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| MINISTRY FOR THE ENVIRONMENT, CLIMATE CHANGE AND PLANNING  |
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| **REFERENCE NUMBER:** | **ERDF.05.121 – Tender 039** |
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| **Tender for Plastering, Painting, Tile-laying, the Manufacture, Supply, Delivery and Installation of Apertures,[[1]](#footnote-1) Two Garage Doors as part of ERDF Project ERDF.05.121 – Wildlife Rehabilitation Centre** |
| **Date Published:** | **31 July 2022** |  |
| **Deadline for Submission:** | **31 August 2022** | **at 12:00am CET/CEST** |
| **Tender Opening:** | **31 August 2022** | **At 12:00am CET/CEST** |
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|  | Operational Programme I – European Structural and Investment Funds 2014-2020*“Fostering a competitive and sustainable economy to meet our challenges”*Project part-financed by the European Regional Development FundCo-financing rate: 80% European Union; 20% National Funds |  |

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| **IMPORTANT** |
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| **Nature Trust Malta**Contact details (c/o Xrobb l-Għaġin Nature Park and Sustainable Development Centre, Triq Xrobb l-Għaġin, Marsaxlokk, Malta, (+356) 21313150, info@naturetrustmalta.org) |

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# SECTION 1 – INSTRUCTIONS TO TENDERERS

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|  | 1. General Instructions |
|  |  |
| 1.1 | In submitting a tender, the tenderer accepts in full and in its entirety, the content of this tender document, including subsequent Clarifications issued by the Non-Governmental Organisation (NGO), whatever the economic operator’s own corresponding conditions may be, which through the submission of the tender is waived. Tenderers are expected to examine carefully and comply with all instructions, forms, contract provisions and specifications contained in this tender document. These Instructions to Tenderers complement the General Rules Governing Tenders for NGOs Version 1.0.No account can be taken of any reservation in the tender in respect of the procurement documents; any disagreement, contradiction, alteration or deviation shall lead to the tender offer not being considered any further. **Prospective tenderers must submit their offer by depositing it in the tender box, located at *Xrobb l-Għaġin Nature Park and Sustainable Development Centre, Triq Xrobb l-Għaġin, Marsaxlokk, Malta*. Prospective tenders take full responsible to submit their offer by the set tender submission deadline.****Note:** **Where in this tender document a standard is quoted, it is to be understood that the Contracting Authority will accept equivalent standards. However, it will be the responsibility of the respective bidders to prove that the standards they quoted are equivalent to the standards requested by the Contracting Authority.*****The Estimated Procurement Value in terms of Contracts Circular N° 15/2019 is as follows:***

|  |  |
| --- | --- |
| **Lot** | **Price\*****EUR (Excl. VAT)** |
| Lot 1 - plastering works,  | 27,300 |
| Lot 2 - painting works,  | 17,000 |
| Lot 3 - tiling laying works,  | 19,500 |
| Lot 4 - Aluminium apertures  | 85,000 |
| Lot 5 - Garage doors  | 9,700 |
| Lot 6 - Timber apertures | 18,900 |
| Lot 7 – Power floated concrete | 42,000 |

***\* Prices are rounded*** |
| 1.2 | The subject of this tender is the provision of the following works:* plastering services,
* painting services,
* tiling laying services,
* manufacture, delivery, supply and installation of aluminium apertures
* manufacture, delivery, supply and installation of timber doors
* two garage doors
* power floated concrete

related to the Wildlife Rehabilitation Centre to be established at Xrobb l-Għaġin, as part of ERDF.05.121 – WILDLIFE REHABILITATION CENTRE |
|  |  |
| 1.3 | The place of acceptance of the services shall be **the still unrestored part of the ex-Deutsche Welle radio relay station at Xrobb l-Għaġin Natural Park**, the time-limits for the execution of the contract shall be **three years** **from last date of signature on contract**, and the INCOTERM2010 applicable shall be **Delivery Duty Paid (DDP).** |
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| 1.4 | This is a unit-price contract. |
|  |  |
| 1.5 | This call for tenders is being issued under an open procedure. |
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| 1.6 | The beneficiary of this tender is *Nature Trust – FEE Malta*. |
| 1.7 | This tender is not a reserved contract. |
|  | 2. Timetable |
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| 2. |

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|  | DATE | TIME |
| Clarification Meeting/Site Visit (Refer to Clause 6.1) | Friday 5th August 2022 | 10:30 hrs |
| Deadline for request for any additional information from the NGO**Clarification requests should be addressed to: *info@naturetrustmalta.org*** | Sunday 14th August 2022 | 12:00 hrs(noon) |
| Last date on which additional information can be issued by the NGO | Saturday 20th August 2022 | 12:00 hrs(noon) |
| Deadline for submission of tenders/Tender opening session(unless otherwise modified in terms of Clause 10.1 of the General Rules Governing Tendering for NGOs) | Wednesday 31st August 2022 | 12:00 hrs(noon) |
| \* All times Central European Time (CET) / Central European Summer Time (CEST) as applicable |

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|  | 3. Lots |
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| 3.1 | This tender is divided into lots. Tenderers may submit a tender for one lot only/ several lots (one or more lots)/all of the lots. |
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| 3.2 | The tenderer must offer the whole of the quantity or quantities indicated for each lot. Under no circumstances will tenders for part of the quantities required be taken into consideration. Each lot may form a separate contract and the quantities indicated for different lots will be indivisible. |
|  |  |
| 3.3 | Contracts will be awarded lot by lot, in accordance with the award criteria at Article 9. |
|  |  |
| 4.1 | 4. Variant SolutionsVariant solutions are not permissible. |
|  | 5. Financing |
| 5.1 | The project is *co-financed* by the European Union/Government of Malta, in accordance with the rules of European Regional Development Fund (ERDF) Operational Programme 1 - Co-financing rate: 80% European Union; 20% National Funds |
| 5.2  | The Contracting Authority of this tender is *Nature Trust Malta* |
|  |  |
|  | 6. Clarification Meeting/Site Visit/Workshop |
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| 6.1 | A clarification meeting/site visit will be held on the date and time indicated in Clause 2, at Xrobb l-Għaġin Nature Park to answer any questions on the tender document which have been forwarded in writing, or are raised during the same meeting. Minutes will be taken during the meeting, and these (together with any clarifications in response to written requests which are not addressed during the meeting) shall be posted online on the NGOs website as a clarification note as per Clause 6.1 of the General Rules Governing Tendering for NGOs (version 1.0). Meetings between economic operators and the NGO, other than that provided in this clause during the tendering period are not permitted.  |
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|  | 7. Selection and Award Requirements |
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|  | In order to be considered eligible for the award of the contract, economic operators must provide evidence that they meet or exceed certain minimum criteria described hereunder. |
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|  | **(A) Eligibility Criteria** |
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|  | (i)(ii) | No Bid Bond is required.(Note 1)Declare agreement, conformity and compliance with the provisions of the Statement on Conditions of Employment by completing and submitting the form with title Statement on Conditions of Employment.  |
|  | (iiii)(iv) | Power of Attorney (if applicable) (Note 2A)Information re Joint Venture/Consortium (Note 2A) |
|  | (B) Exclusion (including Blacklisting) and Selection Criteria – information to be submitted through the completion of the following declaration forms: |
|  | (i) | Data Concerning the economic operator to be submitted by filling Part II of the European Single Procurement Document (ESPD). Part II (2A.1 till 2A.13.1) of the ESPD seeks background information about the economic operator. (Note 2A)**To be filled in by all bidders – highlighted for inputting** |
|  | (ii) | Part II A Reference 2A.14 till 2A16.6 need only be filled in if the procurement is Reserved. (Note 2A)**Not applicable for the present tender and blacked out on template** |
|  | (iii) | Part II A Reference 2A.17 till 2A.17.3 need only be filled in when the economic operator is part of a group, consortium, joint venture or similar. (Note 2A)**Not applicable for the present tender and blacked out on template** |
|  | (iv) | Part II A Reference 2A.18 need only be filled where the tender is divided into lots. (Note 2)**Not applicable for the present tender and blacked out on template** |
|  | (v) | Data concerning exclusion grounds to be submitted by filling Part III of the European Single Procurement Document (ESPD). (Note 2A)**To be filled in by all bidders – highlighted for inputting** |
|  |  | Economic Operators must declare that they meet the minimum criteria established hereunderby filling Part IV of the European Single Procurement Document (ESPD). If no Selection Criteria is requested by the Contracting Authority, the relevant part of the ESPD is to be left blank. (Note 2A)a) Suitability (Note 2A)**Not applicable for the present tender and blacked out on template**b) Financial and Economic Standing(Note 2A)**Not applicable for the present tender and blacked out on template**c) Technical and Professional Ability(Note 2A)Areas not relevant blacked out on template. Areas relevant highlighted.

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| 4C.10 | Provide data concerning subcontractors and the percentage of works to be subcontracted. This information shall be included in the online ESPD form in Part IV: Selection criteria - Technical and professional ability.Any subcontractor proposed and disclosed at this stage shall be evaluated in line with the Exclusion and Blacklisting Criteria as per these Instructions to Tenderers. Furthermore, if the sub-contractor is relied upon by the Contractor to meet the standards established in the selection criteria, apart from submitting the relevant commitments in writing, such reliance will be evaluated to verify its correctness and whether in effect these criteria are satisfied.It is being understood that if the information being requested regarding sub-contracting is left empty, it will be assumed that no sub-contracting will take place (0% subcontracting). |

d) Quality Assurance Schemes and Environmental Management Standards(Note 2A)**Not applicable for the present tender and blacked out on template** |
|  | (vii)  | Concluding statements to be submitted by filling Part VI of the European Single Procurement Document (ESPD). (Note 2A) **To be filled in by all bidders highlighted for inputting** |
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|  | **(C) Technical Specifications** |
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|  |  | Tenderer’s Technical Offer in response to specifications. (Note 3) **Literature** as per Form marked ‘Literature List’ to be submitted with the Technical offer at tendering stage. Alternatively, an Economic Operator can quote a reference number under which he/she has already supplied items so that there would be no need to submit literature. (Note 2) |
|  | **(D) Financial Offer** |
|  |  |
|  | (i)(ii) | The Tender Form and Tenderer’s Declaration are to completed and submitted with the offer; a separate Tender Form is to be submitted for each option tendered, each form clearly marked ‘Option 1’, ‘Option 2’ etc.; (Note 3)A financial offer is to be submitted by filling in Financial Bid Form, and is to be calculated on the basis of **Delivered Duty Paid (DDP)2010 (Grand Total)** for the works tendered.(Note 3) |
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|  | **Notes to Clause 7:***1. Tenderers will be requested to clarify/rectify, within five (5) working days from notification, the tender guarantee only in the following four circumstances: incorrect validity date, and/or incorrect value, and/or incorrect addressee and incorrect name of the bidder. Rectification in respect of the Tender Guarantee (Bid Bond) is free of charge.**2. Tenderers will be requested to either clarify/rectify any incorrect and/or incomplete documentation, and/or submit any missing documents within five (5) working days from notification.* *3. No rectification shall be allowed. Only clarifications on the submitted information may be requested.****Request for Clarification and / or rectifications concerning a previous request dealing with the same shortcoming shall not be entertained.*** |
| 8.1 | **8. Tender Guarantee (Bid bond)**No tender guarantee (bid bond) is required. |
|  | 9. Criteria for Award |
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| 9.1 | The sole award criterion will be the price. The contract will be awarded to the tenderer submitting the cheapest priced offer satisfying the administrative and technical criteria **for EACH LOT**. |
|  |  |

# SECTION 2 – EXTRACTS FROM THE PUBLIC PROCUREMENT REGULATIONS

Part **X** of the Public Procurement Regulations

270. Any tenderer or candidate concerned, or any person, having or having had an interest or who has been harmed or risks being harmed by an alleged infringement or by any decision taken including a proposed award in obtaining a contract, a rejection of a tender or a cancellation of a call for tender after the lapse of the publication period, may file an appeal by means of an objection before the Review Board, which shall contain in a very clear manner the reasons for their complaints.

271. The objection shall be filed within ten calendar days following the date on which the NGO has by fax or other electronic means sent its proposed award decision or the rejection of a tender or the cancellation of the call for tenders after the lapse of the publication period.

272. The communication to each tenderer or candidate concerned of the proposed award or of the cancellation of the call for tenders shall be accompanied by a summary of the relevant reasons relating to the rejection of the tender as set out in regulation 242 or the reasons why the call for tenders is being cancelled after the lapse of the publication period, and by a precise statement of the exact standstill period.

273. The objection shall only be valid if accompanied by a deposit equivalent to 0.50 per cent of the estimated value set by the NGO of the whole tender or if the tender is divided into lots according to the estimated value of the tender set by the NGO for each lot submitted by the tenderer, provided that in no case shall the deposit be less than four hundred euro (€400) or more than fifty thousand euro (€50,000) which may be refunded as the Public Contracts Review Board may decide in its decision.

274. The Secretary of the Review Board shall immediately notify the Director and/or the NGO as the case maybe that an objection had been filed with his authority thereby immediately suspending the award procedure.

275. The NGO involved, as the case may be, shall be precluded from concluding the contract during the period of ten calendar days allowed for the submission of appeals. The award process shall be completely suspended if an appeal is eventually submitted.

276. The procedure to be followed in submitting and determining appeals as well as the conditions under which such appeals may be filed shall be the following:

1. any decision by the General Contracts Committee or the Special Contracts Committee or by the NGO shall be made public by affixing it to the notice-board of the same NGO as the case may be or by uploading it on Government’s e-procurement platform prior to the award of the contract if the call for tenders is administered by the NGO;
2. the appeal of the complainant shall also be affixed to the notice-board of the Review Board and shall be communicated by fax or by other electronic means to all participating tenderers;
3. the NGO and any interested party may, within ten calendar days from the day on which the appeal is affixed to the notice-board of the NGO and uploaded where applicable on the Government’s e-procurement platform, file a written reply to the appeal. These replies shall also be affixed to the notice-board of the Review Board and where applicable it shall also be uploaded on the Government’s e-procurement platform;
4. within three working days of the publication of the replies, the Secretary of the Review Board shall prepare a report (the Analysis Report) analysing the appeal and any reply to it. This report shall be circulated to the persons who file an appeal and to all parties who submitted a reply to the appeal;
5. after the preparatory process is duly completed, the Director or the Head of the NGO shall forward to the Chairman of the Review Board all documentation pertaining to the call for tenders in question including files, tenders submitted, copies of deposit receipts and any motivated letter;
6. The secretary of the board shall inform all the participants of the call for tenders, the NGO of the date or dates as the case maybe when the appeal will be heard;
7. When the oral hearing is concluded, the Public Contracts Review Board, if it does not deliver the decision on the same day, shall reserve decision for the earliest possible date to be fixed for the purpose, but not later than six weeks from the day of the oral hearing:

Provided that for serious and justified reasons expressed in writing by means of an order notified to all the parties, the Public Contracts Review board may postpone the judgment for a later period.

1. The secretary of the board shall keep a record of the grounds of each adjournment and of everything done in each sitting;
2. After evaluating all the evidence and after considering all submissions put forward by the parties, the Review Board shall decide whether to accede or reject the appeal.

SECTION 3 – SPECIAL CONDITIONS

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| **These conditions amplify and supplement, if necessary, the General Conditions governing the contract. Unless the Special Conditions provide otherwise, those General Conditions remain fully applicable. The numbering of the Articles of the Special Conditions is not consecutive but follows the numbering of the Articles of the General Conditions. Other Special Conditions should be indicated afterwards.****For the purposes of contracts issued by NGOs, the term ‘approval from the Central Government Authority’ shall be substituted by the term ‘approval by the Head responsible for that NGO’; Furthermore, any references to the** **Contracting Authority throughout the General Conditions shall be deemed to be referring to the NGO responsible for that procurement.** |
| Article 2: Law and language of the Contract |
| The Laws of Malta shall apply in all matters not covered by the provisions of the contract. |
| The language used shall be English. |
| Article 3: Order of Precedence of Contract Documents |
| The contract is made up of the following documents, in order of precedence:(a) the Contract; (b) the Special Conditions; (c) the General Conditions; (d) the Contracting Authority’s technical specifications and design documentation;(e) the Contractor’s technical offer, and the design documentation (drawings); (f) the bill of quantities/financial bid (after arithmetical corrections)/breakdown; (g) the tender declarations in the Tender Response Format; (h) any other documents forming part of the contract.Addenda have the order of precedence of the document they are modifying. |
| Article 4: Communications |
| Any communication shall be carried out with:Nature Trust Malta, c/o Xrobb l-Għaġin Nature Park and Sustainable Development Centre, Triq Xrobb l-Għaġin, Marsaxlokk, Malta Email: info@naturetrustmalta.orgCommunications shall preferably be carried out by email. |
| Article 5: Supervisor in charge and Supervisor's Representative |
| As per General conditionsWithout prejudice to the General Conditions, any to any other reference in the present tender document, the Supervisor shall refer to:* the Architect and Civil Engineer in charge with regards to the works related to the plastering, painting and tiling.
* The person/s designated in writing by the Project Leader and/or Project Manager for any other task.
 |
| Article 8: Supply of Documents |
| Prior to the commencement of works, the Contractor **may be asked by** the Contacting Authority to provide it with:* A report detailing the **Health and Safety Assessment, including risk mitigation measures to be adopted,** for the carrying out of the necessary works for the tender implementation up to commissioning. Vide Section 4, Sub/Section 4.3, Article 1.4.

During project implementation, the Contractor **shall provide** the Contracting Authority with documentation concerning the following:* Accompanying each invoice, a report, detailing the works in respect of which the invoice is being issued. Such a report shall attest the quality of works and materials as being in line with the applicable standards as defined in Section 4 of the present Tender Document, providing substantiating documents in the form of tests, certificates and photographs.

No payment will be effected unless such a comprehensive report is provided and approved by the Contracting Authority. The Contracting Authority may seek as many revisions as necessary to such report/s. |
| Article 10: Assistance with Local Regulations |
| As per General Conditions. |
|  |
| Article 11: The Contractor’s Obligations |
| Without prejudice to the General Conditions, the Contractor shall be bound with the following obligations: * The contractor binds himself to adhere to the conditions imposed in the Planning Permit, that is, the approved drawings, document and conditions imposed in Planning Permit PA NO/1659/17 and PA No / 1660/17 as approved by the Planning Authority.
* Submission of the programme of performance of the contract as mentioned in Article 11.9 of the General Conditions.
* Provide any drawings identified in Article 8 of these Special Conditions, if applicable.
* During the execution of the contract, any communication, including any documents and/or drawings shall be submitted to the Supervisor by email. The Supervisor shall review the relevant communication internally and reply in writing.
 |
|  |
| Article 13: Performance Guarantee |
| The Contractor shall, within 15 calendar days of receipt of the contract, sign and date the contract and return it together with a copy of the Performance Guarantee. The copy of the Performance Guarantee forwarded to the Central Government Authority is to be endorsed by the Contracting Authority prior to submission. The Contractor is therefore obliged to forward the original Performance Guarantee to the Contracting Authority. The amount of the guarantee shall be 4% where the amount of the total contract value is between €10,000 and €500,000 exclusive of VAT, and 10% where the amount of the total contract value is €500,000 or above. |
|  |
| The performance guarantee shall be in the format given in Section 5 and shall be provided in the form of a bank guarantee. It shall be issued by a bank in accordance with the eligibility criteria applicable for the award of the contract. |
| The performance guarantee shall be released as per Article 13.9 of the General Conditions. |
| Article 14: Insurance |
| Not Applicable |
|  |
| Article 15: Performance Programme (Timetable) |
| The Contractor/s shall complete the relevant work as follows: |
| * Plastering, painting and tiling – within one (1) month from the order to start such works.
* All doors and windows, including internal and external, as well as garage door within one (1) month from the order to install.

It is envisaged that such orders will be provided in Q1 2021. |
| Article 17: Contractor’s Drawings/Diagrams |
| As per Article 8 of these Special Conditions |
|  |
| Article 18: Tender Prices |
| As per General Conditions |
|  |
| Article 22: Interference with Traffic |
| N/A |
|  |
| Article 25: Demolished Materials |
| As per General Conditions |
|  |
| Article 26: Discoveries |
| As per General Conditions  |
|  |
| Article 28: Soil Studies |
| N/A |
|  |
| Article 30: Patents and Licences |
| As per General Conditions |
|  |
| Article 31: Commencement Date |
| The commencement date for the performance of the contract shall be construed to read as follows:* Plastering, painting and tiling – the date of the order to start such works.
* All doors and windows, including internal and external, as well as garage door the date of the order to install.
 |
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| Article 32: Period of Execution of Tasks |
| Works under all lots shall be carried out within three the timeframes as outlined in Article 15 above. |
|  |
| Article 34: Delays in Execution |
| A daily penalty of 1/1000 of the contract price per day’s delay up to a limit of 20% of the total contract price.Furthermore, contractors shall be held liable for any loss of ERDF funds which the Contracting Authority may suffer, directly or indirectly, due to delays attributable to the contractor. Without prejudice, this shall include any losses related to work which other contractors are not able to complete within their timeframes. |
|  |
| Article 35: Modification to the Contract |
| As per general Conditions |
|  |
| Article 37: Work Register |
| As per general Conditions |
|  |
| Article 38: Origin |
| As per general conditions |
|  |
| Article 39: Quality of Works and Materials |
| No preliminary technical acceptance is envisaged. Quality of works and materials shall be substantiated to be in line with the applicable standards as defined in Section 4 of the present Tender Document, thru substantiating documents in the form of tests, certificates and photographs. No payment will be effected unless such a comprehensive report is provided by the Contractor and approved by the Contracting Authority. The Contracting Authority may seek as many revisions as necessary to such report/s.Without prejudice, the Supervisor may reject and/or approve the quality of works taking into consideration any certification provided, any results from tests mandated by the said specifications or requested by the Architect and Civil Engineer in charge, or any inspection carried out. The decision by the Supervisor shall be final.Any rejection shall cause the contractor to re-do the defaulting works, at no additional cost to the Contracting Authority.  |
|  |
| Article 40: Inspection and Testing |
| The Supervisor has the right to request tests relative to the specifications below as necessary. Any test shall be carried out by the Contractor at no additional charge to the Contracting Authority. |
|  |
| Article 42: Ownership of Plants and Materials |
| As per General Conditions |
|  |
| Article 43: Payments: General Principles |
| As per General Conditions |
|  |
| 43.6 Invoices are to be accompanied by the a report. Such report shall include substantiating documents in the form of tests, certificates and photographs. Without prejudice, to the generality of this clause, interalia, any measurement shall be accompanied by photo/s showing the measurements being taken, and the relevant dimension/ measurement being according to the specification outlined in Section 4. Each photo shall show the date when it was taken. No payment will be effected unless such a comprehensive report is provided and approved by the Contracting Authority. The Contracting Authority may seek as many revisions as necessary to such report/s. |
|  |
| As per General Conditions. |
| Article 44: Pre-financing |
| Not applicable |
|  |
| Article 45: Retention Monies |
| Not applicable |
|  |
| Article 46: Price Revision |
| No price revision is possible. |
|  |
| Article 47: Measurement |
| Without prejudice to the General Conditions, the Supervisor measure the works in the presence of the Contractor or his representative. The measurement of works shall be carried out on a date agreed by the Contractor and the Supervisor using standard measuring equipment. The unit/s used shall be those specified in the Financial Bid Form/Bill of Quantities. |
|  |
| Article 48: Interim Payments |
| As per General Conditions |
|  |
| Article 50: Delayed Payments |
| 1. The Contracting Authority shall endeavour to pay the contractor sums due within 60 days of the date on which an admissible payment is registered, in accordance with Article 43 of these Special Conditions. This period shall begin to run from the approval of these documents by the competent department referred to in Article 43.1 of these Special Conditions. These documents shall be approved either expressly or tacitly, in the absence if any written reaction in the 30 days following their receipt accompanied by the requisite documents.
 |
| 1. Without prejudice to the above, the Contracting Authority shall not be liable for any delays, and the Contractor shall NOT claim any late-payment interest or otherwise.
 |
|  |
| Article 53: End Date |
| 1. The Project ERDF 05.121 WILDLIFE REHABILITATION CENTRE is scheduled to be completed by on 31 March 2023.
2. Without prejudice, the Contractor is bound by the timeframes established in as per Article 15 of these Special Conditions.
 |
|  |
| Article 56: Partial Acceptance |
| Not Applicable |
|  |
| Article 57: Provisional Acceptance |
| Without prejudice to the General Conditions, the Contracting authority will:1. Issue a provisional acceptance certificate for each sperate bill, following the certification of works for that category by the Supervisor.
2. If applicable, the certification indicated in the above sub-clause 1 shall only be issued after the relevant tests have been carried out, and the Supervisor has deemed the results as satisfactory.
3. If applicable, the certification indicated in the above sub-clause 1 shall only be issued after the Contractor has provided the Contracting Authority with a properly documented report and the Project Manager and Supervisor have confirmed that items are in line with the technical specifications.
 |
|  |
| Article 58: Maintenance Obligations |
| As per General Conditions |
| 58.6 Not Applicable58.7 The Maintenance period shall be as follows:1. With regards to plastering, painting and tile laying, the maintenance period shall be for 365 days from provisional acceptance as per General Conditions
2. With regards to the doors (including garage door, internal doors and fire doors) and windows, the maintenance period shall be construed as the warranty for parts and labour, and shall run for two years from the date of partial acceptance.
 |
|  |
| Article 66: Dispute Settlement by Litigation |
| If no settlement is reached within 120 days of the start of the amicable dispute-settlement procedure, each Party may seek:1. either a ruling from a national court, or
2. an arbitration ruling, in the case where the parties, i.e. the Contracting Authority and the Contractor, by agreement decide to refer the matter to arbitration.
 |
|  |
| Article 70: Further Additional Clauses |
| The Contractor shall provide a warranty of two years for the following (lots indicated in brackets): 1. all external aluminium doors
2. all external aluminium windows
3. garage door
4. all internal doors and fire-rated doors
5. spiral Staircase
 |

# SECTION 4 –SPECIFICATIONS/TERMS OF REFERENCE (Note 3)

**Terms of Reference**

|  |
| --- |
| **Note:** **Where in this tender document a standard is quoted, it is to be understood that the NGO will accept equivalent standards. However, it will be the responsibility of the respective bidders to prove that the standards they quoted are equivalent to the standards requested by the NGO.** |

## 4.1 Background Information

**The information in this section is being provided by way of background, and for the information of potential bidders.**

The aim of the ERDF PROJECT ERDF.05.121 – WILDLIFE REHABILITATION CENTRE is primarily to set up a Wildlife Rehabilitation Centre to provide ex-situ rehabilitation of wildlife from across Malta and surrounding seas: marine (turtles and cetaceans), terrestrial (such as hedgehogs, shrews, lizards, snakes and bats) and avian fauna. Following rehabilitation, if possible, they will be released into their natural habitat. It should be a unique, all year round visitor attraction visitors with the opportunity to interact with the rehabilitating wildlife.

The Contracting Authority, in partnership with the Ministry for the Environment, Climate Change and Planning was successful in its submission for ERDF funds to fund the setting-up of this Centre. In this regard, any work on the project has to be carried out within the parameters defined by the Grant Agreement entered into by NTM and the Managing Authority for ERDF funds. The Planning and Priorities Coordination Division (PPCD) within the Parliamentary Secretariat for EU Funds within the Ministry of Foreign and European Affairs. is the designated Managing Authority (MA) responsible for the overall coordination and management of the European Regional Development Fund (ERDF) and the Cohesion Fund (CF) under Operational Programme I (2014-2020). The MA issues calls for proposals for ERDF and CF at different intervals of the Programme’s lifetime. The project was successful under one such call.

The present infrastructure for ex-situ conservation in Malta is, to say the least, quite limited and to date the rehabilitation of such species has been carried out in a piecemeal manner, mainly by NTM, through its Wildlife Rescue Team which provides rescue services for both marine and terrestrial fauna on a 24/7 basis. The team is composed of a group of volunteers, made up of divers, biologists and marine mammal medics who are covered by permits from the Environment and Resource Authority (ERA) to respond to calls for the handling of local protected wildlife. Injured turtles and cetaceans are taken to San Lucjan’s Rehabilitation Centre and/or a veterinarian’s clinic where they are treated by or under the supervision of a qualified veterinarian. Other animals (including hedgehogs, lizards, chameleons, shrews, bats, wild rabbits, and weasels), after being examined by a veterinarian, are taken, under ERA permit to the volunteer’s homes where they are treated, medicated and taken care of until they may be released once more into the wild. Turtles are released during dedicated events in the presence of the media and distinguished guests, amongst others, as part of an effort to raise awareness about risks to biodiversity and rehabilitation efforts. Other species are released by the volunteers at the place of rescue or in a nearby protected area.

The project will also cater for CITES animals which are presently hosted at the Small Animal Quarantine facilities in Luqa, which is managed by the Ministry for Sustainable Development, Environment and Climate Change. The site was designed to host small animals and pets (dogs, cats and ferrets) who do not meet all the requirements for entry into Malta under the Pet Passport scheme, for a short period of time in quarantine to minimise the risk of disease being brought into the islands. However, CITES species that are found in Malta illegally, are also kept there until their position is regularised and/or they may be returned to their country of origin or released into the wild.

The Wildlife Rehabilitation Centre will be hosted in part of the ex-Deutsche Welle radio relay station at Xrobb l-Għaġin Natural Park. It will compliment a first project in the area carried out between 2007 and 2011 through a grant from Iceland, Liechtenstein and Norway though the EEA financial mechanism and the Norwegian financial mechanism, which project saw the rehabilitation of a hitherto degraded area and some of the derelict buildings in the area into a natural park and a Sustainable Development Centre. That project had left some buildings unutilised, and thus still in a derelict state. The present project is proposing the rehabilitation of those buildings and their use as parts of the proposed Wildlife Rehabilitation Centre.

## 4.2 Subject matter of the present tender.

1.0 The present tender entails that the successful bidder provides the following services:

* Lot 1 - plastering works,
* Lot 2 - painting works,
* Lot 3 - tiling laying works,
* Lot 4 - manufacture, delivery, supply and installation of aluminium apertures
* Lot 5 - manufacture, delivery, supply and installation of garage doors
* Lot 6 - manufacture, delivery, supply and installation of timber apertures
* Lot 7 – finishing of select floors with power floated concrete

2.1 As per Article 39 of the Special Conditions, the quality of works and materials shall be substantiated by the Contractor to be in line with the applicable standards as defined in Section 4 of the present Tender Document, providing substantiating documents in the form of tests, certificates and/or photographs. Each photo shall be dated. No payment will be effected unless such a comprehensive report is provided and approved by the Contracting Authority. The Contracting Authority may seek as many revisions as necessary to such report/s.

2.2 Without prejudice, the Supervisor in charge may reject and/or approve the quality of works taking into consideration any certification provided, any results from tests mandated by the said specifications or requested by the Architect and Civil Engineer in charge, or any inspection carried out. The decision by the Supervisor shall be final.

2.3 Any rejection shall cause the contractor to re-do the defaulting works, at no additional cost to the Contracting Authority.

## 4.3 Lot 1 - Rendering, Plastering and Pointing works

1. **RENDERING, PLASTERING AND POINTING**

Works to be carried out include the rendering of:

* 1885 sqm of internal wall surfaces
* 921 sqm of ceiling surfaces
* 1118 sqm of external wall surfaces
* 265 sqm of external projections
	1. **Compliance**
		1. Compliance shall be demonstrated through submission of technical data sheets.
		2. The Contractor may be required to prepare sample applications of the renders and pointing on a variety of substrates for final approval before the start of the Works.
	2. **General**
		1. Mortar for plastering and rendering shall comply with Regulation (EU) No 305/2011.
		2. Workmanship shall be in accordance with BS 8000: Part 10: 1989, Workmanship on Building Sites, Plastering and Rendering.
		3. Rendering and Plastering mortar shall comply with EN 998-1 – Classification GP (General Purpose).
		4. The testing of rendering mortars shall comply with EN 1015.
	3. **Substrates**
		1. Existing substrates to be rendered shall be sound, free from loose areas and significant cracks or gaps, free from deteriorating, damp or unsuitable material, cleaned of loose mortar, fins, grease, dirt, efflorescence, mould or dust.

* + 1. All cutting, chasing, making good, fixing of conduits and surface outlets shall be completed. Surface flatness/regularity shall be within the specified tolerance limits.
		2. Existing substrate surfaces, and rendered surfaces to receive further coats of rendering, shall have an appropriately rough surface to achieve a good key. The surfaces shall be open textured, scratched or nail-floated, and shall be sufficiently mature before a subsequent layer is applied.

* + 1. Existing substrate surfaces composed of natural franka stone shall be preliminary treated with a proprietary synthetic fixative resin.
		2. Dubbing out shall be used to correct substrate inaccuracies. Dubbing out in smooth dense concrete shall be prohibited. The thickness of any dubbing coat shall not exceed 16mm, and the maximum overall thickness of any dubbing shall not exceed 20mm. The dubbing coat shall be mixed as an undercoat and shall be applied to achieve a firm bond. Each dubbing coat shall be allowed to set sufficiently before the next coat is applied. The surface of each coat shall be cross-scratched or combed to provide a good key.
		3. Services chased into the substrate shall be isolated from the coating by covering with metal lathing fixed at staggered centres along both edges, to prevent cracking over conduits and other services.
		4. Substrate shall be damped down, just sufficiently to ensure uniform absorption, before the first coat is applied and as the work proceeds. Rendering in areas subjected to prolonged direct sunlight shall be avoided. Scaffolding works shall be erected such that there are no putlog holes and other breaks in render coats.
		5. Rendering shall be applied after the installation of sub-frames for the apertures in external walls, and shall be applied flush against such sub- frames.
	1. **Pre-scribed Cement-Based Mortar**
		1. Prescribed cement-based mortar shall consist of the application of a mortar containing Portland cement and sand, in prescribed proportions, to the external or internal surface of the building, in one or more layers.

* + 1. The mix proportions for cement-based renderings shall normally conform to BS 5262, Code of Practice for External Renderings and BS 5492, Code of Practice for Internal Plastering.
		2. Cement, for use in mortar shall conform to BS EN 197-1 CEM 1/42.5.
		3. Sand for use in cement based mortar shall comply with BS EN 13139. Sand shall have a grading characteristic suitable for the required texture.

* + 1. For the Finishing Coat, the grade shall be adjusted to suit the type of finish indicated in the Drawings or BOQ. For smooth, textured finishes, it may be necessary to remove the coarser particles, whilst for the scraped texture finish, a larger proportion of coarser material may be retained.
		2. Water shall be clean and fresh, entirely free from oil, acid, alkali, vegetable or organic matter, or any other deleterious substance in suspension or in solution or as sediment.

* + 1. Cement-based mortar may incorporate additives (eg. air-entrainers) conforming to BS EN 934, and compatible with the other mortar constituents. The use of calcium chloride, or additives containing calcium chloride, is prohibited. These shall be submitted for the approval of the Project Architect, accompanied by full technical literature.
		2. Cement-based mortar may incorporate lime to EN 459-1. This shall be submitted for the approval of the Project Architect.
		3. Constituent materials may be batched by volume, using clean and accurate gauge boxes or buckets. The mix proportions shall be based on damp sand, with adjustments being made to the mix proportions to compensate for dry sand. Mixing of the mortar shall be carried out in a pan type, or a tilting-drum mixer, properly maintained and in a clean condition.
	1. **Pre-mixed (Factory-made) Cement-Based Rendering Mortar - General**
		1. Pre-Mixed (factory-made) cement-based renderings shall consist of mortar containing portland cement and sand, in agreed proportions, to the external or internal surface of the building, in one or more layers.
		2. Pre-mixed cement-based renderings shall conform to EN 998-1.
	2. **Internal Pre-Mixed (Factory-Made) Cement-Based Rendering Mortar**
		1. Cement-based mortar for internal use shall consist of one Base Coat and one plain Finishing Coat, with an overall thickness of 13mm on vertical surfaces and 10mm on ceilings, exclusive of keying depths and dubbing coats.

* + 1. If metal lathing is used, this overall thickness shall be achieved from the surface of the metal lathing.
		2. Cement-based rendering for internal use to receive a Gypsum finish coat shall have an overall thickness of 9-10mm on vertical surfaces, and 7mm on ceilings, ready to receive a 3mm thickness of Gypsum. The nominal size of the Base Coat shall be less than 1.5mm. The thickness of the Base Coat plaster shall be 10mm (7mm for Ceilings).

* + 1. The hardened plaster shall be vapour-permeable with a µ value of ≤12. The hardened plaster shall have a compressive strength of Class CS III. The fire rating shall be Class A1.
		2. The nominal size of the Finishing Coat plaster shall be less than 0.6mm. The thickness of the Finishing Coat plaster shall be 3mm.
		3. The hardened plaster shall be vapour-permeable with a µ value of ≤12. The hardened plaster shall have a compressive strength of Class CS II. The fire rating shall be Class A1.
	1. **External Pre-Mixed (Factory-Made) Cement-Based Rendering Mortar**
		1. Cement-based mortar for external use shall consist of one Base Coat and one plain Finishing Coat having similar properties to those indicated for internal applications except for the following:
		2. Exposure classification – External Mortar
			1. The classification of external environmental exposure shall normally be indicated in the Bills of Quantities and/or Drawings.
			2. The external exposure categories shall be as follows:

 A. Sheltered and Moderate

 B. Severe

* + 1. CLASSES – External Mortar
			1. The class of external cement-based renderings shall be as follows:

 A Sheltered and Moderate Environment

 Capillary water Absorption Class W1 (EN 998-1).

 B Severe Environment

 Capillary water Absorption Class W2 (EN 998-1).

* + 1. Compressive Strength Class – External RENDERINGS
			1. The compressive strength class of external renderings shall be as follows:

 A Sheltered and Moderate Environment

 Class CS III (EN 998-1)

 B Severe Environment

 Class CS IV (EN 998-1)

* + 1. Cement-based rendering for external use shall normally have a single undercoat thickness of 8-12mm.
		2. Where metal lathing is used, a first Base Coat of 3-6mm thickness shall be required, followed by a second Base Coat of 10-14mm thickness.
		3. The Finishing Coat shall be less than 8mm thick for a plain smooth finish, and 8-11 mm thick for a scraped finish (before scraping).
	1. **Beads and Stops**
		1. Beads and stops shall be used in external angles, and stop ends, except where specified otherwise. At corners, neat mitres shall be used at return angles. Beads and stops for internal use shall be aluminium type or approved un-corrodible equivalent, such as uPVC.
		2. Beads and stops shall be securely fixed mechanically using the longest possible lengths, properly plumb, square and true to line and level, ensuring full contact of the wings with the substrate. After the coatings have been applied, surplus material shall be removed, when still wet, from the surfaces of beads/stops exposed to view.
	2. **Pre-mixed Internal Plastering**
		1. Internal plastering shall consist of the application of a high quality proprietary gypsum-based, or lime-based, finishing mortar applied to internal wall surfaces.

* + 1. Internal plastering shall conform to the recommendations of BS 5492: 1990, Code of Practice for Internal Plastering.
		2. Gypsum plaster shall be applied in two layers, namely a Base Coat and a Finishing Coat.
	1. **Pre-Mixed Internal Plastering – Preparation and Application**
		1. The Base Coat shall consist of a 10mm pre-mixed plaster based on gypsum, hydraulic lime and additional materials such as expanded perlite and specific additives to assist fluidity control, support adherence, setting and working times. The nominal size of the Base Coat plaster shall be less than 1.5mm.
		2. The hardened plaster shall be vapour-permeable with a µ value of ≤8. The hardened plaster shall have a compressive strength of ≥ 2.5MPa. The fire rating shall be Class O.
		3. When using a gypsum-based Base Coat for stone masonry surfaces, the same precautions for the substrate surfaces shall be taken as described for cement gauged renders.
		4. Smooth concrete and dusty surfaces shall be treated with an appropriate adhesion primer, consisting of organic resins in a water-based emulsion.

* + 1. The Base Coat plaster shall be applied initially as a thin coat firmly worked into the substrate, and then gradually brought to full specification thickness. The coat shall be brought to a level surface using a metal straight edge, and shall then be cross-scratched to form a mechanical key.
		2. Base Coats on adjacent dissimilar materials shall be assisted by isolation layers and metal lathing, as specified above, and by plastering on metal lathing, after ensuring that the lathing is taut and fixed with key facing outwards.

* + 1. Tying wire ends shall be bent inwards, and any cut edges, staples or nail heads shall be painted with bitumen to avoid rust staining.
		2. Plasters shall be mixed in a paddle-type mixer, with machines and containers cleaned frequently, at least after every batch mix of gypsum plaster, and whenever different materials are used. Gypsum plasters shall not be used if initial set occurs before application.
		3. The Finishing Coat for gypsum plastering shall be 3mm thick and shall be laid with a trowel, so as to achieve a tight matt smooth surface with no hollows, abrupt changes of level or trowel marks.
		4. Rapid, premature or uneven drying out of the final coat shall not be allowed.
		5. The Finishing Coat gypsum shall consist of gypsum, hydrated lime, rock powder and special adhesives and additives to increase workability and adhesion. The nominal size of the Base Coat plaster shall be less than 0.2mm. The hardened plaster shall be vapour-permeable with a µ value of ≤10. The hardened plaster shall have a compressive strength of ≥ 2.0MPa. The fire rating shall be Class O.
		6. The Finishing Coat shall be applied using a stainless steel rectangular trowel, over the whole surface. The trowel shall have specially ground edges, and shall be made from extra-hard stainless and abrasion-proof steel. The finished surfaces shall be even and consistent and free from rippling, hollows, ridges, cracks and crazing. The finished surface shall be to a true plane, to the correct line and level, with angles and corners to the right angle, unless specified otherwise, and with walls and reveals plumb and square.
		7. Surface flatness/regularity shall be acceptable if the deviation of the surface from a 1.8m straightedge does not exceed 3mm.
		8. The Contractor shall be required to prepare sample applications of the proprietary renders, on a variety of substrates and to retain the samples on site for a period of time specified by the Project Architect, before the use of such renders is approved.
	1. **Application of Layers**
		1. Coats shall be applied firmly in a continuous operation, between angles and joints to achieve a good adhesion to the previous coat. Undercoats shall be ruled to an even surface. When the undercoat has begun to stiffen, the surface shall be scored with a comb, so as to form wavy horizontal lines, spaced approximately 20mm apart, and 5mm deep, or cross- scratching.
		2. Coats shall be applied in such a sequence that ensures a finishing layer that is slightly weaker than the background layer.
		3. The undercoat shall be left for at least a week before the final coat is applied, in order to allow any cracking from the initial shrinkage to occur. In warm dry weather, the undercoat shall be cured by draping it with sheet polythene, held against the surface to prevent evaporation. When applying the undercoat on metal lathing, care shall be taken to work the render well into the interstices to obtain maximum key.
		4. The final coat for smooth cement-sand finish shall be laid with a trowel, so as to achieve a tight matt smooth surface with no hollows, abrupt changes of level or trowel marks. The final coat for scraped cement-sand finish shall be scraped some hours after application, using a wooden float faced with expanded metal, or using an old saw blade. The scraping shall be sufficient to evenly remove the surface skin of the mortar and expose the larger particles of aggregate. Some of the aggregate will be dragged from the mortar by the scraping action. After scraping, the surface shall be lightly brushed with a soft brush to remove all dust, and to produce a clean crisp texture. About 3mm of thickness is expected to be removed by the scraping of a saw blade.
		5. Rapid, premature or uneven drying out of the final coat shall not be allowed, and in warm or windy weather, the final coat shall be damped down, or sprayed gently with water. Curing under polythene sheeting shall be allowed provided the polythene can be arranged to hang clear of the surface in such a way that it does not form a funnel through which the wind could increase the rate of evaporation, and in such a way as to prevent the polythene sheeting from intermittent contact with the face. The surface shall be protected from rain. Curing shall last for a minimum period of 3 to 4 days.
		6. The finished surfaces shall be even and consistent and free from rippling, hollows, ridges, cracks and crazing. The finished surface shall be to a true plane, to the correct line and level, with angles and corners to the right angle, unless specified otherwise, and with walls and reveals plumb and square. Surface flatness/regularity shall be acceptable if the deviation of the surface from a 1.8m straightedge does not exceed 3mm.
	2. **Propietary Renderings for External Use – Silicate or Acrylic-Silicone**
		1. Proprietary renderings for external use shall consist of pre-mixed renders based on silicate or acrylic-silicone binders, applied to produce a durable surface, with specific surface textures, and, in particular, the texture referred to as "graffiato" .
		2. These renders shall contain specially selected quartz sand, or other inert fillers, with special additives, suitable for providing a durable coating, with high permeability to water vapour, and a high water resistance, as well as resistance to algae and fungal attack, loss of colour and degradation with time.
		3. They shall have an integral colour based on inorganic pigments with a high photo-stability. It shall also be fire retardant. It shall have a good adhesive power, and a good interactivity with the mineral substrate. They shall be capable of application with a steel spatula, to the specified thickness, and, once dry be given a uniform "graffiato" or equivalent texture finish.
		4. Silicate and Acryl-Silicone renderings shall consist of a proprietary render, nominal size < 3.0mm, free of solvents, and containing natural fillers such as marble and quartz, limestone and sand, capable of optimum adhesion with mineral substrates and developing a high mechanical resistance.
		5. The render shall have an integral colour. It shall be resistant to UV radiation. It shall be laid in a single operation. Partial renderings shall be separated by straight, horizontal merge lines as agreed with the Project Architect.
		6. Renderings shall also have the following performance characteristics:

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Silicate** | **Acryl-Silicone** | **Unit** |
| Compressive Strength | ≥ CS III | ≥ CS III | MPa |
| Vapour Diffusion | ≤ 140 | ≤ 190 | µ |
| Water Absorption | W2 | W2 | Kg/(m2.h 0.5) |
| Air Strata Equivalent | ≤ 1.5 | ≤ 1.5 | m |
| Kuenzle Factor | ≤ 0.1 | ≤ 0.1 | Kg/(m.h 0.5) |
| Resistance to Powder Flaking  | ≥ 600 | ≥ 600 | hours |
| Colour Fastness | ≥ 600 | ≥ 600 | hours |

* 1. **Pointing “Fuq il-Fil” (where applicable)**
		1. Soft joints of the stone masonry shall be raked out and opened to a depth of approximately 20mm.
		2. The joints shall be cut, rectified and formed, in both the horizontal and vertical directions, in such a way so that the finished joint shall have a constant width of 8mm, and shall be true to the horizontal and vertical.
		3. The joints shall be pointed as indicated with a proprietary mortar formed by a white cement-lime-sand-additives mix to match the existing stone colour.
		4. The mix shall have a compressive strength of ≥ 7 MPa.
		5. When the joint pointing has dried, the whole stone surface shall be sanded and rubbed down to produce a plane compact masonry surface, with regular joints matching the colour of the existing “franka” stone across the surface.
	2. **Internal and External Pointing (Excluding “Fuq il-Fil”)**
		1. Masonry surfaces that will not be rendered shall have their soft joints raked out to a depth of 15mm.
		2. The joints shall be pointed as indicated with an approved prescribed mortar formed by a white cement-lime-sand-additives mix, in appropriate proportions to match the existing stone colour or a pre-mixed, factory made alternative to EN 998-1.
	3. **Drip moulds**
		1. Any external horizontal surface facing ground shall have a plastic drip mould installed, at approximately 50mm from every edge. This drip mould shall be made from plastic and embedded within the thickness of the external plastering.
		2. The drip mould, when installed, shall be levelled and made parallel to the external edge. Method of fixing shall be discussed and approved with the supervisor. Any necessary fixing fixtures and fittings shall be made of stainless steel.
	4. **Plaster mesh reinforcement**
		1. The mesh shall be alkali-resistant glass fibre mesh. Its weight must not be less than 150 g/m2.
		2. The mesh shall be in conformity with ETAG 004 guide. Technical data sheet is to be submitted to the Engineer for approval.
		3. The fibre mesh is to be completely embedded in the rendering layer to be reinforced. The application procedure shall be as specified by its technical data sheet.
		4. The fibre mesh is to be applied at all junctions between masonry and HCB or concrete surfaces. The overlapping shall be a minimum of 10cm or as specified by the technical documentation.

## 4.4 Lot 2 - Painting works

Works to be carried out include the painting of:

* 1885 sqm of internal wall surfaces
* 921 sqm of ceiling surfaces
* 1118 sqm of external wall surfaces
* 265 sqm of external projections

Paint colour scheme is to match existing.

* 1. **Compliance – Sample Size and Frequency of Sampling (Where Applicable)**
		1. Where applicable, sample size for compliance shall be established by the Engineer in charge.
	2. **Compliance**
		1. Compliance shall be demonstrated through submission of technical data sheets.
		2. The Contractor may be required to prepare sample applications of the paint on a variety of substrates for final approval before the commencement of the Works.
	3. **Declarations**

Bidders must declare that the following materials/substances will not be used in the building:

* + - Products which contain sulphur hexafluoride (SF6);
		- Indoor paints and varnishes1 with a content of solvents (volatile organic compounds (VOCs) with a boiling point of 250°C maximum) higher than;
		- For wall paints (according to EN 13300): 30 g/l (minus water);
		- For other paints with a spreading rate of at least 15 m²/l at a hiding power of 98% opacity: 250 g/l (minus water);
		- For all other products (including paints that are not wall paints and that have a spreading rate of less than 15m2/l, varnishes, wood stains, floor coatings and floor. paints, and related products): 180g/l (minus water).
		- Verification:
		1. Bidders must declare that these products/substances will not be used in the building;
		2. Limit values extracted from the European Ecolabel and relevant standards such as EN 13300.
	1. **Paintwork - General**
		1. Generally, painting work shall comply with the recommendations of BS 6150 – Code of Practice for Painting of Buildings. General workmanship, and, in particular, the preparation of surfaces for painting, shall also comply with BS 8000: Part 12. The appropriate environmental category, as defined in BS 6150, shall be Mild for interior conditions and Severe for exterior conditions.
	2. **Paint – Internal Walls, Floors and Ceilings**
		1. The paint shall comply with EN 13300, Paints and Varnishes, Water-borne Coating systems for Internal Walls and Ceilings.
		2. The paint shall comply with the ecological and performance criteria adopted by the EU for the award of the Eco-Label for internal paints and varnishes.
	3. **Paint – External Masonry and Concrete**
		1. The paint shall comply with EN 1062-1, Paints and Varnishes, Coating Systems for Exterior Masonry and Concrete.
		2. The dry film thickness on external areas shall be ≥ Class E3.
		3. The paint shall consist of high durable paint and shall match the existing colour scheme.
	4. **Paint – Characteristics**
		1. The Contractor shall supply certification for the batches used.
		2. The following characteristics and limits shall also apply:

#### Emulsion - Internal

1. Film Dry Film Thickness: As per Product Datasheet
2. Fungal Resistance: Total absence of growth
3. Permeability to Acqueus Vapour Medium ( sd < 1.5m)

#### Emulsion - External

1. Film Dry Film Thickness: As per Product Datasheet
2. Fire protection: EuroClass A2-s1, d0
3. Fungal Resistance: Total absence of growth
4. Permeability to Acqueous Vapour Medium ( sd < 1.5m)
5. Permeability to Water W2min.(≤ 0.5, > 0.1kg / (m2.h0.5)
6. Resistance to CO2 penetration Class C1 (sd > 50m)
7. w x sd (Kunzel Factor) ≤ 0.1kg/(m.h0.5)
8. Gloss Matte

#### Masonry Stabilizing Solution

1. As per product Datasheet

#### Masonry Sealer

1. As per Product Datasheet

#### Oil or Alkyd Based

1. Film Dry Film Thickness: Min. 0.034mm;
2. Fire protection: EuroClass A2-s1, d0
3. Fungal Resistance: Total absence of growth
4. Wet Abrasion Class 1 or 2 (ISO 11998)
5. Power of Cover Class 1 or 2 (ISO 6504-3)
	1. **Gloss Levels**
		1. Gloss levels shall be in accordance with EN ISO 2813. Gloss Levels shall be as specified in the table below or as otherwise instructed by the supervisor.

|  |
| --- |
|  |
| **Gloss Level** | **% Incidence @ 600** | **% Incidence @ 850** |
| Dead Matte | N/A | > 5 |
| Matt | N/A | > 10 |
| Mild Sheen / Satin | < 60 | ≥ 10 |
| Gloss | ≥ 60 | N/A |

* + 1. All paints shall be thoroughly mixed and stirred before use. They shall be stored in such a way that minimizes exposure.
		2. Thinning of materials, where necessary shall be carried out with the type of thinner and to the proportions recommended by the manufacturer of the paint.
		3. Substrate shall be thoroughly cleaned down to remove all dirt, grease, plaster and mortar deposits, efflorescence and under bound slurry, by brushing or rubbing with a dry cloth followed by wiping with a damp cloth. The surface shall then be allowed to dry. The surface shall be brushed to remove any loose aggregate. Any surface mould growths shall be removed, and residual growths shall be treated by washing with fungicidal wash, or approved equivalent. Cracks, holes and other imperfections shall be cut out and made good. Such making good shall be allowed to dry out thoroughly. Any fillers used shall be in accordance with the manufacturer's recommendations.
		4. Each coat of paint shall be allowed to dry out before the next coat is applied.
		5. No exterior or exposed painting shall be carried out under adverse weather conditions.
		6. No primer coats shall be applied until the surfaces have been approved by the Supervisor. No undercoat or finishing coats shall be applied until previous coats have been similarly inspected and approved.
		7. Colours and textures shall be approved by the supervisor and provision must be made for the execution of trial areas on site as required.
		8. Painting shall be applied in a sequence and adjusted to take into account the completion timeframes of other trades. Paintwork shall only be applied in the appropriate conditions of temperature, humidity and cleanliness. For interior work, painting shall be applied only after the interior space is weather-tight, maintained at temperature and humidity levels, and lit to the levels, similar to those prevailing when the school building is occupied, unless otherwise specified. Paint shall be roller applied. All paintwork shall be left clean and unblemished, and all surfaces adjacent to painted surfaces cleaned from droppings or other marks.
	1. **Safety Data Sheets**
		1. Paint shall be supplied accompanied by the relevant safety data sheets.

## 4.5 Lot 3 - Tile Laying Works

* 1. **Compliance – Sample Size and Frequency of Sampling (Where Applicable)**
		1. Where applicable, sample size and frequency of sampling for compliance shall be established on the basis of standard statistical guidelines.
	2. **Compliance – Testing and Certification**
		1. Compliance shall be demonstrated through certification of products and/or processes as outlined in the ensuing clauses.
	3. **General**
		1. Ceramic tiles shall comply with EU Directive 89/106.
	4. **Classification and Testing**
		1. The classification of ceramic tiles shall be in accordance with ISO 13006.
		2. The testing of ceramic tiles shall be in accordance with ISO 10545.
	5. **Ceramic Tiles (General)**
		1. Ceramic floor tiles shall be full body, impervious, non-slippery, generally single-pressed, single fired fine gres (first quality).
		2. Ceramic floor tiles shall either be glazed or unglazed as indicated in the Bill of Quantities and/or the drawings.
		3. The specific surface texture (and colour) shall be based on white/ beige/ grey colour (or as indicated in the drawings or Bills of Quantities) and is to be discussed and approved with the supervisor.
		4. Ceramic floor tiles shall be supplied with all the necessary special pieces, trims and special connecting pieces so as to eliminate any sharp edges. This shall include pieces for skirting, inserts, step tiles of various kinds (eg. Tread, Bullnose and Double Bullnose), L-shaped elements, border tiles, balcony lipping, flutes, ribbings, jollies, ogees, and sill elements.
	6. **Ceramic Tiles - Characteristics**

|  |  |  |  |
| --- | --- | --- | --- |
| **Characteristic** | **Standard** | **Limiting Value** | **Unit** |
| Slip resistance R value | DIN 51130 | R10 (COF >0.2 <0.4) | Factor |
| Slip resistance R value | DIN 51130 | R11 (COF >0.4 <0.7) | Factor |

The limiting values shall be used oin the spaces as indicated in the drawings and/or Bills of Quantities.

* 1. **Ceramic Tiles - Dimensions**
		1. The typical floor tile dimensions shall be as agreed with the Supervisor.
		2. The typical floor tile thickness should be greater or equal to 10mm.
	2. **Ceramic Tiles (Wall)**
		1. The typical ceramic wall tiles shall be dry pressed, single or double fired with a “bisque” of fine earthenware majolica.
		2. Ceramic wall tiles shall be glazed.
	3. **Ceramic Tiles (Wall) – Size and Thickness**
		1. The typical wall tile dimensions shall be as indicated in the drawings or Bills of Quantities and shall be agreed with the Supervisor.
		2. The typical tile thickness should be greater or equal to 10mm.
	4. **Ceramic Tiles (Wall) - Characteristics**
		1. Ceramic wall tiles shall have the characteristics enlisted in the table below.

|  |
| --- |
|  |
| **Characteristic** | **Standard** | **Limiting Value** | **Unit** |
| Category | ISO 13006 | BIII | NA |
| Length and WidthThicknessStraightness of EdgesRectangularityFlatness | ISO 10545-2 | +/- 0.5+/- 10+/- 0.3+/- 0.5+/- 0.5 | %%%%% |
| Water Absorption | ISO 10545-3 | ≤ 18 | % |
| Modulus of Rupture < 7.5mm thick | ISO 10545-4 | ≥ 12 | N/mm2 |
| Modulus of Rupture > 7.5mm thick | ISO 10545-4 | ≥ 15 | N/mm2 |
| Breaking Strength for tiles < 7.5mm thick | ISO 10545-4 | ≥ 200 | N |
| Breaking Strength for tiles > 7.5mm thick | ISO 10545-4 |  ≥ 600 | N |
| Surface Abrasion (Glazed) | ISO 10545-7 | II | PEI |
| Surface Hardness | EN 101 | ≥ 3 | MOHS Scale |
| Thermal linear Expansion Coefficient | ISO 10545-8 | ≤ 9 | MK-1 (200C to 1000C) |
| Thermal Shock Resistance | ISO 10545-9 | No Alteration | 10 cycles from 1050C to 150C |
| Resistance to Chemical Attack | ISO 10545-13 | GBmin | Class |
| Resistance to Staining (Glazed) | EN 122 | ≤ 3 | Class |

* 1. **Submissions**
		1. The Contractor may be asked to submit a drawing (including one electronic copy) showing the setting out of all areas, bedding, bonding, jointing and anchoring details, and the dimensions and identifying number of any unique elements.
		2. The Contractor may be asked to provide a selection of white, beige/ brown and grey colour tiles with the above mentioned characteristics to the Supervisor to select the appropriate colour for the different areas that require tiling. The Contractor may be asked to submit actual size samples of the elements to be supplied and demonstrate the fixing system proposed in sample areas when so instructed by the Supervisor. Such sample areas shall be formally presented for the approval of the Supervisor, and once approved, shall be used as quality prototypes against which the quality of the work laid shall be checked.
	2. **Preparatory Works**
		1. The Contractor may be asked to check that all preparatory work is sufficient, that the levels and tolerances required for his work have been achieved, and if not, shall carry out remedial work to correct such levels or tolerances. In particular, this remedial work may include concrete rendering to vertical wall surfaces to bring in line with vertical surfaces before starting tiling works.
		2. All walls which are to receive ceramic tiling are to be properly hacked to achieve a good key.
		3. All waterproofing works shall be completed before installation of tiling works. Nevertheless, the Contractor may be asked to check such water-proofing layers where still exposed, and may be required by the Supervisor to carry out remedial work prior to installation of tiling. In particular, the Contractor shall check that all top edges of water-proofing membranes are sealed using proprietary tape, or equivalent, prior to covering with tiling.
		4. All horizontal surfaces shall be laid to the falls indicated on the drawings.
	3. **Placing**
		1. Tile patterns shall be as indicated in the submitted and approved setting out drawings provided by the Contractor and approved by Supervisor. The Contractor may be asked to submit proposals to indicate tolerances, corner details, detailed methods of fixing, and patterns, to show how the design intent specified will be respected.
		2. The laying of the tiling to floors and walls shall conform to Code of Practice BS 5385-1: 1995 (internal walls), BS 5385-3: 1989 (Floors), BS 5385-5:1994 (Design and Installation).
		3. Cement used in mortar bedding shall conform to BS EN 197: 2000, (Type CEM 1/42.5). Sand shall conform to Type A in BS EN 13139: 2002. Coarse aggregate shall conform to BS EN 12620: 2002. Preparation of mortar bases shall conform to BS 8204-1:2002. Lime shall conform to BS EN 459-1:2001. Ready-mix mortars shall conform to BS 4721: 1981.
		4. Where applying tiling to walls, soft joints shall be raked out to a depth of at least 13mm, in order to provide additional key. Where hacking of a surface is required for additional key, substrates shall be roughened thoroughly and evenly, removing a surface to a depth of circa 3mm. Substrates shall be wet before applying tiling.
		5. Bedding for ceramic tiles shall consist of a cement-sand mix 1:3 by weight, mixed to a uniform stiff consistency, and laid with a finished bed thickness of between 15 to 25mm.
		6. The tiles shall be laid with their edges forming a straight unbroken line in each direction and carefully tapped down to a uniform even surface without ridges or corrugation. Tiles are to be soaked for a period of 6 hours previous to laying and shall be stacked to drain. All joints shall be finally sealed by proprietary grouting.
		7. The tiles are to be laid on a bedding of mortar 16-25mm thick consisting of one part of cement to three/four parts of sand with sufficient water to make the mixture workable. Slurry of neat cement, mixed with enough water to make it flow shall be poured over the mortar immediately before laying the tiles.
		8. After the tiles are firmly fixed, but before any dirt or contamination can enter the joints, all joints shall be grouted with proprietary grouting by sweeping and rubbing to match the tile colour.
		9. Interface of the tiles in relation with other areas of surface type finishes such as concrete cast floor will need to be detailed and agreed with the Supervisor.
	4. **Joints**
		1. Joints of tiling shall be true to line, continuous, and without steps.
		2. Proprietary joint spacers shall be provided for floor tiles. The joint spacing shall be as indicated in the drawings or as otherwise agreed with the Supervisor.
		3. Joints on walls shall be aligned around corners, and to vertical and horizontal lines. Joints on floors shall be aligned to the main axis or to other features in the floors. Joints in floors and in skirting shall be aligned; similarly, as far as possible, joints in floors and walls shall be aligned. Setting out around openings, fittings, movement joints, drainage points, or other features instructed by the Supervisor, shall be submitted for the approval of the Supervisor before proceeding.
		4. Tile movement control joints in floors shall be pre-bonded neoprene or nitriflex insert movement joints. They shall typically consist of aluminium side plates. The sections shall be suitable for fixing in sand/cement mortar bedding, and shall be fixed to the base by means of stainless steel screws, washers and plugs at about 300mm, or as instructed by the manufacturer. The joints shall include stainless steel tie bars, and flexible foam rubber "tails", as necessary, for fixing depths greater than 40mm. The joints shall be centred over the joint in the base, and shall be set to the exact finished level of the floor. These tile movement joints shall be every ten tiles in all directions or as otherwise stated by the Supervisor.
	5. **Skirting (if applicable)**
		1. Skirting with the same properties of the ceramic floor tiles is generally of the sit-on type and beveled top, that is, skirting shall be bedded to the walls after laying floor tiles. Cutting of ceramic tiles to obtain skirting tiles will not be allowed. Two coats of bitumen shall be applied to soft stone surfaces below the damp proof course before fixing the skirting tile.
	6. **Delivery to the Site**
		1. Elements delivered on site shall be checked to ensure that they are:
		2. Undamaged, and their edges and corners not chipped;
		3. Of the specified dimensions and geometry;
		4. worked so that the material bedding is normal to applied loading;
		5. Worked so that the joints are at right angles to the direction of the pressure exerted on them in conditions of use in the final position.
		6. Elements delivered on site shall be handled by hand or tackle, crane or other suitable mechanical aids, in such a way as not to cause any damage, and shall be stored in a manner that provides adequate protection from humidity, mechanical damage, distortion, contamination or deterioration. Whenever possible, materials shall be handled on the suppliers' pallets, cases or other packing. Lifting hooks, slings and forks shall be used only at the places, and in the manner intended by the manufacturer or supplier. Vulnerable edges shall be protected by spreaders placed under the load. Materials intended for use as whole units shall not be tipped or dumped upon delivery to site.
		7. The Contractor shall set out the work and make good defects in the existing base deemed necessary for the proper execution of the works.
	7. **Setting Out**
		1. Before commencement of the work, the Contractor may be asked to submit a drawing (including one electronic copy) showing the setting out of all internal and external areas, bedding, bonding, jointing and anchoring details, and the dimensions and identifying number of any unique elements including the tile movement joints control every 10 tiles in all direction. The Works shall be accurately set out in accordance with Section 6 of BS 5606: 1990, Guide for Accuracy in Buildings. Existing benchmarks shall be protected and all critical co-ordinate points shall be marked in such a manner that they cannot be removed. Diagonal measurements shall be used to check for squareness, normally after the first line of tiling, and approval sought from the Supervisor, prior to the continuation of the work.
		2. The Contractor shall set out the works as follows:
		+ Establish the correct floor datum level;
		+ Control the finished floor levels by a series of ‘spot levels’;
		+ Avoid or minimize unsightly cutting;
		+ Ensure cut units present a balanced appearance when laid and are kept as large as possible;
		+ Ensure correct joint location and flooring patterns;
		+ Establish the position of movement joints if any.
		1. When setting out of tiling works particularly wall tiling works, the Contractor shall:
		+ Establish a vertical centerline in each plain area;
		+ Obtain truly horizontal joint lines;
		+ Ensure that cut tiles are neatly cut, are kept as large as possible and are laid to present a balanced appearance.
	8. **Granular Fill for Bringing Up Levels**
		1. Granular fill material for bringing areas up to leveI shall be made of washed hard stone aggregate (chippings) with a nominal 9mm diameter.
		2. Compaction shall be carried out at the material's optimum moisture content in compacted layers not exceeding 200mm in depth.
		3. The Contractor shall adopt either the Method or End product procedure for compaction as indicated in the ADT Specification for Roadworks.
	9. **Granular Subbase Material Types 1, 2 and 4**
		1. Granular Subbase material Type 1 shall comply with ADT (Malta) Specification for Roadworks, Volume 1, Series 800, clause 803.
		2. Granular Subbase Type 2 material shall comply with ADT (Malta) Specification for Roadworks, Volume 1, Series 800, clause 804.
		3. Granular Subbase Type 4 material shall comply with ADT (Malta) Specification for Roadworks, Volume 1, Series 800, clause 806.
		4. The material shall be placed and compacted as indicated in ADT (Malta) Specification for Roadworks, Volume 1, Series 800, clause 801 with particular reference to Table 8/1.
		5. Compaction shall be carried out at the optimum moisture content (+/- 2%). Segregation of material shall be avoided.
		6. The finished surface levels of subbase material shall have a tolerance of +/- 20mm.
	10. **Aggregates**
		1. Aggregates for unbound and hydraulically bound layers shall comply with EU Directive 89/106/EEC. The technical characteristics shall comply with EN 13383-1.
	11. **Level Surveys**
		1. A level survey is mandatory prior to and on completion of excavations and fill operations. This shall be intended to include any superimposed new layer. This survey shall be along an adequate grid to be jointly established with the Supervisor.
	12. **Screeds**
		1. Unless otherwise indicated, leveling screeds shall be unbonded, or floating cement-sand screeds, conforming to BS EN 13813. Installation shall be as per Code of Practice BS 8204-1:2002. Leveling screeds to treads, risers and landings, where required, shall be bonded screeds.
		2. Laying course material shall consist of graded hardstone aggregate passing nominal size 10mm. This aggregate shall be free from soil, clay and organic substances. It shall be laid, spread, adequately wetted and compacted to the required formation thickness and also laid to falls when required.
		3. Conduit sleeves for services shall be haunched up in a 1:4 cement-sand mix on both sides of the conduit piping.
	13. **Adhesives and Grouts**
		1. Adhesives for tiles shall comply with EU Directive 89/106/EEC. The technical characteristics shall comply with EN 12004.
		2. Grout for tiles shall comply with EU Directive 89/106/EEC. The technical characteristics shall comply with EN 13888.
		3. Proprietary adhesives shall be used for all tiles. Cementitious adhesives shall be of Class C1; Polymer-modified adhesives shall be of Class C2 having a water absorption of ≤ 0.5%.
		4. Deformable adhesives shall be Class S1 or S2 to EN 12002.
		5. Proprietary grouts shall be used for all tiles. The colour of grouting shall be approved by the Supervisor. Cementitious grouts shall be of Class CG1 or CG2; Epoxy grouts shall be of Class RG.
		6. The Contractor shall submit proprietary technical literature for the proposed grout. This literature shall clearly indicate whether the grout conforms to the appropriate standards of hygiene requirements of specific areas to be tiled.
		7. Grouting shall not commence before bedding mortar or adhesive has set sufficiently to prevent disturbance of tiles or paving. Joints shall be at least 6mm deep, and shall be free from dust and debris. Joints shall be filled completely, with the grout tooled to profile, and the surface cleaned off and left free from blemishes. Grouting shall be polished off with a hard clean cloth when hard.
		8. The Contractor may be asked to produce proprietary literature for the grout that shall be used in all remaining areas. This literature shall indicate that the grout conforms to the requirements or the appropriate standards of hygiene that are determined by the use of the areas to be tiled.
		9. Superfluous grout shall be washed clean off the finished surface after the grouting has nearly set and the tiling is to be left clean for inspection. All excess material shall be removed.
	14. **Detergents**
		1. The Contractor may be asked to supply to the Supervisor a list of approved detergents for common stains which are to be readily available from stock including any recommendations and instructions by the tile manufacturer.

## 4.6 Lots 4, 5 & 6 - Works related to the installation of doors and windows

* 1. Apertures forming part of the scope of the present tender
		1. The Contractor shall manufacture, supply, delivery and installation of fixtures as per document attached Table 1 –Apertures. All measurements to be re-checked on site prior ordering / manufacture of apertures. That table and its contents are considered to form part of these technical specifications.
		2. The Contractor shall ensure abidance with the EU Construction Products Regulation (CPR), and standards emanating therein insofar as applicable to the present tender, and the apertures-materials identified herewith.
	2. **Lot 4 - Aluminum doors and windows**
		1. The Contractor shall ensure that, insofar as applicable, all aluminum doors and windows installed match in design, specifications, and colour the doors and fixtures forming part of the Xrobb l-Għaġin Sustainable Development Centre which lies adjacent to the Site where the Wildlife Rehabilitation Centre is being developed.
		2. All aluminum shall be suitable for a marine environment. The Contracting Authority is not entering into the merits of whether Contractors should offer anodized or powder-coated aluminum, or otherwise; that is up to the Bidders to decide, provided however that a aluminium is certified as suitability for marine environment. Without prejudice to the generality of this clause, the Contractor shall ensure abidance with the relevant EN standard/s, depending on the type of aluminum which is declared at bidding stage.
		3. All doors and windows shall be double glazed, with the inert gases used for insulation (e.g. argon, krypton).
	3. **Lot 5 - Garage doors**
		1. Two (2) Garage door shall be installed as part of the present tender as identified in the attached drawings.
		2. The Garage doors to be supplied shall be heavy duty, and suitable for a harsh marine environment and very strong winds. Without prejudice to the generality of this clause, the Contractor shall ensure abidance with the relevant EN standard/s, depending on the type of material which is declared at bidding stage.
		3. Colour shall be light grey, similar to the aluminum fixtures forming part of the Xrobb l-Għaġin Sustainable Development Centre which lies adjacent to the Site where the Wildlife Rehabilitation Centre is being developed. For the sake of avoidance of any doubt, during Tender implementation stage, the Contractor shall supply a sample of the materials to be installed for the approval of the supervisor. The Supervisor may reject any colour which is deemed not to be similar to the existing aluminum on site, and the Contractor shall oblige and replace to the Supervisor’s satisfaction, at no additional cost to the Contractor.
		4. The garage doors shall be of the roller-shutter type.
		5. Any supporting element, such as but not limited to supporting frame, as well as hinges, locks, handles and other accessories shall be included in the tender offer.
		6. The Contractor shall ensure that the garage door is secure. The Supervisor may request, the installation of any additional stability/security feature necessary to ensure stability and security of the door in question.
		7. Adjustment to levels: The contractor shall allow for the formation of smooth surfaces at the interface between different surfaces and adjustments to levels between different areas in the building/s, including between same materials and between different finish materials, new finishes to floors and existing finishes including internal / external finishes interface, and as instructed by the Architect and Engineer in charge of works.
	4. **Lot 6 Timber Laminated Doors and Fire rated Door**

1.4.1 The Contractor shall manufacture, deliver, supply and install new internal flush wood-laminate doors, including box frame, and having sizes indicated above. The doors shall be red deal in colour, and be inclusive of all necessary frames/linings as well as hinges, knobs and any other fitting.

1.4.2 The Contractor shall manufacture, deliver, supply and install a new internal fire door single leaf type, including box frame , and having sizes indicated above. The fire door shall provide a minimum fire resistance of door in terms of integrity (minutes) when tested to the EN 1634: Part 1 of E30Sa. Certification shall be provided. The doors shall be red deal in colour, and be inclusive of all necessary frames/linings as well as hinges, knobs and any other fitting.

* 1. **Acceptance and warranty**
		1. All doors and windows, including garage door and internal doors, shall be installed subject to the approval of the Supervisor, who may refuse to certify acceptance of installation if the said fixtures. With regards to the external doors, windows and garage door, the Supervisor may also refuse to accept apertures which are not similar in colour to the fixtures forming part of the Xrobb l-Għaġin Sustainable Development Centre which lies adjacent to the Site where the Wildlife Rehabilitation Centre is being developed.
		2. The Contractor shall warrant all doors and windows, including garage door, for at least two years from the date of commissioning. Nothing shall preclude bidders from providing a longer warranty.

## 4.7 Lot 7 - finishing of select floors with power floated concrete

Specs/01 Concrete

Specs/02 Formwork for Concrete

Specs/03 Reinforcement for Concrete

#### CONCRETE

* 1. **General**
		1. The performance and production of concrete shall generally comply with BS EN 206-1: Concrete. Specification, Performance, Production and Conformity.
	2. **Compliance - Sample Size and Frequency of Sampling (Where Applicable)**
		1. Where applicable, sample size and frequency of sampling for compliance shall be established on the basis of standard statistical guidelines.
	3. **Compliance – Testing and Certification**
		1. Compliance shall be demonstrated through testing and/or certification of products and/or processes as outlined in the ensuing clauses.
	4. **Classification - Exposure**
		1. The exposure classes of concrete related to environmental shall be as classified in BS EN 206-1, Table 1 – Exposure Classes and Table 2 – Limiting Values for Exposure Classes for Chemical attack from natural soil and ground Water.
		2. The concrete shall be designed for an exposure class XS1, for a working life of 50 years.
	5. **Classification - Consistency**
		1. The classification of consistency shall be as indicated in Table 3 – Slump Classes. The consistence suitable for different uses of in-situ concrete is indicated in BS 8500-1:2015+A2:2019: Complementary British Standard to BS EN 206-01, Method of Specifying and Guidance for the Specifier, Table A.19.
		2. Any addition of water and admixture at delivery is forbidden unless under the direct responsibility of the producer. Any additions at delivery are subject to the condition that any limiting values incorporated in the specification are not exceeded. All additions shall be recorded on the delivery chits.
	6. **Classification – Compressive Strength**
		1. The classification of compressive strength shall be as indicated in BS EN 206-01, Table 7, Column 3 – Minimum Compressive cube strength for normal-weight and heavy-weight concrete.
		2. In general, the concrete strength shall be grade C35/45, unless otherwise indicated on the drawings.
	7. **Limiting Values**
		1. The recommended limiting values for the composition and properties of concrete shall be as indicated in BS EN 206-01, Table F.1
	8. **Site Mixed Concrete**
		1. The production of site-mixed concrete shall be limited to non-structural use and in quantities smaller than 2m3.
	9. **Cement**
		1. Cement for use in concrete shall comply with EU Regulation No. 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonized conditions for the marketing of construction products and repealing Council Directive 89/106/EEC.
		2. Technical characteristics shall comply with BS EN 197-1: Cement. Composition, Specifications and Conformity Criteria for Common Cements. The cement shall be Portland Cement, Type CEM1 or CEM IIA, strength class 42.5N. CE marking is mandatory for all cement supplied for use in the concrete mix.
	10. **Cement Temperature**
		1. The temperature of the cement shall not exceed 65 Degrees Celsius at the time of incorporation into a concrete mix.
		2. The cement shall be used as soon as possible after delivery, each consignment being used in correct rotation so as to prevent cement lying for long periods in storage. Accurate records shall be kept by the Contractor to identify the dates of delivery of cements.
		3. Each consignment of cement delivered to the batching plant shall be accompanied by a certificate showing the place of manufacture and the results of standard tests carried out on each day's production, included in the consignment, these to include physical and chemical tests.
	11. **Cement - Supplier**
		1. Before placing orders for cement, the Contractor shall submit :
1. The Name of the proposed supplier.
2. Cement manufacturer's certificates stating the Declaration of Conformity
	1. **Cement – Minimum Content in Mix**
		1. The minimum cement for the specified maximum water cement (w/c) ratio and maximum aggregate size shall be as indicated in BS 8500-1:2015+A2:2019: Complementary British Standard to BS EN 206-01, Method of Specifying and Guidance for the Specifier, Table A.18.
		2. The minimum amount of cement content is 380 kg/m3, for a maximum water cement ratio of 0.35.
	2. **Aggregate**
		1. Aggregate for use in concrete shall comply with EU Regulation No. 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonized conditions for the marketing of construction products and repealing Council Directive 89/106/EEC.
		2. Technical characteristics shall comply with BS EN 12620, Aggregates for Concrete.
	3. **Aggregate – Test methods**
		1. Test methods for aggregates shall comply with EN 933, EN 1744 and EN 13179, EN 1367 and EN 1097.
		2. Differing sizes of aggregate shall be stored on site in separate bins constructed in such a manner as to avoid cross-contamination of the individual aggregates.

Bins should have concrete floors to prevent ground contamination of aggregates. Adequate provision for drainage shall be made and all aggregates are to be stored and handled so as to avoid segregation.

* + 1. During hot weather the aggregates should be covered or shaded in order to reduce the mixing temperature. A water sprinkler system shall be installed to wet the aggregates in the storage bins.
		2. A sufficient separate stockpile of the tested and approved aggregates shall be maintained on site to ensure that no delays occur during construction.
		3. The maximum nominal upper aggregate size shall be 20mm unless indicated

Otherwise.

* + 1. Aggregate recovered from wash water or fresh concrete may be used as aggregate for concrete.
		2. Aggregate recovered from hardened concrete may be used if the material is not contaminated and complies with the requirements of BS 8500-1:2015+A2:2019:
		3. Complementary British Standard to BS EN 206-01, Method of Specifying and Guidance for the Specifier, Table 2. The limitations in Table 3 shall apply.
		4. The Los Angeles Coefficient of the combined coarse aggregate shall not exceed LA40.
	1. **Marine Sand - Prohibition**
		1. The use of marine and beach sand is prohibited.
	2. **Mixing Water**
		1. Mixing water for concrete shall comply with EU Regulation No. 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonized conditions for the marketing of construction products and repealing Council Directive 89/106/EEC. The technical characteristics shall comply with BS EN 1008 - Specification for Sampling, Testing and Assessing the suitability of Water, including Water recovered from processes in the concrete industry, as Mixing Water for Concrete.
		2. Only drinking quality water free from slats and harmful substances shall be used for concrete, including concrete curing. Water with impurities including salts, sea water or any other impurities shall not be used at any stage including the production or curing of concrete.
	3. **Standby Water Supply**
		1. The Contractor shall install a standby water source of sufficient capacity to ensure continuation of concreting for sections of work being cast should water supplies be disrupted.
	4. **Admixtures**
		1. Admixtures shall not be used without the written approval of the Project Manager.
		2. Admixtures for incorporation in concrete shall comply with EU Regulation No. 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonized conditions for the marketing of construction products and repealing Council Directive 89/106/EEC. The technical characteristics shall comply with BS EN 934-6: Admixtures for concrete, Mortar and Grout, Sampling, conformity control and evaluation of conformity. Test methods shall be as indicated in BS EN 480, Parts 1 to 14
		3. The total amount of admixtures, if any, shall not exceed the maximum dosage recommended by the admixture producer subject to a maximum dose not exceeding 50g of admixture per kg of cement. Admixtures used in quantities of less than 2g/kg of cement are only permitted if they are dispersed in part of the mixing water. If the total quantity of liquid admixtures exceeds 3 l/m3 of concrete, its water content shall be taken into account when calculating the water/cement ratio.
		4. Where more than one admixture is proposed for incorporation in the concrete mix, the compatibility shall be certified.
		5. Calcium chloride and chloride based admixtures shall not be added to concrete containing steel reinforcement, prestressing steel reinforcement or other embedded metal.
	5. **Additions**
		1. Additions (filler, pigments, fly ash, silica fume) shall not be used without the written approval of the Project Manager.
	6. **Chloride Content**
		1. The chloride content of a concrete, expressed as a percentage of chloride ions by mass of cement, shall not exceed the values given in BS EN 206-1, Table 10.
	7. **Designed Concrete**
		1. Concrete for structural use shall be designed concrete.
	8. **Designed Concrete - Trial Mixes**
		1. Designed concrete shall conform to the requirements specified in BS 8500-1:2015+A2:2019:Complementary British Standard to BS EN 206-01, Method of Specifying and Guidance for the Specifier, Table 9.
		2. Initial trial mixes shall be carried out on all mix designs prior to their use in the works. Trial mixes shall be produced using the plant and transport intended for use in the works, unless otherwise agreed by the Project Manager.
		3. The mandatory trial mixes of each concrete grade shall be executed as per D.O.E (UK) method or approved equivalent.
		4. The trail mixes shall be sampled and tested according to the requirements of BS EN 12350 and BS EN 12390. Accelerated curing techniques that predict 28 day cube crushing strengths with acceptable accuracy may be used.
	9. **Production Control**
		1. All concrete shall be subject to a production control system under the direct responsibility of the producer. The production control system shall cover, at least, the measures indicated in BS EN 206-1, clause 9 with particular reference to the recorded data and other documentation (See Tables 20, 21, 22, 23, 24).
	10. **Conformity Control and Conformity Criteria**
		1. The producer is responsible for evaluation of conformity. The tasks to be carried out by the producer shall be as indicated in BS EN 206-1, clause 10 with particular reference to Annex A.
	11. **Evaluation of Conformity**
		1. All concrete shall be subject to a conformity control system under the direct responsibility of the producer. The control system shall cover, at least, the measures indicated in BS EN 206-1, clause 8 with particular reference to clause 8.2.1.2 (Sampling and Testing Plan) and Tables 13, 14, 15, 17, 18, 19a, 19b).
	12. **Action in Event of non-compliance**
		1. In the event of non-conformity with the specified standards, the producer shall take the actions prescribed in BS EN 206-1, clause 8. The Contractor shall remove concrete elements made out of non-compliant concrete already placed which is rejected by the Architect and Civil Engineer in charge.
		2. The Project Manager may order further tests to be carried out on the hardened concrete which may include cored samples and non-destructive testing. The cost of such action and testing shall be at the Contractor’s expense.
	13. **Concrete Mix – Information from the Producer and Delivery Chits.**
		1. The information from the Contractor to the producer shall be as indicated in BS EN 206-01, clause 7.1.
		2. The information from the producer to the user shall be as indicated in BS EN 206-01, clause 7.2.
		3. The producer shall provide a template of the delivery chits at least seven days before the start of the Works. These shall contain the minimum information contained in BS EN 206-01, clause 7.3.
	14. **Notification of Concrete Pours**
		1. The Contractor shall give the Project Manager 24 hours written notice of any intended concrete pour. The Contractor must submit a 'Notification of Concrete Pour' form for any intended concrete pour.
	15. **Concrete Pumps (Where Applicable)**
		1. Should the Contractor opt for the use of Concrete Pumps in placing operations the agreement of the Project Manager shall be sought.
	16. **Concrete Profilers (Where Applicable)**
		1. The use of Mobile Concrete Slipform Profilers is permissible. The plant, methodology, mix design, curing, alignment, levelling, joints and tolerances provisions shall be to the approval of the Project Manager.
	17. **Placing**
		1. Concrete shall not be placed unless the Project Manager or his representative is present and has previously examined and approved the positioning, fixing and condition of reinforcement, any other embedded items and the cleanliness, alignment and suitability of the formwork or other containing surfaces.

Concrete shall be deposited as early as possible in its final position and shall be placed in such a manner as to avoid segregation of the materials and displacement of formwork, reinforcement and other embedded items. The manner of placing shall be to the approval of the Project Manager.

* + 1. Placing shall be continuous between specified or approved construction joints. The concrete shall be compacted and in its final position within two hours of the introduction of cement in the mix. Fresh concrete shall not be placed adjacent to concrete that has been already placed and compacted in excess of 45 minutes.

If, for any reason, the placing of concrete is discontinued, the Contractor shall
immediately inform the Project Manager's representative. All works involved in any
remedial measures shall be carried out at the Contractor's expense.

Concrete shall not be placed in running water and any water standing on areas to receive concrete shall be removed before concrete is deposited.

* 1. **Batching of Concrete**
		1. Batching of constituent materials shall be as provided in BS EN 206-1, clause 9.7.
	2. **Delivery Trucks and Cleaning**
		1. All delivery trucks shall be certified as complying with BS EN 206-1, clause 9.6.2.3 and registered as suitable for their purpose in a data schedule. This shall include the calibration data in respect of water gauges. Arrangements will be made to designate an area where all concrete delivery trucks can wash out. This area will be situated well away from any concreting activities.
	3. **Workability**
		1. The workability of the concrete being placed shall be checked by means of the slump test with every concrete truck delivery. When the measured slump is outside the specified limits, the concrete shall not be used in the works.
	4. **Execution - General**
		1. The execution concreting operations shall generally follow the provisions and requirements of BS 8110, Part 1:1997: Structural use of Concrete and ENV 13670-1: Execution of concrete structures.
	5. **Protection against rainfall**
		1. The Contractor shall provide adequate cover as necessary to protect concrete pours in progress against damage from rainfall.
	6. **Placing in High Temperature**
		1. Freshly placed concrete is to be given adequate protection to resist the combined evaporative effect of direct sunlight, air temperature, relative humidity and drying winds on the surface of the placed concrete, particularly for concrete placed in horizontal areas.

The Contractor shall take measures to control the maximum concrete temperature after placing and the temperature gradient within any concrete pour. The maximum concrete temperature after placing should not exceed 65 Degrees Celsius.

* + 1. The Contractor shall supply suitable maximum/ minimum thermometers and record the shade and ambient temperatures at locations where concrete is being placed. The temperature is recorded every hour. The shade and ambient temperature together with the temperature of the concrete, shall be reported in the cast data-log to be presented with the concrete fresh and hardened properties test report. The report shall include also the cast location reference and delivery note details.
	1. **Compaction**
		1. The concrete shall be fully compacted throughout the full extent of the layer. It shall be thoroughly worked against formwork and around reinforcement or embedded items without displacing them. Compaction is to be in such a way that it does not promote a) segregation; b) formwork and reinforcement displacement.
		2. Successive layers of the same lift shall be thoroughly worked together.
		3. Care shall be taken to prevent the formation of air bubbles against vertical or sloping formwork.
		4. Unless otherwise directed by the Project Manager, approved power driven vibrators shall be used to ensure that the concrete is satisfactorily and uniformly compacted.
		5. Surface vibrators of approved type, capacity and frequency shall be used to compact thin slabs, pavements and road slabs as directed by the Project Manager.
		6. The position and arrangements of construction joints will be as shown on the Drawings or as approved by the Project Manager.
		7. The surface of concrete already cast which is to receive further concrete is to have the laitance removed either when green by compressed air and/or water jetting or, if hardened, by micro hacking with light air picks. Care shall be taken not to crack concrete or loosen the aggregate. Before placing fresh concrete, the surface shall be clean , having no loose or foreign materials, and shall be wetted thoroughly.
	2. **Construction Joints**
		1. Fresh concrete after deposition shall be thoroughly compacted against all joint surfaces. Particular care shall be taken to prevent the leakage of grout at joints by use of adequate seals such as a foamed plastic strip compressed between the inner face of the formwork and the previously placed concrete.
	3. **Water Bars**
		1. Where ordered, water bars or water stops shall be inserted in joints and care shall be taken to ensure that the concrete is well compacted against them and that they are not damaged or displaced during placing operations. A half width of the water bars shall be inserted in one pouring of the concrete and the other half encased by a subsequent pouring. Joints in water bars shall be made as directed by the manufacturers.
		2. Water bars shall include means, such as reinforced flanges to facilitate accurate and rigid fixing in the joint.
	4. **Expansion Joints**
		1. Expansion joints shall be formed in positions as shown on the Drawings or as directed by the Project Manager. Expansion joints shall be formed with joint material of the dimensions shown on the Drawings.
	5. **Sealing of Joints**
		1. The cavity for the joint sealer shall be of the dimensions shown on the Drawings and the surfaces shall be thoroughly cleaned and primed or de-bonded in accordance with the manufacturer's instructions before placing the sealant. The sealing compound in all joints shall be to the approval of the Project Manager, and shall be applied as directed by the manufacturers.
	6. **Curing and Protection - General Requirements**
		1. The Contractor shall ensure that curing is carried out in such a way that thermal and plastic cracking of the concrete does not occur.
		2. For a minimum period of 7 days after placing the concrete, it shall be kept protected against loss of moisture, rapid temperature change, rain and flowing water, mechanical injury, contamination by airborne dust and sand, drying winds and surface heating by the sun's rays. This period may be increased on the instructions of the Project Manager.
		3. Following the completion of the above period a further period of controlled drying out will be required as directed by the Project Manager. This may require that covers, sand layers and the like be kept in place for longer than the 7 day minimum curing period otherwise specified.
		4. The Contractor's attention is particularly drawn to the importance of starting curing as early as possible after placing concrete and maintaining full curing procedures throughout, as specified and directed herein.
		5. Any concrete which exhibits plastic settlement, or plastic early thermal contraction, or early drying shrinkage cracking, or which has not been properly cured, shall be rejected by the Project Manager.
	7. **Curing Methods**
		1. The Contractor shall prepare and submit his proposals for wet curing of concrete and for maintaining the curing regime to the standards and for the times specified herein. The method proposals shall be to the satisfaction of the Project Manager and the approved methods will be strictly enforced. Purpose-made curing frames will be provided by the Contractor for the vertical faces of the deck and quay walls. Methods for other areas shall include the use of curing membranes, watering, covers, shades and any other precautions that are required for the Contractor to ensure satisfactory curing of the concrete. Where necessary, the Project Manager may insist on the use of thorough and continuous wetting of concrete surfaces.
		2. The Contractor's attention is drawn to the recommendations of the American Concrete Institute (ACI) Standard 308 -71, 'Recommended Practice for Curing Concrete'. These or similar methods will be required to satisfy the Project Manager in respect of the adequacy of curing methods.
		3. The Contractor shall provide the necessary climate measuring equipment and check for conditions in which plastic cracking is likely to occur.
	8. **Curing Membrane**
		1. Curing membranes shall only be used where approved by the Project Manager.

The Contractor shall submit full details of the materials he proposes to use including their comparative efficiency with respect to the specified method of water curing.

* + 1. Where used, curing membranes shall be of resin based, white reflective type and shall be sprayed on the surface of the concrete as soon as all free water has evaporated from the surface, except where provided for below.
		2. It shall be of a film type which fully degrades by exposure to UV light without leaving detrimental residue on the surface.
		3. Curing membranes shall not in any case be applied until at least 7 days curing with water has been applied.
		4. Where a surface treatment is to be applied to the concrete (eg. a surface hardener) a curing membrane shall only be used if it is compatible with the surface treatment.
	1. **Water Curing**
		1. Only drinking quality water free from slats and harmful substances shall be used for concrete, including concrete curing. Water with impurities including salts, sea water or any other impurities shall not be used at any stage including the production or curing of concrete.
		2. The concrete shall be covered with sacking, hessian, or other absorbent material, or a 75mm layer of sand, kept constantly wet for 7 days and, where directed by the Project Manager, also covered with plastic sheeting to reduce loss by evaporation. Care shall be taken to ensure that the temperature of the water used during all stages of the curing process is as close as possible to that of the concrete being cured.
	2. **Use of Curing Covers**
		1. Curing of concrete surfaces may be carried out by sealing with opaque, reflective plastic sheeting held in close contact with the surface of the concrete and forming an airtight fit around the element to be cured. The sheeting shall form a continuous seal and be without tears or holes.
		2. If necessary the Contractor shall provide frames for the plastic sheeting so that the covers can be placed over deck slab pours immediately after the concrete has been floated off and before the brush finish is applied.
	3. **Wetting of Formed Surfaces**
		1. To compensate for any surface drying that has occurred and as soon as the forms are removed, formed surfaces shall be sprayed with water and allowed to reach a uniformly damp appearance before continuing with curing.
	4. **Curing of Concrete - Procedure**
		1. Curing of concrete shall proceed as follows:-
1. Large Flat Areas, e.g. Slabs (Preferred Method)
	1. Immediately after trowel finish, cover the concrete surface with polythene/wooden frames to minimise evaporation. All gaps at sides and ends must be filled in to avoid wind-tunnel effects.
	2. When the surface can carry weight, replace the frames by a layer of damp hessian covered by polythene sheet. The hessian must be kept continuously damp for 7 days (ie not wet/dry cycles), and suitable weights must be used to keep the polythene in place. If appropriate, surfaces may be ponded.
	3. After 7 days wet curing, apply white-pigmented resin based curing compound in accordance with the manufacturer's instructions.
	4. Cover with dry hessian for 14 days.
2. Flat Surfaces with Starter Bars
	1. Shade the whole area from sunshine before concreting commences, leaving enough room for personnel/placing access, and ensuring that no gaps are left in the sides/ends which would allow wind-tunnel effects.
	2. As soon as concreting is complete, cover the top surface with damp hessian (which is to be kept continuously damp for 7 days) and a layer of polythene.
	3. Maintain cover-only curing from the 7th to the 14th day.
3. Vertical Surfaces
	1. Leave formwork in place for at least 24 hours and keep continuously wet and then, after removing the forms, immediately wet the surface and cover the sides by damp hessian (which is to be kept continuously damp for 7 days) covered by white polythene.

ii) Maintain cover-only curing from the 7th to the 14th day.

* + 1. Any necessary repairs or finishing processes shall be carried out as soon and as quickly as possible, only exposing small areas at any one time.
	1. **Use of Covers**
		1. Polythene sheeting shall be continuous without tears or holes and shall be white, opaque and reflective.
	2. **Thick Sections**
		1. The Contractor's attention is drawn to the need to take special precautions, such as careful planning of construction joint locations, to limit the build-up of heat in thick sections of concrete, particularly during hot weather.
	3. **Protection of Joints**
		1. Rebates formed to receive sealants and the surfaces of construction joints shall be protected from curing membrane by wet Hessian, maintained continuously damp, to ensure proper curing of the joint surface and the adjacent concrete. The wet hessian shall be maintained in place until the sealant is placed.
	4. **Curing Notices**
		1. Curing notices shall be exhibited for each concrete pour, stating the time and date when the concrete was placed, date for last wet curing and the date for completion of cover curing.
	5. **Curing of Repairs**
		1. All concrete repairs shall be cured in accordance with the above provisions.
	6. **Damaged Concrete**
		1. Any concrete found to have been damaged by weather effects shall be cut out and replaced with concrete as specified in this Specification, by the Contractor at his own expense.
	7. **Mass Concrete**
		1. The requirements for quality control, placing, compacting, testing and compliance for reinforced concrete shall apply equally to mass concrete.
	8. **Blinding Concrete**
		1. Wherever structural reinforcement is shown on the Drawings and is in contact with the Ground (and is to be constructed 'in the dry'), a layer of concrete shall be provided.
	9. **Early Loading**
		1. At no time will concrete be subjected to any loading, including its own weight, which will induce a compressive strength in it exceeding 0.4 of its compressive strength at the time of loading, nor shall the induced stress exceed 0.33 of the specified characteristic strength.
		2. For the purpose of this clause, the assessment of the strength of concrete and stresses produced by the loading shall be subject to the agreement of the Project Manager.
	10. **Surface hardener**
		1. The proprietary surface hardener and dust inhibitor shall be applied on internal exposed concrete floor surfaces, mainly in the main hall.
		2. The surface hardener shall consist of natural mineral aggregate (quartz) aggregate dry shake surface hardener, applied at an approximate rate of 5 to 7 kg/m2, or as otherwise recommended by the manufacturer, monolithically on the green concrete, during the power ground finishing, so as to produce a surface with increased resistance to penetration of oils and grease, with increased slip resistance, and which can be easily cleaned.
		3. Prior to the application, the substrate shall be cured, clean and free from surface contaminants.
		4. The surface hardener shall be applied evenly to dry surfaces. After absorption, the surface shall be washed immediately with clean water. Additional applications shall be as per manufacturer’s recommendations.
		5. Any solutions and wash water shall not be discharged to drains but the Contractor shall store and dispose of them safely.
	11. **Power ground finish for wearing surfaces**
		1. The surface of a power ground finish for wearing surfaces shall be achieved by grinding, namely the removal of 1 to 2mm from the surface. This process shall be carried out when the concrete is sufficiently hard for fine aggregate surface particles not to be dislodged. The surface shall then be cleaned by removing dust and washing it down. The surface on completion shall consist of an even glass-paper texture, free from blemishes and trowel marks.
	12. **Screeds**
		1. Screeds shall comply with EU Regulation No. 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonized conditions for the marketing of construction products and repealing Council Directive 89/106/EEC.
		2. The performance characteristics of screeds shall comply with EN 13813, Screed material, properties and requirements.
		3. The following test methodologies shall pertain:

|  |  |  |
| --- | --- | --- |
| a. | Flexural and Compressive Strength: | EN 13892-2 |
| b. | Wear Resistance – Bohme or BCA: | EN 13892-3 |
| c. | Determination of Surface Hardness: | EN 13892-6 |
| d. | Bond Strength: | EN 13892-8 |

* 1. **Lightweight Aggregates**
		1. The use of lightweight aggregates shall be subject to the approval by the Project Manager.
		2. Lightweight aggregates shall comply with EU Regulation No. 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonized conditions for the marketing of construction products and repealing Council Directive 89/106/EEC.
		3. The performance characteristics of screeds shall comply with EN 13055-1.
	2. **Quality Control Testing**
		1. The contractor shall carry out testing of the fresh concrete in accordance wth BS EN 206, BS 8500 and BS EN 12350.
		2. The sampling rate of fresh concrete testing shall be 1 (one) sample per truck load delivered on site. Every element cast is to have a concrete test referenced to its poured location. The Engineer in charge shall request any other specific testing as is required for any particular critical elements.
		3. The contractor is to maintain complete correlated records including:
* Concrete designation;
* Sampling, site tests, and identification numbers of specimens tested in the laboratory;
* Location of the parts of the structure represented by each sample;
* Location in the structure of the batch from which each sample is taken.
	+ 1. The sampling shall consist of a minimum of 4 cubes per sample, with 2 cubes each tested at 7 and 28 days from date of casting.
		2. The Contractor shall submit the test report not later than one day from completion of each test. A copy of the relevant 28 day test reports is to be submitted with each claim for payment.
		3. In the event of non-conformity with the specified specifications and standards, the Contractor shall take the actions prescribed in BS EN 206-1, clause 8. The Engineer shall dis/approve the Contractor’s proposal for action to be taken with regards to concrete already placed. This may range from rejection and removal of the suspect concrete to qualified acceptance, depending on the degree of non-compliance and the type of member involved.

The Engineer may order further tests to be carried out on the hardened concrete, in line with BS EN 12390:2009 which may include cored samples and non-destructive testing. The cost of such action and testing shall be at the Contractor’s expense.

* + 1. The testing laboratory shall be accredited by the relevant local Authority. The Contractor shall submit the name and MSA or NAB reference number/certificates of the testing laboratory well in advance of making trial mixes or concrete for use in the works.
1. **FORMWORK FOR CONCRETE**
	1. **Formwork – General**
		1. The requirements for formwork shall generally follow the provisions and requirements of BS 5975 Code of Practice for Falsework and BS 8110, Part 1:1997: Structural use of Concrete with particular reference to clause 6.9, Formwork.
		2. Formwork shall be so designed and constructed that the concrete can be properly placed and thoroughly compacted and that the hardened concrete, whilst still supported by the formwork, shall comply with the required shape, position and levels subject to the tolerances and the standards of finish required by this Specification.
		3. Fabrication drawings of all formwork shall be provided by the Contractor and submitted to the Project Manager when requested.
		4. Formwork or shuttering shall not be re-used without the prior approval of the Project Manager.
	2. **Contractor's Option to Precast**
		1. In addition to those sections of the Works where the Drawings indicate the use of precast construction, and provided that his proposals meet the Project Manager's approval, the Contractor may opt to precast any sections which are shown on the Drawings as in situ concrete.
		2. If the Contractor wishes to exercise this option, then, following approval in principle as required above, he shall submit to the Project Manager all calculations and layout and detail drawings necessary for the manufacture and installation of the precast units and for the completion of each section of the Works to satisfy the original design requirements. All these calculations and drawings shall be approved by the Project Manager before any work is commenced on the manufacture of precast concrete units.
	3. **Sufficiency of Formwork**
		1. The Contractor shall be responsible for the sufficiency of all formwork, but if required by the Project Manager, he shall, before it is erected, submit details of formwork and supports he proposes to use for approval. Guidance on the loads and worst combination scenarios is given in CIRIA Report No. 13 and BS 5975:1996: Code of practice for Falsework.
	4. **Cleanliness of Formwork**
		1. Special care shall be taken to ensure the cleanliness of formwork prior to deposition of concrete. Temporary openings shall be provided in stop-ends for the removal of water and debris.
		2. All re-usable formwork shall be thoroughly scraped, cleaned and, if necessary, repaired before being raised.
	5. **Ties**
		1. The material and positioning of any ties passing through the concrete shall be approved by the Project Manager. The whole, or part of the tie shall be capable of being removed so that no part remaining embedded in the concrete shall be nearer the surface than the specified cover to reinforcement. Any holes left after the removal of ties shall be plugged immediately with a cement mortar of the same richness using non-shrink materials.
	6. **Surface Treatment of Forms**
		1. The faces of the formwork in contact with the concrete shall be coated with non-staining shuttering oil or other approved material to prevent adhesion. Care shall be taken that the coating material is kept out of contact with reinforcement or embedded steelwork.
	7. **Inspection and Approval**
		1. All shuttering shall be inspected and approved by the Project Manager before concrete is placed within it.
	8. **Striking of Formwork**
		1. Minimum striking times shall be in accordance with BS 8110, Part 1, clause 6.9.3 with special reference to Table 6.6. or as otherwise agreed with the Project Manager. Notwithstanding any approval given by the Project Manager, the Contractor shall remain responsible for any damage arising from the removal of formwork.
		2. All formwork shall be designed so that it can be removed without shock or vibration.
	9. **Retarders**
		1. The use of retarders on formwork shall not be permitted except with the written permission of the Project Manager.
	10. **Tolerances**
		1. Except where detailed elsewhere in this Specification, the tolerances on all concrete works shall be as indicated in BS 8110, Part 1, clause 6.11.2.
	11. **Quality of Finishes**
		1. The classes of the finishes required shall be as indicated on the Drawings, if applicable.
	12. **Classes of Surface Finish Where Cast Against Formwork**
		1. Class F1
			1. Finish for surfaces against which backfill or other concrete is to be placed. Formwork shall consist of sawn boards, sheet metal or any other suitable material which will prevent the loss of grout when the concrete is vibrated.
		2. Class F2
			1. Finish for permanently exposed surfaces but where special finishes are not required. Formwork shall be faced with sound and plain plywood, steel panels or other suitable materials arranged in a uniform pattern. Joints in facing shall be horizontal and vertical unless otherwise directed.
			2. On striking the formwork the surface shall be plain and smooth and shall not be treated in any way. The Project Manager may order rubbing down of any minor surface blemishes at the Contractor's expense.
		3. Class F3
			1. Finish which is required for permanently exposed surfaces where a high standard is of particular importance.
			2. The formwork shall be faced with plywood or equivalent suitable material in large sheets arranged to the approval of the Project Manager in a uniform pattern. Metal panels shall not be used for F3 finishes.
			3. Where possible, joints in sheets shall be arranged to coincide with particular features or changes in the direction of the surface. All joints shall be vertical and horizontal unless otherwise directed.
		4. Permanent formwork of precast slabs, natural stone, brickwork and the like shall have surface finishes of the quality shown on the Drawings. They shall be fixed to the structure by approved means and joints shall be made tight with mortar or other means of preventing grout leakage.
	13. **Classes of Surface Finish When Not Cast Against Form Work**
		1. Class U1
			1. Finishing operations shall consist of compacting and tamping the concrete to the required lines and producing a uniform lightly ridged surface.
		2. Class U2
			1. Finishing operations shall consist of the above requirements for Class U1 and, after allowing the concrete surface to harden sufficiently floating the surface by hand with a wood float to produce a uniform surface free of screed marks. Care shall be taken not to work the surface more than is necessary.
		3. Class U3
			1. Finishing operations shall consist of the above requirements for Class U2, after allowing the concrete surface to harden sufficiently then floating the surface by power tool to produce a uniform surface free of screed marks. Care shall be taken not to work the surface more than is necessary.
		4. Class U4
			1. Non-skid surface. Finishing operations shall consist of the above requirements for class U2 using a plain wood float finish and evenly dusting the surface with carborundum grains graded between 500 microns and 3mm at the rate of 1.0 kg/sq.m of surface area before the surface of the concrete has set. The carborundum shall then be trowelled lightly into the surface.
	14. **Chamfers to Arises**
		1. Unless otherwise indicated on the drawings, all exposed arises shall be chamfered 25 x 25 mm.
	15. **Defective Concrete Finishes**
		1. Any defective concrete finish shall be rejected and the Project Manager may order the defect(s) to be cut out and made good, all at the Contractor's expense.
		2. Any proposed remedial treatment to concrete surfaces shall be submitted to the Project Manager for approval and no work shall be carried out until the approval has been obtained. This remedial treatment will be at the Contractor's expense.
		3. Any concrete, the surface of which has been repaired before being inspected by the Project Manager shall be liable to rejection.
2. **REINFORCEMENT FOR CONCRETE**
	1. **Compliance – Sample Size and Frequency of Sampling (Where Applicable)**
		1. Where applicable, sample size and frequency of sampling for compliance shall be established on the basis of standard statistical guidelines.
	2. **Compliance – Testing and Certification**
		1. Compliance shall be demonstrated through testing and/or certification of products and/or processes as outlined in the ensuing clauses.
	3. **General Note on European Eurocodes**
		1. This specification is primarily based on the provisions of BS 8110 – Design of Concrete Structures. Alternative provisions as indicated in Eurocode 2, EN 1992, parts 1 to 3, are acceptable.
	4. **Reinforcing Steel – Material**
		1. Steel bars for the reinforcement of concrete shall comply with EU Regulation No. 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonized conditions for the marketing of construction products and repealing Council Directive 89/106/EEC.
		2. Welded Steel fabric for the reinforcement of concrete shall comply with EU Regulation No. 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonized conditions for the marketing of construction products and repealing Council Directive 89/106/EEC.
		3. Technical characteristics of steel bars for the reinforcement of concrete shall comply with BS EN 4449:2005, Grade 460A or B. Steel shall preferably also be CE marked in compliance with ENV 10080, Steel for the Reinforcement of Concrete, Weldable Ribbed Reinforcement.
		4. Technical characteristics of Welded Steel fabric for the reinforcement of concrete shall comply with BS 4483, Grade 460A or B. Steel Fabric shall preferably also be CE marked in compliance with ENV 10080, Steel for the Reinforcement of Concrete, Weldable Ribbed Reinforcement.
		5. Technical characteristics of pre-stressing steels shall comply with EN 10138.
		6. Testing of reinforcement shall comply with BS EN ISO 15630 Parts 1 to 3: Steel for the Reinforcement and Pre-stressing of Concrete, Test Methods.
		7. The manufacturer's milling identification tags are to be supplied with each consignment bundle of reinforcing steel.
		8. Reinforcement which is found to have developed brittleness, cracks or other imperfections shall be rejected and removed from the site.
		9. Testing of reinforcing steel shall be carried out with every lot delivered and a minimum of 3 samples shall be taken for every lot tested.
	5. **Reinforcing Steel Grade**
		1. The grade of bar reinforcement and the mesh reference shall be as indicated in the Drawings.
	6. **Reinforcement to be Clean**
		1. All reinforcement shall be clean and free from loose mill scale, dust, loose rust and coatings such as paint, oil etc.
		2. Grit blasting may be used to remove rust, oil, grease, salt or other deleterious matter. Repeated grit blasting may be necessary where reinforcement is in final position, but found on inspection to be contaminated.
	7. **Bending and Cutting**
		1. Bending and cutting of reinforcement shall comply with BS EN ISO 8666:2018. The provision in BS 8110: Part 1, clause 7.2 shall also apply.
	8. **Fixing of Reinforcement**
		1. Reinforcement shall be wired together, or otherwise effectively secured, to prevent displacement during concreting. The provisions in BS 8110: Part 1, clause 7.3 shall also apply.
		2. Wire for binding shall be 1.63 mm +/- 0.05mm annealed soft iron and the binding shall be done tightly with proper tools. Alternative methods of fixing reinforcement shall be submitted to the Project Manager for his approval. Laps and joints shall be in strict accordance to those specified in the Drawings. Any relocation and additional laps shall be approved by the Project Manager.
	9. **Cover to Reinforcement**
		1. Reinforcement shall, in all cases, be covered with the thickness of concrete shown on the Drawings. Accurate cover shall be secured by the use of plastic distant pieces of the correct size or other approved means.
	10. **Spacers and Chairs**
		1. Spacers and chairs for reinforcement shall be as shown on the Drawings and complying with BS EN ISO 7973:2015, Parts 1 and 2: Spacers and Chairs for Steel Reinforcement and their Specification.
	11. **Welding Reinforcement**
		1. Welding of reinforcement will not generally be permitted. If, in exceptional circumstances, the Contractor particularly wishes to weld reinforcement, details of the method and location shall be submitted to the Project Manager for his consideration and approval. The provisions in BS 8110, Part 1, clause 7.6 shall apply.
		2. The design of all items such as tack-welded reinforcement assemblies shall take into account any requirements in respect of transportation including the location and fixing of lifting points to ensure safe handling.
		3. The Contractor may add lengths of austenitic stainless steel reinforcement which is to be conventionally wire tied to the detailed reinforcement, and to which he may weld for the purposes of providing adequate support for fixings during the placing of concrete. The details of such additional reinforcement must be submitted to the Project Manager for approval prior to carrying out the work.
		4. In all cases, the Project Manager may require an electrically insulated material, such as plastic, to be inserted between the additional reinforcement and the detailed reinforcement in order to minimise corrosion due to stray electrical currents.

Apart from the above specifications the following standards and specifications must be **hemployeD:**

employed

**Standards**:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Material** |  | **Standard** |  |  |  |
|  |  | MSA EN 206 Part 1 & UK National |  |
|  |  | Structural Concrete Specifications for |  |
| Concrete |  | Buildings, Section 8 |  |  |
| Reinforcement |  |  |  |  |  |
| Bars |  | MSA EN 10080 & BS 4483:2005 | Grade 500 |
| Reinforcement |  |  |  |  |  |
| Mesh |  | MSA EN 10080 & BS EN 4449:2005 | Grade 500 |

**The Contactor is to abide by other requirements specified in Malta Legal Notice 29/2010**

# SECTION 5 – SUPPLEMENTARY DOCUMENTATION

## 5.1 – Draft Contract Form

## 5.2 – Glossary

## 5.3 – Specimen Performance Guarantee

## 5.4 – Specimen Tender Guarantee

These are available to view and download from the ‘Resources Section’ at:

[www.etenders.gov.mt](http://www.etenders.gov.mt)

## 5.4 – General Conditions of Contract

The full set of General Conditions for Works Contracts, for Supplies Contracts and for Services Contracts (latest version as applicable on the date of the publication of this tender) can be viewed/downloaded from the ‘Resources Section’ at:

[www.etenders.gov.mt](http://www.etenders.gov.mt)

It is hereby construed that the tenderers have availed themselves of these general conditions, and have read and accepted in full and without reservation the conditions outlined therein, and are therefore waiving any standard terms and conditions which they may have.

These general conditions will form an integral part of the contract that will be signed with the successful tenderer/s.

1. The items Plastering, Painting, and Aluminium Apertures form part of the item Plastering and Decorating in the Preliminary Agreement relative to ERDF 05.121. [↑](#footnote-ref-1)