Replace fixings to existing gas pipe (Provisional sum);- £1000.00**

##### TOTAL TO TENDER FORM £………………+ VAT.

Priced By ………………………………………..

Company Name ………………………………………..

Company Address ………………………………………..

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 ………………………………………..

Date ………………………………………..

**Tender Declaration; Contract, Reference ; IWM/CWP/1582**

**Project;- The Replacement of sewage pumps & foul drainage to HMS Belfast.**

To , **The Trustees of the Imperial War Museum.**

I / We have read the letter of invitation, the Specification. In complete accordance with

the “Tender Documents”.

We do hereby offer to execute & complete the specified works described therein detailed

in the Conditions of JCT Minor works contract;

For the FIXED PRICE TENDER sum of;-  **£.**.....................................**plus VAT .**

**£**.........................................................................................................(amount in words).

(Inclusive of any Provisional, Prime cost and Contingency sums)

I / We undertake to Commence work as soon as is practical upon receipt of written notification /

order. To commence works in…( )….weeks, of tender acceptance and complete the programme

within ( ) weeks, thereafter to complete the phased works within programme

from the date of site possession.

I / We agree and understand that no insertion or endorsement made to this Form of Tender or

any other conditions made by the Contractor in connection with this Tender figure will be

accepted by the Client and any such insertion, endorsement or condition shall render the

Tender liable to rejection by the Client

SIGNED ..............………………..................................... Dated;- ………..……..........….

PRINT NAME ..............................................................……...............

POSITION IN COMPANY .................................................................………….....

NAME & ADDRESS OF COMPANY, .....………………....………………………………..……

Tel;- No...........................……………..……………………………..........

 **The Client does not undertake to accept the lowest reasonable or any other tender.**

**Appendix 2**

**STAFF SECURITY CLEARANCE**

 **NOTIFICATION FORM**

**CONTRACTOR:**

|  |
| --- |
| **Level of CRB** |
| **IWM Branch** | **Start Date** | **Staff Name** | **Basic** | **Standard** | **Enhanced** |
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| --- | --- |
| Signed |  |
| Name |  |
| Job Title |  |
| **Date** |  |

Please complete all sections of the Form and forward to IWM’s Technical Security Manager at jpawley@iwm.org.uk or addressed to Technical Security Manager, CWR, Clive Steps, King Charles Street, London SW1A 2AQ, a minimum of 48 hours prior to the individual(s) commencing work at IWM.