



VOLUME A

WORK REQUIREMENTS

**Refurbishment of locker facility and associated works
at Dún Uí Mhaoilíosa, Renmore, Galway**

for

THE MINISTER FOR DEFENCE

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Section A

General Information and Conditions

General Information and Conditions

WORK TO BE EXECUTED:

The proposed works include the refurbishment of an existing locker facility and associated works.

LOCATION:

Dún Uí Mhaoilíosa, Renmore, Galway

DOCUMENTS FORMING BASIS OF TENDER:

Drawing numbers:

Index No.1B/385//25 (1-12)

Specification provided:

Yes ☒ No ☐

Contractor to be appointed as PSCS:

Yes ☒ No ☐

Contractor to have vacant possession of site

Yes ☒

OR

Contractor required to work around personnel in
occupation of location where work carried out

Yes ☐

PSDP APPOINTED

Name Corps of Engineers

Address 1 Infrastructure & Utilities Company
1 Brigade Engineer Group
Collins Barracks
Cork

TIME ALLOWED FOR COMMENCEMENT AFTER CONTRACT COMES INTO EFFECT

Reference PW CF6 Clause 2.1. The Contractor will be allowed to occupy and use the site within 10 days from the date that the Contract comes into effect and, in accordance with PW CF6 Clause 2.3, shall commence work on site within 5 working days of being allowed access and complete within the time stated for Completion.

SITE VISITS

To arrange visit to inspect the site of the Works contact

Name	Phone number
1 Commandant Fergus Twomey	085 7743120
2 Mr John Hughes	086 8958443

WORKING HOURS RESTRICTIONS

Except with prior approval, the Contractor will only be allowed to carry out work on site between the hours of:

Mon to Fri 0800hrs to 1700hrs

Work will not be permitted on Public Holidays nor on Sundays

WATER AND ELECTRIC POWER

When available, water and electric power may be taken from:

Water: Existing Locker Facility Building
Electric power: Existing Locker Facility Building

3 Phase available No ✓ Yes

1 TENDER COMPETITION

1.1 Parties referred to in the Contract

<u>Employer:</u>	Minister for Defence
<u>Employer's Representative:</u>	Director of Engineering McKee Barracks Dublin 7.
<u>Contractor:</u>	The party appointed to carry out the Works

Safety - Design and Construction

Project Supervisor – Design Process The party named on the cover sheet of the Works Requirements

Project Supervisor -Construction Stage The Contractor appointed to carry out the Works (unless section on Form of Tender relating to matter states otherwise).

1.2 Tender documents

The following shall be deemed to form the tender documents.

- (1) Volume A, Works Requirements
- (2) Volume B, Form of Tender & Schedule and ancillary documents included in Volume B to be submitted with Tender
- (3) Volume C, Pricing Document and any tender summary provided to tenderers for completion and submission with their tender documents.
- (4) Suitability Assessment Questionnaire
- (5) Specification, drawings and any other documents referred to in the Works Requirements

Tender documents are intended for the specific party to whom they are addressed. The Employer will only consider tenders received from parties specifically invited to submit a tender and unsolicited tenders will not be taken into consideration in the tender assessment process.

1.3 Errors in tenders

In the event of errors being found in a tender the tenderer shall be informed of the errors and asked to formally confirm or withdraw the tender. If the tender content is confirmed, a signed endorsement shall be attached to the tender stating that all rates or prices (except Preliminary Items) are to be regarded as having been reduced or increased appropriately. Where the tenderer refuses to confirm the tender content the Employer may treat the tender as being invalid.

No liability shall attach to the Employer for failing to discover errors in any tender and the tenderer shall be solely responsible for the accuracy and comprehensiveness of their tender

1.4 Lowest or any other tender

The Employer shall not be bound to accept the lowest or any other tender and reserves the right to cancel the tender competition at any time.

In the event of the Employer deciding to accept a tender, the Contract shall be awarded on the basis of the lowest priced suitable tender (suitability refers to such items as capacity, organisation, experience, performance on previous contracts, financial standing relative to the Contract and compliance with any specifications or quality standards laid down for the Contract).

Tenderers shall not be reimbursed for the costs incurred in tendering nor, in the event of the cancellation of the competition, in preparing qualification and tender submissions.

Tenders deemed to be abnormally low may be excluded from consideration for award of the Contract.

Where a tenderer, or any member of the tendering Group or Consortium, has supplied information that is inaccurate or false in relation to their submission, their tender will not be considered.

Where a tenderer, or any member of the tendering Group or Consortium, is the subject of any of the 'insolvency events' listed below before a Contract award is made, their tender shall be deemed to have been withdrawn and will be excluded from consideration when the decision on the award of the Contract is made.

A petition being presented to wind the tenderer up and not being dismissed within 14 days after presentation.

A meeting of the tenderer's creditors or members being held for the purpose of considering a resolution to wind it up.

The tenderer entering or proposing to enter an arrangement with or for the benefit of its creditors.

A petition being presented to appoint an examiner to the tenderer.

A liquidator, examiner, supervisor, receiver, administrative receiver, trustee, encumbrancer, or similar being appointed for the tenderer or any of its assets.

The tenderer ceasing or threatening to cease its business.

The tenderer becoming insolvent or unable to pay its debts as they fall due.

The tenderer, being an individual, becoming bankrupt or dying or becoming incapable of performing this Contract.

Furthermore, tenders will not be considered where the tenderer, or any member of the tendering Group or Consortium, has been the subject of a conviction by final judgement for one of the following:

Participation in a criminal organisation, as defined in Article 2 of Council Joint Action 2008/841/JHA.

Corruption, as defined in Article 3 of the Council Act of 26 May 1997 and Article 2(1) and Article 2(1) of Council Joint Action 2008/841/JHA.

Fraud within the meaning of Article 1 of the Convention relating to the protection of the financial interests of the European Communities.

Money laundering, as defined in Article 1 of Council Directive 2005/60/EC of 26 October 2005 on prevention of the use of the financial system for the purpose of money laundering.

1.5 **Conditions of Contract**

The Conditions of Contract will be the SHORT PUBLIC WORKS CONTRACT, as published by the Dept. of Public Expenditure and Reform. The applicable version shall be that posted on the www.constructionprocurement.gov.ie website ten days prior to the return date for tenders.

1.6 **Scope of the work, adequacy of tender and conflicts between documents**

The tenderer shall be responsible for assessing the extent of the work required after visiting the site, examining the tender documents and being briefed on the extent of the Works (where such a briefing is provided). The tender sum submitted shall be deemed to cover the cost of carrying out all work either shown or described or which might a competent contractor carrying out work of the type required should reasonably be expected to infer as being intended for execution. All associated costs, including temporary works, shall be deemed to be included.

The Contractor shall be deemed to have visited and inspected the site and the buildings to be worked on and to have assessed all local circumstances likely to affect the execution of the Works before preparing his tender. The nature of the soil shall be deemed to have been taken into account.

Attention is drawn to the provision of PW CF6 Clause 1.4, dealing with discrepancies between Contract documents. Tenderers will be deemed to have fully assessed all documents provided and, in the event of there being discrepancies between them resulting in alternative specifications or requirements being called for, then the Contract Sum will be deemed to include for the most expensive of the alternatives required. The discrepancies will be resolved by the Employer's Representative in accordance with PW CF6 Clause 1.4. All apparent discrepancies shall be raised with the Employer's Representative before the Contractor orders materials or commences work.

1.9 **Tax clearance certification**

The award of the Contract will be conditional on the selected tenderer being in a position to produce a valid 'Subcontractor's Notification of Determination' issued by the Revenue Commissioners' eRCT system. The Notice shall be not more than 30 days old on the date that the tenderer provides it to the Employer.

Where the 'Notice' states that tax is to be deducted from the tenderer at the rate of 35% then the tenderer shall be deemed unacceptable for the award of the Contract and his tender shall be deemed invalid.

A tenderer asked to produce a 'Notice' shall be allowed ten working days to do so after which, should he have failed to do so, he may be deemed to have withdrawn his tender.

The tenderer shall be responsible for all costs incurred by him in obtaining a 'Subcontractor's Notice of Determination'.

The Employer is obliged to withhold tax from the Contractor in accordance with the instructions of the Revenue Commissioners at the rate determined by them as appropriate for the Contractor at the time any payment is due to be made.

In addition to the Notice referred to above, a copy of the tenderer's Tax Clearance Certificate will also be required.

1.10 **Pay and Conditions of Employment**

In order to be considered for the award of the Contract, a tenderer must confirm that their firm complies with its obligations under sectoral employment orders, employment regulation orders, registered employment agreements, where applicable, registered under the Industrial Relations Acts 1946 – 2015 and is also in compliance with the National Minimum Wage Act by completing the declaration included with the Tender Documents.

The tenderer must show that their firm is a fully paid-up member of the Construction Workers' Pension Scheme and Construction Industry Sick Pay schemes where employees of the firm are required to be members of them in accordance with the legal requirements covering workers employed in the relevant areas of the construction industry. A tenderer asked to do so shall promptly submit contribution receipts or other evidence of membership acceptable to the Employer. Any tenderer unable to provide evidence of being in compliance with their obligations may be deemed to have withdrawn his tender. A Contractor required to be a member of the Pension and Sick Pay Schemes shall remain in membership of them for the duration of the Contract.

A tenderer claiming exemption from the requirement to be a member of the Construction Industry schemes on the basis of not directly employing persons eligible for membership of them shall be obliged to provide a detailed proposal of how they intend to have the Works carried out, including how the required labour is to be sourced. Any tenderer proposing to subcontract the entirety of the Works shall be excluded from further consideration and their tender shall be deemed to have been withdrawn. A tenderer proposing to subcontract some elements of the work shall provide details of the planned extent of the subcontract arrangements and, where the arrangements are broadly acceptable to the Employer, commit to the intended subcontractors being in membership of the Construction Industry pension and sick pay schemes where the work to be so subcontracted falls within the scope of the sectoral employment orders, employment regulation orders, registered employment agreements, where applicable, registered under the Industrial Relations Acts 1946 – 2015.

1.11 **Evidence of insurances**

Any tenderer asked to provide evidence of having, or being able to get, the required insurances shall be required, as a minimum, to provide a statement undertaking to procure the insurances immediately upon entering into a Contract together with a further statement from a licensed insurer or bona-fide insurance broker that such insurances will be available to the Contractor. A tenderer failing to meet this requirement shall be excluded from further consideration and their tender deemed to have been withdrawn.

Tenderers shall be required to have Employer's Liability insurance cover regardless of whether they directly employ labour or not.

1.12 **Schedule of Rates / Pricing Document**

A fully priced and quantified Pricing Document shall be provided by the Tenderer. The total of the quantities shown multiplied by the rates tendered shall equal the tender sum offered. Failure to provide this information with the tender submission, or at latest within 5 working days of it being requested, may result in the tender being deemed invalid.

1.13 **Publication of tender information**

Tenderers are advised that the Employer is obliged to circulate the name and address of the Contractor awarded the work, the type of work involved and the address of the site to a nominee of the Irish Congress of Trade Unions (ICTU).

Submission of a tender shall be deemed to confirm the tenderer's acceptance that he agrees to the circulation by the Department of the above information. Any tender which is accompanied by a statement stating or implying that the tenderer does not agree to the release of the above information shall be deemed to have been qualified and may be treated as an invalid tender.

1.14 **Pricing**

Unpriced items

Any item left unpriced shall be deemed to be included for in the tender and the cost of the item shall be deemed to be spread across, and included in, the rates generally.

Currency

All prices and rates shall be deemed to be denominated in Euros.

1.15 **Value Added Tax**

The tender shall include for Value Added Tax liability at the Standard (23%) rate only.

No amount shall be included for the VAT liability at the special building rate (13.5%). Where the work is liable at various rates, the Contractor shall provide a detailed breakdown of the items of work liable at 23% and or 0% / exempt to facilitate the valuation of Change Orders. Where the cost of any items are zero rated / exempt for VAT purposes, the relevant items shall be itemised and the amount of the liability at this rate shall be clearly identified on the tender summary, with the amount carrying the zero rated / exempt liability kept separate in the compilation of the total tender price.

Adjustments to the V.A.T content of the Contract Sum will only be made in accordance with PW CF6 Clause 4.

1.16 **Freedom of Information Legislation**

The Department undertakes to use its best endeavours to hold confidential any information provided by the tenderer subject to the Department's obligations under law, including the Freedom of Information of Act, 1997 and its amendments. If the tenderer wishes any of the information supplied by him with the tender submission not to be disclosed because of its sensitivity, he should, when providing the information, identify same and specify the reasons for its sensitivity. The Department will consult with the tenderer about this sensitive information before making a decision on any Freedom of Information request received.

2. **GENERAL INFORMATION**

2.1 **Security**

The Contractor will be required to submit completed Garda Central Vetting Unit application forms in respect of all personnel that are intended to attend site on a regular basis. The form to be used shall be the same as the one issued with the tender documents for completion by the managing director of the tendering firm or the person designated as taking responsibility for the project. Completed forms for Contractor's personnel shall be submitted to the Officer identified to the Contractor by the Employer ('designated Officer'). Clearance and issue of passes for persons resident in the State will take a minimum of six working weeks and may be considerably longer for those resident outside the State. Personnel may be allowed access to the site during the clearance process at the discretion of the military authorities responsible for the installation but will be denied access in the event of the vetting process leading to any person being deemed unsuitable to be allowed admission to Defence Forces establishments.

The application forms must be completed in full with all requested information requested, including an email address, and must be signed by the person seeking Vetting. Each application must be accompanied by photographic evidence of the identity of the applicant for whom clearance is being sought that complies with the '100 points' requirement set out in the application form guidance notes. At least two distinct types of photographic evidence identity will be needed to achieve the '100 points' requirement.

No reasons will be given in the event of refusal of clearance.

The details of the personnel required on site by the Contractor during the first six weeks of the Contract shall be submitted to the designated Officer within TEN WORKING DAYS from the date of a letter requesting the details. Details shall be submitted on the special application forms that will be issued to the Contractor and shall be fully completed and signed by the person for whom clearance is being sought.

Denial of security clearance will not form grounds for claims for a Delay Event or a Compensation Event.

Personnel and materials entering and leaving the site may be searched.

No photographs shall be taken within the confines of a military installation.

The Contractor will be deemed to have included in his tender for all costs involved in complying with security requirements as described above and for taking all steps necessary, should access to the establishment where the work is to be carried out be denied to any person or firm.

Notwithstanding the fact that the work is to be carried out in a security aware area, the Contractor will have sole responsibility for protecting plant, materials, equipment and work executed against damage and theft.

The Minister or any of his officers shall have the right without condition to refuse admission to the site of the works of any person whatsoever. Should an employee of the Contractor be refused admission the Contractor shall provide a substitute employee, acceptable to the Employer and fully cleared for security purposes, in lieu thereof.

The requirement for the exclusion of employee(s) shall be deemed to result from an 'act or omission of the Contractor' in accordance with the terms of Clauses 2.7 and 4.5.

2.2 **Photographs for passes**

Three passport sized photographs (with the person's name and address on the reverse) shall be submitted to the Employer's Representative to allow for the issue of Security Passes if required. Three signed photocopies of each person's Safepass card shall also be submitted.

2.3 **Insurances**

The Contractor shall indemnify the Minister for Defence against all claims arising from the execution of the Works that are the subject of the Contract and shall maintain all necessary insurances for the duration of the Contract in accordance with the requirements of PW CF6 Clause 10. The Contractor shall provide evidence to the Employer that all insurances required by the Conditions of Contract are in place prior to the commencement of the Works. The insurances shall be kept in place for the periods required by the Conditions of Contract.

The Employer's Liability and Public Liability levels of cover and excess shall provide the minimum levels of cover and excesses set out in the proposed Schedule to the Contract.

The policy required by PW CF6 Clause 10.1 (hereafter referred to as the 'All – Risks' policy) shall provide insurance cover of an amount not less than the total contract amount plus a minimum of 30% to allow for Value Added Tax, fees and site clearance costs. The 'All Risks' policy shall name the Minister for Defence as a 'co-insured'.

Particular attention is drawn to the provisions requiring the All-Risks and the Public Liability policies to name the Employer as 'co-insured' (ref Clauses 10.1 and 10.3) and for the Contractor's policy providing Employer's Liability cover to indemnify the Employer against the same liability that is provided by the policy for the Contractor.

2.4 **Changes in the Contract Sum**

Contractors are advised to make themselves aware of the provisions of PW CF6 Clause 4 and particularly its notice requirements.

2.5 **Dayworks**

Where the Contractor proposes that work arising from an instruction should be valued on a 'Dayworks' basis he shall only be entitled to payment on this basis where:

a) it is not possible to value the work at, or on the basis of, rates and prices in the Contract and the Employer's Representative and the Contractor agree that it is not practicable to agree a price for the work in advance of its execution

b) the Employer's Representative's approval is obtained in advance of the carrying out of the works, arrangements agreed for its execution and its supervision by his representative and notification issued to him of the intended starting date of the work to allow him to arrange its supervision

c) record sheets specifying the names and trades of the workers involved and their individual hours worked per day, the materials incorporated, the plant used and the period of its use on a daily basis and details (and durations of use) of any scaffolding, hoardings or other temporary work required are submitted to the Employer's Representative for verification no later than five working days from the completion of the work where the work is completed within a five day period of time. Where the work continues for a longer period the record sheets shall be submitted for signature at weekly periods and no later than one week in arrears. All claims for materials shall be accompanied by invoices for the materials used

d) where the Employer's Representative is represented on the site by a Resident Engineer, Clerk of Works or other party, daily record sheets - listing the materials and plant used and the names of workers and the duration of their involvement - shall be submitted to the site representative for examination and signing (as a record only) no later than 48 hours in arrears of the execution of the days work

The Contractor shall at all times use every endeavour to ensure the most efficient completion of work authorised for execution on a 'Dayworks' basis. Failure to do so shall entitle the Employer's Representative to retrospectively withdraw his approval and revert to valuing the work on his assessment of the effect of the change on the Contractor's cost of constructing the Work.

2.6 **Materials, workmanship and equivalent items**

All materials used in the work shall be new and unused unless specifically required to be salvaged or re-used by the Contract documents.

Materials and workmanship shall be of the best quality and shall comply with all relevant European Community Standards or, in the absence of such a standard for a product or material, relevant Irish Standards and Codes of Practice.

Materials shall comply with the requirements of the European Communities (Construction Products) Regulations, 2011. Declarations of Performance and CE Certs shall be provided for the materials used in advance to the materials being delivered to site.

Only fully qualified and competent tradesmen and helpers shall be employed on the Works. Work shall not be sub-let or done by sub-contractors without the Employer's Representative's permission.

All work shall be carried out within the tolerances specified in BS 5606. No work shall be covered up prior to inspection and approval by the Employer's Representative.

Wherever a proprietary name is used to specify a material or process it shall be deemed to have the term 'or equivalent' appended to it.

Where a material or process is described by reference to its proprietary name, the name is used to indicate the standard of construction, appearance, ease of maintenance and durability acceptable to the Employer's Representative. The Employer's Representative will approve the use of alternatives where such alternatives are shown to equal or surpass the qualities of the product or process specified. Accordingly proprietary names wherever mentioned in the Specification, Schedule of Rates or on the drawings shall be deemed to mean the provision of the named product or process or an approved alternative.

2.7 **Working hours**

The Contractor shall only carry out work within the hours stated on the cover sheet of the tender document or elsewhere in the document. Work shall only be carried on outside the stated times with the prior approval of the Employer's Representative and the personnel in charge of the military establishment. Approval to work outside the hours allowed shall be applied for in writing to the Employer's Representative at least three working days prior to the day for which additional hours are proposed.

2.8 **Water and Electric Power**

Water may be available from the location identified on the cover sheet of the Works Requirements. The Contractor shall be responsible for supplying temporary storage and distribution equipment and for removing it on completion of the Works.

Electricity may be available from the location identified on the cover sheet of the Works Requirements. The supply shall be 230 Volt single phase unless noted to the contrary. The Contractor shall be responsible for supplying all transformers and distribution equipment required and for removing them on completion. He shall ensure that the temporary installation complies with all appropriate electrical regulations and is electrically isolated from the Employer's supply in a manner that prevents any interference with the Employer's supply as a result of incidents on the site

No warranty is given about the amount of power and water available.

2.9 **Site access and parking**

Site access for the Contractor shall be by the access route shown on the drawing. There will be no facility for Contractor parking elsewhere in the Barracks.

2.10 **Condition of site and of the Works**

All rubble and waste shall be removed as it arises. The Contractor shall at all times maintain on site a waste skip, or skips, appropriate to the work being undertaken from time to time. Skips shall be properly protected against wind dispersal of materials therein, clearly marked to avoid creation of a hazard either by day or night, removed and replaced whenever filled.

The Contractor shall be deemed to have included in his tender for thoroughly cleaning the site of the Works and any other areas affected by it on completion of the Work. All rubble, plant and materials shall be removed and any areas damaged shall be reinstated at the Contractor's expense.

Where relevant to the specific project, all mortar and paint splashes shall be carefully removed and backgrounds left perfect, glass and mirrors cleaned and polished, carpets thoroughly vacuum cleaned and vinyl and linoleum coverings washed, cleaned, polished and sealed in accordance with the manufacturer's instructions.

In the event of the Contractor failing to comply with the above requirements, the Employer shall retain a specialist company to carry out this work in accordance with the procedures set out in the Conditions of Contract. The cost shall be charged to the Contractor and shall be deducted in the calculation of the amount owed by the Employer to the Contractor.

2.11 **Protection**

The Contractor shall be deemed to have included in his tender for the provision of temporary coverings and weatherproofing wherever the building is opened to the weather.

All work completed shall be protected against damage.

2.12 **Pay and Conditions – Spot Checking**

Contractors may be subject to spot checking throughout the course of the Contract to ensure ongoing compliance with the requirements of the 'Pay and Conditions of Employment of Workers' PW CF6 Clause for all 'Contractor's Personnel', which shall include all persons employed on the delivery of the Works by the Contractor and their subcontractors. The Contractor shall be obliged to submit written confirmation with every payment application submitted of being in compliance with the requirements of the Contract Clause.

2.13 **Prompt Payment of Accounts Requirements**

The provisions of the European Communities (Late Payment in Commercial Transactions) Regulations 2012 concerning the prompt payment of amounts due in commercial transactions shall apply to all sums payable to or by the Contractor or any subcontractors or suppliers for work or items supplied for this project. Attention is also drawn to the requirements of the Construction Contracts Act 2013.

2.14 **Invoicing**

In the event of a Payment Certificate including work carrying a VAT liability at both 13.5% and another rate then the Contractor shall be obliged to submit two invoices – one covering the payment amount liable to VAT at 13.5% and the other for the balance of the amount certified, including VAT.

3 **SAFETY**

3.1 **Safety, Health and Welfare at Work**

The Contractor shall be deemed to have included in his tender sum for complying with the terms of all relevant legislation and regulations. The Contractor shall be deemed to have included for the preparation of Safety Statements and for taking all steps necessary to ensure the safety of all persons likely to be affected by the execution of the Works.

The Contractor shall submit Safety Statements / Health and Safety Plans at the times shown in Appendix A. They shall identify hazards and risks arising during the course of the Works and specify how it is intended to safeguard the safety, health and welfare of parties likely to be affected.

The Contractor shall incorporate in his Safety Statement / Health and Safety Plans measures to deal with any hazards identified in the Safety Statement of the Defence Forces Establishment within which the work is to be executed, a copy of which shall be made available on request.

The Safety Statement shall be updated during the course of the Works to include any further hazards that may arise and reflect changing circumstances on site.

3.2. **Safety File**

On completion of the Works, the Contractor shall hand over to the Employer's Representative, for transmission to the PSDP, three copies of all information developed or obtained by the Contractor (except for Contract documentation issued to him) that is relevant to the preparation of the Safety File for the project – refer to Appendix B for further information on required contents of the Safety File. The Contractor will be required to co-operate in the compilation of the Safety File by providing relevant information about the Works including the materials used and processes adopted as well as the requirements for the operation, maintenance and future demolition of the Works.

3.3 **Notification of the Health and Safety Authority (Commencement Notice)**

The notification of the commencement of project to the HSA shall be the responsibility of the Project Supervisor for the Construction Stage.

3.4 **Refurbishment/alterations Work - Asbestos Products**

Where asbestos is known to be present in an area on which work is to be carried out as part of this project, the procedures for dealing with it are set out in the tender documentation.

Where the tender documents do not provide for the presence of asbestos and the Contractor encounters any material suspected of containing it - or where asbestos is found or suspected to be present in areas not identified in the tender documents - work shall be immediately suspended in its vicinity and no other work shall be carried out which might expose either the Contractor's personnel or third parties to contact with the suspect material or of releasing it into the environment. The Employer's Representative shall be informed immediately and his instructions awaited. If any of the material has been disturbed, the area possibly contaminated shall be sealed off, all personnel excluded from the area and the Employer's instructions sought.

Work on asbestos containing materials shall be carried out in accordance with the appropriate legislation and regulations and with the published guidance of the Health and Safety Authority.

3.5 Electrical Subsystems Certification

All electrical sub-systems shall be certified as having been carried out in compliance with the requirements of the ETCI Wiring Regulations.

Copies of the ETCI Subsystems certificates, accompanied by the relevant test results, shall be included with the ETCI Completion Certificate required for the Health and Safety File for the project, which shall be included with the project information handed over by the Contractor to the PSDP.

In the event of the Contractor failing to secure Subsystem certificates for all items of equipment then the Contractor shall be liable for the cost of having the systems tested, remedied as necessary and certified. The tender figure shall be deemed to include for all costs incurred by the Contractor in providing the appropriate documentation.

4.0 COVID-19 Measures

The Contractor shall comply in full with relevant legislation and regulations made thereunder, Government published guidance and Public Health Measures related to the COVID-19 pandemic and current at the Designated Date for the project. 'Government published guidance' shall include relevant material published by its agencies and in particular the Health and Safety Authority and the Health Services Executive.

The Contractor is advised to take into account the Construction Industry Federation's Standard Operating Procedures issued with respect to the COVID-19 Pandemic.

The Designated Date shall be the date 10 days before the last day for receipt of the Contractor's tender for the Works.

The Contract Sum will be deemed to include for the implementation of all measures - including hygiene, access management, materials procurement and delivery, work sequencing and work practices - required to construct the work safely and to minimise the risk of disease contagion for the Contractor's Personnel, the Employer's Representative, Employer's Personnel and third parties visiting the site.

Section B

Detailed Requirements

MATERIALS, WORKMANSHIP AND GENERAL SPECIFICATION

General

All materials used in the work shall be new and unused unless specifically required to be salvaged or re-used by the Contract documents.

Materials and workmanship shall be of the best quality and shall comply with all relevant EN Standards and with relevant Codes of Practice. Materials shall comply with the requirements of the Construction Products Regulations 2011.

Only fully qualified and competent tradesmen and helpers shall be employed on the Works. Work shall not be sub-let or done by sub-Contractors without the Employer's Representative's permission. All work shall be carried out within the tolerances specified in BS 5606:2022. No work shall be covered up prior to inspection and approval by the Employer's Representative.

Demolitions

General Requirements

Demolition work shall be carried out in accordance with British Standard Code of Practice BS 6187: 2011 Demolition. Notwithstanding the provisions of this Code of Practice, the work shall be carried out in accordance with all Statutory requirements, including those of the Dangerous Buildings Section of the Local Authority and the Safety Health and Welfare at Work (Exposure to Asbestos) (Amendment) Regulations 2010.

The order and method of each operation is to be submitted to the Employers Representative for approval prior to commencement. This is to include proposed methods of propping, shoring, protection of adjoining areas. Notwithstanding any information given in the Contract Documents, the onus shall be on the Contractor to visit the site of the works and satisfy himself as to the nature and extent of the work and all other matters that might influence his price or time for completion of the works. The Contractor shall be deemed to have examined the existing structures on the site and to have acquainted himself with such matters as may affect the proposed demolition and the conditions under which they have to be executed. In particular the Contractor shall take cognisance of the proximity of existing buildings on the site and properties adjacent to the site as well as adjoining boundary structures and road network.

Order and Execution of Work

The order of demolition, the manner of execution of work, as well as the temporary storage on site and subsequent removal of debris from site shall be agreed with the Employers Representative prior to the commencement of any demolition work.

Taking Down

All taking down shall be done in the most careful manner and is to cause as little inconvenience as possible. The Contractor shall be held responsible for any claim which may arise due to negligence or lack of adequate precautions on his part.

Coring and Demolish Required to Complete the Project

Carry out all demolitions in accordance with the requirements of BS 6178:2011. Tenderers must visit the site to ascertain the extent of the demolitions and alterations, the conditions under which they will be done and the nature of the structure being worked upon. Tenders will be deemed to include for all factors affecting the work. All debris associated with the demolition work is to be removed off site at the Contractor's expense. All structural members to remain are to be protected during the works.

Protection to the Structure during the Works

Provide protection to the existing doors and windows that are to remain, while work is being carried out. In particular the existing door access units are to be protected from dust and damage. Any protection shall be agreed with the Employer's Representative prior to the works being undertaken. The Contractor shall be responsible for any damages to the structure during the course of the works.

Surrounding Property

Should any loss, damage or injury occur to roads, underground services or surrounding property from the carrying out of the works, make good same at his own cost to the entire satisfaction of the Employer's Representative and any other parties concerned and shall indemnify the Employer against any claims which may arise in consequence of such damage or injury.

Safety

All work shall be performed in such a manner as to ensure the safety of the work and the public. Demolition work to be carried out in such a manner as to cause the minimum inconvenience to the public and to adjoining military properties/buildings. All necessary precautions to be taken to minimise nuisance arising from demolition work. Submit proposals for carrying out the works in a safe manner and these shall be agreed prior to commencing any works on site.

Supervision

Demolition work to be carried out under the supervision of a responsible person experienced in demolition work who shall ensure that adequate safety precautions are taken at all times, and that all necessary statutory regulations are fully adhered to.

Dust

All debris derived from the demolition must be wetted at frequent intervals to prevent dust arising. Debris shall not be permitted to accumulate on site and must be taken away and disposed of correctly by the Contractor at the earliest possible time.

Nuisance

Take the necessary precautions to minimise nuisance arising from demolition work.

Protection

All reasonable precautions shall be taken to protect adjoining work from damage during demolition work and temporary screens and coverings to be provided as required. Adjacent structures shall be protected from damage and shall be provided with adequate support at each stage of demolition. Do not disturb adjoining structures or their foundations.

Temporary Support

During demolition, any walls which are to be left in place for any period of time before demolition, and which have had their supporting roof removed, are to be adequately braced until demolition occurs. Contractor shall provide and maintain all necessary temporary support work. The Contractor shall be responsible for the design of all such temporary support work.

Services

Before starting demolition work, disconnect any services adjacent to that part of the area scheduled for demolition. Pay all charges for disconnection of services. Remove any tanks and pipes which may have contained inflammable liquids and gases in accordance with BS 6187: 2011. Retain and maintain existing services where servicing adjoining or adjacent properties.

Workmanship-Defects

Notify the ER of any apparent structural defects or decay uncovered before or during demolition work in parts of the structures to be retained.

Negligent Work

The Contractor shall be responsible for the repair of any damage caused by his own negligence and no payment shall be made by the Employer to the Contractor for rectifying any such damage.

Ordnance Survey Marks

Notify the Employers Representative of Ordnance Survey Marks found on structure elements scheduled for demolition. Do not remove or destroy such marks unless instructed.

Construction and Demolition Waste

The construction and demolition waste from the projects shall be recycled in accordance with 'Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects' published in 2009 by DOECLG. All waste disposal shall be in accordance with the Waste Management (Amendment) Act 2001 and the Protection of the Environment Act 2003. Only licenced hauliers and licenced landfill sites are to be used. Materials and debris arising from site clearance and demolition work shall become the property of the Contractor unless so otherwise specified. Remove from site debris and other materials arising from demolition. Construction and Demolition Waste shall be disposed of in accordance with EPA and Local Authority guidelines.

Concrete

The structural elements of the Contract have been designed in accordance with current relevant Eurocodes.

Cement

The cement shall be normal setting and shall comply with IS EN 197-5:2021. The cement shall be delivered on the site in packages with unbroken seal affixed by the manufacturer. The cement shall be stored in such a manner that it will be efficiently protected from moisture.

Sand and Gravel

Aggregates shall comply with I.S. EN 12620.

Materials

All materials shall comply in all respects with the requirements of the appropriate European or Irish standards.

Cement	I.S. EN 197-5:2021
Aggregates	I.S. EN 12620

Ready Mixed Concrete

All delivery dockets shall be retained by the Contractor and made available for inspection throughout the duration of the contract. No extra water or other materials shall be added after the concrete has left the depot. Each delivery of ready mix concrete must be accompanied with a docket containing information required in I.S. EN 206.

Water

Water shall be clean and free from harmful matter. If water for the Works is not available from a Public Utility undertaking supply, approval shall be obtained regarding the source of supply and manner of its use.

Concrete Mixes

Concrete Mixes: Designed mixes shall be used for each grade of concrete listed in Table 1.

Classification of Concrete Mixes

Where the concrete mix is designated by the Employers Representative as a "designed" mix the Contractor will be responsible for selecting the mix proportions to achieve the required strength and workability but will ensure that the minimum cement content is adhered to.

Concrete Grade	Characteristic Compressive Strength at 28 days N/mm ²	Minimum Cement content Kg/m ³	Maximum size of Aggregate mm	Maximum Free water : cement ratio	Application
C8/10	10	180	20	0.65	Lean-mix, blinding and mass concrete filling
C16/20	20	220	20	0.65	Kerbs haunching and bedding to pipes
C25/30	30	260	20	0.6	Footpaths
C28/35	35	280	20	0.5	Foundations
C32/40	40	300	20	0.55	Reinforced concrete
C32/40	40	300	10	0.55	Topping screed

Table 1 - Designed Concrete Mixes

Admixtures

Admixtures compliant with I.S. EN 934 may be used.

Mixing

Concrete mixed on site is to comply with I.S. EN 206.

Records

Keep a record of all concreting carried out on the site. Record sheets shall be set out as follows:- Date, Time, Temperature, Volume, Position, Remarks. These record sheets shall be available for inspection by the Employers Representative at every site meeting or at any other occasion so required by the Employers Representative.

Temperature

Provide a permanent site thermometer and record the temperature regularly. The minimum temperature at which concrete may be cast shall be:-

- 2°C on a rising thermometer or
- 3°C on a falling thermometer

Ensure that the temperature of the concrete is a minimum of 5°C at the time of placing. The maximum temperature at which concrete may be cast shall be 30°C.

Transporting of Concrete

Transport concrete to avoid adulteration, segregation or loss of ingredients. The interval between mixing and placing shall be kept as short as possible. In all cases concrete should be finally placed within 30 minutes of discharge from mixer or from delivery vehicle. Concrete which has partially set shall not be placed in the work.

Placing of Concrete

The method of placing the concrete shall be of such that contamination, segregation or loss of the constituent materials does not occur. Before concrete placing commences all formwork and reinforcement contained in it shall be clean and free from standing water, snow or ice. CONCRETE SHALL NOT BE PLACED IN ANY PART OF THE STRUCTURE UNTIL THE EMPLOYERS REPRESENTATIVE'S APPROVAL HAS BEEN OBTAINED. If concreting has not started within 24 hours of approval been given, approval shall again be obtained from the Employers Representative. The concrete while being placed shall mechanically vibrated to form a dense material with all surfaces free from honey-combing and other blemishes. The concrete shall be placed directly in its permanent position and shall not be worked along the shuttering to that position. Care must be taken to ensure that reinforcement is not displaced from its correct position during the placing of the concrete. Care shall also be taken to ensure that the reinforcement is fully surrounded by concrete, that no voids or cavities are left and that all steel shall have the minimum specified cover. A competent steel fixer shall be in attendance to correct any reinforcement displaced by the concrete operation.

Vibrating of Concrete

All concrete shall be compacted by means of high frequency internal vibrators of a type, size and number approved by the Employers Representative. The number of vibrators employed shall be ample to consolidate the incoming concrete to a proper degree within fifteen minutes after it is deposited in the forms. In all cases, at least two vibrators shall be available at the site of structures in which more than 20 cubic metres of concrete are to be placed (one on standby). The vibrators shall not be attached to or held against the forms or the reinforcing steel. The location, manner and duration of the application of the vibrators shall be such as to achieve maximum consolidation of the concrete, freedom from voids and proper texture of exposed surfaces when the forms are removed. Fresh concrete shall be spread in horizontal layers in so far as practicable and the thickness of the layers shall not be greater than can satisfactorily be consolidated with the vibrators. The use of vibrators for extensive shifting of the mass of fresh concrete deposited will not be permitted. Concrete shall be placed as near as possible to its final position. In no case shall concrete be over-vibrated.

Slump Test Equipment

Provide a slump cone, tamping bar and base plate all in accordance with IS EN 12530-5:2019 and facilitate the Employers Representative in carrying out slump tests to determine the consistency of the concrete.

Holes and Chases in Concrete

Holes, chases and other openings required for the passage of pipes, conduits etc., shall be formed by inserting suitable sleeves, cones and sinkings before placing the concrete. The Subcontractors shall be required to furnish full information in regard to the position of bolts, clips and other fastenings. The cutting of chases, holes or other openings in the finished work shall not be permitted without the sanction of the Employers Representative. Such holes and chases shall be made only in approved locations and shall be cut with approved tools.

Concrete Screeds

Surfaces to receive screeds shall be cleaned off and free of debris and dust. Where an un-bonded construction is required the screed shall be laid on an isolating membrane. Screeds to receive thin sheet or tile finishes shall generally be laid in room sized bays. The position of day joints, if required, shall be to the ER's approval. Screeds to receive in-situ, tile and slab or block finishing's or heating elements shall be laid in square bays not exceeding 15 square metres. At least 24 hours shall elapse between the laying of adjacent bays and bays should be laid to break joint. Movement joints in the slab should be continued through the screed. Screeds shall be kept damp for seven days by covering with polythene sheet and no traffic should be allowed over the screed for that period. The screed shall then be allowed to dry out naturally without the use of artificial drying aids.

Reinforcement

High yield steel bars with a characteristic strength of 500 N/mm² shall be used in accordance with IS EN 10080-2:2005. Steel fabric shall be delivered to site in flat sheets.

Concrete Blocks

Concrete blocks shall comply with IS EN 773. If considered necessary, sample blocks may be taken for testing and if, they do not withstand a 7.5N compression test (13N for substructure blockwork), all blocks should be removed from the site and the cost of the test paid for by the Contractor. No block with broken arises or angles shall be used. The blocks shall comply with SR 325. CE certificates and Declarations of Performance for blocks shall be provided to the ER in advance of the blocks being delivered to site.

Brickwork and Blockwork

Stacking and Storing Facing Bricks and Blocks

Blocks and bricks for facing work shall be stored on a raised clean platform, protected from damage and staining and kept dry during delivery and before use and protected at all times from weather and damp.

Laying Bricks and Blocks

Brick and blockwork shall generally be carried out in compliance with IS EN 1996:2005. The stability of walls shall be ensured during their erection. No work should be carried out while the temperature is below 2 degrees centigrade on a rising thermometer or below 5 degrees centigrade on a falling thermometer. Walling shall be built in level lifts, no one portion being raised more than 1200mm above the general level. Bed and vertical joints shall average 10mm thick. No four courses shall rise more than 40mm above the height the block or bricks would rise if laid dry. Joints shall be fully filled.

Ducts, Channels, Openings etc.

Ducts, channels, openings and the like in walling shall be formed as the work proceeds. It is the responsibility of the Contractor to ascertain their position before executing the work and no extra payment for doing the work retrospectively will be considered should he fail to do so.

Jambs

Blocks with integral cast-on nibs shall be used to close cavities where available. Where blocks with nibs are not available cavities shall be closed with cut or broken lengths of block carefully laid to maintain the bond on one leaf and butted against the back of the other leaf with a damp proof course interspersed where required.

Joints

Mortar shall be struck off to leave neat joints. Existing blockwork to receive a plastered or rendered finish shall be slightly raked out to provide a key for the finish. Where wall openings for doors or windows have to be created or reduced, all new brickwork or blockwork shall be correctly bonded into the existing brickwork or blockwork. All new brickwork and blockwork laid must match the existing work.

Damp Proof Course

Damp proof courses (DPC) shall be an Esai-Load Radon DPC by Necoflex Ltd. or equivalent approved. The DPC shall be installed in accordance with the manufacturer's instructions.

A DPC shall be provided:-

- Above all openings in external walls, spanning the cavity and extending at least 100mm beyond both ends of the lintel. The D.P.C. shall step down across the cavity to form a cavity gutter and shall be carried through to the outer face of the wall.
- In the jambs of all openings in external cavity walls, set in vertically in a continuous strip.

Movement Joints

Joints shall be pointed with the material specified in the chosen colour, used strictly in accordance with the manufacturer's instructions. Joints shall be true to line in either the vertical or horizontal direction as appropriate.

Bond

All blockwork and brickwork shall be laid in stretcher bond unless otherwise shown.

Level of Bed Joints

The permissible deviation for bed joints from the nearest horizontal reference level shall be plus/minus 10mm.

Cutting and Fitting

Cut and fit blockwork and brickwork neatly to the line and profile of parts of the structure which the walling abuts or surrounds.

Mortar Beds

Lay solid blocks and bricks on a full bed of mortar and with bed and vertical joints fully filled to a consistent thickness.

Bonding Generally

Lay blocks and bricks with cross joints in any course not less than quarter of the length of the unit from those in the course below. Bats shall be used only where required to obtain bond.

Bonding Provision for Future Work

Leave toothing to provide for the bonding of future work. Weather tops of projections with mortar.

Bonding to Existing

Form toothing in existing work to provide adequate bond for new work.

Ducts, Channels and Openings

Form ducts, channels and openings in walling as the work proceeds.

Protection

Keep dry each lift of blockwork including the top surfaces until the commencement of the next lift or other superimposed work.

Cavity Generally

Keep cavities and ties free from mortar and debris.

Cavity Trays

Fit cavity trays in brickwork at all abutments in according with manufacturer's instructions.

Weep Holes

Form weep holes at 0.9m c/c where cavity trays are used at lintels, abutments etc. at the base of the cavity.

Wall Ties, Setting

Set wall ties in mortar joints to a depth not less than 50mm in each leaf. Type 1 wall ties as defined by PD 6697:2010 shall be used. Wall ties shall be Ancon Staifix RT2 General Purpose Ties or equivalent approved.

Wall Ties at Openings

Provide wall ties at openings at centres not exceeding 225mm vertically.

Woodwork**Materials**

The timber shall comply with I.S. EN 1995, I.S. EN 336 and I.S. 127. All timber shall be C16 unless noted otherwise.

Plywood

Plywood shall comply with I.S. EN12369.

Bolts, etc.

Bolts, expanding bolts, rag bolts, coach screws and other fixing accessories shall comply with I.S. EN 14592.

Connectors, etc.

Shear plate connectors, toothed connectors shall comply with I.S. EN 912. Framing anchors, joist hangers etc. shall be hot dip galvanised to EN 10346.

Adhesives

Adhesives shall comply with EN 204 and be durability class D3.

Sealants

Sealants shall be silicone and clear or white in colour.

Storage of Materials

All materials shall be stored under cover in dry well ventilated storage and stacked to allow free circulation of air around each item. Joinery shall not be fixed before the building has dried out to a suitable level which can be maintained.

Fitting of Fire Doors

Do not install internal components, which are not required to be built-in as the work proceeds until the air conditions in the building have an equilibrium moisture content corresponding approximately with those which will prevail during normal occupation or service. Pack around perimeter with hardwood wedges to give an equal clearance gap between frame and opening and at all locations where fixings may distort the frame. Fix cramps to back of frames with two 10 gauge rust resistant screws. Locate doorframe fixings adjacent to hinging points. Provide four fixings to each jamb unless otherwise shown. Fix heads of frames over 1200mm wide with at least one fixing at centre. Ensure that gaps between structure and frames for fire resistant doors are filled with non-combustible materials such as acrylic intumescent mastic.

Fixing of Ironmongery

The tender sum shall be deemed to include for the fixing of all ironmongery in accordance with drawings and Ironmongery schedules. All locks, hinges and fastenings shall be fixed with screws, with proper counter-sinking for same. Matching screws shall be used for all hinges, fastenings and fittings. All ironmongery is to be carefully wrapped and protected until completion of the works. Any ironmongery defaced or damaged prior to handover, will have to be replaced at the Contractor's expense as directed by the Employers Representative. All locks etc. are to be properly labelled and delivered up in accordance with the Employers Representative's instructions.

Storing Manufactured Components

Do not deliver to site any components which cannot be immediately unloaded into suitable conditions of storage. Unload, handle and store components in accordance with manufacturer's recommendations. Store components in conditions suitable for specified moisture content, avoid prolonged exposure to direct sunlight and ensure good ventilation. Stack components on bearers on level dry floors under cover. When stacking stagger components or separate with spacers to prevent damage by and to projecting ironmongery, beads, etc. Stack doors horizontally on not less than three level bearers at not more than 1m centres.

Preservative & Woodworm Treatment

All softwood timber shall be vacuum pressure treated with preservative. Any fresh surface exposed by drilling or crosscutting after treatment shall be treated with an approved preservative in an approved manner. Timber shall be allowed to dry in open storage for 48 hours following treatment. Prices for timber described as treated with preservative shall include for applying two brush coats of a preservative recommended by the timber treating company to all notches, holes, cut ends or surfaces machined after treatment.

Mastics

The mastics used shall be a polysulphide mastic complying with I.S. EN ISO 11600. A sample of the proposed mastic shall be submitted to the Employers Representative for his approval.

Measurement and Inspection of Work

Measure each ope prior to the manufacture of the joinery and shall be responsible for ensuring that the joinery work is the correct size.

Moisture Content

The moisture content of the timber when the joinery is manufactured and delivered on site shall come within the limits given in I.S. EN 13183.

Metalwork

Materials

Materials shall comply with the appropriate European and Irish standards.

Accessories

Bolts, nuts, washers, expanding anchors and screws shall be grade 8.8 using metric sizes.

Glazing

Materials

Glazing shall comply with the appropriate European and Irish Standards. Windows shall be installed in accordance with their manufacturer's instructions.

All glazing compounds and tapes shall be used strictly in accordance with the manufacturer's recommendations. Self-adhesive glazing tape shall pass round both sides of the glass, be mitred at the corners and trimmed off flush with the bead and rebate. All glass shall be kept clean of paint, plaster etc. during the course of the Works and the price shall be deemed to include for cleaning all glass, both inside and out, to the Employers Representative's approval prior to handover to the Employer.

Floor, Wall and Ceiling Finishes

Materials

Materials shall comply with the following Specifications

Workmanship

Workmanship shall comply with the following codes of practice

Internal plastering	- EN 13914-1
External rendering	- EN 13914-2
Wall and floor tiling	- ISO/TR 17870-1

Surfaces to receive plaster or render shall be thoroughly prepared as appropriate to the finish. Brickwork, blockwork or concrete to receive cement based plaster shall be thoroughly dusted off and cleaned. Brick or block surfaces shall be raked out to provide a key if the key is inadequate. Concrete shall be free of mould release oil. The surface of the concrete shall receive either a coat of bonding agent. High suction backgrounds shall be wetted. The Contract Sum shall be deemed to include for this preliminary work.

Cement shall be ordinary portland cement complying with I.S. EN 197. Plastering sand shall be clean sharp evenly graded and comply with I.S. EN 13242. Water shall be fresh and free from harmful matter.

Surfaces to receive plaster or render shall be thoroughly prepared as appropriate to the finish. The preparation of surfaces and the application of gypsum based plasters shall be strictly in accordance with the recommendations of the suppliers of the plaster being used. Do not commence internal plastering until it is protected at all times from the weather. Premature or localised drying of coatings shall be avoided. No plastering shall be done while the air shade temperature is below 5°C on a falling

thermometer and the temperature shall be kept above 4°C for at least 24 hours after setting. Plastering shall be protected from frost, continued dampness or extreme drying conditions. Materials shall be measured and mixed in clean containers and these shall be cleaned after each use. All tools shall be kept clean and fresh plaster shall not be mixed with old or set plaster. Cement-lime-sand plasters shall be used within two hours of gauging with cement. Gypsum and lightweight plaster shall be used within one hour of adding water. Plasters shall not be re-tempered with water. Further coats may be applied to gypsum or lightweight plasters as soon as the undercoat has set and developed reasonable suction. On metal lathing the first coat shall be allowed to set sufficiently to prevent breaking the key when the second coat is applied. All undercoats shall be scratched thoroughly to provide a key for subsequent coats. All joints on plaster boards shall be jointed with reinforcing tape. Fair intersections shall be provided on all work specified as being laid to cross falls.

Storage

Gypsum plaster and cement shall be stored separately from each other in dry ventilated conditions on a raised floor or in suitable silos. Ready mixed sand-lime shall be stored on a clean impermeable surface under weatherproof conditions and the storage period shall be kept as short as possible. Different aggregates shall be stored separately on hard self-draining areas or in suitable hoppers.

Thickness of Render and Plaster Coats

The following thicknesses shall be applied unless otherwise specified:

<u>External Work</u>	<u>Thickness</u>
Scudding coat	Minimal
Undercoat render	12mm
Finish coat render	8mm
<u>Internal Work</u>	
Scudding coat	Minimal
Gypsum undercoat to concrete blockwork	11mm of Gyproc Hard Coat
Gypsum skim coat	3mm of Gyproc Skimcoat
Gypsum finish to plasterboard	3mm of Gyproc Carlite Finish
Gypsum finish to plasterboard ceilings	3mm of Gyproc Carlite Finish

The permitted deviation under a 2m straight edge from the flatness of the finished plaster surface at any point shall not be more than 3mm.

Plasterboard Coverings

Plasterboard coverings shall be manufactured by Gyproc Industries or equivalent. They shall be fixed and finished in strict accordance with the manufacturer's instructions.

Day Joints/Protection of Works

Day joints shall not be permitted in the plastering. Plastering shall be protected from the frost, extreme drying conditions and continued dampness.

Floor Finishes

Operatives must be skilled in laying the materials specified. Do not lay materials before building is weather tight, wet trades have finished their work, the building is well dried out and all paint work is finished and dry. Before, during and after laying, maintain temperature and humidity at levels approximating to those which will prevail after building is occupied. Do not lay if air temperature is less than minimum recommended by the manufacturers of materials. Do not lay if moisture content of floor is above the max recommended by the manufacturers of materials.

Moisture

Where materials are to be struck to new wet laid substrates.

1. Turn off drying aids for not less than 4 days.
2. Test for moisture content using a hygrometer as in BS 8203 and BRE digest 16.
3. Take readings in all corners, align edges and at various points over the area being tested.
4. Do not lay until all readings show 75% RH or less.

Acclimatisation

Store plastic sheets and tiles in air temperature of 18C or more for at least 24 hours immediately beforehand.

Adhesive

Use in accordance with manufacturers recommendations. Remove surplus adhesive from face of materials being laid and any other surface, as the work proceeds

Floor Screeds

Surfaces to receive screeds shall be cleaned off and free of debris and dust. Where an un-bonded construction is required the screed shall be laid on an isolating membrane. The position of day joints, if required, shall be to the Employers Representative's approval. Screeds to receive in-situ tile, slab or block finishing or heating elements shall be laid in square bays not exceeding 15 square metres. At least 24 hours shall elapse between the laying of adjacent bays and bays should be laid to break joint.

Render

Do not commence internal plastering until it is protected at all times from the weather. Premature or localized drying of coatings shall be avoided. No plastering shall be done while the air shade temperature is below 5C on a falling thermometer and the temperature shall be kept above 4C for at least 24 hours after setting. Plastering shall be protected from frost, continued dampness or extreme drying conditions. Materials shall be measured and mixed in clean containers and these shall be cleaned after each use. All tools shall be kept clean and fresh plaster shall not be mixed with old or set plaster. All undercoats shall be scratched thoroughly to provide a key for subsequent coats. Unless stated to the contrary all finishing coats in cement-lime-sand plasters shall be finished with a wood trowel and gypsum or lightweight plasters with a steel trowel. Arises shall be pencil rounded.

Plaster Stops

Use Catnic Galvanised Steel Plaster Stop Beads and Angle Beads or equivalent. Bead size to depend on plaster thickness. Apply Beads to all wall-to-wall, and scrim tape at ceiling-to-wall junctions.

Setting Out

Lay tiles or sheets with joints parallel to room axes. All sheets are to be laid out so as to give wide enough margins at walls, and are to be scribed to walls and other edges. No patching will be allowed. Joints are to be overlapped by 12mm and cut in, not butted. The seams are to be welded using hot welding rods in colours to be selected by the Employers Representative to match or contrast. PVC sheeting is to be manufactured by approved firms. Remove all scrap and clean surfaces in accordance with their manufacturer's recommendations.

Floor Tiling

Set tiles on proprietary thin bed adhesive. Joints to be even and not more than 3mm wide. Grout up with cement sand (1:1) worked well into joints when bed is sufficiently firm to prevent disturbance

of the tiles. Clean off surplus grout from face of tiles. Allow no traffic on the floor until 4 days after completion and then only light traffic for a further 10 days.

Painting

Materials

Obtain approval from the Employer's Representative for the brands of paint he wishes to use. All paints, varnishes, and other surface coatings shall be delivered in sound and sealed containers, clearly labelled by the manufacturer to show the type of product, its brand name, the use for which it is intended and the manufacturer's batch number. Materials for the works may be obtained from different manufacturers but undercoats and finishing coats to be used together must be obtained from the same manufacturer. Materials shall be kept in a clean, dry and well ventilated store and be protected from frost. Paint shall not be thinned or reduced in any way except where specified by the manufacturer.

Workmanship

Workmanship shall comply with the following Code of Practice:

Painting of buildings - BS 6150

Painting work shall not be carried out when:

- (1) air shade temperature is less than 5 degrees Centigrade
- (2) relative humidity is such that condensation is present, or may be expected, on the surfaces or when there is a possibility that it will affect the application and or drying of the coating
- (3) the moisture content of the surface to be painted exceeds 19%, or the level specified by the paint manufacturer if lower, when measured with an electronic meter.
- (4) heat is liable to cause blistering or other defects

All brushes, tools and equipment shall be kept in a clean condition and surfaces shall be clean and free from dust or contaminants such as oil during painting. No painting shall be carried out in the vicinity of operations generating dust. Under no circumstances must brushes be cleaned or painting materials disposed of into gullies, manholes, sinks, lavatories, wc's or any other sanitary fittings.

Application and Film Thickness

Paints shall be applied at the coverage rates specified by the manufacturer for the particular application. Dry film thickness shall correspond to that specified by the manufacturer. The average of the dry film thicknesses taken over any square metre of surface shall equal or exceed the specified nominal thickness and in no case shall any reading be less than 75% of the specified nominal thickness.

Preparation and Painting General

Surfaces shall be prepared in accordance with the recommendations issued by the manufacturer of the paint to be used on the surface. Any materials used in preparing surfaces shall be compatible with the paint to be used, i.e. stopping and fillers. Stopping for clear finished surfaces shall be of a colour to match the finished colour of the adjoining surfaces. Paint shall not be thinned or reduced in any way except where specified by the manufacturer. Thinners shall not be added in excess of 5% by volume unless specified by the manufacturer. All surface fixed ironmongery (except hinges) on doors and windows and similar fittings shall be removed prior to the commencement of painting and shall be re-fixed on completion. The tender shall be deemed to include for removing and re-fixing the ironmongery and fittings. Any items which it is not possible to remove shall be protected to ensure they are not marked with paint and the Contractor shall ensure that the function of any moving parts of components or hardware is not impaired by paint. Unless otherwise specified the following surfaces shall not be painted:

- Acoustical tiles and plaster

- Naturally finished metalwork such as bronze, brass, anodised aluminium, stainless steel etc.
- Self-finished equivalent or fittings such as Formica veneered worktops
- Ceramic and glazed surface
- Floor coverings
- Valves, sprinkler heads, fusible links, thermostats etc.

Items not to be painted shall be carefully masked or otherwise protected during the course of the work and the tender shall be deemed to include for protecting and removing the protection. Each coat of paint must be allowed to dry before the subsequent coat is applied.

Moisture Content

No paint or decoration shall be applied until the surface and its substrate have dried out to a moisture level acceptable to the manufacturers of the specific products being used.

Surface Preparation

Surfaces shall be prepared in accordance with the recommendations issued by the manufacturers of the paint to be used on the surface. Any materials used in preparing surfaces shall be compatible with the paint to be used, i.e. stopping and fillers. Stopping for clear finished surfaces shall be of a colour to match the finished colour of the adjoining surfaces. Preparatory work listed below shall be deemed to be included in rates for painting. The carrying out of this preparatory work shall not release the Contractor from his obligations to provide a satisfactory painted finish should the paint system applied fail in any way. All wood is to be sanded down smooth prior to the application of any paint, stain or clear finish.

Softwood

Apply two coats of knotting solution to small knots (large knots should already have been cut out), prime with aluminium wood primer and apply extra coat to end grain, stop nail holes or cavities, sand down stopping flush with adjoining surface and prime over stopping, apply filler to grain or surface depressions. If wood is to have a clear or stained finish then the knotting will not be necessary as 'selected' timber will have been used and the stopping shall be chosen to match the colour of the coated wood. The wood shall be primed if the paint manufacturer recommends that a primer be used under his product.

Pre-Primed Softwood

Primer should be touched up if damaged and any areas showing signs of chalking, flaking or cracking should be sanded off and re-primed. Thereafter timber should be stopped and filled as for softwood.

Hardwood

Hardwood to be painted shall be primed with a primer suitable for the type of hardwood. Hardwood to receive a clear or stained finish shall be stopped with a material matching the colour of the coated wood and should be primed if the manufacturer of the paint recommends the use of one.

Steel

Pre-primed steel shall have any damage to the primer touched up.

Plywood

Plywood shall be primed and grain filled.

Plasterboard

Any dents or imperfections in the surface shall be filled with a suitable filler.

Plastered Surfaces

All loose dust, plaster splashes and the like shall be removed, dents or imperfections filled and the walls generally lightly sanded and cleaned down to leave a smooth, level and uniform surface.

Blockwork

All loose dust shall be removed and the pointing of the blockwork checked and made good as necessary to provide a regular surface.

Concrete

All mould oil shall be removed by scrubbing with water and detergent. Loose dust shall be removed and imperfections shall be filled and sanded down to provide a smooth surface.

Plumbing

All exposed metalwork in ducts to be thoroughly wire brushed and painted with two coats of rust inhibiting paint. Pay special attention to the pipe supports in under floor ducts, ensuring that they are completely protected against corrosion.

General

All exposed metalwork within the building to be thoroughly wire brushed and painted one coat of rust inhibiting paint and two coats of an approved colour finishing paint. Walls with plastered background finish generally to be prepared and painted with three full coats of vinyl emulsion paint. Ceiling with plastered background finish generally to be prepared and painted with three full coats of vinyl matt emulsion paint. Hardwood surfaces are to receive three full coats of polyurethane varnish. Exposed copper piping, steel conduits and steel radiators are to receive one undercoat, and two coats of heat resistant paint.

Inspection

No painting will be commenced until the preparatory work has been completed to the satisfaction of the Employers Representative or his representative. No subsequent coat shall be applied until the previous coat has hardened, been prepared, rubbed down and similarly approved.

Drainage

General

The Contractor shall be responsible for all below ground sewerage/foul and surface water services and connection of all soil and waste pipe to the existing drainage system. The Contractor will provide all builders work in connection with trench excavation and disposal of surplus material and reinstatement as described below.

General Materials

All materials which the Contractor proposes to use in the construction of the work shall comply with the requirements of relevant European Standards and Irish Standards latest publications. Declarations of performance and CE Certs shall be submitted to the ER for approval prior to the materials being delivered to site.

Plastic Products

Un-plasticised PVC pipes and fittings shall comply with ISO 265 and BS 4660. Where using un-plasticised PVC gully traps and access junctions the inlet and outlets must suit pipework and have gratings or covers as required.

Aggregates

Aggregates used as pipe bedding and backfill shall comply with Irish Water's requirements.

Pipework

All pipework and associated fittings will be uPVC, Wavin Pipes or equivalent.

Access Junctions

Use Wavin 110mm Access Junctions, or equivalent, complete with risers as necessary, frame and cast iron cover.

Joints

All joints to be ring sealed socket joints.

Workmanship

Drainage work shall comply with Technical Guidance Document H (Building Regulations 1991), and shall comply with the requirements of the local Authority.

Set out the Works to the correct positions, levels, dimensions, gradients and alignments and shall provide all necessary facilities and equipment for this purpose. Excess excavation below the required levels shall be filled up to the correct level lean-mix concrete. The bottoms of excavations must be inspected and approved by the Employers Representative before any further Works are commenced.

Only lay foul and surface water drains and sewers in the same trench where he is either directed to by the Employers Representative or obtains the Employers Representatives approval. Except where specifically stated to the contrary trenches have been measured on the basis of one pipe being laid in each trench. Should the Contractor receive approval to lay more than one pipe in a trench he shall be responsible for any extra costs arising from providing extra supports, staggered backfilling, revised bedding and surrounding, etc. Rates will be revised pro-rata the designed widths and depths of the trenches. Temporary or permanent supports to pipes such as bricks, blocks, timber etc. shall not be used except where specified.

Gravel beds shall be well compacted and shall extend the full width of the trench with sufficient material at the sides to permit the pipe to be worked into the material and be firmly supported true to level and line.

The starting levels from which excavation items are described in drawings are measured. The Contractor shall be responsible for any extra costs arising from his decision to choose a different starting level, should he do so. Flexible mechanical joints shall be formed in accordance with the manufacturer's instructions.

Scope

All drainage work up to and including gullies and connections to WCs soil vent pipes and rainwater conductors is to be executed in accordance with this Specification.

Order and Execution of the Work

Before commencing work on the site the Contractor shall submit for approval a programme for the execution of the works which shall allow for carrying out of drainage works after formation level is achieved.

Notices

Before commencing any of the proposed works, notify the Employers Representative and any other affected authority of intention to proceed with the works and shall satisfy the Employers Representative of each authority as to precautions to be taken to preserve all underground or over ground services in the vicinity of the works. He shall comply with all statutory regulations, pay any fees arising therein and serve such notices as are required.

Setting Out

At the commencement of the works and before the existing ground is disturbed the Contractor shall signify his agreement to the correctness of the existing ground levels as indicated on the drawings. After setting out any drainage works which are related to existing levels but before the ground is disturbed, the existing ground and other relevant levels shall be checked in order that the details of the proposed work may be confirmed or if necessary amended.

Location of Existing Services

Ascertain the position of their apparatus and allow for checking the correct nature and location of all services by trial holes or other means before commencing general excavation. Diversion of existing services will only be paid for where the Employers Representative orders previously unforeseen work necessitated by the permanent construction.

Control of Traffic, Temporary Signs, etc.

If required, erect and maintain on the works and at prescribed points on the approaches to the works, traffic signs for the direction and control of traffic to the satisfaction of the Employers Representative including the provision of approved adequate illumination.

Temporary Works

Provide, maintain and remove on completion all temporary works for the proper and safe construction of the permanent works and for the protection and security of all adjoining property including services, watercourse, footpaths, fences and the like. All vehicle and pedestrian access to property shall be maintained in a safe condition.

Completion of Drainage Works

Before any general excavation or filling is commenced on the Site, sufficient permanent and temporary drainage works shall be carried out to provide drainage works shall be carried out to provide adequate outfalls for all surface and subsoil water, including watercourse and pipes which will be severed by the execution of the works. Where necessary provide pumps or other methods to maintain outfalls at all times. During construction and on completion all drains, manholes, catch pits and gullies shall be kept clean and free from accumulation of silt, etc. Any sub-soil drain, jointed pipe, manholes, catch pit or gully which cannot be cleaned shall be replaced at the Contractor's cost.

Connections to Existing Sewers

Before entering or breaking into an existing sewer give notice of his intention to the appropriate authority so that their representative can be available for supervision of the work. Where pipes are to be connected to existing manholes, channels shall be formed in the benching, the chamber walls cut at the correct level and the new pipes built in together with any backdrops necessitated by the difference in level of the existing and new pipes. Where a new manhole is to be constructed on an existing sewer, allow for locating the sewer and checking its level before commencing to construct the drain run to be connected thereto. Where pipes discharge into watercourses the ends of the pipes shall be supported and the banks protected by concrete head walls constructed so as not to impede the flow in the channel. When working in existing sewers, and watercourses provide for dealing with existing flows to enable the new work to be properly completed.

General Excavation for Pipe Lines, Manholes, Chambers, etc.

Except where headings are specified, permitted or otherwise ordered the ground shall be excavated to the lines and depths shown on the drawings or to such other lines and depths directed by the Employers Representative.

Trenches shall be of sufficient width to enable the pipes to be properly laid and jointed and shall be excavated for full depth with vertical sides. Excavations taken out to a greater depth than necessary shall be filled to the required level with concrete at the Contractor's own cost.

Supports of Excavation

The sides of the pits, trenches and other excavations shall be adequately supported to the satisfaction of the Employers Representative by timber and other approved means. The excavation shall be of sizes sufficient to provide the required space inside the supports. Take all precautions including any necessary shoring and propping, etc., to ensure the safety of adjoining structures and property of all kinds including supporting existing services. Where directed by the Employers Representative supports shall be left in, and any such supports so left in will be measured and paid for except where in the opinion of the Employers Representative the necessity for leaving the supports in has resulted from the carelessness or neglect of the Contractor.

Water in Trenches

Trenches shall be kept free from water and shall be shaped to prevent any accumulation of water either in or adjoining the excavation of the spoil therefrom. Provide any temporary drains, sumps, pumps, etc. that may be necessary and shall at all times during the contract, prevent silt, oil or other contaminating material being discharged into existing or completed drains, watercourses or soak ways. Catch pits or other means necessary to comply with this requirement shall be provided and kept clean by the Contractor at his own cost.

Rock

The term shall be taken to mean any material met in excavation which is of such size or position that it can only be removed by means of wedges, compressed air or other special plant. Soft surface rock or the soft top rock or rock easily removable shall be classified and paid for at normal excavation rates. The Employers Representative's decision in this is binding. The item included in the Appendix D for hard rock excavation is provisional and only that quantity actually removed will be paid for as an extra on normal excavation. Where rock is met in trenches it shall be excavated and trimmed to prescribed level of underside of the pipeline. Rock excavation shall also be deemed to include solid boulders of 0.25 metres or over in volume.

Refilling Trenches

The initial layer of backfill material, shall be placed and consolidated in thin layers by hand up to at least 300mm above the top of the pipe or special surround. Backfill around pipes, including concrete or other special materials shall be carefully packed under and around the pipes. Filling above the initial layer shall be deposited and compacted in layers not exceeding 225mm loose depth. Great care shall be taken in all cases to ensure that the filling is fully compacted and rammed against the sides of the trench.

Surface Reinstatement of Paved Areas

Outside the boundary of the site, trenches through paved areas shall be refilled and compacted up to the underside of the existing paving construction (including any sub-base) in accordance with the measured work section. Above this level, the reinstatement shall be of similar construction to the original, to the satisfaction of the owner or appropriate authority. Allow for the placing and

maintenance of temporary reinstatement. The permanent reinstatement shall not be placed until settlement of the trench is completed.

Concrete Bed to Pipes

Where indicated on the drawings pipes shall be laid on a bed of concrete of the width and thickness shown on the drawings. The bed shall be laid true to line and level to an even surface ready for laying the pipes. Concrete in beds and surrounds shall be placed within one hour from the time of mixing.

Granular Bedding to Flexible Jointed Pipes

The construction of beddings for flexible jointed pipes shall be generally in accordance with Irish Water's requirements.

Subsoil Drains

Except where laid under special conditions such as at the rear of retaining walls, trenches shall be 200mm wide for drains up to 150mm diameter, the trench shall be back filled with 20mm or 40mm graded gravel or broken stone. Any existing land drains intercepted shall be cleaned out and connected direct to the new pipes and the disused end of the old drain sealed with puddled clay.

Testing of Pipelines

All sewers, manholes, chambers and other work shall be absolutely watertight. In order to make sure of this the sewers shall be subjected to a water test. No sewer shall be covered up until it has satisfactorily passed the test. The pipes shall be tested in sections (e.g. between manholes). Each section shall be tested by filling with water and testing to a head of not less than 1.0 metre and not greater than 2.4 metres. The head shall be maintained for 30 minutes. Any pipes or joints which show signs of leakage or sweating during the period of test shall be taken out and replaced or re-jointed at the Contractor's expense until completely watertight. In the case of large sewers of internal diameter 450mm or over the Employers Representative may permit an air test for the water test. A suitable air pressure shall be built up with a tube. Pressure shall be built up to 150mm for 5 minutes without a drop of 25mm on thermometer tube the test will be regarded as satisfactory. If the pipeline fails under the air test a confirmatory water test shall be applied without extra cost on the contract.

Manholes and Channels

Invert channels shall form a vertical transition between the gradients of the incoming and outgoing sewers and where there is change in horizontal direction of these sewers, the channel shall be curved in plan to the largest possible radius. The channel shall be accurately finished to a smooth curved surface with purpose made channels. The sides of the main channels above half diameter shall be vertical up to the level of the soffit of the inlet pipe. Benching shall have a minimum fall of 25mm from back to front and 25mm radius nosing to the channel, the whole of the benching and vertical sides of the channel to be finished in 1: 3 cement mortar rendering. Rendering shall be finished to a smooth hard surface with a steel trowel in 19mm of 1: 3 cement mortar. Where detailed, galvanised step irons to I.S. EN 13101 are to be fixed in manhole and shaft walls. Frames to be bedded in 1: 3 cement mortar on concrete bricks with the surface flush with the existing or proposed adjoining ground levels. Normally acceptable tolerances will be within the range of true level and 6mm low. Two sets of manhole lifting keys for each type of manhole shall be provided and handed over to the Employers Representative's representative as soon as fixing of the covers commences.

Block Manholes

Blockwork shall be laid 225mm thick in stretcher bond on 150mm C25/30 XD4 concrete base with all joints filled solidly in (1: 3) cement mortar and neatly flush pointed internally as the work proceeds. Joints shall not exceed 10mm in thickness and no liquid grouting of the joints will be permitted. The whole of the blockwork shall be set level, straight and carefully plumbed. Pipes up

300mm diameter to be arched over in blockwork. Manholes should be rendered internally in (1: 3) cement mortar 19mm thick and finished with a steel trowel. Blocks to be 15N in strength.

Connection to Existing Manholes

The Main Contractor is required to carefully excavate outside existing manholes where required and break into blockwork wall, insert branch channel, including making good to wall and benching and sealing pipe and channel.

Surface Reinstatement of Paved Areas

The Contractor shall be responsible for reinstatement of trenches and making good of surfaces to match existing between macadam paving. The minimum width of trench is as outlined above and the width of reinstatement is the responsibility of the Contractor.

Laying of Bitumen Materials

The material shall be laid in accordance with the current version of Guidelines For Managing Openings in Public Roads by the Department of Transport.

Sub-Base

All materials shall be placed and spread evenly. Road base material shall be spread using a paving machine or a spreader box approved by the Employers Representative. The material shall be spread in one layer so that after completion the total thickness is as specified. Compaction shall be completed as soon as possible after the material has been spread. The surface of any layer of material shall on completion of compaction and immediately before overlaying be well closed, free from movement under compactor plant and free from ridges, cracks or loose material. All loose segregated or defective areas shall be removed to the full thickness of layer, re-laid with new materials and re-compacted.

Site works generally

Generally

Set up and maintaining a site datum level accurately ascertained from this reference point and for clearing it away on completion of the Works. Provide all necessary trench excavation, ducting, backfilling and reinstatement of trenches.

Nature of the Ground

The Contractor will be deemed to have satisfied himself about the nature of the ground. Basic excavation rates will be deemed to include for excavation through all material occurring in the ground other than solid rock as defined in this document. Rates shall also include for grubbing up roots and other natural obstructions encountered. The information given hereafter is supplied as an indication only and no warranty or guarantee is given that the information about the nature of the ground is either complete or typical of the site.

Services

Notify the Employers Representative as soon as any under or over ground service not shown on drawings or described herein is discovered. Approximate locations of existing services can be obtained from the Barrack Foreman of Works. However, it remains the responsibility of the Contractor to locate all services in the vicinity of the works.

Topsoil Excavation

Topsoil shall mean soil capable of supporting plant growth. Where topsoil is excavated it shall be stockpiled as directed and kept for re-use. No other material shall be mixed with it. Any surplus remaining after the topsoil is spread shall be disposed of.

General Excavation

For the purposes of excavation formation level is defined as the maximum site level permitting the Contractor to lay the minimum quantities of hard or soft filling, depending on location, specified as being necessary to achieve the finished ground or floor level required.

Earthwork Support

The term earthwork support shall mean providing everything necessary to uphold the sides of excavations, whether the Contractor decides to provide support or to over excavate and ramp the sides. The Contractor will be responsible for supporting the sides of the excavation and will be deemed to have included in his rates for all the work required.

Disposal of Water

Keep the excavations and the surface of the ground free of water. Water must not be disposed of into the permanent drainage system.

Unsuitable Filling Material

Unsuitable filling material shall mean perishable material, material from marshes or bogs, stumps, slurry, mud, material susceptible to spontaneous combustion or material in a frozen condition. Clay of liquid limit exceeding 80% and or plasticity index exceeding 55 as determined in accordance with BS 1377 shall not be used. Materials with a water soluble sulphate (in SO₄ form) content in excess of 0.1% shall be excluded as shall materials having a moisture content greater than the maximum permitted. For cohesive soils the permitted moisture content shall be not greater than the soils plastic limit multiplied by 1.1.

Placing Hardcore

Hardcore shall be laid in 150mm thick layers and have a top blinding layer of 50mm thick sand or gravel. Compact hardcore under paths and paving and under paving to take vehicle traffic.

Soft Spots & Unsuitable Materials

Soft spots or other unsuitable material(s) encountered during excavation shall be removed and replaced by lean-mix concrete. No payment shall be made for any excess excavation not approved prior to execution. Such excavation shall be filled as above at the Contractor's expense.

Surface Reinstatement of Paved Areas

The Contractor shall be responsible for reinstatement of trenches and making good of surfaces to match existing between macadam paving. The minimum width of trench is as outlined above and the width of reinstatement is the responsibility of the Contractor. The Contractor will be responsible for the provision of new surfacing in bitumen macadam to areas designated on external works drawings.

Laying of Bitumen Materials

All materials shall be placed and spread evenly. Spreading shall be undertaken either concurrently with placing or without delay. Road base material shall be spread using a paving machine or a spreader box approved by the Employers Representative. The material shall be spread in one layer so that after completion the total thickness is as specified. Compaction shall be completed as soon as possible after the material has been spread. The surface of any layer of material shall on completion of compaction and immediately before overlaying be well closed, free from movement under compactor plant and free

from ridges, cracks or loose material. All loose segregated or defective areas shall be removed to the full thickness of layer, re-laid with new materials and re-compacted.

Landscaping

Grassing and Planting

Topsoil shall be spread and levelled, graded to the required levels and worked to a fine tilth. Stones lying on the surface shall be removed and the surface shall be lightly rolled. The soil shall be raked, harrowed, rolled and cultivated as necessary for the plants or grass it is proposed for the area. Surface dressings shall be worked in. Grass seed (No. 2 mix) shall be laid at the rate of 70 grams/m². Plants, bulbs, trees, etc. shall be planted in accordance with the specific recommendations for the items. Planting holes shall be excavated to the required depths, backfilled with excavated material, surplus disposed of and the new item well-watered.

Electrical Specification

Scope of Work & Execution

The work shown on the drawings and specified hereinafter shall be carried out by an electrical specialist employed by the Contractor. The electrical specialist shall be a Registered Electrical Contractor (REC) under the terms of the Energy (Miscellaneous Provisions) Act 2006.

Regulations

The electrical installation shall comply with the 'Safety, and Welfare at Work (General Application) Regulations, Part 8, Electricity.' It shall conform to the "National Rules for Electrical Installations" 4th Edition as issued by the ETCI and any other regulations referred to in this Specification. All equipment supplied and installed shall carry the CE marking in compliance with the following EC directives: Electromagnetic Compatibility (889/336/EEC), Low Voltage (73/23/EEC), Machinery (89/392/EEC).

Changes

While the position of lights, switches, sockets, etc., may be assumed to be correct for the purpose of the tender, variations of positions may be instructed with no extra payment allowed, unless such alterations are instructed after completion of the work involved.

Earthing and Bonding

The minimum cross sectional area of earthing and protective conductors shall be in accordance with TABLE 54A/54B and TABLE 54C respectively of the 'National Rules for Electrical Installations': Fourth edition (ETCI Regulations). The installation shall not be neutralised. The system of earthing to be used shall be the TN-S System as described in FIGURE 31.3, Chapter 31 of the ETCI Regulations. The Contractor shall be responsible to ensure that the bonding and earthing of all exposed metal work, structural or otherwise, and of the metalwork of any gas or water service, to the earthing termination at the intake position, is in accordance with 'The National Rules for Electrical Installations' as issued by the ETCI.

All bonding shall have a permanent notice displayed adjacent to it with the wording "Safety Electrical Connection, Do Not Remove". The resistance between any metal to be earthed and the main earth terminal shall not exceed 0.5 Ohms. Separate protective conductors shall be run, independent of trunking and conduit, with circuits to all outlet points.

Testing

Insulation and continuity tests shall be carried out during the installation. When the installation is complete, the following tests shall be carried out: - polarity, earth electrode resistance, line earth loop impedance, continuity and resistance of protective conductors, insulation, operation of residual current operated protective devices. All testing shall conform to methods outlined in "National Rules for Electrical Installations" 4th Edition, Part 6. The Contractor shall notify the Employer's Representative, in writing, of the date he proposes to carry out the tests. The Employer's Representative shall be present to witness tests specified in the contract and assess the quality and accuracy of the work. A Completion Certificate as prescribed by RECI shall be provided by the Contractor on completion and signed by a suitably qualified person who has carried out the testing.

Armoured Cables

Where cable is specified as Cu/XLPE/LSF/SWA/LSF they shall comprise copper conductors insulated with XLPE enclosed in an LSF inner sheath and covered with steel wire armour which shall be covered with an LSF outer sheath. Cables shall be 600/1000 volt grade with stranded copper conductors and shall conform to I.S. 273 and BS 6724. Cables shall be manufactured by an approved manufacturer. Cables run on the surface of buildings shall be adequately supported throughout its length. The minimum supports shall not exceed values recommended by the manufacturers and given in the ETCI Regulations. Cable bends shall be of a minimum radius of 15 times the overall diameter of the cable. The cable armouring shall be carefully made off in the makers gland at each entry to cubicle switchboards. To establish good continuity, an earth tag washer shall be fitted to the gland and a cable linkage used across to the enclosure earthing terminal. Bonding of the metal work for the earthing shall be in accordance with Para 12 of this Specification. The exact runs of cables shall be to the approval of the Supervising Officer on the site. Where cables rise on walls or pass through floors they shall be protected by a suitable length of trunking. A cable guard, comprising 1.6 mm thick galvanised sheet steel and formed into a casing with external flanges for fixing, shall be used to protect armoured cable mounted at low levels on walls. Protection shall be to a height of 1500 mm. above ground level.

Termination of SWA Cables

The Contractor shall terminate all SWA cables with suitable sized lugs and makers glands and earth tags. Crimping shall be carried out using an approved type cable lug and crimping tool which is specifically designed for the purpose by a cable manufacturer and in which the crimping action is automatically controlled by the tool. All connections shall be made tight and means of ensuring that they remain tight shall be supplied. If any connections to the switchboard are found to be faulty during the guarantee period the cost of the remedial work to the installation shall be charged to the Contractor.

Pirelli FP200 Gold Cable

Pirelli FP200 Gold cable or equivalent shall be used for the fire alarm installation. Minimum size used shall be 1.5mm² for detection circuit and alarm circuits. Cable shall be two or four core as appropriate, with a red coloured over-sheath. Where cables pass through floors or walls, a PVC tube insert shall be installed. Where brick or concrete is encountered, cables shall be securely fixed in accordance with the manufacturer's instructions. Cable runs in the attic/ceiling voids shall be fixed on cable tray. Cables may be clipped to the edge of timber joists where the run is parallel, fixed in accordance with the manufacturer's instructions. Under no circumstances may cable be embedded directly in plaster or concrete. All terminations shall be easily accessible and be protected and sealed with the cable manufacturer's approved glands. No through joints shall be permitted in any cable. The Contractor shall be required to carry out insulation tests both before and after the sealing glands

are fitted. The Contractor shall be responsible for fire stopping penetrations with Hilti fire-stop filler Ref: CP 615, or equivalent.

Heat-resistant Silicone Rubber Cable

Heat-resistant silicone rubber insulated cable shall conform to the requirements of I.S. 202:1989.

Flexible Cords

All flexible cords shall comply with B.S. 1969 and shall be of high conductivity tinned copper conductors of the required cross sectional area and insulation as detailed hereunder:-

- a. Luminaires
3 core 1.5 mm sq. minimum heat resisting circular flexible cord. Colour of sheath shall be white. Metal casings shall be bonded to the protective conductor.
- b. Automatic flushing units
Heat resisting flexible cable: Colour of sheath shall be white.
- c. Heating System

Wiring for pumps, motorised valves, thermostats, fans, and temperature controllers shall be not less than 1.5mm² heat-resistant insulated flexible cable.

Distribution Boards to Final Sub-Circuits

Distribution boards shall be of the same manufacture throughout. Access holes or other openings shall be fitted with bushes or protective neoprene strip to obviate cable damage. Sub - main distribution boards shall consist of circuit protective devices housed in a stove enamel steel enclosure, complying with the ETCI Code of Practice. Neutral busbars shall have one outgoing terminal for each outgoing circuit. A multi - terminal bar for circuit protective conductors shall be provided with one terminal for each outgoing circuit. Identification of each MCB shall be by numbering. Identification on the neutral busbar and protective conductor bar shall clearly relate each terminal to its respective MCB. Where specific ratings are indicated, MCBs shall be incorporated into the switchboard, otherwise the ways shall be left blank but suitable for future additions.

Fuse Switches and Switch Disconnectors

Fuse switches and switch disconnectors (load break switches) shall be provided with front access doors which shall be interlocked so that they cannot be opened when the switch is on and the switch cannot be closed until the access door is closed. Operating handles shall be lockable in the OFF position and shall have visible ON / OFF indication. Switches shall be of the double break contact type with a quick make / quick break action independent of the operator's speed of movement. Fuse switches shall be provided complete with HRC fuses of the specified rating and characteristics and switch disconnectors shall be fitted with copper links. Switches shall be suitable for the switching of inductive loads and making and carrying the system prospective symmetrical fault current as limited by the largest HRC fuse that may be fitted to the fuse switch or backing up the switch disconnector. Cable terminals shall be suitable for accepting the size of conductors specified in the cable schedules or as indicated on the drawings. Full size neutral links shall be provided in each fuse- switch / switch disconnector.

Miniature Circuit Breakers (MCB)

MCBs shall incorporate thermal magnetic tripping mechanisms giving an inverse time/current characteristic for overload operation with instantaneous tripping on heavy overloads or short circuits. Contacts shall be silver tungsten with a quick make and break action. Provision shall be made, where specified, to enable the operating mechanism to be padlocked when it is in the OFF position. A trip free mechanism shall ensure that contacts cannot be held closed against a fault. MCB's shall be capable of withstanding the anticipated short circuit capacity at the point where they are installed.

The units shall be Type B MCBs tested to the requirements of BS 3871 Part 1 1965 with amendments, or IEC 898. RCBOs shall provide combined overload, short circuit protection and earth leakage protection to BS 4293 in one single pole device rated as specified, with residual tripping currents of 30mA with a tripping time not exceeding 40ms. The breaking capacity of all MCBs shall be 6kA unless otherwise specified.

Moulded Case Circuit Breakers (MCCB)

MCCBs shall comply with BS4752 Part 1 and IEC 157-1. They shall have voltage and current ratings, rated duty, rated short circuit breaking capacity and rated short time withstand current as indicated. They shall be of the independent manual closing air break type, rated for uninterrupted duty, unless otherwise indicated. Contacts shall be silver tungsten with a quick make and break action. The trip mechanism shall be of the thermal-magnetic type, and shall be trip-free in operation. 'On', 'Off', and 'Tripped', position of the operating lever shall be clearly marked, as shall the current rating and breaking capacity. Auxiliary facilities, including shunt trip and under-voltage release, shall be provided only as indicated. A facility shall be provided on each MCCB for padlocking in the 'OFF' position. All MCCB's shall have an accredited ASTA test certificate.

Contactors

Contactors shall comply with BS 5424 and shall be of the quick make and break type, 500 V rating. They shall be adequate for the duty required, especially where inductive loads are controlled. Provision shall be made for remote control where necessary. The operating coil shall be suitable for continuous use and free from hum during operation. The coil shall be rated at 220 - 230 V. The coil and control circuits shall be protected by a cartridge fuse or MCB contained within the switchgear enclosure.

Time Switches

Time switches not supplied as part of the BEMS installation shall be of the digital type and having the following characteristics:

Voltage supply:	220 -230 V
Changeover contact rating:	16A resistive
Programming capacity:	24 hr. program steps
Program setting:	1 min. increments
Supply failure reserve:	100 hrs.
After power failure:	No loss of program

A tool shall be required to gain access to the enclosure housing the time switch.

Cable Tray, Trunking and Fittings

The Contractor shall supply and install a complete trunking installation as indicated on the drawings and all additional trunking which may be necessary to complete the works.

Steel Trunking

Steel cable trunking shall comply with the relevant BS and shall be manufactured from galvanised sheet steel. Joints shall be bonded with couplings and purpose made earth continuity links. Where paint finished trunking is required, epoxy powder coating shall be used. Manufacturer's standard fittings shall be used.

Cable Tray

The Contractor shall supply and install cable tray where necessary for the fire detection/ gas detection alarm cables and sub-main cable. Cable tray shall be:

- a. Of adequate size to support the cables, plus 20% spare capacity, without undue bunching.
- b. Perforated medium duty return flange type, hot dipped galvanised to BS 729.
- c. Supported at regular intervals not exceeding 1200 and at 200 from bends and intersections by suitable brackets to provide a rigid fixing
- d. Cable trays shall be supported on two rows of P1000 Unistrut for intervals between 1200 and 6000. Cable trays may be supported on ceiling joists in the attic spaces.

A minimum clear space of 25mm shall be maintained behind all cable tray. Cables shall be secured by cable ties, each tie securing the cables of only one circuit. Ties shall be spaced at 600 centres and within 100 of each bend. Cable tray passing through fire compartments shall be fire – stopped.

Installation of Trunking

Trunking shall be screwed in a neat and tidy manner, and shall be secured with adequate round head sherardized or cadmium plated screws fixed at centres not exceeding 1800. The interior of all trunking shall be free from burrs and sharp edges. Alteration of trunking runs shall be agreed only with the Employer's Representative before work has commenced. Trunking shall be spaced 150 clear of piping and ducting of other services and 25 clear of thermal insulation. Trunking systems erected outside a building shall be weatherproof. Connections between trunking and distribution boards shall be sized to accept cables from all used and "spare ways". Capacity of trunking shall be in accordance with ETCI Regulations, Annex 52A. The fire stopping of trunking passing through fire compartment walls and floors shall be carried out by a specialist firm employed by the Contractor. The electrical specialist shall carry out the fire stopping inside trunking & shall use a non-insulating material for this purpose such as a graphite-coated foam or pad to avoid local overheating of cables. (Envirograph product no. 26 or 27, or equivalent). Trunking run above ceilings shall be suspended at a height not less than 150 above the ceiling.

Conduit and Conduit Fittings

The Contractor shall include in his tender for the provision and installation of all conduit. All conduit shall be surface mounted. Conduit shall be of heavy gauge welded steel hot dipped galvanised to comply with BS 31. Conduit having an outside diameter of less than 20 shall not be used. Conduit boxes, spacer bar saddles, couplings, locknuts, etc., shall be hot dipped galvanised and comply with BS 31. Inspection tees and elbows shall not be permitted. Conduit boxes mounted outside the building shall have external fixing lugs. Brass screws for cover fixings shall be used. Fixings to structural steelwork or precast concrete must be approved in advance by the Employer's Representative.

Installation of Galvanised Steel Conduit

Surface conduit shall be installed in a neat manner and supported with spacer bar saddles. Vertical runs shall be supported at 1500 intervals. Horizontal runs shall be supported at 1200 intervals. Saddles shall be installed within 500 of change of direction of conduit or proximity of termination box. Draw-in boxes shall be provided at no more than 10 metre intervals on straight runs. Exposed threads of steel conduit shall be painted with aluminium based paint. In exposed or wet conditions, conduit connections and terminations shall be watertight. All conduit shall be flush mounted unless concealed in the attic spaces or ceiling voids. Conduit in the switch-room and boiler house shall be surface mounted. Conduit of any diameter passing through walls and ceilings shall be fire stopped on the outside by the specialist employed by the Contractor. Conduit of diameter exceeding 32 passing through compartment walls and ceilings shall be fire stopped internally.

Conductors in Conduit and Trunking

Only PVC insulated cables permitted by the National Rules for Electrical Installations shall be installed in conduit or trunking. Cables shall have high conductivity stranded copper conductors with 600/1000V grade insulation. Circuits designated as low voltage and extra - low voltage shall not share the same compartment in trunking unless one of the methods outlined in Paragraph 528.1 of the National Rules of Electrical Installation is adopted. Grouped cables shall be de-rated in accordance with ANNEX 52 C, Table A52 H of ETCI Regulations. Cables exceeding 10mm² shall not be installed in trunking with smaller PVC cables. Grouped cables shall be de-rated in accordance with Table 52 K of ETCI Regulations. Each circuit installed in trunking shall be taped at 3 metre intervals for easy identification. Separate protective conductors are specified for use throughout the installation. Notwithstanding this fact, the continuity of the conduit, trunking & cable tray shall be to the same standard as though they were sole protective conductors.

System of Wiring

The installation shall consist of LSF cables enclosed in surface mounted steel conduit, galvanised steel trunking as specified. The installation shall be wired on the loop-in system. Cables which have become kinked, twisted or damaged in any way shall be rejected. For the Fire Alarm Installation, Pirelli 200 Gold or equivalent cable shall be used with a red PVC over sheath.

Emergency Luminaires

Emergency luminaires shall be the self-contained non-maintained type of 3 hours duration. Units shall comprise a constant current charger, nickel cadmium batteries and LED bulbs. Units shall have a mains monitoring light emitting diode. Exit luminaires shall be the non-maintained type of three hours duration. Exit luminaires shall comply with the European Signs Directive Format. The Contractor shall include for the installation of an ELT 10 Emergency Lighting Test Switch c/w relays in each lighting distribution board and associated wiring. Relays used shall be 6-pole Sprecher & Schuh Cat No: CS4-22Z-220 including 4-way contact block Cat No: CS4-P-04, or equivalent. The completed installation shall comply with I.S. 3217 1989.

Fire Alarm Installation

The wiring shall be minimum 2 x 1.5mm². Pirelli Gold cable for detection and alarm circuits run in steel conduit directly on walls at ceiling height with vertical drops to call points. The Contractor shall include for fitting of detector heads by the Specialist.

Automatic Heat Detectors

IP 20 (dry areas) or IP 42 (damp areas) Operating temperature = 0 - 45 deg. C
Standard Temperature Type- Apollo XP95

Smoke Detectors

Optical Type- Apollo XP95

Manual Call Points

Surface Mounted, Dimensions 125 x 125 x 25 mm, re-settable, to EN54-11 IP 40.

Sounders

Electronic sounders providing 100 dBA at 1 meter. Maximum 40 per loop.
Combined Sensor/Sounder units shall provide 85 dBA at 1 meter.

Drawings

The Contractor shall include for providing full 'as installed' drawings of the entire layout. A plan of the building showing the complete fire detection & alarm installation, address numbers with room/area designations along with fire compartments clearly identified, shall be provided in a glass fronted framed wall mounted unit adjacent to the main and repeater control panel. The drawings shall be A3 size. Provide for supplying and mounting one chart adjacent to **each** fire alarm panel.

Testing and Commissioning

The Contractor shall include for final testing and commissioning of the entire system by the specialist and the Contractor shall obtain from the specialist all relevant Certificates acceptable to the Director of Engineering and in accordance with I.S. 3218 : 2013.

Training

The Contractor shall include for instruction & training of 'in-house' maintenance personnel in the operation & maintenance of the equipment. The time allowed for this training should not be less than one hour. Include also for training of Fire Wardens. The time allowed for this training should not be less than two hours.

Labelling of Installation

The installation shall be clearly labelled. Every fuse-switch shall be permanently marked to indicate the circuit it controls, and its appropriate current rating. At each distribution board, a circuit list shall be supplied and fixed on the inside of the distribution board door. All isolating switches shall be suitably labelled with riveted Traffolyte labels. Spur outlets shall be labelled with indelible black lettering to indicate the circuit number, phase & distribution board from which it is fed.

Drawings and Maintenance Manual

Provide copies of Completion Certificates for the electrical installation, fire alarm installation modifications & gas alarm installation. Provide 'As Installed' Drawings. Provide Training of Personnel on Electrical Installation Layout. Three copies of operation and maintenance manuals and as installed drawings shall be supplied within two weeks of Substantial Completion in A4 binders. The Contractor shall include for the submission of one maintenance manual to the Employer's Representative prior to general issue for approval, in addition to three (3) sets for general issue after approval. The maintenance manual shall include the following:

- Original Completion Certificates for the electrical installation, fire alarm installation & emergency lighting installation.
- Details of all equipment installed, including suppliers which shall include the registered name and postal address of the company, a contact name, a telephone number, and an email address.
- The correct layout of the installation at the time of handover.
- Any relevant technical information relating to each electrical item published by the equipment supplier or manufacturer. The relevance and adequacy of this literature shall be to the Employer's Representative's satisfaction.

Fire Compartmentation

The fire resisting structures of the building shall be maintained throughout, during and on completion of the works. Fire seals in structural fire barriers shall be provided where services enter / leave a fire resisting structure and shall be rated to retain the integrity of the fire resisting structures or

compartments. The Contractor shall be responsible for fire stopping all services within trunking/conduit installed as part of the contract in compliance with sub-paragraph. 527-4 of ETCI regulations. Envirograf product no. 26 (intumescent pads) as supplied by Fireseal Ltd. is considered acceptable for fire stopping trunking. Include for fire stopping all conduit boxes, switch, socket, spur & fire alarm boxes on fire rated ceilings & walls. All fire stopping shall be designed and certified by the supplier/installer as providing an integrity matching the fire resistance of the element they pass through when tested to the procedures and criteria of BS 476: Part 22.

Warranty Period & Maintenance Contract

The warranty period shall run for twelve months following Substantial Completion. In addition, the Contractor shall include for regular maintenance during this period. Include for all costs including labour and materials which may be incurred during this maintenance period. Maintain the fire detection and alarm system to IS 3218 during the defects period. Maintain the Emergency Lighting system to IS 3217 during the same period. The tender price shall include for three visits, following the date of commissioning, to be carried out at three monthly intervals. Thereafter, the systems will be maintained under a separate contract by others.

Painting & Preparation of Pipework

Pipe supports shall be wire brushed, thoroughly cleaned and painted with one coat of red oxide paint after the supports have been fixed in their permanent position. After erection and testing has been completed, all exposed pipework shall be thoroughly cleaned, wire brushed and scraped, and left ready for painting. Welds and pipe supports shall be touched up with red oxide paint.

Air venting

The Contractor shall supply and fit automatic air vents at all high points on the system. Where a highpoint is not readily accessible a 15 diameter pipe shall be brought from the high point to a point of accessibility and the air vent fitted to the pipe

Valve labels and valve charts

All valves, excluding heating surface control valves, supplied and fitted by the Contractor as part of any section of the project shall be fitted with a label which shall be fixed between the wheel and the nut securing the wheel to the valve spindle. The wording on the label shall be on a white background, and shall indicate the function of the valve. The Contractor shall also supply in triplicate, mounted on hardboard, a schedule of all valves indicating their function, and which service the valve controls. The schedules shall be heat-sealed, and one of the schedules shall be placed in a hardwood frame with glass front, and mounted in the plant room.

Fire barriers

Where pipework penetrates a fire compartment wall or floor/ ceiling, a fire resistant barrier must be installed to maintain the integrity of the fire zone. Fire barriers shall be generally rated to match the integrity of the elements through which they pass. The barrier shall be supplied and installed around the penetrating pipework by the Contractor, who shall be responsible for the reinstatement of the structure and finishes affected by the penetration.

Radiators

Steel panel radiators shall be rigidly supported on steel brackets and fixed to the wall using screws and suitable wall-plugs or other approved method. Allow for the provision and fixing of grounds behind insulated plasterboard for radiators and unit air heaters, and associated pipework where necessary. All

radiators shall be provided with an approved key operating air vent. Tenders shall include for taking down and re-fixing each radiator once to facilitate other trades.

Insulation

All hot and cold piping run in the ceiling void, plant room, ducts or anywhere there is a risk of causing condensation shall be insulated with KOOL THERM or equivalent, Class 0. Bore coated pipe insulation having a standard density of 3.5kg/m³ and a factory supplied reinforced aluminium foil vapour barrier jacket, all as supplied by Kingspan Industrial Insulation or equivalent. All joints in the jacket shall be sealed with 50mm wide self-adhesive foil tape. Each one metre length of pipe insulation shall be additionally secured with two evenly spaced bands of tape at approximately 300mm centres. At pipe hanger support brackets, KOOL THERM K Block or equivalent high density pipe support inserts shall be used. Insulation thickness for each service temperature shall be in accordance with Table 1, 2 or 3 of the KOOLTHERM Specification Guide. Insulation exposed to weather conditions shall be protected with a suitable weather-resistant finish of either, KINGSPAN ENCACEL T or equivalent, Polyisobutylene or metal cladding. Insulation in Plant rooms or other areas exposed to mechanical damage shall be protected with either, KINGSPAN CHIL-KOTE CP 55 or equivalent plastic or metal cladding. Exposed pipework at floor level shall NOT be insulated.

Testing and setting to work

On completion of the works or sections of the works, the Contractor shall ensure that the mechanical specialist hydraulically tests the various installations to the pressure specified, generally 7MPa, in the presence of the Employer's Representative. Adjustment of valves, controls, circuit balancing, and commissioning of equipment shall be carried out to the satisfaction of the Employer's Representative. The Employer's staff shall be instructed in the operation and maintenance of the plant and equipment, and the Contractor shall supply drawings, charts etc. as listed elsewhere. Records of all tests shall be supplied by the Contractor to the Employer's Representative as part of the Safety File.

Electrical equipment

The Contractor shall be completely responsible for any electrical equipment supplied by the mechanical specialist separately, or as part of other equipment in the latter's supply, until the end of the maintenance period, and this shall include the wiring from a fused outlet to such electrical equipment where such wiring was supplied, as an integral part of the equipment, by the manufacturer. The rating of controlling fuses for such equipment shall be made available in writing to the Contractor's electrical specialist.

Spares and tools

A list of recommended spares obtained from the various plant suppliers shall be supplied not later than the Substantial Completion date for the project. All tools necessary for operation and maintenance of the plant shall be supplied to the Employer not later than the termination of the Defects period.

DETAILED REQUIREMENTS

Specification

General Description of Works

The proposed works comprise the refurbishment of existing locker facility and associated works at Dún Uí Mhaoilíosa, Renmore, Galway. Please refer to drawing Index No. 1B/385/25 (1 to 12) in accordance with this Specification. The shower and changing facility, to the rear of the building, will remain in use for the duration of the Works and the Contractor shall make all necessary arrangements to segregate the main building from the shower and changing facility during the works.

The site/builder's compound shall be agreed on site before commencement of works. It is the contractor's responsibility to conduct any necessary access works for the delivery of materials to the site.

All services to the attached building, and surrounding buildings, are to be maintained. Take adequate precautions to protect the building and nearby buildings during the works. Any precautions shall be agreed with the Employer Representative prior to the commencement of the project. Any damage caused to the building or nearby buildings shall be repaired immediately at the Contractor's expense. Where disruption to the use of other buildings in the vicinity of the works is unavoidable, the contractor shall inform the Employer Representative not later than two working days prior to the commencement of that work and provide a detailed statement of extent and the program for the works. The Contractor shall liaise with the Barracks Safety Officer to ensure co-ordination between construction activities and those of other workers and personnel in the Barracks area.

The contractor shall make himself aware of all services (water, electrical, sewer, etc.) in the area. Any service that is damaged or broken by the actions of the contractor will be repaired to at his own expense to the satisfaction of the Engineer.

Demolition

NOTE:

Demolition work shall be carried out in accordance with BS 6187:2011.

All materials arising from the Demolitions and Alterations shall, unless otherwise specified, be cleared away and removed off site as they arise.

Materials on site, both arising from Demolitions and whether in skips or temporary mounds, and new materials stored pending incorporation shall be fully protected to ensure that they are contained and that no loose material leaves the site compound.

All areas are to be kept clean of dust and any dry works are to be dampened to prevent dust blowing around.

Materials shall be disposed of in accordance with relevant statutory requirements. Safe disposal certificates for all hazardous materials removed from the site shall be provided to the Employer's Representative.

All floor, wall and ceiling surfaces adjoining, or arising from, demolitions and alterations work shall be made good to match the existing adjacent surfaces and left ready to receive redecoration / new works.

Removal of items listed includes all associated fixings, attachments and ancillary items.

All items requiring work to be removed shall be deemed to include associated making good to surfaces damaged during removal.

Examine the Site

The Contractor is required to visit the site to ascertain the extent of the demolition and alterations, the conditions under which they will be done and the nature of the works. The Contractor will be deemed to have visited the site and taken all factors affecting the work into account when preparing his rates and to have priced the work accordingly.

Materials Arising from Demolition

All material arising from the demolition work, unless specifically stated to the contrary, shall become the property of the Contractor. Demolition material shall regularly be removed from the site and while on site shall be placed so as to minimise interference with movement around the site and the general use of the site. The rates for demolition and alteration work shall include for the removal of all debris and surplus material from the site to a licensed local authority facility by the Contractor.

Safety and Avoidance of Nuisance

All work shall be performed in such a manner as to ensure the safety of the Works and the public and so as to cause as little inconvenience as possible to the public and adjoining buildings and their users. Rates shall include for all necessary precautions. Debris shall be regularly watered to prevent the spread of dust.

The Contractor shall be liable for any claims arising from failure to observe the above requirements.

Protection of Existing Work Retained

The Contractor shall protect all adjoining work from damage by his workmen or the weather and shall include in his prices for providing and removing on completion all necessary temporary coverings and

screens other than those specifically required by the Employer's Representative for which measured items have been included herein. The Contractor shall be responsible for the care and protection of all materials described as for re-use, set aside etc. from the time of his entering possession of the site. The party wall between the extension building to be demolished and the main building is to remain in place. Any damage caused to this structure shall be made good by the contractor. The roof of the adjoining building shall be protected from damage also. Any damage caused to the roof covering or roof structure shall be made good by the contractor at his own expense.

Making Good

The Contractor shall allow in his tender for the cost of all making good of existing work disturbed by the proposed works. All making good shall match the adjoining work in terms of both quality of materials and standards of workmanship, so as to leave the resultant areas to the satisfaction of the Employer's Representative. Any unsatisfactory "making good" shall be rectified at the Contractor's expense.

Temporary Works

The Contractor must provide and maintain all necessary temporary supports required for upholding the existing work during the course of the Works. The Contractor shall alter and adapt the temporary Works as necessary and shall clear them away and repair any work disturbed on completion.

The Contractor will be solely responsible for the adequacy of the design of temporary supports.

Disconnect Services

The Contractor shall contact the appropriate authorities and shall have any necessary services disconnected where alteration/removal of such services is required, or when services in proximity to work being undertaken are required to be disconnected. Tender will be deemed to have included for payment of all charges to the relevant authorities.

Waste

Tenderer's attention is drawn particularly to Clause 4.1.4. of BS 6187: 2011, "All hazardous or toxic materials must be clearly identified at survey stage and all necessary precautions must be taken in their removal and disposal to comply with the relevant legislation, statutory instruments and regulation"

Sequence of Operations

The order in which items have been described in this document is not an indication of the sequence in which the work is to be carried out.

Pricing

Prices for demolition and alteration work shall include for all incidental work which is not specifically mentioned herein but is obviously required for the proper carrying out of the work.

Damaged Tarmac

Where the contractor has damaged the existing tarmac surface to the adjoining roads and parking areas during works, the contractor shall reinstate all-affected areas at his own expense to the satisfaction of the Supervising Engineer. This shall be done in keeping with the guidelines laid down for laying of bituminous material BS 4987.

General Description of Demolition Work

Demolition work shall include:

- Removal of roof covering, felt and battens (see asbestos section below)
- Removal of all internal and external doors and windows
- Removal and making safe of all existing electrical services
- Removal and making safe of all existing mechanical services
- Removal of all materials, waste and rubble to a licensed waste facility
- Removal and disposal of asbestos and ACMs (asbestos containing materials) to a licensed facility
- Making good

Removal of existing electrical installation

The electrical removal works shall include the following:

- Remove all internal and external electrical wiring circuits in the existing locker facility
- Remove all electrical distribution boards and switchgear with the exception of the main Distribution Board in the hall, in the lobby
- Remove all electrical fixtures and fittings from the locker facility building
- Remove all Fire Detection & Alarm System fixtures and fittings from the locker facility building with the exception of the Fire Alarm panel, and associated cabling and power supply, in the lobby

Removal of existing mechanical installation

The mechanical removal works shall include the following:

- Disconnect the existing wastewater and drainage pipework from the locker facility building
- Remove all hot and cold domestic water services inside and outside the locker facility building
- Remove heating boiler, pipework, radiators and all associated items (see asbestos section below)
- Isolate the existing mains water connection and blank off in order to connect it to proposed services later
- Remove all internal and external mechanical fixtures and fittings from inside and outside the extension

Removal of elements of Building Structure and Fabric

Works shall include:

- Remove all floor coverings including adhesives and attachments.
- Remove all wall and ceiling linings.
- Remove all roof coverings and all associated roof materials including timber battens, insulation, felt, etc. Include removal of flashings and all existing roof slates. Note that these slates contain Asbestos (see detailed requirements in Asbestos Removal section).
- Hack off all linings, render and plaster from all internal walls and from the internal faces of the external walls of the Locker Facility Building.
- On the external faces of the external walls, existing cementitious ribbon/strapped pointing is to be removed and joints raked out.
 - Joints shall be raked out to a minimum depth of 25mm or 1.5 times the width of the joint, whichever is greater.
 - Pointing to be carefully removed using pneumatic tools taking extreme care not to damage the stone
 - All debris and dust are to be removed from the raked joints with stiff bristle brushes.

- A small engraving tool is to be used to remove any remaining mortar not removed by pneumatic tools.

Asbestos Removal

NOTE:

The Asbestos Report is included as background information. The Report outlines the extent and location of the Asbestos Containing Materials (ACMs) within the existing Building. All asbestos and associated materials, associated with the Locker Room building, must be removed and disposed of off-site. These materials are listed in the attached Asbestos Survey Report and include the following:

- a. Ground Floor Boiler room 003 - Pump flange gaskets: Gaskets (compressed) - S004
- b. The roof slates on the existing locker facility building – S001

Please note that Liberty Unit Heaters in the existing Ladies Locker Room 004 were previously removed when that element of the building was demolished under a previous construction project. These units are no longer present.

As a condition for the award of the Contract, the Contractor must be in possession of appropriate insurances for the removal of ACMs or have arrangements acceptable to the Employer in place for ensuring that the insurance and indemnity requirements of the Contract are observed.

The Contractor shall be deemed to have included in his tender for complying with all relevant legislation and regulations and with the guidance of the Health and Safety Authority. This includes the preparation of Safety Statements and taking all steps necessary to ensure the safety of persons likely to be affected by the Works.

The work will be carried out by a competent sub-contractor, who shall provide, in advance, evidence of their ability to carry out the work in accordance with the provisions of the Asbestos Regulations. The Contractor shall notify the H.S.A. of asbestos work activities, including the plan of work, 14 days in advance of the work starting and a copy shall be submitted to the Employer. The Contractor will also prepare a method statement detailing the plan of work. This document must be prepared in advance of the work commencing;

- a. it must be notified in advance to the Employers Representative
- b. must be available at the worksite

Where asbestos sealing, encapsulation or removal work is being carried out, the Contractor shall be required to retain an independent occupational hygienist to:

- a. Liaise with the Employer Representative.
- b. Carry out air monitoring during the execution of internal asbestos related work to make sure that the control measures employed are keeping the concentration of asbestos in the air as low as is reasonably practicable outside the enclosure within which the asbestos work is taking place;
- c. Carry out a visual check after removal is complete to ensure that all visible traces of asbestos have, so far as is reasonably practicable, been removed, and;
- d. Carry out air monitoring after the visual check is complete to ensure that the area is safe to be returned to normal use.

Asbestos sealing and encapsulation is only to be resorted to on the instruction of the ER – removal is the specified requirement.

The hygienist shall be required to provide formal written certification of the final air monitoring tests stating the concentration of asbestos in the air.

A certificate confirming the total removal of the ACM or, where removal in full was not possible or deemed necessary, the locations of material remaining. Where material is still present and has been sealed or encapsulated, the techniques used shall be recorded on the certificate along with any measures needed to protect it.

It will be the responsibility of the Contractor to ensure that all regulations governing the disposal of asbestos waste are fully complied with, waste transported by a waste collection permit holder authorized by the Environmental Protection Agency (EPA), sent to an appropriate EPA authorised facility and that disposal certificates are supplied to the Employer Representatives on completion. The disposal certificates shall be issued by a facility licensed to accept asbestos material and shall confirm the nature and volume of the material accepted and the date(s) of receipt.

Summary of Items Containing Asbestos

Location and Use of Material	Quantity (Approx.)	Asbestos Type	Condition	Material Assessment
Ground Floor Boiler room 003 - Pump flange gaskets: Gaskets (compressed) - S004	5no	Chrysotile	Low Damage	4
Ground Floor Ladies locker room 004 - Liberty unit heaters: Woven Product - Presumed	2no	Chrysotile	Good Condition	4
External Roof 001 - Slates: Cement Product - S001	770m ²	Chrysotile	Good Condition	3

Removal of Asbestos-Containing Materials

The proposed removal of asbestos-containing materials is summarised in the following table:

Location and Use of Material	Quantity (Approx.)	Material Assessment	Proposed Action
Ground Floor Boiler room 003 - Pump flange gaskets: Gaskets (compressed) - S004	5no	4	Remove all gaskets under controlled conditions and dispose of at an authorised facility
Ground Floor Ladies locker room 004 - Liberty unit heaters: Woven Product - Presumed	2no	4	This element of the building has subsequently been demolished and the heaters have been removed and made safe as part of a previous contract. NO INTERVENTION REQUIRED
External Roof 001 - Slates: Cement Product - S001	770m ²	3	Remove all slates under controlled conditions and dispose of at an authorised facility

A specialist contractor will remove the asbestos-containing materials, outlined in the table above, under controlled conditions. A management system/plan including routine re-inspections of control measures must be adopted to monitor the removal works. Site and task specific risk assessments must be carried out ahead of any work in proximity to the asbestos-containing materials.

The contractor will include for the removal and disposal of all of the above-identified asbestos-containing materials at an appropriately authorised facility.

Following the removal of the asbestos-containing materials, a certificate of re-occupation must be obtained from an independent analytical consultancy company prior to re-occupancy of the area in

accordance with section 15 of the Safety, Health and Welfare at Work (Exposure to Asbestos) Regulations. The contractor will include for employing the consultancy company and providing the relevant certification.

All work involving materials containing asbestos requires a written risk assessment and a plan of work to be prepared by a competent person as per the Safety, Health and Welfare at Work (exposure to asbestos) Regulations 2006/2010. The contractor shall include for the preparation of the risk assessment and plan of work. Please see the preliminary health and safety plan drawn up by the PSDP. Asbestos removal must only be undertaken by competent persons, following notification of the works to the Health and Safety Authority. A detailed site-specific method statement must be developed by the competent person, and forwarded as part of the notification process to the Health and Safety Authority.

Re-pointing of Masonry Walls

The contractor shall carefully remove all existing cement jointing to existing external stonework. Include for removal of jointing to a bedding depth of 25mm.

Areas of raked out and open joints to the external stonework are to be re-pointed in lime based mortar to an approved finish. Prior to commencing, trial pointing panels will be satisfactorily executed in the presence of the Engineer. All external stone wall areas will be pointed to the same standard as the agreed trial panels. Pointing of the remaining areas will only proceed following approval by the Engineer.

Materials:

- The pointing mortar shall be a 3:1 Sand:Lime (NHL 2.0) mix.
- The sand shall be evenly graded quartz sand free of soil, organic matter, soluble salts and other impurities.
- The colour of the new mortar shall be approved by the Engineer.
- The lime will be a natural hydraulic lime (NHL) free from any impurities and which meets the relevant British Standards.

Mixing

- The mix should be prepared using a mortar mill; however a large-volume conventional cement mixer may be used.
- Measuring of material must always be with a gauging box or bucket.
- Start with an empty mixer.
- Add the dry materials.
- Mix dry for at least five minutes.
- After five minutes slowly add water until the desired consistency is reached. It is very important not to drown the mix by adding too much water.
- Once the desired consistency is reached, mix for a further 20 minutes. In general lime mortar requires a longer mixing time than cement based counterparts.
- The mix must be used within two hours and then left to set.
- The mix, to begin with, shall appear rather dry but as mixing time increases the render will become much 'fattier' – the desired mix shall be stiff but workable. If too much water is added the risk of shrinkage will increase and the final strength reduced. Keep the aggregate dry to ensure accurate control of water.
- Do not use any Plasticisers.

Procedure

- All debris and dust is to be removed from the raked joints immediately prior to re-pointing using compressed air or a stiff bristled brush (ferrous metal brushes must not be used under any circumstances). Brushing out shall commence at the top of the elevation and work down.
- All raked joints shall be dampened prior to re-pointing using hand sprays. Care shall be taken to dampen the mortar joints not the stone face. If the wall becomes too wet then wait until this has sufficiently dried. In warm weather it may be necessary to constantly damp joints as work progresses using hessian sheets as necessary to provide shelter from the elements.
- The re-pointing mortar is to be well compacted into the joints using a suitable pointing iron of a flat plastering hawk.
- Do not overwork the mixture when pointing as this will bring the water to the surface and may result in slumping of the joint.
- All pinning stones shall be re-inserted in their original location or where necessary replacement stones used. The joints shall be filled with mortar prior to inserting the pinning stone. The dampened pinning stone shall be inserted into the mortar and lightly tamped into position using a rubber headed hammer forming a flush finish with surrounding masonry.
- The joint is to be finished to a flush finish where arrises are sharp and in good condition; where arrises are damaged or decayed it may be necessary to slightly recess the pointing to prevent feathering of the edges and an over exaggeration of the joint size. The exact finish is to be agreed on site with the Engineer.
- After a period of time (ranging from a few hours to a day depending on the lime and environmental conditions) the joint shall be beaten with a stiff bristled brush to consolidate the mortar (closing any shrinkage cracks) and to expose the aggregate.
- The arrises of the stone shall be left clean and free from any mortar or cement stains. No traces of mortar shall be left anywhere on the exterior of the stone and the mortar shall not exhibit any signs of shrinkage or cracking.

Protection & Aftercare of Lime

- The areas worked on must be covered with Hessian and allowed to dry out slowly over a period of three weeks.
- The drying temperature shall be controlled and drying must not be forced by introducing excessive heating.
- In warm weather it will be necessary to regularly re-wet the sacking.
- Lime products must not be used in temperatures of 5 degrees or falling.

Storage of Lime & Aggregate

- Lime products are usually supplied in water-resistant paper bags. If the bags are allowed to get wet they may be irreversibly damaged.
- Once opened the exposure to air will start to weaken the hydraulic set. As a result any opened bags left at the end of the day shall be carefully folded over at the top and put into a dry store. In this state the lime will remain useable for a further 2 or 3 days. Thereafter it shall be discarded.
- All materials (lime/sand/aggregates) are to be stored in a clean, dry environment where there is no risk of contamination or damage.

Safety

- The manufacturer's materials safety data sheets are to be obtained and a copy of these is to be sent to the Engineer.
- The instructions in the materials safety data sheet are to be adhered to in all cases.
- Operators shall wear protective clothing to prevent product/material from coming in contact with the skin or eyes or from being inhaled.
- Products/materials are to be used in well ventilated areas only.

- Do not artificially heat any of these products/materials.
- Procedures for disposal of containers shall comply with all relevant government, local authority and any other relevant regulations.
- Eye wash facilities and emergency shower must be available when handling this product/material.

Roof Construction

The existing roof structure shall be utilised for the new roof covering of the building. Include for applying 2 No. coats of an approved timber preservative to all timber elements of the existing roof structure. Include for the replacement (supply and fitting) of 20% of all structural timber elements (rafters, roof boarding, purlins, wallplates, etc.) of the roof structure in the contract sum. Note that the existing roof is supported by existing steel trusses which shall remain in place.

New pitched roof coverings shall be executed to the following requirements:

- ‘Dupont Tyvek Supro Breather Membrane’ (or equivalent approved) to be fixed over rafters
- ‘LBS Eaves Support Tray/Eaves Carrier Tray’ to be fitted at eaves level.
- 50mm X 35mm pressure treated slating battens fixed to rafters, running perpendicular to the rafters.
- Counter-battens: 50mm X 35mm pressure treated slating battens fixed to rafters, running in the same direction as the rafters.
- All battens to be fixed to rafters using 3.35mm diameter nails, the length of the nails should be such that they run 32- 45mm into the rafters.
- Roof covering shall be blue-black ‘Cupa Pizarras 600mm X 300mm’ natural slates or equivalent approved.
- Slates to be fixed in place using manufacturer approved copper nails and stainless steel slate hooks.
- ‘LBS Natural Slate Ridge Tiles (graphite black)’, or equivalent approved, ridge tiles shall be bedded in, and pointed with, an NHL 5 lime and sand mortar. Ridge tiles to be selected to match the slates. Bedding mortar to be treated with dye to match the ridge tile colour.
- 25mm continuous ‘LBS Over Fascia Ventilator’ to be fitted along eaves level (front and rear).
- Include for the supply and fitting of 40 No. ‘LBS Natural Slate Vents’ at high level (just below ridge tiles). 20 No. at front and 20 No. at rear.

Fascia, Soffits, Gutters & Downpipes

Fit new gutters and downpipes to all elevations to the following requirements:

- Gutters, downpipes and brackets shall be heritage grade cast iron throughout
- Gutter brackets fixed to fascia at maximum 1000mm centres by stainless steel fixings.
- Sealing joints in gutters must be EPDM seal or similar approved.
- Gutters shall be 150mm half round profile
- Downpipes shall be 100mm round profile
- Gutters, downpipes, fittings, fascia and soffits to be installed to manufacturers recommendations
- A shoe is to be fitted at the bottom of each downpipe and a grate will be fitted in each gulley trap.

- The Iroko hardwood fascia boards shall be finished with a high-quality microporous paint or stain system, suitable for external hardwood, applied strictly in accordance with manufacturer's recommendations.
- All surfaces, including cut ends and joints, shall receive minimum two coats (or as specified by manufacturer) prior to installation, with a final coat applied after fixing.
- All gutters shall be installed to a uniform fall of not less than 1:600, directed towards outlets to ensure effective drainage and to prevent standing water.
- Falls shall be set out accurately prior to installation and maintained consistently along the full gutter length.
- Rainwater outlets and downpipes shall be positioned to ensure effective drainage, with a maximum spacing of 10–12 metres between outlets, unless otherwise agreed.
- Additional outlets shall be provided at low points and where required to suit roof geometry and rainfall capacity.
- Final positions of outlets and downpipes shall be coordinated with elevations and agreed with the Contract Administrator prior to installation.

External wall

- On the external faces of the external walls, existing cementitious ribbon/strapped pointing is to be removed and joints raked out.
 - Joints shall be raked out to a minimum depth of 25mm or 1.5 times the width of the joint, whichever is greater.
 - Pointing to be carefully removed using pneumatic tools taking extreme care not to damage the stone
 - All debris and dust are to be removed from the raked joints with stiff bristle brushes.
 - A small engraving tool is to be used to remove any remaining mortar not removed by pneumatic tools.
- Repoint all raked joints using a lime mortar comprising Natural Hydraulic Lime and appropriate washed sand aggregate, colour and texture to match existing historic mortar.

Internal Wall

Scope

The works shall include:

- Preparation of existing stone walls
- Installation of internal insulation system
- Application of breathable lime plaster finish
- All works to be carried out in accordance with:
 - Manufacturer's recommendations
 - Best practice for breathable construction
 - Conservation principles where applicable

Existing Wall Preparation

Carefully remove any loose, friable or non-breathable finishes

Rake out defective joints and make good using lime mortar

Ensure substrate is:

- sound
- clean
- free from dust, salts, or contaminants
- Lightly dampen wall prior to application of new materials

Internal Wall Insulation

Insulation Type

50mm cork insulation board

Natural, breathable insulation suitable for solid stone walls

Installation

Fix cork boards directly to wall using:

- breathable adhesive mortar (lime-based), and mechanical fixings where required

Boards to be:

- tightly butted
- staggered at joints
- continuous with no gaps

Junctions

Provide 50mm cork insulation upstand at floor level

Ensure continuity with floor insulation to prevent cold bridging

Membranes

Provide breather membrane and radon membrane at floor junction

Membranes to be:

- continuous
- returned up wall behind insulation
- sealed at all junctions
-

Plaster Finish

Base Coat

Apply lime plaster base coat directly onto cork board

Fully embed reinforcing mesh where required

Finish Coat

Apply smooth lime plaster finish

Finish to be:

- breathable
- even and crack-free
- suitable for decoration

Performance Requirements

Wall build-up to remain fully vapour permeable

Avoid use of:

- gypsum plaster
- cement-based materials
- impermeable finishes

Workmanship

All work to be carried out by operatives experienced in:

- lime plaster systems
- solid wall insulation

External Windows and Doors

The Contractor shall verify all dimensions on site prior to manufacture and installation of doors and windows.

Supply and fit the following units:

- 1 No. hardwood external double door set (D1) which shall have a maximum U-value of 1.4 W/m²K, at the main entrance. See door schedule.
- 2 No. hardwood external single door set (D2) which shall have a maximum U-value of 1.4 W/m²K, at the rear of the Locker Facility Building. See door schedule.
- Install 16 No. new double-glazed hardwood double-sliding-sash (W1). See window schedule.
- Install 1 No. new double-glazed hardwood single-sliding-sash (W2). See window schedule.
- All external windows and glazed doors shall achieve a maximum U-value of 1.4 W/m²K and shall comprise double-glazed, low-emissivity, argon-filled units in accordance with current Building Regulations. Units shall comply with BS EN 14351-1.
- Doors shall be hung true and operate smoothly without binding
- Frames shall be securely fixed to structure in accordance with manufacturer's recommendations
- All gaps, clearances, and tolerances shall comply with certified fire door requirements where applicable

Internal Doors

General

Provide and install all internal door sets complete with frames, ironmongery and accessories in accordance with the drawings and door schedule.

Supply and fit the following units:

- 2 No. hardwood internal single door set (D3). See door schedule.
- 1 No. hardwood internal single door set (D4). See door schedule.
- 4 No. FD60s solid core flush panelled door (D5). See door schedule.
- 2 No. FD60s solid core flush panelled door (D6).

All doors shall be:

- Installed in accordance with manufacturer's written instructions
- Fully finished prior to installation (factory pre-finished)
- Aligned, level, and free from distortion or defects

Fire Doors

Where indicated on the drawings or door schedule, provide FD60S fire-rated door sets.

Fire door sets shall:

- Be third-party certified (e.g. IFC, BM TRADA or equivalent)
- Be tested in accordance with EN 1634-1
- Comply with Building Regulations – TGD-B (current edition)

Include all compatible components (frame, seals, glazing, ironmongery) as part of a complete certified system

Installation shall:

- Be carried out strictly in accordance with manufacturer's certification and installation instructions
- Include intumescent strips and smoke seals as required
- Each door shall be fitted with a minimum of 3 No. hinges complying with BS EN 1935, Grade 13, suitable for the door weight and usage.
- Door frames shall be fixed by Hilti HRD-H or equivalent 10mm frame anchors of a suitable length, countersunk & pelleted, 2 No bolts to the head of each single door, 4 to head of double doors and 3 no bolts each side.
- The contractor will be deemed to have included for all necessary supports etc. to the wall and internal floors etc. required when removing walls and fitting of lintels.

Each fire door shall:

- Bear a permanent certification label or plug identifying rating and manufacturer

Door Construction

- Door leaves and frames shall be hardwood or high-quality solid core construction, suitable for heavy-duty use
- Doors to be robust and impact-resistant, appropriate for locker room / barracks environment
- Vision panels to be provided where indicated on drawings

Glazing (Vision Panels)

Where vision panels are required:

- Glazing shall be fire-rated where applicable and compatible with the door rating
- Installed as part of the certified doorset system
- Safety glass to be used in non-fire-rated doors where required

Ironmongery

Provide all ironmongery as indicated in the door schedule.

All ironmongery shall:

- Be suitable for heavy-duty use
- Be compatible with fire door certification where required
- Be corrosion-resistant (e.g. stainless steel or equivalent)
- Typical items include:
 - Hinges
 - Locks and latches
 - Handles
 - Door closers (where required)

Finishes & Accessories

Fit new 75mm architraves (material and finish to match door leaf and frame) to all internal doors

Provide kick plates or protective plates where required for durability

All finishes to match approved samples or existing where required

Making Good

All works shall include:

- Making good to surrounding walls, floors, and finishes
- Sealing of gaps between frames and structure
- Leaving all doors fully operational and ready for use

New Internal Ceilings

Carry out the following before installing the new ceiling.

- Carefully remove and dispose of existing damaged ceiling finishes and associated debris.
- Inspect exposed structure and report any defects prior to proceeding.

Provide new horizontal suspended ceiling throughout as follows:

- Install galvanised MF suspended ceiling system or treated timber joists fixed to existing structural members.
- Ceiling to be level, true and set at agreed height.
- All hangers, channels and fixings to be installed strictly in accordance with manufacturer's written instructions.
- Provide additional framing and trimming members as required to form roof window openings.

Vapour Control Layer:

- Provide continuous 500 gauge polythene vapour control layer above ceiling lining.
- Laps to be minimum 100mm and sealed airtight with proprietary tape.
- Vapour barrier to be sealed at perimeter walls and around all penetrations.
- Vapour control layer to be continuously sealed around all roof window openings to maintain airtightness.

Ceiling Lining.

- 1 no. layer 15mm Gyproc fireline board plasterboard fixed to underside of framing.
- Fix using 38mm drywall screws at maximum 230mm centres.
- Ensure minimum 25mm penetration into timber supports (or appropriate MF fixings).
- Joints taped using Gyproc Paper Joint Tape system.
- Apply 3mm skim coat plaster finish in accordance with manufacturer's recommendations.

Insulation.

- Provide 2 no. layers of 200mm mineral wool insulation (maximum thermal conductivity 0.04 W/mK).
- First layer installed between ceiling members.
- Second layer installed perpendicular across members.
- Total insulation thickness to be minimum 400mm throughout.
- Insulation to be continuous, tightly fitted and free from gaps.
- Maintain adequate ventilation above insulation within roof void.

Compliance

- All works to comply with current Building Regulations and manufacturer's technical guidance.

Locker Room Flooring

The works shall include:

- Upgrade of existing suspended timber floors
- Construction of new insulated ground-bearing concrete floor (where indicated)
- Installation of floor finishes (painted or varnished)
- Associated insulation, membranes, and making good
- All works to comply with current Building Regulations and manufacturer's technical guidance.

Existing Suspended Timber Floor

Inspection & Preparation

Carefully lift sections of existing timber flooring as required

Inspect all joists and supports for:

- rot
- infestation
- structural defects
- Repair or replace defective elements before proceeding

Floor Build-Up

Provide insulation within existing timber floor as follows:

- 150mm foil-backed PIR insulation tightly fitted between joists
- Insulation supported on:
- galvanised wire mesh fixed to joists, or
- proprietary support system

Breather Membrane

Install breather membrane beneath insulation

Membrane to:

- be continuous
- be supported on mesh
- allow ventilation of subfloor void

Subfloor Ventilation

Maintain clear ventilation to subfloor void

Ensure insulation does not block airflow

Provide additional vents if required

Radon Barrier

Install 1400 gauge radon membrane above insulation level

Provide:

- minimum 150mm laps
- sealed joints using proprietary tape
- sealing around all penetrations

- Membrane to be returned up at perimeter walls and sealed

Timber Floor

Retain existing timber flooring.

New Ground Bearing Concrete Floor (Where Indicated)

Sub-base

150mm compacted hardcore (Clause Annex E or equivalent)
25mm sand blinding

Radon Membrane

1400 gauge radon barrier installed over blinding

Laps:

- minimum 150mm
- fully sealed
- Membrane to be:
- continuous
- turned up at walls
- sealed to DPC / wall membrane

Insulation

150mm foil-backed PIR insulation
Installed in staggered joints
All gaps tightly fitted

Perimeter Insulation

Provide 50mm cork insulation upstand at all wall junctions
Ensure continuity with wall insulation

Concrete Slab

150mm in-situ concrete slab

Finish:

- power floated
- suitable to receive paint

Water Control at Shower Access

- Provide an entrance matwell and/or heavy duty absorbent matting zone immediately outside shower access points to minimise transfer of water into the changing/locker room. Matwell to be sized and located as directed on site and finished flush with surrounding floor.

- Wetting of the changing/locker room floor is anticipated to be intermittent and localised (tracking from showers). The floor finish shall be suitable for such use without loss of slip resistance.

Mechanical and Electrical Specialists' Work

NOTE:

The Contractor shall prepare co-ordination drawings showing, in detail, the routes of the services and highlighting potential conflict locations in order to prevent those conflicts arising during the services installation.

Detailed Pricing Document

In addition to the Pricing Schedule, a detailed schedule providing quantified and rated schedule for all mechanical and electrical plant and items of equipment. The schedule shall include rates and quantities for:

- Light fittings
- Electrical points
- Distribution boards
- Fire alarm detectors and panels and associated items.
- Pipework and fittings.
- Heat Pumps and ancillary items.
- BMS
- Cabling

The extended and totalled schedules shall match the prices in the Schedule of Rates.

Builder's Work Generally

The Contract Sum shall be deemed to include for both the builder's work in connection with the Mechanical and Electrical installations and for the required co-ordination.

Openings for Mechanical Wall Vents, Flues, etc.

Wall openings to be diamond cored to suit the size of the items being installed, including:

- Wall faces on both sides of each opening shall be neatly re-instated to match the existing surface finish.
- Openings in blockwork shall be pointed with cement: sand mortar (1:6).

Mechanical Specification

General

The Contractor is referred to the Specification contained in the tender documentation. The Contract Sum shall be deemed to include for both the builder's work in connection with the mechanical installation and for the required co-ordination. Wall openings to be cored to suit the size of the items being installed. Wall faces on both sides of each opening shall be neatly re-instated to match the existing surface finish.

Scope of Work

The extent of the work consists briefly of:

- Space heating system heated by radiant heat panels and removal of moisture by dehumidification.

Heating and Dehumidification System – Locker Block Facility

Scope of Works

The Contractor shall supply, install, test and commission a complete electric heating and dehumidification system to the locker block facility, comprising Locker Room 1, Locker Room 2 and the entrance corridor/hallway.

The system shall be designed to provide a dry, comfortable internal environment suitable for the storage of personnel clothing, equipment and lockers, while minimising condensation and moisture build-up.

Dehumidification

Provide commercial-grade dehumidification units within each locker room.

The dehumidification system shall comprise:

Locker Room 1: 2 No. commercial dehumidifiers, minimum 50 litres/day capacity each.

Locker Room 2: 2 No. commercial dehumidifiers, minimum 50 litres/day capacity each.

Units shall be suitable for continuous operation.

Units shall be fitted with automatic humidistat controls.

Units shall maintain internal relative humidity between 55% and 60%.

Condensate shall discharge via permanent drain connection to the nearest suitable waste point.

Units shall incorporate washable or replaceable air filters.

Units shall be mounted to minimise obstruction of circulation routes and access to lockers.

Radiant Heating – Locker Rooms

Provide ceiling-mounted electric radiant heating panels throughout Locker Room 1 and Locker Room 2.

The radiant heating system shall comprise:

Locker Room 1

Total installed heating capacity: approximately 12 kW.

Heating panels shall be distributed evenly throughout the room to ensure uniform heat coverage.

Locker Room 2

Total installed heating capacity: approximately 14 kW.

Heating panels shall be distributed evenly throughout the room to ensure uniform heat coverage.

General requirements:

Panels shall be commercial-grade electric radiant heating panels.

Panels shall be suitable for installation within a suspended ceiling environment.
Panels shall be independently supported from the building structure and not solely from the ceiling grid.
Panels shall be controlled by programmable thermostats.
Heating zones shall be arranged to permit independent control of each locker room.
Surface temperatures shall comply with all applicable safety standards.
Corridor / Entrance Hall Heating
Provide wall-mounted electric panel radiators within the entrance corridor and circulation areas.
The corridor heating system shall comprise:
Total installed heating capacity: approximately 4 kW.
2 No. wall-mounted electric panel radiators, each approximately 2 kW output.
Radiators shall be fitted with electronic thermostatic controls.
Radiators shall include seven-day programmable timers.
Radiators shall be securely mounted and protected from accidental damage.

Controls

The complete heating and dehumidification installation shall include:
Independent heating controls for each locker room.
Independent humidity control for each locker room.
Seven-day programmable controls and PIR controls. The heating system needs to have the abilities of being operated by one or both the seven-day programmable controls and PIR controls.
Automatic restart following power interruption.
Lockable control settings to prevent unauthorised adjustment.

Electrical Installation

The Contractor shall provide all associated electrical works including:
Power supplies.
Local isolators.
Distribution board modifications.
Cabling, containment and supports.
Control wiring.
Testing and certification.
All electrical works shall comply with current ETCI requirements and all relevant Irish standards.

Commissioning

Upon completion the Contractor shall:
Test and commission all equipment.
Demonstrate operation to the Employer.
Provide operating manuals and maintenance instructions.
Provide commissioning certificates and electrical certification.
Provide a minimum 12-month defects liability period.

Electrical Specification

General

The work in this section includes the complete Electrical Installation including new fire detection and alarm system, lighting, emergency lighting, fixtures, fittings, outlets, etc. All electrical works to be carried out by a specialist electrical firm together with all associated builders work and attendances. All works to be completed in strict compliance with current ETCI requirements.

Scope of Work

Please see services layout on the drawings. The extent of the works consists briefly of:

- Disconnect and remove all existing redundant electrical equipment from the existing extension that is to be demolished
- Electrical installation throughout locker rooms, corridor and attic spaces
- Emergency lighting systems including illuminated exit signs and directional signage.
- Fire detection and alarm system.
- Testing and commissioning of the entire installation.

All works to be carried out in accordance with:

- Current Building Regulations
- ETCI Wiring Rules (Ireland)
- Manufacturer's instructions

Disconnect and remove existing electrical equipment.

Safely disconnect and remove all existing redundant electrical equipment, fitting and fixtures.

All wiring concealed where possible or run in 100mm metal trunking as shown
Installation to be tested, certified and commissioned

Distribution

Main Distribution Board in location shown on drawings

If required upgrade existing board to include:
MCB/RCBO protection
surge protection device (SPD)
Label all circuits clearly

Power Installation

Provide outlets as indicated:

- 13A socket outlets throughout locker rooms and ancillary areas
- Double switched sockets where shown

- Switched fused spur outlets for fixed equipment

All socket outlets to be:

- minimum IP rated where required (wet areas proximity)
- mounted at agreed heights

Lighting Installation

Provide lighting as per legend and layout:

- Ansell 29W LED IP44 ceiling fittings in appropriate areas, please see drawing 08.
- External bulkhead lights at entrances

Lighting to:

- provide even illumination across locker rows
- be suitable for damp environments where required

Emergency Lighting

Emergency Exit Signs - Running man

Throughout the locker block, maintained emergency exit signs will be provided in all areas as depicted on the drawing. Emergency exit signs will comply with the requirements of I.S. 3217:2023 - Emergency Lighting. All emergency exit signs shall be CE marked and certified for use in accordance with IS 3217:2023. Emergency exit sign fittings shall be Robus LED Exit Box and Robus Blade LED (or equivalent). All light fittings shall be CE marked and certified for use in accordance with IS 3217:2023.

Emergency Luminaires

Emergency luminaries shall be installed as described in IS 3217:2023 – Emergency as outlined under “Fixtures & Fittings” above.

Provide emergency lighting units integrated within lighting system
Install in:

- escape routes
- exits
- corridor areas
- System to comply with IS EN 1838 and relevant standards

Controls

Provide light switches at all access points

Provide presence sensors where indicated

Lighting to be zoned in accordance with room layout

Containment

Install 100mm metal trunking as indicated

All containment:

securely fixed

- neatly installed
- aligned with building lines

Attic Electrical Installation

Provide lighting to attic spaces

Provide socket outlets for maintenance use

Install wiring neatly along structural members

Fire Detection & Alarm System

General

A new L1 fire detection and emergency lighting systems is to be installed as a part of the project. The fire detection system shall comply with the standards IS 3218:2023. The installation shall be an ANALOGUE ADDRESSABLE FIRE DETECTION and ALARM SYSTEM in compliance with IS 3218:2023 for a Category L1 system. Include for all work, cabling etc. to install and commission the system. The Contractor shall include for location of fire alarm panel, detectors, break glass units, sounders etc. This shall be submitted to the Engineer for approval prior to any work commencing. On installation, ownership of the alarm system shall pass to the Minister for Defence. After the end of the defects liability period, the Department of Defence reserves the right to appoint any company to maintain the system. In addition, the company chosen to install it shall withdraw any condition in their tender that allows it to retain ownership of the installed equipment or gives it the exclusive right to maintain it in the future (after completion of the defects liability period). The Contractor shall include for the provision by the fire alarm supplier of full 'as- installed' drawings. A zone identification diagram shall be provided in a glass fronted framed wall mounted unit, which clearly identifies the fire alarm zones. The drawings shall be A3 size. The Contractor shall include for final testing and commissioning of the entire system by a competent person. All handover documentation shall be provided in strict accordance with IS 3228: 2013.

System to be installed

The system specified in this Specification is “Notifier ID3000” or equivalent. The system shall also be supplied and commissioned by a suitable third party accredited company.

Link to Duty Room

The contractor shall include for providing a wireless monitoring link from the new Fire Detection and Alarm System to the existing Duty Room. It is the contractor's responsibility to ensure compatibility of the new Fire Detection and Alarm System with the monitoring system in the Duty Room.

Surface Wiring

All wiring shall be surface mounted in metal conduits as per manufacturer's instructions.

Standard of Installation

The Fire Detection and Alarm System shall comply with the requirements of I.S.3218: 2013 "Code of Practice for Fire Detection and Alarm Systems for Buildings – System Design, installation servicing and Maintenance" to the following requirements:

- The system shall be Category L1.
- The system shall comprise of an analogue addressable fire detection and alarm system.
- The system shall be controlled from a main control panel located in the link corridor.
- On completion of the contract the Control Panel will identify the exact location of each device, when activated and will have the facility to give general or alert alarm capable of transferring all data to the main system via the Notifier ID2Net or equivalent.

Electrical Supply

Supply and install one number 20 amp MCB at the main electrical board to power the main control panel and repeaters. All this work shall be certified as per ETCI regulations and shall be permanently marked as to their function.

Control Panel

The control panel shall be a four loop Analogue addressable Control Panel with 2 working loops Model No. ID3008/2. It shall comply with EMC LVD directives and have LBCP approval. The panel shall have a 240 x 64 pixel graphic LCD display with membrane control switches; it shall allow up to 198 addresses per loop with each loop having its own processor. The Panel shall house the following features:

- Large LCD display
- Large 4.5A power supply to drive loop powered beacons.
- 4 individual programmable Panel outputs.
- Alarm sensitivity and delay adjustments.

- Automatic time control functions by day of week for “Control-by-event” (CBE).

Smoke Detectors

Smoke sensors shall meet the following requirements:

- Be analogue addressable low profile type using the photoelectric principle to measure smoke density.
- The sensors shall on command from the Control Panel, send data to the Panel representing the analogue level of smoke density.
- The detectors shall provide a test means whereby they will simulate an alarm condition and report that condition to the Control Panel.
- The sensors shall have two integral tri-colour LEDs for 360° viewing.
- The two LEDs shall flash ‘green’ during normal operation, red in a Fire condition and amber must a fault develop in the sensor. E
- Each sensor shall have a built-in loop isolator.
- Smoke detectors shall be white in colour.
- All detectors/sensors shall be LPCB approved.

Manual Call Points

The call points shall meet the following requirements:

- Be constructed of flame retardant plastic with clearly visible operating Legend provided on the glass.
- Be suitable for surface or semi-flush mounting.
- Provide a dipswitch at the rear of each unit for address setting.
- Visual indication of operation shall be by LED indicator.
- Units shall be LPCB approved and fixed at a height of approx. 1100mm above floor level.

Isolator Modules

Each smoke and heat sensor shall be fitted with a loop isolator. Its operation shall be totally automatic and shall not be necessary to replace or reset after its normal operation. Location and sitting shall be determined by a pre-commissioning visit by system supplier at an early stage of the project.

Internal Alarm/Visual Units

Provide internal combined alarm/visual units to the following requirements:

- The sounder shall have an output of 95-100dB (A) and the strobe shall flash at 30 flashes /min with an output of 2 Joules.
- Units can be WHITE or RED in colour and shall be mounted at 2100mm above finished floor level and no closer than 150mm to the ceiling.
- Units shall be wired in two separate circuits. Internal alarm/visual units are indicated in the drawing.

External Audio/Visual Units

Provide external alarm/visual unit at the main entrance to the building to the following requirements:

- The external audio visual unit shall be positioned externally to the building in order to guide firefighting assistance to the correct entrance point.
- To comply with Clause 5.6.1 of I.S. 3218 it shall be marked 'Fire Alarm' and shall automatically silence the sounder after 30 minutes while the visual indicator shall continue to operate.

Fire Man Switch

Provide a fireman's switch for electrical distribution board. Fire man switch to comply with requirements for Building Regulations TGD Part B – Fire 2006.

Cable and Wiring

Detection loops and sounders shall be wired in 2C 1.5mm Fire-rated cable with red PVC sheathing. All inter-panel wiring shall be twisted pairs, enhanced fire-rated and mechanically protected. Suitable conduit boxes shall be used at each device to prevent dust and dirt ingress to the sensor. The cable type shall be approved by this office before installation.

Drawing Approvals and Supervision

The Contractor shall provide full "working" drawings and a pre-installation site visit along with supervision during the installation period. On completion he shall provide as installed drawings showing equipment locations, cable routes and location of power sources.

Testing and Commissioning

Certification of installation to I.S. 3218:2013 is required on the Electrical Sub-Contractor's own HEADED PAPER. The Contractor shall be responsible for system protection during the contract. Include for the provision by the fire alarm supplier of full 'as installed' drawings. A new zone identification diagram shall be provided in a glass fronted framed wall mounted unit, which clearly identifies the fire alarm zones. The drawings shall be A3 size. Provide for supplying and mounting one chart, one adjacent to the fire alarm panel. Include for final testing and commissioning of the entire system by the specialist and obtain from the specialist a Commissioning Certificate acceptable to the Employer Representative and in accordance with I.S. 3218: 2013.

Painting Specification

General

The works shall consist of the complete painting of the locker Block to the following requirements:

- Include for painting all internal areas in the locker Block.
- Colours shall be selected by the Engineer Officer on-site.
- Include for all painting necessary for the completion of the project.
- Ensure that surfaces are in a proper condition to accept the coating specified.
- Surfaces shall be prepared in accordance with the recommendations issued by the manufacturers of the paint to be used on the surface.
- Include for painting all walls (internal and external), all ceilings and all timberwork (including skirtings, architraves, window boards, dado rails, etc.) excluding pre-finished doors.

Materials Used

Any materials used in preparing surfaces shall be compatible with the paint to be used, i.e. stopping and fillers. Stopping for clear finished surfaces shall be of a colour to match the finished colour of the adjoining surfaces. The ER reserves the right to have any work he suspects of not complying with the specification tested by the Manufacturer of the paint. In the event of the test results confirming his suspicion, the Contractor shall:

- Be responsible for paying the cost of the testing.
- Remove all unsatisfactory areas of work and replace them at his own expense.

The Contractor shall obtain approval from the Engineer Officer for the brands of paint he wishes to use. All paints, varnishes, emulsions and other surface coatings shall meet the following requirements:

- All consumables shall be delivered in sound and sealed containers, clearly labelled by the manufacturer to show the type of product, its brand name, the use for which it is intended and the manufacturer's batch number.
- Materials for the Works may be obtained from different manufacturers but undercoats and finishing coats to be used together must be obtained from the same manufacturer.
- Materials shall be kept in a clean dry and well-ventilated store and protected from frost. Materials shall comply with the following specifications:

Workmanship

Workmanship shall comply with the Code of Practice, Painting of buildings, BSCP 231. Only fully qualified and experienced Tradesmen shall be employed on the work. Apprentices shall only be employed under the supervision of qualified tradesmen. Painting shall not be carried out when:

- Air shade temperature is less than 5 degrees centigrade
- Relative humidity is such that condensation is present, or may be expected on the surfaces or when there is a possibility that it shall affect the application and or drying of the coating.
- The moisture content of the surface to be painted exceeds 19%, or the level specified by the manufacturer is lower, when measured with an electronic meter.
- Heat is likely to cause blistering and other effects.

The following workmanship requirements shall apply:

- All brushes, tools and equipment shall be kept in a clean condition and surfaces shall be clean and free from dust or contaminants such as oil during painting.
- No painting shall be carried out in the vicinity of operations generating dust.
- The Contractor shall provide a mobile receptacle into which all liquids such as brush cleaning fluid, slops from tins etc. are to be placed.
- Under no circumstances may brushes be cleaned or painting materials disposed of into gullies, manholes, sinks, lavatories, WC's or any other sanitary fittings.
- Refuse and flammable residues must be removed from site.

Ironmongery

All surface- fixed ironmongery (except hinges) on doors and windows and similar fittings shall be removed prior to the commencement of painting and shall be re-fixed on completion. Prices for painting shall be deemed to include for removing and re-fixing the ironmongery and fittings. Any items that it is not possible to remove shall be protected to ensure they are not marked with paint and

the Contractor shall ensure that the function of any moving parts of components or hardware is not impaired by paint.

Thinning

Paint shall not be thinned or reduced in any way except where specified by the manufacturer. Thinners shall not be added in excess of 5% by volume unless specified by the manufacturer.

Items not to be painted

Unless otherwise specified the following surfaces shall not be painted:

- Acoustic tiles and plaster.
- Naturally finished metalwork such as bronze, brass, anodised aluminium, stainless steel etc.
- Self-finished equipment or fittings such as veneered worktops
- Ceramic and glazed surfaces.
- Floor coverings.
- Valves, sprinkler heads, fusible links, thermostats etc.
- Electrical trunking.
- Pre-finished doors.

Items not to be painted shall be carefully masked or otherwise protected during the course of the work and prices for painting shall be deemed to include for protecting and removing the protection.

Internal Walls & Ceilings

All internal walls and ceilings shall all be painted in emulsion paint as per the methods and preparation listed below.

Skirting Boards, Architraves, Window boards

All timber skirting boards, architraves and window boards shall be prepared and painted with gloss as per the methods and preparation listed below.

Fire Doors

All fire doors and frames (unless pre-finished) shall be finished using clear varnish as per the methods and preparation listed below.

Methods and Preparation

The following methods shall be employed for the proposed painting works:

- All surfaces shall receive two coats of paint. Each coat of paint must be allowed to dry and be rubbed down with a fine abrasive paper and dusted off before the subsequent coat is applied.
- Roller application of paint shall be permitted for the application of emulsion paint to internal walls and ceilings. However a brush finish shall be required to paint existing stone work where required.
- Glass shall be neatly cut into and any over painting shall be removed promptly without damage to the glass or any coatings to it. No paint or decoration shall be applied until the surface and its substrate have dried out to a moisture level acceptable to the manufacturers of the specific products being used.

- Paints to be applied at the coverage rates specified by the manufacturer for the particular application. Dry film thickness shall correspond to that specified by the manufacturer. The average of the dry film thickness taken over any square metre of surface shall equal or exceed the specified nominal thickness and in no case shall any reading be less than 75% of the specified nominal thickness.
- All preparatory work shall be deemed to be included in rates for painting. The carrying out of this preparatory work shall not release the Contractor from his obligations to provide a satisfactory painted finish should the paint system applied fail in any way.
- All woodwork is to be sanded down smooth prior to the application of any paint, stain or clear finish.
- All loose material shall be removed back to a firm edge. The edge shall be feathered with sandpaper and defects made good with primer, stopping, filling and undercoat to bring up stripped areas level with adjoining surfaces. Surfaces shall then be rubbed down with abrasive paper, washed and allowed to dry.
- Colours shall be selected by the Engineer Officer from the RAL colour chart. No painting shall be carried out prior to receipt of this information. It shall be the responsibility of the Contractor to apply to the Engineer Officer in sufficient time to ensure that the colour selections are available to suit the Contractor's programme.
- Adequate care must be taken to protect surfaces while still wet by the use of screens and 'wet paint' signs where necessary.