Ministry of Agricultural Development (MoAD)

INVITATION FOR TENDER FOR PROCUREMENT OF CONSTRUCTION OF SUBSURFACE DAMS – CONTRACT C1

Invitation for Tender No.: MoAD/KfW/SLMP/CB06/2019

INVITATION FOR TENDER FOR CONTRACTORS

Country: Republic of Somaliland

Project: Procurement of Construction of Subsurface Dams

Project ID: BMZ No. 32642 / 2015 67 924

Date: December 04, 2019

The Government of Somaliland through Ministry of Agricultural Development has received financing assistance from KfW toward the cost of the Sustainable Land Management, and intends to apply part of the proceeds toward payments under the contract for the procurement of construction of Subsurface Dams works in Biji Catchment Area of the SLM Project.

Ministry of Agricultural Development now invites sealed Bids from eligible Bidders for:

- Lot A – Construction of SS01 (Geed Abeera), SS03 (Danyaale), SS04 (Arabsiyo)
- Lot B – Construction of SS07 (Beeyo Liiban), SS13 (Caro Yanbo), SS16 (Geesdheer)

Further details on the scope of the works foreseen are provided on www.somalijobs.net webpage. The originals of the entire tender documents are provided as soft and hard copies against a non-refundable payment of USD 100.00 (One Hundred United States Dollars) at the address provided below. The method of payment will be in Cash. The documents to be downloaded from the webpage could not be used to fill prices and only
originals can be used for this purpose. The downloadable versions are intended to show bidders about the scope of work before site visit.

Site visit and pre-bid meeting are planned for 18th December 2019 at 8:00 A.M. and 19th December 9:00 AM respectively.

Interested eligible Bidders may obtain further information from the address provided below.

Bidding will be conducted by means of the National Competitive Bidding procedure with qualification as specified in the KfW Guidelines for Procurement of Goods, Works and associated Services in Financial Cooperation with Partner Countries (“KfW Guidelines”) customised to local situations in Somaliland.

Applicants are invited from interested Contractors. The minimum qualification criteria to be met are as follows:

a) Average annual turnover in construction during the last three years of US$ 100,000 or equivalent.

b) Not to have a conflict of interest, i.e. applicants (including all partners of a joint venture and all subcontractors) should not have participated as a Consultant in the preparation of the design or technical specifications of the works that are the subject of this tender.

c) Not listed as sanctioned entity by either the Government of Somaliland, Germany, the EU or the United Nations regarding fight against terrorism.

d) All applicants to submit duly filled, signed documents with a covering letter on Company Letterhead duly signed by the authorized / legal representative of the Company.

e) All Bids must be accompanied by a Bid Security.

The anticipated commencement of the works is February 2020.

An Applicant is required to Submit One (1) Original and Four (4) Copies of the tender documents as well as one soft copy.

In the first public session, only the Qualification Documents and Technical Proposal will be opened in the presence of the Bidders’ designated representatives. In the second public session only the Bids (financial offers) of those Bidders who have fulfilled the qualification criteria and whose technical proposals are substantially responsive will be opened.

Sealed Bids indicating the Invitation for Tender and Tender Description must be delivered within 45 calendar days of the first day of announcement of this tender to the address below so as to be received until 18 of January 2020 at 10.00 A.M. Local Time. Late Bids will be rejected.
The bids will be opened immediately thereafter at Ministry of Agricultural Development Meeting Hall in the presence of interested bidders who may wish to attend.
German Financial Cooperation with Republic of Somaliland

“WATER SUPPLY & BASIC SANITATION AND SUSTAINABLE LAND MANAGEMENT”

Bidding Documents for

Procurement for Works Contract C1 (2 Lots)

Lot A – SS dam sites SS01 (Geed Abera), SS03 (Daanyaale), SS04 (Arabsiyo) and
Lot B – SS dam sites SS07 (Beeyo Liibaan), SS13 (Caro Yanbo), SS 16 (Geesdheer)

Part 1 – Bidding Procedures

Tender Procedures: Two Envelope Post-qualification

Employer: Ministry of Agricultural Development (MoAD)

November 2019

Project ID: BMZ No. 32642 / 2015 67 924
Summary

PART 1 – BIDDING PROCEDURES

Section I  Instructions to Bidders (ITB)
This Section provides relevant information to help Bidders prepare their bids. Information is also provided on the submission, opening, and evaluation of bids and on the award of Contracts.

Section II  Qualification and Bid Data Sheet (BDS)
This Section includes provisions that are specific to each procurement and that supplement Section I, Instructions to Bidders.

Section III  Qualification and Evaluation Criteria (without Prequalification procedure)
This Section specifies the criteria to determine the lowest evaluated bid and to ascertain the continued qualification of the Bidder to perform the contract.

Section IV  Qualification and Bidding Forms
This Section includes the forms which are to be completed by the Bidder and submitted as part of his Bid.

Section V  Eligibility Criteria
This Section contains information regarding eligible countries.

Section VI  KfW Policy – Corrupt and Fraudulent Practices – Social and Environmental Responsibility
This Section provides the Bidders with the reference to the KfW policy in regard to corrupt and fraudulent practices applicable to this process as well as Social and Environmental Responsibility.

PART 2 – WORKS REQUIREMENTS

Section VII  Works Requirements
This Section contains the Specifications, the Drawings, and supplementary information that describe the Works to be procured. The Works Requirements shall also include the environmental, social, health and safety (ESHES) requirements to be demonstrated by the Contractor in executing the Work.
PART 3 – CONDITIONS OF CONTRACT AND CONTRACT FORMS

Section VIII  General Conditions (GC)

This Section contains the general clauses to be applied in all contracts. The text of the clauses in this Section shall not be modified.

Section IX  Particular Conditions (PC)

This Section consists of Part A, Contract Data, which contains data, and Part B, Specific Provisions, which contains clauses specific to each contract. The contents of this Section supplement the General Conditions and shall be prepared by the Employer.

Section X  Contract Forms

This Section contains forms which, once completed, will form part of the Contract. The forms for Performance Security and if required, Environmental, Social, Health and Safety (ESHS) Performance Security, and Advance Payment Security, when required, shall only be completed by the successful Bidder after contract award.
Priority of Documents

The Documents forming the Bidding Dossier are to be taken mutually explanatory of one another. For the purposes of interpretation, if not otherwise stated within the documents the priority of documents shall be in accordance with the following sequence:

(a) the Contract Agreement
(b) the Letter of Acceptance
(c) the Letter of Bid
(d) the Particular Conditions – Part A
(e) the Particular Conditions – Part B
(f) the General Conditions of Contract
(g) the Specifications
(h) the Drawings and
(i) the Schedules and any other documents forming the Contract
Abbreviations

BDS  Bid Data Sheet
BMZ  Bundesministerium für Wirtschaftliche Zusammenarbeit und Entwicklung
BoQ   Bill of Quantity
CD    Check dam
CES   CES Consulting Engineers Salzgitter GmbH
DB    Dispute Board
DN    Nominal Diameter
EB    Eyebrow (structure)
EIB   European Investment Bank
EIA   Environmental Impact Assessment
ESHS  Environmental, Social, Health & Safety
ESIA  Environmental and Social Impact Assessment
ESMP  Environmental and Social Management Plan
EU    European Union
GC    General Conditions
GIZ   German Technical Cooperation
ITB   Instruction to Bidders
JV    Joint Venture
KfW   KfW German Development Bank (KfW)
masl  meters above sea level
MoAD  Ministry of Agricultural Development
MSL   Mean Sea Level
O&M   Operations and Maintenance
OHS   Health & Safety
OHSAS Occupational Health and Safety Capacity
PC    Particular Conditions
QBDS  Qualification and Bid Data Sheet
SB    Soil bund (structure)
SS dam Subsurface dam
TC    Technical Cooperation
ToR   Terms of Reference
UNDP  United Nations Development Programme
PART 1 – BIDDING PROCEDURES
Section I. Instructions to Bidders

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Section I. Instructions to Bidders

A. GENERAL

1. Scope of Bid

1.1 In connection with the Invitation for Bids specified in the Qualification and Bid Data Sheet (QBDS), the Employer, as specified in the QBDS, issues these Bidding Documents ("Bidding Documents") to Bidders ("Bidders") interested in submitting bids ("Bids") for the Works described in Section VII, Works Requirements. In case the Works are to be bid as individual contracts (i.e. the slice and package procedure), these are listed in the QBDS. The International Competitive Bidding ("ICB") number corresponding to this bidding process is also provided in the QBDS.

1.2 Throughout these Bidding Documents:

(a) The term “in writing” means communicated in written form and delivered against receipt;

(b) Except where the context requires otherwise, words indicating the singular also include the plural and words indicating the plural also include the singular; and

(c) “Day” means calendar day.

2. Source of Funds

2.1 The Employer as indicated in the QBDS has applied or received financing (hereinafter called “funds”) from KfW Development Bank (hereinafter called “KfW”) towards the cost of the project named in the QBDS. The Employer intends to apply a portion of the funds to eligible payments under the contract(s) resulting from this bidding process.

3. Corrupt and Fraudulent Practices

3.1 KfW requires compliance with its policy in regard to corrupt and fraudulent practices as set forth in Section VI.

3.2 In further pursuance of this policy, Bidders shall permit and shall cause its agents to provide information and permit KfW or an agent appointed by KfW to inspect on site all accounts, records and other documents relating to bid submission and contract performance (in the case of award), and to have them audited by auditors or agents appointed by KfW.
4. Eligible Bidders

4.1 A Bidder may be a firm that is a private entity, a government-owned entity — subject to ITB 4.3 — or a combination of such entities in the form of a joint venture ("JV") under an existing JV Agreement or with the intent to enter into such an agreement supported by a Letter of Intent to execute a JV Agreement, in accordance with ITB 11.2. In the case of a JV, all members shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms. The Bidder shall nominate an authorized representative who shall have the authority to conduct all business for and on behalf of the Bidder and any and all its members, if the Bidder is a JV, during bidding and contract execution (in the event the Bidder is awarded the Contract). Unless specified in the QBDS, there is no limit on the number of members in a JV.

4.2 A Bidder shall not have a conflict of interest. Any Bidder found to have a conflict of interest shall be disqualified. A Bidder may be considered to have a conflict of interest for the purpose of this procurement process, if the Bidder:

(a) Directly or indirectly controls, is controlled by or is under common control with another Bidder; or

(b) Receives or has received any direct or indirect subsidy from another Bidder; or

(c) Has the same legal representative as another Bidder; or

(d) Has a relationship with another Bidder, directly or through common third parties, that puts it in a position to influence the bid of another Bidder, or influence the decisions of the Employer regarding this bidding process; or

(e) Participates in more than one bid in this bidding process, both as an individual firm and as a JV member. Participation by a Bidder in more than one Bid will result in the disqualification of all Bids in which such Bidder is involved. However, this does not limit the inclusion of the same subcontractor in more than one Bid; or

(f) Any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the works that are the subject of the Bid; or
Any of its affiliates has been hired (or is proposed to be hired) by the Employer as Engineer for the Contract implementation; or

Has a close business or family relationship with a professional staff of the Employer (or of the project implementing agency, or of a recipient of a part of the funds) who: (i) are directly or indirectly involved in the preparation of the bidding documents or specifications of the contract, and/or the bid evaluation process of such contract; or (ii) would be involved in the implementation or supervision of such contract unless the conflict stemming from such relationship has been resolved in a manner acceptable to the KfW throughout the procurement process and execution of the contract.

4.3 The KfW's eligibility criteria to bid are described in Section V, Eligibility Criteria.

4.4 A Bidder shall not be under suspension from bidding by the Employer as the result of the execution of a Bid–Securing Declaration.

4.5 This bidding is open only to eligible Bidders, who will be subject to qualification.

4.6 A Bidder shall provide such evidence of eligibility satisfactory to the Employer, as specified in ITB 17.1 or as the Employer shall reasonably request.

5. Eligible Materials, Equipment, and Services

5.1 The materials, equipment and services to be supplied under the Contract and financed by the KfW may have their origin in any country subject to the restrictions specified in Section V, Eligibility Criteria, and all expenditures under the Contract will not contravene such restrictions. At the Employer’s request, Bidders may be required to provide evidence of the origin of materials, equipment and services.

B. CONTENTS OF QUALIFICATION AND BIDDING DOCUMENTS

6. Sections of Qualification and Bidding Documents

6.1 The Qualification and Bidding Documents consist of Parts 1, 2, and 3, which include all the Sections specified below, and which should be read in conjunction with any Addenda issued in accordance with ITB 8.

PART 1 Qualification and Bidding Procedures

(a) Section I. Instructions to Bidders (ITB);
(b) Section II. Qualification and Bid Data Sheet (QBDS);
(c) Section III. Qualification and Evaluation Criteria;
(d) Section IV. Qualification and Bidding Forms;
(e) Section V. Eligibility Criteria;
(f) Section VI. KfW Policy - Corrupt and Fraudulent Practices - Social and Environmental Responsibility;

PART 2  Works Requirements
(g) Section VII. Works Requirements;

PART 3  Conditions of Contract and Contract Forms
(h) Section VIII. General Conditions (GC);
(i) Section IX. Particular Conditions (PC);
(j) Section X. Contract Forms.

6.2 The Invitation for Bids issued by the Employer is not part of the Qualification and Bidding Documents.

6.3 Unless obtained directly from the Employer, the Employer is not responsible for the completeness of the Qualification and Bidding Documents, responses to requests for clarification, minutes of the pre-bid meeting (if any), or Addenda in accordance with ITB 8. In case of any contradiction, documents obtained directly from the Employer shall prevail.

6.4 The Bidder is expected to examine all instructions, forms, terms, and specifications in the Qualification and Bidding Documents and to furnish with its Bid all information and documentation as is required by the Qualification and Bidding Documents.

7. Clarification of Qualification and Bidding Documents, Site Visit, Pre-Bid Meeting
7.1 A Bidder requiring any clarification of the Qualification and Bidding Documents shall contact the Employer in writing at the Employer’s address specified in the QBDS or raise its enquiries during the pre-bid meeting if provided for in accordance with ITB 7.4. The Employer will respond in writing to any request for clarification, provided that such request is received no later than fourteen (14) days prior to the deadline for submission of Qualification Documents and Bids. The Employer shall forward copies of its response to all Bidders who have acquired the Qualification and Bidding Documents in accordance with ITB 6.3, including a description of the inquiry but without identifying its source. If so indicated in the QBDS, the Employer shall also promptly publish its response at the web page identified in the QBDS. Should the Employer deem it necessary to amend the Qualification and Bidding Documents as a result of a
clarification, it shall do so following the procedure under ITB 8 and ITB 22.2.

7.2 The Bidder is advised to visit and examine the Site of Works and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the Qualification Document and Bid and entering into a contract for construction of the Works. The costs of visiting the Site shall be at the Bidder’s own expense.

7.3 The Bidder and any of its personnel or agents will be granted permission by the Employer to enter upon its premises and lands for the purpose of such visit, but only upon the express condition that the Bidder, its personnel, and agents will release and indemnify the Employer and its personnel and agents from and against all liability in respect thereof, and will be responsible for death or personal injury, loss of or damage to property, and any other loss, damage, costs, and expenses incurred as a result of the inspection.

7.4 If so specified in the QBDS, the Bidder’s designated representative is invited to attend a pre-bid meeting. The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.

7.5 Minutes of the pre-bid meeting, if applicable, including the text of the questions asked by Bidders, without identifying the source, and the responses given, together with any responses prepared after the meeting, will be transmitted promptly to all Bidders who have acquired the Qualification and Bidding Documents in accordance with ITB 6.3. Any modification to the Qualification and Bidding Documents that may become necessary as a result of the pre-bid meeting shall be made by the Employer exclusively through the issue of an Addendum pursuant to ITB 8 and not through the minutes of the pre-bid meeting. Unless otherwise specified in the QBDS nonattendance at the pre-bid meeting will not be a cause for disqualification of a Bidder.

8. Amendment of Qualification and Bidding Documents

8.1 At any time prior to the deadline for submission of Bids, the Employer may amend the Qualification and Bidding Documents by issuing an Addendum.
8.2 Any Addendum issued shall be part of the Qualification and Bidding Documents and shall be communicated in writing to all who have obtained the Qualification and Bidding Documents from the Employer in accordance with ITB 6.3. The Employer shall also promptly publish the Addendum on the Employer's web page in accordance with ITB 7.1.

8.3 To give Bidders reasonable time in which to take an Addendum into account in preparing their Qualification Documents and Bids, the Employer may, at its discretion, extend the deadline for the submission of Qualification Documents and Bids in accordance with ITB 22.2

C. PREPARATION OF QUALIFICATION DOCUMENTS AND BIDS

9. Cost of Bidding
9.1 The Bidder shall bear all costs associated with the preparation and submission of its Qualification Document and Bid, and the Employer will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

10. Language of Qualification Document and Bid
10.1 The Qualification Document and the Bid, as well as all correspondence and documents relating to the bid exchanged by the Bidder and the Employer, shall be written in the language specified in the QBDS. Supporting documents and printed literature that are part of the Qualification Document and the Bid may be in another language provided they are accompanied by an accurate translation of the relevant passages in the language specified in the QBDS, in which case, for purposes of interpretation of the Qualification Document and the Bid, such translation shall govern.

11. Documents Comprising the Qualification Document and the Bid
11.1 The Qualification Document and the Bid shall comprise the following:

(a) QUALIFICATION DOCUMENT

(i) Letter of Qualification, indicating the Bidder’s name, address, telephone, fax and email. If the Bidder is an association, the Letter of Qualification shall also describe the form of association and list the association members;

(ii) Written confirmation authorizing the signatory of the Qualification Document and the Bid to commit the Bidder, in accordance with ITB 20.2 and authorizing the representative of the Bidder, designated in accordance with ITB 4.1 to submit
the Qualification Document and Bid on behalf of the Bidder. If the Bidder is a JV, the authorization shall be provided by the Lead Member nominated in the JV Agreement or in the Declarations of Association, submitted in accordance with ITB 4.1. If the representative of the Bidder is the owner, member or director of the Bidder or the Bidder’s Lead Member, if so nominated in accordance with ITB 4.1, an authorization shall not be necessary.

(iii) Presentation of the Bidder (maximum 10 pages, no brochures). If the Bidder is a single entity, the Presentation shall describe the Bidder’s type of entity, ownership structure and organization chart, as well as its main business areas as they apply to the project. If the Bidder is a JV, the Presentation shall provide this information about each JV member as well as a description of the intended form of collaboration of the members within the JV. Where the Bidder’s qualifications to carry out the assignment have been acquired as a result of a merger or acquisition, the presentation must include a detailed business history of the Bidder.

(iv) Statements and Declarations: False information provided in the following Statements and Declarations by the Bidder or in the case of a JV by any of the JV members shall lead to the exclusion of the Bidder from the tender process:

(I) If the Bidder is an existing JV, the Bidder shall submit a proof of the existing Association Agreement, indicating the Lead Member. If the Bidder is a JV, which the members intend to form for the purpose of executing the contract, each member of the association shall submit a Declaration of Association, indicating the Lead Member, in the format provided in Section IV, Qualification and Bidding Forms.

(II) Declaration of Undertaking in the format provided in Section IV, Qualification and Bidding Forms.

(III) Financial Capacity Statement in the format provided in Section IV, Qualification and Bidding Forms and supported by the Bidder’s Balance Sheets and Profit and Loss Statements. If the Bidder is a JV, separate statements, including the supporting Balance Sheets and Profit and Loss Statements, shall be provided by each member of the JV. All Balance Sheets and Profit and Loss Statements...
Statements shall be certified by a reputable auditor.

(IV) List of project references in the format provided in Section IV, Qualification and Bidding Forms. Unless otherwise stated in the QBDS the references shall be limited to a maximum of 10 projects carried out during the 5 years preceding the publication of these Bidding Documents. The Employer reserves the right to contact the clients indicated in the references to ascertain the information provided by the Bidder.

(V) List of Available Expertise and Human Resource Capacity in the format provided in Section IV, Qualification and Bidding Forms.

(v) All Qualification forms and required attachments, provided in Section IV, Qualification Forms. If the Bidder is a single entity, in accordance with ITB 4.1, it should not include form ELI 1.2 in its Application.

(vi) Any other document required in the QBDS.

(b) BID

(i) Letter of Bid and the Bidding Forms in accordance with ITB 12;

(ii) Completed schedules as required, including Price Schedules, in accordance with ITB 12 and ITB 14 and as indicated in the QBDS;

(iii) Bid Security, in accordance with ITB 19.1;

(iv) Alternative Bids, if permissible in accordance with ITB 13;

(v) Technical Proposal in accordance with ITB 16;

(vi) Any other document required in the QBDS.

11.2 In addition to the requirements under ITB 11.1(a), Bids submitted by a JV shall include a copy of the Joint Venture Agreement entered into by all members. Alternatively, a letter of intent to execute a Joint Venture Agreement in the event of a successful Bid shall be signed by all members and submitted with the Bid, together with a copy of the proposed Agreement.

11.3 The Bidder shall furnish information on commissions and gratuities, if any, paid or to be paid to agents or any other party relating to this Bid.
12. Letter of Qualification, Declaration of Undertaking, Qualification Forms, Letter of Bid, Bidding Forms and Schedules

12.1 The Letter of Qualification, the Declaration of Undertaking and the Qualification Forms shall be prepared using the relevant forms furnished in Section IV, Qualification and Bidding Forms. The Letter of Qualification and the Declaration of Undertaking must be completed without any alterations to the text, and no substitutes shall be accepted except as provided under ITB 20.4. All blank spaces shall be filled in with the information requested.

12.2 The Letter of Bid, the Bidding Forms and Schedules, including the Bill of Quantities for unit price contracts or the Schedule of Prices in case of lump sum contracts, shall be prepared using the relevant forms furnished in Section IV, Qualification and Bidding Forms. The Letter of Bid must be completed without any alterations to the text, and no substitutes shall be accepted except as provided under ITB 20.4. All blank spaces shall be filled in with the information requested.

13. Alternative Bids

13.1 Unless otherwise specified in the QBDS, alternative Bids shall not be considered.

13.2 When alternative times for completion are explicitly invited, a statement to that effect will be included in the QBDS, and the method of evaluation shall be included in Section III, Qualification and Evaluation Criteria.

13.3 Except as provided under ITB 13.4 below, Bidders wishing to offer technical alternatives to the requirements of the Qualification and Bidding Documents must first price the Employer’s design as described in the Bidding Documents and shall further provide all information necessary for a complete evaluation of the alternative by the Employer, including drawings, design calculations, technical specifications, breakdown of prices, and proposed construction methodology and other relevant details. Only the technical alternatives, if any, of the lowest evaluated Bidder conforming to the Employer’s design of the Bidding Documents shall be considered by the Employer.

13.4 When specified in the QBDS, Bidders are permitted to submit alternative technical solutions for specified parts of the Works, and such parts will be identified in Section VII, Works Requirements. The methods for their evaluation shall be described in Section III, Qualification and Evaluation Criteria.

14. Bid Prices and Discounts

14.1 The prices and discounts quoted by the Bidder in the Letter of Bid and in the Schedules shall conform to the requirements specified below.
14.2 The Bidder shall submit a Bid for the whole of the Works described in ITB 1.1, by filling in price(s) for all items of the Works, as identified in Section IV, Bidding Forms. The Bidder shall fill in rates and prices for all items of the Works described in the Bill of Quantities. Items against which no rate or price is entered by the Bidder shall be deemed covered by the rates for other items in the Bill of Quantities and will not be paid for separately by the Employer. An item not listed in the priced Bill of Quantities shall be assumed to be not included in the Bid, and provided that the Bid is determined substantially responsive notwithstanding this omission, the highest price of the item quoted by substantially responsive Bidders will be added to the Bid price and the equivalent total cost of the Bid so determined will be used for price comparison.

14.3 The price to be quoted in the Letter of Bid shall be the total price of the Bid, excluding any discounts offered.

14.4 The Bidder shall quote any discounts and the methodology for their application in the Letter of Bid.

14.5 Unless otherwise specified in the QBDS and the Contract, the rate(s) and price(s) quoted by the Bidder are not subject to adjustment during the performance of the Contract in accordance with the provisions of the Conditions of Contract. In such a case, the Bidder shall furnish the indices and weightings for the price adjustment formulae in the Schedule of Adjustment Data and the Employer may require the Bidder to justify its proposed indices and weightings.

14.6 If so specified in ITB 1.1, Bids are being invited for individual lots (contracts) or for any combination of lots (packages). Bidders wishing to offer discounts for the award of more than one Contract shall specify in their Bid the price reductions applicable to each package, or alternatively, to individual Contracts within the package. Discounts shall be submitted in accordance with ITB 14.4, provided the Bids for all lots (contracts) are opened at the same time.

14.7 Unless otherwise specified in the QBDS, the Bid price shall estimate, as separate amounts, (a) import duties and (b) taxes, fees, levies and other charges, which shall apply, in terms of the Applicable Law, to the Contractor and its sub-Contractors, including their personnel, other than nationals or permanent residents in the Employer’s country as of the date 28 days prior to the deadline for submission of Bids. Unless otherwise stated in the QBDS, the Contractor and its sub-Contractors are
15. Currencies of Bid and Payment

15.1 The currency(ies) of the Bid and the currency(ies) of payments shall be as specified in the QBDS.

15.2 Bidders may be required by the Employer to justify, to the Employer’s satisfaction, their local and foreign currency requirements, and to substantiate that the amounts included in the prices shown in the Schedule of Adjustment Data in the Appendix to Bid are reasonable, in which case a detailed breakdown of the foreign currency requirements shall be provided by Bidders.

16. Documents Establishing the Qualifications of the Bidder

16.1 In accordance with Section III, Qualification and Evaluation Criteria, qualification applies as specified in ITB 4.5 and the Bidder shall provide the information requested in the corresponding information sheets included in Section IV, Qualification and Bidding Forms.

17. Documents Comprising the Technical Proposal

17.1 The Bidder shall furnish a Technical Proposal including a statement of work methods, equipment, personnel, Schedules and any other information as stipulated in Section IV, Qualification and Bidding Forms, in sufficient detail to demonstrate the adequacy of the Bidder’s proposal to meet the Work requirements and the completion time.

18. Period of Validity of Bids

18.1 Bids shall remain valid for the period specified in the QBDS after the Bid submission deadline date prescribed by the Employer in accordance with ITB 22.1. A Bid valid for a shorter period shall be rejected by the Employer as non-responsive.

18.2 In exceptional circumstances, prior to the expiration of the Bid validity period, the Employer may request Bidders to extend the period of validity of their Bids. The request and the responses shall be made in writing. If a bid security is requested in accordance with ITB 19, it shall also be extended for twenty-eight (28) days beyond the deadline of the extended validity period. A Bidder may refuse the request without forfeiting its bid security. A Bidder granting the request shall not be required or permitted to modify its Bid.

19. Bid Security

19.1 The Bidder shall furnish as part of its Bid a Bid Security as specified in the QBDS, in original form and in the amount and currency specified in the QBDS.

19.2 Reserved.

19.3 The Bid Security shall be a demand guarantee in the form of an unconditional guarantee issued by a bank or financial institution (such as an insurance, bonding or
surety company) from a reputable source from an eligible country as specified in Section V, Eligibility Criteria. If the unconditional guarantee is issued by a financial institution located outside the Employer’s Country, the issuing financial institution shall have a correspondent financial institution located in the Employer’s Country to make it enforceable. The Bid Security shall be submitted either using the Bid Security Form included in Section IV, Bidding Forms, or in another substantially similar format approved by the Employer prior to bid submission. The Bid Security shall be valid for twenty-eight (28) days beyond the original validity period of the Bid, or beyond any period of extension if requested under ITB 18.2.

19.4 Any Bid not accompanied by a substantially responsive Bid Security shall be rejected by the Employer as non-responsive.

19.5 The Bid Security of unsuccessful Bidders shall be returned as promptly as possible upon the successful Bidder’s signing the Contract and furnishing the Performance Security pursuant to ITB 42.

19.6 The Bid Security of the successful Bidder shall be returned as promptly as possible once the successful Bidder has signed the Contract and furnished the required Performance Security.

19.7 The Bid Security may be forfeited:

(a) If a Bidder withdraws its Bid during the period of bid validity specified by the Bidder on the Letter of Bid, or any extension thereto provided by the Bidder; or

(b) If the successful Bidder fails to:

(i) Sign the Contract in accordance with ITB 41; or

(ii) Furnish a Performance Security in accordance with ITB 42.

19.8 The Bid Security of a JV shall be in the name of the JV that submits the Bid. If the JV has not been legally constituted into a legally enforceable JV at the time of bidding, the Bid Security shall be in the names of all future members as named in the letter of intent referred to in ITB 4.1 and ITB 11.2.

20. Format and Signing of Bid

20.1 The Bidder shall prepare one original each of the Qualification Document and the Bid comprising the documents as described in ITB 11 and clearly mark them “Original.” Alternative bids, if permitted in accordance with ITB 13, shall be clearly marked “Alternative.” In addition, the Bidder shall submit copies of the Qualification Document and the Bid, in the number

CES Consulting Engineers Salzgitter GmbH/ MS Consultancy
specified in the QBDS and clearly mark them “Copy.” In the event of any discrepancy between the original and the copies, the original shall prevail.

20.2 The original and all copies of the Qualification Document and the Bid shall be typed or written in indelible ink and shall be signed by a person duly authorized to sign on behalf of the Bidder. This authorization shall consist of a written confirmation as specified in the QBDS and shall be attached to the Qualification Document. The name and position held by each person signing the authorization must be typed or printed below the signature. All pages of the Qualification Document and the Bid where entries or amendments have been made shall be signed or initialled by the person signing the Qualification Document and the Bid. If the person signing on behalf of the Bidder is the owner, member, or director of the Bidder, if the Bidder is a single entity, or of the Bidder’s Lead Member, if the Bidder is a JV, as demonstrated in the Bidder’s Application, then no authorization shall be required.

20.3 In case the Bidder is a JV, the Qualification Document and Bid shall be signed by an authorized representative of the JV on behalf of the JV, and so as to be legally binding on all the members as evidenced by a power of attorney signed by their legally authorized representatives. If the JV has not been legally constituted into a legally enforceable JV at the time of bidding, then the Qualification Document and Bid shall be signed by every member of the proposed JV.

20.4 Any inter-lineation, erasures, or overwriting shall be valid only if they are signed or initialled by the person signing the Qualification Document and the Bid.

D. SUBMISSION AND OPENING OF QUALIFICATION DOCUMENTS AND BIDS

21. Sealing and Marking of Qualification Documents and Bids

21.1 The Qualification Document and the actual Bid are to be submitted simultaneously in two separate envelopes (two-envelope procedure).

(a) QUALIFICATION

The Bidder shall enclose the original and all copies of the Qualification Document in separate sealed
envelopes, duly marking the envelopes as “Qualification - Original” and “Qualification - Copy.”

These envelopes containing the original and the copies shall then be enclosed in one single envelope marked “Qualification”.

(b) BID

The Bidder shall enclose the original and all copies of the Bid, including alternative Bids, if permitted in accordance with ITB 13, in separate sealed envelopes, duly marking the envelopes as “Bid - Original”, “Bid - Alternative” and “Bid - Copy.”

These envelopes containing the original and the copies shall then be enclosed in one single envelope marked “Bid”.

21.2 The inner and outer envelopes shall:

(a) Bear the name and address of the Bidder;

(b) Be addressed to the Employer in accordance with ITB 22.1;

(c) Bear the specific identification of this bidding process specified in the QBDS 1.1; and

(d) Bear a warning not to open before the time and date for Qualification Document and Bid opening.

21.3 If all envelopes are not sealed and marked as required, the Employer will assume no responsibility for the misplacement or premature opening of the Qualification Document and Bid.

22. Deadline for Submission of Qualification Documents and Bids

22.1 Qualification Documents and Bids must be received by the Employer in accordance with the instructions, including the address and deadline, specified in the QBDS.

22.2 The Employer may, at its discretion, extend the deadline for the submission of Qualification Documents and Bids by amending the Qualification and Bidding Documents in accordance with ITB 8, in which case all rights and obligations of the Employer and Bidders previously subject to the deadline shall thereafter be subject to the deadline as extended.

23. Late Submissions

23.1 The Employer shall not consider any Qualification Document and Bid that arrives after the deadline for submission of Qualification Documents and Bids, in accordance with ITB 22. Any Qualification Document and Bid received by the Employer after the deadline for
submission of Qualification Documents and Bids shall be declared late, rejected, and returned unopened to the Bidder.

24. Withdrawal, Substitution, and Modification of Bids

24.1 A Bidder may withdraw, substitute, or modify its Qualification Document and Bid after it has been submitted by sending a written notice, duly signed by an authorized representative, and shall include a copy of the authorization in accordance with ITB 20.2. The corresponding substitution or modification of the Qualification Document and Bid must accompany the respective written notice. All notices must be:

(a) Prepared and submitted in accordance with ITB 20 and ITB 21 (except that withdrawals notices do not require copies), and in addition, the respective envelopes shall be clearly marked “Withdrawal”, “Substitution”, “Modification”; and

(b) Received by the Employer prior to the deadline prescribed for submission of Bids, in accordance with ITB 22.

24.2 Qualification Documents and Bids requested to be withdrawn in accordance with ITB 24.1 shall be returned unopened to the Bidders.

24.3 No Qualification Document and Bid may be withdrawn, substituted, or modified in the interval between the deadline for submission of Bids and the expiration of the period of bid validity specified by the Bidder on the Letter of Bid or any extension thereof.

25. Opening of Qualification Documents and Bids

25.1 First Public Session

In the first public session, only the Bidders’ Qualification Documents will be opened. Bids of qualified Bidders will be opened at the second public session as specified in ITB 25.7. Except in the cases specified in ITB 23 and 24, the Employer shall publicly open and read out in accordance with ITB 25 all Qualification Documents received by the deadline (regardless of the number of Bids received), at the date, time and place specified in the QBDS, in public and in the presence of Bidders’ designated representatives.

25.2 First, envelopes marked “Withdrawal” shall be opened and read out and the envelope with the corresponding Qualification Documents and envelope with the corresponding Bid shall not be opened, but returned to the Bidder. No Qualification document and/or Bid withdrawal shall be permitted unless the corresponding withdrawal notice contains a valid authorization to request the withdrawal and is read out at the Qualification Document opening. Next, envelopes
marked “Substitution” shall be opened and read out and exchanged with the corresponding Qualification Documents and/or Bid being substituted, and the substituted Qualification Document and/or Bid shall not be opened, but returned to the Bidder. No Qualification Document and/or Bid substitution shall be permitted unless the corresponding substitution notice contains a valid authorization to request the substitution and is read out at the Qualification Document opening. Envelopes marked “Modification” shall be opened and read out with the corresponding Qualification Document and/or Bid. No Qualification Document and/or Bid modification shall be permitted unless the corresponding modification notice contains a valid authorization to request the modification and is read out at the Qualification Document opening. Only Qualification Documents that are opened and read out at Qualification Document opening shall be considered further.

25.3 In the first public session only the Qualification Documents will be opened and examined for completeness and fulfilment of the responsiveness criteria specified in ITB 26.1. The qualification will be evaluated according to the criteria specified under ITB 26.

25.4 The Employer shall prepare a record of the qualification opening that shall include, as a minimum: the name of the Bidder and whether there is a withdrawal, substitution, or modification; Power of Attorney, nominating the Bidder’s authorized representative, and Declaration of Undertaking. The Bidders’ representatives who are present shall be requested to sign the record. The omission of a Bidder’s signature on the record shall not invalidate the contents and effect of the record. A copy of the record shall be distributed to all Bidders.

25.5 The Employer shall notify all Bidders in writing of the names of those Bidders who have been qualified. In addition, those Bidders who have been disqualified will be informed separately.

25.6 Those Bidders who have been qualified will be informed by the Employer of the date, time and place of the second public session for the opening of the qualified Bids.

25.7 Second Public Session

Only the Bids of those Bidders who have fulfilled the qualification criteria will be opened in the second public session. The envelopes of the qualified Bidders shall be opened one at a time, reading out: the name of the
Bidder and whether there is a modification; the total Bid Price, per lot (contract) if applicable, including any discounts and alternative Bids; the presence or absence of a signed Letter of Bid and any other details as the Employer may consider appropriate. Only discounts and alternative Bids read out at Bid opening shall be considered for evaluation. The Letter of Bid and the Schedules are to be initialed by a minimum of three representatives of the Employer attending bid opening. At Bid opening, the Employer shall neither discuss the merits of any Bid nor reject any Bid (except for late Bids, in accordance with ITB 23.1).

25.8 The Employer shall prepare a record of the Bid opening that shall include, as a minimum: the name of the Bidder and whether there is a withdrawal, substitution, or modification; the Bid Price, per lot (contract) if applicable, including any discounts and alternative Bids; the presence or absence of a bid security, signed Letter of Bid, Power of Attorney, nominating the Bidder’s authorized representative, and Declaration of Undertaking. The Bidders’ representatives who are present shall be requested to sign the record. The omission of a Bidder’s signature on the record shall not invalidate the contents and effect of the record. A copy of the record shall be distributed to all Bidders.

E. EVALUATION OF QUALIFICATION DOCUMENTS

26. Qualification Responsiveness, Evaluation of Qualification

26.1 Qualification Responsiveness

The Employer shall reject a Bidder’s qualification document that is not substantially responsive to the requirements of this bidding document. A Bidder’s qualification document shall be considered as responsive if the following documents are submitted:

<table>
<thead>
<tr>
<th>Responsiveness Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Declaration of Undertaking (ITB 11.1 (a) (ii))</td>
</tr>
<tr>
<td>2. Financial Capability Statements and supporting documentation (ITB 11.1 (a) (iii); Section IV, Form FIN-3.1)</td>
</tr>
<tr>
<td>3. Letter of Qualification (ITB 11.1 (a)(i))</td>
</tr>
<tr>
<td>4. Power(s) of Attorney authorizing the representative of the Bidder (ITB 11.1 (a)(i))</td>
</tr>
</tbody>
</table>
5. If the Bidder is an association, either proof of the existing Association Agreement or a Declaration of Association (ITB 11.1 (a) (iii))

26.2 Evaluation of Qualification

The Employer shall evaluate the qualifications of the responsive Bidders using the factors, methods, criteria, and requirements defined in Section III, Qualification and Evaluation Criteria, to evaluate the qualifications of the Bidders, and no other methods, criteria, or requirements shall be used.

26.3 Only the qualifications of the Bidder shall be considered. In particular, the qualifications of a parent or other affiliated company that is not party to the Bidder under a JV in accordance with ITB 4.1 shall not be considered.

26.4 In case of multiple contracts, Bidders should indicate in their Qualification Document the individual contracts in which they are interested. The Employer shall qualify each Bidder for the maximum combination of contracts for which the Bidder has thereby indicated its interest and for which the Bidder meets the appropriate aggregate requirements. The Qualification and Evaluation Criteria are mentioned in Section III.

26.5 The Employer shall assess the qualifications of the responsive Bidders in terms of the Eligibility and Qualification Criteria and methods set out in Section III, Qualification and Evaluation Criteria.

26.6 The Employer shall determine the fulfilment of minimum requirements on a pass/fail basis as per Section III, Qualification and Evaluation Criteria.

26.7 The Employer shall assign a numeric score to each of the sub-criteria, for which a maximum score is provided in accordance with ITB 26.5. All Sub-criteria Scores shall be summed to determine the Bidder’s Qualification Score.

26.8 For the purposes of scoring individual Qualification Criteria in accordance with 26.6 the Employer shall apply the following qualitative approach:

(a) 100% of the max. score: Outstanding, if the Qualification substantially exceeds the requirement in accordance with the respective sub-criterion. No errors or omissions are noted.

(b) 70% of the max. score: Above average, if the Qualification meets or marginally exceeds the
requirement in accordance with the respective sub-criterion. Minor errors or omissions noted;

(c) 50% of the max. score: Average, if the Qualification marginally falls short of the requirement in accordance with the respective sub-criterion. Major errors or omissions noted;

(d) 30% of the max. score: Below average, if the Qualification substantially deviates from or indicates misunderstanding of the requirement in accordance with the respective sub-criterion. Major errors or omissions are noted comprising the fulfilment of the sub-criterion;

(e) 0 % of the max. score: Insufficient / Fail, if the Qualification does not meet the requirement at all in accordance with the respective sub-criterion, or does not provide any information regarding the requirement

26.9 A Bidder shall be considered qualified if:

(a) its Qualification is considered responsive in accordance with ITB 26.1 and;

(b) its Qualification has met the pass/fail requirements in accordance with ITB 26.6 and;

(c) the Qualification scored at least 70 points out of 100 points in accordance with ITB 26.7.

F. EVALUATION AND COMPARISON OF BIDS

27. Confidentiality

27.1 Information relating to the examination, evaluation, and comparison of the Bids, and recommendation of contract award shall not be disclosed to Bidders or any other persons not officially concerned with the bidding process until information on Contract award is communicated to all Bidders in accordance with ITB 40.

27.2 Any attempt by a Bidder to influence the Employer in the examination, evaluation, and comparison of the Bids, and qualification of the Bidders, or Contract award decisions may result in the rejection of its Bid.

27.3 Notwithstanding ITB 27.2, from the time of Bid opening to the time of Contract award, if a Bidder wishes to contact the Employer on any matter related to the bidding process, it shall do so in writing.

28. Clarification of Bids

28.1 To assist in the examination, evaluation, and comparison of the Bids, and qualification of the Bidders, the
Employer may, at its discretion, ask any Bidder for a clarification of its Bid, given a reasonable time for a response. Any clarification submitted by a Bidder that is not in response to a request by the Employer shall not be considered. The Employer’s request for clarification and the response shall be in writing. No change, including any voluntary increase or decrease, in the prices or substance of the Bid shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the Bids, in accordance with ITB 32.

28.2 If a Bidder does not provide clarifications of its Bid by the date and time set in the Employer’s request for clarification, its Bid may be rejected.

29. Deviations, Reservations, and Omissions

29.1 During the evaluation of Bids, the following definitions apply:

(a) “Deviation” is a departure from the requirements specified in the Bidding Documents;

(b) “Reservation” is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the Bidding Documents; and

(c) “Omission” is the failure to submit part or all of the information or documentation required in the Bidding Documents.

30. Determination of Responsiveness

30.1 The Employer’s determination of a Bid’s responsiveness is to be based on the contents of the Bid itself, as defined in ITB11.

30.2 A substantially responsive Bid is one that meets the requirements of the Bidding Documents without material deviation, reservation, or omission. A material deviation, reservation, or omission is one that,

(a) If accepted, would:

   (i) Affect in any substantial way the scope, quality, or performance of the Works specified in the Contract; or

   (ii) Limit in any substantial way, inconsistent with the Bidding Documents, the Employer’s rights or the Bidder’s obligations under the proposed Contract; or

(b) If rectified, would unfairly affect the competitive position of other Bidders presenting substantially responsive Bids.
30.3 The Employer shall examine the technical aspects of the Bid submitted in accordance with ITB 17, in particular, to confirm that all requirements of Section VII, Works Requirements have been met without any material deviation, reservation or omission.

30.4 If a Bid is not substantially responsive to the requirements of the Bidding Documents, it shall be rejected by the Employer and may not subsequently be made responsive by correction of the material deviation, reservation, or omission.

31. Nonmaterial Nonconformities

31.1 Provided that a Bid is substantially responsive, the Employer may waive any nonmaterial nonconformities in the Bid.

31.2 Provided that a Bid is substantially responsive, the Employer may request that the Bidder submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities in the Bid related to documentation requirements. Requesting information or documentation on such nonconformities shall not be related to any aspect of the price of the Bid. Failure of the Bidder to comply with the request may result in the rejection of its Bid.

31.3 Provided that a Bid is substantially responsive, the Employer shall rectify quantifiable nonmaterial nonconformities related to the Bid Price. To this effect, the Bid Price shall be adjusted, for comparison purposes only, to reflect the price of a missing or non-conforming item or component.

32. Correction of Arithmetical Errors

32.1 Provided that the Bid is substantially responsive, the Employer shall correct arithmetical errors on the following basis:

(a) If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected, unless in the opinion of the Employer there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price shall be corrected;

(b) If there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and

(c) If there is a discrepancy between words and figures, the amount in words shall prevail, unless, only for admeasurement contracts, the amount expressed in words is related to an arithmetic
32.2 Bidders shall be requested to accept correction of arithmetical errors. Failure to accept the correction in accordance with ITB 32.1 shall result in the rejection of the Bid.

33. Conversion to Single Currency
33.1 For evaluation and comparison purposes, the currency(ies) of the Bid shall be converted into a single currency as specified in the QBDS.

34. Margin of Preference
34.1 Unless otherwise specified in the QBDS, a margin of preference for domestic Bidders shall not apply.

35. Subcontractors
35.1 Unless otherwise stated in the QBDS, the Employer does not intend to execute any specific elements of the Works by sub-contractors selected in advance by the Employer (nominated sub-contractors).

36. Evaluation of Bids
36.1 The Employer shall use the criteria and methodologies listed in this Clause. No other evaluation criteria or methodologies shall be permitted.

36.2 To evaluate a Bid, the Employer shall consider the following:

(a) The Bid price, excluding Provisional Sums unless priced competitively and the provision, if any, for contingencies in the Schedules, but including Daywork items, where priced competitively;

(b) Price adjustment for correction of arithmetic errors in accordance with ITB 32.1;

(c) Price adjustment due to missing items, missing rates, or discounts offered in accordance with ITB 14.2 and 14.4;

(d) Price adjustment due to quantifiable nonmaterial nonconformities in accordance with ITB 31.3;

(e) Converting the amount resulting from applying (a) to (d) above, if relevant, to a single currency in accordance with ITB 33;

(f) The additional evaluation factors as specified in Section III, Qualification and Evaluation Criteria.

36.3 The estimated effect of the price adjustment provisions of the Conditions of Contract, applied over the period of execution of the Contract, shall not be taken into account in Bid evaluation.
36.4 If these Bidding Documents allow Bidders to quote separate prices for different lots (contracts), the methodology to determine the lowest evaluated price of the lot (contract) combinations, including any discounts offered in the Letter of Bid, is specified in Section III, Qualification and Evaluation Criteria.

36.5 If the Bid, which results in the lowest Evaluated Bid Price, is significantly lower than the Employer’s estimate, the Employer shall require the Bidder to produce detailed price analyses for any or all items of the Schedules, to demonstrate the internal consistency of those prices with the construction methods, resources and schedule proposed. Notwithstanding the provisions of ITB 14.2 which shall not be applicable, if one or several inconsistencies are evidenced, the Bid shall be declared non-compliant and rejected. If the Bid is seriously unbalanced or front loaded in the opinion of the Employer and after evaluation of the price analyses, taking into consideration the schedule of estimated Contract payments, the Employer may require that the amount of the performance security be increased at the expense of the Bidder to a level sufficient to protect the Employer against financial loss in the event of default of the successful Bidder under the Contract.

37. Comparison of Bids

37.1 The Employer shall compare the evaluated prices of all substantially responsive Bids established in accordance with ITB 36.2 to determine the lowest evaluated Bid.

38. Employer's Right to Reject All Bids

38.1 The Employer reserves the right to annul the bidding process and reject all Bids at any time prior to contract award, without thereby incurring any liability to Bidders. In case of annulment, all Bids submitted and specifically, bid securities, shall be promptly returned to the Bidders.

G. AWARD OF CONTRACT

39. Award Criteria

39.1 Subject to ITB 38.1, the Employer shall award the Contract to the Bidder whose Bid has been determined to be the lowest evaluated Bid and is substantially responsive to the Bidding Documents, provided further that the Bidder is determined to be eligible and qualified to perform the Contract satisfactorily.

40. Notification of Award

40.1 Prior to the expiration of the period of Bid validity, the Employer shall notify the successful Bidder, in writing, that its Bid has been accepted. The notification letter (hereinafter and in the Conditions of Contract and Contract Forms called the “Letter of Acceptance”) shall specify the sum that the Employer will pay the Contractor
in consideration of the execution and completion of the Works and the requirement for the Contractor to remedy any defects therein (hereinafter and in the Conditions of Contract and Contract Forms called “the Contract Price”). Subsequently, the Employer shall also notify all other Bidders of the results of the bidding.

40.2 Until a formal contract is prepared and executed, the Letter of Acceptance shall constitute a binding Contract.

40.3 The Employer shall promptly respond in writing to any unsuccessful Bidder who, after notification of award in accordance with ITB 40.1, requests in writing the grounds on which its Bid was not selected.

40.4 In exceptional circumstances, the Employer may need to communicate with the successful Bidder, established in terms of ITB 39.1, certain aspects of Contract performance prior to sending the Letter of Acceptance. Should such a need arise, this communication shall be limited to the following topics, as identified in the evaluation report,

(a) coordination of mobilization timing;
(b) coordination of actions or inputs involving the Employer and the Engineer;
(c) technical alternatives offered by the successful Bidder.

Any such discussions and agreements as there shall occur between the Employer and the successful Bidder, (1) may not be interpreted as having the same legal effect as the Letter of Acceptance, (2) shall be summarized in Minutes, which shall be attached to the Letter of Acceptance.

41. Signing of Contract

41.1 Promptly upon notification, the Employer shall send the successful Bidder the Contract Agreement.

41.2 Within twenty-eight (28) days of receipt of the Contract Agreement, the successful Bidder shall sign, date, and return it to the Employer.

42. Performance Security

42.1 Within twenty-eight (28) days of the receipt of the Letter of Acceptance from the Employer, the successful Bidder shall furnish the performance security in accordance with the General Conditions of Contract, subject to ITB 36.5, using for that purpose the Performance Security Form included in Section X, Contract Forms, or another form acceptable to the Employer. If the performance security furnished by the successful Bidder is in the form of a
bond, it shall be issued by a bonding or insurance company that has been determined by the successful Bidder to be acceptable to the Employer. A foreign institution providing a bond shall have a correspondent financial institution located in the Employer’s Country.

42.2 Failure of the successful Bidder to submit the above-mentioned Performance Security or sign the Contract shall constitute sufficient grounds for the annulment of the award and forfeiture of the Bid security. In that event the Employer may award the Contract to the next lowest evaluated Bidder whose offer is substantially responsive and is determined by the Employer to be qualified to perform the Contract satisfactorily.
### Section II. Qualification and Bid Data Sheet

#### A. Introduction

<table>
<thead>
<tr>
<th>ITB 1.1</th>
<th>The Employer is: Ministry of Agricultural Development Near Presidential Palace Hargeisa, Somaliland Tel.: +252 634 818592 E-mail: <a href="mailto:d.g_moa@hotmail.com">d.g_moa@hotmail.com</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>ITB 1.1</td>
<td>The name of the NCB is: [Procurement of Contractors for the Contract C1: Lot A: Construction of SS dams SS01 (Geed Abera), SS03 (Daanyaale), SS04 (Arabsiyo) – in Biji Catchment] and Lot B: Construction of SS dams SS07 (Beeyo Liibaan), SS13 (Caro Yanbo), SS16 (Geesdheer) in Biji catchment The identification number of the NCB is: [MoAD/KfW/SOM/SLMP/CB06/2019] The number and identification of lots (contracts) comprising this NCB is: Two Lots</td>
</tr>
</tbody>
</table>

#### B. Qualification and Bidding Documents

<table>
<thead>
<tr>
<th>ITB 2.1</th>
<th>The name of the Project is: Construction of Subsurface Dams (SS dam sites) in Somaliland</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITB 4.1</td>
<td>Maximum number of members in the JV shall be: not applicable</td>
</tr>
<tr>
<td>ITB 7.1</td>
<td>For clarification purposes only, the Employer’s address is: Attention: Dr. Ahmed Ali Mah Tel: +252 634 818592 Address: Hargeisa, Near Presidential Palace Email address: <a href="mailto:d.g_moa@hotmail.com">d.g_moa@hotmail.com</a></td>
</tr>
<tr>
<td>ITB 7.1</td>
<td>Web page: not applicable</td>
</tr>
<tr>
<td>ITB 7.4</td>
<td>A Pre-Bid meeting shall take place at the following date, time and place: Date: 19 December 2019 Time: 9:00 AM Place: Ministry of Agricultural Development Meeting Hall A site visit will be organized on 18 December 2019 at 8:00 AM</td>
</tr>
<tr>
<td>ITB 8.2</td>
<td>Web page: not applicable</td>
</tr>
</tbody>
</table>
C. Preparation of Qualification Documents and Bids

ITB 10.1  The language of the Qualification Document and the Bid is English. All correspondence exchange shall be in the English language. Language for translation of supporting documents and printed literature is English.

ITB 11  The tendering procedure is following a two-envelope system. The Bidder shall seal the bid in two separate envelopes (qualification documents and financial bid, duly marking the envelopes as “QUALIFICATION DOCUMENTS”, and “FINANCIAL BID”. The envelopes shall then be sealed in an outer envelope. Also original and each copy of the bid shall be sealed in separate envelopes, duly marking the envelopes as “ORIGINAL” and “COPY”. All original and copies shall be sealed together in one envelope.

The documents of the Bid according to ITB 11.1 shall be grouped into Qualification Documents and Financial Bid containing the following completed documents:

QUALIFICATION DOCUMENTS containing:

Inner Envelope 1
- According to ITB 11.1 (a) (i): Letter of Qualification
- According to ITB 11.1 (a) (ii): Written confirmation authorizing the signatory of the Qualification Document and the Bid to commit the Bidder
- According to ITB 11.1 (a) (iii): Presentation of the Bidder (maximum 5 pages, no brochures)
- According to ITB 11.1 (a) (iv): Statements and Declarations
  I. Proof of existing JV or forming new JV
  II. Signed declaration of undertaking according to the format provided
  III. Financial Capacity Statement
  IV. List of project references
  V. List of Available Expertise and Human Resource Capacity
- According to ITB 11.1 (a) (v): All Qualification forms and required attachments

Inner Envelope 2
- According to ITB 11.1 (b) (iii): Bid Security
- According to ITB 11.1 (b) (v): Technical Proposal

FINANCIAL BID containing:
**KfW/ MoAD, SOM 2; Sustainable Land Management in Somaliland**  
Works Contract C1 - TD Part 1 Bidding Procedures  
Lot A – SS dam sites SS01 (Geed Abera), SS03 (Daanyaale), SS04 (Arabsiyo)  
Lot B – SS dam sites SS07 (Beeyo Liibaan), SS13 (Caro Yanbo), SS16 (Geesdheer)

### D. Submission and Opening of Qualification Documents and Bids

| ITB 22.1 | The Original Qualification document and Financial Bid shall be submitted not later than  
**Date:** 18 January 2020  
**Time:** 10:00 AM (GMT+3) |

---

- According to ITB 11.1 (b) (i): Letter of Bid  
- According to ITB 11.1 (b) (ii): Completed schedules

No financial information about the Bid shall be shown in the Qualification Documents and Technical Proposal. A bid disclosing financial information in the qualification documents and technical proposal shall be rejected.

| ITB 11.1 (b) (ii) | The following schedules shall be submitted with the Bid:  
**Bill of Quantities** |
| ITB 13.1 | Alternative Bids are **not permitted** |
| ITB 14.5 | The prices quoted by the Bidder shall **not** be adjusted. |
| ITB 15.1 | The currency(ies) of the Bid and the payment currency(ies) shall be US Dollars (US$).  
The unit rates and the prices shall be quoted by the Bidder in the Schedules, entirely in US Dollars (US$) (referred to as the foreign currency). |
| ITB 17 | The Technical Proposal shall include an environmental, social, health and safety (ESHS) Methodology meeting the requirements of the ESHS Specifications.  
The Bidder shall use the ESHS Methodology Form provided for this purpose in Section IV – Technical Proposal.  
A Bid not comprising an ESHS Methodology shall be rejected. |
| ITB 18.1 | The bid validity period shall be 90 days. |
| ITB 19.1 | The amount and currency of the bid security shall be: 1,500 US$ |
| ITB 20.1 | In addition to the originals of the Qualification Document and the Bid, the number of copies is: 4 paper copies and one (1) digital copy (CD or flash drive). |
| ITB 20.2 | The written confirmation of authorization to sign on behalf of the Bidder shall consist of:  
“A power of attorney”  
established in the name of the signatory of the Bid. If the Bidder is a JV, the power of attorney shall be issued by the Lead Member of the JV. |
at the following address, which shall be the controlling address for the purposes of the timely submission of the Bid:
Attention: Dr. Ahmed Ali Mah
Address: Near Presidential Palace
City: Hargeisa

**ITB 25.1**
The Qualification Document opening (first public session) shall take place at:
Address: Ministry of Agriculture Meeting Hall
City: Hargeisa
Country: Republic of Somaliland
Date: 18 January 2020
Time: 10:00 AM (GMT+3)
No minimum number of Bids is required in order to proceed to bid opening.

### E. Evaluation of Qualification Documents

**ITB 26.1**
The Employer shall reject a Bidder’s qualification document that is not substantially responsive to the requirements of this bidding document (as specified in ITB 26.1)

**ITB 26.2**
The Employer shall evaluate the qualifications of the responsive Bidders using the factors, methods, criteria, and requirements defined in Section III, Evaluation and Qualification Criteria, to evaluate the qualifications of the Bidders, and no other methods, criteria, or requirements shall be used.

### F. Evaluation and Comparison of Bids

**ITB 30**
Compliance of the ESHS Methodology (as specified in QBDS 17) with the ESHS Specifications (Section VII - Works Requirements) shall be determined by using the method specified in Section III Clause 1.2. A Bid for which the ESHS Methodology is not substantially responsive (i.e. without material deviation, reservation or omission) shall be rejected.

**ITB 33.1**
The currency that shall be used for bid evaluation and comparison purposes to convert all Bid price(s) expressed in various currencies into a single currency is: US$

The source of exchange rate shall be: https://www.oanda.com/currency/ converter/

The date for the exchange rate shall be seven (7) days prior to the date of deadline for Bid submission.
The currency(ies) of the Bid shall be converted into a single currency (US$):

**ITB 34.1**
A margin of preference **does not apply**

**ITB 35.1**
At this time the Employer does **not intend** to execute certain specific parts of the Works by sub-contractors selected in advance (nominated subcontractors).
Lot A – SS dam sites SS01 (Geed Abera), SS03 (Daanyale), SS04 (Arabsiyo)
Lot B – SS dam sites SS07 (Beeyo Liibaan), SS13 (Caro Yanbo), SS16 (Geesdheer)
Section III. Qualification and Evaluation Criteria

This Section contains all the criteria that the Employer shall use to determine the qualification of Bidders and to evaluate the Bids. In accordance with ITB 26 and ITB 36, no other factors, methods or criteria shall be used. The Bidder shall provide all the information requested in the forms included in Section IV, Qualification and Bidding Forms.

Wherever a Bidder is required to state a monetary amount, Bidders should indicate the US$ equivalent using the rate of exchange determined as follows:

- For construction turnover or financial data required for each year - Exchange rate prevailing on the last day of the respective calendar year;
- Value of single contract - Exchange rate prevailing on the date of the contract.

Exchange rates shall be taken from the publicly available source identified in the ITB 33.1. Any error in determining the exchange rates in the Bid may be corrected by the Employer.

1. Evaluation of Eligibility and Qualification

The following table contains all criteria and requirements the Bidders shall meet to be considered as eligible and qualified for the execution of the works:
### Criteria

<table>
<thead>
<tr>
<th>No.</th>
<th>Subject</th>
<th>Requirement</th>
<th>Single Entity</th>
<th>Joint Venture (existing or intended)</th>
<th>Documentation Requirements / Forms</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>All Parties Combined</td>
<td>Each Member</td>
<td>One Member</td>
</tr>
<tr>
<td>1.1</td>
<td><strong>Nationality</strong></td>
<td>Nationality in accordance with ITB 4.3</td>
<td>Must meet requirement</td>
<td>Must meet requirement</td>
<td>Must meet requirement</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>[--]</td>
<td>[--]</td>
</tr>
<tr>
<td>1.2</td>
<td><strong>Conflict of Interest</strong></td>
<td>No conflicts of interest in accordance with ITB 4.4</td>
<td>Must meet requirement</td>
<td>Must meet requirement</td>
<td>Must meet requirement</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>[--]</td>
<td>[--]</td>
</tr>
<tr>
<td>1.3</td>
<td><strong>KfW Eligibility</strong></td>
<td>Not being ineligible for KfW financing, as described in ITB 4.3</td>
<td>Must meet requirement</td>
<td>Must meet requirement</td>
<td>Must meet requirement</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>[--]</td>
<td>[--]</td>
</tr>
<tr>
<td>1.4</td>
<td><strong>Government-Owned Entity</strong></td>
<td>Meet conditions of ITB 4.3</td>
<td>Must meet requirement</td>
<td>Must meet requirement</td>
<td>Must meet requirement</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>[--]</td>
<td>[--]</td>
</tr>
</tbody>
</table>

### 2. Historical Contract Non-Performance

<table>
<thead>
<tr>
<th>No.</th>
<th>Subject</th>
<th>Requirement</th>
<th>Single Entity</th>
<th>Joint Venture (existing or intended)</th>
<th>Documentation Requirements / Forms</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td><strong>History of Non-Performing Contracts</strong></td>
<td>Termination of a contract did not occur as a result of contractor's default in the past three (3) years</td>
<td>Must meet requirement</td>
<td>Must meet requirement</td>
<td>Must meet requirement</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>[--]</td>
<td>[--]</td>
</tr>
<tr>
<td>2.2</td>
<td><strong>Suspension Based on Execution of Bid Securing Declaration by the Employer</strong></td>
<td>Not under suspension based on execution of a Bid Securing Declaration pursuant to ITB 4.5</td>
<td>Must meet requirement</td>
<td>Must meet requirement</td>
<td>Must meet requirement</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>[--]</td>
<td>[--]</td>
</tr>
<tr>
<td>2.3</td>
<td><strong>Pending Litigation</strong></td>
<td>All pending litigation shall in total not represent more than one hundred percent (100%) of the Bidder’s net worth and shall be treated as resolved against the Bidder</td>
<td>Must meet requirement</td>
<td>N/A</td>
<td>Must meet requirement</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>[--]</td>
<td>[--]</td>
</tr>
</tbody>
</table>
### 3. Financial Situation and Performance

#### 3.1 Financial Capabilities: Liquidity

(i) The Bidder shall demonstrate that it has access to, or has available, liquid assets, unencumbered real assets, lines of credit, and other financial means (independent of any contractual advance payment) sufficient to meet the construction cash flow requirements estimated as US$ 20,000.00 for the subject contract(s) net of the Bidders other commitments.

- **Requirement:** Must meet requirement
- **Joint Venture (existing or intended):**
  - **All Parties Combined:** Must meet requirement
  - **Each Member:** N/A
  - **One Member:** N/A

#### 3.2 Financial Capabilities: Other Sources of Finance

(ii) The Bidder shall also demonstrate, to the satisfaction of the Employer, that it has adequate sources of finance to meet the cash flow requirements on works currently in progress and for future contract commitments.

- **Requirement:** Must meet requirement
- **Joint Venture (existing or intended):**
  - **All Parties Combined:** Must meet requirement
  - **Each Member:** N/A
  - **One Member:** N/A

#### 3.3 Financial Capabilities: Financial Position

(iii) The audited balance sheets or, if not required by the laws of the Bidder’s country, other financial statements acceptable to the Employer, for the last three (3) years shall be submitted and must demonstrate the current soundness of the Bidder’s financial position.

- **Requirement:** Must meet requirement
- **Joint Venture (existing or intended):**
  - **All Parties Combined:** N/A
  - **Each Member:** Must meet requirement
  - **One Member:** N/A

#### 3.4 Average Annual Construction Turnover

Minimum annual construction turnover of 50,000 US$ (one hundred thousand) for the last three (3) years,

- **Requirement:** Must meet requirement
- **Joint Venture (existing or intended):**
  - **All Parties Combined:** Must meet requirement
  - **Each Member:** Must meet [twenty five] [25]% of the
  - **One Member:** Must meet [forty] [40]% of

**Documentation Requirements / Forms**

- Form FIN–3.1 with attachments and FIN-3.3
- Forms FIN–3.1 and FIN-3.4
- Form FIN–3.1 with attachments
- Form FIN–3.2
### Criteria

<table>
<thead>
<tr>
<th>No.</th>
<th>Subject</th>
<th>Requirement</th>
<th>Single Entity</th>
<th>Requirements / Max. Scores</th>
<th>Documentation Requirements / Forms</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>calculated as total certified annual payments received for contracts in</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>progress and/or completed</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. **Construction Experience** – will be treated as quantitative evaluation of qualification criteria in Table III – 2 below

5. **Environmental and Social and Health and Safety (ESHS) Experience and Capacity** will be treated as quantitative evaluation of qualification criteria in Table III – 2 below

*Note: For the bidder to be considered for next stage of evaluation (weighted evaluation for qualification criteria), it must pass all the must meet compliance requirements specified above.*
Table III-2: Weighted Evaluation Criteria – Qualification Documents  
(No 4 and No 5): 100 points

<table>
<thead>
<tr>
<th>No</th>
<th>Criteria</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Experience</td>
<td>70.00</td>
</tr>
<tr>
<td>4.1</td>
<td>General Experience on Civil Engineering Works for the last three years (full points of scoring is given in case of proven not interrupted companies works contract activities)</td>
<td>12.00</td>
</tr>
<tr>
<td>4.2</td>
<td>Number of similar projects carried out (min. 4 projects) in the last three years</td>
<td>13.00</td>
</tr>
<tr>
<td>4.3</td>
<td>Number of similar projects carried out with comparable size (min. 3 reference projects) in the last three years</td>
<td>15.00</td>
</tr>
<tr>
<td>4.4</td>
<td>Construction Experience in key activities as specified below:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(i) Earthworks</td>
<td></td>
</tr>
<tr>
<td></td>
<td>excavations</td>
<td>10,000 m³ per year</td>
</tr>
<tr>
<td></td>
<td>embankment construction</td>
<td>5,000 m³ per year</td>
</tr>
<tr>
<td></td>
<td>gravel roads or pavements</td>
<td>2,000 m³ per year</td>
</tr>
<tr>
<td></td>
<td>(ii) Masonry and concreting works</td>
<td></td>
</tr>
<tr>
<td></td>
<td>masonry</td>
<td>1,000 m³ per year</td>
</tr>
<tr>
<td></td>
<td>gabion works</td>
<td>500 m³ per year</td>
</tr>
<tr>
<td></td>
<td>reinforced concrete</td>
<td>100 m³ per year</td>
</tr>
<tr>
<td>4.5</td>
<td>Business references provided and acceptable</td>
<td>7.00</td>
</tr>
<tr>
<td>4.6</td>
<td>Regional or Somaliland Experience (min. 3 projects of similar nature)</td>
<td>5.00</td>
</tr>
<tr>
<td>5</td>
<td>Environmental and Social and Health and Safety (ESHS) Experience and Capacity (ESHS Level 1 Project)</td>
<td>30.00</td>
</tr>
<tr>
<td>5.1</td>
<td>Certificates, ISO – Quality Management, Environmental management Certification, Health and Safety Certification (Form CER-5.1) – not applicable</td>
<td>n.a.</td>
</tr>
<tr>
<td>5.2</td>
<td>Experience in Projects with Significant ESHS Impact (Form Exp-5.2) - not applicable</td>
<td>n.a.</td>
</tr>
<tr>
<td>5.3</td>
<td>Environmental Capacity: the existence of an Environmental Policy and its application and enforcement in project implementation by a) own workforce and b) subcontractors.] (Form ENV-5.3, as applicable)</td>
<td>6.00</td>
</tr>
<tr>
<td>5.4</td>
<td>OHS Capacity: the existence of an Occupational Health &amp; Safety Policy (Form OHSAS-5.4, as applicable)</td>
<td>6.00</td>
</tr>
<tr>
<td>5.5</td>
<td>Socially Responsible Implementation: (1) a strategy for staff and labor incl. recruitment of temporary workforce and local labor, worker grievance mechanism, etc. (2) a comprehensive strategy for ensuring public health and safety, including programs and procedures to combat the spread of communicable diseases (incl. HIV/AIDS); (Form LOC-5.5, as applicable)</td>
<td>6.00</td>
</tr>
<tr>
<td>5.6</td>
<td>Ethical business principles: that ILO core labor standards are fully respected in business operations by explicitly ticking the boxes; (Form COC-5.6, as applicable)</td>
<td>6.00</td>
</tr>
<tr>
<td>5.7</td>
<td>List of Available ESHS and Construction Personnel; (Form PR-5.7, as applicable)</td>
<td>6.00</td>
</tr>
</tbody>
</table>

**Note:** Technical Proposal will be evaluated only for those firms who score a minimum of total points of 70 and the above evaluation for qualification documents.
Table III-3: Weighted Evaluation Criteria - Technical Proposal

<table>
<thead>
<tr>
<th>No</th>
<th>Criteria</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.</td>
<td>Project Management Expertise and Personnel Resources</td>
<td>26.00</td>
</tr>
<tr>
<td>6.1</td>
<td>Number and Experience of Company Corporate Management - Proportional to company size and experienced</td>
<td>3.00</td>
</tr>
<tr>
<td>6.2</td>
<td>Project Manager’s applicable experience ( &gt; 7 years as project manager, project manager on 2 or more projects of similar nature and complexity)</td>
<td>8.00</td>
</tr>
<tr>
<td>6.3</td>
<td>Site Engineer’s applicable experience (&gt; 6 years as office Engineer, 1 or more projects of similar nature and complexity)</td>
<td>6.00</td>
</tr>
<tr>
<td>6.4</td>
<td>Quality Control Engineer’s applicable experience (&gt; 5 years as quality Control Engineer, 2 or more projects of similar nature and complexity)</td>
<td>3.00</td>
</tr>
<tr>
<td>6.5</td>
<td>Surveyors’ applicable experience (&gt; 5 as surveyor, 2 or more projects of similar nature and complexity)</td>
<td>2.00</td>
</tr>
<tr>
<td>6.6</td>
<td>Community Liaison Officer’s (Grievance Manager’s) applicable experience (&gt;5 as grievance manager, 2 or more projects of similar nature and complexity)</td>
<td>2.00</td>
</tr>
<tr>
<td>6.7</td>
<td>Health and Safety Manager’s applicable experience (&gt;5 as OHS Manager or specialist, 2 or more projects of similar nature and complexity)</td>
<td>2.00</td>
</tr>
<tr>
<td>7</td>
<td>Equipment/Machinery and Facilities</td>
<td>26.00</td>
</tr>
<tr>
<td>7.1</td>
<td>Loader (required 2 units), wheeled, bucket min 0.8 m³</td>
<td>5.00</td>
</tr>
<tr>
<td>7.2</td>
<td>Low bed truck to transport loader from one area to the other (required 1 in number)</td>
<td>2.00</td>
</tr>
<tr>
<td>7.3</td>
<td>Mixers (required 3 units), 6 m³</td>
<td>3.00</td>
</tr>
<tr>
<td>7.4</td>
<td>Dump Trucks (required 4 units), with capacity of &gt;8 m³</td>
<td>4.00</td>
</tr>
<tr>
<td>7.5</td>
<td>Plate Compactors (required 2 units), ≥ 120 kg vibrating plate 45 to 60 cm</td>
<td>4.00</td>
</tr>
<tr>
<td>7.6</td>
<td>Submergible pumps (required 2 units); capacity per unit &gt;200 l/min</td>
<td>4.00</td>
</tr>
<tr>
<td>7.7</td>
<td>Total Station Surveying Equipment (minimum number required 2), latest model, 1 second min. accuracy</td>
<td>2.00</td>
</tr>
<tr>
<td>7.8</td>
<td>ESHS equipment, *Personnel safety equipment such as: hard head (helmet), safety shoes, warning vest, welding shields, gloves etc. for every person on site</td>
<td>2.00</td>
</tr>
<tr>
<td>8</td>
<td>Work Methods, Activity and Resource Schedules</td>
<td>48.00</td>
</tr>
<tr>
<td>8.1</td>
<td>Adequacy of Site Organization</td>
<td>10.00</td>
</tr>
<tr>
<td>8.2</td>
<td>Adequacy of Work Methodology for earthworks and gabions</td>
<td>10.00</td>
</tr>
</tbody>
</table>
KfW/ MoAD, SOM 2; Sustainable Land Management in Somaliland
Works Contract C1 - TD Part 1 Bidding Procedures
Lot A – SS dam sites SS01 (Geed Abera), SS03 (Daanyaale), SS04 (Arabsiyo)
Lot B – SS dam sites SS07 (Beeyo Liibaan), SS13 (Caro Yanbo), SS16 (Geesdheer)

<table>
<thead>
<tr>
<th>No</th>
<th>Criteria</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.3</td>
<td>Adequacy of Work Methodology for other works (masonry construction)</td>
<td>8.00</td>
</tr>
<tr>
<td>8.4</td>
<td>Adequacy of ESHS Methodology</td>
<td>6.00</td>
</tr>
<tr>
<td>8.5</td>
<td>Activity Schedule</td>
<td>8.00</td>
</tr>
<tr>
<td>8.6</td>
<td>Resource Schedule (Equipment and Manpower)</td>
<td>6.00</td>
</tr>
</tbody>
</table>

Those firms who score 70 points and above shall be deemed responsive to the technical requirements. Their financial offers will be opened and the lowest bidder will be awarded the contract and be called for contract negotiations.
1.  Domestic Preference

Not applicable

2.  Evaluation of Bids

In addition to the criteria listed in ITB 36.2 (a) – (e) the following criteria shall apply:

2.1  **Assessment of adequacy of Technical Proposal with Requirements**

2.2  **Assessment of adequacy of the Environmental, Social, Health and Safety (ESHS) Methodology**

2.3  **Multiple Contracts**, if permitted under ITB 36.4

   Not applicable

2.4  Alternative **Completion Times**, if permitted under ITB 13.2, will be evaluated as follows:

   Not applicable

2.5  **Technical alternatives**, if permitted under ITB 13.4, will be evaluated as follows:

   Not applicable

2.6  **Personnel**

The Bidder’s personnel shall be evaluated to determine whether it is substantially responsive (i.e. without material deviation, reservation or omission) to the requirements specified in Section VII, Works Requirements – Personnel Requirements. The Bidder shall use the Forms PER-1 and PER-2 provided for this purpose in Section IV, Bidding Forms - Technical Proposal. A Bid not including proposed personnel or a Bid for which the proposed personnel is not substantially responsive (i.e. with material deviation, reservation or omission) shall be rejected.

2.7  **Equipment**

The Bidder’s equipment shall be evaluated to determine whether it is substantially responsive (i.e. without material deviation, reservation or omission) to the requirements specified in Section VII, Works Requirements – Equipment Requirements. The Bidder shall use the Form EQU provided for this purpose in Section IV, Bidding Forms - Technical Proposal. A Bid not including proposed equipment or a Bid for which the proposed equipment is not substantially responsive (i.e. with material deviation, reservation or omission) shall be rejected.
Section IV. Qualification and Bidding Forms

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QUALIFICATION FORMS

Letter of Qualification

Date: [insert day, month, year]
ICB No.: [insert NCB number]

To: [insert full name of Employer]

We, the undersigned, apply to be qualified for the referenced ICB and declare that:

(a) we have examined and have no reservations to the qualification documents, including Addenda No., issued in accordance with ITB Clause 8: [insert the number and issuing date of each addenda];

(b) we, including any subcontractors or suppliers for any part of the contract resulting from this qualification process, have nationalities from eligible countries, in accordance with ITB Sub-Clause 4.3: [insert the nationality of the Bidder, including that of all parties in case of a JV, and the nationality of each already identified subcontractor and supplier of related services, if applicable];

(c) we, including any subcontractors or suppliers for any part of the contract resulting from this qualification do not have any conflict of interest, in accordance with ITB Sub-Clause 4.2;

(d) we, including any subcontractors or suppliers for any part of the contract resulting from this qualification, have not been declared ineligible by KfW, and/or we are not subject to sanction from either Germany, the US$opean Union or the United Nations in accordance with the lists of exclusion established by these institutions regarding fight against terrorism in accordance with ITB Sub-Clause 4.3;

(e) [we are not a government owned entity, or, we meet the requirements of ITB Sub-Clause 4.1];

(f) we, including any major subcontractors and suppliers declare that we fully respect ILO Core Labour Standards in our business practice in accordance with ITB Sub-Clause 4.3 and Form COC-5.6;

(g) we, in accordance with ITB Sub-Clause 35.1, plan to subcontract the following key activities and/or parts of the works: [insert any of the key activities identified in Section III- 4.2 which the Bidder intends to subcontract];

(h) We acknowledge and agree that the Employer reserves the right to annul the bidding process and reject all Bids at any time prior to contract award without thereby incurring any liability to us;
Signed [insert signature of the Bidder’s representative, authorized in accordance with ITB 4.1, whose name and capacity are shown below]

Name [insert full name of person signing the application]

In the Capacity of [insert legal capacity of person signing the application]

Duly authorized to sign the application for and on behalf of:

Bidder’s Name [insert full name of Bidder]

Address [insert street number/town or city/country address]

Dated on [insert day number] day of [insert month], [insert year].

Attachments:

Power of attorney, authorizing the Bidder’s representative to act for and on behalf of the Bidder, in accordance with ITB 4.1.
Declaration of Undertaking

Reference name of the Application / Bid / Contract: ("Contract")

To: ("Project Executing Agency")

1. We recognise and accept that KfW only finances projects of the Project Executing Agency ("PEA") subject to its own conditions which are set out in the Funding Agreement it has entered into with the PEA. As a matter of consequence, no legal relationship exists between KfW and our company, our Joint Venture or our Subcontractors under the Contract. The PEA retains exclusive responsibility for the preparation and implementation of the Tender Process and the performance of the Contract.

2. We hereby certify that neither we nor any of our board members or legal representatives nor any other member of our Joint Venture including Subcontractors under the Contract are in any of the following situations:

   2.1) being bankrupt, wound up or ceasing our activities, having our activities administered by courts, having entered into receivership, reorganisation or being in any analogous situation;

   2.2) convicted by a final judgement or a final administrative decision or subject to financial sanctions by the United Nations, the European Union or Germany for involvement in a criminal organisation, money laundering, terrorist-related offences, child labour or trafficking in human beings; this criterion of exclusion is also applicable to legal Persons, whose majority of shares are held or factually controlled by natural or legal Persons which themselves are subject to such convictions or sanctions;

   2.3) having been convicted by a final court decision or a final administrative decision by a court, the European Union, national authorities in the Partner Country or in Germany for Sanctionable Practice in connection with a Tender Process or the performance of a Contract or for an irregularity affecting the EU’s financial interests (in the event of such a conviction, the Applicant or Bidder shall attach to this Declaration of Undertaking supporting information showing that this conviction is not relevant in the context of this Contract and that adequate compliance measures have been taken in reaction);

   2.4) having been subject, within the past five years to a contract termination fully settled against us for significant or persistent failure to comply with our contractual obligations during such Contract performance, unless this termination was challenged and dispute resolution is still pending or has not confirmed a full settlement against us;

   2.5) not having fulfilled applicable fiscal obligations regarding payments of taxes either in the country where we are constituted or the PEA's country;

   2.6) being subject to an exclusion decision of the World Bank or any other multilateral development bank and being listed on the website http://www.worldbank.org/debarr or respectively on the relevant list of any other multilateral development bank (in the event of such exclusion, the Applicant or
Bidder shall attach to this Declaration of Undertaking supporting information showing that this exclusion is not relevant in the context of this Contract and that adequate compliance measures have been taken in reaction; or

2.7) being guilty of misrepresentation in supplying the information required as condition to participation in this Tender Procedure.

3. We hereby certify that neither we, nor any of the members of our Joint Venture or any of our Subcontractors under the Contract are in any of the following situations of conflict of interest:

3.1) being an affiliate controlled by the PEA or a shareholder controlling the PEA, unless the stemming conflict of interest has been brought to the attention of KfW and resolved to its satisfaction;

3.2) having a business or family relationship with a PEA’s staff involved in the Tender Process or the supervision of the resulting Contract, unless the stemming conflict of interest has been brought to the attention of KfW and resolved to its satisfaction;

3.3) being controlled by or controlling another Applicant or Bidder, or being under common control with another Applicant or Bidder, or receiving from or granting subsidies directly or indirectly to another Applicant or Bidder, having the same legal representative as another Applicant or Bidder, maintaining direct or indirect contacts with another Applicant or Bidder which allows us to have or give access to information contained in the respective Applications or Offers, influencing them or influencing decisions of the PEA;

3.4) being engaged in a Consulting Services activity, which, by its nature, may be in conflict with the assignments that we would carry out for the PEA;

3.5) in the case of procurement of Works, Plant or Goods:

i. having prepared or having been associated with a Person who prepared specifications, drawings, calculations and other documentation to be used in the Tender Process of this Contract;

ii. having been recruited (or being proposed to be recruited) ourselves or any of our affiliates, to carry out works supervision or inspection for this Contract

4. If we are a state-owned entity, and compete in a Tender Process, we certify that we have legal and financial autonomy and that we operate under commercial laws and regulations.

5. We undertake to bring to the attention of the PEA, which will inform KfW, any change in situation with regard to points 2 to 4 here above.

6. In the context of the Tender Process and performance of the corresponding Contract:

6.1) neither we nor any of the members of our Joint Venture nor any of our Subcontractors under the Contract have engaged or will engage in any Sanctionable Practice during the Tender Process and in the case of being awarded a Contract will engage in any Sanctionable Practice during the performance of the Contract.

6.2) neither we nor any of the members of our Joint Venture or any of our Subcontractors under the Contract shall acquire or supply any equipment nor
operate in any sectors under an embargo of the United Nations, the European Union or Germany; and;

6.3) we commit ourselves to complying with and ensuring that our Subcontractors and major suppliers under the Contract comply with international environmental and labour standards, consistent with laws and regulations applicable in the country of implementation of the Contract and the fundamental conventions of the International Labour Organisation1 (ILO) and international environmental treaties. Moreover, we shall implement environmental and social risks mitigation measures when specified in the relevant environmental and social management plans or other similar documents provided by the PEA and, in any case, implement measures to prevent sexual exploitation and abuse and gender based violence;

7. In the case of being awarded a Contract, we, as well as all members of our Joint Venture partners and Subcontractors under the Contract will, (i) upon request, provide information relating to the Tender Process and the performance of the Contract and (ii) permit the PEA and KfW or an auditor appointed by either of them, and in the case of financing by the European Union also to European institutions having competence under European Union law, to inspect the respective accounts, records and documents, to permit on the spot checks and to ensure access to sites and the respective project.

8. In the case of being awarded a Contract, we, as well as all our Joint Venture partners and Subcontractors under the Contract undertake to preserve above mentioned records and documents in accordance with applicable law, but in any case for at least six years from the date of fulfillment or termination of the Contract. Our financial transactions and financial statements shall be subject to auditing procedures in accordance with applicable law. Furthermore, we accept that our data (including personal data) generated in connection with the preparation and implementation of the Tender Process and the performance of the Contract are stored and processed according to the applicable law by the PEA and KfW.

Name: ____________________________ In the capacity of: __________________
Duly empowered to sign in the name and on behalf of: __________________________

Signature: _________________________ Dated: __________________________

---

1 In case ILO conventions have not been fully ratified or implemented in the Employer’s country the Applicant/Bidder/Contractor shall, to the satisfaction of the Employer and KfW, propose and implement appropriate measures in the spirit of the said ILO conventions with respect to a) workers grievances on working conditions and terms of employment, b) child labour, c) forced labour, d) worker’s organisations and e) non-discrimination.

2 In the case of a JV, insert the name of the JV. The person who will sign the application, bid or proposal on behalf of the Applicant/Bidder shall attach a power of attorney from the Applicant/Bidder
# Form ELI-1.1

**Bidder Information Form**

| Date: _________________
| ICB No. and title: _________________
| Page __________ of _______________ pages |

**Bidder’s name**

[insert full name]

**In case of Joint Venture (JV), name of each member:**

[insert full name of each member in JV]

**Bidder's actual or intended country of registration:**

[indicate country of Constitution]

**Bidder's actual or intended year of constitution:**

[indicate year of Constitution]

**Bidder's legal address [in country of registration]:**

[insert street/ number/ town or city/ country]

**Bidder’s legal structure and ownership structure**

Legal structure: [provide details]

Ownership structure: [provide details of direct and indirect ownership]

**Bidder’s authorized representative information**

Name: [insert full name]

Address: [insert street/ number/ town or city/ country]

Telephone/Fax numbers: [insert telephone/fax numbers, including country and city codes]

E-mail address: [indicate e-mail address]

1. General Presentation of the Bidder (name, legal structure, business areas, subsidiaries and shareholdings, number of staff, etc.)

2. Attached are copies of original documents of

- Articles of Incorporation (or equivalent documents of constitution or association), and/or documents of registration of the legal entity named above, in accordance with ITB 4.1.

- In case of JV, JV agreement, in accordance with ITB 4.1 or Declaration of Association as per ELI 1.2(b).

- In case of Government-owned enterprise or institution, in accordance with ITB 4.3 documents establishing:
  - Legal and financial autonomy
  - Operation under commercial law
  - Establishing that the Bidder is not a dependent agency of the Employer.

3. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership.
Form ELI-1.2 (a)  

Bidder’s JV Information Form  

[The following table shall be filled by each member of a JV and, if applicable, by any specialized subcontractor]  

Date: _______________  
ICB No. and title: __________________  
Page _______________ of ____________ pages  

Each Bidder that is a JV Party and each nominated subcontractor in accordance with ITB 35 must submit this information. 

| Bidder name: | [insert full name] |
| Bidder’s JV Member’s name: | [insert full name of Bidder’s JV Member] |
| Bidder’s JV Member’s country of registration: | [indicate country of registration] |
| Bidder JV Member’s year of constitution: | [indicate year of constitution] |
| Bidder JV Member’s legal address in country of constitution: | [insert street/ number/ town or city/ country] |
| Bidder JV Member’s legal structure and ownership structure: |  
Legal structure: [provide details]  
Ownership structure: [provide details of direct and indirect ownership] |
| Bidder JV Member’s authorized representative information |  
Name: [insert full name]  
Address: [insert street/ number/ town or city/ country]  
Telephone/Fax numbers: [insert telephone/fax numbers, including country and city codes]  
E-mail address: [indicate e-mail address] |

1. General Presentation of the Bidder JV Member (name, legal structure, business areas, subsidiaries and shareholdings, number of staff, etc.)  
2. Attached are copies of original documents of  
   □ Articles of Incorporation (or equivalent documents of constitution or association), and/or documents of registration of the legal entity named above, in accordance with ITB 4.1.  
   □ In case of JV, JV agreement, in accordance with ITB 4.1 or Declaration of Association as per ELI 1.2(b).  
   □ In case of Government-owned enterprise or institution, in accordance with ITB 4.3 documents establishing:  
     - Legal and financial autonomy  
     - Operation under commercial law  
     - Establishing that the Bidder is not a dependent agency of the Employer.  
3. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership.
Form ELI-1.2 (b)

Declaration of Association

[The following form shall be provided by each member of a Joint Venture and, if applicable, by any specialized subcontractor, nominated in accordance with ITB 35]

Date: _______________
ICB No. and title: __________________
Page _______________ of ____________ pages

We hereby declare our intent to associate with the following firms for the purpose of forming a [insert here “joint venture”]:

[Insert the names of the other JV Members here]

[Insert the name of the Lead Member] shall be the Lead Member.

We hereby confirm that we have not associated with any other firms for the purposes of this assignment and that we will not submit an Application separately from the firms listed above. Further, we understand that if one of the above JV Members appears as a member in more than one Application, all Applications in which the Member appears shall be disqualified.

In the event that this JV is awarded a Contract, we shall perform the works in the composition and in the form of cooperation described above.

[Signature of the authorised representative of the Member]
Form CON-2

Historical Contract Non-Performance, Pending Litigation and Litigation History

[The following table shall be filled in for the Bidder and for each member of a Joint Venture]

Bidder’s Name: [insert full name]
Date: [insert day, month, year]
Joint Venture Member Name: [insert full name]
ICB No. and title: [insert ICB number and title]
Page [insert page number] of [insert total number] pages

Non-Performed Contracts in accordance with Section III, Qualification Criteria and Requirements

- Contract non-performance did not occur since 1st January [insert current year number less 5] specified in Section III, Qualification Criteria and Requirements, Sub-Factor 2.1.
- Contract(s) not performed since 1st January [insert current year number less 5] specified in Section III, Qualification Criteria and Requirements, requirement 2.1

<table>
<thead>
<tr>
<th>Year</th>
<th>Non-performed portion of contract</th>
<th>Contract Identification</th>
<th>Total Contract Amount (current value, currency, exchange rate and US$ equivalent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>[insert year]</td>
<td>[insert amount and percentage]</td>
<td>Contract Identification: [indicate complete contract name/ number, and any other identification]</td>
<td>[insert amount]</td>
</tr>
<tr>
<td>Name of Employer: [insert full name]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Address of Employer: [insert street/city/country]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reason(s) for non-performance: [indicate main reason(s)]</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Pending Litigation, in accordance with Section III, Qualification Criteria and Requirements

- No pending litigation in accordance with Section III, Qualification Criteria and Requirements, Sub-Factor 2.3.
- Pending litigation in accordance with Section III, Qualification Criteria and Requirements, Sub-Factor 2.3 as indicated below.

<table>
<thead>
<tr>
<th>Year of dispute</th>
<th>Amount in dispute (currency)</th>
<th>Contract Identification</th>
<th>Total Contract Amount (currency), US$ Equivalent (exchange rate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>[insert year]</td>
<td>[insert amount]</td>
<td>Contract Identification: [indicate complete contract name, number, and any other identification] Name of Employer: [insert full name] Address of Employer: [insert street/city/country] Matter in dispute: [indicate main issues in dispute] Party who initiated the dispute: [indicate &quot;Employer&quot; or &quot;Contractor&quot;] Status of dispute: [Indicate if it is being treated by the Adjudicator, under Arbitration or being dealt with by the Judiciary]</td>
<td>[insert amount]</td>
</tr>
</tbody>
</table>
# Form FIN-3.1

## Financial Situation and Performance

[The following table shall be filled in for the Bidder and for each JV Member]

Bidder’s Name: [insert full name]

Date: [insert day, month, year]

Joint Venture Member Name: [insert full name]

ICB No. and title: [insert ICB number and title]

Page [insert page number] of [insert total number] pages

## 1. Financial data

<table>
<thead>
<tr>
<th>Type of Financial information in (currency)</th>
<th>Historic information for previous [insert number] years, [insert in words] (amount in currency, currency, exchange rate, US$ equivalent)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Year 1</td>
</tr>
</tbody>
</table>

Statement of Financial Position (Information from Balance Sheet)

- Total Assets (TA)
- Total Liabilities (TL)
- Total Equity/Net Worth (NW)
- Current Assets (CA)
- Current Liabilities (CL)
- Working Capital (WC)

Information from Income Statement

- Total Revenue (TR)
- Profits Before Taxes (PBT)

Cash Flow Information

- Cash Flow from Operating Activities
2. Financial documents

The Bidder and its parties shall provide copies of financial statements for [number] years pursuant Section III, Qualifications Criteria and Requirements, Sub-factor 3.1. The financial statements shall:

(a) reflect the financial situation of the Bidder or JV member, and not an affiliated entity (such as parent company or subsidiary).

(b) be independently audited or certified in accordance with local legislation.

(c) be complete, including all notes to the financial statements.

(d) correspond to accounting periods already completed and audited.

☐ Attached are copies of financial statements3 for the [number] years required above; and complying with the requirements

---

3 If the most recent set of financial statements is for a period earlier than 12 months from the date of application, the reason for this should be justified.
Form FIN-3.2

Average Annual Construction Turnover

[The following table shall be filled in for the Bidder and for each member of a Joint Venture]

Bidder’s Name: [insert full name]
Date: [insert day, month, year]
Joint Venture Member Name: [insert full name]
NCB No. and title: [insert NCB number and title]
Page [insert page number] of [insert total number] pages

<table>
<thead>
<tr>
<th>Annual turnover data (construction only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>[indicate calendar year]</td>
</tr>
<tr>
<td></td>
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<tr>
<td></td>
</tr>
</tbody>
</table>

Average Annual Construction Turnover *

* Total US$ equivalent for all years divided by the total number of years. See Section III, Qualification Criteria and Requirements, Clause 3.2.
Form FIN–3.3

Sources of Finance

[The following table shall be filled in for the Bidder and all members combined in case of a Joint Venture]

Specify proposed sources of financing, such as liquid assets, unencumbered real assets, lines of credit, and other financial means, net of current commitments, available to meet the total construction cash flow demands of the subject contract or contracts as specified in Section III, Evaluation and Qualification Criteria.

<table>
<thead>
<tr>
<th>Financial Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
</tbody>
</table>
Form FIN–3.4

Current Contract Commitments / Works in Progress

[The following table shall be filled in for the Bidder and all members combined in case of a Joint Venture]

Bidders and each member to a JV should provide information on their current commitments on all contracts that have been awarded, or for which a letter of intent or acceptance has been received, or for contracts approaching completion, but for which an unqualified, full completion certificate has yet to be issued.

<table>
<thead>
<tr>
<th>No.</th>
<th>Name of Contract</th>
<th>Employer’s Contact Address, Tel, Fax</th>
<th>Value of Outstanding Work [Current US$ Equivalent]</th>
<th>Estimated Completion Date</th>
<th>Average Monthly Invoicing Over Last Six Months [US$ / month]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
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<tr>
<td>3</td>
<td></td>
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<tr>
<td>4</td>
<td></td>
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</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Form EXP-4.1

General Construction Experience

[The following table shall be filled in for the Bidder and in the case of a JV Bidder, each Member]

<table>
<thead>
<tr>
<th>Starting Year</th>
<th>Ending Year</th>
<th>Contract Identification</th>
<th>Role of Bidder</th>
</tr>
</thead>
</table>
| [indicate year] | [indicate year] | Contract name: [insert full name]  
Brief Description of the Works performed by the Bidder: [describe works performed briefly]  
Amount of contract: [insert amount in currency, mention currency used, exchange rate and US$ equivalent]  
Name of Employer: [indicate full name]  
Address: [indicate street/number/city/country] | [insert “Prime Contractor” or “JV Member” or “Subcontractor” or “Management Contractor”] |
| | | Contract name: [insert full name]  
Brief Description of the Works performed by the Bidder: [describe works performed briefly]  
Amount of contract: [insert amount in currency, mention currency used, exchange rate and US$ equivalent]  
Name of Employer: [indicate full name]  
Address: [indicate street/number/city/country] | [insert “Prime Contractor” or “JV Member” or “Subcontractor” or “Management Contractor”] |
| | | Contract name: [insert full name]  
Brief Description of the Works performed by the Bidder: [describe works performed briefly]  
Amount of contract: [insert amount in currency, mention currency used, exchange rate and US$ equivalent]  
Name of Employer: [indicate full name]  
Address: [indicate street/number/city/country] | [insert “Prime Contractor” or “JV Member” or “Subcontractor” or “Management Contractor”] |

[Identify contracts that demonstrate continuous construction work over the past [number] years pursuant to Section III, Qualification Criteria and Requirements, Sub-Factor 4.1. List contracts chronologically, according to their commencement (starting) dates.]
Form EXP-4.2 (a)

Specific Construction and Contract Management Experience

[The following table shall be filled in separately for contracts performed by the Bidder or each member of a Joint Venture]

<table>
<thead>
<tr>
<th>Similar Contract No.</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>[insert number] of [insert number of similar contracts required]</td>
<td>[insert contract name and number, if applicable]</td>
</tr>
</tbody>
</table>

- **Contract Identification**: [insert contract name and number, if applicable]
- **Award date**: [insert day, month, year, i.e., 15 June, 2015]
- **Completion date**: [insert day, month, year, i.e., 03 October, 2017]
- **Role in Contract**: [check the appropriate box]
  - Prime Contractor
  - Member in JV
  - Management Contractor
  - Sub-contractor
- **Total Contract Amount**: [insert total contract amount in local currency]
- **Employer's Name**: [insert full name]
- **Address**: [indicate street / number / town or city / country]
- **Telephone/fax number**: [insert telephone/fax numbers, incl. country/city area codes]
- **E-mail**: [insert e-mail address, if available]
<table>
<thead>
<tr>
<th>Similar Contract No.</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>[insert number] of [insert number of similar contracts required]</td>
<td></td>
</tr>
<tr>
<td>Description of the similarity in accordance with Sub-Criterion 4.2 of Section III:</td>
<td></td>
</tr>
<tr>
<td>1. Physical size of required works items</td>
<td>[insert physical size of items]</td>
</tr>
<tr>
<td>2. Complexity</td>
<td>[insert description of complexity]</td>
</tr>
<tr>
<td>3. Methods/Technology</td>
<td>[insert specific aspects of the methods/technology involved in the contract]</td>
</tr>
<tr>
<td>4. Construction rate for key activities</td>
<td>[insert yearly rates and items]</td>
</tr>
<tr>
<td>5. Other Characteristics</td>
<td>[insert other characteristics as described in Section VII, Scope of Works]</td>
</tr>
</tbody>
</table>
**Form EXP-4.2 (b)**

## Construction Experience in Key Activities

**Bidder’s Name:** [insert full name]  
**Date:** [insert day, month, year]  
**Bidder’s JV Member’s Name:** [insert full name]  
**Subcontractor’s Name:** [insert full name]  
**NCB No. and title:** [insert NCB number and title]

Page [insert page number] of [insert total number] pages

1. **Key Activity No. One:** [insert brief description of the Activity, emphasizing its specificity]

<table>
<thead>
<tr>
<th>Information</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract Identification</td>
<td>[insert contract name and number, if applicable]</td>
</tr>
<tr>
<td>Award date</td>
<td>[insert day, month, year, i.e., 15 June, 2015]</td>
</tr>
<tr>
<td>Completion date</td>
<td>[insert day, month, year, i.e., 03 October, 2017]</td>
</tr>
<tr>
<td>Role in Contract</td>
<td>Prime Contractor</td>
</tr>
<tr>
<td>[check the appropriate box]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Total Contract Amount</td>
<td>[insert total contract amount in contract currency(ies)]</td>
</tr>
<tr>
<td>Quantity (Volume, number or rate of production, as applicable) performed under the contract per year or part of the year [insert extent of participation indicating actual quantity of key activity successfully completed in the role performed]</td>
<td>Total quantity in the contract (i)</td>
</tr>
<tr>
<td>Year 1</td>
<td></td>
</tr>
<tr>
<td>Year 2</td>
<td></td>
</tr>
<tr>
<td>Year 3</td>
<td></td>
</tr>
<tr>
<td>Year 4</td>
<td></td>
</tr>
</tbody>
</table>

**Employer’s Name:** [insert full name]

---

4 If applicable

CES Consulting Engineers Salzgitter GmbH/ MS Consultancy
**KfW/ MoAD, SOM 2: Sustainable Land Management in Somaliland**
**Works Contract C1 - TD Part 1 Bidding Procedures**

**Lot A – SS dam sites SS01 (Geed Abera), SS03 (Daanyaale), SS04 (Arabsiyo)**
**Lot B – SS dam sites SS07 (Beeyo Liibaan), SS13 (Caro Yanbo), SS16 (Geesdheer)**

<table>
<thead>
<tr>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Address:</strong></td>
</tr>
<tr>
<td>[indicate street / number / town or city / country]</td>
</tr>
<tr>
<td><strong>Telephone/fax number:</strong></td>
</tr>
<tr>
<td>[insert telephone/fax numbers, including country and city area codes]</td>
</tr>
<tr>
<td><strong>E-mail:</strong></td>
</tr>
<tr>
<td>[insert e-mail address, if available]</td>
</tr>
</tbody>
</table>

**Description of the key activities in accordance with Sub-Factor 4.2(b) of Section III:**

[insert response to inquiry indicated in left column]

2. Key Activity No. Two

3. Key Activity No. Three
Optional: Form EQP–4.3

Specific Construction Equipment

[The following table is optional and depending on the nature of the project, it shall be filled in for contracts performed by the Bidder or each member of a Joint Venture, and if so nominated in accordance with ITB 35, nominated sub-contractor]

<table>
<thead>
<tr>
<th>Bidder’s Legal Name:</th>
<th>[insert full name]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date:</td>
<td>[insert day, month, year]</td>
</tr>
<tr>
<td>ICB No.:</td>
<td>[insert ICB number]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>List of utilized specific construction equipment</td>
<td>[based on the specific construction experience in Forms 4.2 (a or b) the Bidder shall provide a list of specific construction equipment, utilized for the execution of the works. The list shall not specify commonly used equipment (ordinary cement mixers or cranes, etc.) but specific equipment related to the specific characteristics of the project as per the form below. For each item one form.]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item number:</th>
<th><strong>[insert consecutive number]</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Denomination:</td>
<td><strong>[insert technical name of the item]</strong></td>
</tr>
<tr>
<td>Purpose:</td>
<td><strong>[describe the use of the item in relation to the specific work requirements of the project]</strong></td>
</tr>
<tr>
<td>Capacity / power rating / quantities, etc.</td>
<td><strong>[give details of the capacity / power rating / quantities in relation to the work description]</strong></td>
</tr>
</tbody>
</table>
Form CER–5.1
Certification

[Insert Quality Management, Environmental Management Certification, Health and Safety Certification]

NOT APPLICABLE

This project is categorized as ESHS level 1

(Small value works contracts, basic/ standard earth works, and no particular or increased requirements on ESHS).

[In case of ESHS level 1 it is mandatory for Applicants to be in the possession of all three valid certificates, in case of ESHS level 2 a Quality Management Certificate might be requested. In case of ESHS level 3 no certificates shall be required from Applicants. The following table shall be provided by the Applicant for each certificate. Insert NOT APPLICABLE for the certificates which are not required]
Form ESHS EXP-5.2
Experience in Projects with significant ESHS Impact

NOT APPLICABLE

[The following table shall be filled by the Bidder or in case of a JV the Lead Member. Project references provided here should reflect the ESHS requirements as defined in Section III, 5. If the Bidder is required to demonstrate different ESHS aspects this should be shown separately in the sheet below or in a separate sheet.]

The works required hereunder are at ESHS level 1

(small value works contracts, basic/standard earth works, no particular or increased requirements on ESHS).
# Form ENV–5.3

## Environmental Management Capacity

[The following table shall be filled by the Applicant or each member of a Joint Venture, whose part in the JV is substantial (more than 40 (forty) % of the works)]

<table>
<thead>
<tr>
<th>The Applicant shall demonstrate:</th>
<th>Information and Documentation</th>
<th>ESH level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - the existence of an Environmental Policy [only in case of ESHS level 1] insert: and its application and enforcement in project implementation by a) own workforce and b) subcontractors.]</td>
<td><strong>[Provide relevant details of the Corporate Values or similar policy documents and declarations]</strong></td>
<td>1 2 3</td>
</tr>
</tbody>
</table>

[insert brief description or, if applicable, short abstract of the documentation annexed]

| 2 - the existence of an Environmental Management System, incl. an adequate organizational set-up for definition, enforcement and monitoring. | __[Provide details of the organizational set-up and procedures for relevant issues within your company, for qualification details of relevant key staff see Form 5.6]__ | 1 2 3 |

[insert brief description or, if applicable, short abstract of the documentation annexed]

| 3 - that all members of a JV, suppliers, subcontractors and temporary workforce a) are aware of and b) comply with the Environmental Management System. | __[Provide information on a) how awareness, know how transfer and enforcement is implemented to external partners b) nature, content and frequency of internal trainings to employees.]__ | 1 2 3 |

[insert brief description or, if applicable, short abstract of the documentation annexed]
### 4

- that regular monitoring and reviews of the status of the Environmental Management System takes place.

| Not applicable |

[Insert brief description or, if applicable, short abstract of the documentation annexed]

### 5

- that procedures exist to respond to and mitigate environmental emergencies and other adverse impacts on work sites.

| Not applicable |

[Insert brief description or, if applicable, short abstract of the documentation annexed]

---

This Contract (Construction of Subsurface Dams – SS sites) is attributed to ESHS level (1).
Form OHSAS–5.4

Occupational Health and Safety Capacity

[The following table shall be filled by the Applicant or each member of a Joint Venture, whose part in the JV is substantial (more than 40 (forty) % of the works)]

<table>
<thead>
<tr>
<th>The Applicant shall demonstrate:</th>
<th>Information</th>
<th>ESHS level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - the existence of an Occupational Health &amp; Safety Policy</td>
<td><strong>[Provide a policy document and the index of the Occupational Health &amp; Safety manual or other relevant documents and declarations]</strong></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

[insert brief description or, if applicable, short abstract of the documentation annexed]

| 2 - the existence of management system, incl. an adequate organizational set-up for definition, enforcement and monitoring. Not applicable | __[Provide details of the organizational set-up and procedures for health and safety issues within your company, for qualification details of relevant key staff see Form 5.6]__ | 2 |

[insert brief description or, if applicable, short abstract of the documentation annexed]

| 3 - that regular reviews, audits and statistics of Health & Safety events and procedures especially on work sites exist. Not applicable | __[Please provide details or samples of risk assessments, reviews, audits or statistical reports which are carried out on a regular basis for the last three years ]__ | 3 |

[insert brief description or, if applicable, short abstract of the documentation annexed]

| 4 - that all members of a JV, suppliers (in particular those for major supply items), subcontractors and temporary workforce a) are aware of and b) comply with the Health & Safety Policy. Not applicable | __[Provide information on a) how awareness, know how transfer and enforcement is implemented to external partners b) nature, content and frequency of internal trainings to employees.]__ | 5 |

[insert brief description or, if applicable, short abstract of the documentation annexed]

This Contract (Construction of Subsurface Dams – SS sites) is attributed to ESHS level (1).
# Form LOC–5.5

## Socially Responsible Works Implementation

[The following table shall be filled by the Applicant or each member of a Joint Venture, whose part in the JV is substantial (more than 40 (forty) % of the works)]

<table>
<thead>
<tr>
<th>The Applicant shall demonstrate:</th>
<th>Documentation</th>
<th>ESHS level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - a strategy for staff and labor incl. recruitment of temporary workforce and local labor, worker grievance mechanism, etc.</td>
<td><img src="image" alt="Provide information and relevant documents, if any" /></td>
<td><img src="image" alt="Level 1" /> <img src="image" alt="Level 2" /> <img src="image" alt="Level 3" /></td>
</tr>
</tbody>
</table>

(insert brief description or, if applicable, short abstract of the documentation annexed)

| 2 | a comprehensive strategy for ensuring public health and safety, including programs and procedures to combat the spread of communicable diseases (incl. HIV/AIDS). | ![Please provide supporting evidence](image) | ![Level 1](image) ![Level 2](image) ![Level 3](image) |

(insert brief description or, if applicable, short abstract of the documentation annexed)

| 3 | a comprehensive strategy for staff accommodation, e.g. worksite camps, house rental, security, etc. | ![Provide information and relevant documents, if any](image) | ![Level 2](image) ![Level 3](image) |

[Not applicable]

(insert brief description or, if applicable, short abstract of the documentation annexed)
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>- a comprehensive training strategy for transfer of ESHS knowhow to temporary workforce and subcontractors</td>
<td>Not applicable</td>
</tr>
<tr>
<td></td>
<td></td>
<td><img src="image_url" alt="2" /> <img src="image_url" alt="2" /></td>
</tr>
</tbody>
</table>

[insert brief description or, if applicable, short abstract of the documentation annexed]

| 5 | - a strategy for communication and interaction with stakeholders and local communities incl. grievance mechanism, incl. avoidance of damage to property and people  | Not applicable |
|   |   | ![3](image_url) |

[insert brief description or, if applicable, short abstract of the documentation annexed]

This Contract (Construction of Subsurface Dams – SS sites) is attributed to ESHS level (1)
# Form COC-5.6

## Ethical Business Principles

[The following table shall be filled by the Applicant or each member of a Joint Venture, whose part in the JV is substantial (more than 40 (forty) % of the works)]

<table>
<thead>
<tr>
<th>The Applicant shall demonstrate:</th>
<th>Documentation</th>
<th>ESHS level</th>
</tr>
</thead>
</table>
| 1 - that ILO core labor standards\(^5\) are fully respected in business operations by explicitly ticking the boxes. | Our business operations respect the core labor standards on:  
- Freedom of Association  
- Elimination of Forced Labour  
- Non-Discrimination  
- Abolishment of Child Labour | Pass/ fail  
\(\Box\)  
\(\Box\)  
\(\Box\)  
\(\Box\)  |

[insert brief description or, if applicable, short abstract of the documentation annexed]

| 2 | the existence of a declaration on ethical business principles or similar declaration. | ![Provide written information and evidence on business principles (code of conduct, conflict of interest, bribery, corruption, bid-rigging, unfair competition, insider rules, confidentiality, money-laundering, etc.).] | 2  
\(\Box\)
\(\Box\)  |

[insert brief description or, if applicable, short abstract of the documentation annexed]

| 3 | the existence of an adequate organizational set-up to define, enforce and monitor theoretical business principles. | ![Provide details of the organizational set-up and staffing of the relevant department, for qualification details of relevant key staff see Form 5.6].] | 2  
\(\Box\)
\(\Box\)  |

[insert brief description or, if applicable, short abstract of the documentation annexed]

---

\(^5\) See relevant ILO conventions C087, C098, C029, C105, C100, C111, C138, C182. In case ILO conventions have not been fully ratified or implemented in the Employer’s country the Applicant / Bidder / Contractor shall, to the satisfaction of the Employer and KfW, propose and implement appropriate measures in the spirit of the said ILO conventions.
This Contract (Construction of Subsurface Dams – SS sites) is attributed to ESHS level (1)
Form PR–5.7

List of Available ESHS and Construction Personnel

Complete the list below to demonstrate the extent to which you have access (internally / externally) to ESHS and Construction expertise required for personnel profiles described in Section VII; Scope of Works. Do not attach CVs as no personnel evaluation is carried out at the qualification stage. It is understood that qualified Bidders are not required to include staff named below into the proposal.

<table>
<thead>
<tr>
<th>Name</th>
<th>Designation, in accordance with Section VII, Scope of Works</th>
<th>Education/Degree</th>
<th>Years of Professional Experience</th>
<th>Relationship with / Years within the Bidder$^6$</th>
<th>Country/Regional Experience</th>
<th>Relevant Project References (Description of project-related experience)</th>
<th>Languages</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$^6$ For freelance experts (e.g. with retainer contracts or formal agreements) indicate "FE" and how long the expert has been associated with the Applicant. For sub-consultant staff indicate "Sub". Staff from affiliated firms of the Applicant shall be considered as sub-consultant staff.
BIDDING FORMS

LETTER OF BID

[The Bidder shall prepare his Letter of Bid on a Letterhead paper specifying his name and address]

Date: ____________________________
ICB No.: ____________________________
Invitation for Bid No.: __________
Alternative No.: __________

To: ______________________________________________________________________

We, the undersigned, declare that:

(a) We have examined and have no reservations to the Bidding Documents, including Addenda issued in accordance with Instructions to Bidders (ITB 8)____________________;

(b) We have no conflict of interest in accordance with ITB 4;

(c) We have not been suspended nor declared ineligible by the Employer based on execution of a Bid Securing Declaration in the Employer's country in accordance with ITB 4.4;

(d) We offer to execute in conformity with the Bidding Documents the following Works: ____________________________;

(e) The total price of our Bid, excluding taxes and excluding any discounts offered in item (f) below is:
   i) In case of only one lot, total price (excluding taxes) of the Bid ____________________________;
   ii) In case of multiple lots, total price (excluding taxes) of each lot ____________________________;
   iii) In case of multiple lots, total price (excluding taxes) of all lots (sum of all lots) ____________________________;
   iv) In case of acceptance of [indicate any technical alternatives offered in accordance with ITB 13], total price (excluding taxes) ____________________________;

(f) The discounts offered and the methodology for their application are:
   i) The discounts offered are: ____________________________
   ii) The exact method of calculations to determine the net price after application of discounts is shown below: ____________________________

CES Consulting Engineers Salzgitter GmbH/ MS Consultancy
(g) Our Bid shall be valid for a period of ________________ days from the date fixed for the bid submission deadline in accordance with the Bidding Documents, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;

(h) If our Bid is accepted, we commit to obtain a performance security in accordance with ITB 42 of the Bidding Documents;

(i) We are not participating, as a Bidder, in more than one Bid in this bidding process in accordance with ITB 4.2(e), other than alternative Bids submitted in accordance with ITB 13;

(j) We understand that this Bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal contract is prepared and executed; and

(k) We acknowledge and agree that the Employer reserves the right to annul the bidding process and reject all Bids at any time prior to contract award without thereby incurring any liability to us;

(l) We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in any type of fraud and corruption.

Name of the Bidder*
Name of the person duly authorized to sign the Bid on behalf of the Bidder**

Title of the person signing the Bid

Signature of the person named above

Date signed ________________________________ day of _________________________, ______

*: In the case of the Bid submitted by a JV specify the name of the JV as Bidder

**: Person signing the Bid shall have the power of attorney given by the Bidder to be attached with the Bid
APPENDIX TO BID

NOT APPLICABLE

No price adjustments
Bill of Quantities

PREAMBLE AND NOTES TO BILLS OF QUANTITIES

1. The Bill of Quantities shall be read in conjunction with the Instructions to Bidders, General and Special Conditions of Contract, Technical Specifications, and Drawings.

2. The quantities given in the Bill of Quantities are estimated and provisional, and are given to provide a common basis for bidding. The basis of payment will be the actual quantities of work ordered and carried out, as measured by the Contractor and verified by the Engineer valued at the rates and prices bid in the priced Bill of Quantities, where applicable, and otherwise at such rates and prices as the Engineer may fix within the terms of the Contract.

3. The rates and prices bid in the priced Bill of Quantities shall, except insofar as it is otherwise provided under the Contract, include all Constructional Plant, labour, supervision, materials, erection, maintenance, insurance, profit, taxes, and duties, together with all general risks, liabilities, and obligations set out or implied in the Contract.

4. A rate or price shall be entered against each item in the priced Bill of Quantities, whether quantities are stated or not. The cost of Items against which the Contractor has failed to enter a rate or price shall be deemed to be covered by other rates and prices entered in the Bill of Quantities.

5. The whole cost of complying with the provisions of the Contract shall be included in the Items provided in the priced Bill of Quantities, and where no Items are provided, the cost shall be deemed to be distributed among the rates and prices entered for the related Items of Work.

6. General directions and descriptions of work and materials are not necessarily repeated nor summarised in the Bill of Quantities. References to the relevant sections of the Contract documentation shall be made before entering prices against each item in the priced Bill of Quantities.

7. Provisional Sums included and so designated in the Bill of Quantities shall be expended in whole or in part at the direction and discretion of the Engineer in accordance with Sub-Clause 13.5 and Clause 13.6 of the General Conditions.

8. Works will be paid on basis of measurements; the approval of works is with the taking over; the defect liability period is 1 year and when thereafter the Performance Certificate is issued, then the Employer has no further entitlement of financial claims or compensation.

9. The prices and rates inserted in the Bills of Quantities will be used for valuing the work executed and the Engineer will measure the whole of the works executed in accordance with the Contract.

10. The prices and rates inserted in the Bills of Quantities are to be the full inclusive costs of the works described under the items, complete in place and in accordance with the Specifications and Drawings, including setting out of the works, including
11. The brief description of the items given in the Bills of Quantities are purely for the purpose of identification and in no way modify or supersede the detailed descriptions given in the Conditions of Contract, Specifications or Drawings. When pricing items, reference is to be made to the Conditions of Contract, Standard Specifications, Drawings and Special Specification for the full directions and description of work and materials.

12. A price or rate is to be inserted, in ink, against each item in the Bills of Quantities, whether quantities are stated or not, and if the Bidder includes the cost of a particular item elsewhere in his rates or prices, he shall insert the word “nil” against both the rate and extension of that particular item. Should the Bidder omit to price an item, then it will be assumed that he has included the cost of the item elsewhere in his rates or prices.

13. No alteration shall be made to the Bills of Quantities and no extra item shall be inserted. The Bidder shall satisfy himself that the Contract Sum arrived at by pricing the quantities and items given is sufficient compensation for constructing and maintaining the whole of the works in accordance with the Contract Documents.

14. For the purpose of payment by Interim Certificate of “lump sum” items the Engineer may assess the portion of the work completed on the “Lump Sum” item and allow for payment of the portion of the “Lump Sum” he deems fair and reasonable. The total of all portions allowed shall not exceed the “lump sum” amount. All interim payments shall be subject to the retention stipulated in the Contract Documents.

15. Schedule of additional information: all construction materials the Contractor is intending to use must fulfill at least the Technical Specifications.

16. Variation: Variation procedure shall follow the rules as defined within the General Conditions of Contract GC. The Variation shall be applied in time (as per GC) with justification and description of actual project background. The related works can start only after approval by the Engineer. For variations the provisional item of contingencies which refers to every sub-bill shall be used. The contingency budget is not allowed to exceed. The cost breakdown of variation shall refer to the applicable item unit prices of the BoQ or – when reasonable – the items as given in the “Dayworks” (sub-bill), which is part of the BoQ.

17. During construction the unit rate established for an item in one Bill of Quantities may be used as a basis for establishing a unit rate for similar work in another Bill of Quantities which contains no such item. No additional cost will be considered for such an eventuality.

18. It shall be the responsibility of the Contractor to arrange for the removal of, or alteration to existing services where necessitated by the Works. Costs incurred will be paid under relevant items in the Bills of Quantities.

19. When the site of any particular item of the Works has been sufficiently cleared of trees, undergrowth etc. and before any excavation or filling has been carried out, the Contractor shall carry out a survey under the supervision of the Engineer’s
Representative to take, record and agree upon an adequate number of original ground levels. The data so obtained shall be used as a basis for the computation of excavation and filling. If for whatever reason the Contractor commences excavation without taking levels, the Engineer’s decision on the original ground levels to be used for computation will be final.

20. The volume of fill will be measured net to the finished levels as amended by the Engineer.

21. The rates for concrete shall include for making and testing concrete cubes and forwarding the results to the Engineer. Testing shall be carried out by a Test Laboratory approved by the Engineer.

22. The rates for precast concrete paving shall include for all cutting, bedding, jointing and laying to falls.

23. The rates for precast concrete edging and curbs shall include for formwork, concrete bed and backing, all cutting, jointing and laying.

24. All quantities will be measured in Metric Units.

25. The unit rates for the various items listed in the BOQ shall include, except insofar as it is otherwise provided under the Contract, all labor, construction equipment, materials, erection, maintenance, supervision, insurances etc. set forth or implied in the Contract. These are all deemed to include all allowances for waste or surplus of any kind, which are not subject to measurement.

26. The rates to be indicated in the Bills of Quantity shall be excluding Government duties and taxes (including any input VAT paid on purchase of materials etc.).

27. In case the bidder does not specify the brand and model codes as desired in several item of the bill of quantities, the brand and model code already given in those items will be binding for the contract.

28. The rates of the general and preliminary items should not exceed 10% of the total accepted contract amount.

29. Any arithmetic errors in computation or summation will be corrected by the Employer as follows:

(a) where there is a discrepancy between amounts in figures and in words, the amount in words will govern; and

(b) where there is a discrepancy between the unit rate and the total amount derived from the multiplication of the unit price and the quantity, the unit rate as quoted will govern, unless in the opinion of the Employer, there is an obviously gross misplacement of the decimal point in the unit price, in which event the total amount as quoted will govern and the unit rate will be corrected.
Bill of Quantities

Total Summary Sheet

List of Provisional Sums
(the provisional items are included in the BoQ within the several Sub-bills; in the BoQ the amounts of the Provisional Sum are given as a fixed unit price (budget) and shall not be changed by the Bidder. For evaluation purposes, Provisional Sums (other than Day-work) will not be evaluated)

The Sub-bills:
1. General items
2. Earthworks
3. Civil works
4. Miscellaneous
5. Day works

The BoQ (Summary Sheets and the Sub-bills) are attached to Part 1 (Bidding Procedures).
The Bidder will be made available an Excel version of the BoQ for preparation of his financial bid. No changes in the excel sheet structure and its calculative connections shall be done by the Bidder.
Technical Proposal

- Environmental, Social, Health and Safety (ESHS) Methodology
- Site Organization and Method Statement
- Construction Schedule
- Personnel proposed (forms PER-1 and PER-2)
- Equipment proposed (form EQU)
ENVIRONMENTAL, SOCIAL, HEALTH AND SAFETY (ESHS) COST SCHEDULE

In BoQ are enclosed items and provisions for standard requirements for EMP and for H&S
Environmental, Social, Health and Safety (ESHS) Methodology

The Bidder shall provide an ESHS Methodology providing information on how the Bidder shall meet those requirements and objectives, which are specified in Section VII, Works Requirements - ESHS Specifications.

The ESHS Methodology submitted shall be in the form of a preliminary draft of the Project Area Environmental and Social Management Plan (PA-ESMP), the content of which is detailed in Appendix 1 to ESHS Specifications.

Information should be provided on all items of the above mentioned table of contents.

In order to address the highly sensitive ESHS issues highlighted during the project’s environmental and social impact assessment, the ESHS Methodology shall provide detailed information on the management of the following items: [Delete items if not relevant and add sensitive issues with regards to the Project Area management and resulting from the project’s ESIA, ESMP or Environmental and Social Commitment Plan (ESCP) if any ]:

(a) ESHS resources and facilities and ESHS monitoring organization;
(b) Project Areas description (base camps, quarries, borrow pits, storage areas);
(c) Health & Safety on Project Areas;
(d) Local recruitment and ESHS trainings of local staff (capacity building), ESHS trainings of subcontractors and local partners (transfer of knowledge);
(e) Relations with stakeholders, information and consultation of local communities and authorities;
(f) Traffic management;
(g) Hazardous products
(h) Wastewater (effluents)
(i) Protection of water resources;
(j) Atmospheric emissions, noise and vibrations
(k) Waste management;
(l) Biodiversity: protection of fauna and flora;
(m) Site rehabilitation and revegetation;
(n) Erosion and sedimentation;
(o) Control of infectious and communicable diseases (HIV/AIDS, malaria…).

A Bid for which the ESHS Methodology is evaluated as non-substantially responsive (i.e. with material deviation, reservation or omission) to the ESHS Specifications shall be rejected.
Site Organization and Method Statement

Each Bidder shall set out details of the Site Organization and Method Statement for the Works to demonstrate how it will meet the Employer’s objective and requirements. As a minimum, the Method Statement shall address the following:

(a) Details of the arrangements and methods which the Bidder proposes to implement for the construction of the Works, in sufficient detail to demonstrate their adequacy to achieve the requirements of the Contract including completion within the Time for Completion stated in the Particular Conditions of Contract;

(b) Outline of the arrangements of the Bidder to manage coordination of Site access;

(c) Comments on the geotechnical and subsurface aspects of the Works including materials, material sources and any constraints;

(d) Comments on any offshore or waterfront aspects of the Works (if relevant);

(e) Comments on logistics and traffic management [as may be appropriate];

(f) Outline of the arrangements and organisation of the Bidder to ensure compliance with the Works Requirements;

(g) Outline of the arrangements of the Bidder to carry out testing upon completion as specified in the Works Requirements;

(h) [Insert other information, as may be appropriate].
Construction Schedule

Each Bidder shall set out a detailed Program and Schedule for mobilisation and construction of the Works to be performed, including estimated starting and finishing dates for individual components and identification of major milestones and critical path. The proposed Program and Schedule shall be developed according to Works Requirements and shall address the following:

(a) Details of the proposed schedule for obtaining permits that may be necessary in order to commence the Works, including the preparation of required studies, supporting information, and applications;

(b) Details of the proposed timeline for carrying out the Works within the Time for Completion, in the form of a bar chart showing notably the critical path;

(c) Details of the proposed timeline for the testing, commissioning and handing over of the completed Works;

(d) [Other proposed measures as may be appropriate].
**PERSONNEL**

**Form PER-1: Proposed Personnel**

Bidders should provide the names of suitably qualified personnel to meet the specified requirements stated in Section III, Evaluation and Qualification Criteria. The data on their experience should be supplied using the Form below for each candidate.

<table>
<thead>
<tr>
<th></th>
<th>Title of position*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Name</td>
</tr>
<tr>
<td>2.</td>
<td>Name</td>
</tr>
<tr>
<td>3.</td>
<td>Name</td>
</tr>
<tr>
<td>4.</td>
<td>Name</td>
</tr>
</tbody>
</table>

*As listed in Section III, Evaluation and Qualification Criteria.*
Form PER-2: Resume of Proposed Personnel

<table>
<thead>
<tr>
<th>Name of Bidder</th>
</tr>
</thead>
</table>

**Position**

<table>
<thead>
<tr>
<th>Personnel information</th>
<th>Name</th>
<th>Date of birth</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Professional qualifications**

<table>
<thead>
<tr>
<th>Present employment</th>
<th>Name of employer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Address of employer**

<table>
<thead>
<tr>
<th>Telephone</th>
<th>Contact (manager / personnel officer)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fax</th>
<th>E-mail</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Job title**

<table>
<thead>
<tr>
<th>Years with present employer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

Summarize professional experience over the last 20 years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

<table>
<thead>
<tr>
<th>From</th>
<th>To</th>
<th>Company / Project / Position / Relevant technical and management experience</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Form EQU: Equipment

The Bidder shall provide adequate information to demonstrate clearly that it has the capability to meet the requirements for the key equipment listed in Section III, Evaluation and Qualification Criteria. A separate Form shall be prepared for each item of equipment listed, or for alternative equipment proposed by the Bidder.

<table>
<thead>
<tr>
<th>Item of equipment</th>
<th>Equipment information</th>
<th>Model and power rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity</td>
<td></td>
<td>Year of manufacture</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Current status</th>
<th>Current location</th>
<th>Details of current commitments</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>Indicate source of the equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>☐ Owned ☐ Rented ☐ Leased ☐ Specially manufactured</td>
</tr>
</tbody>
</table>

Omit the following information for equipment owned by the Bidder.

<table>
<thead>
<tr>
<th>Owner</th>
<th>Name of owner</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Address of owner</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Telephone</th>
<th>Contact name and title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fax</td>
<td>Telex</td>
</tr>
</tbody>
</table>

Agreements | Details of rental / lease / manufacture agreements specific to the project

<table>
<thead>
<tr>
<th>Source</th>
<th>Indicate source of the equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>☐ Owned ☐ Rented ☐ Leased ☐ Specially manufactured</td>
</tr>
</tbody>
</table>
BID SECURITY

Beneficiary: [Insert name and Address of Purchaser]

Date: [Insert date of issue]

BID GUARANTEE No.: [Insert guarantee reference number]

Guarantor: [Insert name and address of place of issue, unless indicated in the letterhead]

We have been informed that [Insert name and address of the bidder, which in the case of a joint venture shall be the name and address of the joint venture] (hereinafter called “the Applicant”) has submitted or will submit to the Beneficiary its bid (hereinafter called “the Bid”) for the execution of [Insert project, object of the contract/brief description of the works] under Invitation for Bids No. [Insert tender number] (“the IFB”).

Waiving all objections and defences, we, as Guarantor, hereby irrevocably and independently undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of [Insert guarantee amount and currency in words and figures] upon receipt by us of the Beneficiary’s first demand, supported by the Beneficiary’s statement, whether in the demand itself or a separate signed document accompanying or identifying the demand, stating that either the Applicant:

(a) Has withdrawn its Bid during the period of bid validity set forth in the Applicant’s Bid Submission Form (the Bid Validity Period”); or

(b) Having been notified of the acceptance of its Bid by the Beneficiary during the Bid Validity Period, (i) has failed to sign the contract agreement, or (ii) has failed to furnish the performance security, in accordance with the Instructions to Bidders (“ITB”) of the Beneficiary’s bidding document.

This guarantee shall expire not later than [Insert expiry date].

By this date we must have received any claims for payment by letter or encoded telecommunication.

It is understood that you will return this guarantee to us on expiry or after payment of the total amount to be claimed hereunder.

[As preferred option regarding guarantee rules insert: This guarantee is subject to the Uniform Rule for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758.]

Place, date Guarantor’s authorized signature(s)

1Pursuant to ITB Clause 19.3 the guarantee must be valid for at least 42 days beyond the bid validity.

2In the case the issuing bank will not add the preferred option, the following must be added instead: This guarantee is governed by the laws of [Insert country of jurisdiction]. Note: the country of jurisdiction shall be the country where the bank’s branch issuing the guarantee is physically located.
Section V. Eligibility Criteria
Eligibility in KfW-Financed Procurement

1. Consulting Services, Works, Goods, Plant and Non-Consulting Services are eligible for KfW financing regardless of the country of origin of the Contractors (including Subcontractors and suppliers for the execution of the Contract), except where an international embargo or sanction by the United Nations, the European Union or the German Government applies.

2. Applicants/Bidders (including all members of a Joint Venture and proposed or engaged Subcontractors) shall not be awarded a KfW-financed Contract if, on the date of submission of their Application/Offer or on the intended date of Award of a Contract, they:
   2.1 are bankrupt or being wound up or ceasing their activities, are having their activities administered by courts, have entered into receivership, or are in any analogous situation;
   2.2 have been
      (a) convicted by a final judgement or a final administrative decision or subject to financial sanctions by the United Nations, the European Union and/or the German Government for involvement in a criminal organisation, money laundering, terrorist-related offences, child labour or trafficking in human beings; this criterion of exclusion is also applicable to legal Persons, whose majority of shares are held or factually controlled by natural or legal Persons which themselves are subject to such convictions or sanctions;
      (b) convicted by a final court decision or a final administrative decision by a court, the European Union or national authorities in the Partner Country or in Germany for Sanctionable Practice during any Tender Process or the performance of a Contract or for an irregularity affecting the EU’s financial interests, unless they provide supporting information together with their Declaration of Undertaking (Form available as Appendix to the Application/Offer which shows that this conviction is not relevant in the context of this Contract and that adequate compliance measures have been taken in reaction;
   2.3 have been subject within the past five years to a Contract termination fully settled against them for significant or persistent failure to comply with their contractual obligations during Contract performance, unless this termination was challenged and the dispute resolution is still pending or has not confirmed a full settlement against them;
   2.4 have not fulfilled applicable fiscal obligations regarding payments of taxes either in the country where they are constituted or the PEA’s country;
   2.5 are subject to an exclusion decision of the World Bank or any other multilateral development bank and are listed in the respective table with debarred and cross-debarred firms and individual available on the World Bank’s website or any other multilateral development bank unless they provide supporting information together with their Declaration of Undertaking which shows that this exclusion is not relevant in the context of this Contract or
   2.6 have given misrepresentation in documentation requested by the PEA as part of the Tender Process of the relevant Contract.

3. State-owned entities may compete only if they can establish that they (i) are legally and financially autonomous, and (ii) operate under commercial law. To be eligible, a state-owned entity shall establish to KfW’s satisfaction, through all relevant documents, including its charter and other information KfW may request, that it: (i) is a
legal entity separate from their state (ii) does not currently receive substantial subsidies or budget support; (iii) operates like any commercial enterprise, and, inter alia, is not obliged to pass on its surplus to their state, can acquire rights and liabilities, borrow funds and be liable for repayment of its debts, and can be declared bankrupt.
Section VI. KfW Policy – Sanctionable Practice – Social and Environmental Responsibility

1. **Sanctionable Practice**

The PEA and the Contractors (including all members of a Joint Venture and proposed or engaged Subcontractors) must observe the highest standard of ethics during the Tender Process and performance of the Contract.

By signing the Declaration of Undertaking the Contractors declare that (i) they did not and will not engage in any Sanctionable Practice likely to influence the Tender Process and the corresponding Award of Contract to the PEA’s detriment, and that (ii) in case of being awarded a Contract they will not engage in any Sanctionable Practice.

Moreover, KfW requires to include in the Contracts a provision pursuant to which Contractors must permit KfW and in case of financing by the European Union also to European institutions having competence under European law to inspect the respective accounts, records and documents relating to the Tender Process and the performance of the Contract, and to have them audited by auditors appointed by KfW.

KfW reserves the right to take any action it deems appropriate to check that these ethics rules are observed and reserves, in particular, the rights to:

(a) reject an Offer for Award of Contract if during the Tender Process the Bidder who is recommended for the Award of Contract has engaged in Sanctionable Practice, directly or by means of an agent in view of being awarded the Contract;

(b) declare misprocurement and exercise its rights on the ground of the Funding Agreement with the PEA relating to suspension of disbursements, early repayment and termination if, at any time, the PEA, Contractors or their legal representatives or Subcontractors have engaged in Sanctionable Practice during the Tender Process or performance of the Contract without the PEA having taken appropriate action in due time satisfactory to KfW to remedy the situation, including by failing to inform KfW at the time they knew of such practices.

KfW defines, for the purposes of this provision, the terms set forth below as follows:

- **Coercive Practice**: The impairing or harming, or threatening to impair or harm, directly or indirectly, any person or the property of the person with a view to influencing improperly the actions of a person.

- **Collusive Practice**: An arrangement between two or more persons designed to achieve an improper purpose, including influencing improperly the actions of another person.

- **Corrupt Practice**: The promising, offering, giving, making, insisting on, receiving, accepting or soliciting, directly or indirectly, of any illegal payment or undue advantage of any nature, to or by any person, with the intention of influencing the actions of any person or causing any person to refrain from any action.

- **Fraudulent Practice**: Any action or omission, including misrepresentation that knowingly or recklessly misleads, or attempts to mislead, a person to obtain a financial benefit or to avoid an obligation.

- **Obstructive Practice**: Means (i) deliberately destroying, falsifying, altering or concealing
evidence material to the investigation or the making of false statements to investigators, in order to materially impede an official investigation into allegations of a Corrupt Practice, Fraudulent Practice, Coercive Practice or Collusive Practice, or threatening, harassing or intimidating any Person to prevent them from disclosing their knowledge of matters relevant to the investigation or from pursuing the investigation, or (ii) any act intended to materially impede the exercise of KfW's access to contractually required information in connection with an official investigation into allegations of a Corrupt Practice, Fraudulent Practice, Coercive Practice or Collusive Practice.

Sanctionable Practice

Any Coercive Practice, Collusive Practice, Corrupt Practice, Fraudulent Practice or Obstructive Practice (as such terms are defined herein) which is unlawful under the Financing Agreement.

2. Social and Environmental Responsibility

Projects financed in whole or partly in the framework of Financial Cooperation have to ensure compliance with international Environmental, Social, Health and Safety (ESHS) standards (including issues of sexual exploitation and abuse and gender based violence) Contractors in KfW-financed projects shall consequently undertake in the respective Contracts to:

(a) comply with and ensure that all their Subcontractors and major suppliers, i.e. for major supply items comply with international environmental and labour standards, consistent with applicable law and regulations in the country of implementation of the respective Contract and the fundamental conventions of the International Labour Organisation\(^7\) (ILO) and international environmental treaties and;

(b) implement any environmental and social risks mitigation measures, as identified in the environmental and social impact assessment (ESIA) and further detailed in the environmental and social management plan (ESMP) as far as these measures are relevant to the Contract and implement measures for the prevention of sexual exploitation and abuse and gender-based violence.

\(^7\) In case ILO conventions have not been fully ratified or implemented in the Employer's country the Applicant/Bidder/Contractor shall, to the satisfaction of the Employer and KfW, propose and implement appropriate measures in the spirit of the said ILO conventions with respect to a) workers grievances on working conditions and terms of employment, b) child labour, c) forced labour, d) worker’s organisations and e) non-discrimination.
German Financial Cooperation with Republic of Somaliland

“WATER SUPPLY & BASIC SANITATION AND SUSTAINABLE LAND MANAGEMENT”

Bidding Documents

for

Procurement for Works Contract C1 (2 Lots)

Lot A – SS dam sites SS01 (Geed Abera), SS03 (Daanyaale), SS04 (Arabsiyo) and
Lot B – SS dam sites SS07 (Beeyo Liibaan), SS13 (Caro Yanbo), SS16 (Geesdheer)

Part 2 – Works Requirements

Tender Procedures: Two Envelope Post-qualification

Employer: Ministry of Agricultural Development (MoAD)

November 2019

Project ID: BMZ No. 32642 / 2015 67 924
Content

PART 1 – BIDDING PROCEDURES

Section I.  Instructions to Bidders (ITB)

This Section provides relevant information to help Bidders prepare their bids. Information is also provided on the submission, opening, and evaluation of bids and on the award of Contracts. Section I contains provisions that are to be used without modification.

Section II. Qualification and Bid Data Sheet (BDS)

This Section includes provisions that are specific to each procurement and that supplement Section I, Instructions to Bidders.

Section III. Qualification and Evaluation Criteria (without Prequalification)

This Section specifies the criteria to determine the lowest evaluated bid and to ascertain the continued qualification of the Bidder to perform the contract.

Section IV. Qualification and Bidding Forms

This Section includes the forms which are to be completed by the Bidder and submitted as part of his Bid.

Section V. Eligible Countries

This Section contains information regarding eligible countries.

Section VI. KfW Policy – Corrupt and Fraudulent Practices – Social and Environmental Responsibility

This Section provides the Bidders with the reference to the KfW policy in regard to corrupt and fraudulent practices applicable to this process as well as Social and Environmental Responsibility.

PART 2 – WORKS REQUIREMENTS

Section VII.  Works Requirements

This Section contains the Specifications, the Drawings, and supplementary information that describe the Works to be procured. The Works Requirements shall also include the environmental, social, health and safety (ESH) requirements to be satisfied by the Contractor in executing the Work.
PART 3 – CONDITIONS OF CONTRACT AND CONTRACT FORMS

Section VIII. General Conditions (GC)

This Section contains the general clauses to be applied in all contracts. **The text of the clauses in this Section shall not be modified.**

Section IX. Particular Conditions (PC)

This Section consists of Part A, Contract Data, which contains data, and Part B, Specific Provisions, which contains clauses specific to each contract. The contents of this Section supplement the General Conditions and shall be prepared by the Employer.

Section X. Contract Forms

This Section contains forms which, once completed, will form part of the Contract. The forms for Performance Security and if required, Environmental, Social, Health and Safety (ESHS) Performance Security, and **Advance Payment Security**, when required, shall only be completed by the successful Bidder after contract award.
PART 2 – Works Requirements
Priority of Documents

The Documents forming the Bidding Dossier are to be taken mutually explanatory of one another. For the purposes of interpretation, if not otherwise stated within the documents the priority of documents shall be in accordance with the following sequence:

(a) the Contract Agreement

(b) the Letter of Acceptance

(c) the Letter of Bid

(d) the Particular Conditions – Part A

(e) the Particular Conditions – Part B

(f) the General Conditions of Contract

(g) the Specifications

(h) the Drawings and

(i) the Schedules and any other documents forming the Contract
### Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BE</td>
<td>Berkad</td>
</tr>
<tr>
<td>BoQ</td>
<td>Bill of Quantity</td>
</tr>
<tr>
<td>BY</td>
<td>Balley</td>
</tr>
<tr>
<td>CD</td>
<td>Check dams</td>
</tr>
<tr>
<td>DGPS</td>
<td>Differential Global Positioning System</td>
</tr>
<tr>
<td>EB</td>
<td>Eyebrows</td>
</tr>
<tr>
<td>EIA</td>
<td>Environment Impact Assessment study</td>
</tr>
<tr>
<td>EIP</td>
<td>Environmental Implementation Plan</td>
</tr>
<tr>
<td>EMP</td>
<td>Environment Management Plan</td>
</tr>
<tr>
<td>ESMIP</td>
<td>Environment Social Management Implementation Plan</td>
</tr>
<tr>
<td>ESO</td>
<td>Environmental Site Officer</td>
</tr>
<tr>
<td>EU</td>
<td>European Union</td>
</tr>
<tr>
<td>FTM</td>
<td>Fast-Track-Measures</td>
</tr>
<tr>
<td>GW</td>
<td>Ground Water</td>
</tr>
<tr>
<td>H &amp; S</td>
<td>Health &amp; Safety</td>
</tr>
<tr>
<td>HSO</td>
<td>Health &amp; Safety Officer</td>
</tr>
<tr>
<td>KfW</td>
<td>KfW Entwicklungsbank, German Development Bank</td>
</tr>
<tr>
<td>LUP</td>
<td>Land Use Plan</td>
</tr>
<tr>
<td>MoAD</td>
<td>Ministry of Agriculture Development</td>
</tr>
<tr>
<td>MSL</td>
<td>Mean See Level</td>
</tr>
<tr>
<td>MSM</td>
<td>Mainstream Measures</td>
</tr>
<tr>
<td>NGL</td>
<td>Natural Ground Level</td>
</tr>
<tr>
<td>NGO</td>
<td>Non-Government Organisation</td>
</tr>
<tr>
<td>O&amp;M</td>
<td>Operation &amp; Maintenance</td>
</tr>
<tr>
<td>PLC</td>
<td>Project Liaison Committee</td>
</tr>
<tr>
<td>PPE</td>
<td>Personal Protective Equipment</td>
</tr>
<tr>
<td>SLM</td>
<td>Sustainable Land Management</td>
</tr>
<tr>
<td>SB</td>
<td>Soil bunds</td>
</tr>
<tr>
<td>SS dam</td>
<td>Subsurface dam</td>
</tr>
<tr>
<td>TD</td>
<td>Tender Dossiers</td>
</tr>
<tr>
<td>TS</td>
<td>Technical Specifications</td>
</tr>
<tr>
<td>USCS</td>
<td>Unified Soil Classification System</td>
</tr>
<tr>
<td>VDC</td>
<td>Village Development Committee</td>
</tr>
</tbody>
</table>
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ANNEX 1 ESMP Tables
Foreword

The herein technical specifications for the sub-projects within the KfW project “Sustainable Land Management (SLM)” are covering all types of works which will have to be expected for the so-called Main Stream Measures (MSM). These MSM interventions are: Berkads (BE), Balleys (BY), Check Dams (CD), Riverbank Protection (RB), Subsurface Dams (SS), Sand Storage Dams (ST).

(the KfW/ MoAD project SLM also focus on Fast Track Measures FTM – soil bunds, eyebrows, biological erosion protection – which are not objective of these Technical Specifications).

The SLM project enclose in all about 13 separate works contracts, some divided into Lots. Depending on the type of sub-project the required scope of works is different, e.g works which are related to check dams – mainly gabions or are related to SS dam construction – mainly earthworks, masonry, ...).

The herein technical specifications (TS) shall apply for all the types of sub-projects (ie. for BE, BY, CD, RB, SS, ST).

In particular cases for the BoQ item the quantity is set to 0 (Zero) – in case these items are not applicable or needed for a particular sub-project.

As well the BoQ structure shall apply for all sub-projects in the same way, only the quantities of works are assessed individually for each sub-project or Lot. Works Contracts are combining reasonably some sub-projects (divided in Lots). A Contractor can be awarded for one Lot (Lot (A) or Lot (B)), or for the 2 (two) Lots – ie. the total works combined in one works contract. For the herein scope of works is considered the tendering of the construction of:

| Lot (A) | “Construction of SS dam SS01 (Geed Abera), SS03 (Daanyaale), SS04 (Arabsiyo)” |
| Lot (B) | “Construction of SS dam SS07 (Beeyo Liibaan), SS13 (Caro Yanbo), SS16 (Geesdheer)” |

The Contractor shall accept when a location of a SS dam site will be changed.

Accordingly, the technical specifications (TS) are for construction of subsurface dams, which are implemented in Wadi sites for retaining and increasing groundwater level upstream of subsurface masonry barrier (together with implementing shallow wells and to by this to enable irrigation schemes for plantations - orange/ papaya and other fruits or onion, salad and further vegetable).

The Contractor may be invited to extend works on further SS dam sites - on the same contractual basis.

For SS dam works are required strictly construction pit securing measures and groundwater/ surface water management.

The Contractor is encouraged to submit his technical proposal for the vertical sealing by HDPE geomembrane (min 2 mm thickness and with welding of HDPE lanes) with the approval from side of the Engineer, and when technically equivalent and costs are not changing.
1. PROJECT SPECIFICATION

1.1 Objectives

Sustainable Land Management (SLM) in Somaliland (Package 2) is a component of the Water Supply and Basic Sanitation and Sustainable Land Management Project financed by the Government of the Federal Republic of Germany, resp. The German Ministry for Development BMZ, through KfW. It is divided into Fast-Track Measures (FTM), to be realised by farmer groups; and Mainstream Measures (MSM) to be tendered out to local contractors and NGOs. The general targets of SLM in Biji catchment are (i) to reduce land degradation and erosion in upper and (ii) to improve water harvesting and water management for the agriculture sector and by this to contribute to agricultural and pastoral productivity.

Fast-Track Measures (FTM) is focusing on construction of soil bunds and eyebrows. The FTM is not objective for the herein activities.

The herein enclosed tender Document package is referring to a component of the so-called Mainstream Measures (MSM) based on the (German) GIZ Land Use Plan (from year 2017). One of the components is the Works Contract C1 (SS dams), 2 Lots. The location coordinates as indicated in Chapter 1.2 and 1.3 can be slightly actualized with works commencement. The Contractor must accept when a SS dam location will completely be changed in favour of a more suitable site.

An extension of works activities to other sites in the project area is an option and will be negotiated and agreed upon with an engaged bidder.

Subsurface dams – general description

Subsurface dams are vertical barriers crossing a Wadi stream bed at suitable location. The wall – in most cases a masonry wall – is to be founded on a low permeable soil layer and embedded min 0,50 m into low permeable clay or equivalent soil strata. The height of masonry wall in most cases is in range 4 m (incl. the 0,5 m embedding in clay). The principle is that the wall is slightly below NGL and thus not visible. On both sides the wall shall be embedded into the Wadi banks abutments on a length of minimum 5 m (this is shown in the design drawings and is determined by the topography survey maps).

By the SS dam is intended to increase the GW level upstream of the location and thus retaining for a longer period. Groundwater will be stored in the sand porous of Wadi riverbed and can be pumped from shallow wells to irrigation schemes on the Wadi banks.

The sites have been carefully assessed in regard of the hydrological suitable conditions, the topography and the regional developed of agriculture sector and presence of settlements. The water supply improves the situation of livestock watering and individual household water supply as well.

The length of SS dam – from one side to the other of riverbed - is between 30 m and 50 m, depth should be in range 4 m, max. 4,5 m and th width at foundation about 4 m as well. It is in most cases a masonry wall structure, but alternative solution can be roller compacted structure (soil/ cement subsurface dam) or a vertical HDPE geomembrane installed in an about 4 m deep ditch (the latter solution however requires controlled welding or at least perfect glooming of the lane overlapping).

Upstream of the SS dam axis will be implemented shallow wells, possibly including the installation of a submergible pump. These are optional included in the BoQ and will be realised when agreed by MoAD.
The water distribution to beneficiary and village people, the responsibilities and management must be coordinated earlier before implementation by MoAD.

To some particular requirements is emphasized as follows:

- Within the Works schedule shall be regarded the rainy season; besides that the Contractor must always have available pumping facilities;
- Soils in Wadi are often soft; for his works the Contractor shall be aware and shall have stand by facilities to improve temporarily bearing capacity of Wadi bed for his machines and equipment
- Securing the construction pit, H&S requirements to be strictly
- GW management and emergency plans in case of flood and heavy rain
- Careful earth works, e.g. controlled and perfect backfilling works
- Additional measures will be required – as downstream surface protection, securing the abutments and others.

1.2 Project location, general

Somaliland, officially the Republic of Somaliland, is situated in the Horn of Africa in north-western Somalia, bordered by Djibouti to the west, Ethiopia to the south, and the Puntland region of Somalia to the east. The capital city of Somaliland is Hargeisa, located in the north-west of Somalia close to the border of Ethiopia.

The Upper Biji catchment area, located 50 km west of Hargeisa, is one of the areas in Somaliland heavily affected by land degradation, gulley erosion, deforestation, severe water shortage, low soil fertility, and in return poor agricultural productivity. Considering this, the Government of the Republic of Somaliland and the Government of the Federal Republic of Germany in November 2015, decided to implement a programme which focuses on sustainable land management (SLM) in selected Upper Biji Catchment areas. To this effect, the Ministry of Agricultural Development (MoAD) and German Development Bank (KfW) signed an agreement on 03 November 2015, for Water Supply and Basic Sanitation (Package 1) and Sustainable Land Management (Package 2), in Somaliland.

The responsible institution for this component is the Ministry of Agricultural Development (MoAD). The Consultant for Technical Cooperation (GIZ) finalized the preparation of the Land Use Plan (LUP) in November 2017 for the Biji catchment as a basis for the Consultants Sustainable Land Use activities to start.

The distance of the sites to Somaliland capital Hargeisa is to the sites is between 35 km roadway (SS07) and 50 km (SS16) - with access by a gravel road (from tar road junction in Arabsiyo or from Gebiley). In the following figures are shown the location of all MSM locations within the SLM project and the SS dam sites – SS01, 03, 04, 07, 13, 16..
Lot A – SS dam sites SS01 (Geed Abera), SS03 (Daanyaale), SS04 (Arabsiyo)
Lot B – SS dam sites SS07 (Beeyo Liibaan), SS13 (Caro Yanbo), SS16 (Geedsheer)

Figure 1-1: Location Map of Somaliland Biji catchment with all MSM interventions within the SLM program - the project area (Source: CES)

Figure 1-2 Project location, Works Contract C1 (location of the SS dam sites) – source CES/ Google
Lot A – SS dam sites SS01 (Geed Abera), SS03 (Daanyaale), SS04 (Arabsiyo)
Lot B – SS dam sites SS07 (Beeyo Liibaan), SS13 (Caro Yanbo), SS16 (Geesdheer)
Lot A – SS dam sites SS01 (Geed Abera), SS03 (Daanyaale), SS04 (Arabsiyo)
Lot B – SS dam sites SS07 (Beeyo Liibaan), SS13 (Caro Yanbo), SS16 (Geesdheer)
Lot A – SS dam sites SS01 (Geed Abera), SS03 (Daanyaale), SS04 (Arabsiyo)
Lot B – SS dam sites SS07 (Beeyo Liibaan), SS13 (Caro Yanbo), SS16 (Geesdheer)

Figure 1-7 Site SS13

Figure 1-8 Site SS16
### Table 1-1  Coordinates, sites, Lot A

<table>
<thead>
<tr>
<th>East</th>
<th>North</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS01</td>
<td>36 31 07.00</td>
</tr>
<tr>
<td>SS03</td>
<td>36 27 77.60</td>
</tr>
<tr>
<td>SS04</td>
<td>36 43 54.10</td>
</tr>
</tbody>
</table>

### Table 1-2  Coordinates, sites, Lot B

<table>
<thead>
<tr>
<th>East</th>
<th>North</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS07</td>
<td>37 32 93.90</td>
</tr>
<tr>
<td>SS13</td>
<td>36 68 63.10</td>
</tr>
<tr>
<td>SS16</td>
<td>36 14 48.20</td>
</tr>
</tbody>
</table>

### 1.3  Scope of works

#### Scope of works

The works are specified by the herein technical specifications and the BoQ. A separate BoQ for the construction of each of the SS dam sites is prepared as Excel Sheet and enclosed in the all-over BoQ (Section VIII, Part 1 of the TD – i.e. at the end of the TD Part 1).

The works required for SS dam construction are summarized as follows:

- Area preparation; the works schedule must fit with the season weather conditions, best in dry season for works and having prepared pumping facilities and for emergency case flood preparedness plan;
- Contractor must care for temporary diversion at one side when works are starting – then to be shifted to the other side the next works stage;
- Excavation down to low permeable layer but maximum 4.5 m depth; the width at bottom according to drawings, including working space of at least 50 cm upstream and 50 cm downstream side; the slopes of excavation pit shall be according to soil characteristics, but not steeper 1:1 (V:H); all time during the works a bye-worker shall be present at construction pit for caring for security;
- Proper foundation preparation;
- Temporary soil depositing for subsequent refill;
- Construction of subsurface dam (in most cases masonry structure or otherwise agreed technological solution); mortar shall then harden for minimum 7 days; the side surfaces of wall to be rough;
- The horizontal embedding of wall to the left and right-side abutment – the works are to execute with care, important are the backfilling works;
The left and right side river bank protection works ( gabions or masonry, according to drawings)

Careful backfill in layers and compaction by plate vibrator equipment; careful refill at the sides, restore and additional erosion protection at the sides according to Engineer’s instructions;

Downstream of subsurface wall axis to care for erosion protection (placing a lane of masonry on geotextile; an area all along the length and with width of lane of 4 m; see drawing);

Optional works are referring to installing shallow wells, together with submergible pump – when ordered by the Engineer;

Observation and monitoring program during works and during the 1-year DLP;

- Piezometer, GW level in dedicated wells
- Weather conditions, rainfall, flow in Wadi
- Observing the technical conditions at site, the situation of any flood damages and repairs during the DLP (only in case of force majeure to be paid extra);

All works shall be executed with regard of all ESMP requirements (ESMP – Environment and Social Management Plan - environment protection, health and safety regulations, sanitation acceptable conditions – TS chapter 7 and 8, including Table of ESMP requirements).

The Contractor shall prepare photo documentation of the situation of SS dam location – before and to end of works contract (and anyhow photo documentation for every Contractor’s monthly report).

The earthworks and masonry work requirements for foundation, weir construction and the requirements on materials and works execution are specified hereafter. The enclosed drawings – attached to the technical specifications – are typical layouts for orientation and the Contractor shall be prepared and willing for at site adjustments of the works program and execution – e.g. to prepare "shop drawings" when required.

The contractor shall employ adequate qualified and experienced technical staff for the works.

Accompanying works as erosion protection, gabion placing, and biological erosion protection plantations are possible, and the Contractor shall be prepared and willing to execute, when instructed by the Engineer. Works items are included in the BoQ.

The Contractor shall accept, when a location of a SS dam site will be changed.

SS dams – 01, 03, 04, 07, 13, 16, description of location area

The morphology of terrain at area of SS dam locations is gentle sloped (range 2 %) towards northeast and is generally extensively used as farmland. The locations have been determined in regions with some concentrated farming agriculture activities.

The width of riverbed varies between 30 m and 65 m.

Riverbanks is varying with the height between 0,5 m and 1,5 m.

The upper soil layers in riverbed are soft silty sands with low clay content, followed by more clayey soils with depth of 1 m … 4 m (a soil investigation report will be provided with commencement of works);
At the banks the terrain is mostly gentle inclined sometimes is fair steep. Vegetation is the regional characteristically scattered acacia and thorn bush (semi-arid conditions).

The geotechnical investigation report for each site is attached to this Works Requirements as additional information.

By the following Table is provided some information in regard of agriculture area per site which is potential for developing irrigation schemes and the villages nearby (distance to site within radius 2 km). For each site the Consultant will prepare a brief ESIA study which should address the self-organisation of beneficiaries, farmers and the contributory approach of water supply, water distribution and the 2 water rights.*

Table 1-3 Overview of agriculture potential of sites, villages/beneficiaries

<table>
<thead>
<tr>
<th>Location - LUP/SOM 2</th>
<th>Topography, site location, width of river bed (L), access to site</th>
<th>Today agriculture activity, villages nearby; land users, water need</th>
<th>Eval. by HYDROC study</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS 01</td>
<td>very suitable, L = 20 m (and 5 m + 5 m)</td>
<td>6 small settlements nearby - radius 0-500 m: 50 HH; 500-1,000 m: 30 HH; 1,000-2,000 m: 30 HH sum: 800 inh. l/s and r/s intensive agriculture use; length/width: 0.5 km by 1.5 km each, potential 100 ha farmland</td>
<td>high (to medium)</td>
</tr>
<tr>
<td>SS 03</td>
<td>suitable, L = 50 m (and 5 m + 5 m)</td>
<td>few settlements and 1 big villagene - radius 0-500 m: 15 HH; 500-1,000 m: 20 HH; 1,000-2,000 m: 10 HH sum 300 inh. l/s and r/s intensive agriculture use; length/width: 0.3 km by 1.0 km each, potential 30 ha farmland</td>
<td>high (to medium)</td>
</tr>
<tr>
<td>SS 04</td>
<td>very suitable, L = 60 m (and 5 m + 5 m)</td>
<td>few settlements nearby, distance to Arabsiyo is 1 km (u/s); radius 0-500 m: 40 HH; 500-1,000 m: 25 HH; 1,000-2,000 m: 15 HH sum: 450 inh. l/s and r/s intensive agriculture use 0.4 km by 1.0 km each, potential 50 ha farmland</td>
<td>high</td>
</tr>
<tr>
<td>SS 07</td>
<td>suitable, L = 25 m (and 5 m + 5 m)</td>
<td>very positively, some settlements nearby - radius 0-500 m: 25 HH; 500-1,000 m: 15 HH; 1,000-2,000 m: 20 HH sum: 400 inh. l/s and r/s intensive agriculture use; length/width: 0.35 km by 0.4 km each, potential 30 ha farmland</td>
<td>high (to medium)</td>
</tr>
<tr>
<td>SS 13</td>
<td>very suitable, L = 60 m (and 5 m + 5 m)</td>
<td>very positively, very few settlements nearby - radius 0-500 m: 10 HH; 500-1,000 m: 15 HH; 1,000-2,000 m: 15 HH sum 280 inh. l/s and r/s intensive agriculture use 0.26 km by 0.6 km each, potential 30 ha farmland</td>
<td>not included</td>
</tr>
<tr>
<td>SS 16</td>
<td>very suitable, L = 35 m (and 5 m + 5 m)</td>
<td>very positively, 6 small settlements nearby - radius 0-500 m: 20 HH; 500-1,000 m: 20 HH; 1,000-2,000 m: 20 HH sum: 400 inh. l/s and r/s intensive agriculture use 0.5 km by 1.5 km each, potential 30 ha farmland</td>
<td>not included</td>
</tr>
</tbody>
</table>
In regard of the BoQ - it is obvious, that the quantities are an estimate which will differ from quantities during realization. The Bidder has to accept a deviation of +/- 15 % from BoQ quantities. The total contract value therefore can change, and the Bidder has to accept a deviation from original contract value of +/- 10 %. The principle is, that payment is made on basis of measurement of made works.

The Contractor shall prepare photo documentation of the situation of SS dam sites – before works commencement, during and after works execution. The site must be left in proper conditions and proper appearance.

The contractor shall employ adequate qualified and experienced technical staff for the works.

A site visit by construction company representative - before submitting the offer – is strongly recommended.
2. GENERAL REQUIREMENTS (FOR WORKS EXECUTION)

2.1 Drawings and Documents

Standard Size of Drawings and Documents

(1) Drawings, whether to be supplied by the Engineer or the Contractor shall only be prepared according to Standard sizes between DIN A4 (210 x 297 mm) to DIN A0 (841 x 1189 mm).

(2) Documents, whether to be supplied by the Engineer or the Contractor shall be prepared on Standard size DIN A4 (210 x 297 mm) or DIN A3 (297 mm X 420 mm), except where particularly agreed otherwise with the Engineer.

**Drawings**

Wherever the term "Drawings" is used in the Specifications, it shall mean the Tender Drawings and/or the Working Drawings for Permanent Works, approved by the Engineer.

**Tender Drawings**

Tender Drawings are the drawings prepared by the Engineer and – if are necessary for the works execution - are enclosed within Part 2 of the TD (Works Requirements). The Tender Drawings show the work to be done under the Contract, subject to Contractor’s detailed design. In general, the Tender Drawings are intended to indicate the scope and complexity of the Works and to illustrate all construction details, enabling the Contractor to prepare further detailed design and working drawings, detailed rebar drawings, bending schedules, etc.

**Working Drawings**

Working drawings are the drawings to be prepared by the Contractor. They shall show sufficient dimensions, specific and typical details to define the various features of the Works, thus enabling the Engineer to check and approve the design and the Contractor to perform the relevant works and to prepare the shop drawings.

**Documents to be supplied by the Contractor**

Drawings/ Shop drawings shall be submitted to the Engineer as CAD (.dwg), in addition as .pdf file, and as print.

The Contractor is responsible for the preparation and adequacy of the detailed design of Permanent Works (for example reinforcement drawings)

Three copies of the design calculations, drawings and documents are to be initially supplied for the Engineer’s approval; the Contractor has to incorporate all corrections and alterations made by the Engineer on checking.

The drawings and documents to be provided by the Contractor shall include, but are not limited to: (i) detailed Site layout and installation drawings; (ii) Detailed work method statements for each category of the Works; (iii) Surveying, sounding and setting-out drawings (when adequate); and furthers;

**Drawings of built-in components**

Layout drawings of built-in components;

Shop drawings and manufacturing instructions for all materials and steel constructions,
Checking of Contractor’s Documents by the Engineer

All structural design calculations and drawings prepared by the Contractor for the Permanent Works are to be submitted to the Engineer for checking and approval. The design and shop drawings shall be submitted within 1 week after request by the Engineer; starting of works or parts of works are allowed only when the Engineer has given consent and – if are requested – on basis of approved shop/ design drawings.

The Engineer reserves the right, during the Contract period, to request the Contractor for any additional design calculations which he considers necessary (e.g. in regard of wind load).

2.2 Standards and Regulations

2.2.1 General

The term "Standard" used anywhere in the Specifications means a Standard or Code of Practice relevant to the subject, whether already indicated in the Specifications or otherwise agreed to by the Engineer.

Wherever reference is made in the Contract to specific standards and codes to be met by the goods and materials to be furnished, and work performed or tested, the provisions of the latest current edition or revision of the relevant standards and codes in effect shall apply, unless otherwise expressly stated in the Contract.

If Standards conflict with the Specifications, the latter shall govern.

2.2.2 Basic Standards

The German Industrial Standards (DIN) or equivalents (EU code, British BS, American (ASTM), South African (SABS, SANS).

2.3 Construction Materials and Permanent Equipment

2.3.1 General

Wherever in the Technical Specifications (and/ or in the Bill of Quantities and/ or Tender Drawings) a special “brand name” is particularized then such a brand or product is named for orientation and to determine the technical characteristics or the technical parameter requirements. The Contractor shall use other brand or product if he wishes so - on the understanding that no claim in this regard will be applied for by the Contractor. The technical quality shall be equivalent, and the technical equivalency shall be proven by the Contractor. Final approval by the Engineer is required.

All materials and equipment for Temporary Works and Permanent Works shall be of the best quality of their respective kinds, as described in the Specifications.

Insofar as certain construction materials or equipment for Temporary Works and Permanent Works are not mentioned or no additional special tests are specified, the materials and equipment must at least meet the respective requirements of the Standards approved by the Engineer.

For geotextiles, gabion baskets and other construction materials for the works (SS dam contract C1) the Contractor shall provide supplier certificate.
2.3.2 Standardization of materials and works execution – where possible or adequate

The Contractor in his technical offer shall consider wherever is possible and reasonable the realization of works with regard of standardization of the used materials (brands, supplier), equipment and installations. Works and materials, construction elements and installations have to fulfill the minimum requirements in accordance with the technical specifications TS and drawings.

This is of advantage for performance of uniform works, and also for in future O&M (Operation and maintenance of the objects), spare part management and repairs.

2.3.3 Material Samples

Where specified or otherwise required by the Engineer, material samples shall be provided by the Contractor prior to placing the orders, free of charge. Such samples shall facilitate the approval of material and quality control of supplies throughout the Works.

2.3.4 Examination and Tests

Materials, articles or equipment shall be made available or delivered to the Site a sufficient period before they are required for the Works, enabling the Engineer to take such samples as he may consider suitable for examination and testing.

Unless otherwise designated, the costs of all tests required in accordance with the Standards or these Specifications shall be deemed to be included in the rates of the Bills of Quantities.

The Contractor shall be able for material and soil testing at site or taking samples to send to a proven material/ soil testing laboratory (the Contractor must provide a prove of agreement).

2.3.5 Protection

All materials or other items intended to form a part of the Works, whether during transport or stored at Site, shall be adequately protected against contamination, deterioration, damage and the like, at all stages, and arising from any reason.

Such items which, in the opinion of the Engineer, became unfit for use in the works, must be removed from the Site and replaced at the expense of the Contractor.

2.3.6 Rejection of Materials

Any materials, articles or equipment not in accordance with the Standards and the Specifications may be rejected by the Engineer.

Any materials, articles or equipment rejected by the Engineer shall be removed immediately from the Site. Replacement shall be provided by the Contractor at his own expense.

A rejection by the Engineer shall not release the Contractor from his obligation to adhere to the approved time schedule.

2.3.7 Manufacturers’ Guarantee

Wherever guarantees for geotextile, gabion baskets and – if is procured – the submersible pump will be required to be provided by the Contractor.
2.4 Workmanship

2.4.1 General
Workmanship shall be of the best quality appropriate to each category of work and shall be in accordance with the Standards, Specifications and the present state of art.

2.4.2 Information to the Engineer
All operations have to be carried out in close coordination with the Engineer, who is to be informed well in advance of the start of any new operation and of the day to day activities.

Prior to the commencement of any particular work, the Contractor shall submit details of his proposed methods, schedule and sequence of operations to be followed.

No new operation or work in any new area shall be started until the Engineer's consent has been obtained.

2.4.3 Contractor's Responsibility
Notwithstanding any testing and/or approval by the Engineer, the Contractor shall be fully responsible for the quality and functioning of the Permanent Works and Plant in accordance with the Contract.

Authorization to repair or refinish shall not constitute a waiver of the Engineer's right to require replacement of any item or work, if and when after such repairing and/or refinishing the work is unsatisfactory in the Engineer's opinion.

2.5 Construction Method Statement (MS)
Construction method statements shall be prepared for the principal elements of the Works and shall be submitted to the Engineer for review at least 28 days prior to the programmed activity commencement.

Construction method statements shall be basis for allowance by the Engineer for the works execution and proving compatibility of works procedures and materials with the requirements and restrictions imposed by the Contract. Each method statement shall comprise a step by step schedule of specific operations or activities with description, date, times and duration of each step. The statements shall be supported by sketches, diagrams and other supportive detail as necessary to enable a clear understanding of the method and the significance of each step of work or operation. Construction method statements shall include, but not be limited to, the following topics as relevant to the particular operation: (I) Method of work; (ii) Temporary works as adequate, (iii) Labour resources to be used, (iv) Construction equipment to be used, (v) Safety measures and particular H&S requirements, (vi) Environmental protection measures

Before the Contractor starts each construction activity the Contractor’s officer at site responsible for H&S and Environment protection shall instruct his labour staff.

2.6 Testing and Inspection
All materials, items and Plant intended to form or forming a part of the Works, all workmanship and all work under the Contract shall be subject to the approval of the Engineer and from time to time be subjected to examinations and tests.
2.7  Operation and Maintenance Manuals

2.7.1  General

The Contractor shall prepare Operation and Maintenance Manuals (O&M) for any equipment and Plant installed in the Permanent Works in English and Somaliland national language.

The Contractor shall submit to the Engineer 3 copies of each manual in draft form. On receipt of the Engineer's written approval of the submitted draft, the Contractor shall supply 10 copies of the final edition of each manual to the Employer (for use of the regional VDC/ beneficiaries).

Basically, the manuals shall comprise at least the following:

(i) Technical data – when relevant; (ii) drawings, diagrams, images or photographs; (iii) Precautions and warnings concerning the safety of personnel and protection of the equipment; (iv) the half annual inspection and defect liquidation procedures/ repairs; (v) the maintenance requirements of the structure, the clearance requirements; (vi) the responsibility chart for the structure with name, telephone, contacts to ministry MoAD and next emergency in the region.

2.8  Site Areas and Installations

2.8.1  Construction Site

For the interpretation of Construction Site, the term "Site" denotes any or all of the sites and working areas to be established by the Contractor for the due performance of the Contract.

For this reason, the construction site is to be adequately marked day and night.

With commencement of works the site is in responsibility of the Contractor. Although the Employer will care for proper site access, it is in the responsibility to coordinate all necessary issues of access to site and temporary land-use with the landowner or related village administration.

All costs in connection with providing, preparing and maintaining of any of the site areas and facilities are deemed to be included in the relevant items of the Bills of Quantities.

The Contractor shall be deemed to have assessed the road access to the sites.

Location for Contractors Offices and Accommodation (when relevant)

The Contractor will propose a location for the Contractor’s offices and accommodation. The Engineer will check the proposal and approve or disapprove.

Keeping Works free of Water, storm protection

The Contractor shall make his own arrangements and bear all costs to protect the Works against severe deleterious effects from precipitation waters.

Whenever is required for works execution the Contractor is obliged to have stand-by permanently pumping facility. Additional measures must be taken into consideration by the Contractor as coffer dams or other barriers – when necessary.

The Contractor is responsible for all protections against storm impacts and to prevent damages. No compensations will be made.

No compensations will be made for damages when occurring to executed works. Works must be officially taken over before are completely objective for payment.

Temporary Sanitary Facilities
The whole Site shall be kept clean and tidy. All refuse shall be deposited in an area specially provided for this purpose and regularly be disposed of at official dumping sites / facilities.

The Contractor must care for adequate sanitary facilities at site, e.g. latrines, clean water and must care for wastewater management.

### Site Installations

The Contractor's preparation of the construction site and of all working and storage areas inside or outside the premises and transport and assembly of all structures and equipment, complete, as required for the satisfactory execution and completion of the Works, shall include but not be limited to the following: (i) Clearing from obstructions, grading and improvement of working and storage areas, (ii) the protection of existing structures, (iii) the protection of trees, (iv) the construction of temporary access and temporary bridges, etc., (v) the building, furnishing and fitting out of all required offices, workshops, stores, (vi) the building and furnishing/outfitting of all required labour camps, including sanitary facilities, (vii) the provision of installations for power, lighting, water, telephone and any other supply and service lines, as required for the particular works execution, (vii) the fencing of the site areas.

### Water and Power Supply

The Contractor is responsible for the supply of power and water, including drinking water, to the storage and working areas, as well as to the actual construction site.

The Contractor is deemed to have investigated the possibilities and to have provided for the required means in respect of the regular power and water supply to the sites to the extent required for the Works.

### Safety Precautions

Use of standard space safety precautions shall include, but not be limited to, sound design and erection of Temporary Works, instruction in accident prevention for all employees of the Contractor, personal safety equipment (including safety helmets, life jackets and safety shoes), as well as firefighting and other safety devices and equipment as may be necessary to prevent accidents. The Contractor at all times shall maintain adequate first aid attendance on the Site.

In addition, the Contractor shall make necessary arrangements with a qualified medical doctor to be called to the Site when required for routine or emergency consultation.

Arrangements shall be made by the Contractor with the nearest suitable hospital for the acceptance of urgent cases of sickness or injury.

The Contractor shall promptly but in any case, within twenty-four (24) hours of the occurrence of any accident at or near the Site, or in connection with the execution of the Works under the Contract, report such accident to the Engineer. The Contractor shall also report such accident to the competent Authority, whenever such report is required by law.

### Project Information Sign Board

Width – about b/ h = 2/ 3 m – as directed by the Engineer, chip board, 2 cm thick, plastic coated – or equivalent; fixed on posts (4 m high); the post in concrete fundament (b/h/t = 40 cm/ 40 cm/ 70 cm – or equivalent. The Contractor consider to erecting at two locations a sign board which may be shifted during the construction period).
2.8.2 Coordination with Authorities

The Contractor must generally observe all rules and regulations in force of the various authorities, which may influence the preparation and/or performance of the Works in any way.

2.9 Protecting and Coordination with Existing Facilities and public Roads

2.9.1 Coordination

The Contractor shall generally avoid but otherwise provide for the diversion of public and private services to ensure their uninterrupted function. These include: (i) roads and tracks, (ii) irrigation structures, (iii) drainage canals, (iv) water supply lines and other public service and infrastructure facilities;

As far concerned the Contractor shall communicate and make coordination and arrangements with related Authorities, administrative entities and Ministry Authorities.

The Contractor shall communicate all project related matters with landowners and village administration and shall care for amicable solution of questionable issues.

2.9.2 Preservation of Trees

The Contractor shall protect, for the entire duration of the Works all trees within the Site earmarked for preservation by the Engineer.

Any tree earmarked as above, but severely damaged by Contractor's activities must be replaced by the Contractor by at least two trees of same species and appropriate age, all at the Contractor's expense.

2.9.3 Compaction test at site, soil testing is laboratory

The Contractor shall with his offer provide prove of cooperation with a registered and licenced material and soil testing laboratory. The following shall apply when testing is instructed:

Soil Testing

(i) Identification of soils; (ii) Particle size analysis; (iii) Atterberg (plasticity test); (iv) Compaction tests (Proctor); (v) relative density determination and/or In-situ density tests and/or plate bearing tests;

Soil testing will be required to some few extent for the backfilling works or when required for foundation assessments and similar cases.

Concrete Testing

(i) Particle size analysis of concrete aggregates; (ii) Determination of settle able solids; (iii) Moisture content of aggregates; (iv) Check of cement content of fresh concrete; (v) Consistency (workability); (vi) Compressive strength (size of test specimen 20x20x20 cm); (vii) Cement blain fineness, cement strength.

Concrete / cement or mortar testing may be instructed by the Engineer to be done in particular cases.
2.10 Environment Protection and Health and Safety (H&S) Requirements

All specific requirements which in detail are described in chapter 7 (Environmental and Social Management specifications) shall be fulfilled by the Contractor during all stages of works and the post-construction stage. The Contractor shall include related expenses in the unit price of BoQ items for the works and for explicit provisions for EMP – as referred to below – in the according general BoQ items.

The Contractor shall regard the requirements on Environment Social Management Implementation Plan (ESMIP)" and the Environment Management Plan (EMP) and the hereto related project Environment Impact Assessment study (EIA).

Where the Contractor is requested to submit a works “Method Statement”, the measures to keep EMP and ESMIP shall be described.

The Contractor shall undertake all necessary measures to reduce emissions at a permitted level – noise, dust, vibrations, water quality (groundwater and surface water). The emission control measures shall be effective and operational during all time of construction works period and – if appropriate – during DLP.

2.11 H&S, Requirements

All specific requirements which in detail are described in chapter 8 (Health and Safety) shall be fulfilled by the Contractor during all stages of works and the post-construction stage. The Contractor shall include related expenses in the unit price of BoQ items for the works and for explicit provisions for H&S provisions – as referred to below – in the according general BoQ items. Explicit provisions requested from the Contractor as follows:

The Contractor shall prepare a site H&S implementation plan and shall explicitly express his understanding and full commitment to the requirements and specifications formulated in chapter 8 of these Technical Specifications TS. The H&S implementation plan shall enclose all emergency plans with telephone numbers, all provisions for fire protection and firefighting;

The H&S plan needs official approval from side of Engineer and – if required – from responsible entity in Hargeisa.

Where the Contractor is requested to submit a works “Method Statement”, the measures to keep H&S requirements shall be described.

The Contractor shall at site have the provisions necessary for workers hygiene and sanitation, clean water, fire prevention/ firefighting.

Drivers shall have valid driving licence, the eyesight capacity proven at least all 6 months. Drivers shall daily record their activities and driving hours not more than permitted as per regulations - max. 4 hours without break, max. 8 hours driving per day/ max. 40 hours per week.

2.12 Measurement and Payment of Mobilisation/ Demobilisation

Site Mobilisation

The relevant item of the Bill of Quantities is deemed to include all costs for renting, preparation and mobilization of all site areas and their approaches, as well as for providing of all buildings, facilities, construction equipment and to the extent required for the Works.
The lump sum price, however, shall include all costs for provision, maintenance and operation/supplies (power, water, fuels, lubricants and other supplies) of the site installations during the construction/installation period – as far not included in the works items.

### Maintenance and Operation

No extra item is considered in BoQ and no extra costs will be paid. The operation and maintenance of Contractor's site facilities shall be included in the “Mobilisation” item.

This shall include all costs for providing and maintaining of water and power supply, safety precautions, coordination with the Authorities.

Surface water diversions shall be paid as considered being included in the items of BoQ.

### Site Demobilization

The relevant item of the Bill of Quantities is deemed to include all cost for demobilisation of the Site, making good any damages to existing structures as well as for its clearance and final reinstatement.

### 2.13 Engineer’s and Employer’s Requirements

The Contractor shall have established a site camp with a room facility with desk table (one or two desk tables with total 6 m² size) and chairs. This is meeting/conference room and is for availability of the Engineer once a week, when required.

### 2.14 Survey and Sounding Work

#### 2.14.1 General

When requested for the sub-project works execution:

Tenderers shall submit details of the intended surveying method and equipment together with their Tender.

The Contractor shall submit to the Engineer his method for setting (topographical points of the site of works layout) out the various parts of the Works and Temporary Works.

The Contractor shall keep all records of his survey and levelling work and furnish copies to the Engineer if and when requested to do so.

#### 2.14.2 Surveys as Basis for Measurement and Payment

Prior to commencement of any of the works, the Contractor shall carry out a detailed survey of the construction site. This shall include the entire project area at a 10 m grid, as well as location survey of all existing structures or farmland characteristics;

The survey shall be referred to ± 0.00 MSL and the results shall be plotted on drawings of approved scale and submitted to the Engineer for approval.

The survey as per above para (1) shall serve as a basis for measurement of Permanent Works.

After completion of the Works, the entire area shall be surveyed at a 10 m grid and the results plotted on a drawing of approved scale and submitted to the Engineer for approval.
The Contractor shall identify all permanent survey points and protect them for the entire period of the construction work. The responsibility for shifting or destruction of the Contract Bench Marks, also by third parties, as well as all resultant consequences rests solely with the Contractor.

After completion of the individual structures, the Contractor must install permanent survey marks in coordination with the Engineer. The results are to be plotted on a table and drawing, all to be certified by the licensed surveyor. The documents shall be handed over to the Engineer prior to issuing the Completion Certificate.
3. EARTHWORKS

3.1 Earthworks – General Requirements

The below general requirements (principles of earth works) shall apply and shall be valid for all earth works performances as the Technical Specifications (TS)

(a) for earth works – excavations, trench excavations, foundation improvements/ soil exchange and backfilling,

(b) for foundation preparation and for embankment construction.

The Contractor shall notify the Engineer as soon as the site preparation works (stripping) and excavations are to commence.

The Contractor shall be responsible for all excavations and earthworks being carried out in accordance with all relevant national Acts and Regulations or relevant international standards.

**Principles of Earth Works**

The Contractor shall provide all machines, equipment, plant, labour and materials required for such work and all costs incurred shall be deemed to be included in his rates for the earth works – clearance, excavation, profiling, removal of unsuitable soils and backfilling, embankment construction works and gravel/ operational road construction, works.

The Contractor shall check the accuracy of site levels as shown on Drawings. If dissatisfied with accuracy of these levels, he must notify the Engineer in writing before starting excavation. Otherwise no claim in respect of inaccuracy of levels will be accepted.

**Subsoil conditions**

Subsoils are pre-dominantly sandy silts and clayey silts. With regard of the sub-projects as subsurface dams – no problematic or unusual soil conditions will be encountered. But GW level can be high. In BoQ are given quantities for rock excavations (weathered rock), highly weathered rock or gravelly conglomerates or loose soils. For SS dam construction the Contractor shall properly take into consideration drainage and pumping requirements as necessary for works execution.

For structures as subsurface dams are to expect more complex subsoil conditions (riverbed and higher groundwater levels). The Contractor shall make himself familiarized with the site conditions and the requirements for the works resulting from the site conditions. The BoQ will consider adequately necessary items.

The Contractor shall be prepared on request of the Engineer to promptly perform simple field tests as trial pits and to take soil samples when required.

It is mandatory that the Contractor inspects the Site and participates in the official site visit (part of the pre-bid meeting), as basis for preparing his tender, to form his own opinion of the nature of the ground to the excavated and to estimate the actual subsoil conditions.

**Control and management of high groundwater table and for flood cases**

Contractor’s mobilisation and schedule/ works execution program must be organised in regard the run-off situation in Wadi in case of rainfall. Executed works must be protected, temporary flow diversion must be considered, dewatering facilities must be available at site and organized. The works performance shall have no negative impact on the abutments, on farmland at the sides.

The Contractor must organise access and necessary supports of machinery and equipment operation taking into consideration the soft subsoil conditions in the Wadi bed.
3.2 Regulations

National regulations for construction and earth works have to be regarded.

In addition to the national standards and regulations also the international standards shall have to be regarded (whatsoever is more restrictive). These regulations are for the earth works:

- EU codes, British Standards BS, American standards ASTM.
- South Africa Standards can be applied, when approved by the Engineer.

3.3 Safety Regulations and Precautions

The Health and Safety (H&S) and Environment Protection and Management Plan (EMP) as specified in chapter 7 (Environmental and Social Management Specifications) and chapter 8 (Health and Safety) shall be strictly regarded. In particular the following shall apply:

**Safety**

Barricading as necessary, in particular every excavation that is accessible to the public or that is adjacent to a public road or thoroughfare or by which the safety of persons may be endangered, shall be:

Adequately protected by a barrier or fence of height at least 1 m and as close to the excavation as practicable. When instructed by the Engineer, the Contractor shall provide red warning lights at night and shall employ watchmen to ensure that barricades and lights are effective at all times.

The works shall not impair agriculture fields in site area, as well not any roads or possibly other existing infrastructure conditions.

**Safeguarding of excavations**

The Contractor or his agent or representative appointed in writing shall be deemed to be and shall be both the "excavator" and "a person competent to inspect bracing and shoring".

Should the depth of an excavation or the nature of the material excavated render the sides of the excavation liable to movement that might endanger the Works or the workmen engaged on the excavation.

The sides of the excavation shall be supported by suitable timber or other sheeting adequately strutted and braced, all being properly assembled and having sufficient strength and stiffness to prevent movement in the materials supported, or

Alternatively, the Contractor may, subject to the approval of the Engineer, so reduce the slope of the excavated face or faces that any danger to the Works or the said workmen is removed.

The Contractor shall make good any fall of rock or earth due to rain, flooding, insufficient timbering or other cause, and shall fill in at his own expense any cavities so formed as directed or using approved means.

Without relieving the Contractor in any way of his responsibility, the Engineer may order additional lateral support for, or the sloping or reduction of the slope of, the sides of any excavation.

During the progress of each excavation, the Contractor shall report to the Engineer the presence of bedding planes inclined towards the excavation, seepage water and any other feature that may affect the stability of the excavation, as soon as the presence of such feature or features is known.
All timbering and sheeting shall be removed from the excavation before the completion of the work, unless the written permission of the Engineer allowing any portion to remain is obtained.

The Contractor shall carry all risk of collapse of all excavated faces.

Where excavations do not exceed 1.5 m deep, the nature of the precautions to be taken shall be entirely at the Contractor's discretion. He shall either provide temporary support to the excavated faces or carry the risk of collapse of the faces with all its implications. Where excavations exceed 1.5 m deep, the Contractor shall maintain all excavated faces in accordance with Government Regulations.

**Storm water and Groundwater**

The Contractor's responsibility of the management of run-off water and – if necessary – by lowering the groundwater level to water on the site will be held to include the provision of adequate protection against flooding and damage by stormwater. The Contractor's responsibility also includes provision for the repair, at his expense, of any damage to the Works that may arise as a result of the inadequacy of the protection provided by him. Foundation excavations for structures shall be kept free of water at all times until they have been inspected and approved and concrete footings have been cast.

The excavations shall be protected from flooding and any water which occurs in the excavations whether as a result of seepage, rain or other causes shall immediately be removed by baling, pumping or other approved method.

**Excavated material not to endanger or interfere**

All excavated material shall be so deposited as not to interfere with or endanger the Works (for example, by causing the sides of an excavation to collapse), other property or traffic. The Engineer may order the Contractor to remove any material that the Engineer considers liable to endanger or to interfere with the Works, private property, traffic or pedestrians, and to place such material at some other approved location. If the necessity for such removal is, in the opinion of the Engineer, a result of some fault on the part of the Contractor, the cost of removal shall be borne by the Contractor, but otherwise it will be borne by the Employer. All surplus material not required for backfilling or forming embankments as indicated elsewhere in the Contract or as may be ordered by the Engineer, and material unsuitable for backfilling, forming embankments or to use a topsoil shall be deposited on a site or sites designated by the Engineer and graded to free-draining slopes.

**Mineral Construction Materials**

Mechanical and physical properties of soils and other used mineral construction materials shall be according to the applicable technical specifications for foundation preparation, embankment filling and backfilling works - referring to the material requirements and tolerances within gradation envelope and referring to the mechanical and physical parameter as specified in the related technical specifications.

**Equipment and Earth Works Machines**

Any equipment, machinery and devices which do not comply with the requirements ensuring the quality of work will be disqualified by the Engineer and will not be allowed for works execution.

For the execution of works shall be used: bulldozers, backhoes, graders, compaction machines or other equipment (vibrator, hand tamper or plates, sprinkler, scarifier) approved by the Engineer.
Earth works machine employed at site shall be in accordance with the Contractor's machine list as in his offer (type, manufacturer, power, capacity, year of manufacturing / age – any deviation needs to be approved by the Engineer).

The operational conditions, maintenance and repairs of machines and equipment are in responsibility of the Contractor. The Contractor is obliged for having all time on site the machines and equipment with sufficient capacities required for works realization according to the contractual works schedule.

### Transport

The Contractor is obliged to use only such means of transport, which do not adversely affect the quality of the works and not adversely affect the materials suitability and their mechanical properties. Number of transports and transport capacities to organize by the Contractor shall ensure keeping the Works implementation schedule. At any time, the Engineer can order to remedy and/ or increase capacity of transport facilities – when transport facilities are not in accordance with the contractual requirements.

For traffic on public roads, the transport vehicles and used machinery shall meet all requirements for public traffic regulations, in particular with respect to the permissible loads on the axles and other technical parameters. Transport vehicles and machinery - which do not meet the conditions of the Contract - shall be removed from the site on request of the Engineer.

The Contractor is required to make good at his own expense any physical damage or remedy of any pollution caused by his vehicles on public roads and on the access roads to the site.

Any damages on roads caused by his traffic circulations and transports shall be made good by the Contractor. Costs shall be included in his rates for items.

### Temporary material storage and stockpiling

The Contractor is obliged to follow the contractual mobilization plan (as part of the Contractor’s proposal and in accordance with the technical specifications for mobilisation) - here in regard of location, rules and conditions for storage and stockpiling of mineral construction materials (soils, stones, timber and aggregates) and other construction materials or equipment.

The Contractor shall ensure that temporary storage of soil materials until its reuse is secured in a manner ensuring materials quality (mechanical properties, cleanliness) for its use within the earth works performance.

Places of temporary storage of materials shall be located within the construction site, but outside of construction zones foundation area and outside of areas needed for temporary works - as agreed by the Engineer. In case the Contractor decides for an own determined storage place and after approval by the Engineer – the Contractor will have to care for all necessary administrative permits, must work in accordance with the applicable law and regulations (e.g. environment law, land ownership rights). In case the Contractor decides for outside located material storage or stockpiling – this shall not entitle the Contractor for extra payments and not for any extension of construction time.

Transportation of bulk and dust emitting materials/ soils shall be carried out in a manner avoiding negative impact on environment and people.

The Contractor is not entitled for any extra payments for any of his activities related to temporary material storage and stockpiling.
3.4  Foundation Preparation

3.4.1  General

Unsuitable materials include those soils which are encountered in foundation area after stripping works/site clearing and which are in situ classified by the Engineer or shown in the drawings - as being unacceptable for foundation of civil structures or embankment fill. Unsuitable soils are e.g. soils containing organic matter, miscellaneous debris, excessive moisture or uncontrolled fill from previous other works activities.

In case soil replacement is necessary, the Contractor shall submit MS to the Engineer with a description about depth and extent of soil excavation. In principle soil excavation shall not exceed a depth of 3 m, if is not instructed otherwise by the Engineer.

3.4.2  Mineral Materials for Replacement

Mechanical properties of mineral construction materials for the replacement of unsuitable soils shall be done in accordance with the requirements of chapter 2.2.6 “Filling Works” and according to the applicable standards.

Soils for replacement of unsuitable soils shall be soils as GW, GC, SM, SC according USCS classification, free of organic (max. organic fraction is 3%) and with suitable (low) water content.

Replacement of soils to a depth of up to 0,5 m below NGL are defined as part of the clearance works and shall not be considered by the Contractor as part of this item “Replacement of unsuitable soils”.

Excavation and replacement of soils between 0,5 m and 1,00 m below NGL and between 1,00 m to 3,00 m are accordingly divided within the BoQ items.

3.4.3  Execution of Works (foundation preparation)

Excavation of unsuitable materials as defined in this specification shall be removed. Unsuitable soils shall be stockpiled aside outside of the construction area and/or as directed by the Engineer.

Unsuitable materials should be removed as most as possible mechanically using backhoes, graders, bulldozers or with support of manpower and manual tools.

Refilling works execution shall result in quality conditions as specified for foundation preparation and foundation pre-compaction.

3.4.4  Pre-compaction Works on Foundation Area

Materials

Soil material in foundation area shall be classified as CL, SC, SM, SW, GW, GP, GM and GC according to the Unified Soil Classification System ref. AASHTO (USCS).

Material shall have a liquid limit w_l not exceeding 45 % and a plasticity limit w_p less 30%.

3.4.5  Execution of Works (foundation area)

Areas where structural fill is to be placed shall be free of root matter and topsoil and shall be proof-rolled on-grade using a heavy-duty, smooth steel-drum roller with vibratory capability, or other suitable compaction equipment.
For foundation is required: compaction degree achieved shall be 95 % Proctor density or load plate test with min $E_{v2} > 60 \text{ MN/m}^2$ and $E_{v2}/E_{v1} < 2,5$; the bearing capacity shall be proven to minimum 300 kN/m$^2$.

Achieved compaction degree shall be proven by the Contractor all 2.500 m$^2$ foundation area of embankment construction and all 500 m$^2$ of area of structure foundation or backfilling works and at places where compaction control deems necessary to the Engineer.

After completion of the preparation works for the foundation area, the suitability of the conditions of the foundation area needs approval by the Engineer by written protocol. The Contractor shall provide protocols of soil mechanical laboratory tests or of field tests proving sufficient compaction degree.

### 3.4.6 Refill of area adjacent to foundations

Working space shall be at least 1 m width at bottom, slope gradients shall be maximum steep 1:1 (V:H). When the construction pit for foundation is deeper than 1,5 m the construction pit need securing by vertical bracing plates or slope gradient shall be maximum steep 1:2 (V:H). The Contractor shall submit MS in such a case.

The backfilling needs the provision of free draining.

### 3.5 Excavation Works

#### 3.5.1 General; Excavations for general earthworks and for structures

After an area has been stripped, excavation shall be carried out first to any general levels to which the ground has to be reduced and then for foundations, footings, etc., to the depths indicated or to such greater depths as may be required by the Engineer to ensure a satisfactory foundation. The Engineer may order or authorize additional excavation for any stated purpose.

Except where otherwise specified, shown in the drawings, ordered or dictated by the requirements for safeguarding, excavation shall be so carried out and so trimmed to the outline of the concrete or masonry work that the excavated surfaces will act as forms for the concrete works.

Immediately before any permanent construction is commenced, the bottom of each excavation shall be cleaned of all loose material, and soft material shall be rammed or removed as required by the Engineer.

Should the Contractor excavate to dimensions in excess of those stipulated or permitted, he shall fill in the excess at his own expense in the manner specified or approved by the Engineer.

#### 3.5.2 Execution of Works

Excavations shall be done according and with regard of the limitations as shown in the drawings. Excavation need to be performed on limited working space and the Contractor shall employ suitable machines for such work.

The Contractor is obliged to prepare a site safety plan for this works (in accordance with chapter 9 - "Environmental and Social Management Specifications” and chapter 8 - “Health and safety”). The safety plans for this works (site safety, environment protection, workers health and safety) need approval by the Engineer.

The slopes of trench cut shall be not steeper than 1:1 and slope gradient be according to minimum slope stability safety.
The Contractor shall ensure enough dewatering and pumping equipment provisions.

3.6 Filling Works

3.6.1 General

Filling shall be carried out to the lines, levels and grades required to complete the permanent construction. Should the Contractor fill above the designated levels, the Contractor may be instructed by the Engineer to remove such excess filling entirely at his own expense.

3.6.2 Materials, filling/ refilling works and embankment construction

(i) Filling, refilling works are specified hereunder (minimum requirements).

(ii) The embankment construction works are to execute on a higher technical level (than the requirements for filling/ refilling). For embankment construction the Contractor shall regard the requirements on soil material (clayey soils) and on compaction.

(i) General requirements on filling/ refilling works

The filling material – when required in scope of profiling works, filling of holes and depressions - shall be in accordance with the allowed gradation range of silty clay material from borrow area. Excavation soils can be used, when corresponds with requirements and after approval by the Engineer. The re-fill soils should be of similar characteristic as the existing soils at place, possibly with a higher erosion stability.

Specification for the re-fill soils: clayey silts and sands - classified as SM, SC according to the Unified Soil Classification System (USCS).

- max grain size 100 mm
- organic content < 5 %
- liquid limit, \( w_l \) < 40 %
- plasticity limit < 25 %

3.6.3 Equipment

Any equipment, machinery and devices which do not comply with the requirements to ensure the quality of work will be, by the Engineer, disqualified and not allowed to work. For the execution of works should be used: compaction roller, bulldozers, backhoes and graders. For support of compaction or for refilling works can be used hand compaction equipment (vibrating plates).

3.6.4 Execution of backfilling works

The suitable procedure of compaction for the re-filling works shall be tested and defined during a field test (use of an at site compaction testing apparatus, manually handled). Soils shall be placed in layer not more than 300 mm in height (before compaction), spread and compacted. Soil testing of backfilling works: effectiveness of compaction tested all 500 m² area of re-filling works.

Compaction: 97 % proctor or equivalent test; \( w_{placing} = w_{opt} +/− 3 \%

Testing of mineral construction material
The Contractor shall submit

- suitability tests if required - all 2,000 m³ of backfill material and/or from each borrow source (test program: gradation/hydrometer, Atterberg, proctor, permeability, shear test)
- routine testing of gradation and compaction degree shall be performed for all 1,000 m³ embankment placed.

### Temporary storage

Places of temporary storage of materials shall be located within the construction site in agreed with the Engineer or outside of the construction in places organized by the Contractor. In latter case the Contractor will have to care for all necessary administrative permits, has to work in accordance with the applicable law and regulations (e.g. environment law, land ownership rights).

Temporary soil storage places must be protected against flood impact.

### Works execution

Soils for backfilling works shall be placed in layer not more than 300 mm in height (before compaction), spread and compacted. The water content of backfill soil shall meet the requirements, in case the material is too dry it needs moistening (with scarifying) and in case is too wet, the spread soil shall be exposed to drying as required water content is achieved.

The working area shall be protected against run-off flows and shall be kept drained by suitable inclined surface.

3.7 Gravel Road Construction and Subbase (in case of any gravel road construction needed)

3.7.1 Materials, Subbase

Natural soils below the subgrade layers shall have bearing capacity 300 kN/m² (load plate test: $Ev^2 > 45$ MN/m², $Ev^2/Ev^1 < 2.5$).

After clearing works and excavations the gradation of sub-base layer depends on the natural foundation soil. In general subgrade will be a compacted coarse soil for load bearing capacity. Thickness of subgrade shall be at least 35 cm but is depending on traffic load class.

The thickness of subbase layer shall be not less than 30 cm.

Specification for the road sub-base soils: gravelly, sand and clayey, gravelly sands - classified as GW, GC, SM, SC according to the Unified Soil Classification System (USCS).

- max grain size 100 mm
- uniformity of grain curve, required $U (d_{60}/d_{10}) > 20$
- organic content $< 5\%$
- liquid limit, $w_l < 40\%$
- plasticity limit, $w_p < 25\%$. 
3.7.2 Road base, material

The subsequently placed road base material should contain fraction of cobbles (about 10% ... 20%; max size 100 mm) gravel, sand, fines shall not exceed 5%. Thickness of road base before compaction not less 30 cm but is depending on traffic load class.

The road base shall be not less than 10 cm.

Between natural ground and subbase, the Engineer may direct to place a geotextile. On road base a sand bed layer shall be placed, max. 10 cm, as paver base when directed by the Engineer.

Specification for the road subgrade soils: gravelly sand and clayey, gravelly sands - classified as GW, GC, SM, SC according to the Unified Soil Classification System (USCS).

- max grain size 100 mm
- organic content < 5 %
- liquid limit, $w_l < 20 %$
- plasticity limit, $w_p < 10 %$.

3.7.3 Execution of Works, gravel road

Foundation after surface excavation shall be:

- clean, dry, free of roots and free of boulders > 100 mm
- have bearing capacity of min 200 kN/m² (for open places as gym or sports, for footpath and cycle ways) and min 300 kN/m² (for traffic roads/ parking places), pre-compaction is required
- soft soils shall be replaced (soil exchange), exchange soil material as subbase
- in case unsuitable soft soils are deeper than 1 m, place geo-fabric after 1 m excavation and carefully fill in trench subgrade material; in layers not exceeding 300 mm
- the road foundation area shall be compacted, inspected and approved by the Engineer before placing of subbase layer.

Subbase shall fulfill:

- spread and fill in layers not more than 30 cm in height
- compact to compaction degree 97 % (standard proctor)
- in case of segregations the subgrade material shall be bladed until the various sizes of aggregate are uniformly and satisfactorily blended.

Road base

- layer spread & compact, surface shall be slightly inclined in traversal direction (2%).
- spread and fill in layers not more than 20 cm in height
- for outdoor paved places, for path and cycle ways the compaction requirements are as follows: 97 % (standard proctor), or load plate tests: $Ev_2 > 40 \text{ MN/m}^2$; $Ev_2/Ev_1 < 2.5$.

Geotextile (when required)
Geotextiles are required underneath of slope protecting works – gabions, rip/rap or underneath bedding material for masonry. Geotextiles may be required partly for operational road construction, underneath paved area and will be instructed then accordingly by the Engineer.

Geo-fabric specifications are:

- 300 gr/m² (or more)
- Tensile strength > 50 kN/m²
- Puncture > 2.5 kN
- Permittivity > 0.1 m/s

or equivalent

3.8 Finishing Works

Final grading

On completion of earthworks to the finished level and of backfilling of all holes, trenches and the like, the whole surface shall be graded, shaped and compacted to final grades and levels. The surface shall be lightly watered as the Engineer may direct.

Topsoil placing

Where scheduled, topsoil shall be placed on level and slightly graded areas and shall be lightly compacted by wheeled vehicles or by tamping, and trimmed neatly to the required lines, grades and levels. The final thickness of topsoil after compaction shall be at least 15 mm.

Grass or other vegetation

Where and as scheduled, grass or other vegetation shall be planted after topsoil placing has been completed. On completion of planting, the planted area shall be neatly trimmed and well watered.

Refill of erosion gullies

As before a MS from side of the Contractor is necessary; in the MS the reason of erosions gullies shall be described and due to this the Contractor shall develop the best rehabilitation program;

Erosion gullies must be cleaned by hand/ small equipment, all soft soils taken out;

Refill with approved mineral soils, place in thin layers (10 cm) and compaction

Make surface protection by grassing or sodding.

Embarkment erosion protection

When instructed by the Engineer, the Contractor shall execute erosion protection works on downstream embankment face by grassing, putting thornbush branches, gravel/stone packages or others.
4. GABIONS, MASONRY AND STONE PLACING WORKS

4.1 Gabions

The gabion materials shall fulfill the following requirements. In case the Contractor has technically equivalent proposal – these can be approved upon by the Engineer. If such an alternative gabion solution is approved this must be documented by a written and signed by both sides protocol.

4.1.1 General

Gabions shall consist of rectangular or square wire mesh (with PVC coating) formed containers filled with rock. Placing and application of gabions are most flexible and can be optimized in stone material use (gabions having thickness 30 cm, or 50 cm or more – depending on demand for erosion resistance, e.g. depending on river flow velocity). Placing can be realized quickly and repairs are easy and prompt possible. At locations where is assumed to be necessary gabions can be strengthened afterwards by placing a second layer. On medium time the gabions may be affected by water plants, which is positive in regard of erosion protection and in regard of ecological conditions, however, may complicate maintenance. Due to the flexible use of gabions, this will be the mostly in design applied solution for this project.

Gabions will conform to the following:

Welded wire mesh with a uniform square or rectangular pattern and a resistance weld at each intersection. The welded wire connections shall be conform with the requirements of ASTM A975-97, including wire smaller then W 1.2; except that the welded connections shall have minimum average shear strength of 70 % and minimum shear strength of 60% of the minimum ultimate tensile strength of the wire. The wire mesh shall be galvanized before forming into mesh and shall be PVC coated.

4.1.2 Materials

Wire for fabrication and assembly shall be hot-dipped galvanized with PVC coating. The wire shall have a minimum tensile strength of 60,000 psi (42 MN/m²).

For gabions, the minimum and maximum rock size must be 200mm and 350mm respectively, rock fill must be dense, hard, durable and clean. The Contractor shall use natural stone, rough, no cracks, resistant to atmospheric influences, resistant to saline water and chemicals present in the water. Rocks need to have a high specific gravity using e.g. granite, porphyry, andesite and sandstone hard and medium-hard. Rock stones need approval by the Engineer.

![Example gabion](image)

Figure 4-1 Example gabion
Specification of stones, use stone from quarry with the following parameters:

- volumetric weight of rocks: 21 kN/m³
- compressive strength of: 150 MPa (150 MN/m²)
- absorption max weight: WA 1.5%
- Los Angeles (ref. to stone hardness): < 30%

The stone delivery shall be approved by the Engineer (for each quarry source). The stone size shall be between 150 mm and 400 mm, with size < 150 mm allowed to max 10%. Max size shall be 500 mm (max. 10% of stones between 400 mm ... 500 mm).

The relation of length (L) : height (H) : width (W) shall be 2 : 1 : 1 (at least 50% of stone load delivered, deviation of max. 30%; in case of Engineers dissatisfaction – a test prove will be exercised at site!).

Table 4-1  Gabion’s parameters

<table>
<thead>
<tr>
<th>Dimension of gabion</th>
<th>Mesh size (mm)</th>
<th>Wire diameter (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5 m and over</td>
<td>80 x 100</td>
<td>2.5</td>
</tr>
<tr>
<td></td>
<td>100 x 120</td>
<td>2.7</td>
</tr>
<tr>
<td>0.2 m - 0.3 m</td>
<td>80 x 100</td>
<td>2.2</td>
</tr>
<tr>
<td></td>
<td>60 x 80</td>
<td>2.0</td>
</tr>
</tbody>
</table>

Gabions may be placed on slope to maintain the established proper alignment prior to the placement of rock. The gabions shall be carefully filled with rock, either by machine or hand methods, ensuring alignment, avoiding bulges and providing a compact mass that minimizes voids. Machine work will require supplementing with handwork to ensure the desired results. The last layer of rock shall be uniformly levelled to the top edges of the gabions.

4.2 Masonry

Masonry works may be required for slope protection or bridge abutment protection works. The Engineer will instruct at which locations these are to apply and masonry works shall be executed as specified below.

Masonry works can be instructed by the Engineer (BoQ items are foreseen), but these works are secondary in this works contract scope. Masonry works are allowed only when instructed by the Engineer.

4.2.1 General

All masonry work shall be true to lines and levels as shown on drawings. All masonry shall be tightly built against structural members and bonded with dowels, inserts etc. as shown on drawings. Stone masonry walls may be plain with dry joints or constructed with stones set in cement. The minimum dimension of stone shall be 75 mm.
4.2.2 Materials, masonry

Clay bricks

Clay bricks used shall be of class 3.5 designation conforming to IS:1077. All clay bricks shall be hand or machine moulded and of first-class quality, sound, hard, well burnt, of regular and uniform size, shape and colour (generally deep red or copper), homogeneous in texture and free from flaws & cracks. They shall have plain rectangular faces with parallel sides and square straight and sharply defined arises.

Good clay bricks locally available and conforming to above can also be used.

Alternatively: stone bricks (natural stones)

The stone shall be of the type specified such as granite, trap, limestone, sandstone, quartzite, etc. and shall be obtained from the quarries, approved by the Engineer. Stone shall be hard, sound, durable and free from weathering decay and defects like cavities, cracks, flaws, sand holes, injurious veins, patches of loose or soft materials and other similar defects. Stones shall be of uniform colour, quality or texture. Generally stony shall not contain crypt crystalline silica or chart, mica and other deleterious materials like iron-oxide organic impurities etc. Stones with round surface shall not be used. The compressive strength of common types of stones shall be as shown in table and the percentage of water absorption shall generally not exceed 5% for stones other than specified in table. For laterite this percentage is 12 %.

Mortar

The materials shall be mixed dry until of uniform colour, water added, and the mixture turned over until the ingredients are thoroughly incorporated. Mortar shall be produced in such quantities as can be used before commencement of set and no mortar that has set shall be used. Mortar shall comply with the following table:

<table>
<thead>
<tr>
<th>Mortar Class</th>
<th>Required compressive strength at 28 d, MPa, min.</th>
<th>Limiting proportions</th>
<th>Sand (measured damp and loose), cm, max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>10</td>
<td>50</td>
<td>0 - 10</td>
</tr>
<tr>
<td>II</td>
<td>5</td>
<td>50</td>
<td>0 - 40</td>
</tr>
<tr>
<td>III</td>
<td>1.5</td>
<td>50</td>
<td>0 - 80</td>
</tr>
</tbody>
</table>

Mortar shall be Class II unless otherwise specified.

Mixing

The mixing of mortar shall be done in mechanical mixers operated by power or manually as decided by the Engineer. The Engineer may however, permit hand mixing at his discretion taking into account the nature, magnitude and location of the work and practicability of the use of mechanical mixers or where item involving small quantities are to be done or if in his opinion the
use of mechanical mixers is not feasible. In cases, where mechanical mixers are not to be used, the Contractor shall take permission of the Engineer in writing before the commencement of the work.

4.3 Stone pitching

4.3.1 General

Stone pitching can be possibly applied for bridge abutment rehabilitation works. Stone pitching is generally used on steep slopes. Stone pitching may be used to sustain a path surface that would otherwise be washed out by floodwater from the watercourse. In this case, stone pitching provides a sustainable surface that can withstand water flowing over the top. Grouted stone pitching is used where the erosion damage will be severe. Such areas may be drainage pipe discharge points where running water is constant or where the water leaves the pipe at high speed. This specification covers the furnishing of materials and construction of a protective covering in stone pitching or cast in situ concrete pitching on exposed surfaces such as earth slopes, drains and stream beds.

4.3.2 Materials

**Stone**

The stones for this work shall be durable, angular field or quarry stones of approved quality, sound, hard, free from seam and other structural defects and shall have a specific gravity of not less than 2.40 t/m$^3$. At least 60% of the stone pitching shall consist of pieces having a weight of not less than 15 kg and of the remaining 40% no piece shall have a weight of less than 7 kg and less than 200 mm in minimum dimension, except that smaller pieces or spells may be used for filling spaces between the larger stones. Rocks or stone shall be of such a shape as to form a stable protection structure of the required section. Rounded boulders or cobbles shall not be used on slopes steeper than 2:1 unless grouted. All stone intended for use on any particular pitching or masonry job shall receive the prior approval of the Engineer.

Stone pitching – when requested - is following the TS as for masonry (chapter 4.2).

4.4 Sodding, grassing – when required for additional erosion prevention measures

4.4.1 Materials

This works contract may require some area protection by sodding or grassing. The works in scope of total contract are secondary.

Turf, grass seeds, wood pins, fertile soil (humus) – thickness of sodding is 15 cm to be placed on a 10 cm levelling course (mixed soils, max grain size 20 mm).

4.5 Fascines – when required for additional erosion prevention measures

4.5.1 General

The works for this contract may require the provision of fascines. These works must be instructed by the Engineer. The fascine works are secondary within the scope of this works contract. Nevertheless a some detailed specification is presented as follows:
KfW/ MoAD, SOM 2; Sustainable Land Management in Somaliland
Works Contract C1 - TD Part 2 Works Requirements
Lot A – SS dam sites SS01 (Geed Abera), SS03 (Daanyaale), SS04 (Arabsiyo)
Lot B – SS dam sites SS07 (Beeyo Liibaan), SS13 (Caro Yanbo), SS16 (Geesdheer)

Fascines can be best described as a rope-shaped bundle of live cuttings, lashed together with twine.

Fascines have many other names including brush wattles, faggots, wattles, wattling bundles, and live fascines. Fascines grow rapidly when constructed from live materials. The resulting root systems work well to secure soils and to hold the fascine in place. They are simple and effective, require little time to build and can be installed with little site disturbance. Live fascines are used to protect banks from washout and seepage, particularly at the edge of a stream, where water levels fluctuate moderately, placed in shallow trenches on slopes to reduce erosion and shallow sliding. Fascines are usually willow branches, but other species such as red-osier dogwood or snowberry can be used. Fascines can also be constructed of plant stems not intended for rooting (known as inert fascines).

4.5.2 Materials

Rope or twines shall be strong enough to tie the fascines together and resilient enough to last 1 year.

Ample quantities of live cuttings, for example a 4 m long fascine 25 cm in diameter will use approximately 5 bundles of cuttings (bundles being 20 to 30 cm in diameter, and 2 m long). Fascines should be constructed with a minimum of 2 different species. This will optimize the chances of successful growth.

Figure 4-2 Fascine, example
4.5.3 Execution of Works

The toe should be stable when using fascines on slopes. If the toe is not stable, erosion can move up the slope, undermining the fascines and causing failure. The following steps should be followed when placing fascines on slopes:

- install the first fascine at the bottom of the slope,
- move upslope, placing fascines using the recommended spacing of 1 meter for 1:1 slopes (height : vertical), 1.5 meter for 2:1, 2 meters for 3:1, and 3 meters for 4:1 slopes,
- on dry slopes fascines can be placed level or on contour,
- on wet slopes fascines can be placed on slight angles to facilitate drainage of runoff,
- place long straw on the slope between fascines (on slopes 1.5:1 or flatter), steeper anchored in place by tucking the leading edge into the trench and staking the fascine on top.
5. CONCRETE WORKS

5.1 Scope and Definitions

The scope of this works contract may require some concrete works. The concrete works are secondary within the whole scope of this works contract. Concrete works are allowed only when instructed by the Engineer.

Some basic requirements on concrete works are presented as follows:

5.2 Materials

General, Standards

All materials used in the works shall comply in all respects with international standards and with the national regulations and standard specifications, the latest issues of which shall be held to apply.

Approval Materials

The Contractor shall supply in good time to the Engineer, for his approval, samples of the aggregates (and, if so ordered, of the water) that he proposes to use for the concrete and shall furnish evidence that the water and aggregates comply with the set requirements.

The requirements are:

- Strength fck: C 25/35

Cement, Standard

Cement used in all works shall be of the type specified and approved by the Engineer. Where any particular type is not specified it shall be taken to be ordinary Portland cement. All cements shall comply with the relevant standards mentioned before or for British Standards (BS).

Cement may be delivered in sealed bags or in silos and shall be sorted in moisture-protected and well-ventilated buildings/silos.

Each cement supply shall be stored separately, and the cement shall be consumed in the sequence of its arrival at Site.

Storage of Cement

Separate storage facilities shall be provided on the Site for each type of cement used. Cement that is stored on the Site shall be kept under cover that provides proper protection against moisture and other factors that may promote deterioration. Storage of cement in bulk in weatherproof silos or similar containers will be permitted provided that the cement drawn for use is measured by mass and not by volume.

Water

Water shall be clean and free from injurious amounts of acids, alkalis, organic matter and other substances that may impair the strength or durability of concrete.

Aggregates

Aggregates shall conform to the requirements of DIN 4226, DIN 1045-2 and DIN EN 206-1.
Aggregates shall only be delivered by such suppliers who are in a position to provide the required quantity of aggregates of constant quality and to offer warranted quality achieved through regular inspection.

It is essential here, that the suppliers are controlled by independent experts and can provide a “Quality Certificate for Concrete Aggregates” or any similar inspection certificate issued by a recognized institute or materials test institution. Additionally, the suppliers shall have been regularly presented with awards for the quality of their materials in the last years.

**Reinforcement**

Reinforcing bars shall have been made by the open-hearth process, the electric process or the basic oxygen process and the bars shall be:

- Hot-rolled mild steel bars of plain round cross-section;
- Hot-rolled mild steel deformed bars, cold-worked to increase yield stress; or
- Hot-rolled high yield stress steel deformed bars.

The bars shall be well and cleanly rolled and rust, seams, surface irregularities and mill shall not be cause for rejection, provided that the mass per meter, dimensions, cross-sectional area and tensile properties of a test specimen comply with the applicable requirements.

Unless otherwise specified, all reinforcement shall be type BSt 500.

**Formwork**

Formwork shall be so designed and constructed that the concrete can be properly placed and compacted and that, subject to the tolerances specified in 4.1.13 (Tolerances), the required shapes, finishes, positions, levels, and dimensions shown in the drawings are maintained. The formwork and joints shall be capable of resisting the dead load, including the pressure exerted by the wet concrete, wind forces, and all other superimposed loads and forces. Where formwork is to be erected over a road or a pathway, the Contractor shall so design his formwork that the full clearances required for the free movement of traffic are maintained to the satisfaction of the authority controlling such road (pathway). Where so required in terms of the project specification, the Contractor shall, before commencing erection, obtain the approval of such authority for the design of his formwork.

The quality of formwork shall be such that the finished surface of the concrete is as scheduled or shown in the drawings or as required in terms of the project specification (see chapter 4.1.8 Formwork).

The types of ties used, and their position shall be such that the required finish is achieved and will not be marred by subsequent corrosion of the ties.

Formwork will be classified in accordance with the surface condition required on the finished concrete. Such surface conditions are classified as follows and will be so scheduled:

**Rough:** No treatment of the surface of the concrete will be required after the striking of the formwork. The finish of the concrete need not be more accurate than Degree of Accuracy III as defined in terms of Chapter 4.1.13 (Table 4-9).

**Smooth:** Imperfections such as small fins, bulges, irregularities, surface honeycombing, and slight surface discolorations shall be made good and repaired by approved methods. The finish of the concrete shall be accurate to Degree of Accuracy II as defined in terms of Chapter 4.1.13 (Table 4-9).
Smooth and fair: This class of finish requires the highest standard of concrete work, formwork, accuracy and technique. Concrete placed in any one structure to give this finish shall be made from cement and aggregates from the same source. The grading of the aggregate shall be kept constant. Formwork shall be metal, wood or other approved material in a new condition designed and constructed to suit the particular job in hand and with shutter bolts and joints between panels in a regular pattern approved by the Engineer.

6. STEEL WORKS

Not applicable
7. ENVIRONMENTAL AND SOCIAL MANAGEMENT SPECIFICATIONS

7.1 General

The environmental criteria and measures given in these Technical Specifications must be followed and reported by the Contractor and his Sub-contractors, together with the Environmental Management Plan (EMP) and the national requirements. No additional payment will be made for the EMP measures. The bid rates for the work are considered to include full compensation for additional actions incurred to adhere to the said requirements. If the measures specified are not adhered to, it will be ample reason for the Engineer to stop work until the environmental mitigation measures are rectified.

The Contractor shall prepare an Environmental Implementation Plan (EIP), describing his method for the implementation of these specifications and of the Environmental Management Plan (EMP) and its commitments during the works period. The EIP shall be presented to the Employer and Engineer not later than one month after signing the contract for its approval. After the start of construction works, the commitment with the EMP will be monitored regularly, as stated below. The EIP submitted by the Contractor shall contain, at a minimum and not be limited to, the following components:

- An implementation timetable for the EMP measures, integrated with the Contractor's construction activities work plan and timetable.
- The employment of an Environmental Site Officer (ESO) and a Health and Safety Officer (HSO) approved by the Engineer who will monitor respectively the day to day site compliance to the EMP, the ESO and HSO can be represented by one person when qualified accordingly. The ESO and HSO shall be at least once weekly at the construction site to follow the Contractor’s obligations in EIP and H&S, for reporting and for communication with the labour staff.
- The procedures that the Contractor will use for internal communication and coordination regarding the implementation, monitoring and control of the EMP measures, including the dissemination of information among the Contractor's employees, ongoing recording of environmental measures and corrective actions taken in the event of failure by the Contractor's staff to comply with the environmental requirements.
- The procedures the Contractor will use for reporting, communication and coordination with the Employer, the Engineer, local authorities and organizations working on issues related to environmental education in Malaria prevention and HIV/AIDS.
- An implementation of an environmental police for the Project to be applied by the Contractor, Sub-Contractors, suppliers and providers.

7.2 Administration of Environmental Obligations

7.2.1 Responsibilities of the Contractor

The Contractor shall inform and instruct his labour staff and – in case of - Sub-Contractor about EMP and H&S and the Sub-Contractors shall confirm by writing. The Contractor and his sub-Contractors shall:

- Work within the scope of contractual requirements and other tender conditions;
- Prepare an Environmental Implementation Plan (EIP) approved by the Engineer, presenting the methodology through which compliance with environmental
standards will be guaranteed. Although the Engineer and Employer may eventually comment on any inadequate aspect regarding these statements, the Contractor is solely and exclusively responsible in case of non-compliance with the standards contained in the EMP. The Employer and the Engineer reserve the right to demand that the standards be adhered to according to their own criteria, irrespectively of the non-compliance that it may, in certain cases, admit.

- Appoint an ESO and a HSO
- The Contractor shall in advance provide the Engineer with information of all construction activities and new submissions shall be given whenever a variation occurs to the original.
- Fulfil all the requirements of the EMP and the Methods Statement, in accordance with environmental standards, using construction techniques, practices and methods that ensure the fulfilment of these standards, as well as, in general, minimize the environmental damage, i.e. control waste, avoid pollution, prevent the loss or damage to natural resources and minimize effects on users and holders of neighbouring land and the public in general.
- Prevent or minimize the occurrence of accidents that may cause damage to the environment, prevent or minimize the effects of such accidents and, as far as possible, restore the environmental conditions to a state similar to the one existing before the accident.
- The Contractor is obliged to regard the KfW requirements for environment protection and habitat preservation. In detail the Technical Specifications in this regard are stipulating as follows:
  - The Contractor in his general and – if there are – in his detail Method Statement (MS) has to describe his precaution measures for environment protection. The MS shall be accompanied by a photographic documentation about status of environment before start of works. The photographic documentation is then to complete after works by photo documentation of site after demobilisation.
  - When requested by the Engineer and the Engineer considers as necessary, the Contractor shall analyse surface water quality.
  - In case that the works have caused damage on environment at site and its surrounding, then the Contractor is obliged for revegetation as instructed by the Engineer; the Contractor in such a case is not entitled for payment.
  - Review the EIP’s and EMP’s implementation at monthly site meetings (at site or in Hargeisa) with the Engineer, Employer and the Contractor’s ESO.

### 7.2.2 Appointment of an Environmental Site Officer and Health and Safety Officer

For the purposes of implementing the conditions contained herein, the Contractor shall designate with proven qualification to fulfil the position of the ESO and the HSO as key staff in the contract. Both shall have environmental and social management, training and monitoring experience (at least 3 years) in construction projects and be familiar with the environmental and social regulations and requirements (i.e. with the national legal and regulation framework and with international standards). They should have knowledge in English language (written and spoken). The qualification of the proposed officers shall be evaluated and approved by the Engineer and accepted by the Employer prior to the commencement of construction.

The Contractor’s ESO and HSO can be represented by one expert, when qualified and approved.
The ESO and HSO shall submit regular written reports to the Engineer (depending on the whole project period and the extent of the project); it is assumed the reporting once a month.

The Engineer shall have the authority to instruct the Contractor to replace the ESO and HSO if, in the Engineer's opinion, the appointed officers are not fulfilling their duties and responsibilities.

### 7.2.3 Responsibilities of the Environmental Site Officer

The ESO will be in charge of the environmental management at the construction site, including the following responsibilities:

- Day-to-day implementation of the EIP, attending weekly site meetings.
- Realization of the Environmental Education Program for all construction workers.
- The Contractor, through the ESO, is responsible for determining the best practical methods for impact containment for each works activity.
- Informing the Engineer in case of any change to the EIP or to submitted Methods Statements.
- Conducting site audits in order to check compliance with the EMP;
- Reporting on a monthly basis to the Engineer and Employer on the state of the site, especially in relation to the natural environment and compliance with the EMP;
- Inform immediately of any occurrence of incidents, accidents and near misses and submission of corrective actions forms for all incidents/accidents in 48h to the Engineer.

### 7.2.4 Method Statements

Method Statements (MS) are written by the Contractor in order to provide construction details for activities and as a part of this the consequences to comply with the EMP.

The following Method Statements shall be provided by the Contractor and ESO as applicable and must be shown to and approved by the Engineer prior to commencement of work.

#### Site establishment

- Layout and preparation of the site office and construction camp
- Preparation of the working area

#### Vegetation clearing, protection of trees, protection of flora and fauna

- Method of vegetation clearing during site establishment, including identification, removal and/or composting of biomass
- Method on protecting trees at site and the surrounding – as far necessary. The status of trees shall be documented by the contractor. Method of protecting flora and fauna

#### Fuels and fuel spills

- Methods of refuelling vehicles, and location of refuelling stations (outside project area); details of methods for fuel spills and clean-up operations
Solid waste management

Solid waste control (including the use of waste skips, lidded bins, temporary building rubble stockpiles etc.) and removal of waste from the site.

Contaminated water

Contaminated water management plan,

Access routes

Location of and methods of establishment of access/operational routes and plan of rehabilitation to ensure – after works – the original conditions

Emergency Procedures

Emergency procedures for fire.

7.2.5 Environment Management

Site Office and Construction Camp

The Contractor shall regard good governance with the regional farmers and village administration. Reasonable arrangements shall be undertaken for site mobilization.

Environmental Awareness Training

The Contractor is responsible for ensuring that all site employees undergo basic environmental awareness training

Site Demarcation and No-go Areas

The construction site shall also be demarcated using temporary fencing, in order to prevent civilian access during the construction phase.

All temporary fencing and methods of demarcation shall be removed after completion of construction, to the satisfaction of the ESO.

Fuels and Oils

Any fuel tanks or drums to be used during construction shall be erected on impervious concrete slabs, or on a suitably impermeable surface lined with concrete or plastic (with a layer of sand to prevent perishing of plastic), located at least 50m from the edge of the riverine corridor.

Areas where tanks and drums are to be stored shall be provided with a leak-proof sump for the drainage of spilt fuel and oil, which are to be disposed of in a manner approved by the ESO.

Fuel / oil storage areas shall be on paved/ brick area protected by a rain-proof cover.

All fuels and oils shall be stored in containers with lids that must be kept firmly closed.

Areas to be used for storage of fuels and other flammable materials shall comply with standard fire safety regulations. The Contractor shall ensure that there is adequate fire-fighting equipment at the fuel stores.
7.2.6 Site facilities, sanitation

**Washing and Toilet Facilities**

Workers shall be provided with facilities suitable for the washing of tools, machinery and construction vehicles.

Washing facilities for workers, their tools and any construction vehicles, and toilet facilities will be located in demarcated (at least one toilet shall be supplied per 15 workers). Toilets should be separated by gender. Chemical toilets are to be emptied prior to temporary site closure for a period longer that 4 calendar days.

No abluting anywhere on the work site or surrounding area is permitted – this is a finable offence.

**Vehicles**

Settling ponds will be placed where necessary to collect polluted water from the washing or repair of vehicles, which will be disposed of to the satisfaction of the ESO, so as to prevent contamination of water resources and the terrestrial environment. Alternatively, runoff from vehicle washing areas shall be stored in a conservancy tank for later disposal.

**Solid Waste Management**

Hazardous waste shall be disposed of in an appropriate manner to a site.

Waste and litter shall be placed in weatherproof bins, with well-fitting lids.

The Contractor must ensure that litter is picked up on the site daily.

**Machinery**

Water pumps, cement mixers and other machinery shall have drip trays to contain oil and fuel leaks – these should be cleaned regularly.

**Prevention of Water and General Pollution**

Any stationary vehicles/ machinery or vehicles being serviced on site (only in emergencies, as generally vehicles must not be serviced on site) must have drip trays.

Suitable pollution control facilities shall be designed, maintained and operated in order to prevent discharge of water containing or polluting matter or visible suspended materials.

Water from wash areas (vehicles, workers, machinery, paint brushes and rollers, etc.) shall be stored in a conservancy tank on the site, for later disposal.

**Prevention of Erosion**

The Contractor shall protect all areas subject to erosion and take measures to ensure that there is no undue storm water damage and soil erosion resulting from construction and associated activities. These measures should include inspection of the site (especially areas recently cleared of sediment and/or vegetation) during and immediately after rainfall events, to identify areas requiring urgent attention.

Areas where erosion does occur shall be repaired as soon as practically possible to the satisfaction of the ESO. Related costs of repair shall be integrated in the Contractor’s financial proposal. Exposed surfaces at risk of erosion shall be stabilized promptly by the Contractor.
Dust Control

The Contractor shall take precautions (e.g. watering, straw stabilisation) to limit the production of dust and damage caused by dust.

Noise Control

The Contractor shall implement measures to reduce noise at construction site and provide a noise meter for daily/whenever necessary monitoring.

Prevention and Control of Fires

Employees must be provided with a safe area for open fire cooking, and shall be prevented from making fires outside of this area.

The Contractor shall ensure that the basic fire-fighting equipment is available. Fire-fighting equipment must be checked on a weekly basis, to ensure that all is in working order.

Emergency Procedures

Emergency numbers e.g. local fire department, ambulance should be clearly displayed in the site office.

7.2.7 Environmental Monitoring

The following is a typical check list which the ESO will monitor and include in his monthly report to the Engineer and the Employer.

- Environmental Education
- Protection of Sensitive Areas
- Erosion
- Water Contamination and Pollution
- Fuels and hazardous stores secured; cement and materials stores secured
- Bunding clean and treated.
- Drip trays empty and secure (where possible).
- Structures vulnerable to high winds and heavy rains secure.

Refuse bins available and emptied before they overflow.
Toilets empty and secured; refuse bins empty and secured (lids).

7.2.8 Post-construction Phase, site inspection and record keeping

All construction equipment, surplus rock and other materials, rubble, foundations, rubbish and temporary works of every kind shall be cleared and completely removed from the site.

Areas thus cleared shall be treated as areas to be rehabilitated, as described in the EMP.

The Contractor shall load and haul excess spoil to dump sites approved by the ESO.

After completion of the works, the ESO and ECO shall conduct an inspection to ensure that all issues are addressed, and that any spoil or pollutants has removed or appropriately treated.
A final inspection report shall be submitted to the Engineer, the Employer and the local authority. The ESO should monitor the level of compliance with the EMP and report to the Engineer on a weekly and monthly basis or as requested. He/she shall document the nature and magnitude of the non-compliance in a designated register, the action taken to discontinue the non-compliance, the action taken to mitigate its effects and the results of the actions. All non-compliance shall be communicated immediately to the ECO as well as documented and reported to the Engineer in the monthly report. The Engineer will continuously monitor the Contractor's adherence to the approved impact prevention procedures and the Engineer shall issue to the Contractor a notice of non-compliance whenever transgressions are observed.

7.2.9 Monitoring, Audits and Inspections

The ECO will monitor the implementation of the EMP by the Contractor on a regular basis, at least once a month by site visits and by the revision of the ESO’s monitoring reports. The Contractor shall grant full access to monitoring data as well as to relevant construction areas. The ECO may request additional information from the ESO, when regarded necessary. The Engineer, such as the Employer reserve the right to conduct other ad hoc audits and inspections as deemed necessary.

Local environmental authorities may conduct monthly as well as ad hoc inspections of the construction site. They shall be provided full access to monitoring data files and the areas of interest for inspection. If giving written recommendations, these shall be shared with the Employer and Engineer and according measures shall be implemented by the Contractor.

7.2.10 Worker’s Representation, gender issues

Worker’s representatives

The Contractor shall enable the election of a Worker’s Representative by his employed workforce, not later than 1 month after the start of construction work. The representative will act as an intermediary person in between the Workforce and the Contractor (Human Resource Officer), for issues regarding the working conditions, worker’s rights and general information.

The Worker’s Representative shall be allowed to convene meetings of the workforce outside the working hours. The Worker’s Representative shall communicate with the Contractor’s Human Resource Officer and the HSO, to discuss relevant issues brought to him by workers. He/she shall register all complaints or recommendations received by workers, as well as their resolution. The Worker’s Representative shall keep track of the following questions:

- Do all members of the workforce have signed employment contracts and copies of their conditions of employment?
- Are the wages being paid on time?
- Have any disputes arisen between the workforce and the Contractor or Sub-Contractors? How where these resolved?
- Are members of the Workforce being required to work significant overtime?
- What is the proportion of local workers in the Workforce?
- The proportion of women in the Workforce?
Gender Issues

Labour and Women’s Rights

The Contractor shall guarantee at all times the compliance with the national labour legislation and in particular the rights of women defined therein and to comply with international basic standards.

Qualified female workforce should be searched for in the project area. If possible, qualified female workforce should be offered refreshing or upgrading vocational training, to thus make it possible for women to qualify for recruitment.

The proportion of the Key Personnel as well as of the workforce in general comprising female employees shall be equal to or shall exceed 20% of the total number.

The value of wages (including overtime payments and deductions) paid to female members of the workforce shall be equal to or shall exceed 20% of the total value of wages paid to the Workforce.

7.2.11 Liaison with Communities and Local Authorities

The Project Liaison Committee (PLC) is the primary mechanism for establishing and maintaining communication with the local authorities and the community. The Contractor shall establish, chair and attend all meetings of the Project Liaison Committee as may be reasonably required by the Engineer and shall provide adequate information to the committee in order for it to fulfil its responsibilities. The meetings will be held in English.

The Project Liaison Committee will meet monthly. It will monitor the site activities against a basic checklist including the following items:

- Are there any negative impacts of the construction work in relation to the local community? Were any complaints or problems related to the works presented locally? Which are the measures needed to correct this?
- Are there any examples on benefits achieved from the Project, presented and reported by the local community and its representatives?
- Are residents living near projected sites of borrow pits, work camps, and any other ancillary facilities to the construction works fully informed and involved in the determination of:
  - The location and access roads to the ancillary facilities?
  - The preferred end use of the ancillary facility sites?
- Are the residents living near each section programmed for construction works fully informed and involved in discussion of the projected measures for:
  - traffic control
  - scheduling of the use of heavy machinery
  - parking of heavy machinery
  - dust management
  - protection of (school) children and other pedestrians
  - provision of food for construction workers
  - waste management along the construction works
• Are environmental, Malaria and HIV awareness raising campaigns including the local population? How should activities be improved?

• The above checklist will provide the basis for the minutes of the Project Liaison Committee meetings. The minutes of the PLC will be attached to the minutes of the following monthly Site Meeting.

The 7 pages in Annex 1 to this TS are enclosing the set up and scope of the Contractor’s ESMP, which are expected from his side (the Table is basing on the KfW guidelines for ESMP). The Contractor must provide an according ESMP document and strategy, which shall focus on the specific project technical and environment conditions of the SS dam sites considered under contract C1.
8. HEALTH AND SAFETY

8.1 Scope

This section covers the development of Occupational Health and Safety (OH&S) Specification, providing the requirements that all Contractors shall comply with in order to reduce the risks associated with this contract that may lead to incidents causing injury and or ill health. Compliance with this document does not absolve the Contractor from complying with minimum national social legislative framework.

The Contractor shall be responsible for the health and safety of workers and other people within the worksite and its surroundings, to the satisfaction of the Engineer, the HSO and according to Health and Safety regulations.

The Contractor will be required to provide adequate measures for each situation. Works will not be permitted to start until the Contractor has submitted and the Engineer has approved an Occupational Health & Safety Plan, enclosing the appropriate and approved preventive and accident management measures.

Necessary steps will be taken to prevent safety abuses by the Contractor, and to ensure compliance with measures that contribute to general safety and welfare of workers and users.

OH&S compliance, the Engineer’s entitlement to withheld Interim payment in case of none compliance until is remedied to the satisfaction of the Engineer and the Employer.


8.2.1 Risk Assessment, H&S

The Contractor is responsible to reduce potential risks related to the construction activities. Sub-chapter 8.2.1 contains a generic list of risk assessment items that have been identified as possibly applicable to this contract.

The risk assessment shall include, at least:

- the identification of the risks and hazards to which persons may be exposed;
- the analysis and evaluation of the risks and hazards identified;
- a documented plan of safe work procedures to prevent, reduce or control the risks and hazards that have been identified;
- a monitoring plan; and
- a review plan.

The risk assessment, together with the OH&S Plan shall be submitted to and approved by the Engineer before construction on site commences.

8.2.2 Structure and Responsibilities

Overall Supervision and Responsibility for OH&S

The Contractor shall employ an experienced Health and Safety Officer (HSO) in his project staff.

While the Contractor shall be responsible for meeting OH&S requirements, it is a requirement that the Contractor, when he appoints Sub-Contractors in terms of the contract, shall obtain in writing an agreement that binds the Sub-Contractors to also meet OH&S obligations. Applicable national construction regulations shall be included in agreements with Sub-Contractors.
OH&S Committee

The Contractor, under the guidance of the HSO, is responsible to form an OH&S Committee, with the appointed staff as members, to meet on a regular basis to share updated information as well as decide on necessary measures. Minutes of these meetings will enter the OH&S File and be attached to the monthly OH&S Report of the HSO.

8.2.3 Administrative Control and the Occupational Health and Safety File

The Contractor and Sub-Contractors shall each keep an OH&S file on site. The following list of items shall be included - e.g.:

- Notification of construction work
- Latest copy of OH&S legislation
- Proof of registration and good standing with relevant insurers
- OH&S Plan approved by the Engineer, including risk assessment/s and method statements
- Designs/ drawings, if there are
- A list of Contractors (Sub-Contractors) including copies of the agreements between the parties and the type of work being done by each Contractor
- Registers as follows (when applicable):
  - Accident & Incident Register
  - HSO and OH&S Representatives' Inspection Register
  - Construction vehicles and mobile plant inspections by controller
  - Daily inspection of vehicles, plant and other equipment by the operator/driver/user
  - Excavations inspection, fall Protection Inspection Register
  - First aid box contents
  - Fire equipment inspection and maintenance
  - Formwork and support work inspections, scaffolding inspections
  - Stacking and storage inspection
  - Inspection of structures
  - Inspection of work conducted on or near water
  - All other applicable records

The Contractor shall, where applicable, notify all relevant authorities within 5 working days of the commencement of the contract of the intention to carry out construction work. Copies shall be kept on the OH&S file and copies shall be forwarded to the Engineer for record keeping purposes.

The contents of training undertaken shall be included in the Contractor's OH&S plan. The Contractor shall be responsible for ensuring that relevant training is undertaken. Records of training must be kept on the OH&S file for auditing purposes.

The Contractor shall undertake training on defensive driving courses and eye testing for the drivers.
8.3 OH&S Audits and Inspections

8.3.1 Monthly Audits

The Engineer will conduct monthly audits to ensure that the Contractor has implemented and is maintaining the agreed and approved OH&S Plan.

The Engineer and the Employer reserve the right to conduct other ad hoc audits and inspections as deemed necessary. This will include site safety walks.

The Contractor is to conduct his own monthly internal audits to verify compliance with his own OH&S management system as well as with this specification.

8.3.2 Accidents and Incident Investigation, reporting

The Contractor shall be responsible for the investigation of accidents and incidents where employees and non-employees were injured to the extent that they had to be referred for medical treatment by a doctor, hospital or clinic. The results of the investigation shall be entered in an Accident & Incident Register.

The Contractor shall be responsible for the investigation of minor and non-injury incidents and keeping a record of the results of such investigations including the steps taken to prevent similar accidents in future.

The HSO will report on a weekly and monthly basis on the implementation of the OH&S Plan as well as on incidents and their follow-up, together with other relevant OH&S issues.

Specifically, the Contractor shall notify verbally or in writing the Engineer and Employer within 24 hours and notify the Department of Labour within 48 hours after the occurrence of any accident also.

8.4 Operational Control

8.4.1 Operational Procedures, emergency control requirements

Each construction activity shall be assessed by the Contractor so as to identify operational procedures that will prevent the occurrence of an incident during the execution of each activity.

Simultaneous with the identification of operational procedures, the Contractor shall similarly identify and formulate emergency procedures in the event an incident does occur. The emergency procedures identified shall be included in the principal Contractor's OH&S plan.

The Contractor shall notify "Fire" and "Police" Services in case of accident or fire.

The Contractor shall acquaint himself and his employees with any relevant local arrangements that are in existence for dealing with emergencies.

8.4.2 Personal and Other Protective Equipment

Personal protective equipment

Personal protective equipment (PPE) should be provided, where it is not possible to create an safe and healthy workplace. The Contractor shall inform employees regarding risks and issue, free of charge, suitable equipment to protect.
It is a further requirement that the Contractor maintains the said equipment and that he instructs and trains the employees in the use of the equipment and ensures that it is being used. Employees do not have the right to refuse to use the equipment.

The Contractor shall include in his OH&S Plan the PPE he intends issuing to his employees for use. Conformance to the wearing of PPE shall be discussed at the monthly inspection meetings. Records of issue of PPE are to be signed by the employees and retained in the OH&S Safety File.

**First aid**

The Contractor shall identify all risks related to accidents of its Employers during construction works within the risk assessment, stating risks and measures in the OH&M Plan. Accidents may include but are not limited to the following list:

**Table 8-1 List of the potential accidents**

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Potential harm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working at height</td>
<td>Slips, trips and falls can cause fractures, bruises, lacerations, dislocations, concussion.</td>
</tr>
<tr>
<td>Machinery and equipment</td>
<td>Being hit by moving vehicles or being caught by moving parts of machinery can cause fractures, amputation, bruises, lacerations, dislocations.</td>
</tr>
<tr>
<td>Extreme temperatures</td>
<td>Hot surfaces and materials can cause burns. Exposure to heat can cause heat stress and fatigue. Exposure to extreme cold can cause hypothermia and frost bite.</td>
</tr>
<tr>
<td>Violence</td>
<td>Behaviours including intimidation and physical assault can cause nausea, shock and physical injuries.</td>
</tr>
<tr>
<td>Biological</td>
<td>Infection, allergic reactions</td>
</tr>
<tr>
<td>Animals</td>
<td>Bites, stings, kicks, scratches</td>
</tr>
</tbody>
</table>

The Contractor shall provide a First Aid Station at site, fully equipped with first aid supplies corresponding to the hazards identified and to the satisfaction of the HSO and the Engineer. First aid supplies must be readily available, both at the worksite and in any vehicle used to transport Employees. Supplies must correspond to the potential hazards of the workplace.

A qualified nurse shall be employed and present at the First Aid Station during working hours. Additionally, a First Aider shall be appointed within each team of construction workers, who has undergone a basic First Aid Training. All accidents shall be reported to the HSO, registered in an Accident & Incident Register, followed up where necessary and kept in the OH&S File. The First Aid supplies shall be monitored regularly, and a list of contents kept at the OH&S File.

**Potable water**

Before a person is engaged on work involving possible contact with potable water, he/she shall be notified of the need for personal hygiene and the dangers of contamination shall complete a medical questionnaire provided by the Employer and, where there is a need, shall be tested to indicate that he/she is not a carrier of waterborne diseases.
Access to clean Drinking Water

The Contractor shall always provide access to potable drinking water to all of his Employees at the project site, meeting the following requirements:

An adequate supply of potable water shall be provided in all places of employment

Potable water means water that meets the standards for drinking purposes according to national and international standards.

Public Health and Safety

The Contractor shall be responsible for ensuring that non-Employees affected by the construction work are made aware of the dangers likely to arise from the construction work as well as the precautionary measures to be observed to avoid or minimize those dangers. This includes:

- Prohibition of non-Employees entering the site for whatever reason
- Protection of the surrounding community
- Protection of passers-by to the site
- The Contractor shall mark open trenches and other obstructions by approved signs, fences, barricades and illumination for the safety of the public.
KfW/ MoAD, SOM 2; Sustainable Land Management in Somaliland
Works Contract C1 - TD Part 2 Works Requirements
Lot A – SS dam sites SS01 (Geed Abera), SS03 (Daanyaale), SS04 (Arabsiy)
Lot B – SS dam sites SS07 (Beeyo Liibaan), SS13 (Caro Yanbo), SS16 (Geesdheer)

ANNEX 1

ESMP Tables
### Occupational Health and Safety

<table>
<thead>
<tr>
<th>Topic/ Potential Impact</th>
<th>Mitigation, Measures</th>
<th>Means of Verification</th>
<th>Responsibility</th>
<th>Monitoring Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupational Health and Safety</td>
<td>Ensure all construction workforce are trained in H&amp;S (including sub-contractors, temporary workers and drivers)</td>
<td>Training performed and recorded</td>
<td>Contractor/ PIA</td>
<td>Check Training records</td>
</tr>
<tr>
<td></td>
<td>Ensure site premises are provided with appropriate fencing (where applicable). Use hazard notices/signs/barriers to prevent access to dangerous areas.</td>
<td>H&amp;S planning of construction site done; items installed</td>
<td>Contractor</td>
<td>Random site inspection</td>
</tr>
<tr>
<td></td>
<td>Ensure speed limits on site and on transporting routes.</td>
<td>Appropriate speed adhered to</td>
<td>Contractor</td>
<td>Random site inspection</td>
</tr>
<tr>
<td></td>
<td>Ensure the use of Personal Protective Equipment (PPE) for workers.</td>
<td>PPE used on-site by workers</td>
<td>Contractor</td>
<td>Random site inspection</td>
</tr>
<tr>
<td></td>
<td>Maintain high standard in housekeeping on site.</td>
<td>Good housekeeping on-site</td>
<td>Contractor</td>
<td>Random site inspection</td>
</tr>
<tr>
<td></td>
<td>Ensure provision of Health and Safety (H&amp;S) facilities at the Project site, including shaded welfare areas, bathrooms, and potable water.</td>
<td>H&amp;S Facilities provided at site</td>
<td>Contractor</td>
<td>Random site inspection</td>
</tr>
<tr>
<td></td>
<td>Ensure that the construction areas are open only to formal employees.</td>
<td>Access controlled</td>
<td>Contractor</td>
<td>Random site inspection</td>
</tr>
<tr>
<td>Labour Rights</td>
<td>Ensure minimum legal labour standards as per ILO regulations (child/forced labour, no discrimination, working hours, minimum wages) are met</td>
<td>Adhere to ILO regulations</td>
<td>Contractor</td>
<td>Random site inspection</td>
</tr>
<tr>
<td>Topic/ Potential Impact</td>
<td>Mitigation, Measures</td>
<td>Management and Enhancement</td>
<td>Means of Verification</td>
<td>Responsibility</td>
</tr>
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</tr>
<tr>
<td>Provide hygienic, adequate facilities for workers, ensuring toilets and changing rooms are separated to male and female employees.</td>
<td></td>
<td></td>
<td>Appropriate facilities in place</td>
<td>Contractor</td>
</tr>
<tr>
<td>Ensure the workforce has access to primary healthcare on site, providing prescriptions.</td>
<td></td>
<td></td>
<td>Healthcare available on site</td>
<td>Contractor</td>
</tr>
</tbody>
</table>

**Ambient Air**

<p>| Dust emissions (especially in dry conditions) | Ensure watering of transportation roads during dry and windy conditions. Generally, keep roads in good condition. | Watering conducted, roads in good conditions | Contractor | Random site inspection, inspection of roads |
| Cover truck loads with canvas to avoid dust blow. | Trucks covered | Contractor | Random site inspection |
| Ensure optimal traffic routes. Enforce vehicle speed limits on unpaved roads. | Speed limit signs Driver Training Records | Contractor | Random site inspection |
| Ensure appropriate stockpile management (friable materials) to minimise dust blow. Minimise drop heights for material transfer activities such as unloading of friable materials. | No extensive dust blow | Contractor | Random site inspection |
| Emissions from equipment and vehicles | Use equipment and vehicles in appropriate technical conditions. Provide emissions control equipment where applicable (e.g. filters). | Technical Specification Sheet | Contractor | Each time new equipment/vehicle is used at the site Random site inspection |</p>
<table>
<thead>
<tr>
<th>Topic/ Potential Impact</th>
<th>Mitigation, Measures</th>
<th>Management and Enhancement</th>
<th>Means of Verification</th>
<th>Responsibility</th>
<th>Monitoring Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ensure optimal traffic routes to minimise lengths of travel while avoiding settlements if possible.</td>
<td>Optimal routes chosen</td>
<td>Contractor</td>
<td>Random inspection site</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ensure vehicles and equipment are switched off when not in use.</td>
<td>Engines switched off</td>
<td>Contractor</td>
<td>Random inspection site</td>
<td></td>
</tr>
</tbody>
</table>

### Noise and Vibrations

<table>
<thead>
<tr>
<th>Noise and vibration impact at the construction sites and from construction traffic</th>
<th>Use of state-of-the-art technology and limit the number of machines operated simultaneously.</th>
<th>Contractor</th>
<th>Spot checks, Review of filed grievances</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ensure the use of modern and well-maintained equipment (e.g. use of silencers).</td>
<td>Contractor</td>
<td>Random inspection site</td>
</tr>
<tr>
<td></td>
<td>Set traffic speed limits. Verify drivers’ behaviour with respect to driving speed and safety.</td>
<td>Contractor</td>
<td>Random inspection, Review of training records</td>
</tr>
<tr>
<td></td>
<td>Plan vehicle routes to avoid settlements where possible.</td>
<td>Contractor</td>
<td>Review of traffic routes</td>
</tr>
<tr>
<td></td>
<td>Use protective hearing equipment for workers conducting noisy activities.</td>
<td>Contractor</td>
<td>Random inspection site</td>
</tr>
</tbody>
</table>

**CES Consulting Engineers Salzgitter GmbH/ MS Consultancy**
## Traffic and Transport

<table>
<thead>
<tr>
<th>Topic/ Potential Impact</th>
<th>Mitigation, Measures</th>
<th>Management and Enhancement</th>
<th>Means of Verification</th>
<th>Responsibility</th>
<th>Monitoring Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disruption, noise and increased air pollution</td>
<td>Ensure safe driving by Project personnel (e.g. through training/induction).</td>
<td></td>
<td>Driver Training Records as part of Induction training</td>
<td>Contractor</td>
<td>Review of training records</td>
</tr>
<tr>
<td>Prevent storage of construction materials, equipment and machineries on traffic lanes.</td>
<td>Dedicated storage areas in place</td>
<td></td>
<td></td>
<td>Contractor</td>
<td>Random inspection site</td>
</tr>
</tbody>
</table>

## Soil and Groundwater

<table>
<thead>
<tr>
<th>Topic/ Potential Impact</th>
<th>Mitigation, Measures</th>
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<th>Means of Verification</th>
<th>Responsibility</th>
<th>Monitoring Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental contamination/ spills</td>
<td>Collect and segregate wastes and ensure safe storage and in line with legal requirements.</td>
<td></td>
<td>Waste collection areas existent</td>
<td>Contractor</td>
<td>Random inspection site</td>
</tr>
<tr>
<td>Ensure appropriate containment and disposal of construction wastewater, including sanitary water.</td>
<td>Water disposal compliant with legal requirements</td>
<td></td>
<td>Contractor</td>
<td>Random inspection site</td>
<td></td>
</tr>
<tr>
<td>Ensure appropriate and safe storage of contaminants such as fuels, construction materials and wastes. Provide absorbent and intervention materials in sufficient quantities and at relevant locations for intervention in case of leakages/spills.</td>
<td>Safe storage of hazardous materials, Spill remediation equipment in place.</td>
<td></td>
<td>Contractor</td>
<td>Random inspection site</td>
<td></td>
</tr>
<tr>
<td>Implement appropriate secondary containment and spill controls for maintenance or refuelling works.</td>
<td>Containment and spill controls in place</td>
<td></td>
<td>Contractor</td>
<td>Random inspection site</td>
<td></td>
</tr>
<tr>
<td>Topic/ Potential Impact</td>
<td>Mitigation, Measures</td>
<td>Management and Enhancement</td>
<td>Means of Verification</td>
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</tr>
<tr>
<td>Ensure immediate cleaning of any spills and remediation of contaminated areas after construction.</td>
<td>Workers trained.</td>
<td>Contractor/ PIA</td>
<td>Random site inspection</td>
<td>One-time inspection after construction</td>
<td></td>
</tr>
<tr>
<td>Best practice soil handling</td>
<td>Ensure appropriate storing of topsoil removed. After construction topsoil will be used as backfill for restoration of the area.</td>
<td>Topsoil stored and re-used</td>
<td>Contractor</td>
<td>Random site inspection</td>
<td></td>
</tr>
<tr>
<td>Reinstatement of construction working area to the best possible after construction activities are completed.</td>
<td>Reinstatement completed</td>
<td>Contractor/ PIA</td>
<td>One-time inspection after construction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If construction takes place on inclined surfaces/slopes, ensure preventive erosion control measures are applied (e.g. plan to retain trees and other vegetation, use of natural contours for roads and drainage networks, excavated drainage channels).</td>
<td>Preventive erosion control measures in place</td>
<td>Contractor</td>
<td>Random site inspection</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Water and Hydrology**

<table>
<thead>
<tr>
<th>Surface Water Quality</th>
<th>Prioritise the use of rainwater/stormwater over surface water/groundwater abstraction by using harvesting equipment and systems on site.</th>
<th>Water harvesting conducted</th>
<th>Contractor</th>
<th>Random inspection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restrict excavation activities during periods of intense rainfall. Use temporary bunding to reduce the risk of sediment, oil or chemical spills to the receiving waters.</td>
<td>No excavation during intense rainfall</td>
<td>Contractor</td>
<td>Random inspection</td>
<td></td>
</tr>
<tr>
<td>Carry out excavation works in cut off ditches to prevent water from entering excavations.</td>
<td>No water entering excavations</td>
<td>Contractor</td>
<td>Random inspection</td>
<td></td>
</tr>
</tbody>
</table>
## Mitigation, Management and Enhancement Measures

### Flora and Fauna

<table>
<thead>
<tr>
<th>Topic/ Potential Impact</th>
<th>Mitigation, Measures</th>
<th>Management and Enhancement</th>
<th>Means of Verification</th>
<th>Responsibility</th>
<th>Monitoring Procedure</th>
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</thead>
<tbody>
<tr>
<td>Reuse wastewater wherever feasible.</td>
<td>Wastewater reused</td>
<td>Contractor</td>
<td>Random inspection site</td>
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#### Flora and Fauna

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<th>Responsibility</th>
<th>Monitoring Procedure</th>
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<tr>
<td>Areas of high ecological value</td>
<td>Assess the occurrence of protected areas and/or natural/critical habitats at and around the construction site. Avoid these areas where possible through traffic management and site setup.</td>
<td>areas of ecological value avoided</td>
<td>Contractor/ PIA</td>
<td>Random inspection site</td>
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<table>
<thead>
<tr>
<th>Topic/ Potential Impact</th>
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<th>Management and Enhancement</th>
<th>Means of Verification</th>
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<th>Monitoring Procedure</th>
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</thead>
<tbody>
<tr>
<td>Site Clearance- Vegetation removal and habitat disturbance</td>
<td>Limit vegetation clearing to areas within the site boundary where it is absolutely necessary.</td>
<td>Vegetation clearing minimal</td>
<td>Contractor</td>
<td>Random inspection site</td>
<td></td>
</tr>
<tr>
<td>Avoid clearing mature trees.</td>
<td>No mature trees cleared</td>
<td>Contractor</td>
<td>Random inspection site</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avoid off-road vehicle traffic. Use existing roads.</td>
<td>No off-road traffic</td>
<td>Contractor</td>
<td>Random inspection site</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ensure revegetation of cleared areas where possible after construction using native species.</td>
<td>Revegetation completed</td>
<td>Contractor/ PIA</td>
<td>One-time inspection after construction</td>
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<tr>
<td>Stakeholder Engagement and Grievance Mechanism</td>
<td>Engage/ communicate with communities and plan sufficient time for participation. Ensure regular consultations with the local authorities and communities regarding the management of construction.</td>
<td>Minutes of Meetings</td>
<td>PIA/ Contractor</td>
<td>Review</td>
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</table>

<table>
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<th>Monitoring Procedure</th>
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<tbody>
<tr>
<td>Local Employment &amp; Procurement</td>
<td>Ensure local communities are preferred for the supply of goods and services to the Project and Project personnel, where appropriate.</td>
<td>Local Procurement and Employment Records</td>
<td>Contractor</td>
<td>Review procurement and employment rules and records</td>
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### Topic/ Potential Impact

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<tbody>
<tr>
<td>Engage with the local community and potential affected households to understand their needs and identify the risk of damage to their livelihood basis through the Project (e.g. take of pastureland, lack of access to water).</td>
<td></td>
<td></td>
<td>Minutes of Meetings</td>
<td>Contractor/ PIA</td>
<td>Review and meeting minutes</td>
</tr>
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</table>

### Community Health and Safety

| Ensure all contractors implement codes of conduct concerning employment and workforce behaviour (including but not limited to safety rules, zero tolerance for substance abuse, environmental sensitivity of the area, dangers of sexually transmissible diseases and HIV/AIDS, gender equality and sexual harassment, respect for the beliefs and customs of the populations and community relations in general). |
| In case of security personnel at the site, ensure proper training and in the use of force and appropriate conduct toward workers and affected communities |
| Workers Code of Conduct | Contractor/ PIA | Worker interviews, Review of grievance register |

### Cultural Heritage

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</tr>
</thead>
<tbody>
<tr>
<td>Ensure all chance finds of cultural heritage (e.g. graves, old ceramic, old building fragments) are reported immediately to the relevant authority. If possible, avoid excavation in the ultimate neighbourhood of a chance find, fence the chance find and await instructions from the competent authority.</td>
<td></td>
<td></td>
<td>Training records, records about chance fiends</td>
<td>Contractor/ PIA</td>
<td>Random site inspection</td>
</tr>
</tbody>
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German Financial Cooperation with Republic of Somaliland
“WATER SUPPLY & BASIC SANITATION AND SUSTAINABLE LAND MANAGEMENT”

Bidding Documents
for

Procurement for Works Contract C1 (2 Lots)

Lot A – SS dam sites SS01 (Geed Abera), SS03 (Daanyaaale), SS04 (Arabsiyoyo) and
Lot B – SS dam sites SS07 (Beeyo Liibaan), SS13 (Caro Yanbo), SS 16 (Geesdheer)

Part 3 – Conditions of Contract

Tender Procedures: Two Envelope Post-qualification

Employer: Ministry of Agricultural Development (MoAD)

November 2019

Project ID: BMZ No. 32642 / 2015 67 924
Summary

PART 1 – BIDDING PROCEDURES

Section I. Instructions to Bidders (ITB)

This Section provides relevant information to help Bidders prepare their bids. Information is also provided on the submission, opening, and evaluation of bids and on the award of Contracts. Section I contains provisions that are to be used without modification.

Section II. Qualification and Bid Data Sheet (BDS)

This Section includes provisions that are specific to each procurement and that supplement Section I, Instructions to Bidders.

Section III. Qualification and Evaluation Criteria (without Prequalification)

This Section specifies the criteria to determine the lowest evaluated bid and to ascertain the continued qualification of the Bidder to perform the contract.

Section IV. Qualification and Bidding Forms

This Section includes the forms which are to be completed by the Bidder and submitted as part of his Bid.

Section V. Eligible Countries

This Section contains information regarding eligible countries.

Section VI. KfW Policy – Corrupt and Fraudulent Practices – Social and Environmental Responsibility

This Section provides the Bidders with the reference to the KfW policy in regard to corrupt and fraudulent practices applicable to this process as well as Social and Environmental Responsibility.

PART 2 – WORKS REQUIREMENTS

Section VII. Works Requirements

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PART 3 – CONDITIONS OF CONTRACT AND CONTRACT FORMS

Section VIII. General Conditions (GC)

This Section contains the general clauses to be applied in all contracts. The text of the clauses in this Section shall not be modified.

Section IX. Particular Conditions (PC)

This Section consists of Part A, Contract Data, which contains data, and Part B, Specific Provisions, which contains clauses specific to each contract. The contents of this Section supplement the General Conditions and shall be prepared by the Employer.

Section X. Contract Forms

This Section contains forms which, once completed, will form part of the Contract. The forms for Performance Security and if required, Environmental, Social, Health and Safety (ESHS) Performance Security, and Advance Payment Security, when required, shall only be completed by the successful Bidder after contract award.
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Section VIII. General Conditions (GC)

The General Conditions that follow are the Banks Harmonized Edition of the Conditions of Contract for Construction prepared and copyrighted by the International Federation of Consulting Engineers (Fédération Internationale des Ingénieurs-Consulpts, or FIDIC), FIDIC 2010-All rights reserved. This publication is exclusive for the use of KfW's Beneficiaries and their project implementing agencies as provided under the License Agreement between the KfW Development Bank and FIDIC, and, consequently, no part of this publication may be reproduced, translated, adapted, stored in a retrieval system or communicated, in any form or by any means, whether mechanical, electronic, magnetic, photocopying, recording or otherwise, without prior permission in writing from FIDIC, except by the Employer identified above and only for the exclusive purpose of preparing these Standard Bidding Documents for the Contract also identified above.

[This section should not be modified and any modification on the General Conditions should be specified in Section IX, Particular Conditions]
General Conditions


1.1 Definitions

In the Conditions of Contract ("these Conditions"), which include Particular Conditions, Parts A and B, and these General Conditions, the following words and expressions shall have the meanings stated. Words indicating persons or parties include corporations and other legal entities, except where the context requires otherwise.

1.1.1 The Contract

1.1.1.1 “Contract” means the Contract Agreement, the Letter of Acceptance, the Letter of Tender, these Conditions, the Specification, the Drawings, the Schedules, and the further documents (if any) which are listed in the Contract Agreement or in the Letter of Acceptance.

1.1.1.2 “Contract Agreement” means the contract agreement referred to in Sub-Clause 1.6 [Contract Agreement].

1.1.1.3 “Letter of Acceptance” means the letter of formal acceptance, signed by the Employer, including any annexed memoranda comprising agreements between and signed by both Parties. If there is no such letter of acceptance, the expression “Letter of Acceptance” means the Contract Agreement and the date of issuing or receiving the Letter of Acceptance means the date of signing the Contract Agreement.

1.1.1.4 “Letter of Tender” means the document entitled letter of tender or letter of Bid, which was completed by the Contractor and includes the signed offer to the Employer for the Works.

1.1.1.5 “Specification” means the document entitled specification, as included in the Contract, and any additions and modifications to the specification in accordance with the Contract. Such document specifies the Works.

1.1.1.6 “Drawings” means the drawings of the Works, as included in the Contract, and any additional and modified drawings issued by (or on behalf of) the Employer in accordance with the Contract.

1.1.1.7 “Schedules” means the document(s) entitled schedules, completed by the Contractor and submitted with the Letter of Tender, as included in the Contract. Such document may include the Bill of Quantities, data, lists, and schedules of rates and/or prices.

1.1.1.8 “Tender” means the Letter of Tender and all other documents which the Contractor submitted with the Letter of Tender, as included in the Contract.

1.1.1.9 “Bill of Quantities”, “Daywork Schedule” and “Schedule of Payment Currencies” mean the documents so named (if any) which are comprised in the Schedules.

1.1.1.10 “Contract Data” means the pages completed by the Employer entitled contract data which constitute Part A of the Particular Conditions.
1.1.2 Parties and Persons

1.1.2.1 “Party” means the Employer or the Contractor, as the context requires.

1.1.2.2 “Employer” means the person named as employer in the Contract Data and the legal successors in title to this person.

1.1.2.3 “Contractor” means the person(s) named as contractor in the Letter of Tender accepted by the Employer and the legal successors in title to this person(s).

1.1.2.4 “Engineer” means the person appointed by the Employer to act as the Engineer for the purposes of the Contract and named in the Contract Data, or other person appointed from time to time by the Employer and notified to the Contractor under Sub-Clause 3.4 [Replacement of the Engineer].

1.1.2.5 “Contractor’s Representative” means the person named by the Contractor in the Contract or appointed from time to time by the Contractor under Sub-Clause 4.3 [Contractor’s Representative], who acts on behalf of the Contractor.

1.1.2.6 “Employer’s Personnel” means the Engineer, the assistants referred to in Sub-Clause 3.2 [Delegation by the Engineer] and all other staff, labour and other employees of the Engineer and of the Employer; and any other personnel notified to the Contractor, by the Employer or the Engineer, as Employer’s Personnel.

1.1.2.7 “Contractor’s Personnel” means the Contractor’s Representative and all personnel whom the Contractor utilises on Site, who may include the staff, labour and other employees of the Contractor and of each Subcontractor; and any other personnel assisting the Contractor in the execution of the Works.

1.1.2.8 “Subcontractor” means any person named in the Contract as a subcontractor, or any person appointed as a subcontractor, for a part of the Works; and the legal successors in title to each of these persons.

1.1.2.9 “DB” means the person or three persons appointed under Sub-Clause 20.2 [Appointment of the Dispute Board] or Sub-Clause 20.3 [Failure to Agree on the Composition of the Dispute Board]

1.1.2.10 “FIDIC” means the Fédération Internationale des Ingénieurs-Conseils, the international federation of consulting engineers.

1.1.2.11 “Bank” means the financing institution (if any) named in the Contract Data.

1.1.2.12 “Borrower” means the person (if any) named as the borrower in the Contract Data.

1.1.3 Dates, Tests, Periods and Completion

1.1.3.1 “Base Date” means the date 28 days prior to the latest date for submission of the Tender.
1.1.3.2 “Commencement Date” means the date notified under Sub-Clause 8.1 [Commencement of Works].

1.1.3.3 “Time for Completion” means the time for completing the Works or a Section (as the case may be) under Sub-Clause 8.2 [Time for Completion], as stated in the Contract Data (with any extension under Sub-Clause 8.4 [Extension of Time for Completion]), calculated from the Commencement Date.

1.1.3.4 “Tests on Completion” means the tests which are specified in the Contract or agreed by both Parties or instructed as a Variation, and which are carried out under Clause 9 [Tests on Completion] before the Works or a Section (as the case may be) are taken over by the Employer.

1.1.3.5 “Taking-Over Certificate” means a certificate issued under Clause 10 [Employer’s Taking Over].

1.1.3.6 “Tests after Completion” means the tests (if any) which are specified in the Contract and which are carried out in accordance with the Specification after the Works or a Section (as the case may be) are taken over by the Employer.

1.1.3.7 “Defects Notification Period” means the period for notifying defects in the Works or a Section (as the case may be) under Sub-Clause 11.1 [Completion of Outstanding Work and Remediying Defects], which extends over 365 days except if otherwise stated in the Contract Data (with any extension under Sub-Clause 11.3 [Extension of Defects Notification Period]), calculated from the date on which the Works or Section is completed as certified under Sub-Clause 10.1 [Taking Over of the Works and Sections].

1.1.3.8 “Performance Certificate” means the certificate issued under Sub-Clause 11.9 [Performance Certificate].

1.1.3.9 “Day” means a calendar day and “year” means 365 days.

1.1.4 Money and Payments

1.1.4.1 “Accepted Contract Amount” means the amount accepted in the Letter of Acceptance for the execution and completion of the Works and the remedying of any defects.

1.1.4.2 “Contract Price” means the price defined in Sub-Clause 14.1 [The Contract Price], and includes adjustments in accordance with the Contract.

1.1.4.3 “Cost” means all expenditure reasonably incurred (or to be incurred) by the Contractor, whether on or off the Site, including overhead and similar charges, but does not include profit.

1.1.4.4 “Final Payment Certificate” means the payment certificate issued under Sub-Clause 14.13 [Issue of Final Payment Certificate].

1.1.4.5 “Final Statement” means the statement defined in Sub-Clause 14.11 [Application for Final Payment Certificate].

1.1.4.6 “Foreign Currency” means a currency in which part (or all) of the Contract Price is payable, but not the Local Currency.
1.1.4.7 “Interim Payment Certificate” means a payment certificate issued under Clause 14 [Contract Price and Payment], other than the Final Payment Certificate.

1.1.4.8 “Local Currency” means the currency of the Country.

1.1.4.9 “Payment Certificate” means a payment certificate issued under Clause 14 [Contract Price and Payment].

1.1.4.10 “Provisional Sum” means a sum (if any) which is specified in the Contract as a provisional sum, for the execution of any part of the Works or for the supply of Plant, Materials or services under Sub-Clause 13.5 [Provisional Sums].

1.1.4.11 “Retention Money” means the accumulated retention moneys which the Employer retains under Sub-Clause 14.3 [Application for Interim Payment Certificates] and pays under Sub-Clause 14.9 [Payment of Retention Money].

1.1.4.12 “Statement” means a statement submitted by the Contractor as part of an application, under Clause 14 [Contract Price and Payment], for a payment certificate.

1.1.5 Works and Goods

1.1.5.1 “Contractor’s Equipment” means all apparatus, machinery, vehicles and other things required for the execution and completion of the Works and the remedying of any defects. However, Contractor’s Equipment excludes Temporary Works, Employer’s Equipment (if any), Plant, Materials and any other things intended to form or forming part of the Permanent Works.

1.1.5.2 “Goods” means Contractor’s Equipment, Materials, Plant and Temporary Works, or any of them as appropriate.

1.1.5.3 “Materials” means things of all kinds (other than Plant) intended to form or forming part of the Permanent Works, including the supply-only materials (if any) to be supplied by the Contractor under the Contract.

1.1.5.4 “Permanent Works” means the permanent works to be executed by the Contractor under the Contract.

1.1.5.5 “Plant” means the apparatus, machinery and other equipment intended to form or forming part of the Permanent Works, including vehicles purchased for the Employer and relating to the construction or operation of the Works.

1.1.5.6 “Section” means a part of the Works specified in the Contract Data as a Section (if any).

1.1.5.7 “Temporary Works” means all temporary works of every kind (other than Contractor’s Equipment) required on Site for the execution and completion of the Permanent Works and the remedying of any defects.

1.1.5.8 “Works” mean the Permanent Works and the Temporary Works, or either of them as appropriate.

1.1.6 Other Definitions

1.1.6.1 “Contractor’s Documents” means the calculations, computer programs and other software, drawings, manuals, models
and other documents of a technical nature (if any) supplied by the Contractor under the Contract.

1.1.6.2 “Country” means the country in which the Site (or most of it) is located, where the Permanent Works are to be executed.

1.1.6.3 “Employer’s Equipment” means the apparatus, machinery and vehicles (if any) made available by the Employer for the use of the Contractor in the execution of the Works, as stated in the Specification; but does not include Plant which has not been taken over by the Employer.

1.1.6.4 “Force Majeure” is defined in Clause 19 [Force Majeure].

1.1.6.5 “Laws” means all national (or state) legislation, statutes, ordinances and other laws, and regulations and by-laws of any legally constituted public authority.

1.1.6.6 “Performance Security” means the security (or securities, if any) under Sub-Clause 4.2 [Performance Security].

1.1.6.7 “Site” means the places where the Permanent Works are to be executed, including storage and working areas, and to which Plant and Materials are to be delivered, and any other places as may be specified in the Contract as forming part of the Site.

1.1.6.8 “Unforeseeable” means not reasonably foreseeable by an experienced contractor by the Base Date.

1.1.6.9 “Variation” means any change to the Works, which is instructed or approved as a variation under Clause 13 [Variations and Adjustments].

1.1.6.10 “Notice of Dissatisfaction” means the notice given by either Party to the other under Sub-Clause 20.4 [Obtaining Dispute Board’s Decision] indicating its dissatisfaction and intention to commence arbitration.

1.2 Interpretation

In the Contract, except where the context requires otherwise:

(a) Words indicating one gender include all genders;

(b) Words indicating the singular also include the plural and words indicating the plural also include the singular;

(c) Provisions including the word “agree”, “agreed” or “agreement” require the agreement to be recorded in writing;

(d) “Written” or “in writing” means hand-written, type-written, printed or electronically made, and resulting in a permanent record; and

(e) The word “tender” is synonymous with “Bid” and “tenderer” with “Bidder” and the words “tender documents” with “bidding documents.

The marginal words and other headings shall not be taken into consideration in the interpretation of these Conditions.
In these Conditions, provisions including the expression "Cost plus profit" require this profit to be one-twentieth (5%) of this Cost unless otherwise indicated in the Contract Data.

1.3 Communications

Wherever these Conditions provide for the giving or issuing of approvals, certificates, consents, determinations, notices, requests and discharges, these communications shall be:

(a) In writing and delivered by hand (against receipt), sent by mail or courier, or transmitted using any of the agreed systems of electronic transmission as stated in the Contract Data; and

(b) Delivered, sent or transmitted to the address for the recipient’s communications as stated in the Contract Data. However:

(i) If the recipient gives notice of another address, communications shall thereafter be delivered accordingly; and

(ii) If the recipient has not stated otherwise when requesting an approval or consent, it may be sent to the address from which the request was issued.

Approvals, certificates, consents and determinations shall not be unreasonably withheld or delayed. When a certificate is issued to a Party, the certifier shall send a copy to the other Party. When a notice is issued to a Party, by the other Party or the Engineer, a copy shall be sent to the Engineer or the other Party, as the case may be.

1.4 Law and Language

The Contract shall be governed by the law of the country or other jurisdiction stated in the Contract Data.

The ruling language of the Contract shall be that stated in the Contract Data.

The language for communications shall be that stated in the Contract Data. If no language is stated there, the language for communications shall be the ruling language of the Contract.

1.5 Priority of Documents

The documents forming the Contract are to be taken as mutually explanatory of one another. For the purposes of interpretation, the priority of the documents shall be in accordance with the following sequence:

(a) The Contract Agreement (if any);
(b) The Letter of Acceptance;
(c) The Letter of Tender;
(d) The Particular Conditions – Part A;
(e) The Particular Conditions – Part B;
(f) These General Conditions;
(g) The Specification;
(h) The Drawings; and
1.6 Contract Agreement

The Parties shall enter into a Contract Agreement within 28 days after the Contractor receives the Letter of Acceptance, unless the Particular Conditions establish otherwise. The Contract Agreement shall be based upon the form annexed to the Particular Conditions. The costs of stamp duties and similar charges (if any) imposed by law in connection with entry into the Contract Agreement shall be borne by the Employer.

1.7 Assignment

Neither Party shall assign the whole or any part of the Contract or any benefit or interest in or under the Contract. However, either Party:

(a) May assign the whole or any part with the prior agreement of the other Party, at the sole discretion of such other Party, and

(b) May, as security in favour of a bank or financial institution, assign its right to any moneys due, or to become due, under the Contract.

1.8 Care and Supply of Documents

The Specification and Drawings shall be in the custody and care of the Employer. Unless otherwise stated in the Contract, two copies of the Contract and of each subsequent Drawing shall be supplied to the Contractor, who may make or request further copies at the cost of the Contractor.

Each of the Contractor's Documents shall be in the custody and care of the Contractor, unless and until taken over by the Employer. Unless otherwise stated in the Contract, the Contractor shall supply to the Engineer six copies of each of the Contractor's Documents.

The Contractor shall keep, on the Site, a copy of the Contract, publications named in the Specification, the Contractor's Documents (if any), the Drawings and Variations and other communications given under the Contract. The Employer's Personnel shall have the right of access to all these documents at all reasonable times.

If a Party becomes aware of an error or defect in a document which was prepared for use in executing the Works, the Party shall promptly give notice to the other Party of such error or defect.

1.9 Delayed Drawings or Instructions

The Contractor shall give notice to the Engineer whenever the Works are likely to be delayed or disrupted if any necessary drawing or instruction is not issued to the Contractor within a particular time, which shall be reasonable. The notice shall include details of the necessary drawing or instruction, details of why and by when it should be issued, and the nature and amount of the delay or disruption likely to be suffered if it is late.

If the Contractor suffers delay and/or incurs Cost as a result of a failure of the Engineer to issue the notified drawing or instruction within a time which is reasonable and is specified in the notice with supporting details, the Contractor shall give a further notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:
(a) An extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion]; and

(b) Payment of any such Cost plus profit, which shall be included in the Contract Price.

After receiving this further notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

However, if and to the extent that the Engineer’s failure was caused by any error or delay by the Contractor, including an error in, or delay in the submission of, any of the Contractor’s Documents, the Contractor shall not be entitled to such extension of time, Cost or profit.

1.10 Employer’s Use of Contractor’s Documents

As between the Parties, the Contractor shall retain the copyright and other intellectual property rights in the Contractor’s Documents and other design documents made by (or on behalf of) the Contractor.

The Contractor shall be deemed (by signing the Contract) to give to the Employer a non-terminable transferable non-exclusive royalty-free licence to copy, use and communicate the Contractor’s Documents, including making and using modifications of them. This licence shall:

(a) Apply throughout the actual or intended working life (whichever is longer) of the relevant parts of the Works;

(b) Entitle any person in proper possession of the relevant part of the Works to copy, use and communicate the Contractor’s Documents for the purposes of completing, operating, maintaining, altering, adjusting, repairing and demolishing the Works; and

(c) In the case of Contractor’s Documents which are in the form of computer programs and other software, permit their use on any computer on the Site and other places as envisaged by the Contract, including replacements of any computers supplied by the Contractor.

The Contractor’s Documents and other design documents made by (or on behalf of) the Contractor shall not, without the Contractor’s consent, be used, copied or communicated to a third party by (or on behalf of) the Employer for purposes other than those permitted under this Sub-Clause.

1.11 Contractor’s Use of Employer’s Documents

As between the Parties, the Employer shall retain the copyright and other intellectual property rights in the Specification, the Drawings and other documents made by (or on behalf of) the Employer. The Contractor may, at his cost, copy, use, and obtain communication of these documents for the purposes of the Contract. They shall not, without the Employer’s consent, be copied, used or communicated to a third party by the Contractor, except as necessary for the purposes of the Contract.

1.12 Confidential Details

The Contractor’s and the Employer’s Personnel shall disclose all such confidential and other information as may be reasonably required in
order to verify compliance with the Contract and allow its proper implementation.

Each of them shall treat the details of the Contract as private and confidential, except to the extent necessary to carry out their respective obligations under the Contract or to comply with applicable Laws. Each of them shall not publish or disclose any particulars of the Works prepared by the other Party without the previous agreement of the other Party. However, the Contractor shall be permitted to disclose any publicly available information, or information otherwise required to establish his qualifications to compete for other projects.

1.13 Compliance with Laws

The Contractor shall, in performing the Contract, comply with applicable Laws. Unless otherwise stated in the Particular Conditions:

(a) The Employer shall have obtained (or shall obtain) the planning, zoning, building permit or similar permission for the Permanent Works, and any other permissions described in the Specification as having been (or to be) obtained by the Employer; and the Employer shall indemnify and hold the Contractor harmless against and from the consequences of any failure to do so; and

(b) The Contractor shall give all notices, pay all taxes, duties and fees, and obtain all permits, licences and approvals, as required by the Laws in relation to the execution and completion of the Works and the remedying of any defects; and the Contractor shall indemnify and hold the Employer harmless against and from the consequences of any failure to do so, unless the Contractor is impeded to accomplish these actions and shows evidence of its diligence.

1.14 Joint and Several Liability

If the Contractor constitutes (under applicable Laws) a joint venture, consortium or other unincorporated grouping of two or more persons:

(a) These persons shall be deemed to be jointly and severally liable to the Employer for the performance of the Contract;

(b) These persons shall notify the Employer of their leader who shall have authority to bind the Contractor and each of these persons; and

(c) The Contractor shall not alter its composition or legal status without the prior consent of the Employer.

1.15 Inspections and Audit by the Bank

The Contractor shall permit the Bank and/or persons appointed by the Bank to inspect the Site and/or the Contractor’s accounts and records relating to the performance of the Contract and to have such accounts and records audited by auditors appointed by the Bank if required by the Bank.

2. The Employer

2.1 Right of Access to the Site

The Employer shall give the Contractor right of access to, and possession of, all parts of the Site within the time (or times) stated in the Contract Data. The right and possession may not be exclusive to the Contractor. If, under the Contract, the Employer is required to give (to the Contractor) possession of any foundation, structure, plant or means of access, the Employer shall do so in the time and manner stated in
the Specification. However, the Employer may withhold any such right or possession until the Performance Security has been received.

If no such time is stated in the Contract Data, the Employer shall give the Contractor right of access to, and possession of, the Site within such times as required to enable the Contractor to proceed without disruption in accordance with the programme submitted under Sub-Clause 8.3 [Programme].

If the Contractor suffers delay and/or incurs Cost as a result of a failure by the Employer to give any such right or possession within such time, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

(a) An extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion]; and

(b) Payment of any such Cost plus profit, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

However, if and to the extent that the Employer's failure was caused by any error or delay by the Contractor, including an error in, or delay in the submission of, any of the Contractor's Documents, the Contractor shall not be entitled to such extension of time, Cost or profit.

2.2 Permits, Licences or Approvals

The Employer shall provide, at the request of the Contractor, such reasonable assistance as to allow the Contractor to obtain properly:

(a) Copies of the Laws of the Country which are relevant to the Contract but are not readily available, and

(b) Any permits, licences or approvals required by the Laws of the Country:

(i) Which the Contractor is required to obtain under Sub-Clause 1.13 [Compliance with Laws];

(ii) For the delivery of Goods, including clearance through customs, and

(iii) For the export of Contractor's Equipment when it is removed from the Site.

2.3 Employer's Personnel

The Employer shall be responsible for ensuring that the Employer's Personnel and the Employer's other contractors on the Site:

(a) Co-operate with the Contractor's efforts under Sub-Clause 4.6 [Co-operation]; and

(b) Take actions similar to those which the Contractor is required to take under sub-paragraphs (a), (b) and (c) of Sub-Clause 4.8 [Safety Procedures] and under Sub-Clause 4.18 [Protection of the Environment].
2.4 Employer’s Financial Arrangements

The Employer shall submit, before the Commencement Date and thereafter within 28 days after receiving any request from the Contractor, reasonable evidence that financial arrangements have been made and are being maintained which will enable the Employer to pay the Contract Price punctually (as estimated at that time) in accordance with Clause 14 [Contract Price and Payment]. Before the Employer makes any material change to his financial arrangements, the Employer shall give notice to the Contractor with detailed particulars.

In addition, if the Bank has notified to the Borrower that the Bank has suspended disbursements under its loan, which finances in whole or in part the execution of the Works, the Employer shall give notice of such suspension to the Contractor with detailed particulars, including the date of such notification, with a copy to the Engineer, within 7 days of the Borrower having received the suspension notification from the Bank. If alternative funds will be available in appropriate currencies to the Employer to continue making payments to the Contractor beyond a date 60 days after the date of Bank notification of the suspension, the Employer shall provide reasonable evidence in his notice of the extent to which such funds will be available.

2.5 Employer’s Claims

If the Employer considers himself to be entitled to any payment under any Clause of these Conditions or otherwise in connection with the Contract, and/or to any extension of the Defects Notification Period, the Employer or the Engineer shall give notice and particulars to the Contractor. However, notice is not required for payments due under Sub-Clause 4.19 [Electricity, Water and Gas], under Sub-Clause 4.20 [Employer’s Equipment and Free-Issue Materials], or for other services requested by the Contractor.

The notice shall be given as soon as practicable and no longer than 28 days after the Employer became aware, or should have become aware, of the event or circumstances giving rise to the claim. A notice relating to any extension of the Defects Notification Period shall be given before the expiry of such period.

The particulars shall specify the Clause or other basis of the claim, and shall include substantiation of the amount and/or extension to which the Employer considers himself to be entitled in connection with the Contract. The Engineer shall then proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) the amount (if any) which the Employer is entitled to be paid by the Contractor, and/or (ii) the extension (if any) of the Defects Notification Period in accordance with Sub-Clause 11.3 [Extension of Defects Notification Period].

This amount may be included as a deduction in the Contract Price and Payment Certificates. The Employer shall only be entitled to set off against or make any deduction from an amount certified in a Payment Certificate, or to otherwise claim against the Contractor, in accordance with this Sub-Clause.

3. The Engineer

3.1 Engineer’s Duties and Authority

The Employer shall appoint the Engineer who shall carry out the duties assigned to him in the Contract. The Engineer’s staff shall include suitably qualified engineers and other professionals who are competent to carry out these duties.
The Engineer shall have no authority to amend the Contract.

The Engineer may exercise the authority attributable to the Engineer as specified in or necessarily to be implied from the Contract. If the Engineer is required to obtain the approval of the Employer before exercising a specified authority, the requirements shall be as stated in the Particular Conditions. The Employer shall promptly inform the Contractor of any change to the authority attributed to the Engineer.

However, whenever the Engineer exercises a specified authority for which the Employer’s approval is required, then (for the purposes of the Contract) the Employer shall be deemed to have given approval.

Except as otherwise stated in these Conditions:

(a) Whenever carrying out duties or exercising authority, specified in or implied by the Contract, the Engineer shall be deemed to act for the Employer;

(b) The Engineer has no authority to relieve either Party of any duties, obligations or responsibilities under the Contract;

(c) Any approval, check, certificate, consent, examination, inspection, instruction, notice, proposal, request, test, or similar act by the Engineer (including absence of disapproval) shall not relieve the Contractor from any responsibility he has under the Contract, including responsibility for errors, omissions, discrepancies and non-compliances; and

(d) Any act by the Engineer in response to a Contractor’s request except as otherwise expressly specified shall be notified in writing to the Contractor within 28 days of receipt.

The following provisions shall apply:

The Engineer shall obtain the specific approval of the Employer before taking action under the following Sub-Clauses of these Conditions:

(a) Sub-Clause 4.12: agreeing or determining an extension of time and/or additional cost;

(b) Sub-Clause 13.1: instructing a Variation, except;
   (i) In an emergency situation as determined by the Engineer, or
   (ii) If such a Variation would increase the Accepted Contract Amount by less than the percentage specified in the Contract Data;

(c) Sub-Clause 13.3: Approving a proposal for Variation submitted by the Contractor in accordance with Sub Clause 13.1 or 13.2;

(d) Sub-Clause 13.4: Specifying the amount payable in each of the applicable currencies

Notwithstanding the obligation, as set out above, to obtain approval, if, in the opinion of the Engineer, an emergency occurs affecting the safety
of life or of the Works or of adjoining property, he may, without relieving
the Contractor of any of his duties and responsibility under the Contract,
instruc the Contractor to execute all such work or to do all such things
as may, in the opinion of the Engineer, be necessary to abate or reduce
the risk. The Contractor shall forthwith comply, despite the absence
of approval of the Employer, with any such instruction of the Engineer.
The Engineer shall determine an addition to the Contract Price, in
respect of such instruction, in accordance with Clause 13 and shall
notify the Contractor accordingly, with a copy to the Employer.

The Engineer may from time to time assign duties and delegate
authority to assistants, and may also revoke such assignment or
delegation. These assistants may include a resident engineer, and/or
independent inspectors appointed to inspect and/or test items of Plant
and/or Materials. The assignment, delegation or revocation shall be in
writing and shall not take effect until copies have been received by both
Parties. However, unless otherwise agreed by both Parties, the
Engineer shall not delegate the authority to determine any matter in
accordance with Sub-Clause 3.5 [Determinations].

Each assistant, to whom duties have been assigned or authority has
been delegated, shall only be authorised to issue instructions to the
Contractor to the extent defined by the delegation. Any approval, check,
certificate, consent, examination, inspection, instruction, notice,
proposal, request, test, or similar act by an assistant, in accordance with
the delegation, shall have the same effect as though the act had been
an act of the Engineer. However:

(a) Any failure to disapprove any work, Plant or Materials shall not
constitute approval, and shall therefore not prejudice the right of
the Engineer to reject the work, Plant or Materials;

(b) If the Contractor questions any determination or instruction of an
assistant, the Contractor may refer the matter to the Engineer,
who shall promptly confirm, reverse or vary the determination or
instruction.

The Engineer may issue to the Contractor (at any time) instructions and
additional or modified Drawings which may be necessary for the
execution of the Works and the remedying of any defects, all in
accordance with the Contract. The Contractor shall only take
instructions from the Engineer, or from an assistant to whom the
appropriate authority has been delegated under this Clause. If an
instruction constitutes a Variation, Clause 13 [Variations and
Adjustments] shall apply.

The Contractor shall comply with the instructions given by the Engineer
or delegated assistant, on any matter related to the Contract. Whenever
practicable, their instructions shall be given in writing. If the Engineer or
a delegated assistant:

(a) Gives an oral instruction;

(b) Receives a written confirmation of the instruction, from (or on
behalf of) the Contractor, within two working days after giving the
instruction; and

(c) Does not reply by issuing a written rejection and/or instruction
within two working days after receiving the confirmation;
3.4 Replacement of the Engineer

If the Employer intends to replace the Engineer, the Employer shall, not less than 21 days before the intended date of replacement, give notice to the Contractor of the name, address and relevant experience of the intended replacement Engineer. If the Contractor considers the intended replacement Engineer to be unsuitable, he has the right to raise objection against him by notice to the Employer, with supporting particulars, and the Employer shall give full and fair consideration to this objection.

3.5 Determinations

Whenever these Conditions provide that the Engineer shall proceed in accordance with this Sub-Clause 3.5 to agree or determine any matter, the Engineer shall consult with each Party in an endeavour to reach agreement. If agreement is not achieved, the Engineer shall make a fair determination in accordance with the Contract, taking due regard of all relevant circumstances.

The Engineer shall give notice to both Parties of each agreement or determination, with supporting particulars, within 28 days from the receipt of the corresponding claim or request except when otherwise specified. Each Party shall give effect to each agreement or determination unless and until revised under Clause 20 [Claims, Disputes and Arbitration].

4. The Contractor

4.1 Contractor's General Obligations

The Contractor shall design (to the extent specified in the Contract), execute and complete the Works in accordance with the Contract and with the Engineer's instructions, and shall remedy any defects in the Works.

The Contractor shall provide the Plant and Contractor's Documents specified in the Contract, and all Contractor's Personnel, Goods, consumables and other things and services, whether of a temporary or permanent nature, required in and for this design, execution, completion and remedying of defects.

All equipment, material, and services to be incorporated in or required for the Works shall have their origin in any eligible source country as defined by the Bank.

The Contractor shall be responsible for the adequacy, stability and safety of all Site operations and of all methods of construction. Except to the extent specified in the Contract, the Contractor (i) shall be responsible for all Contractor's Documents, Temporary Works, and such design of each item of Plant and Materials as is required for the item to be in accordance with the Contract, and (ii) shall not otherwise be responsible for the design or specification of the Permanent Works.

The Contractor shall, whenever required by the Engineer, submit details of the arrangements and methods which the Contractor proposes to adopt for the execution of the Works. No significant alteration to these arrangements and methods shall be made without this having previously been notified to the Engineer.
If the Contract specifies that the Contractor shall design any part of the Permanent Works, then unless otherwise stated in the Particular Conditions:

(a) The Contractor shall submit to the Engineer the Contractor’s Documents for this part in accordance with the procedures specified in the Contract;

(b) These Contractor’s Documents shall be in accordance with the Specification and Drawings, shall be written in the language for communications defined in Sub-Clause 1.4 [Law and Language], and shall include additional information required by the Engineer to add to the Drawings for co-ordination of each Party’s designs;

(c) The Contractor shall be responsible for this part and it shall, when the Works are completed, be fit for such purposes for which the part is intended as are specified in the Contract; and

(d) Prior to the commencement of the Tests on Completion, the Contractor shall submit to the Engineer the “as-built” documents and, if applicable, operation and maintenance manuals in accordance with the Specification and in sufficient detail for the Employer to operate, maintain, dismantle, reassemble, adjust and repair this part of the Works. Such part shall not be considered to be completed for the purposes of taking-over under Sub-Clause 10.1 [Taking Over of the Works and Sections] until these documents and manuals have been submitted to the Engineer.

4.2 Performance Security

The Contractor shall obtain (at his cost) a Performance Security for proper performance, in the amount stated in the Contract Data and denominated in the currency(ies) of the Contract or in a freely convertible currency acceptable to the Employer. If an amount is not stated in the Contract Data, this Sub-Clause shall not apply.

The Contractor shall deliver the Performance Security to the Employer within 28 days after receiving the Letter of Acceptance, and shall send a copy to the Engineer. The Performance Security shall be issued by a reputable bank or financial institution selected by the Contractor, and shall be in the form annexed to the Particular Conditions, as stipulated by the Employer in the Contract Data, or in another form approved by the Employer.

The Contractor shall ensure that the Performance Security is valid and enforceable until the Contractor has executed and completed the Works and remedied any defects. If the terms of the Performance Security specify its expiry date, and the Contractor has not become entitled to receive the Performance Certificate by the date 28 days prior to the expiry date, the Contractor shall extend the validity of the Performance Security until the Works have been completed and any defects have been remedied.

The Employer shall not make a claim under the Performance Security, except for amounts to which the Employer is entitled under the Contract.

The Employer shall indemnify and hold the Contractor harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from a claim under the Performance Security to the extent to which the Employer was not entitled to make the claim.
The Employer shall return the Performance Security to the Contractor within 21 days after receiving a copy of the Performance Certificate.

Without limitation to the provisions of the rest of this Sub-Clause, whenever the Engineer determines an addition or a reduction to the Contract Price as a result of a change in cost and/or legislation, or as a result of a Variation, amounting to more than 25 percent of the portion of the Contract Price payable in a specific currency, the Contractor shall at the Engineer's request prompt increase, or may decrease, as the case may be, the value of the Performance Security in that currency by an equal percentage.

4.3 Contractor's Representative

The Contractor shall appoint the Contractor’s Representative and shall give him all authority necessary to act on the Contractor’s behalf under the Contract.

Unless the Contractor's Representative is named in the Contract, the Contractor shall, prior to the Commencement Date, submit to the Engineer for consent the name and particulars of the person the Contractor proposes to appoint as Contractor's Representative. If consent is withheld or subsequently revoked in terms of Sub-Clause 6.9 [Contractor’s Personnel], or if the appointed person fails to act as Contractor's Representative, the Contractor shall similarly submit the name and particulars of another suitable person for such appointment.

The Contractor shall not, without the prior consent of the Engineer, revoke the appointment of the Contractor's Representative or appoint a replacement.

The whole time of the Contractor’s Representative shall be given to directing the Contractor’s performance of the Contract. If the Contractor's Representative is to be temporarily absent from the Site during the execution of the Works, a suitable replacement person shall be appointed, subject to the Engineer’s prior consent, and the Engineer shall be notified accordingly.

The Contractor's Representative shall, on behalf of the Contractor, receive instructions under Sub-Clause 3.3 [Instructions of the Engineer].

The Contractor's Representative may delegate any powers, functions and authority to any competent person, and may at any time revoke the delegation. Any delegation or revocation shall not take effect until the Engineer has received prior notice signed by the Contractor's Representative, naming the person and specifying the powers, functions and authority being delegated or revoked.

The Contractor's Representative shall be fluent in the language for communications defined in Sub-Clause 1.4 [Law and Language]. If the Contractor’s Representative's delegates are not fluent in the said language, the Contractor shall make competent interpreters available during all working hours in a number deemed sufficient by the Engineer.

4.4 Subcontractors

The Contractor shall not subcontract the whole of the Works.

The Contractor shall be responsible for the acts or defaults of any Subcontractor, his agents or employees, as if they were the acts or defaults of the Contractor. Unless otherwise stated in the Particular Conditions:
(a) The Contractor shall not be required to obtain consent to suppliers solely of Materials, or to a subcontract for which the Subcontractor is named in the Contract;

(b) The prior consent of the Engineer shall be obtained to other proposed Subcontractors;

(c) The Contractor shall give the Engineer not less than 28 days’ notice of the intended date of the commencement of each Subcontractor’s work, and of the commencement of such work on the Site; and

(d) Each subcontract shall include provisions which would entitle the Employer to require the subcontract to be assigned to the Employer under Sub-Clause 4.5 [Assignment of Benefit of Subcontract] (if or when applicable) or in the event of termination under Sub-Clause 15.2 [Termination by Employer].

The Contractor shall ensure that the requirements imposed on the Contractor by Sub-Clause 1.12 [Confidential Details] apply equally to each Subcontractor.

Where practicable, the Contractor shall give fair and reasonable opportunity for contractors from the Country to be appointed as Subcontractors.

4.5 Assignment of Benefit of Subcontract

If a Subcontractor’s obligations extend beyond the expiry date of the relevant Defects Notification Period and the Engineer, prior to this date, instructs the Contractor to assign the benefit of such obligations to the Employer, then the Contractor shall do so. Unless otherwise stated in the assignment, the Contractor shall have no liability to the Employer for the work carried out by the Subcontractor after the assignment takes effect.

4.6 Co-operation

The Contractor shall, as specified in the Contract or as instructed by the Engineer, allow appropriate opportunities for carrying out work to:

(a) The Employer’s Personnel;

(b) Any other contractors employed by the Employer; and

(c) The personnel of any legally constituted public authorities;

who may be employed in the execution on or near the Site of any work not included in the Contract.

Any such instruction shall constitute a Variation if and to the extent that it causes the Contractor to suffer delays and/or to incur Unforeseeable Cost. Services for these personnel and other contractors may include the use of Contractor’s Equipment, Temporary Works or access arrangements which are the responsibility of the Contractor.

If, under the Contract, the Employer is required to give to the Contractor possession of any foundation, structure, plant or means of access in accordance with Contractor’s Documents, the Contractor shall submit such documents to the Engineer in the time and manner stated in the Specification.

4.7 Setting Out

The Contractor shall set out the Works in relation to original points, lines and levels of reference specified in the Contract or notified by the Engineer. The Contractor shall be responsible for the correct positioning...
of all parts of the Works, and shall rectify any error in the positions, levels, dimensions or alignment of the Works.

The Employer shall be responsible for any errors in these specified or notified items of reference, but the Contractor shall use reasonable efforts to verify their accuracy before they are used.

If the Contractor suffers delay and/or incurs Cost from executing work which was necessitated by an error in these items of reference, and an experienced contractor could not reasonably have discovered such error and avoided this delay and/or Cost, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor’s Claims] to:

(a) An extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion]; and

(b) Payment of any such Cost plus profit, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) whether and (if so) to what extent the error could not reasonably have been discovered, and (ii) the matters described in sub-paragraphs (a) and (b) above related to this extent.

4.8 Safety Procedures

The Contractor shall:

(a) Comply with all applicable safety regulations;

(b) Take care for the safety of all persons entitled to be on the Site;

(c) Use reasonable efforts to keep the Site and Works clear of unnecessary obstruction so as to avoid danger to these persons;

(d) Provide fencing, lighting, guarding and watching of the Works until completion and taking over under Clause 10 [Employer’s Taking Over]; and

(e) Provide any Temporary Works (including roadways, footways, guards and fences) which may be necessary, because of the execution of the Works, for the use and protection of the public and of owners and occupiers of adjacent land.

4.9 Quality Assurance

The Contractor shall institute a quality assurance system to demonstrate compliance with the requirements of the Contract. The system shall be in accordance with the details stated in the Contract. The Engineer shall be entitled to audit any aspect of the system.

Details of all procedures and compliance documents shall be submitted to the Engineer for information before each design and execution stage is commenced. When any document of a technical nature is issued to the Engineer, evidence of the prior approval by the Contractor himself shall be apparent on the document itself.
Compliance with the quality assurance system shall not relieve the Contractor of any of his duties, obligations or responsibilities under the Contract.

The Employer shall have made available to the Contractor for his information, prior to the Base Date, all relevant data in the Employer’s possession on sub-surface and hydrological conditions at the Site, including environmental aspects. The Employer shall similarly make available to the Contractor all such data which come into the Employer’s possession after the Base Date. The Contractor shall be responsible for interpreting all such data.

To the extent which was practicable (taking account of cost and time), the Contractor shall be deemed to have obtained all necessary information as to risks, contingencies and other circumstances which may influence or affect the Tender or Works. To the same extent, the Contractor shall be deemed to have inspected and examined the Site, its surroundings, the above data and other available information, and to have been satisfied before submitting the Tender as to all relevant matters, including (without limitation):

(a) The form and nature of the Site, including sub-surface conditions;
(b) The hydrological and climatic conditions;
(c) The extent and nature of the work and Goods necessary for the execution and completion of the Works and the remedying of any defects;
(d) The Laws, procedures and labour practices of the Country; and
(e) The Contractor’s requirements for access, accommodation, facilities, personnel, power, transport, water and other services.

The Contractor shall be deemed to:

(a) Have satisfied himself as to the correctness and sufficiency of the Accepted Contract Amount; and
(b) Have based the Accepted Contract Amount on the data, interpretations, necessary information, inspections, examinations and satisfaction as to all relevant matters referred to in Sub-Clause 4.10 [Site Data].

Unless otherwise stated in the Contract, the Accepted Contract Amount covers all the Contractor’s obligations under the Contract (including those under Provisional Sums, if any) and all things necessary for the proper execution and completion of the Works and the remedying of any defects.

In this Sub-Clause, “physical conditions” means natural physical conditions and man-made and other physical obstructions and pollutants, which the Contractor encounters at the Site when executing the Works, including sub-surface and hydrological conditions but excluding climatic conditions.
If the Contractor encounters adverse physical conditions which he considers to have been Unforeseeable, the Contractor shall give notice to the Engineer as soon as practicable.

This notice shall describe the physical conditions, so that they can be inspected by the Engineer, and shall set out the reasons why the Contractor considers them to be Unforeseeable. The Contractor shall continue executing the Works, using such proper and reasonable measures as are appropriate for the physical conditions, and shall comply with any instructions which the Engineer may give. If an instruction constitutes a Variation, Clause 13 [Variations and Adjustments] shall apply.

If and to the extent that the Contractor encounters physical conditions which are Unforeseeable, gives such a notice, and suffers delay and/or incurs Cost due to these conditions, the Contractor shall be entitled subject to notice under Sub-Clause 20.1 [Contractor’s Claims] to:

(a) An extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion]; and

(b) Payment of any such Cost, which shall be included in the Contract Price.

Upon receiving such notice and inspecting and/or investigating these physical conditions, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) whether and (if so) to what extent these physical conditions were Unforeseeable, and (ii) the matters described in sub-paragraphs (a) and (b) above related to this extent.

However, before additional Cost is finally agreed or determined under sub-paragraph (ii), the Engineer may also review whether other physical conditions in similar parts of the Works (if any) were more favourable than could reasonably have been foreseen when the Contractor submitted the Tender. If and to the extent that these more favourable conditions were encountered, the Engineer may proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine the reductions in Cost which were due to these conditions, which may be included (as deductions) in the Contract Price and Payment Certificates. However, the net effect of all adjustments under sub-paragraph (b) and all these reductions, for all the physical conditions encountered in similar parts of the Works, shall not result in a net reduction in the Contract Price.

The Engineer shall take account of any evidence of the physical conditions foreseen by the Contractor when submitting the Tender, which shall be made available by the Contractor, but shall not be bound by the Contractor’s interpretation of any such evidence.

4.13 Rights of Way and Facilities

Unless otherwise specified in the Contract the Employer shall provide effective access to and possession of the Site including special and/or temporary rights-of-way which are necessary for the Works. The Contractor shall obtain, at his risk and cost, any additional rights of way or facilities outside the Site which he may require for the purposes of the Works.
4.14 Avoidance of Interference

The Contractor shall not interfere unnecessarily or improperly with:

(a) The convenience of the public; or

(b) The access to and use and occupation of all roads and footpaths, irrespective of whether they are public or in the possession of the Employer or of others.

The Contractor shall indemnify and hold the Employer harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from any such unnecessary or improper interference.

4.15 Access Route

The Contractor shall be deemed to have been satisfied as to the suitability and availability of access routes to the Site at Base Date. The Contractor shall use reasonable efforts to prevent any road or bridge from being damaged by the Contractor’s traffic or by the Contractor’s Personnel. These efforts shall include the proper use of appropriate vehicles and routes.

Except as otherwise stated in these Conditions:

(a) The Contractor shall (as between the Parties) be responsible for any maintenance which may be required for his use of access routes;

(b) The Contractor shall provide all necessary signs or directions along access routes, and shall obtain any permission which may be required from the relevant authorities for his use of routes, signs and directions;

(c) The Employer shall not be responsible for any claims which may arise from the use or otherwise of any access route;

(d) The Employer does not guarantee the suitability or availability of particular access routes; and

(e) Costs due to non-suitability or non-availability, for the use required by the Contractor, of access routes shall be borne by the Contractor.

4.16 Transport of Goods

Unless otherwise stated in the Particular Conditions:

(a) The Contractor shall give the Engineer not less than 21 days’ notice of the date on which any Plant or a major item of other Goods will be delivered to the Site;

(b) The Contractor shall be responsible for packing, loading, transporting, receiving, unloading, storing and protecting all Goods and other things required for the Works; and

(c) The Contractor shall indemnify and hold the Employer harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from the transport of Goods, and shall negotiate and pay all claims arising from their transport.

4.17 Contractor’s Equipment

The Contractor shall be responsible for all Contractor’s Equipment. When brought on to the Site, Contractor’s Equipment shall be deemed to be exclusively intended for the execution of the Works. The Contractor shall not remove from the Site any major items of Contractor’s
Equipment without the consent of the Engineer. However, consent shall not be required for vehicles transporting Goods or Contractor’s Personnel off Site.

4.18 Protection of the Environment

The Contractor shall take all reasonable steps to protect the environment (both on and off the Site) and to limit damage and nuisance to people and property resulting from pollution, noise and other results of his operations.

The Contractor shall ensure that emissions, surface discharges and effluent from the Contractor’s activities shall not exceed the values stated in the Specification or prescribed by applicable Laws.

4.19 Electricity, Water and Gas

The Contractor shall, except as stated below, be responsible for the provision of all power, water and other services he may require for his construction activities and to the extent defined in the Specifications, for the tests.

The Contractor shall be entitled to use for the purposes of the Works such supplies of electricity, water, gas and other services as may be available on the Site and of which details and prices are given in the Specification. The Contractor shall, at his risk and cost, provide any apparatus necessary for his use of these services and for measuring the quantities consumed.

The quantities consumed and the amounts due (at these prices) for such services shall be agreed or determined by the Engineer in accordance with Sub-Clause 2.5 [Employer’s Claims] and Sub-Clause 3.5 [Determinations]. The Contractor shall pay these amounts to the Employer.

4.20 Employer’s Equipment and Free-Issue Materials

The Employer shall make the Employer’s Equipment (if any) available for the use of the Contractor in the execution of the Works in accordance with the details, arrangements and prices stated in the Specification. Unless otherwise stated in the Specification:

(a) The Employer shall be responsible for the Employer’s Equipment; except that

(b) The Contractor shall be responsible for each item of Employer’s Equipment whilst any of the Contractor’s Personnel is operating it, driving it, directing it or in possession or control of it.

The appropriate quantities and the amounts due (at such stated prices) for the use of Employer’s Equipment shall be agreed or determined by the Engineer in accordance with Sub-Clause 2.5 [Employer’s Claims] and Sub-Clause 3.5 [Determinations]. The Contractor shall pay these amounts to the Employer.

The Employer shall supply, free of charge, the “free-issue materials” (if any) in accordance with the details stated in the Specification. The Employer shall, at his risk and cost, provide these materials at the time and place specified in the Contract. The Contractor shall then visually inspect them, and shall promptly give notice to the Engineer of any shortage, defect or default in these materials. Unless otherwise agreed by both Parties, the Employer shall immediately rectify the notified shortage, defect or default.
After this visual inspection, the free-issue materials shall come under the care, custody and control of the Contractor. The Contractor’s obligations of inspection, care, custody and control shall not relieve the Employer of liability for any shortage, defect or default not apparent from a visual inspection.

4.21 Progress Reports

Unless otherwise stated in the Particular Conditions, monthly progress reports shall be prepared by the Contractor and submitted to the Engineer in six copies. The first report shall cover the period up to the end of the first calendar month following the Commencement Date. Reports shall be submitted monthly thereafter, each within 7 days after the last day of the period to which it relates.

Reporting shall continue until the Contractor has completed all work which is known to be outstanding at the completion date stated in the Taking-Over Certificate for the Works.

Each report shall include:

(a) Charts and detailed descriptions of progress, including each stage of design (if any), Contractor’s Documents, procurement, manufacture, delivery to Site, construction, erection and testing; and including these stages for work by each nominated Subcontractor (as defined in Clause 5 [Nominated Subcontractors]);

(b) Photographs showing the status of manufacture and of progress on the Site;

(c) For the manufacture of each main item of Plant and Materials, the name of the manufacturer, manufacture location, percentage progress, and the actual or expected dates of:

(i) Commencement of manufacture;

(ii) Contractor’s inspections;

(iii) Tests; and

(iv) Shipment and arrival at the Site;

(d) The details described in Sub-Clause 6.10 [Records of Contractor’s Personnel and Equipment];

(e) Copies of quality assurance documents, test results and certificates of Materials;

(f) List of notices given under Sub-Clause 2.5 [Employer’s Claims] and notices given under Sub-Clause 20.1 [Contractor’s Claims];

(g) Safety statistics, including details of any hazardous incidents and activities relating to environmental aspects and public relations; and

(h) Comparisons of actual and planned progress, with details of any events or circumstances which may jeopardise the completion in
accordance with the Contract, and the measures being (or to be) adopted to overcome delays.

4.22 Security of the Site

Unless otherwise stated in the Particular Conditions:

(a) The Contractor shall be responsible for keeping unauthorised persons off the Site, and

(b) Authorised persons shall be limited to the Contractor’s Personnel and the Employer’s Personnel; and to any other personnel notified to the Contractor, by the Employer or the Engineer, as authorised personnel of the Employer’s other contractors on the Site.

4.23 Contractor’s Operations on Site

The Contractor shall confine his operations to the Site, and to any additional areas which may be obtained by the Contractor and agreed by the Engineer as additional working areas. The Contractor shall take all necessary precautions to keep Contractor’s Equipment and Contractor’s Personnel within the Site and these additional areas, and to keep them off adjacent land.

During the execution of the Works, the Contractor shall keep the Site free from all unnecessary obstruction, and shall store or dispose of any Contractor's Equipment or surplus materials. The Contractor shall clear away and remove from the Site any wreckage, rubbish and Temporary Works which are no longer required.

Upon the issue of a Taking-Over Certificate, the Contractor shall clear away and remove, from that part of the Site and Works to which the Taking-Over Certificate refers, all Contractor’s Equipment, surplus material, wreckage, rubbish and Temporary Works. The Contractor shall leave that part of the Site and the Works in a clean and safe condition. However, the Contractor may retain on Site, during the Defects Notification Period, such Goods as are required for the Contractor to fulfil obligations under the Contract.

4.24 Fossils

All fossils, coins, articles of value or antiquity, and structures and other remains or items of geological or archaeological interest found on the Site shall be placed under the care and authority of the Employer. The Contractor shall take reasonable precautions to prevent Contractor's Personnel or other persons from removing or damaging any of these findings.

The Contractor shall, upon discovery of any such finding, promptly give notice to the Engineer, who shall issue instructions for dealing with it. If the Contractor suffers delay and/or incurs Cost from complying with the instructions, the Contractor shall give a further notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor’s Claims] to:

(a) An extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion]; and

(b) Payment of any such Cost, which shall be included in the Contract Price.

After receiving this further notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.
5. Nominated Subcontractors

5.1 Definition of “nominated Subcontractor”

In the Contract, “nominated Subcontractor” means a Subcontractor:

(a) Who is stated in the Contract as being a nominated Subcontractor; or

(b) Whom the Engineer, under Clause 13 [Variations and Adjustments], instructs the Contractor to employ as a Subcontractor subject to Sub-Clause 5.2 [Objection to Notification].

5.2 Objection to Nomination

The Contractor shall not be under any obligation to employ a nominated Subcontractor against whom the Contractor raises reasonable objection by notice to the Engineer as soon as practicable, with supporting particulars. An objection shall be deemed reasonable if it arises from (among other things) any of the following matters, unless the Employer agrees in writing to indemnify the Contractor against and from the consequences of the matter:

(a) There are reasons to believe that the Subcontractor does not have sufficient competence, resources or financial strength;

(b) The nominated Subcontractor does not accept to indemnify the Contractor against and from any negligence or misuse of Goods by the nominated Subcontractor, his agents and employees; or

(c) The nominated Subcontractor does not accept to enter into a subcontract which specifies that, for the subcontracted work (including design, if any), the nominated Subcontractor shall:

(i) Undertake to the Contractor such obligations and liabilities as will enable the Contractor to discharge his obligations and liabilities under the Contract;

(ii) Indemnify the Contractor against and from all obligations and liabilities arising under or in connection with the Contract and from the consequences of any failure by the Subcontractor to perform these obligations or to fulfil these liabilities; and

(iii) Be paid only if and when the Contractor has received from the Employer payments for sums due under the Subcontract referred to under Sub-Clause 5.3 [Payment to nominated Subcontractors].

5.3 Payments to nominated Subcontractors

The Contractor shall pay to the nominated Subcontractor the amounts shown on the nominated Subcontractor’s invoices approved by the Contractor which the Engineer certifies to be due in accordance with the subcontract. These amounts plus other charges shall be included in the Contract Price in accordance with sub-paragraph (b) of Sub-Clause 13.5 [Provisional Sums], except as stated in Sub-Clause 5.4 [Evidence of Payments].

5.4 Evidence of Payments

Before issuing a Payment Certificate which includes an amount payable to a nominated Subcontractor, the Engineer may request the Contractor to supply reasonable evidence that the nominated Subcontractor has received all amounts due in accordance with previous Payment Certificates, less applicable deductions for retention or otherwise. Unless the Contractor:
(a) Submits this reasonable evidence to the Engineer, or

(i) Satisfies the Engineer in writing that the Contractor is reasonably entitled to withhold or refuse to pay these amounts; and

(ii) Submits to the Engineer reasonable evidence that the nominated Subcontractor has been notified of the Contractor's entitlement,

then the Employer may (at his sole discretion) pay, direct to the nominated Subcontractor, part or all of such amounts previously certified (less applicable deductions) as are due to the nominated Subcontractor and for which the Contractor has failed to submit the evidence described in sub-paragraphs (a) or (b) above. The Contractor shall then repay, to the Employer, the amount which the nominated Subcontractor was directly paid by the Employer.

6. Staff and Labour

6.1 Engagement of Staff and Labour

Except as otherwise stated in the Specification, the Contractor shall make arrangements for the engagement of all staff and labour, local or otherwise, and for their payment, feeding, transport, and, when appropriate, housing.

The Contractor is encouraged, to the extent practicable and reasonable, to employ staff and labour with appropriate qualifications and experience from sources within the Country.

6.2 Rates of Wages and Conditions of Labour

The Contractor shall pay rates of wages, and observe conditions of labour, which are not lower than those established for the trade or industry where the work is carried out. If no established rates or conditions are applicable, the Contractor shall pay rates of wages and observe conditions which are not lower than the general level of wages and conditions observed locally by employers whose trade or industry is similar to that of the Contractor.

The Contractor shall inform the Contractor's Personnel about their liability to pay personal income taxes in the Country in respect of such of their salaries, wages, allowances and any benefits as are subject to tax under the Laws of the Country for the time being in force, and the Contractor shall perform such duties in regard to such deductions thereof as may be imposed on him by such Laws.

6.3 Persons in the Service of Employer

The Contractor shall not recruit, or attempt to recruit, staff and labour from amongst the Employer’s Personnel.

6.4 Labour Laws

The Contractor shall comply with all the relevant labour Laws applicable to the Contractor’s Personnel, including Laws relating to their employment, health, safety, welfare, immigration and emigration, and shall allow them all their legal rights.

The Contractor shall require his employees to obey all applicable Laws, including those concerning safety at work.
6.5 Working Hours

No work shall be carried out on the Site on locally recognised days of rest, or outside the normal working hours stated in the Contract Data, unless:

(a) Otherwise stated in the Contract;

(b) The Engineer gives consent; or

(c) The work is unavoidable, or necessary for the protection of life or property or for the safety of the Works, in which case the Contractor shall immediately advise the Engineer.

6.6 Facilities for Staff and Labour

Except as otherwise stated in the Specification, the Contractor shall provide and maintain all necessary accommodation and welfare facilities for the Contractor’s Personnel. The Contractor shall also provide facilities for the Employer’s Personnel as stated in the Specification.

The Contractor shall not permit any of the Contractor’s Personnel to maintain any temporary or permanent living quarters within the structures forming part of the Permanent Works.

6.7 Health and Safety

The Contractor shall at all times take all reasonable precautions to maintain the health and safety of the Contractor’s Personnel. In collaboration with local health authorities, the Contractor shall ensure that medical staff, first aid facilities, sick bay and ambulance service are available at all times at the Site and at any accommodation for Contractor’s and Employer’s Personnel, and that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics.

The Contractor shall appoint an accident prevention officer at the Site, responsible for maintaining safety and protection against accidents. This person shall be qualified for this responsibility, and shall have the authority to issue instructions and take protective measures to prevent accidents. Throughout the execution of the Works, the Contractor shall provide whatever is required by this person to exercise this responsibility and authority.

The Contractor shall send, to the Engineer, details of any accident as soon as practicable after its occurrence. The Contractor shall maintain records and make reports concerning health, safety and welfare of persons, and damage to property, as the Engineer may reasonably require.

HIV-AIDS Prevention. The Contractor shall conduct an HIV-AIDS awareness programme via an approved service provider, and shall undertake such other measures as are specified in this Contract to reduce the risk of the transfer of the HIV virus between and among the Contractor’s Personnel and the local community, to promote early diagnosis and to assist affected individuals.

The Contractor shall throughout the contract (including the Defects Notification Period): (i) conduct Information, Education and Communication (IEC) campaigns, at least every other month, addressed to all the Site staff and labour (including all the Contractor’s employees, all Subcontractors and any other Contractor’s or Employer’s personnel employees, and all truck drivers and crew making deliveries to Site for construction activities) and to the immediate local communities,
concerning the risks, dangers and impact, and appropriate avoidance
behaviour with respect to, of Sexually Transmitted Diseases (STD) - or
Sexually Transmitted Infections (STI) in general and HIV/AIDS in
particular; (ii) provide male or female condoms for all Site staff and labour
as appropriate; and (iii) provide for STI and HIV/AIDS screening,
diagnosis, counselling and referral to a dedicated national STI and
HIV/AIDS programme, (unless otherwise agreed) of all Site staff and
labour.

The Contractor shall include in the programme to be submitted for the
execution of the Works under Sub-Clause 8.3 an alleviation programme
for Site staff and labour and their families in respect of Sexually
Transmitted Infections (STI) and Sexually Transmitted Diseases (STD)
including HIV/AIDS. The STI, STD and HIV/AIDS alleviation programme
shall indicate when, how and at what cost the Contractor plans to satisfy
the requirements of this Sub-Clause and the related specification. For
each component, the programme shall detail the resources to be
provided or utilised and any related sub-contracting proposed. The
programme shall also include provision of a detailed cost estimate with
supporting documentation. Payment to the Contractor for preparation
and implementation this programme shall not exceed the Provisional
Sum dedicated for this purpose.

6.8 Contractor’s
Superintendence
Throughout the execution of the Works, and as long thereafter as is
necessary to fulfil the Contractor’s obligations, the Contractor shall
provide all necessary superintendence to plan, arrange, direct, manage,
inspect and test the work.

Superintendence shall be given by a sufficient number of persons having
adequate knowledge of the language for communications (defined in
Sub-Clause 1.4 [Law and Language]) and of the operations to be carried
out (including the methods and techniques required, the hazards likely
to be encountered and methods of preventing accidents), for the
satisfactory and safe execution of the Works.

6.9 Contractor’s
Personnel
The Contractor’s Personnel shall be appropriately qualified, skilled and
experienced in their respective trades or occupations. The Engineer may
require the Contractor to remove (or cause to be removed) any person
employed on the Site or Works, including the Contractor’s
Representative if applicable, who:

(a) Persists in any misconduct or lack of care;
(b) Carries out duties incompetently or negligently;
(c) Fails to conform with any provisions of the Contract; or
(d) Persists in any conduct which is prejudicial to safety, health, or the
    protection of the environment.

If appropriate, the Contractor shall then appoint (or cause to be
appointed) a suitable replacement person.

6.10 Records of
Contractor’s
Personnel
and Equipment
The Contractor shall submit, to the Engineer, details showing the number
of each class of Contractor’s Personnel and of each type of Contractor’s
Equipment on the Site. Details shall be submitted each calendar month,
in a form approved by the Engineer, until the Contractor has completed
all work which is known to be outstanding at the completion date stated in the Taking-Over Certificate for the Works.

6.11 Disorderly Conduct

The Contractor shall at all times take all reasonable precautions to prevent any unlawful, riotous or disorderly conduct by or amongst the Contractor’s Personnel, and to preserve peace and protection of persons and property on and near the Site.

6.12 Foreign Personnel

The Contractor may bring in to the Country any foreign personnel who are necessary for the execution of the Works to the extent allowed by the applicable Laws. The Contractor shall ensure that these personnel are provided with the required residence visas and work permits. The Employer will, if requested by the Contractor, use his best endeavours in a timely and expeditious manner to assist the Contractor in obtaining any local, state, national or government permission required for bringing in the Contractor’s personnel.

The Contractor shall be responsible for the return of these personnel to the place where they were recruited or to their domicile. In the event of the death in the Country of any of these personnel or members of their families, the Contractor shall similarly be responsible for making the appropriate arrangements for their return or burial.

6.13 Supply of Foodstuffs

The Contractor shall arrange for the provision of a sufficient supply of suitable food as may be stated in the Specification at reasonable prices for the Contractor’s Personnel for the purposes of or in connection with the Contract.

6.14 Supply of Water

The Contractor shall, having regard to local conditions, provide on the Site an adequate supply of drinking and other water for the use of the Contractor’s Personnel.

6.15 Measures against Insect and Pest Nuisance

The Contractor shall at all times take the necessary precautions to protect the Contractor’s Personnel employed on the Site from insect and pest nuisance, and to reduce the danger to their health. The Contractor shall comply with all the regulations of the local health authorities, including use of appropriate insecticide.

6.16 Alcoholic Liquor or Drugs

The Contractor shall not, otherwise than in accordance with the Laws of the Country, import, sell, give, barter or otherwise dispose of any alcoholic liquor or drugs, or permit or allow importation, sale, gift, barter or disposal thereof by Contractor's Personnel.

6.17 Arms and Ammunition

The Contractor shall not give, barter, or otherwise dispose of, to any person, any arms or ammunition of any kind, or allow Contractor's Personnel to do so.

6.18 Festivals and Religious Customs

The Contractor shall respect the Country's recognized festivals, days of rest and religious or other customs.

6.19 Funeral Arrangements

The Contractor shall be responsible, to the extent required by local regulations, for making any funeral arrangements for any of his local employees who may die while engaged upon the Works.
6.20 Prohibition of Forced or Compulsory Labour

The Contractor shall not employ forced labour, which consists of any work or service, not voluntarily performed, that is exacted from an individual under threat of force or penalty, and includes any kind of involuntary or compulsory labour, such as indentured labour, bonded labour or similar labour-contracting arrangements.

6.21 Prohibition of Harmful Child Labour

The Contractor shall not employ children in a manner that is economically exploitative, or is likely to be hazardous, or to interfere with, the child’s education, or to be harmful to the child’s health or physical, mental, spiritual, moral, or social development. Where the relevant labour laws of the Country have provisions for employment of minors, the Contractor shall follow those laws applicable to the Contractor. Children below the age of 18 years shall not be employed in dangerous work.

6.22 Employment Records of Workers

The Contractor shall keep complete and accurate records of the employment of labour at the Site. The records shall include the names, ages, genders, hours worked and wages paid to all workers. These records shall be summarized on a monthly basis and submitted to the Engineer. These records shall be included in the details to be submitted by the Contractor under Sub-Clause 6.10 [Records of Contractor’s Personnel and Equipment].

6.23 Workers’ Organisations

In countries where the relevant labour laws recognise workers’ rights to form and to join workers’ organisations of their choosing without interference and to bargain collectively, the Contractor shall comply with such laws. Where the relevant labour laws substantially restrict workers’ organisations, the Contractor shall enable alternative means for the Contractor’s Personnel to express their grievances and protect their rights regarding working conditions and terms of employment. In either case described above, and where the relevant labour laws are silent, the Contractor shall not discourage the Contractor’s Personnel from forming or joining workers’ organisations of their choosing or from bargaining collectively, and shall not discriminate or retaliate against the Contractor’s Personnel who participate, or seek to participate, in such organisations and bargain collectively. The Contractor shall engage with such workers’ representatives. Workers’ organisations are expected to fairly represent the workers in the workforce.

6.24 Non-Discrimination and Equal Opportunity

The Contractor shall not make employment decisions on the basis of personal characteristics unrelated to inherent job requirements. The Contractor shall base the employment relationship on the principle of equal opportunity and fair treatment, and shall not discriminate with respect to aspects of the employment relationship, including recruitment and hiring, compensation (including wages and benefits), working conditions and terms of employment, access to training, promotion, termination of employment or retirement, and discipline. In countries where the relevant labour laws provide for non-discrimination in employment, the Contractor shall comply with such laws. When the relevant labour laws are silent on non-discrimination in employment, the Contractor shall meet this Sub-Clause’s requirements. Special measures of protection or assistance to remedy past discrimination or selection for a particular job based on the inherent requirements of the job shall not be deemed discrimination.

7. Plant, Materials and Workmanship
7.1 Manner of Execution

The Contractor shall carry out the manufacture of Plant, the production and manufacture of Materials, and all other execution of the Works:

(a) In the manner (if any) specified in the Contract;
(b) In a proper workmanlike and careful manner, in accordance with recognised good practice; and
(c) With properly equipped facilities and non-hazardous Materials, except as otherwise specified in the Contract.

7.2 Samples

The Contractor shall submit the following samples of Materials, and relevant information, to the Engineer for consent prior to using the Materials in or for the Works:

(a) Manufacturer’s standard samples of Materials and samples specified in the Contract, all at the Contractor’s cost; and
(b) Additional samples instructed by the Engineer as a Variation.

Each sample shall be labelled as to origin and intended use in the Works.

7.3 Inspection

The Employer’s Personnel shall at all reasonable times:

(a) Have full access to all parts of the Site and to all places from which natural Materials are being obtained; and
(b) During production, manufacture and construction (at the Site and elsewhere), be entitled to examine, inspect, measure and test the materials and workmanship, and to check the progress of manufacture of Plant and production and manufacture of Materials.

The Contractor shall give the Employer’s Personnel full opportunity to carry out these activities, including providing access, facilities, permissions and safety equipment. No such activity shall relieve the Contractor from any obligation or responsibility.

The Contractor shall give notice to the Engineer whenever any work is ready and before it is covered up, put out of sight, or packaged for storage or transport. The Engineer shall then either carry out the examination, inspection, measurement or testing without unreasonable delay, or promptly give notice to the Contractor that the Engineer does not require to do so. If the Contractor fails to give the notice, he shall, if and when required by the Engineer, uncover the work and thereafter reinstate and make good, all at the Contractor’s cost.

7.4 Testing

This Sub-Clause shall apply to all tests specified in the Contract, other than the Tests after Completion (if any).

Except as otherwise specified in the Contract, the Contractor shall provide all apparatus, assistance, documents and other information, electricity, equipment, fuel, consumables, instruments, labour, materials, and suitably qualified and experienced staff, as are necessary to carry out the specified tests efficiently. The Contractor shall agree, with the Engineer, the time and place for the specified testing of any Plant, Materials and other parts of the Works.

The Engineer may, under Clause 13 [Variations and Adjustments], vary the location or details of specified tests, or instruct the Contractor to carry out additional tests. If these varied or additional tests show that the tested Plant, Materials or workmanship is not in accordance with the
Contract, the cost of carrying out this Variation shall be borne by the Contractor, notwithstanding other provisions of the Contract.

The Engineer shall give the Contractor not less than 24 hours’ notice of the Engineer’s intention to attend the tests. If the Engineer does not attend at the time and place agreed, the Contractor may proceed with the tests, unless otherwise instructed by the Engineer, and the tests shall then be deemed to have been made in the Engineer’s presence.

If the Contractor suffers delay and/or incurs Cost from complying with these instructions or as a result of a delay for which the Employer is responsible, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor’s Claims] to:

(a) An extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion]; and

(b) Payment of any such Cost plus profit, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

The Contractor shall promptly forward to the Engineer duly certified reports of the tests. When the specified tests have been passed, the Engineer shall endorse the Contractor’s test certificate, or issue a certificate to him, to that effect. If the Engineer has not attended the tests, he shall be deemed to have accepted the readings as accurate.

7.5 Rejection

If, as a result of an examination, inspection, measurement or testing, any Plant, Materials or workmanship is found to be defective or otherwise not in accordance with the Contract, the Engineer may reject the Plant, Materials or workmanship by giving notice to the Contractor, with reasons. The Contractor shall then promptly make good the defect and ensure that the rejected item complies with the Contract.

If the Engineer requires this Plant, Materials or workmanship to be retested, the tests shall be repeated under the same terms and conditions. If the rejection and retesting cause the Employer to incur additional costs, the Contractor shall subject to Sub-Clause 2.5 [Employer’s Claims] pay these costs to the Employer.

7.6 Remedial Work

Notwithstanding any previous test or certification, the Engineer may instruct the Contractor to:

(a) Remove from the Site and replace any Plant or Materials which is not in accordance with the Contract;

(b) Remove and re-execute any other work which is not in accordance with the Contract; and

(c) Execute any work which is urgently required for the safety of the Works, whether because of an accident, unforeseeable event or otherwise.
The Contractor shall comply with the instruction within a reasonable time, which shall be the time (if any) specified in the instruction, or immediately if urgency is specified under sub-paragraph (c).

If the Contractor fails to comply with the instruction, the Employer shall be entitled to employ and pay other persons to carry out the work. Except to the extent that the Contractor would have been entitled to payment for the work, the Contractor shall subject to Sub-Clause 2.5 [Employer's Claims] pay to the Employer all costs arising from this failure.

7.7 **Ownership of Plant and Materials**

Except as otherwise provided in the Contract, each item of Plant and Materials shall, to the extent consistent with the Laws of the Country, become the property of the Employer at whichever is the earlier of the following times, free from liens and other encumbrances:

(a) When it is incorporated in the Works;

(b) When the Contractor is paid the corresponding value of the Plant and Materials under Sub-Clause 8.10 [Payment for Plant and Materials in Event of Suspension].

7.8 **Royalties**

Unless otherwise stated in the Specification, the Contractor shall pay all royalties, rents and other payments for:

(a) Natural Materials obtained from outside the Site, and

(b) The disposal of material from demolitions and excavations and of other surplus material (whether natural or man-made), except to the extent that disposal areas within the Site are specified in the Contract.

8. **Commencement, Delays and Suspension**

8.1 **Commencement of Works**

Except as otherwise specified in the Particular Conditions of Contract, the Commencement Date shall be the date at which the following precedent conditions have all been fulfilled and the Engineer's notification recording the agreement of both Parties on such fulfilment and instructing to commence the Work is received by the Contractor:

(a) Signature of the Contract Agreement by both Parties, and if required, approval of the Contract by relevant authorities of the Country;

(b) Delivery to the Contractor of reasonable evidence of the Employer's financial arrangements (under Sub-Clause 2.4 [Employer's Financial Arrangements]);

(c) Except if otherwise specified in the Contract Data, effective access to and possession of the Site given to the Contractor together with such permission(s) under (a) of Sub-Clause 1.13 [Compliance with Laws] as required for the commencement of the Works,

(d) Receipt by the Contractor of the Advance Payment under Sub-Clause 14.2 [Advance Payment] provided that the corresponding bank guarantee has been delivered by the Contractor.
If the said Engineer’s instruction is not received by the Contractor within 180 days from his receipt of the Letter of Acceptance, the Contractor shall be entitled to terminate the Contract under Sub-Clause 16.2 [Termination by Contractor].

The Contractor shall commence the execution of the Works as soon as is reasonably practicable after the Commencement Date, and shall then proceed with the Works with due expedition and without delay.

8.2 Time for Completion

The Contractor shall complete the whole of the Works, and each Section (if any), within the Time for Completion for the Works or Section (as the case may be), including:

(a) Achieving the passing of the Tests on Completion; and

(b) Completing all work which is stated in the Contract as being required for the Works or Section to be considered to be completed for the purposes of taking-over under Sub-Clause 10.1 [Taking Over of the Works and Sections].

8.3 Programme

The Contractor shall submit a detailed time programme to the Engineer within 28 days after receiving the notice under Sub-Clause 8.1 [Commencement of Works]. The Contractor shall also submit a revised programme whenever the previous programme is inconsistent with actual progress or with the Contractor’s obligations. Each programme shall include:

(a) The order in which the Contractor intends to carry out the Works, including the anticipated timing of each stage of design (if any), Contractor’s Documents, procurement, manufacture of Plant, delivery to Site, construction, erection and testing;

(b) Each of these stages for work by each nominated Subcontractor (as defined in Clause 5 [Nominated Subcontractors]);

(c) The sequence and timing of inspections and tests specified in the Contract; and

(d) A supporting report which includes:

(i) A general description of the methods which the Contractor intends to adopt, and of the major stages, in the execution of the Works; and

(ii) Details showing the Contractor’s reasonable estimate of the number of each class of Contractor’s Personnel and of each type of Contractor’s Equipment, required on the Site for each major stage.

Unless the Engineer, within 21 days after receiving a programme, gives notice to the Contractor stating the extent to which it does not comply with the Contract, the Contractor shall proceed in accordance with the programme, subject to his other obligations under the Contract. The Employer’s Personnel shall be entitled to rely upon the programme when planning their activities.

The Contractor shall promptly give notice to the Engineer of specific probable future events or circumstances which may adversely affect the work, increase the Contract Price or delay the execution of the Works.
The Engineer may require the Contractor to submit an estimate of the anticipated effect of the future event or circumstances, and/or a proposal under Sub-Clause 13.3 [Variation Procedure].

If, at any time, the Engineer gives notice to the Contractor that a programme fails (to the extent stated) to comply with the Contract or to be consistent with actual progress and the Contractor’s stated intentions, the Contractor shall submit a revised programme to the Engineer in accordance with this Sub-Clause.

The Contractor shall be entitled subject to Sub-Clause 20.1 [Contractor’s Claims] to an extension of the Time for Completion if and to the extent that completion for the purposes of Sub-Clause 10.1 [Taking Over of the Works and Sections] is or will be delayed by any of the following causes:

(a) A Variation (unless an adjustment to the Time for Completion has been agreed under Sub-Clause 13.3 [Variation Procedure]) or other substantial change in the quantity of an item of work included in the Contract;

(b) A cause of delay giving an entitlement to extension of time under a Sub-Clause of these Conditions;

(c) Exceptionally adverse climatic conditions;

(d) Unforeseeable shortages in the availability of personnel or Goods caused by epidemic or governmental actions;

(e) Any delay, impediment or prevention caused by or attributable to the Employer, the Employer’s Personnel, or the Employer’s other contractors.

If the Contractor considers himself to be entitled to an extension of the Time for Completion, the Contractor shall give notice to the Engineer in accordance with Sub-Clause 20.1 [Contractor’s Claims]. When determining each extension of time under Sub-Clause 20.1, the Engineer shall review previous determinations and may increase, but shall not decrease, the total extension of time.

If the following conditions apply, namely:

(a) The Contractor has diligently followed the procedures laid down by the relevant legally constituted public authorities in the Country;

(b) These authorities delay or disrupt the Contractor’s work; and

(c) The delay or disruption was Unforeseeable,

then this delay or disruption will be considered as a cause of delay under sub-paragraph (b) of Sub-Clause 8.4 [Extension of Time for Completion].

If, at any time:

(a) Actual progress is too slow to complete within the Time for Completion; and/or
(b) Progress has fallen (or will fall) behind the current programme under Sub-Clause 8.3 [Programme];

other than as a result of a cause listed in Sub-Clause 8.4 [Extension of Time for Completion], then the Engineer may instruct the Contractor to submit, under Sub-Clause 8.3 [Programme], a revised programme and supporting report describing the revised methods which the Contractor proposes to adopt in order to expedite progress and complete within the Time for Completion.

Unless the Engineer notifies otherwise, the Contractor shall adopt these revised methods, which may require increases in the working hours and/or in the numbers of Contractor’s Personnel and/or Goods, at the risk and cost of the Contractor. If these revised methods cause the Employer to incur additional costs, the Contractor shall subject to notice under Sub-Clause 2.5 [Employer’s Claims] pay these costs to the Employer, in addition to delay damages (if any) under Sub-Clause 8.7 below.

Additional costs of revised methods including acceleration measures, instructed by the Engineer to reduce delays resulting from causes listed under Sub-Clause 8.4 [Extension of Time for Completion] shall be paid by the Employer, without generating, however, any other additional payment benefit to the Contractor.

If the Contractor fails to comply with Sub-Clause 8.2 [Time for Completion], the Contractor shall subject to notice under Sub-Clause 2.5 [Employer’s Claims] pay delay damages to the Employer for this default. These delay damages shall be the sum stated in the Contract Data, which shall be paid for every day which shall elapse between the relevant Time for Completion and the date stated in the Taking-Over Certificate. However, the total amount due under this Sub-Clause shall not exceed the maximum amount of delay damages (if any) stated in the Contract Data.

These delay damages shall be the only damages due from the Contractor for such default, other than in the event of termination under Sub-Clause 15.2 [Termination by Employer] prior to completion of the Works. These damages shall not relieve the Contractor from his obligation to complete the Works, or from any other duties, obligations or responsibilities which he may have under the Contract.

The Engineer may at any time instruct the Contractor to suspend progress of part or all of the Works. During such suspension, the Contractor shall protect, store and secure such part or the Works against any deterioration, loss or damage.

The Engineer may also notify the cause for the suspension. If and to the extent that the cause is notified and is the responsibility of the Contractor, the following Sub-Clauses 8.9, 8.10 and 8.11 shall not apply.

If the Contractor suffers delay and/or incurs Cost from complying with the Engineer’s instructions under Sub-Clause 8.8 [Suspension of Work] and/or from resuming the work, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor’s Claims] to:
(a) An extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion]; and

(b) Payment of any such Cost, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

The Contractor shall not be entitled to an extension of time for, or to payment of the Cost incurred in, making good the consequences of the Contractor’s faulty design, workmanship or materials, or of the Contractor’s failure to protect, store or secure in accordance with Sub-Clause 8.8 [Suspension of Work].

8.10 Payment for Plant and Materials in Event of Suspension

The Contractor shall be entitled to payment of the value (as at the date of suspension) of Plant and/or Materials which have not been delivered to Site, if:

(a) The work on Plant or delivery of Plant and/or Materials has been suspended for more than 28 days; and

(b) The Contractor has marked the Plant and/or Materials as the Employer’s property in accordance with the Engineer’s instructions.

8.11 Prolonged Suspension

If the suspension under Sub-Clause 8.8 [Suspension of Work] has continued for more than 84 days, the Contractor may request the Engineer’s permission to proceed. If the Engineer does not give permission within 28 days after being requested to do so, the Contractor may, by giving notice to the Engineer, treat the suspension as an omission under Clause 13 [Variations and Adjustments] of the affected part of the Works. If the suspension affects the whole of the Works, the Contractor may give notice of termination under Sub-Clause 16.2 [Termination by Contractor].

8.12 Resumption of Work

After the permission or instruction to proceed is given, the Contractor and the Engineer shall jointly examine the Works and the Plant and Materials affected by the suspension. The Contractor shall make good any deterioration or defect in or loss of the Works or Plant or Materials, which has occurred during the suspension after receiving from the Engineer an instruction to this effect under Clause 13 [Variations and Adjustments].

9. Tests on Completion

9.1 Contractor’s Obligations

The Contractor shall carry out the Tests on Completion in accordance with this Clause and Sub-Clause 7.4 [Testing], after providing the documents in accordance with sub-paragraph (d) of Sub-Clause 4.1 [Contractor’s General Obligations].

The Contractor shall give to the Engineer not less than 21 days’ notice of the date after which the Contractor will be ready to carry out each of the Tests on Completion. Unless otherwise agreed, Tests on Completion shall be carried out within 14 days after this date, on such day or days as the Engineer shall instruct.
In considering the results of the Tests on Completion, the Engineer shall make allowances for the effect of any use of the Works by the Employer on the performance or other characteristics of the Works. As soon as the Works, or a Section, have passed any Tests on Completion, the Contractor shall submit a certified report of the results of these Tests to the Engineer.

9.2 Delayed Tests

If the Tests on Completion are being unduly delayed by the Employer, Sub-Clause 7.4 [Testing] (fifth paragraph) and/or Sub-Clause 10.3 [Interference with Tests on Completion] shall be applicable.

If the Tests on Completion are being unduly delayed by the Contractor, the Engineer may by notice require the Contractor to carry out the Tests within 21 days after receiving the notice. The Contractor shall carry out the Tests on such day or days within that period as the Contractor may fix and of which he shall give notice to the Engineer.

If the Contractor fails to carry out the Tests on Completion within the period of 21 days, the Employer's Personnel may proceed with the Tests at the risk and cost of the Contractor. The Tests on Completion shall then be deemed to have been carried out in the presence of the Contractor and the results of the Tests shall be accepted as accurate.

9.3 Retesting

If the Works, or a Section, fail to pass the Tests on Completion, Sub-Clause 7.5 [Rejection] shall apply, and the Engineer or the Contractor may require the failed Tests, and Tests on Completion on any related work, to be repeated under the same terms and conditions.

9.4 Failure to Pass Tests on Completion

If the Works, or a Section, fail to pass the Tests on Completion repeated under Sub-Clause 9.3 [Retesting], the Engineer shall be entitled to:

(a) Order further repetition of Tests on Completion under Sub-Clause 9.3 [Retesting];

(b) If the failure deprives the Employer of substantially the whole benefit of the Works or Section, reject the Works or Section (as the case may be), in which event the Employer shall have the same remedies as are provided in sub-paragraph (c) of Sub-Clause 11.4 [Failure to Remedy Defects]; or

(c) Issue a Taking-Over Certificate, if the Employer so requests.

In the event of sub-paragraph (c), the Contractor shall proceed in accordance with all other obligations under the Contract, and the Contract Price shall be reduced by such amount as shall be appropriate to cover the reduced value to the Employer as a result of this failure. Unless the relevant reduction for this failure is stated (or its method of calculation is defined) in the Contract, the Employer may require the reduction to be (i) agreed by both Parties (in full satisfaction of this failure only) and paid before this Taking-Over Certificate is issued, or (ii) determined and paid under Sub-Clause 2.5 [Employer's Claims] and Sub-Clause 3.5 [Determinations].

10. Employer's Taking Over

Except as stated in Sub-Clause 9.4 [Failure to Pass Tests on Completion], the Works shall be taken over by the Employer when (i) the Works have been completed in accordance with the Contract, including the matters described in Sub-Clause 8.2 [Time for Completion] and except as allowed in sub-paragraph (a) below, and (ii) a Taking-Over
Certificate for the Works has been issued, or is deemed to have been issued in accordance with this Sub-Clause.

The Contractor may apply by notice to the Engineer for a Taking-Over Certificate not earlier than 14 days before the Works will, in the Contractor’s opinion, be complete and ready for taking over. If the Works are divided into Sections, the Contractor may similarly apply for a Taking-Over Certificate for each Section.

The Engineer shall, within 28 days after receiving the Contractor’s application:

(a) Issue the Taking-Over Certificate to the Contractor, stating the date on which the Works or Section were completed in accordance with the Contract, except for any minor outstanding work and defects which will not substantially affect the use of the Works or Section for their intended purpose (either until or whilst this work is completed and these defects are remedied); or

(b) Reject the application, giving reasons and specifying the work required to be done by the Contractor to enable the Taking-Over Certificate to be issued. The Contractor shall then complete this work before issuing a further notice under this Sub-Clause.

If the Engineer fails either to issue the Taking-Over Certificate or to reject the Contractor’s application within the period of 28 days, and if the Works or Section (as the case may be) are substantially in accordance with the Contract, the Taking-Over Certificate shall be deemed to have been issued on the last day of that period.

The Engineer may, at the sole discretion of the Employer, issue a Taking-Over Certificate for any part of the Permanent Works.

The Employer shall not use any part of the Works (other than as a temporary measure which is either specified in the Contract or agreed by both Parties) unless and until the Engineer has issued a Taking-Over Certificate for this part. However, if the Employer does use any part of the Works before the Taking-Over Certificate is issued:

(a) The part which is used shall be deemed to have been taken over as from the date on which it is used;

(b) The Contractor shall cease to be liable for the care of such part as from this date, when responsibility shall pass to the Employer, and

(c) If requested by the Contractor, the Engineer shall issue a Taking-Over Certificate for this part.

After the Engineer has issued a Taking-Over Certificate for a part of the Works, the Contractor shall be given the earliest opportunity to take such steps as may be necessary to carry out any outstanding Tests on Completion. The Contractor shall carry out these Tests on Completion as soon as practicable before the expiry date of the relevant Defects Notification Period.

If the Contractor incurs Cost as a result of the Employer taking over and/or using a part of the Works, other than such use as is specified in the Contract or agreed by the Contractor, the Contractor shall (i) give notice to the Engineer and (ii) be entitled subject to Sub-Clause 20.1
10.3 Interference with Tests on Completion

If the Contractor is prevented, for more than 14 days, from carrying out the Tests on Completion by a cause for which the Employer is responsible, the Employer shall be deemed to have taken over the Works or Section (as the case may be) on the date when the Tests on Completion would otherwise have been completed.

The Engineer shall then issue a Taking-Over Certificate accordingly, and the Contractor shall carry out the Tests on Completion as soon as practicable, before the expiry date of the Defects Notification Period. The Engineer shall require the Tests on Completion to be carried out by giving 14 days' notice and in accordance with the relevant provisions of the Contract.

If the Contractor suffers delay and/or incurs Cost as a result of this delay in carrying out the Tests on Completion, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

(a) An extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion]; and

(b) Payment of any such Cost plus profit, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

11. Defects Liability

In order that the Works and Contractor's Documents, and each Section, shall be in the condition required by the Contract (fair wear and tear excepted) by the expiry date of the relevant Defects Notification Period or as soon as practicable thereafter, the Contractor shall:
(a) Complete any work which is outstanding on the date stated in a Taking-Over Certificate, within such reasonable time as is instructed by the Engineer; and

(b) Execute all work required to remedy defects or damage, as may be notified by (or on behalf of) the Employer on or before the expiry date of the Defects Notification Period for the Works or Section (as the case may be).

If a defect appears or damage occurs, the Contractor shall be notified accordingly, by (or on behalf of) the Employer.

11.2 Cost of Remediying Defects

All work referred to in sub-paragraph (b) of Sub-Clause 11.1 [Completion of Outstanding Work and Remediying Defects] shall be executed at the risk and cost of the Contractor, if and to the extent that the work is attributable to:

(a) Any design for which the Contractor is responsible;

(b) Plant, Materials or workmanship not being in accordance with the Contract; or

(c) Failure by the Contractor to comply with any other obligation.

If and to the extent that such work is attributable to any other cause, the Contractor shall be notified promptly by (or on behalf of) the Employer, and Sub-Clause 13.3 [Variation Procedure] shall apply.

11.3 Extension of Defects Notification Period

The Employer shall be entitled subject to Sub-Clause 2.5 [Employer’s Claims] to an extension of the Defects Notification Period for the Works or a Section if and to the extent that the Works, Section or a major item of Plant (as the case may be, and after taking over) cannot be used for the purposes for which they are intended by reason of a defect or by reason of damage attributable to the Contractor. However, a Defects Notification Period shall not be extended by more than two years.

If delivery and/or erection of Plant and/or Materials was suspended under Sub-Clause 8.8 [Suspension of Work] or Sub-Clause 16.1 [Contractor’s Entitlement to Suspend Work], the Contractor’s obligations under this Clause shall not apply to any defects or damage occurring more than two years after the Defects Notification Period for the Plant and/or Materials would otherwise have expired.

11.4 Failure to Remedy Defects

If the Contractor fails to remedy any defect or damage within a reasonable time, a date may be fixed by (or on behalf of) the Employer, on or by which the defect or damage is to be remedied. The Contractor shall be given reasonable notice of this date.

If the Contractor fails to remedy the defect or damage by this notified date and this remedial work was to be executed at the cost of the Contractor under Sub-Clause 11.2 [Cost of Remediying Defects], the Employer may (at his option):

(a) Carry out the work himself or by others, in a reasonable manner and at the Contractor’s cost, but the Contractor shall have no responsibility for this work; and the Contractor shall subject to Sub-Clause 2.5 [Employer’s Claims] pay to the Employer the costs
reasonably incurred by the Employer in remediying the defect or damage;

(b) Require the Engineer to agree or determine a reasonable reduction in the Contract Price in accordance with Sub-Clause 3.5 [Determinations]; or

(c) If the defect or damage deprives the Employer of substantially the whole benefit of the Works or any major part of the Works, terminate the Contract as a whole, or in respect of such major part which cannot be put to the intended use. Without prejudice to any other rights, under the Contract or otherwise, the Employer shall then be entitled to recover all sums paid for the Works or for such part (as the case may be), plus financing costs and the cost of dismantling the same, clearing the Site and returning Plant and Materials to the Contractor.

11.5 Removal of Defective Work

If the defect or damage cannot be remedied expeditiously on the Site and the Employer gives consent, the Contractor may remove from the Site for the purposes of repair such items of Plant as are defective or damaged. This consent may require the Contractor to increase the amount of the Performance Security by the full replacement cost of these items, or to provide other appropriate security.

11.6 Further Tests

If the work of remedying of any defect or damage may affect the performance of the Works, the Engineer may require the repetition of any of the tests described in the Contract. The requirement shall be made by notice within 28 days after the defect or damage is remedied.

These tests shall be carried out in accordance with the terms applicable to the previous tests, except that they shall be carried out at the risk and cost of the Party liable, under Sub-Clause 11.2 [Cost of Remediying Defects], for the cost of the remedial work.

11.7 Right of Access

Until the Performance Certificate has been issued, the Contractor shall have such right of access to the Works as is reasonably required in order to comply with this Clause, except as may be inconsistent with the Employer’s reasonable security restrictions.

11.8 Contractor to Search

The Contractor shall, if required by the Engineer, search for the cause of any defect, under the direction of the Engineer. Unless the defect is to be remedied at the cost of the Contractor under Sub-Clause 11.2 [Cost of Remediying Defects], the Cost of the search plus profit shall be agreed or determined by the Engineer in accordance with Sub-Clause 3.5 [Determinations] and shall be included in the Contract Price.

11.9 Performance Certificate

Performance of the Contractor’s obligations shall not be considered to have been completed until the Engineer has issued the Performance Certificate to the Contractor, stating the date on which the Contractor completed his obligations under the Contract.

The Engineer shall issue the Performance Certificate within 28 days after the latest of the expiry dates of the Defects Notification Periods, or as soon thereafter as the Contractor has supplied all the Contractor’s Documents and completed and tested all the Works, including remediying any defects. A copy of the Performance Certificate shall be issued to the Employer.
Only the Performance Certificate shall be deemed to constitute acceptance of the Works.

11.10 Unfulfilled Obligations

After the Performance Certificate has been issued, each Party shall remain liable for the fulfilment of any obligation which remains unperformed at that time. For the purposes of determining the nature and extent of unperformed obligations, the Contract shall be deemed to remain in force.

11.11 Clearance of Site

Upon receiving the Performance Certificate, the Contractor shall remove any remaining Contractor’s Equipment, surplus material, wreckage, rubbish and Temporary Works from the Site.

If all these items have not been removed within 28 days after receipt by the Contractor of the Performance Certificate, the Employer may sell or otherwise dispose of any remaining items. The Employer shall be entitled to be paid the costs incurred in connection with, or attributable to, such sale or disposal and restoring the Site.

Any balance of the moneys from the sale shall be paid to the Contractor. If these moneys are less than the Employer’s costs, the Contractor shall pay the outstanding balance to the Employer.

12. Measurement and Evaluation

The Works shall be measured, and valued for payment, in accordance with this Clause. The Contractor shall show in each application under Sub-Clauses 14.3 [Application for Interim Payment Certificates], 14.10 [Statement on Completion] and 14.11 [Application for Final Payment Certificate] the quantities and other particulars detailing the amounts which he considers to be entitled under the Contract.

Whenever the Engineer requires any part of the Works to be measured, reasonable notice shall be given to the Contractor’s Representative, who shall:

(a) Promptly either attend or send another qualified representative to assist the Engineer in making the measurement; and

(b) Supply any particulars requested by the Engineer.

If the Contractor fails to attend or send a representative, the measurement made by (or on behalf of) the Engineer shall be accepted as accurate.

Except as otherwise stated in the Contract, wherever any Permanent Works are to be measured from records, these shall be prepared by the Engineer. The Contractor shall, as and when requested, attend to examine and agree the records with the Engineer, and shall sign the same when agreed. If the Contractor does not attend, the records shall be accepted as accurate.

If the Contractor examines and disagrees the records, and/or does not sign them as agreed, then the Contractor shall give notice to the Engineer of the respects in which the records are asserted to be inaccurate. After receiving this notice, the Engineer shall review the records and either confirm or vary them and certify the payment of the undisputed part. If the Contractor does not so give notice to the Engineer within 14 days after
being requested to examine the records, they shall be accepted as accurate.

12.2 Method of Measurement

Except as otherwise stated in the Contract and notwithstanding local practice:

(a) Measurement shall be made of the net actual quantity of each item of the Permanent Works; and

(b) The method of measurement shall be in accordance with the Bill of Quantities or other applicable Schedules.

12.3 Evaluation

Except as otherwise stated in the Contract, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine the Contract Price by evaluating each item of work, applying the measurement agreed or determined in accordance with the above Sub-Clauses 12.1 and 12.2 and the appropriate rate or price for the item.

For each item of work, the appropriate rate or price for the item shall be the rate or price specified for such item in the Contract or, if there is no such item, specified for similar work.

Any item of work included in the Bill of Quantities for which no rate or price was specified shall be considered as included in other rates and prices in the Bill of Quantities and will not be paid for separately.

However, a new rate or price shall be appropriate for an item of work if:

(a)

(i) The measured quantity of the item is changed by more than 25% from the quantity of this item in the Bill of Quantities or other Schedule;

(ii) This change in quantity multiplied by such specified rate for this item exceeds 0.25% of the Accepted Contract Amount;

(iii) This change in quantity directly changes the Cost per unit quantity of this item by more than 1%; and

(iv) This item is not specified in the Contract as a “fixed rate item”; or

(b)

(i) The work is instructed under Clause 13 [Variations and Adjustments];

(ii) No rate or price is specified in the Contract for this item; and

(iii) No specified rate or price is appropriate because the item of work is not of similar character, or is not executed under similar conditions, as any item in the Contract.

Each new rate or price shall be derived from any relevant rates or prices in the Contract, with reasonable adjustments to take account of the matters described in sub-paragraph (a) and/or (b), as applicable. If no
rates or prices are relevant for the derivation of a new rate or price, it shall be derived from the reasonable Cost of executing the work, together with profit, taking account of any other relevant matters.

Until such time as an appropriate rate or price is agreed or determined, the Engineer shall determine a provisional rate or price for the purposes of Interim Payment Certificates as soon as the concerned work commences.

12.4 Omissions

Whenever the omission of any work forms part (or all) of a Variation, the value of which has not been agreed, if:

(a) The Contractor will incur (or has incurred) cost which, if the work had not been omitted, would have been deemed to be covered by a sum forming part of the Accepted Contract Amount;

(b) The omission of the work will result (or has resulted) in this sum not forming part of the Contract Price; and

(c) This cost is not deemed to be included in the evaluation of any substituted work;

then the Contractor shall give notice to the Engineer accordingly, with supporting particulars. Upon receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine this cost, which shall be included in the Contract Price.

13. Variations and Adjustments

13.1 Right to Vary

Variations may be initiated by the Engineer at any time prior to issuing the Taking-Over Certificate for the Works, either by an instruction or by a request for the Contractor to submit a proposal.

The Contractor shall execute and be bound by each Variation, unless the Contractor promptly gives notice to the Engineer stating (with supporting particulars) that (i) the Contractor cannot readily obtain the Goods required for the Variation, or (ii) such Variation triggers a substantial change in the sequence or progress of the Works. Upon receiving this notice, the Engineer shall cancel, confirm or vary the instruction.

Each Variation may include:

(a) Changes to the quantities of any item of work included in the Contract (however, such changes do not necessarily constitute a Variation);

(b) Changes to the quality and other characteristics of any item of work;

(c) Changes to the levels, positions and/or dimensions of any part of the Works;

(d) Omission of any work unless it is to be carried out by others;

(e) Any additional work, Plant, Materials or services necessary for the Permanent Works, including any associated Tests on Completion, boreholes and other testing and exploratory work; or
13.2 Value Engineering

(f) Changes to the sequence or timing of the execution of the Works.

The Contractor shall not make any alteration and/or modification of the Permanent Works, unless and until the Engineer instructs or approves a Variation.

The Contractor may, at any time, submit to the Engineer a written proposal which (in the Contractor’s opinion) will, if adopted, (i) accelerate completion, (ii) reduce the cost to the Employer of executing, maintaining or operating the Works, (iii) improve the efficiency or value to the Employer of the completed Works, or (iv) otherwise be of benefit to the Employer.

The proposal shall be prepared at the cost of the Contractor and shall include the items listed in Sub-Clause 13.3 [Variation Procedure].

If a proposal, which is approved by the Engineer, includes a change in the design of part of the Permanent Works, then unless otherwise agreed by both Parties:

(a) The Contractor shall design this part;

(b) Sub-paragraphs (a) to (d) of Sub-Clause 4.1 [Contractor’s General Obligations] shall apply; and

(c) If this change results in a reduction in the contract value of this part, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine a fee, which shall be included in the Contract Price. This fee shall be half (50%) of the difference between the following amounts:

(i) Such reduction in contract value, resulting from the change, excluding adjustments under Sub-Clause 13.7 [Adjustments for Changes in Legislation] and Sub-Clause 13.8 [Adjustments for Changes in Cost]; and

(ii) The reduction (if any) in the value to the Employer of the varied works, taking account of any reductions in quality, anticipated life or operational efficiencies.

However, if amount (i) is less than amount (ii), there shall not be a fee.

13.3 Variation Procedure

If the Engineer requests a proposal, prior to instructing a Variation, the Contractor shall respond in writing as soon as practicable, either by giving reasons why he cannot comply (if this is the case) or by submitting:

(a) A description of the proposed work to be performed and a programme for its execution;

(b) The Contractor’s proposal for any necessary modifications to the programme according to Sub-Clause 8.3 [Programme] and to the Time for Completion; and

(c) The Contractor’s proposal for evaluation of the Variation.

The Engineer shall, as soon as practicable after receiving such proposal (under Sub-Clause 13.2 [Value Engineering] or otherwise), respond with
approval, disapproval or comments. The Contractor shall not delay any work whilst awaiting a response.

Each instruction to execute a Variation, with any requirements for the recording of Costs, shall be issued by the Engineer to the Contractor, who shall acknowledge receipt.

Each Variation shall be evaluated in accordance with Clause 12 [Measurement and Evaluation], unless the Engineer instructs or approves otherwise in accordance with this Clause.

If the Contract provides for payment of the Contract Price in more than one currency, then whenever an adjustment is agreed, approved or determined as stated above, the amount payable in each of the applicable currencies shall be specified. For this purpose, reference shall be made to the actual or expected currency proportions of the Cost of the varied work, and to the proportions of various currencies specified for payment of the Contract Price.

Each Provisional Sum shall only be used, in whole or in part, in accordance with the Engineer's instructions, and the Contract Price shall be adjusted accordingly. The total sum paid to the Contractor shall include only such amounts, for the work, supplies or services to which the Provisional Sum relates, as the Engineer shall have instructed. For each Provisional Sum, the Engineer may instruct:

(a) Work to be executed (including Plant, Materials or services to be supplied) by the Contractor and valued under Sub-Clause 13.3 [Variation Procedure]; and/or

(b) Plant, Materials or services to be purchased by the Contractor, from a nominated Subcontractor (as defined in Clause 5 [Nominated Subcontractors]) or otherwise; and for which there shall be included in the Contract Price:

(i) The actual amounts paid (or due to be paid) by the Contractor; and

(ii) A sum for overhead charges and profit, calculated as a percentage of these actual amounts by applying the relevant percentage rate (if any) stated in the appropriate Schedule. If there is no such rate, the percentage rate stated in the Contract Data shall be applied.

The Contractor shall, when required by the Engineer, produce quotations, invoices, vouchers and accounts or receipts in substantiation.

For work of a minor or incidental nature, the Engineer may instruct that a Variation shall be executed on a daywork basis. The work shall then be valued in accordance with the Daywork Schedule included in the Contract, and the following procedure shall apply. If a Daywork Schedule is not included in the Contract, this Sub-Clause shall not apply.

Before ordering Goods for the work, the Contractor shall submit quotations to the Engineer. When applying for payment, the Contractor shall submit invoices, vouchers and accounts or receipts for any Goods.

Except for any items for which the Daywork Schedule specifies that payment is not due, the Contractor shall deliver each day to the Engineer...
accurate statements in duplicate which shall include the following details of the resources used in executing the previous day’s work:

(a) The names, occupations and time of Contractor’s Personnel;

(b) The identification, type and time of Contractor’s Equipment and Temporary Works; and

(c) The quantities and types of Plant and Materials used.

One copy of each statement will, if correct, or when agreed, be signed by the Engineer and returned to the Contractor. The Contractor shall then submit priced statements of these resources to the Engineer, prior to their inclusion in the next Statement under Sub-Clause 14.3 [Application for Interim Payment Certificates].

13.7 Adjustments for Changes in Legislation

The Contract Price shall be adjusted to take account of any increase or decrease in Cost resulting from a change in the Laws of the Country (including the introduction of new Laws and the repeal or modification of existing Laws) or in the judicial or official governmental interpretation of such Laws, made after the Base Date, which affect the Contractor in the performance of obligations under the Contract.

If the Contractor suffers (or will suffer) delay and/or incurs (or will incur) additional Cost as a result of these changes in the Laws or in such interpretations, made after the Base Date, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor’s Claims] to:

(a) An extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion]; and

(b) Payment of any such Cost, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

Notwithstanding the foregoing, the Contractor shall not be entitled to an extension of time if the relevant delay has already been taken into account in the determination of a previous extension of time and such Cost shall not be separately paid if the same shall already have been taken into account in the indexing of any inputs to the table of adjustment data in accordance with the provisions of Sub-Clause 13.8 [Adjustments for Changes in Cost].

13.8 Adjustments for Changes in Cost

In this Sub-Clause, “table of adjustment data” means the completed table of adjustment data for local and foreign currencies included in the Schedules. If there is no such table of adjustment data, this Sub-Clause shall not apply.

If this Sub-Clause applies, the amounts payable to the Contractor shall be adjusted for rises or falls in the cost of labour, Goods and other inputs to the Works, by the addition or deduction of the amounts determined by the formulae prescribed in this Sub-Clause. To the extent that full compensation for any rise or fall in Costs is not covered by the provisions of this or other Clauses, the Accepted Contract Amount shall be deemed
to have included amounts to cover the contingency of other rises and falls in costs.

The adjustment to be applied to the amount otherwise payable to the Contractor, as valued in accordance with the appropriate Schedule and certified in Payment Certificates, shall be determined from formulae for each of the currencies in which the Contract Price is payable. No adjustment is to be applied to work valued on the basis of Cost or current prices. The formulae shall be of the following general type:

\[ P_n = a + b \frac{L_n}{L_0} + c \frac{E_n}{E_0} + d \frac{M_n}{M_0} + \ldots \]

where:

- \(P_n\) is the adjustment multiplier to be applied to the estimated contract value in the relevant currency of the work carried out in period \(n\), this period being a month unless otherwise stated in the Contract Data;
- \(a\) is a fixed coefficient, stated in the relevant table of adjustment data, representing the non-adjustable portion in contractual payments;
- \(b\), \(c\), \(d\), \ldots are coefficients representing the estimated proportion of each cost element related to the execution of the Works, as stated in the relevant table of adjustment data; such tabulated cost elements may be indicative of resources such as labour, equipment and materials;
- \(L_n\), \(E_n\), \(M_n\), \ldots are the current cost indices or reference prices for period \(n\), expressed in the relevant currency of payment, each of which is applicable to the relevant tabulated cost element on the date 49 days prior to the last day of the period (to which the particular Payment Certificate relates); and
- \(L_0\), \(E_0\), \(M_0\), \ldots are the base cost indices or reference prices, expressed in the relevant currency of payment, each of which is applicable to the relevant tabulated cost element on the Base Date.

The cost indices or reference prices stated in the table of adjustment data shall be used. If their source is in doubt, it shall be determined by the Engineer. For this purpose, reference shall be made to the values of the indices at stated dates for the purposes of clarification of the source; although these dates (and thus these values) may not correspond to the base cost indices.

In cases where the “currency of index” is not the relevant currency of payment, each index shall be converted into the relevant currency of payment at the selling rate, established by the central bank of the Country, of this relevant currency on the above date for which the index is required to be applicable.

Until such time as each current cost index is available, the Engineer shall determine a provisional index for the issue of Interim Payment Certificates. When a current cost index is available, the adjustment shall be recalculated accordingly.

If the Contractor fails to complete the Works within the Time for Completion, adjustment of prices thereafter shall be made using either (i) each index or price applicable on the date 49 days prior to the expiry of the Time for Completion of the Works, or (ii) the current index or price, whichever is more favourable to the Employer.

The weightings (coefficients) for each of the factors of cost stated in the table(s) of adjustment data shall only be adjusted if they have been...
rendered unreasonable, unbalanced or inapplicable, as a result of Variations.

14. Contract Price and Payment

Unless otherwise stated in the Particular Conditions:

(a) The Contract Price shall be agreed or determined under Sub-Clause 12.3 [Evaluation] and be subject to adjustments in accordance with the Contract;

(b) The Contractor shall pay all taxes, duties and fees required to be paid by him under the Contract, and the Contract Price shall not be adjusted for any of these costs except as stated in Sub-Clause 13.7 [Adjustments for Changes in Legislation];

(c) Any quantities which may be set out in the Bill of Quantities or other Schedule are estimated quantities and are not to be taken as the actual and correct quantities:
   
   (i) Of the Works which the Contractor is required to execute, or

   (ii) For the purposes of Clause 12 [Measurement and Evaluation]; and

(d) The Contractor shall submit to the Engineer, within 28 days after the Commencement Date, a proposed breakdown of each lump sum price in the Schedules. The Engineer may take account of the breakdown when preparing Payment Certificates, but shall not be bound by it.

Notwithstanding the provisions of subparagraph (b), Contractor's Equipment, including essential spare parts therefor, imported by the Contractor for the sole purpose of executing the Contract shall be exempt from the payment of import duties and taxes upon importation.

14.2 Advance Payment

The Employer shall make an advance payment, as an interest-free loan for mobilisation and cash flow support, when the Contractor submits a guarantee in accordance with this Sub-Clause. The total advance payment, the number and timing of instalments (if more than one), and the applicable currencies and proportions, shall be as stated in the Contract Data.

Unless and until the Employer receives this guarantee, or if the total advance payment is not stated in the Contract Data, this Sub-Clause shall not apply.

The Engineer shall deliver to the Employer and to the Contractor an Interim Payment Certificate for the advance payment or its first instalment after receiving a Statement (under Sub-Clause 14.3 [Application for Interim Payment Certificates]) and after the Employer receives (i) the Performance Security in accordance with Sub-Clause 4.2 [Performance Security] and (ii) a guarantee in amounts and currencies equal to the advance payment. This guarantee shall be issued by a reputable bank or financial institution selected by the Contractor and shall be in the form annexed to the Particular Conditions or in another form approved by the Employer.
The Contractor shall ensure that the guarantee is valid and enforceable until the advance payment has been repaid, but its amount shall be progressively reduced by the amount repaid by the Contractor as indicated in the Payment Certificates. If the terms of the guarantee specify its expiry date, and the advance payment has not been repaid by the date 28 days prior to the expiry date, the Contractor shall extend the validity of the guarantee until the advance payment has been repaid.

Unless stated otherwise in the Contract Data, the advance payment shall be repaid through percentage deductions from the interim payments determined by the Engineer in accordance with Sub-Clause 14.6 [Issue of Interim Payment Certificates], as follows:

(a) Deductions shall commence in the next interim Payment Certificate following that in which the total of all certified interim payments (excluding the advance payment and deductions and repayments of retention) exceeds 30 percent (30%) of the Accepted Contract Amount less Provisional Sums; and

(b) Deductions shall be made at the amortisation rate stated in the Contract Data of the amount of each Interim Payment Certificate (excluding the advance payment and deductions for its repayments as well as deductions for retention money) in the currencies and proportions of the advance payment until such time as the advance payment has been repaid; provided that the advance payment shall be completely repaid prior to the time when 90 percent (90%) of the Accepted Contract Amount less Provisional Sums has been certified for payment.

If the advance payment has not been repaid prior to the issue of the Taking-Over Certificate for the Works or prior to termination under Clause 15 [Termination by Employer], Clause 16 [Suspension and Termination by Contractor] or Clause 19 [Force Majeure] (as the case may be), the whole of the balance then outstanding shall immediately become due and in case of termination under Clause 15 [Termination by Employer], except for Sub-Clause 15.5 [Employer’s Entitlement to Termination for Convenience], payable by the Contractor to the Employer.

14.3 Application for Interim Payment Certificates

The Contractor shall submit a Statement in six copies to the Engineer after the end of each month, in a form approved by the Engineer, showing in detail the amounts to which the Contractor considers himself to be entitled, together with supporting documents which shall include the report on the progress during this month in accordance with Sub-Clause 4.21 [Progress Reports].

The Statement shall include the following items, as applicable, which shall be expressed in the various currencies in which the Contract Price is payable, in the sequence listed:

(a) The estimated contract value of the Works executed and the Contractor’s Documents produced up to the end of the month (including Variations but excluding items described in sub-paragraphs (b) to (g) below);

(b) Any amounts to be added and deducted for changes in legislation and changes in cost, in accordance with Sub-Clause 13.7 [Adjustments for Changes in Legislation] and Sub-Clause 13.8 [Adjustments for Changes in Cost].
(c) Any amount to be deducted for retention, calculated by applying the percentage of retention stated in the Contract Data to the total of the above amounts, until the amount so retained by the Employer reaches the limit of Retention Money (if any) stated in the Contract Data;

(d) Any amounts to be added for the advance payment and (if more than one instalment) and to be deducted for its repayments in accordance with Sub-Clause 14.2 [Advance Payment];

(e) Any amounts to be added and deducted for Plant and Materials in accordance with Sub-Clause 14.5 [Plant and Materials intended for the Works];

(f) Any other additions or deductions which may have become due under the Contract or otherwise, including those under Clause 20 [Claims, Disputes and Arbitration]; and

(g) The deduction of amounts certified in all previous Payment Certificates.

14.4 Schedule of Payments

If the Contract includes a schedule of payments specifying the instalments in which the Contract Price will be paid, then unless otherwise stated in this schedule:

(a) The instalments quoted in this schedule of payments shall be the estimated contract values for the purposes of sub-paragraph (a) of Sub-Clause 14.3 [Application for Interim Payment Certificates];

(b) Sub-Clause 14.5 [Plant and Materials intended for the Works] shall not apply; and

(c) If these instalments are not defined by reference to the actual progress achieved in executing the Works, and if actual progress is found to be less or more than that on which this schedule of payments was based, then the Engineer may proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine revised instalments, which shall take account of the extent to which progress is less or more than that on which the instalments were previously based.

If the Contract does not include a schedule of payments, the Contractor shall submit non-binding estimates of the payments which he expects to become due during each quarterly period. The first estimate shall be submitted within 42 days after the Commencement Date. Revised estimates shall be submitted at quarterly intervals, until the Taking-Over Certificate has been issued for the Works.

14.5 Plant and Materials intended for the Works

If this Sub-Clause applies, Interim Payment Certificates shall include, under sub-paragraph (e) of Sub-Clause 14.3, (i) an amount for Plant and Materials which have been sent to the Site for incorporation in the Permanent Works, and (ii) a reduction when the contract value of such Plant and Materials is included as part of the Permanent Works under sub-paragraph (a) of Sub-Clause 14.3 [Application for Interim Payment Certificates].

If the lists referred to in sub-paragraphs (b)(i) or (c)(i) below are not included in the Schedules, this Sub-Clause shall not apply.
The Engineer shall determine and certify each addition if the following conditions are satisfied:

(a) The Contractor has:
   (i) Kept satisfactory records (including the orders, receipts, Costs and use of Plant and Materials) which are available for inspection; and
   (ii) Submitted a statement of the Cost of acquiring and delivering the Plant and Materials to the Site, supported by satisfactory evidence;

and either:

(b) The relevant Plant and Materials:
   (i) Are those listed in the Schedules for payment when shipped;
   (ii) Have been shipped to the Country, en route to the Site, in accordance with the Contract; and
   (iii) Are described in a clean shipped bill of lading or other evidence of shipment, which has been submitted to the Engineer together with evidence of payment of freight and insurance, any other documents reasonably required, and a bank guarantee in a form and issued by an entity approved by the Employer in amounts and currencies equal to the amount due under this Sub-Clause: this guarantee may be in a similar form to the form referred to in Sub-Clause 14.2 [Advance Payment] and shall be valid until the Plant and Materials are properly stored on Site and protected against loss, damage or deterioration;

or

(c) The relevant Plant and Materials:
   (i) Are those listed in the Schedules for payment when delivered to the Site; and
   (ii) Have been delivered to and are properly stored on the Site, are protected against loss, damage or deterioration, and appear to be in accordance with the Contract.

The additional amount to be certified shall be the equivalent of eighty percent (80%) of the Engineer’s determination of the cost of the Plant and Materials (including delivery to Site), taking account of the documents mentioned in this Sub-Clause and of the contract value of the Plant and Materials.

The currencies for this additional amount shall be the same as those in which payment will become due when the contract value is included under sub-paragraph (a) of Sub-Clause 14.3 [Application for Interim Payment Certificates]. At that time, the Payment Certificate shall include the applicable reduction which shall be equivalent to, and in the same currencies and proportions as, this additional amount for the relevant Plant and Materials.
14.6 Issue of Interim Payment Certificates

No amount will be certified or paid until the Employer has received and approved the Performance Security. Thereafter, the Engineer shall, within 28 days after receiving a Statement and supporting documents, deliver to the Employer and to the Contractor an Interim Payment Certificate which shall state the amount which the Engineer fairly determines to be due, with all supporting particulars for any reduction or withholding made by the Engineer on the Statement if any.

However, prior to issuing the Taking-Over Certificate for the Works, the Engineer shall not be bound to issue an Interim Payment Certificate in an amount which would (after retention and other deductions) be less than the minimum amount of Interim Payment Certificates (if any) stated in the Contract Data. In this event, the Engineer shall give notice to the Contractor accordingly.

An Interim Payment Certificate shall not be withheld for any other reason, although:

(a) If anything supplied or work done by the Contractor is not in accordance with the Contract, the cost of rectification or replacement may be withheld until rectification or replacement has been completed; and/or

(b) If the Contractor was or is failing to perform any work or obligation in accordance with the Contract, and had been so notified by the Engineer, the value of this work or obligation may be withheld until the work or obligation has been performed.

The Engineer may in any Payment Certificate make any correction or modification that should properly be made to any previous Payment Certificate. A Payment Certificate shall not be deemed to indicate the Engineer's acceptance, approval, consent or satisfaction.

14.7 Payment

The Employer shall pay to the Contractor:

(a) The first instalment of the advance payment within 42 days after issuing the Letter of Acceptance or within 21 days after receiving the documents in accordance with Sub-Clause 4.2 [Performance Security] and Sub-Clause 14.2 [Advance Payment], whichever is later;

(b) The amount certified in each Interim Payment Certificate within 56 days after the Engineer receives the Statement and supporting documents; or, at a time when the Bank’s loan or credit (from which part of the payments to the Contractor is being made) is suspended, the amount shown on any statement submitted by the Contractor within 14 days after such statement is submitted, any discrepancy being rectified in the next payment to the Contractor; and

(c) The amount certified in the Final Payment Certificate within 56 days after the Employer receives this Payment Certificate; or, at a time when the Bank’s loan or credit (from which part of the payments to the Contractor is being made) is suspended, the undisputed amount shown in the Final Statement within 56 days after the date of notification of the suspension in accordance with Sub-Clause 16.2 [Termination by Contractor].
Payment of the amount due in each currency shall be made into the bank account, nominated by the Contractor, in the payment country (for this currency) specified in the Contract.

If the Contractor does not receive payment in accordance with Sub-Clause 14.7 [Payment], the Contractor shall be entitled to receive financing charged compounded monthly on the amount unpaid during the period of delay. This period shall be deemed to commence on the date for payment specified in Sub-Clause 14.7 [Payment], irrespective (in the case of its sub-paragraph (b)) of the date on which any Interim Payment Certificate is issued.

Unless otherwise stated in the Particular Conditions, these financing charges shall be calculated at the annual rate of three percentage points above the discount rate of the central bank in the country of the currency of payment, or if not available, the interbank offered rate, and shall be paid in such currency.

The Contractor shall be entitled to this payment without formal notice or certification, and without prejudice to any other right or remedy.

When the Taking-Over Certificate has been issued for the Works, the first half of the Retention Money shall be certified by the Engineer for payment to the Contractor. If a Taking-Over Certificate is issued for a Section or part of the Works, a proportion of the Retention Money shall be certified and paid. This proportion shall be half (50%) of the proportion calculated by dividing the estimated contract value of the Section or part, by the estimated final Contract Price.

Promptly after the latest of the expiry dates of the Defects Notification Periods, the outstanding balance of the Retention Money shall be certified by the Engineer for payment to the Contractor. If a Taking-Over Certificate was issued for a Section, a proportion of the second half of the Retention Money shall be certified and paid promptly after the expiry date of the Defects Notification Period for the Section. This proportion shall be half (50%) of the proportion calculated by dividing the estimated contract value of the Section by the estimated final Contract Price.

However, if any work remains to be executed under Clause 11 [Defects Liability], the Engineer shall be entitled to withhold certification of the estimated cost of this work until it has been executed.

When calculating these proportions, no account shall be taken of any adjustments under Sub-Clause 13.7 [Adjustments for Changes in Legislation] and Sub-Clause 13.8 [Adjustments for Changes in Cost].

Unless otherwise stated in the Particular Conditions, when the Taking-Over Certificate has been issued for the Works and the first half of the Retention Money has been certified for payment by the Engineer, the Contractor shall be entitled to substitute a guarantee, in the form annexed to the Particular Conditions or in another form approved by the Employer and issued by a reputable bank or financial institution selected by the Contractor, for the second half of the Retention Money. The Contractor shall ensure that the guarantee is in the amounts and currencies of the second half of the Retention Money and is valid and enforceable until the Contractor has executed and completed the Works and remedied any defects, as specified for the Performance Security in Sub-Clause 4.2. On receipt by the Employer of the required guarantee, the Engineer shall certify and the Employer shall pay the second half of the Retention Money.
The release of the second half of the Retention Money against a guarantee shall then be in lieu of the release under the second paragraph of this Sub-Clause. The Employer shall return the guarantee to the Contractor within 21 days after receiving a copy of the Performance Certificate.

If the Performance Security required under Sub-Clause 4.2 is in the form of a demand guarantee, and the amount guaranteed under it when the Taking-Over Certificate is issued is more than half of the Retention Money, then the Retention Money guarantee will not be required. If the amount guaranteed under the Performance Security when the Taking-Over Certificate is issued is less than half of the Retention Money, the Retention Money guarantee will only be required for the difference between half of the Retention Money and the amount guaranteed under the Performance Security.

14.10 Statement at Completion

Within 84 days after receiving the Taking-Over Certificate for the Works, the Contractor shall submit to the Engineer six copies of a Statement at completion with supporting documents, in accordance with Sub-Clause 14.3 [Application for Interim Payment Certificates], showing:

(a) The value of all work done in accordance with the Contract up to the date stated in the Taking-Over Certificate for the Works;

(b) Any further sums which the Contractor considers to be due; and

(c) An estimate of any other amounts which the Contractor considers will become due to him under the Contract. Estimated amounts shall be shown separately in this Statement at completion.

The Engineer shall then certify in accordance with Sub-Clause 14.6 [Issue of Interim Payment Certificates].

14.11 Application for Final Payment Certificate

Within 56 days after receiving the Performance Certificate, the Contractor shall submit, to the Engineer, six copies of a draft final statement with supporting documents showing in detail in a form approved by the Engineer:

(a) The value of all work done in accordance with the Contract; and

(b) Any further sums which the Contractor considers to be due to him under the Contract or otherwise.

If the Engineer disagrees with or cannot verify any part of the draft final statement, the Contractor shall submit such further information as the Engineer may reasonably require within 28 days from receipt of said draft and shall make such changes in the draft as may be agreed between them. The Contractor shall then prepare and submit to the Engineer the final statement as agreed. This agreed statement is referred to in these Conditions as the “Final Statement”.

However if, following discussions between the Engineer and the Contractor and any changes to the draft final statement which are agreed, it becomes evident that a dispute exists, the Engineer shall deliver to the Employer (with a copy to the Contractor) an Interim Payment Certificate for the agreed parts of the draft final statement. Thereafter, if the dispute is finally resolved under Sub-Clause 20.4 [Obtaining Dispute Board’s Decision] or Sub-Clause 20.5 [Amicable Settlement], the Contractor shall then prepare and submit to the Employer (with a copy to the Engineer) a Final Statement.
14.12 Discharge

When submitting the Final Statement, the Contractor shall submit a discharge which confirms that the total of the Final Statement represents full and final settlement of all moneys due to the Contractor under or in connection with the Contract. This discharge may state that it becomes effective when the Contractor has received the Performance Security and the outstanding balance of this total, in which event the discharge shall be effective on such date.

14.13 Issue of Final Payment Certificate

Within 28 days after receiving the Final Statement and discharge in accordance with Sub-Clause 14.11 [Application for Final Payment Certificate] and Sub-Clause 14.12 [Discharge], the Engineer shall deliver, to the Employer and to the Contractor, the Final Payment Certificate which shall state:

(a) The amount which he fairly determines is finally due; and

(b) After giving credit to the Employer for all amounts previously paid by the Employer and for all sums to which the Employer is entitled, the balance (if any) due from the Employer to the Contractor or from the Contractor to the Employer, as the case may be.

If the Contractor has not applied for a Final Payment Certificate in accordance with Sub-Clause 14.11 [Application for Final Payment Certificate] and Sub-Clause 14.12 [Discharge], the Engineer shall request the Contractor to do so. If the Contractor fails to submit an application within a period of 28 days, the Engineer shall issue the Final Payment Certificate for such amount as he fairly determines to be due.

14.14 Cessation of Employer’s Liability

The Employer shall not be liable to the Contractor for any matter or thing under or in connection with the Contract or execution of the Works, except to the extent that the Contractor shall have included an amount expressly for it:

(a) In the Final Statement; and also

(b) (Except for matters or things arising after the issue of the Taking-Over Certificate for the Works) in the Statement at completion described in Sub-Clause 14.10 [Statement at Completion].

However, this Sub-Clause shall not limit the Employer’s liability under his indemnification obligations, or the Employer’s liability in any case of fraud, deliberate default or reckless misconduct by the Employer.

14.15 Currencies of Payment

The Contract Price shall be paid in the currency or currencies named in the Schedule of Payment Currencies. If more than one currency is so named, payments shall be made as follows:

(a) If the Accepted Contract Amount was expressed in Local Currency only:

(i) The proportions or amounts of the Local and Foreign Currencies, and the fixed rates of exchange to be used for calculating the payments, shall be as stated in the Schedule of Payment Currencies, except as otherwise agreed by both Parties;

(ii) Payments and deductions under Sub-Clause 13.5 [Provisional Sums] and Sub-Clause 13.7 [Adjustments for Changes in
Legislation] shall be made in the applicable currencies and proportions; and

(iii) Other payments and deductions under sub-paragraphs (a) to (d) of Sub-Clause 14.3 [Application for Interim Payment Certificates] shall be made in the currencies and proportions specified in sub-paragraph (a)(i) above;

(b) Payment of the damages specified in the Contract Data, shall be made in the currencies and proportions specified in the Schedule of Payment Currencies;

(c) Other payments to the Employer by the Contractor shall be made in the currency in which the sum was expended by the Employer, or in such currency as may be agreed by both Parties;

(d) If any amount payable by the Contractor to the Employer in a particular currency exceeds the sum payable by the Employer to the Contractor in that currency, the Employer may recover the balance of this amount from the sums otherwise payable to the Contractor in other currencies; and

(e) If no rates of exchange are stated in the Schedule of Payment Currencies, they shall be those prevailing on the Base Date and determined by the central bank of the Country.

15. Termination by Employer

15.1 Notice to Correct

If the Contractor fails to carry out any obligation under the Contract, the Engineer may by notice require the Contractor to make good the failure and to remedy it within a specified reasonable time.

15.2 Termination by Employer

The Employer shall be entitled to terminate the Contract if the Contractor:

(a) Fails to comply with Sub-Clause 4.2 [Performance Security] or with a notice under Sub-Clause 15.1 [Notice to Correct];

(b) Abandons the Works or otherwise plainly demonstrates the intention not to continue performance of his obligations under the Contract;

(c) Without reasonable excuse fails:

   (i) To proceed with the Works in accordance with Clause 8 [Commencement, Delays and Suspension]; or

   (ii) To comply with a notice issued under Sub-Clause 7.5 [Rejection] or Sub-Clause 7.6 [Remedial Work], within 28 days after receiving it;

(d) Subcontracts the whole of the Works or assigns the Contract without the required agreement;

(e) Becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors, or if any act is done or event occurs which (under applicable Laws) has a similar effect to any of these acts or events; or
(f) Gives or offers to give (directly or indirectly) to any person any bribe, gift, gratuity, commission or other thing of value, as an inducement or reward:

(i) For doing or forbearing to do any action in relation to the Contract; or

(ii) For showing or forbearing to show favour or disfavour to any person in relation to the Contract,

or if any of the Contractor’s Personnel, agents or Subcontractors gives or offers to give (directly or indirectly) to any person any such inducement or reward as is described in this sub-paragraph (f). However, lawful inducements and rewards to Contractor’s Personnel shall not entitle termination.

In any of these events or circumstances, the Employer may, upon giving 14 days’ notice to the Contractor, terminate the Contract and expel the Contractor from the Site. However, in the case of sub-paragraph (e) or (f), the Employer may by notice terminate the Contract immediately.

The Employer’s election to terminate the Contract shall not prejudice any other rights of the Employer, under the Contract or otherwise.

The Contractor shall then leave the Site and deliver any required Goods, all Contractor's Documents, and other design documents made by or for him, to the Engineer. However, the Contractor shall use his best efforts to comply immediately with any reasonable instructions included in the notice (i) for the assignment of any subcontract, and (ii) for the protection of life or property or for the safety of the Works.

After termination, the Employer may complete the Works and/or arrange for any other entities to do so. The Employer and these entities may then use any Goods, Contractor’s Documents and other design documents made by or on behalf of the Contractor.

The Employer shall then give notice that the Contractor’s Equipment and Temporary Works will be released to the Contractor at or near the Site. The Contractor shall promptly arrange their removal, at the risk and cost of the Contractor. However, if by this time the Contractor has failed to make a payment due to the Employer, these items may be sold by the Employer in order to recover this payment. Any balance of the proceeds shall then be paid to the Contractor.

15.3 Valuation at Date of Termination

As soon as practicable after a notice of termination under Sub-Clause 15.2 [Termination by Employer] has taken effect, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine the value of the Works, Goods and Contractor's Documents, and any other sums due to the Contractor for work executed in accordance with the Contract.

15.4 Payment after Termination

After a notice of termination under Sub-Clause 15.2 [Termination by Employer] has taken effect, the Employer may:

(a) Proceed in accordance with Sub-Clause 2.5 [Employer’s Claims];

(b) Withhold further payments to the Contractor until the costs of execution, completion and remedying of any defects, damages for delay in completion (if any), and all other costs incurred by the Employer, have been established; and/or
The Employer shall be entitled to terminate the Contract, at any time for the Employer’s convenience, by giving notice of such termination to the Contractor. The termination shall take effect 28 days after the later of the dates on which the Contractor receives this notice or the Employer returns the Performance Security. The Employer shall not terminate the Contract under this Sub-Clause in order to execute the Works himself or to arrange for the Works to be executed by another contractor or to avoid a termination of the Contract by the Contractor under Clause 16.2 [Termination by Contractor].

After this termination, the Contractor shall proceed in accordance with Sub-Clause 16.3 [Cessation of Work and Removal of Contractor’s Equipment] and shall be paid in accordance with Sub-Clause 16.4 [Payment on Termination].

If the Employer determines, based on reasonable evidence, that the Contractor has engaged in corrupt, fraudulent, collusive or coercive practices, in competing for or in executing the Contract, then the Employer may, after giving 14 days notice to the Contractor, terminate the Contract and expel him from the Site, and the provisions of Clause 15 shall apply as if such termination had been made under Sub-Clause 15.2 [Termination by Employer].

Should any employee of the Contractor be determined, based on reasonable evidence, to have engaged in corrupt, fraudulent or coercive practice during the execution of the work then that employee shall be removed in accordance with Sub-Clause 6.9 [Contractor’s Personnel].

For the purposes of this Sub-Clause:

(i) “Corrupt practice” is the offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;

(ii) “Fraudulent practice” is any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;

(iii) “Collusive practice” is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;

(iv) “Coercive practice” is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;

(v) “Obstructive practice” is

(i) Deliberately destroying, falsifying, altering or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a Bank investigation into allegations
16. Suspension and Termination by Contractor

16.1 Contractor’s Entitlement to Suspend Work

If the Engineer fails to certify in accordance with Sub-Clause 14.6 [Issue of Interim Payment Certificates] or the Employer fails to comply with Sub-Clause 2.4 [Employer’s Financial Arrangements] or Sub-Clause 14.7 [Payment], the Contractor may, after giving not less than 21 days’ notice to the Employer, suspend work (or reduce the rate of work) unless and until the Contractor has received the Payment Certificate, reasonable evidence or payment, as the case may be and as described in the notice.

Notwithstanding the above, if the Bank has suspended disbursements under the loan or credit from which payments to the Contractor are being made, in whole or in part, for the execution of the Works, and no alternative funds are available as provided for in Sub-Clause 2.4 [Employer’s Financial Arrangements], the Contractor may by notice suspend work or reduce the rate of work at any time, but not less than 7 days after the Borrower having received the suspension notification from the Bank.

The Contractor’s action shall not prejudice his entitlements to financing charges under Sub-Clause 14.8 [Delayed Payment] and to termination under Sub-Clause 16.2 [Termination by Contractor].

If the Contractor subsequently receives such Payment Certificate, evidence or payment (as described in the relevant Sub-Clause and in the above notice) before giving a notice of termination, the Contractor shall resume normal working as soon as is reasonably practicable.

If the Contractor suffers delay and/or incurs Cost as a result of suspending work (or reducing the rate of work) in accordance with this Sub-Clause, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor’s Claims] to:

(a) An extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion]; and

(b) Payment of any such Cost plus profit, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

16.2 Termination by Contractor

The Contractor shall be entitled to terminate the Contract if:

(a) The Contractor does not receive the reasonable evidence within 42 days after giving notice under Sub-Clause 16.1 [Contractor’s Entitlement to Suspend Work] in respect of a failure to comply with Sub-Clause 2.4 [Employer’s Financial Arrangements];
(b) The Engineer fails, within 56 days after receiving a Statement and supporting documents, to issue the relevant Payment Certificate;

(c) The Contractor does not receive the amount due under an Interim Payment Certificate within 42 days after the expiry of the time stated in Sub-Clause 14.7 [Payment] within which payment is to be made (except for deductions in accordance with Sub-Clause 2.5 [Employer's Claims]);

(d) The Employer substantially fails to perform his obligations under the Contract in such manner as to materially and adversely affect the economic balance of the Contract and/or the ability of the Contractor to perform the Contract;

(e) The Employer fails to comply with Sub-Clause 1.6 [Contract Agreement] or Sub-Clause 1.7 [Assignment];

(f) A prolonged suspension affects the whole of the Works as described in Sub-Clause 8.11 [Prolonged Suspension];

(g) The Employer becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors, or if any act is done or event occurs which (under applicable Laws) has a similar effect to any of these acts or events;

(h) The Contractor does not receive the Engineer’s instruction recording the agreement of both Parties on the fulfilment of the conditions for the Commencement of Works under Sub-Clause 8.1 [Commencement of Works].

In any of these events or circumstances, the Contractor may, upon giving 14 days’ notice to the Employer, terminate the Contract. However, in the case of sub-paragraph (f) or (g), the Contractor may by notice terminate the Contract immediately.

In the event the Bank suspends the loan or credit from which part or whole of the payments to the Contractor are being made, if the Contractor has not received the sums due to him upon expiration of the 14 days referred to in Sub-Clause 14.7 [Payment] for payments under Interim Payment Certificates, the Contractor may, without prejudice to the Contractor’s entitlement to financing charges under Sub-Clause 14.8 [Delayed Payment], take one of the following actions, namely (i) suspend work or reduce the rate of work under Sub-Clause 16.1 above, or (ii) terminate the Contract by giving notice to the Employer, with a copy to the Engineer, such termination to take effect 14 days after the giving of the notice.

The Contractor’s election to terminate the Contract shall not prejudice any other rights of the Contractor, under the Contract or otherwise.

16.3 Cessation of Work and Removal of Contractor’s Equipment

After a notice of termination under Sub-Clause 15.5 [Employer’s Entitlement to Termination for Convenience], Sub-Clause 16.2 [Termination by Contractor] or Sub-Clause 19.6 [Optional Termination, Payment and Release] has taken effect, the Contractor shall promptly:

(a) Cease all further work, except for such work as may have been instructed by the Engineer for the protection of life or property or for the safety of the Works;
16.4 Payment on Termination

After a notice of termination under Sub-Clause 16.2 [Termination by Contractor] has taken effect, the Employer shall promptly:

(a) Return the Performance Security to the Contractor;

(b) Pay the Contractor in accordance with Sub-Clause 19.6 [Optional Termination, Payment and Release]; and

(c) Pay to the Contractor the amount of any loss or damage sustained by the Contractor as a result of this termination.

17. Risk and Responsibility

17.1 Indemnities

The Contractor shall indemnify and hold harmless the Employer, the Employer’s Personnel, and their respective agents, against and from all claims, damages, losses and expenses (including legal fees and expenses) in respect of:

(a) Bodily injury, sickness, disease or death, of any person whatsoever arising out of or in the course of or by reason of the Contractor’s design (if any), the execution and completion of the Works and the remedying of any defects, unless attributable to any negligence, wilful act or breach of the Contract by the Employer, the Employer’s Personnel, or any of their respective agents; and

(b) Damage to or loss of any property, real or personal (other than the Works), to the extent that such damage or loss arises out of or in the course of or by reason of the Contractor’s design (if any), the execution and completion of the Works and the remedying of any defects, unless and to the extent that any such damage or loss is attributable to any negligence, wilful act or breach of the Contract by the Employer, the Employer’s Personnel, their respective agents, or anyone directly or indirectly employed by any of them.

The Employer shall indemnify and hold harmless the Contractor, the Contractor’s Personnel, and their respective agents, against and from all claims, damages, losses and expenses (including legal fees and expenses) in respect of (1) bodily injury, sickness, disease or death, which is attributable to any negligence, wilful act or breach of the Contract by the Employer, the Employer’s Personnel, or any of their respective agents, and (2) the matters for which liability may be excluded from insurance cover, as described in sub-paragraphs (d)(i), (ii) and (iii) of Sub-Clause 18.3 [Insurance Against Injury to Persons and Damage to Property].

17.2 Contractor’s Care of the Works

The Contractor shall take full responsibility for the care of the Works and Goods from the Commencement Date until the Taking-Over Certificate is issued (or is deemed to be issued under Sub-Clause 10.1 [Taking Over of the Works and Sections]) for the Works, when responsibility for the care of the Works shall pass to the Employer. If a Taking-Over Certificate is issued (or is so deemed to be issued) for any Section or part of the Works, responsibility for the care of the Section or part shall then pass to the Employer.
After responsibility has accordingly passed to the Employer, the Contractor shall take responsibility for the care of any work which is outstanding on the date stated in a Taking-Over Certificate, until this outstanding work has been completed.

If any loss or damage happens to the Works, Goods or Contractor’s Documents during the period when the Contractor is responsible for their care, from any cause not listed in Sub-Clause 17.3 [Employer’s Risks], the Contractor shall rectify the loss or damage at the Contractor’s risk and cost, so that the Works, Goods and Contractor’s Documents conform to the Contract.

The Contractor shall be liable for any loss or damage caused by any actions performed by the Contractor after a Taking-Over Certificate has been issued. The Contractor shall also be liable for any loss or damage which occurs after a Taking-Over Certificate has been issued and which arose from a previous event for which the Contractor was liable.

The risks referred to in Sub-Clause 17.4 [Consequences of Employer’s Risks] below, insofar as they directly affect the execution of the Works in the Country, are:

(a) War, hostilities (whether war be declared or not), invasion, act of foreign enemies;
(b) Rebellion, terrorism, sabotage by persons other than the Contractor’s Personnel, revolution, insurrection, military or usurped power, or civil war, within the Country;
(c) Riot, commotion or disorder within the Country by persons other than the Contractor’s Personnel;
(d) Munitions of war, explosive materials, ionising radiation or contamination by radio-activity, within the Country, except as may be attributable to the Contractor’s use of such munitions, explosives, radiation or radio-activity;
(e) Pressure waves caused by aircraft or other aerial devices travelling at sonic or supersonic speeds;
(f) Use or occupation by the Employer of any part of the Permanent Works, except as may be specified in the Contract;
(g) Design of any part of the Works by the Employer’s Personnel or by others for whom the Employer is responsible; and
(h) Any operation of the forces of nature which is Unforeseeable or against which an experienced contractor could not reasonably have been expected to have taken adequate preventive precautions.

If and to the extent that any of the risks listed in Sub-Clause 17.3 above results in loss or damage to the Works, Goods or Contractor’s Documents, the Contractor shall promptly give notice to the Engineer and shall rectify this loss or damage to the extent required by the Engineer.

If the Contractor suffers delay and/or incurs Cost from rectifying this loss or damage, the Contractor shall give a further notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor’s Claims] to:
KfW/ MoAD, SOM 2; Sustainable Land Management in Somaliland

Works Contract C1 - TD Part 3 Conditions of Contract and Contract Forms
Lot A – SS dam sites SS01 (Geed Abera), SS03 (Daanyaale), SS04 (Arabsiyo)
Lot B – SS dam sites SS07 (Beeyo Liibaan), SS13 (Caro Yanbo), SS16 (Geesdeher)

(a)  An extension of time for any such delay, if completion is or will be
delayed, under Sub-Clause 8.4 [Extension of Time for Completion]; and

(b)  Payment of any such Cost, which shall be included in the Contract
Price. In the case of sub-paragraphs (f) and (g) of Sub-Clause 17.3
[Employer's Risks], Cost plus profit shall be payable.

After receiving this further notice, the Engineer shall proceed in
accordance with Sub-Clause 3.5 [Determinations] to agree or determine
these matters.

17.5 Intellectual and Industrial Property Rights

In this Sub-Clause, “infringement” means an infringement (or alleged
infringement) of any patent, registered design, copyright, trade mark,
trade name, trade secret or other intellectual or industrial property right
relating to the Works; and “claim” means a claim (or proceedings pursuing
a claim) alleging an infringement.

Whenever a Party does not give notice to the other Party of any claim
within 28 days of receiving the claim, the first Party shall be deemed to
have waived any right to indemnity under this Sub-Clause.

The Employer shall indemnify and hold the Contractor harmless against
and from any claim alleging an infringement which is or was:

(a)  An unavoidable result of the Contractor’s compliance with the
Contract; or

(b)  A result of any Works being used by the Employer:

(i)  For a purpose other than that indicated by, or reasonably to
be inferred from, the Contract; or

(ii)  In conjunction with anything not supplied by the Contractor,
unless such use was disclosed to the Contractor prior to the
Base Date or is stated in the Contract.

The Contractor shall indemnify and hold the Employer harmless against
and from any other claim which arises out of or in relation to (i) the
manufacture, use, sale or import of any Goods, or (ii) any design for which
the Contractor is responsible.

If a Party is entitled to be indemnified under this Sub-Clause, the
indemnifying Party may (at its cost) conduct negotiations for the
settlement of the claim, and any litigation or arbitration which may arise
from it. The other Party shall, at the request and cost of the indemnifying
Party, assist in contesting the claim. This other Party (and its Personnel)
shall not make any admission which might be prejudicial to the
indemnifying Party, unless the indemnifying Party failed to take over the
conduct of any negotiations, litigation or arbitration upon being requested
to do so by such other Party.

17.6 Limitation of Liability

Neither Party shall be liable to the other Party for loss of use of any Works,
loss of profit, loss of any contract or for any indirect or consequential loss
or damage which may be suffered by the other Party in connection with
the Contract, other than as specifically provided in Sub-Clause 8.7 [Delay
Damages]; Sub-Clause 11.2 [Cost of Remedying Defects]; Sub-Clause
15.4 [Payment after Termination]; Sub-Clause 16.4 [Payment on
Termination]; Sub-Clause 17.1 [Indemnities]; Sub-Clause 17.4(b)
The total liability of the Contractor to the Employer, under or in connection with the Contract other than under Sub-Clause 4.19 [Electricity, Water and Gas], Sub-Clause 4.20 [Employer’s Equipment and Free-Issue Materials], Sub-Clause 17.1 [Indemnities] and Sub-Clause 17.5 [Intellectual and Industrial Property Rights], shall not exceed the sum resulting from the application of a multiplier (less or greater than one) to the Accepted Contract Amount, as stated in the Contract Data, or (if such multiplier or other sum is not so stated) the Accepted Contract Amount.

This Sub-Clause shall not limit liability in any case of fraud, deliberate default or reckless misconduct by the defaulting Party.

The Contractor shall take full responsibility for the care of the Employer provided accommodation and facilities, if any, as detailed in the Specification, from the respective dates of hand-over to the Contractor until cessation of occupation (where hand-over or cessation of occupation may take place after the date stated in the Taking-Over Certificate for the Works).

If any loss or damage happens to any of the above items while the Contractor is responsible for their care arising from any cause whatsoever other than those for which the Employer is liable, the Contractor shall, at his own cost, rectify the loss or damage to the satisfaction of the Engineer.

18. Insurance

In this Clause, “insuring Party” means, for each type of insurance, the Party responsible for effecting and maintaining the insurance specified in the relevant Sub-Clause.

Wherever the Contractor is the insuring Party, each insurance shall be effected with insurers and in terms approved by the Employer. These terms shall be consistent with any terms agreed by both Parties before the date of the Letter of Acceptance. This agreement of terms shall take precedence over the provisions of this Clause.

Wherever the Employer is the insuring Party, each insurance shall be effected with insurers and in terms acceptable to the Contractor. These terms shall be consistent with any terms agreed by both Parties before the date of the Letter of Acceptance. This agreement of terms shall take precedence over the provisions of this Clause.

If a policy is required to indemnify joint insured, the cover shall apply separately to each insured as though a separate policy had been issued for each of the joint insured. If a policy indemnifies additional joint insured, namely in addition to the insured specified in this Clause, (i) the Contractor shall act under the policy on behalf of these additional joint insured except that the Employer shall act for Employer’s Personnel, (ii) additional joint insured shall not be entitled to receive payments directly from the insurer or to have any other direct dealings with the insurer, and (iii) the insuring Party shall require all additional joint insured to comply with the conditions stipulated in the policy.

Each policy insuring against loss or damage shall provide for payments to be made in the currencies required to rectify the loss or damage.
Payments received from insurers shall be used for the rectification of the loss or damage.

The relevant insuring Party shall, within the respective periods stated in the Contract Data (calculated from the Commencement Date), submit to the other Party:

(a) Evidence that the insurances described in this Clause have been effected; and

(b) Copies of the policies for the insurances described in Sub-Clause 18.2 [Insurance for Works and Contractor's Equipment] and Sub-Clause 18.3 [Insurance against Injury to Persons and Damage to Property].

When each premium is paid, the insuring Party shall submit evidence of payment to the other Party. Whenever evidence or policies are submitted, the insuring Party shall also give notice to the Engineer.

Each Party shall comply with the conditions stipulated in each of the insurance policies. The insuring Party shall keep the insurers informed of any relevant changes to the execution of the Works and ensure that insurance is maintained in accordance with this Clause.

Neither Party shall make any material alteration to the terms of any insurance without the prior approval of the other Party. If an insurer makes (or attempts to make) any alteration, the Party first notified by the insurer shall promptly give notice to the other Party.

If the insuring Party fails to effect and keep in force any of the insurances it is required to effect and maintain under the Contract, or fails to provide satisfactory evidence and copies of policies in accordance with this Sub-Clause, the other Party may (at its option and without prejudice to any other right or remedy) effect insurance for the relevant coverage and pay the premiums due. The insuring Party shall pay the amount of these premiums to the other Party, and the Contract Price shall be adjusted accordingly.

Nothing in this Clause limits the obligations, liabilities or responsibilities of the Contractor or the Employer, under the other terms of the Contract or otherwise. Any amounts not insured or not recovered from the insurers shall be borne by the Contractor and/or the Employer in accordance with these obligations, liabilities or responsibilities. However, if the insuring Party fails to effect and keep in force an insurance which is available and which it is required to effect and maintain under the Contract, and the other Party neither approves the omission nor effects insurance for the coverage relevant to this default, any moneys which should have been recoverable under this insurance shall be paid by the insuring Party.

Payments by one Party to the other Party shall be subject to Sub-Clause 2.5 [Employer’s Claims] or Sub-Clause 20.1 [Contractor’s Claims], as applicable.

The Contractor shall be entitled to place all insurance relating to the Contract (including, but not limited to the insurance referred to Clause 18) with insurers from any eligible source country.

The insuring Party shall insure the Works, Plant, Materials and Contractor’s Documents for not less than the full reinstatement cost including the costs of demolition, removal of debris and professional fees.
and profit. This insurance shall be effective from the date by which the evidence is to be submitted under sub-paragraph (a) of Sub-Clause 18.1 [General Requirements for Insurances], until the date of issue of the Taking-Over Certificate for the Works.

The insuring Party shall maintain this insurance to provide cover until the date of issue of the Performance Certificate, for loss or damage for which the Contractor is liable arising from a cause occurring prior to the issue of the Taking-Over Certificate, and for loss or damage caused by the Contractor in the course of any other operations (including those under Clause 11 [Defects Liability]).

The insuring Party shall insure the Contractor’s Equipment for not less than the full replacement value, including delivery to Site. For each item of Contractor’s Equipment, the insurance shall be effective while it is being transported to the Site and until it is no longer required as Contractor’s Equipment.

Unless otherwise stated in the Particular Conditions, insurances under this Sub-Clause:

(a) Shall be effected and maintained by the Contractor as insuring Party;

(b) Shall be in the joint names of the Parties, who shall be jointly entitled to receive payments from the insurers, payments being held or allocated to the Party actually bearing the costs of rectifying the loss or damage,

(c) Shall cover all loss and damage from any cause not listed in Sub-Clause 17.3 [Employer’s Risks];

(d) Shall also cover, to the extent specifically required in the bidding documents of the Contract, loss or damage to a part of the Works which is attributable to the use or occupation by the Employer of another part of the Works, and loss or damage from the risks listed in sub-paragraphs (c), (g) and (h) of Sub-Clause 17.3 [Employer’s Risks], excluding (in each case) risks which are not insurable at commercially reasonable terms, with deductibles per occurrence of not more than the amount stated in the Contract Data (if an amount is not so stated, this sub-paragraph (d) shall not apply); and

(e) May however exclude loss of, damage to, and reinstatement of:

(i) A part of the Works which is in a defective condition due to a defect in its design, materials or workmanship (but cover shall include any other parts which are lost or damaged as a direct result of this defective condition and not as described in sub-paragraph (ii) below);

(ii) A part of the Works which is lost or damaged in order to reinstate any other part of the Works if this other part is in a defective condition due to a defect in its design, materials or workmanship;

(iii) A part of the Works which has been taken over by the Employer, except to the extent that the Contractor is liable for the loss or damage; and
(iv) Goods while they are not in the Country, subject to Sub-Clause 14.5 [Plant and Materials intended for the Works].

If, more than one year after the Base Date, the cover described in subparagraph (d) above ceases to be available at commercially reasonable terms, the Contractor shall (as insuring Party) give notice to the Employer, with supporting particulars. The Employer shall then (i) be entitled subject to Sub-Clause 2.5 [Employer’s Claims] to payment of an amount equivalent to such commercially reasonable terms as the Contractor should have expected to have paid for such cover, and (ii) be deemed, unless he obtains the cover at commercially reasonable terms, to have approved the omission under Sub-Clause 18.1 [General Requirements for Insurances].

18.3 Insurance against Injury to Persons and Damage to Property

The insuring Party shall insure against each Party’s liability for any loss, damage, death or bodily injury which may occur to any physical property (except things insured under Sub-Clause 18.2 [Insurance for Works and Contractor’s Equipment]) or to any person (except persons insured under Sub-Clause 18.4 [Insurance for Contractor’s Personnel]), which may arise out of the Contractor’s performance of the Contract and occurring before the issue of the Performance Certificate.

This insurance shall be for a limit per occurrence of not less than the amount stated in the Contract Data, with no limit on the number of occurrences. If an amount is not stated in the Contract Data, this Sub-Clause shall not apply.

Unless otherwise stated in the Particular Conditions, the insurances specified in this Sub-Clause:

(a) Shall be effected and maintained by the Contractor as insuring Party;
(b) Shall be in the joint names of the Parties;
(c) Shall be extended to cover liability for all loss and damage to the Employer’s property (except things insured under Sub-Clause 18.2) arising out of the Contractor’s performance of the Contract; and
(d) May however exclude liability to the extent that it arises from:
   (i) The Employer’s right to have the Permanent Works executed on, over, under, in or through any land, and to occupy this land for the Permanent Works;
   (ii) Damage which is an unavoidable result of the Contractor’s obligations to execute the Works and remedy any defects; and
   (iii) A cause listed in Sub-Clause 17.3 [Employer’s Risks], except to the extent that cover is available at commercially reasonable terms.

18.4 Insurance for Contractor’s Personnel

The Contractor shall effect and maintain insurance against liability for claims, damages, losses and expenses (including legal fees and expenses) arising from injury, sickness, disease or death of any person employed by the Contractor or any other of the Contractor’s Personnel.

The insurance shall cover the Employer and the Engineer against liability for claims, damages, losses and expenses (including legal fees and
expenses) arising from injury, sickness, disease or death of any person employed by the Contractor or any other of the Contractor’s Personnel, except that this insurance may exclude losses and claims to the extent that they arise from any act or neglect of the Employer or of the Employer’s Personnel.

The insurance shall be maintained in full force and effect during the whole time that these personnel are assisting in the execution of the Works. For a Subcontractor’s employees, the insurance may be effected by the Subcontractor, but the Contractor shall be responsible for compliance with this Clause.

19. Force Majeure

19.1 Definition of Force Majeure

In this Clause, “Force Majeure” means an exceptional event or circumstance:

(a) Which is beyond a Party’s control;

(b) Which such Party could not reasonably have provided against before entering into the Contract

(c) Which, having arisen, such Party could not reasonably have avoided or overcome; and

(d) Which is not substantially attributable to the other Party.

Force Majeure may include, but is not limited to, exceptional events or circumstances of the kind listed below, so long as conditions (a) to (d) above are satisfied:

(i) War, hostilities (whether war be declared or not), invasion, act of foreign enemies;

(ii) Rebellion, terrorism, sabotage by persons other than the Contractor’s Personnel, revolution, insurrection, military or usurped power, or civil war;

(iii) Riot, commotion, disorder, strike or lockout by persons other than the Contractor’s Personnel;

(iv) Munitions of war, explosive materials, ionising radiation or contamination by radio-activity, except as may be attributable to the Contractor’s use of such munitions, explosives, radiation or radio-activity; and

(v) Natural catastrophes such as earthquake, hurricane, typhoon or volcanic activity.

19.2 Notice of Force Majeure

If a Party is or will be prevented from performing its substantial obligations under the Contract by Force Majeure, then it shall give notice to the other Party of the event or circumstances constituting the Force Majeure and shall specify the obligations, the performance of which is or will be prevented. The notice shall be given within 14 days after the Party became aware, or should have become aware, of the relevant event or circumstance constituting Force Majeure.
19.3 Duty to Minimise Delay

The Party shall, having given notice, be excused performance of its obligations for so long as such Force Majeure prevents it from performing them.

Notwithstanding any other provision of this Clause, Force Majeure shall not apply to obligations of either Party to make payments to the other Party under the Contract.

Each Party shall at all times use all reasonable endeavours to minimise any delay in the performance of the Contract as a result of Force Majeure.

A Party shall give notice to the other Party when it ceases to be affected by the Force Majeure.

19.4 Consequences of Force Majeure

If the Contractor is prevented from performing his substantial obligations under the Contract by Force Majeure of which notice has been given under Sub-Clause 19.2 [Notice of Force Majeure], and suffers delay and/or incurs Cost by reason of such Force Majeure, the Contractor shall be entitled subject to Sub-Clause 20.1 [Contractor’s Claims] to:

(a) An extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion]; and

(b) If the event or circumstance is of the kind described in sub-paragraphs (i) to (iv) of Sub-Clause 19.1 [Definition of Force Majeure] and, in sub-paragraphs (ii) to (iv), occurs in the Country, payment of any such Cost, including the costs of rectifying or replacing the Works and/or Goods damaged or destroyed by Force Majeure, to the extent they are not indemnified through the insurance policy referred to in Sub-Clause 18.2 [Insurance for Works and Contractor’s Equipment].

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

19.5 Force Majeure Affecting Subcontractor

If any Subcontractor is entitled under any contract or agreement relating to the Works to relief from force majeure on terms additional to or broader than those specified in this Clause, such additional or broader force majeure events or circumstances shall not excuse the Contractor’s non-performance or entitle him to relief under this Clause.

19.6 Optional Termination Payment and Release

If the execution of substantially all the Works in progress is prevented for a continuous period of 84 days by reason of Force Majeure of which notice has been given under Sub-Clause 19.2 [Notice of Force Majeure], or for multiple periods which total more than 140 days due to the same notified Force Majeure, then either Party may give to the other Party a notice of termination of the Contract. In this event, the termination shall take effect 7 days after the notice is given, and the Contractor shall proceed in accordance with Sub-Clause 16.3 [Cessation of Work and Removal of Contractor’s Equipment].

Upon such termination, the Engineer shall determine the value of the work done and issue a Payment Certificate which shall include:

(a) The amounts payable for any work carried out for which a price is stated in the Contract;

(b) The Cost of Plant and Materials ordered for the Works which have been delivered to the Contractor, or of which the Contractor is liable.
to accept delivery: this Plant and Materials shall become the property of (and be at the risk of) the Employer when paid for by the Employer, and the Contractor shall place the same at the Employer’s disposal;

(c) Other Cost or liabilities which in the circumstances were reasonably and necessarily incurred by the Contractor in the expectation of completing the Works;

(d) The Cost of removal of Temporary Works and Contractor’s Equipment from the Site and the return of these items to the Contractor’s works in his country (or to any other destination at no greater cost); and

(e) The Cost of repatriation of the Contractor’s staff and labour employed wholly in connection with the Works at the date of termination.

19.7 Release from Performance

Notwithstanding any other provision of this Clause, if any event or circumstance outside the control of the Parties (including, but not limited to, Force Majeure) arises which makes it impossible or unlawful for either or both Parties to fulfil its or their contractual obligations or which, under the law governing the Contract, entitles the Parties to be released from further performance of the Contract, then upon notice by either Party to the other Party of such event or circumstance:

(a) The Parties shall be discharged from further performance, without prejudice to the rights of either Party in respect of any previous breach of the Contract; and

(b) The sum payable by the Employer to the Contractor shall be the same as would have been payable under Sub-Clause 19.6 [Optional Termination, Payment and Release] if the Contract had been terminated under Sub-Clause 19.6.

20. Claims, Disputes and Arbitration

20.1 Contractor’s Claims

If the Contractor considers himself to be entitled to any extension of the Time for Completion and/or any additional payment, under any Clause of these Conditions or otherwise in connection with the Contract, the Contractor shall give notice to the Engineer, describing the event or circumstance giving rise to the claim. The notice shall be given as soon as practicable, and not later than 28 days after the Contractor became aware, or should have become aware, of the event or circumstance.

If the Contractor fails to give notice of a claim within such period of 28 days, the Time for Completion shall not be extended, the Contractor shall not be entitled to additional payment, and the Employer shall be discharged from all liability in connection with the claim. Otherwise, the following provisions of this Sub-Clause shall apply.

The Contractor shall also submit any other notices which are required by the Contract, and supporting particulars for the claim, all as relevant to such event or circumstance.

The Contractor shall keep such contemporary records as may be necessary to substantiate any claim, either on the Site or at another
location acceptable to the Engineer. Without admitting the Employer’s liability, the Engineer may, after receiving any notice under this Sub-Clause, monitor the record-keeping and/or instruct the Contractor to keep further contemporary records. The Contractor shall permit the Engineer to inspect all these records, and shall (if instructed) submit copies to the Engineer.

Within 42 days after the Contractor became aware (or should have become aware) of the event or circumstance giving rise to the claim, or within such other period as may be proposed by the Contractor and approved by the Engineer, the Contractor shall send to the Engineer a fully detailed claim which includes full supporting particulars of the basis of the claim and of the extension of time and/or additional payment claimed. If the event or circumstance giving rise to the claim has a continuing effect:

(a) This fully detailed claim shall be considered as interim;
(b) The Contractor shall send further interim claims at monthly intervals, giving the accumulated delay and/or amount claimed, and such further particulars as the Engineer may reasonably require; and
(c) The Contractor shall send a final claim within 28 days after the end of the effects resulting from the event or circumstance, or within such other period as may be proposed by the Contractor and approved by the Engineer.

Within 42 days after receiving a claim or any further particulars supporting a previous claim, or within such other period as may be proposed by the Engineer and approved by the Contractor, the Engineer shall respond with approval, or with disapproval and detailed comments. He may also request any necessary further particulars, but shall nevertheless give his response on the principles of the claim within the above defined time period.

Within the above defined period of 42 days, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) the extension (if any) of the Time for Completion (before or after its expiry) in accordance with Sub-Clause 8.4 [Extension of Time for Completion], and/or (ii) the additional payment (if any) to which the Contractor is entitled under the Contract.

Each Payment Certificate shall include such additional payment for any claim as has been reasonably substantiated as due under the relevant provision of the Contract. Unless and until the particulars supplied are sufficient to substantiate the whole of the claim, the Contractor shall only be entitled to payment for such part of the claim as he has been able to substantiate.

If the Engineer does not respond within the timeframe defined in this Clause, either Party may consider that the claim is rejected by the Engineer and any of the Parties may refer to the Dispute Board in accordance with Sub-Clause 20.4 [Obtaining Dispute Board’s Decision].

The requirements of this Sub-Clause are in addition to those of any other Sub-Clause which may apply to a claim. If the Contractor fails to comply with this or another Sub-Clause in relation to any claim, any extension of time and/or additional payment shall take account of the extent (if any) to which the failure has prevented or prejudiced proper investigation of the
claim, unless the claim is excluded under the second paragraph of this Sub-Clause.

Disputes shall be referred to a DB for decision in accordance with Sub-Clause 20.4 [Obtaining Dispute Board's Decision]. The Parties shall appoint a DB by the date stated in the Contract Data.

The DB shall comprise, as stated in the Contract Data, either one or three suitably qualified persons ("the members"), each of whom shall be fluent in the language for communication defined in the Contract and shall be a professional experienced in the type of construction involved in the Works and with the interpretation of contractual documents. If the number is not so stated and the Parties do not agree otherwise, the DB shall comprise three persons.

If the Parties have not jointly appointed the DB 21 days before the date stated in the Contract Data and the DB is to comprise three persons, each Party shall nominate one member for the approval of the other Party. The first two members shall recommend and the Parties shall agree upon the third member, who shall act as chairman.

However, if a list of potential members has been agreed by the Parties and is included in the Contract, the members shall be selected from those on the list, other than anyone who is unable or unwilling to accept appointment to the DB.

The agreement between the Parties and either the sole member or each of the three members shall incorporate by reference the General Conditions of Dispute Board Agreement contained in the Appendix to these General Conditions, with such amendments as are agreed between them.

The terms of the remuneration of either the sole member or each of the three members, including the remuneration of any expert whom the DB consults, shall be mutually agreed upon by the Parties when agreeing the terms of appointment. Each Party shall be responsible for paying one-half of this remuneration.

If at any time the Parties so agree, they may jointly refer a matter to the DB for it to give its opinion. Neither Party shall consult the DB on any matter without the agreement of the other Party.

If a member declines to act or is unable to act as a result of death, disability, resignation or termination of appointment, a replacement shall be appointed in the same manner as the replaced person was required to have been nominated or agreed upon, as described in this Sub-Clause.

The appointment of any member may be terminated by mutual agreement of both Parties, but not by the Employer or the Contractor acting alone. Unless otherwise agreed by both Parties, the appointment of the DB (including each member) shall expire when the discharge referred to in Sub-Clause 14.12 [Discharge] shall have become effective.

If any of the following conditions apply, namely:

(a) The Parties fail to agree upon the appointment of the sole member of the DB by the date stated in the first paragraph of Sub-Clause 20.2 [Appointment of the Dispute Board];
Dispute Board

(b) Either Party fails to nominate a member (for approval by the other Party), or fails to approve a member nominated by the other Party, of a DB of three persons by such date;

(c) The Parties fail to agree upon the appointment of the third member (to act as chairman) of the DB by such date; or

(d) The Parties fail to agree upon the appointment of a replacement person within 42 days after the date on which the sole member or one of the three members declines to act or is unable to act as a result of death, disability, resignation or termination of appointment; then the appointing entity or official named in the Contract Data shall, upon the request of either or both of the Parties and after due consultation with both Parties, appoint this member of the DB. This appointment shall be final and conclusive. Each Party shall be responsible for paying one-half of the remuneration of the appointing entity or official.

20.4 Obtaining Dispute Board's Decision

If a dispute (of any kind whatsoever) arises between the Parties in connection with, or arising out of, the Contract or the execution of the Works, including any dispute as to any certificate, determination, instruction, opinion or valuation of the Engineer, either Party may refer the dispute in writing to the DB for its decision, with copies to the other Party and the Engineer. Such reference shall state that it is given under this Sub-Clause.

For a DB of three persons, the DB shall be deemed to have received such reference on the date when it is received by the chairman of the DB.

Both Parties shall promptly make available to the DB all such additional information, further access to the Site, and appropriate facilities, as the DB may require for the purposes of making a decision on such dispute. The DB shall be deemed to be not acting as arbitrator(s).

Within 84 days after receiving such reference, or within such other period as may be proposed by the DB and approved by both Parties, the DB shall give its decision, which shall be reasoned and shall state that it is given under this Sub-Clause. The decision shall be binding on both Parties, who shall promptly give effect to it unless and until it shall be revised in an amicable settlement or an arbitral award as described below. Unless the Contract has already been abandoned, repudiated or terminated, the Contractor shall continue to proceed with the Works in accordance with the Contract.

If either Party is dissatisfied with the DB’s decision, then either Party may, within 28 days after receiving the decision, give a Notice of Dissatisfaction to the other Party indicating its dissatisfaction and intention to commence arbitration. If the DB fails to give its decision within the period of 84 days (or as otherwise approved) after receiving such reference, then either Party may, within 28 days after this period has expired, give a Notice of Dissatisfaction to the other Party.

In either event, this Notice of Dissatisfaction shall state that it is given under this Sub-Clause, and shall set out the matter in dispute and the reason(s) for dissatisfaction. Except as stated in Sub-Clause 20.7 [Failure to Comply with Dispute Board’s Decision] and Sub-Clause 20.8 [Expiry of Dispute Board’s Appointment], neither Party shall be entitled to commence arbitration of a dispute unless a Notice of Dissatisfaction has been given in accordance with this Sub-Clause.
If the DB has given its decision as to a matter in dispute to both Parties, and no Notice of Dissatisfaction has been given by either Party within 28 days after it received the DB’s decision, then the decision shall become final and binding upon both Parties.

20.5 Amicable Settlement

Where a Notice of Dissatisfaction has been given under Sub-Clause 20.4 above, both Parties shall attempt to settle the dispute amicably before the commencement of arbitration. However, unless both Parties agree otherwise, the Party giving a Notice of Dissatisfaction in accordance with Sub-Clause 20.4 above should move to commence arbitration after the fifty-sixth day from the day on which a Notice of Dissatisfaction was given, even if no attempt at an amicable settlement has been made.

20.6 Arbitration

Any dispute between the Parties arising out of or in connection with the Contract not settled amicably in accordance with Sub-Clause 20.5 above and in respect of which the DB’s decision (if any) has not become final and binding shall be finally settled by arbitration. Arbitration shall be conducted as follows:

(a) If the contract is with foreign contractors,

International arbitration (1) with proceedings administered by the arbitration institution designated in the Contract Data, and conducted under the rules of arbitration of such institution; or, if so specified in the Contract Data, (2) international arbitration in accordance with the arbitration rules of the United Nations Commission on International Trade Law (UNCITRAL); or (3) if neither an arbitration institution nor UNCITRAL arbitration rules are specified in the Contract Data, with proceedings administered by the International Chamber of Commerce (ICC) and conducted under the ICC Rules of Arbitration; by one or more arbitrators appointed in accordance with said arbitration rules;

(b) If the Contract is with domestic contractors, arbitration with proceedings conducted in accordance with the laws of the Employer’s country.

The place of arbitration shall be the neutral location specified in the Contract Data; and the arbitration shall be conducted in the language for communications defined in Sub-Clause 1.4 [Law and Language].

The arbitrators shall have full power to open up, review and revise any certificate, determination, instruction, opinion or valuation of the Engineer, and any decision of the DB, relevant to the dispute. Nothing shall disqualify representatives of the Parties and the Engineer from being called as a witness and giving evidence before the arbitrators on any matter whatsoever relevant to the dispute.

Neither Party shall be limited in the proceedings before the arbitrators to the evidence or arguments previously put before the DB to obtain its decision, or to the reasons for dissatisfaction given in its Notice of Dissatisfaction. Any decision of the DB shall be admissible in evidence in the arbitration.

Arbitration may be commenced prior to or after completion of the Works. The obligations of the Parties, the Engineer and the DB shall not be altered by reason of any arbitration being conducted during the progress of the Works.
In the event that a Party fails to comply with a final and binding DB decision, then the other Party may, without prejudice to any other rights it may have, refer the failure itself to arbitration under Sub-Clause 20.6 [Arbitration]. Sub-Clause 20.4 [Obtaining Dispute Board’s Decision] and Sub-Clause 20.5 [Amicable Settlement] shall not apply to this reference.

If a dispute arises between the Parties in connection with, or arising out of, the Contract or the execution of the Works and there is no DB in place, whether by reason of the expiry of the DB’s appointment or otherwise:

(a) Sub-Clause 20.4 [Obtaining Dispute Board’s Decision] and Sub-Clause 20.5 [Amicable Settlement] shall not apply; and

(b) The dispute may be referred directly to arbitration under Sub-Clause 20.6 [Arbitration].

APPENDIX

A General Conditions of Dispute Board Agreement

1. Definitions

Each “Dispute Board Agreement” is a tripartite agreement by and between:

(a) The “Employer”;

(b) The “Contractor”; and

(c) The “Member” who is defined in the Dispute Board Agreement as being:

(i) The sole member of the “DB” and, where this is the case, all references to the “Other Members” do not apply, or

(ii) One of the three persons who are jointly called the “DB” (or “Dispute Board”) and, where this is the case, the other two persons are called the “Other Members”.

The Employer and the Contractor have entered (or intend to enter) into a contract, which is called the "Contract" and is defined in the Dispute Board Agreement, which incorporates this Appendix. In the Dispute Board Agreement, words and expressions which are not otherwise defined shall have the meanings assigned to them in the Contract.

2. General Provisions

Unless otherwise stated in the Dispute Board Agreement, it shall take effect on the latest of the following dates:

(a) The Commencement Date defined in the Contract;

(b) When the Employer, the Contractor and the Member have each signed the Dispute Board Agreement; or

(c) When the Employer, the Contractor and each of the Other Members (if any) have respectively each signed a dispute board agreement.

This employment of the Member is a personal appointment. At any time, the Member may give not less than 70 days’ notice of
resignation to the Employer and to the Contractor, and the Dispute Board Agreement shall terminate upon the expiry of this period.

3. Warranties

The Member warrants and agrees that he/she is and shall be impartial and independent of the Employer, the Contractor and the Engineer. The Member shall promptly disclose, to each of them and to the Other Members (if any), any fact or circumstance which might appear inconsistent with his/her warranty and agreement of impartiality and independence.

When appointing the Member, the Employer and the Contractor relied upon the Member’s representations that he/she is:

(a) Experienced in the work which the Contractor is to carry out under the Contract;

(b) Experienced in the interpretation of contract documentation; and

(c) Fluent in the language for communications defined in the Contract.

4. General Obligations of the Member

The Member shall:

(a) Have no interest financial or otherwise in the Employer, the Contractor or Engineer, nor any financial interest in the Contract except for payment under the Dispute Board Agreement;

(b) Not previously have been employed as a consultant or otherwise by the Employer, the Contractor or the Engineer, except in such circumstances as were disclosed in writing to the Employer and the Contractor before they signed the Dispute Board Agreement;

(c) Have disclosed in writing to the Employer, the Contractor and the Other Members (if any), before entering into the Dispute Board Agreement and to his/her best knowledge and recollection, any professional or personal relationships with any director, officer or employee of the Employer, the Contractor or the Engineer, and any previous involvement in the overall project of which the Contract forms part;

(d) Not, for the duration of the Dispute Board Agreement, be employed as a consultant or otherwise by the Employer, the Contractor or the Engineer, except as may be agreed in writing by the Employer, the Contractor and the Other Members (if any);

(e) Comply with the annexed procedural rules and with Sub-Clause 20.4 of the Conditions of Contract;

(f) Not give advice to the Employer, the Contractor, the Employer’s Personnel or the Contractor’s Personnel concerning the conduct of the Contract, other than in accordance with the annexed procedural rules;

(g) Not while a Member enter into discussions or make any agreement with the Employer, the Contractor or the Engineer regarding employment by any of them, whether as a consultant or otherwise, after ceasing to act under the Dispute Board Agreement;
5. General Obligations of the Employer and the Contractor

The Employer, the Contractor, the Employer’s Personnel and the Contractor’s Personnel shall not request advice from or consultation with the Member regarding the Contract, otherwise than in the normal course of the DB’s activities under the Contract and the Dispute Board Agreement. The Employer and the Contractor shall be responsible for compliance with this provision, by the Employer’s Personnel and the Contractor’s Personnel respectively.

The Employer and the Contractor undertake to each other and to the Member that the Member shall not, except as otherwise agreed in writing by the Employer, the Contractor, the Member and the Other Members (if any):

(a) Be appointed as an arbitrator in any arbitration under the Contract;

(b) Be called as a witness to give evidence concerning any dispute before arbitrator(s) appointed for any arbitration under the Contract; or

(c) Be liable for any claims for anything done or omitted in the discharge or purported discharge of the Member’s functions, unless the act or omission is shown to have been in bad faith.

The Employer and the Contractor hereby jointly and severally indemnify and hold the Member harmless against and from claims from which he is relieved from liability under the preceding paragraph.

Whenever the Employer or the Contractor refers a dispute to the DB under Sub-Clause 20.4 of the Conditions of Contract, which will require the Member to make a site visit and attend a hearing, the Employer or the Contractor shall provide appropriate security for a sum equivalent to the reasonable expenses to be incurred by the Member. No account shall be taken of any other payments due or paid to the Member.

6. Payment

The Member shall be paid as follows, in the currency named in the Dispute Board Agreement:

(a) A retainer fee per calendar month, which shall be considered as payment in full for:

(h) Ensure his/her availability for all site visits and hearings as are necessary;

(i) Become conversant with the Contract and with the progress of the Works (and of any other parts of the project of which the Contract forms part) by studying all documents received which shall be maintained in a current working file;

(j) Treat the details of the Contract and all the DB’s activities and hearings as private and confidential, and not publish or disclose them without the prior written consent of the Employer, the Contractor and the Other Members (if any); and

(k) Be available to give advice and opinions, on any matter relevant to the Contract when requested by both the Employer and the Contractor, subject to the agreement of the Other Members (if any).
(i) Being available on 28 days’ notice for all site visits and hearings;

(ii) Becoming and remaining conversant with all project developments and maintaining relevant files;

(iii) All office and overhead expenses including secretarial services, photocopying and office supplies incurred in connection with his duties; and

(iv) All services performed hereunder except those referred to in sub-paragraphs (b) and (c) of this Clause.

The retainer fee shall be paid with effect from the last day of the calendar month in which the Dispute Board Agreement becomes effective; until the last day of the calendar month in which the Taking-Over Certificate is issued for the whole of the Works.

With effect from the first day of the calendar month following the month in which the Taking-Over Certificate is issued for the whole of the Works, the retainer fee shall be reduced by one third. This reduced fee shall be paid until the first day of the calendar month in which the Member resigns or the Dispute Board Agreement is otherwise terminated.

(b) A daily fee which shall be considered as payment in full for:

(i) Each day or part of a day up to a maximum of two days’ travel time in each direction for the journey between the Member’s home and the Site, or another location of a meeting with the Other Members (if any);

(ii) Each working day on Site visits, hearings or preparing decisions; and

(iii) Each day spent reading submissions in preparation for a hearing;

(c) All reasonable expenses including necessary travel expenses (air fare in less than first class, hotel and subsistence and other direct travel expenses) incurred in connection with the Member’s duties, as well as the cost of telephone calls, courier charges, faxes and telexes: a receipt shall be required for each item in excess of five percent of the daily fee referred to in sub-paragraph (b) of this Clause;

(d) Any taxes properly levied in the Country on payments made to the Member (unless a national or permanent resident of the Country) under this Clause 6.

The retainer and daily fees shall be as specified in the Dispute Board Agreement. Unless it specifies otherwise, these fees shall remain fixed for the first 24 calendar months, and shall thereafter be adjusted by agreement between the Employer, the Contractor and the Member, at each anniversary of the date on which the Dispute Board Agreement became effective.
If the parties fail to agree on the retainer fee or the daily fee, the appointing entity or official named in the Contract Data shall determine the amount of the fees to be used.

The Member shall submit invoices for payment of the monthly retainer and air fares quarterly in advance. Invoices for other expenses and for daily fees shall be submitted following the conclusion of a site visit or hearing. All invoices shall be accompanied by a brief description of activities performed during the relevant period and shall be addressed to the Contractor.

The Contractor shall pay each of the Member’s invoices in full within 56 calendar days after receiving each invoice and shall apply to the Employer (in the Statements under the Contract) for reimbursement of one-half of the amounts of these invoices. The Employer shall then pay the Contractor in accordance with the Contract.

If the Contractor fails to pay to the Member the amount to which he/she is entitled under the Dispute Board Agreement, the Employer shall pay the amount due to the Member and any other amount which may be required to maintain the operation of the DB; and without prejudice to the Employer’s rights or remedies. In addition to all other rights arising from this default, the Employer shall be entitled to reimbursement of all sums paid in excess of one-half of these payments, plus all costs of recovering these sums and financing charges calculated at the rate specified in Sub-Clause 14.8 of the Conditions of Contract.

If the Member does not receive payment of the amount due within 70 days after submitting a valid invoice, the Member may (i) suspend his/her services (without notice) until the payment is received, and/or (ii) resign his/her appointment by giving notice under Clause 7.

7. Termination

At any time: (i) the Employer and the Contractor may jointly terminate the Dispute Board Agreement by giving 42 days’ notice to the Member; or (ii) the Member may resign as provided for in Clause 2.

If the Member fails to comply with the Dispute Board Agreement, the Employer and the Contractor may, without prejudice to their other rights, terminate it by notice to the Member. The notice shall take effect when received by the Member.

If the Employer or the Contractor fails to comply with the Dispute Board Agreement, the Member may, without prejudice to his other rights, terminate it by notice to the Employer and the Contractor. The notice shall take effect when received by them both.

Any such notice, resignation and termination shall be final and binding on the Employer, the Contractor and the Member. However, a notice by the Employer or the Contractor, but not by both, shall be of no effect.

8. Default of the Member

If the Member fails to comply with any of his obligations under Clause 4 (a) - (d) above, he shall not be entitled to any fees or expenses hereunder and shall, without prejudice to their other rights, reimburse each of the Employer and the Contractor for any fees and expenses received by the Member and the Other Members (if any), for proceedings or decisions (if any) of the DB which are rendered void or ineffective by the said failure to comply.
If the Member fails to comply with any of his obligations under Clause 4 (e) - (k) above, he shall not be entitled to any fees or expenses hereunder from the date and to the extent of the non-compliance and shall, without prejudice to their other rights, reimburse each of the Employer and the Contractor for any fees and expenses already received by the Member, for proceedings or decisions (if any) of the DB which are rendered void or ineffective by the said failure to comply.

9. Disputes

Any dispute or claim arising out of or in connection with this Dispute Board Agreement, or the breach, termination or invalidity thereof, shall be finally settled by institutional arbitration. If no other arbitration institute is agreed, the arbitration shall be conducted under the Rules of Arbitration of the International Chamber of Commerce by one arbitrator appointed in accordance with these Rules of Arbitration.
PROCEDURAL RULES

Unless otherwise agreed by the Employer and the Contractor, the DB shall visit the Site at intervals of not more than 140 days, including times of critical construction events, at the request of either the Employer or the Contractor. Unless otherwise agreed by the Employer, the Contractor and the DB, the period between consecutive visits shall not be less than 70 days, except as required to convene a hearing as described below.

The timing of and agenda for each Site visit shall be as agreed jointly by the DB, the Employer and the Contractor, or in the absence of agreement, shall be decided by the DB. The purpose of Site visits is to enable the DB to become and remain acquainted with the progress of the Works and of any actual or potential problems or claims, and, as far as reasonable, to endeavour to prevent potential problems or claims from becoming disputes.

Site visits shall be attended by the Employer, the Contractor and the Engineer and shall be co-ordinated by the Employer in co-operation with the Contractor. The Employer shall ensure the provision of appropriate conference facilities and secretarial and copying services. At the conclusion of each Site visit and before leaving the site, the DB shall prepare a report on its activities during the visit and shall send copies to the Employer and the Contractor.

The Employer and the Contractor shall furnish to the DB one copy of all documents which the DB may request, including Contract documents, progress reports, variation instructions, certificates and other documents pertinent to the performance of the Contract. All communications between the DB and the Employer or the Contractor shall be copied to the other Party. If the DB comprises three persons, the Employer and the Contractor shall send copies of these requested documents and these communications to each of these persons.

If any dispute is referred to the DB in accordance with Sub-Clause 20.4 of the Conditions of Contract, the DB shall proceed in accordance with Sub-Clause 20.4 and these Rules. Subject to the time allowed to give notice of a decision and other relevant factors, the DB shall:

(a) Act fairly and impartially as between the Employer and the Contractor, giving each of them a reasonable opportunity of putting his case and responding to the other’s case; and

(b) Adopt procedures suitable to the dispute, avoiding unnecessary delay or expense.

The DB may conduct a hearing on the dispute, in which event it will decide on the date and place for the hearing and may request that written documentation and arguments from the Employer and the Contractor be presented to it prior to or at the hearing.

Except as otherwise agreed in writing by the Employer and the Contractor, the DB shall have power to adopt an inquisitorial procedure, to refuse admission to hearings or audience at hearings to any persons other than representatives of the Employer, the Contractor and the Engineer, and to proceed in the absence of any party who the DB is satisfied received notice of the hearing; but shall have discretion to decide whether and to what extent this power may be exercised.

The Employer and the Contractor empower the DB, among other things, to:

(a) Establish the procedure to be applied in deciding a dispute;

(b) Decide upon the DB’s own jurisdiction, and as to the scope of any dispute referred to it;

(c) Conduct any hearing as it thinks fit, not being bound by any rules or procedures other than those contained in the Contract and these Rules;

(d) Take the initiative in ascertaining the facts and matters required for a decision;

(e) Make use of its own specialist knowledge, if any;

(f) Decide upon the payment of financing charges in accordance with the Contract;
(g) Decide upon any provisional relief such as interim or conservatory measures; and

(h) Open up, review and revise any certificate, decision, determination, instruction, opinion or valuation of the Engineer, relevant to the dispute.

The DB shall not express any opinions during any hearing concerning the merits of any arguments advanced by the Parties. Thereafter, the DB shall make and give its decision in accordance with Sub-Clause 20.4, or as otherwise agreed by the Employer and the Contractor in writing. If the DB comprises three persons:

(a) It shall convene in private after a hearing, in order to have discussions and prepare its decision;

(b) It shall endeavour to reach a unanimous decision: if this proves impossible the applicable decision shall be made by a majority of the Members, who may require the minority Member to prepare a written report for submission to the Employer and the Contractor; and

(c) If a Member fails to attend a meeting or hearing, or to fulfil any required function, the other two Members may nevertheless proceed to make a decision; unless:

(i) Either the Employer or the Contractor does not agree that they do so; or

(ii) The absent Member is the chairman and he/she instructs the other Members not to make a decision.
Section IX. Particular Conditions (PC)

The following Particular Conditions shall supplement the GC. Whenever there is a conflict, the provisions herein shall prevail over those in the GC.
### Part A - Contract Data

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Sub-Clause</th>
<th>Data</th>
</tr>
</thead>
</table>
| Employer's name and address                     | 1.1.2.2 & 1.3 | Ministry of Agricultural Development  
Hargeisa, Republic of Somaliland                   |
<p>| Enginee's name and address                      | 1.1.2.4 &amp; 1.3 | CES Consulting Engineers Salzgitter GmbH                              |
| Bank's name                                     | 1.1.2.11    | KfW Development Bank (&quot;KfW&quot;)                                         |
| Borrower's name                                 | 1.1.2.12    | The “Recipient” is the Ministry of Agricultural Development           |
| Time for Completion of the Works                | 1.1.3.3     | _______________ days                                                  |
| Defects Notification Period                     | 1.1.3.7     | 365 days.                                                            |
| Sections                                        | 1.1.5.6     | Not Applicable                                                       |
| Profit                                          | 1.2         | 5%                                                                  |
| Electronic transmission systems                 | 1.3         | E_mail                                                               |
| Contractor's name and address                   | 1.3         | to be named                                                          |
| Governing Law                                   | 1.4         | Republic of Somaliland                                               |
| Ruling language                                 | 1.4         | English                                                              |
| Language for communications                     | 1.4         | English                                                              |
| Time for the Parties entering into a Contract Agreement | 1.6         | Not later than the Commencement Date                                 |
| Care and Supply of Documents No. of copies of Contractor's Documents | 1.8         | Two (2 CD ROM) soft (digital) copy(ies) and Six (6) hard (paper) copy(ies) |
| Time for Access to the Site                     | 2.1         | Upon Commencement Date                                               |
| Engineer's Duties and Authority                 | 3.1 (B)(ii) | Variations resulting in an increase of the Accepted Contract Amount in excess of 5 % shall require approval of the Employer. |
| Performance Security                            | 4.2         | The Performance Security will be in the form of an unconditional bank guarantee in the amount(s) |</p>
<table>
<thead>
<tr>
<th>Conditions</th>
<th>Sub-Clause</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Progress reports</td>
<td>4.21</td>
<td>Frequency of progress reports: <em>Monthly</em></td>
</tr>
<tr>
<td>Normal working hours</td>
<td>6.5</td>
<td>7:00 AM – 12:00 AM and 1:00 PM – 4:00 PM</td>
</tr>
<tr>
<td>Effective access to the Site</td>
<td>8.1(c)</td>
<td><em>Upon commencement</em></td>
</tr>
<tr>
<td>Delay damages for the Works</td>
<td>8.7 &amp; 14.15(b)</td>
<td>0.1% of the final Contract Price per day</td>
</tr>
<tr>
<td>Maximum amount of delay damages</td>
<td>8.7</td>
<td>10% of the final Contract Price.</td>
</tr>
<tr>
<td>Provisional Sums</td>
<td>13.5.(b)</td>
<td>25% (20% overhead + 5% profit)</td>
</tr>
<tr>
<td></td>
<td>(ii)</td>
<td></td>
</tr>
<tr>
<td>Adjustments for Changes in Cost</td>
<td>13.8</td>
<td>Period “n” applicable to the adjustment multiplier “Pn”</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>not applicable</strong></td>
</tr>
<tr>
<td>Contract Price</td>
<td>14.1(b)</td>
<td>Contractor and its sub-Contractors shall be exempt from the following duties, taxes, fees, levies and other charges: <strong>not applicable</strong></td>
</tr>
<tr>
<td></td>
<td>14.1(e)</td>
<td>Item (e) of Sub-Clause 14.1 - Part B of the PC regarding the exemption of import duties and taxes on Contractor's equipment is applicable: Yes / <strong>No</strong></td>
</tr>
<tr>
<td>Total advance payment</td>
<td>14.2</td>
<td>10% of the Accepted Contract Amount payable in the currencies and proportions in which the Accepted Contract Amount is payable. The Advance Payment has to follow the form as attached to these PC.</td>
</tr>
<tr>
<td>Repayment amortization rate of</td>
<td>14.2(b)</td>
<td>35%</td>
</tr>
<tr>
<td>advance payment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Application for Interim Payment</td>
<td>14.3</td>
<td>One (1) soft (digital) copy(ies) and Six (6) hard (paper) copy(ies)</td>
</tr>
<tr>
<td>Copies of Statement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage of Retention</td>
<td>14.3(c)</td>
<td><strong>Not applicable</strong></td>
</tr>
<tr>
<td>Limit of Retention Money</td>
<td>14.3(c)</td>
<td><strong>Not applicable</strong></td>
</tr>
<tr>
<td>Plant and Materials</td>
<td>14.5(b)(i)</td>
<td><strong>Not applicable</strong></td>
</tr>
<tr>
<td>Conditions</td>
<td>Sub-Clause</td>
<td>Data</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>------------</td>
<td>-------------------------------------------</td>
</tr>
<tr>
<td>14.5(c)(i)</td>
<td></td>
<td>Not applicable</td>
</tr>
<tr>
<td>Minimum Amount of Interim Payment Certificates</td>
<td>14.6</td>
<td>10,000 US$</td>
</tr>
<tr>
<td>Time for Payment of Interim Payment Certificates</td>
<td>14.7</td>
<td>28 days</td>
</tr>
<tr>
<td>Contractor's Bank Account</td>
<td>14.7</td>
<td>[insert bank account details at the time of contract signing]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bank, bank account and bank account details must accomplish the following:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“The Contractor shall prove of having a bank account abroad from Somaliland country which makes possible the payment settlement in US $; this bank account must be internationally accepted for money transfer.”</td>
</tr>
<tr>
<td>Publishing source of commercial interest rates for financial charges in case of delayed payment</td>
<td>14.8</td>
<td>Bank of Somaliland</td>
</tr>
<tr>
<td>Delayed Payment</td>
<td>14.8</td>
<td>The interest rate for payments in foreign currency is LIBOR + 200 bp.</td>
</tr>
<tr>
<td>Statement at Completion</td>
<td>14.10</td>
<td>One (1) soft (digital) copy(ies) and</td>
</tr>
<tr>
<td>No. of Copies</td>
<td></td>
<td>Six (6) hard (paper) copy(ies)</td>
</tr>
<tr>
<td>Application for Final Payment Certificate</td>
<td>14.11</td>
<td>One (1) soft (digital) copy(ies) and</td>
</tr>
<tr>
<td>No. of Copies</td>
<td></td>
<td>Six (6) hard (paper) copy(ies)</td>
</tr>
<tr>
<td>Maximum total liability of the Contractor to the Employer</td>
<td>17.6</td>
<td>1.1 times the Accepted Contract Amount</td>
</tr>
</tbody>
</table>
### Conditions

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Sub-Clause</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Periods for submission of insurance:</strong></td>
<td>18.1</td>
<td></td>
</tr>
<tr>
<td>a. evidence of insurance</td>
<td></td>
<td>14 days</td>
</tr>
<tr>
<td>b. relevant policies</td>
<td></td>
<td>28 days</td>
</tr>
<tr>
<td><strong>Maximum amount of deductibles for insurance of the Employer’s risks:</strong></td>
<td>18.2(d)</td>
<td><strong>200 USD</strong></td>
</tr>
<tr>
<td><strong>Minimum amount of third party insurance per occurrence:</strong></td>
<td>18.3</td>
<td><strong>2000 USD</strong></td>
</tr>
<tr>
<td><strong>Date by which the DB shall be appointed</strong></td>
<td>20.2</td>
<td>28 days after the Commencement date</td>
</tr>
<tr>
<td><strong>The DB shall be comprised of:</strong></td>
<td>20.2</td>
<td>Three Members</td>
</tr>
<tr>
<td><strong>List of potential DB sole members:</strong></td>
<td>20.2</td>
<td>None</td>
</tr>
<tr>
<td><strong>Appointment (if not agreed) to be made by</strong></td>
<td>20.3</td>
<td>Not Applicable, Disputable settlement shall be amicable</td>
</tr>
<tr>
<td><strong>Arbitration institution</strong></td>
<td>20.6(a)</td>
<td><em>Disputes for this project will be settled amicably.</em></td>
</tr>
<tr>
<td><strong>Arbitration rules</strong></td>
<td>20.6(a)</td>
<td>Arbitration shall be conducted with proceedings administered by the International Chamber of Commerce (ICC), under the ICC Rules of Arbitration</td>
</tr>
<tr>
<td><strong>Place of arbitration</strong></td>
<td>20.6</td>
<td><em>Hargeisa, Somaliland</em></td>
</tr>
</tbody>
</table>

### Table: Summary of Sections

Not applicable
## Part B - Specific Provisions

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Sub-Clause</th>
<th>Specific Provisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract</td>
<td>1.1.1</td>
<td>Add under 1.1.1.1 “Contract” the sentence: “The Contract requires the non-objection by the Bank for becoming eligible for any disbursement under the Bank’s loan.”</td>
</tr>
<tr>
<td>Defects Notification Period</td>
<td>1.1.3.7</td>
<td>Add, at the end of the Sub-Clause “or taken over under Sub-Clause 10.2 [Taking Over of Parts of the Works]”</td>
</tr>
<tr>
<td>Exceptionally Adverse Climatic Conditions</td>
<td>1.1.6.11</td>
<td>Additional Sub-Clause “Exceptionally Adverse Climatic Conditions” means: [to be completed]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>[The exceptionally adverse climatic conditions referred to under Sub-Clause 8.4 item c) must be defined for each and every Site. In order to establish whether such climatic conditions occurred, it may be appropriate to compare the adverse climatic conditions with the frequency with which events of similar adversity have previously occurred at or near the Site. An exceptional degree of adversity might, for example, be regarded as one which has a probability of occurrence of four or five times the Time for Completion of the Works (for example, once every eight to ten years for a two-year contract). Users must then insert climatic conditions considered as adverse on the Site, such as intensity and duration of rainfall, wind speed, temperature, etc. as appropriate.]</td>
</tr>
</tbody>
</table>
| Communications                     | 1.3        | Add the following at the end of item (a), after “Contract Data” and before “;”:
|                                    |            | “In case of electronic transmission, these communications shall be in the form of an un-editable record attached to an electronic mail, such as a PDF document for instance, and any other communication transmitted in a different manner, such as the email body text, shall not be construed as communication under the Contract”. |
| Inspections and Audit by KfW       | 1.15       | This Sub-Clause is deleted in its entirety and replaced by:
<p>|                                    |            | “The Contractor shall permit, and shall cause its agents (whether declared or not), sub-contractors, sub-consultants, service providers, or suppliers and any personnel thereof, to permit, KfW and/or persons |</p>
<table>
<thead>
<tr>
<th>Conditions</th>
<th>Sub-Clause</th>
<th>Specific Provisions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>appointed by the KfW to inspect the Site and all accounts and records relating to the performance of the Contract and the submission of the Bid, and to have such accounts and records audited by auditors appointed by KfW if requested by KfW. The Contractor's attention is drawn to Sub-Clause 15.6 [Corrupt or Fraudulent Practices] which provides, inter alia, that acts intended to materially impede the exercise of KfW's inspection and audit rights provided for under Sub-Clause 1.15 constitute a prohibited practice subject to contract termination.</td>
</tr>
<tr>
<td>The Employer's Claims</td>
<td>2.5</td>
<td><em>In the first line of the second paragraph delete the words: “28 days” and replace with the words “42 days”.</em>*</td>
</tr>
<tr>
<td>Replacement of the Engineer</td>
<td>3.4</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Contractor's General Obligations</td>
<td>4.1</td>
<td><em>Insert the following at the end of the 2nd paragraph:</em> &quot;Goods and services from countries under embargo from Germany the European Union or the United Nations are not eligible and shall not be used by the Contractor.&quot;</td>
</tr>
<tr>
<td>Performance Security</td>
<td>4.2</td>
<td><em>Delete last sentence of second paragraph and replace by the sentence:</em> &quot;The Performance Security shall be issued by a reputable bank or financial institution selected by the Contractor and requiring the Bank's non-objection, and shall be in the form annexed to the Particular Conditions.&quot;</td>
</tr>
<tr>
<td>Subcontractors</td>
<td>4.4</td>
<td><em>Add the following at the end of the Sub-Clause:</em> &quot;Unless explicitly agreed to by the Engineer, the ESHS Specifications apply to all Subcontractors and Suppliers used for the execution of the Works. The Contractor is fully liable for all actions, non-compliance and negligence by Subcontractors and Suppliers their representatives, employees and workers, to the same degree as it would be held liable for its own actions, non-compliance or negligence or that of its own representatives, employees or workers.&quot;</td>
</tr>
<tr>
<td>Safety Procedures</td>
<td>4.8</td>
<td><em>Add the following at the end of the Sub-Clause:</em> f) The Contractor shall ensure compliance with the ESHS Specifications.</td>
</tr>
<tr>
<td>Protection of the Environment</td>
<td>4.18</td>
<td><em>Add the following after the last paragraph:</em></td>
</tr>
<tr>
<td>Conditions</td>
<td>Sub-Clause</td>
<td>Specific Provisions</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
|                             | 4.21       | *Add the following new item at the end of the Sub-Clause:*  
"(i) matters requested under the ESHS Specifications."                                                                                           |
| Facilities for Staff and Labour | 6.6        | *The last paragraph is deleted in its entirety and replaced by the following:*  
"The Contractor shall not permit any of the Contractor's Personnel to maintain any temporary or permanent living quarters within the Site, except with the prior and express Engineer’s consent after consultation with the Employer. The Employer and/or the Engineer may inspect the living quarters from time to time in order to verify their compliance with the Laws and the Contract. The Contractor shall accordingly grant the Employer and/or the Engineer full access to the living quarters as and when they require."                                                                                             |
| Health and Safety           | 6.7        | *Add the following at the end of the Sub-Clause:*  
"These provisions are complemented by those listed under the ESHS Specifications which the Contractor must ensure compliance with."                                                                 |
| Commencement of Works       | 8.1        | *Add the following at the end of the Sub-Clause:*  
"As defined in the ESHS Specifications, no physical work may commence on any Project Area until such time the Contractor has prepared and submitted to the Engineer the PA-ESMP and the Engineer has approved this."                                                                 |
<table>
<thead>
<tr>
<th>Conditions</th>
<th>Sub-Clause</th>
<th>Specific Provisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suspension of Work</td>
<td>8.8</td>
<td>Add the following after the last sentence of the Sub-Clause:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;As an example, and without limitation to other possible causes, any suspension of work caused by any failure from the Contractor to comply with the obligations stated:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(a) Under the ESHS Specifications (if any), in the event of a level 3 non-compliance;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(b) Under Sub-Clause 4.8 as to safety procedures;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(c) Under Sub-Clause 4.9 as to the quality assurance;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(d) Under Sub-Clause 4.18 as to the protection of the environment; or</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(e) Under Sub-Clause 6.7 as to health and safety; shall be considered as cause of suspension which is the responsibility of the Contractor”.</td>
</tr>
<tr>
<td>Contract Price</td>
<td>14.1 (b)</td>
<td>If the QBDS foresees exemptions then add the following new sentence:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;In terms of [insert reference to the funding agreement here], the Contractor and its sub-Contractors shall be exempt from the duties, taxes, fees, levies and other charges, stated in the Contract Data, including any limitations of the exemption and the procedure through which the tax exemption will be put into effect.&quot;</td>
</tr>
<tr>
<td>Advance Payment</td>
<td>14.2</td>
<td>Delete last sentence of third paragraph and replace by the sentence: &quot;This guarantee shall be issued by a reputable bank or financial institution selected by the Contractor and requiring the Bank's non-objection, and shall be in the form annexed to the Particular Conditions.&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>At the end of the third paragraph add the sentence &quot;Guarantees are to be made payable to the Employer's account at the Bank as listed in the annexed form.&quot;</td>
</tr>
<tr>
<td>Application for Interim Payment</td>
<td>14.3</td>
<td>In the 1st sentence of the 1st paragraph, replace “six copies” by “in the number of copies specified in the Contract Data”</td>
</tr>
<tr>
<td>Conditions</td>
<td>Sub-Clause</td>
<td>Specific Provisions</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Issue of Interim Payment Certificates | 14.6 (c)   | After paragraph (b) add paragraph (c) as follows: In the event of an unresolved level 3 non-compliance specified in the ESHS Specifications, the Engineer shall reduce the value of the Interim Payment Certificates as follows:  
(i) If Level 3 Non-conformity not resolved after the first occurrence: 33.3% for the first Interim Payment Certificate  
(ii) If Level 3 Non-conformity still not resolved: 66.6% for the second Interim Payment Certificate  
(iii) If Level 3 Non-conformity still not resolved: 100% for the third Interim Payment Certificate  
If the Level 3 Non-conformity is still not resolved after the last Interim Payment Certificate in (iii) above then payments will be suspended indefinitely until such time as the Level 3 Non-conformity has been resolved.  
Following the resolution of the Level 3 Non-Conformity the reduction(s) will be included in the next Interim Payment Certificate for payment. No interest will be paid on any reductions or suspended payment amounts.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Time for Payment of Interim Payment Certificates | 14.7       | In (b) after “56 days” insert:  
“or such time as may be stated in the Contract Data”                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Contractor’s Bank Account         | 14.7       | In the last sentence after “Contractor” insert:  
“and as stated in the Contract Data”                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Delayed Payment Interest – local currency | 14.8       | In the second paragraph after “Conditions,” add:  
“for local currency payments only”                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Delayed Payment Interest – foreign currency | 14.8       | After the second paragraph insert a new paragraph as follows:  
The interest rate for payments in foreign currency is as stated in the Contract Data.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
<table>
<thead>
<tr>
<th>Conditions</th>
<th>Sub-Clause</th>
<th>Specific Provisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payment of Retention Money</td>
<td>14.9</td>
<td><em>In the fifth paragraph, delete first sentence and replace by the sentence &quot;Unless otherwise stated in the Particular Conditions, when the Taking-Over Certificate has been issued for the Works, and the first half of the Retention Money has been certified for payment by the Engineer, the Contractor may substitute a guarantee issued by a reputable bank or financial institution selected by the Contractor and requiring the Bank's non-objection, for the second half of the Retention Money. The guarantee for the release of the Retention Money has to be acceptable in form and substance to the Bank.&quot;</em></td>
</tr>
<tr>
<td>Statement at Completion</td>
<td>14.10</td>
<td><em>In the 1st paragraph, replace “six copies” by “the number of copies stated in the Contract Data”</em></td>
</tr>
<tr>
<td>Application for Final Payment Certificate</td>
<td>14.11</td>
<td><em>In the 1st paragraph, replace “six copies” by “the number of copies stated in the Contract Data”</em></td>
</tr>
<tr>
<td>Currencies of Payment</td>
<td>14.15</td>
<td><em>In the first sentence replace “Schedule of Payment Currencies” by “Summary of Payment Currencies of the Contract”</em></td>
</tr>
<tr>
<td>Corrupt or Fraudulent Practices</td>
<td>15.6</td>
<td><em>Add the following at the end of the Sub-Clause: “In addition to the provisions of this Sub-Clause, the Contractor is also bound by the provisions found under Appendix 1 to the Particular Conditions of Contract, named “Corrupt and Fraudulent Practices Policy – Social and Environmental Responsibility”.</em>*</td>
</tr>
</tbody>
</table>
Appendix 1 to Particular Conditions of Contract Corrupt and Fraudulent Practices Policy – Social and Environmental Responsibility

1. Corrupt and Fraudulent Practices

The Contracting Authority and the contractors, suppliers, subcontractors, consultants or sub consultants must observe the highest standard of ethics during the procurement process and performance of the contract. The Contracting Authority means the Project Executing Agency, the Purchaser, the Employer, the Client, as the case may be, for the procurement of goods, works, plants, consulting services or non-consulting services.

By signing the Declaration of Undertaking the contractors, suppliers, subcontractors, consultants or sub consultants declare that (i) “it did not engage in any practice likely to influence the contract award process to the Contracting Authority's detriment, and that it did not and will not get involved in any anti-competitive practice”, and that (ii) “the procurement process and the performance of the contract did not and shall not give rise to any act of corruption or fraud”.

Moreover, KfW requires the Contracting Authority to include in the Procurement Documents and KfW-financed contracts a provision requiring that suppliers, contractors, subcontractors, consultants or sub consultants will provide information and will permit KfW or an agent appointed by KfW to inspect on site their accounts, records and documents relating to the procurement process relating to the submission of the Application, bid submission (in case prequalified), and contract performance (in the case of award), of the KfW-financed contract, and to have them audited by auditors appointed by KfW.

KfW reserves the right to take any action it deems appropriate to check that these ethics rules are observed and reserves, in particular, the rights to:

(a) Reject a proposal for a contract award if during the qualification and selection process the contractor, the supplier or the consultant that is recommended for the award have engaged in acts of corruption, directly or by means of an agent, or fraud or anti-competitive practices in view of being awarded the Contract;

(b) Declare misprocurement and exercise its rights on the ground of the contractual agreements with the Contracting Authority relating to suspension of disbursements, early repayment and termination if, at any time, the Contracting Authority, contractors, suppliers, subcontractors, consultants or sub consultants or their legal representatives have engaged in acts of corruption, fraud or anti-competitive practices during the procurement process or performance of the contract without the Contracting Authority having taken appropriate action in due time satisfactory to KfW to remedy the situation, including by failing to inform KfW at the time they knew of such practices.

KfW defines, for the purposes of this provision, the terms set forth below as follows:

(a) Corruption of a Public Officer means:

(i) The act of promising, offering or giving to a Public Officer, directly or indirectly, an
undue advantage of any kind for himself or for another person or entity, for such Public Officer to act or refrain from acting in his official capacity; or

(ii) The act by which a Public Officer solicits or accepts, directly or indirectly, an undue advantage of any kind for himself or for another person or entity, for such Public Officer to act or refrain from acting in his official capacity.

(b) A Public Officer shall be construed as meaning:

(i) Any person who holds a legislative, executive, administrative or judicial mandate (within the country of the Contracting Authority) regardless of whether that person was nominated or elected, regardless of the permanent or temporary, paid or unpaid nature of the position and regardless of the hierarchical level the person occupies;

(ii) Any other person who performs a public function, including for a State institution or a State-owned company, or who provides a public service;

(iii) Any other person defined as a Public Officer by the national laws of the country of the Contracting Authority.

(c) Corruption of a private person means:

(i) The act of promising, offering or giving to any person other than a Public Officer, directly or indirectly, an undue advantage of any kind for himself or for another person or entity, for such person to perform or refrain from performing any act in breach of its legal, contractual or professional obligations; or

(ii) The act by which any person other than a Public Officer solicits or accepts, directly or indirectly, an undue advantage of any kind for himself or for another person or entity, for such person to perform or refrain from performing any act in breach of its legal, contractual or professional obligations;

(d) Fraud means any dishonest conduct (act or omission), whether or not it constitutes a criminal offence, deliberately intended to deceive others, to intentionally conceal items, to violate or vitiate consent, to circumvent legal or regulatory requirements and/or to violate internal rules in order to obtain illegitimate profit.

(c) Anti-competitive practices mean:

(i) Any concerted or implied practices which have as their object or effect the prevention, restriction or distortion of competition within a marketplace, especially where they (i) limit access to the marketplace or free exercise of competition by other undertakings, (ii) prevent free, competition-driven price determination by artificially causing price increases or decreases, (iii) restrict or control production, markets, investments or technical progress; or (iv) divide up market shares or sources of supply;

(ii) Any abuse by one undertaking or a group of undertakings which hold a dominant position on an internal market or on a substantial part of it;

(iii) Any practice whereby prices are quoted or set unreasonably low, the object of which
is to eliminate an undertaking or any of its products from a market or to prevent it from entering the market.

2. **Social and Environmental Responsibility**

In order to promote sustainable development, KfW seeks to ensure that internationally recognized environmental and social standards are complied with. Candidates for KfW-financed contracts shall consequently undertake in the Declaration of Undertaking to:

(a) Comply with and ensure that all their subcontractors, suppliers, in particular those for major supply items, or consultants comply with international environmental and labour standards, consistent with applicable law and regulations in the country of implementation of the contract and the fundamental conventions of the International Labour Organisation\(^1\) (ILO) and international environmental treaties;

(b) Implement environmental and social risks mitigation measures when specified in the environmental and social management plan (ESMP) provided by the Contracting Authority.

\(^1\) In case ILO conventions have not been fully ratified or implemented in the Employer’s country the Applicant / Bidder / Contractor shall, to the satisfaction of the Employer and KfW, propose and implement appropriate measures in the spirit of the said ILO conventions with respect to a) workers grievances on working conditions and terms of employment, b) child labour, c) forced labour, d) worker’s organisations and e) non-discrimination.
Section X. Contract Forms

Table of Forms

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Contract Agreement ................................................................. 111
Performance Security ............................................................... 113
Advance Payment Security ....................................................... 114
Retention Money Security (not applicable) ................................. 116
Notification of Award

Letter of Acceptance

[Letterhead paper of the Employer]

[Date]

To: [name and address of the Contractor]

This is to notify you that your Bid dated [date] for execution of the [name of the Contract and identification number, as given in the Contract Data] for the Contract Price [amount in numbers and words] [name of currency], as corrected and modified in accordance with the Instructions to Bidders, is hereby accepted by our institution.

You are requested to furnish the Performance Security within 28 days in accordance with the Conditions of Contract, using for that purpose the Performance Security Form included in Section X, Contract Forms, of the Bidding Documents.

Authorized Signature: ________________________________
Name and Title of Signatory: ________________________________
Name of institution: ________________________________

Attachment: Contract Agreement
Contract Agreement

THIS AGREEMENT made the _______ day of ________________________, _____, between ______________________________________of __________________________ (hereinafter “the Employer”), of the one part, and __________________ of _______________________ (hereinafter “the Contractor”), of the other part:

WHEREAS the Employer desires that the Works known as ____________________________________________ should be executed by the Contractor, and has accepted a Bid by the Contractor for the execution and completion of these Works and the remedying of any defects therein, in the sum of [insert Contract Price or Ceiling in words and figures, expressed in the Contract currency(ies)] (hereafter called “the Contract Price”).

The Employer and the Contractor agree as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract documents referred to.

2. The following documents shall be deemed to form and be read and construed as part of this Agreement. This Agreement shall prevail over all other Contract documents.

   (i) The Letter of Acceptance;
   (ii) The Letter of Bid and Appendix to Bid (including the signed Declaration of Undertaking);
   (iii) The addenda Nos ________(if any);
   (iv) The Particular Conditions including Appendix 1;
   (v) The General Conditions;
   (vi) The Specifications;
   (vii) The Drawings;
   (viii) The completed Schedules; and
   (ix) The Contractor’s Bid and any other documents forming part of the contract.

3. In consideration of the payments to be made by the Employer to the Contractor as specified in this Agreement, the Contractor hereby covenants with the Employer to execute the Works and to remedy defects therein in conformity in all respects with the provisions of the Contract.

4. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with the laws of __________________________ on the day, month and year specified above.

Signed by ______________________________ (for the Employer)
Signed by ______________________________ (for the Contractor)
Lot A – SS dam sites SS01 (Geed Abera), SS03 (Daanyaale), SS04 (Arabsiy)
Lot B – SS dam sites SS07 (Beeyo Liibaan), SS13 (Caro Yanbo), SS16 (Geesdheer)
Performance Security

Beneficiary: [Insert name and Address of Purchaser]

Date: [Insert date of issue]

PERFORMANCE GUARANTEE No.: [Insert guarantee reference number]

Guarantor: [Insert name and address of place of issue, unless indicated in the letterhead]

We have been informed that [Insert name and address of contractor, which in the case of a joint venture shall be the name and address of the joint venture] (hereinafter called “the Applicant”) has entered into Contract No. [Insert reference number of the contract] dated [Insert contract date] with the Beneficiary, for the execution of [Insert object of the contract and brief description of Works] (hereinafter called “the Contract”). Furthermore we understand that, according to the conditions of the Contract, a performance guarantee is required for [Insert percentage in words and figures]% of the contract price.

Waiving all objections and defences, we, as Guarantor, hereby irrevocably and independently undertake to pay the Beneficiary, any sum or sums not exceeding in total an amount of [Insert guarantee amount and currency in words and figures] upon receipt by us of the Beneficiary’s first demand, supported by the Beneficiary’s statement, whether in the demand itself or a separate signed document accompanying or identifying the demand, stating that the Applicant is in breach of its obligation(s) under the Contract, without the Beneficiary needing to prove or to show grounds for the demand or the sum specified therein.

[For guarantees issued in foreign currency insert the following:

In the event of any claim under this guarantee, payment shall be effected to [Either insert the account on which payments are to be made with prior approval from KfW or, if no particular account is provided, insert instead:] KfW, Frankfurt am Main (BIC: KFWIDEFF, BLZ 500 204 00), account no. 38 000 000 00 (IBAN: DE53 5002 0400 3800 0000 00), for the account of [Insert name of the Purchaser and the Purchaser’s country].

This guarantee shall expire not later than [Insert expiry date].

By this date we must have received any claims for payment by letter or encoded telecommunication.

It is understood that you will return this guarantee to us on expiry or after payment of the total amount to be claimed hereunder.

[As preferred option regarding guarantee rules insert: This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.]

Place, date Guarantor’s authorized signature(s)
Advance Payment Security

Beneficiary: [Insert name and Address of Purchaser]

Date: [Insert date of issue]

ADVANCE PAYMENT GUARANTEE No.: [Insert guarantee reference number]

Guarantor: [Insert name and address of place of issue, unless indicated in the letterhead]

We have been informed that [Insert name and address of contractor, which in the case of a joint venture shall be the name and address of the joint venture] (hereinafter called “the Applicant”) has entered into Contract No. [Insert reference number of the contract] dated [Insert contract date] with the Beneficiary, for the execution of [Insert object of the contract and brief description of Works] (hereinafter called “the Contract”). Furthermore we understand that, according to the conditions of the Contract, an advance payment in the sum of [Insert amount and currency in words and figures], representing [Insert percentage in words and figures] % of the contract price, is to be made against an advance payment guarantee.

Waiving all objections and defences, we, as Guarantor, hereby irrevocably and independently undertake to pay the Beneficiary, any sum or sums not exceeding in total an amount of [Insert guarantee amount and currency in words and figures] upon receipt by us of the Beneficiary's first demand, supported by the Beneficiary’s statement, whether in the demand itself or a separate signed document accompanying or identifying the demand, stating that the Applicant is in breach of its obligation(s) under the Contract, without the Beneficiary needing to prove or to show grounds for the demand or the sum specified therein.

The advance payment guarantee shall come into force and effect as soon as the advance payment has been credited to the Applicant on its account. Minor deductions of the above mentioned amount notably due to bank fees shall have no effect on the entry into force.

[For guarantees issued in foreign currency insert the following:

In the event of any claim under this guarantee, payment shall be effected to [Either insert the account on which payments are to be made with prior approval from KfW or, if no particular account is provided, insert instead:] KfW, Frankfurt am Main (BIC: KFWIDEFF, BLZ 500 204 00), account no. 38 000 000 00 (IBAN: DE53 5002 0400 3800 0000 00), for the account of [Insert name of the Purchaser and the Purchaser's country].

[For guarantees issued in local currency insert the following:

In the event of any claim under this guarantee, payment shall be effected to [Insert the account on which payments are to be made], for the account of [Insert name of the Purchaser and the Purchaser's country].

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Applicant as specified in copies of interim statements or payment certificates which shall be presented to us. This guarantee shall expire, at the latest, upon our receipt of a copy of the interim payment certificate indicating that ninety (90) per cent of the Accepted Contract Amount, less provisional sums, has been certified for payment, or on the [Insert date], whichever is earlier. Consequently, any demand for payment under this
guarantee must be received by us at this office on or before that date, by letter or encoded telecommunication.

It is understood that you will return this guarantee to us on expiry or after payment of the total amount to be claimed hereunder.

[As preferred option regarding guarantee rules insert: This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.]
Retention Money Security

Not applicable
German Financial Cooperation with Republic of Somaliland

“WATER SUPPLY & BASIC SANITATION AND SUSTAINABLE LAND MANAGEMENT”

Bidding Documents

For

Procurement for Works Contract C1 (2 Lots)

Technical Drawings

Employer: Ministry of Agricultural Development (MoAD)

November 2019

Project ID: BMZ No. 32642 / 2015 67 924
Flow Direction

NGL

Gabion elements
L = 6M
H = 2M

Down Stream Erosion Protection
Natural ground level (NGL)
25.00

PLAN VIEW

For dimension refer to drawing No. som/c1/05

Section A

Section B

Section A

Section B

Gabion elements 2 rows
L = 4M
H = 2M

NOTE:
Adjust location of gabion
(back erosion protection)
Acc. to the actual site topography

Natural river bank

Natural river bank

Natural river bank

PLAN VIEW

For dimension refer to drawing No. som/c1/05
CROSS SECTION DETAIL A/A

Stream Flow

Upstream

GW

NGL

-4.5 m

2.00

1.00

Stream Flow

Downstream

Excavation Line

Excavation Line

Stone 100mm - 300mm d=0.6
Gravel/Cobble 10mm - 100mm
Geo Textile 500g/m²

NOTES

1. DO NOT SCALE FROM THIS DRAWING.

2. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE STATED.

3. ALL DIMENSIONS TO BE CHECKED AND CONFIRMED BEFORE COMMENCEMENT OF ANY WORK.

4. ANY DISCREPANCY TO BE REPORTED TO THE ENGINEER PROMPTLY BEFORE PROCEEDING.

5. KEY GEOMETRY DATA ACCORDING TO TABLE SOM2/ C1/ 06

6. ACTUAL GEOMETRY OF WEIR ACCORDING TO TABLE DRAWING NO SOM2/C1/ 05
**NOTES**

1. DO NOT SCALE FROM THIS DRAWING.
2. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE STATED.
3. ALL DIMENSIONS TO BE CHECKED AND CONFIRMED BEFORE COMMENCEMENT OF ANY WORK.
4. ANY DISCREPANCY TO BE REPORTED TO THE ENGINEER PROMPTLY BEFORE PROCEEDING.
5. KEY GEOMETRY DATA ACCORDING TO TABLE DRAWING NO. SOM2/C1/06
6. ACTUAL GEOMETRY OF WEIR ACCORDING TO TABLE DRAWING NO SOM2/C1/05

---

**LENGTH VIEW (OPTION I)**

[Diagram showing a length view of a river bed with annotations]

*Notes*
- Additional Erosion Protection by masonry or Gabions
- For soil classifications refer to drilling report
- LA, LB and LC dimensions refer to drawing som2/c1/05
- LC & LA to be decided on site

Cross Section
Plan View
Erosion Protection Detail

**CROSS SECTION DETAIL B/B**
1. DO NOT SCALE FROM THIS DRAWING.
2. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE STATED.
3. ALL DIMENSIONS TO BE CHECKED AND CONFIRMED BEFORE COMMENCEMENT OF ANY WORK.
4. ANY DISCREPANCY TO BE REPORTED TO THE ENGINEER PROMPTLY BEFORE PROCEEDING.
5. KEY GEOMETRY DATA ACCORDING TO TABLE - SOM 2/ C1/ 06
6. ACTUAL GEOMETRY OF WEIR ACCORDING TO TABLE DRAWING NO SOM2/C1/ 05

### Table (SOM2/C1/05) Tentative geometry data of the sites subsurface dams; final dimensions are to be determined at site, before start of works

<table>
<thead>
<tr>
<th></th>
<th>L(A)</th>
<th>L(B)</th>
<th>L(C)</th>
<th>H</th>
<th>D(foundation)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>m</td>
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</tr>
<tr>
<td>SS 01</td>
<td>30</td>
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<td>SS 03</td>
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<td>39</td>
<td>42</td>
<td>4,5</td>
<td>3,875</td>
</tr>
</tbody>
</table>

NOTES

- **Date**: [Date]
- **Pro**: [Project Name]
- **Institute**: CES Consulting Engineers Saalgetter GmbH
- **Funded by**: KFW
- **Client**: Ministry of Agriculture

**PROJECT TITLE**: SUSTAINABLE LAND USE MANAGEMENT IN SOMALILAND
Contract C1 Subsurface Dams(SS)

**DRAWING TITLE**: CROSS SECTION

**DRAWING No.**: SOM2/C1/05
German Financial Cooperation with Republic of Somaliland

“WATER SUPPLY & BASIC SANITATION AND SUSTAINABLE LAND MANAGEMENT”

Bidding Documents

For

Procurement for Works Contract C1 (2 Lots)

Drilling Report

Employer: Ministry of Agricultural Development (MoAD)

November 2019

Project ID: BMZ No. 32642 / 2015 67 924
**Summarized SS Dam site drilling report:**

**1. SS01- Geed abeera**

1.1 Drilling of SS1 sampling site

1.1.1 SS01-A

Drilling date 02/07/2019

Site location flag pole SS1-A

GPR location S 38P –0363616/1060987

The borehole was drilled with double core barrel HQ.

The drilled was stopped at the depths of 10 Meter width 4 inch. Five soil samples direct boring were collected and retained for analysis. The soil samples were collected from the following intervals at the site:

- Sample 1: from 0 (NGL) to -2m, SS1-A-1-2M
- Sample 2: from -2m to -4m, SS1-A-3-4m
- Sample 3: from -4m to -6m, SS1-A-5-6m
- Sample 4: from -6m to -8m, SS1-A-7-8m
- Sample 5: from -8m to -10m, SS1-A-9-10m

- The first three meters is sand, these are dark brown in color with low plasticity, followed by 2 meters of sandy clay which is underlain by sand with clay till the eighth meter.

- The following table Tab. 4.1 indicates the borehole log:
A 10m plain casing pipe was inserted and steel pipe with lid 0.5 M, the borehole was then sealed and covered.

**SS01-B**

Drilling date 28/06/2019

Site location flag poll SS1-B

GPR location S 38P –0363657/1060985

The borehole was drilled with double core barrel HQ

The drilled was stopped at the depths of 10 Meter width 4 inch. Five soil samples direct boring were collected and retained for analysis. The soil samples were collected from the following intervals at the site.

- Sample 1: from 0 (NGL) to -2m, SS1-A-1-2m
- Sample 2: from -2m to -4m, SS1-B-3-4m
- Sample 3: from -4m to -6m, SS1-B-5-6m
• Sample 4: from -6m to -8m, SS1-B-7-8m

• Sample 5: from -8M to -10m, SS1-B-9-10m

• The first three meters can be described to be sand, they were dark brown in color with low plasticity, followed by 2 meters of sandy clay which is underlain by sand with clay till the eighth meter.

• The following table indicates the borehole log:

**Borehole profile SS01-B**

<table>
<thead>
<tr>
<th>Depth</th>
<th>USCS</th>
<th>Type of soil</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1m</td>
<td>CH</td>
<td>Loamy clay</td>
<td>dark brown</td>
</tr>
<tr>
<td>1-2m</td>
<td>CH</td>
<td>Loamy Clay</td>
<td>brown</td>
</tr>
<tr>
<td>2-3m</td>
<td>CL</td>
<td>Silty clay</td>
<td>Light brown</td>
</tr>
<tr>
<td>3-4m</td>
<td>CL</td>
<td>Silty clay</td>
<td>light brown</td>
</tr>
<tr>
<td>4-5m</td>
<td>ML</td>
<td>silty clay with sand</td>
<td>slight brown</td>
</tr>
<tr>
<td>5-6m</td>
<td>ML</td>
<td>silty clay with sand</td>
<td>slight brown</td>
</tr>
<tr>
<td>6-7m</td>
<td>CL</td>
<td>clay, sandy, silty</td>
<td>grey</td>
</tr>
<tr>
<td>7-8m</td>
<td>CL</td>
<td>clay, sandy, silty</td>
<td>grey</td>
</tr>
<tr>
<td>8-9m</td>
<td>SC</td>
<td>clayey sand</td>
<td>red</td>
</tr>
<tr>
<td>9-10m</td>
<td>SC</td>
<td>clayey sand</td>
<td>red</td>
</tr>
</tbody>
</table>

A 10m plain casing pipe was inserted and steel pipe with lid 0.5 M, the borehole was then sealed and covered.

1.1.2 **SS01-C**

Drilling date 22/06/2019

Site location flag poll SS1-C

GPR location S 38P –0363586/1060983

The borehole was drilled with double core barrel HQ
The drilled was stopped at the depths of 10 Meter width 4 inch. Five soil samples direct boring were collected and retained for analysis. The soil samples were collected from the following intervals at the site.

- Sample 1: from 0 (NGL) to -2m, SS1-C-1-2m
- Sample 2: from -2m to -4m, SS1-C-3-4m
- Sample 3: from -4m to -6m, SS1-C-5-6m
- Sample 4: from -6m to -8m, SS1-C-7-8m
- Sample 5: from -8M to -10m, SS1-C-9-10m
- The first three meters can be described to be sand, these were dark brown in color with low plasticity, followed by 2 meters of sandy clay which is underlain by sand with clay till reaching a depth of eighth meter.

The following table indicates the borehole log

**Table**

<table>
<thead>
<tr>
<th>Depth</th>
<th>USCS</th>
<th>Type of soil</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1m</td>
<td>CH</td>
<td>Loamy clay</td>
<td>dark brown</td>
</tr>
<tr>
<td>1-2m</td>
<td>CH</td>
<td>Loamy Clay</td>
<td>brown</td>
</tr>
<tr>
<td>2-3m</td>
<td>CH</td>
<td>clay, sandy with gravel</td>
<td>brown</td>
</tr>
<tr>
<td>3-4m</td>
<td>CL</td>
<td>sand, slightly clayey</td>
<td>slight brown</td>
</tr>
<tr>
<td>4-5m</td>
<td>SC</td>
<td>Clayey sand</td>
<td>slight brown</td>
</tr>
<tr>
<td>5-6m</td>
<td>SC</td>
<td>Clayey sand</td>
<td>slight brown</td>
</tr>
<tr>
<td>6-7m</td>
<td>CM</td>
<td>Silty clay with sand</td>
<td>red</td>
</tr>
<tr>
<td>7-8m</td>
<td>CH</td>
<td>Silty clay with sand</td>
<td>red</td>
</tr>
<tr>
<td>8-9m</td>
<td>CH</td>
<td>Silty clay with sand</td>
<td>red</td>
</tr>
<tr>
<td>9-10m</td>
<td>CH</td>
<td>Silty clay with sand</td>
<td>red</td>
</tr>
</tbody>
</table>

A 10m plain casing pipe was inserted and steel pipe with lid 0.5 M, the borehole was then sealed and covered.
1.2 Drilling the sites for piezometers

1.2.1 SS01-P1

Drilling date 26/06/2019

Site location flag poll SS1-P1

GPR location S 38P –0363592/1060884

P1 is located on the upper stream of the SS1 site, that means it is 100m south of the proposed area, and it is 10m away and west of the wadi.

The borehole was drilled with double core barrel HQ.

The drilled was stopped at the depths of 15 Meter width 8 inch. Two plastic casings were inserted; 6-inch internal casing and 8-inch eternal inch. Inner casing was perforated using saw and cutting longitudinal fractures along the plastic casing. Aggregate was then filled between the two casings; only the first one meter is left unfilled, and the outer casing has been removed. The first one meter of the internal casing has been cut and replaced with steel casing that has an outside threaded lid which can be opened with a spanner.

Concrete has been used to fix the casing to the earth.

Water table was not detected during drilling at SS01-P1.

1.2.2 SS01-P2

Drilling date 22/06/2019

Site location flag poll SS1-P2

GPR location S 38P –0347864/1064873

P2 is located on the lower stream of the SS1 site - 50m North of the proposed area, and it is 18m away and East of the wadi.

The borehole was drilled with double core barrel HQ.

The drilled was stopped at the depths of 15 Meter width 8 inch. Two plastic casings were inserted; 6-inch internal casing and 8-inch eternal inch. Inner casing was perforated using saw and cutting longitudinal fractures along the plastic casing. Aggregate was then filled between the two casings; only the first one
meter is left unfilled, and the outer casing has been removed. The first one meter of the internal casing has been cut and replaced with steel casing that has an outside threaded lid, than can be opened with a spanner.

Concrete has been used to fix the casing to the earth.

Water table was not detected during drilling at P2.

1.2.3 SS01-P3

Drilling date 13/11/2019

Site location flag poll SS1-P3

GPR location S 38P –0347864/1064873

P3 is located on the lower stream of the SS01 site – 1km North of the proposed area, and it is 6m away and west of the wadi.

The borehole was drilled with double core barrel HQ.

The drilled was stopped at the depths of 15 Meter width 8 inch. Two plastic casings were inserted; 6-inch internal casing and 8-inch eternal inch. Inner casing was perforated using saw and cutting longitudinal fractures along the plastic casing. Aggregate was then filled between the two casings; only the first one meter is left unfilled, and the outer casing has been removed. The first one meter of the internal casing has been cut and replaced with steel casing that has an outside threaded lid, than can be opened with a spanner.

Concrete has been used to fix the casing to the earth.

Water table was detected during drilling and after drilling the water table was 6.5 m at P2.
Drilling of SS3 sampling site - Gees dheere

SS03-A

Drilling date 02/07/2019

Site location flag pole SS3-A

GPR location S 38P – 0363616/1060987

The borehole was drilled with double core barrel HQ.

The drilled was stopped at the depths of 6 Meter width 4 inch. Five soil samples direct boring were collected and retained for analysis. The soil samples were collected from the following intervals at the site:

- Sample 1: from 0 (NGL) to -2m, SS3-A-1-2M
- Sample 2: from -2m to -4m, SS3-A-3-4m
- Sample 3: from -4m to -6m, SS3-A-5-6m

The first three meters is sand, these are dark brown in color with low plasticity, followed by 2 meters of sandy clay which is underlain by sand with clay till the eighth meter.

- The following table Tab. 4.1 indicates the borehole log:
A 10m plain casing pipe was inserted and steel pipe with lid 0.5 M, the borehole was then sealed and covered.

SS03-B

Drilling date 28/06/2019

Site location flag poll SS3-B

GPR location S 38P –0363657/1060985

The borehole was drilled with double core barrel HQ

The drilled was stopped at the depths of 10 Meter width 4 inch. Five soil samples direct boring were collected and retained for analysis. The soil samples were collected from the following intervals at the site.

- Sample 1: from 0 (NGL) to -2m , SS3-A-1-2m
- Sample 2: from -2m to -4m, SS3-B-3-4m
- Sample 3: from -4m to -6m, SS3-B-5-6m
- Sample 4: from -6m to -8m, SS3-B-7-8m
- Sample 5: from -8M to -10m, SS3-B-9-10m

<table>
<thead>
<tr>
<th>Depth</th>
<th>USCS</th>
<th>Type of soil</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1m</td>
<td>SW</td>
<td>Sand</td>
<td>brown</td>
</tr>
<tr>
<td>1-2m</td>
<td>SW</td>
<td>Sand</td>
<td>brown</td>
</tr>
<tr>
<td>2-3m</td>
<td>SP</td>
<td>Sandy</td>
<td>brown</td>
</tr>
<tr>
<td>3-4m</td>
<td>SP</td>
<td>Sand</td>
<td>brown</td>
</tr>
<tr>
<td>4-5m</td>
<td>SC</td>
<td>sand, slightly clayey</td>
<td>slight brown</td>
</tr>
<tr>
<td>5-6m</td>
<td>SC</td>
<td>Sand Clayey</td>
<td>slight brown</td>
</tr>
</tbody>
</table>
• The first three meters can be described to be sand, they were dark brown in color with low plasticity, followed by 2 meters of sandy clay which is underlain by sand with clay till the eighth meter.

• The following table indicates the borehole log:

<table>
<thead>
<tr>
<th>Depth</th>
<th>USCS</th>
<th>Type of soil</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1m</td>
<td>CH</td>
<td>Loamy clay</td>
<td>dark brown</td>
</tr>
<tr>
<td>1-2m</td>
<td>CH</td>
<td>Loamy Clay</td>
<td>brown</td>
</tr>
<tr>
<td>2-3m</td>
<td>SC</td>
<td>Clayey sand with Gravel</td>
<td>Light brown</td>
</tr>
<tr>
<td>3-4m</td>
<td>SC</td>
<td>Clayey sand with Gravel</td>
<td>light brown</td>
</tr>
<tr>
<td>4-5m</td>
<td>SC</td>
<td>Clayey Sand</td>
<td>Light yellow</td>
</tr>
<tr>
<td>5-6m</td>
<td>SC</td>
<td>Clayey sand</td>
<td>Light yellow</td>
</tr>
<tr>
<td>6-7m</td>
<td>Sw</td>
<td>Sand well graded</td>
<td>brown</td>
</tr>
<tr>
<td>7-8m</td>
<td>SW</td>
<td>Sand well graded</td>
<td>brown</td>
</tr>
<tr>
<td>8-9m</td>
<td>SW</td>
<td>Sand well graded</td>
<td>brown</td>
</tr>
<tr>
<td>9-10m</td>
<td>SW</td>
<td>Sand well graded</td>
<td>brown</td>
</tr>
</tbody>
</table>

A 10m plain casing pipe was inserted and steel pipe with lid 0.5 M, the borehole was then sealed and covered.

**SS03-C**

Drilling date 22/06/2019

Site location flag poll SS3-C

GPR location S 38P –0363586/1060983

The borehole was drilled with double core barrel HQ

The drilled was stopped at the depths of 10 Meter width 4 inch. Five soil samples direct boring were collected and retained for analysis. The soil samples were collected from the following intervals at the
Sample 1: from 0 (NGL) to -2m, SS3-C-1-2m
Sample 2: from -2m to -4m, SS3-C-3-4m
Sample 3: from -4m to -6m, SS3-C-5-6m
Sample 4: from -6m to -8m, SS1-C-7-8m
Sample 5: from -8M to -10m, SS3-C-9-10m

The first three meters can be described to be sand, these were dark brown in color with low plasticity, followed by 2 meters of sandy clay which is underlain by sand with clay till reaching a depth of eighth meter.

The following table indicates the borehole log

<table>
<thead>
<tr>
<th>Depth</th>
<th>USCS</th>
<th>Type of soil</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1m</td>
<td>CL</td>
<td>Loamy clay</td>
<td>dark brown</td>
</tr>
<tr>
<td>1-2m</td>
<td>SP</td>
<td>sand poorly graded</td>
<td>Reddish</td>
</tr>
<tr>
<td>2-3m</td>
<td>ML</td>
<td>Silty clay with sand</td>
<td>brown</td>
</tr>
<tr>
<td>3-4m</td>
<td>ML</td>
<td>Silty clay with sand</td>
<td>dark brown</td>
</tr>
<tr>
<td>4-5m</td>
<td>SC</td>
<td>Clayey sand</td>
<td>slight brown</td>
</tr>
<tr>
<td>5-6m</td>
<td>SC</td>
<td>Clayey sand</td>
<td>slight brown</td>
</tr>
<tr>
<td>6-7m</td>
<td>SW</td>
<td>sand</td>
<td>light yellow</td>
</tr>
<tr>
<td>7-8m</td>
<td>SW</td>
<td>sand</td>
<td>light yellow</td>
</tr>
<tr>
<td>8-9m</td>
<td>SP</td>
<td>sand slightly clayey</td>
<td>light grey</td>
</tr>
<tr>
<td>9-10m</td>
<td>SP</td>
<td>sand slightly clayey</td>
<td>light grey</td>
</tr>
</tbody>
</table>

A 10m plain casing pipe was inserted and steel pipe with lid 0.5 M, the borehole was then sealed and covered.
Drilling the sites for piezometers

1. **SS03-P1**

   Drilling date 09/09/2019

   Site location flag poll SS3-P1

   GPR location S 38P –0363592/1060884

   P1 is located on the upper stream of the SS3 site, that means it is 100m south of the proposed area, and it is 10m away and west bank of the wadi.

   The borehole was drilled with double core barrel HQ.

   The drilled was stopped at the depths of 15 Meter width 8 inch. Two plastic casings were inserted; 6-inch internal casing and 8-inch external casing. Inner casing was perforated using saw and cutting longitudinal fractures along the plastic casing. Aggregate was then filled between the two casings; only the first one meter is left unfilled, and the outer casing has been removed. The first one meter of the internal casing has been cut and replaced with steel casing that has an outside threaded lid which can be opened with a spanner.

   Concrete has been used to fix the casing to the earth.

   Water table was not detected during drilling at SS03-P1.

**SS03-P2**

Drilling date 22/06/2019

Site location flag poll SS3-P2

GPR location S 38P –0347864/1064873

P2 is located on the lower stream of the SS03 site - 50m North of the proposed area, and it is 15m away and East of the wadi.

The borehole was drilled with double core barrel HQ.

The drilled was stopped at the depths of 15 Meter width 8 inch. Two plastic casings were inserted; 6-inch internal casing and 8-inch external inch. Inner casing was perforated using saw and cutting longitudinal fractures along the plastic casing. Aggregate was then filled between the two casings; only the first one
meter is left unfilled, and the outer casing has been removed. The first one meter of the internal casing has been cut and replaced with steel casing that has an outside threaded lid, than can be opened with a spanner.

Concrete has been used to fix the casing to the earth.

Water table was not detected during drilling at P2.
Drilling of SS3 sampling site- Huluuq- Arabsiyo

SS13-A

Drilling date 02/09/2019

Site location flag poll SS13-A

GPR location N 09 39.745  E/  43 47.194
The borehole was drilled with double core barrel HQ.

The drilled was stopped at the depths of 6 Meter width 4 inch. Five soil samples direct boring were collected and retained for analysis. The soil samples were collected from the following intervals at the site:

- Sample 1: from 0 (NGL) to -2m, SS13-A-1-2M
- Sample 2: from -2m to -4m, SS13-A-3-4m
- Sample 3: from -4m to -6m, SS13-A-5-6m

The first three meters is sand, these are dark brown in color with low plasticity, followed by 2 meters of sandy clay which is underlain by sand with clay till the eighth meter.

- The following table Tab. 4.1 indicates the borehole log:
Table Error! No text of specified style in document. -7 BH profile SS13-A

<table>
<thead>
<tr>
<th>Depth</th>
<th>USCS</th>
<th>Type of soil</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1m</td>
<td>SP</td>
<td>Sand with gravel</td>
<td>dark brown</td>
</tr>
<tr>
<td>1-2m</td>
<td>SP</td>
<td>Sand with gravel</td>
<td>brown</td>
</tr>
<tr>
<td>2-3m</td>
<td>SW</td>
<td>Sandy</td>
<td>brown</td>
</tr>
<tr>
<td>3-4m</td>
<td>SW</td>
<td>Sandy</td>
<td>slight brown</td>
</tr>
<tr>
<td>4-5m</td>
<td>SC</td>
<td>sand, slightly clayey</td>
<td>slight brown</td>
</tr>
<tr>
<td>5-6m</td>
<td>SC</td>
<td>Sand Clayey</td>
<td>slight brown</td>
</tr>
</tbody>
</table>

A 10m plain casing pipe was inserted and steel pipe with lid 0.5 M, the borehole was then sealed and covered.

SS03-B

Drilling date 28/06/2019

Site location flag poll SS3-B

GPR location S 38P –0363657/1060985

The borehole was drilled with double core barrel HQ

The drilled was stopped at the depths of 10 Meter width 4 inch. Five soil samples direct boring were collected and retained for analysis. The soil samples were collected from the following intervals at the site.

- Sample 1: from 0 (NGL) to -2m, SS13-B-1-2M
- Sample 2: from -2m to -4m, SS13-B-3-4m
- Sample 3: from -4m to -6m, SS13-B-5-6m
- The first three meters can be described to be sand, they were dark brown in color with low plasticity, followed by 2 meters of sandy clay which is underlain by sand with clay till the eighth
The following table indicates the borehole log:

**Table**

<table>
<thead>
<tr>
<th>Depth</th>
<th>USCS</th>
<th>Type of soil</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1m</td>
<td>SP</td>
<td>Sand with Gravel</td>
<td>dark brown</td>
</tr>
<tr>
<td>1-2m</td>
<td>SP</td>
<td>Sand with gravel</td>
<td>brown</td>
</tr>
<tr>
<td>2-3m</td>
<td>SP</td>
<td>Poorly graded sand</td>
<td>Light brown</td>
</tr>
<tr>
<td>3-4m</td>
<td>SP</td>
<td>Poorly graded sand</td>
<td>light brown</td>
</tr>
<tr>
<td>4-5m</td>
<td>ML</td>
<td>silty clay with sand</td>
<td>slight brown</td>
</tr>
<tr>
<td>5-6m</td>
<td>ML</td>
<td>silty clay with sand</td>
<td>slight brown</td>
</tr>
</tbody>
</table>

A 10m plain casing pipe was inserted and steel pipe with lid 0.5 M, the borehole was then sealed and covered.

**SS13-C**

Drilling date 22/06/2019

Site location flag poll SS3-C

GPR location N /09 39.736 E / 43 47.178

The borehole was drilled with double core barrel HQ

The drilled was stopped at the depths of 10 Meter width 4 inch. Five soil samples direct boring were collected and retained for analysis. The soil samples were collected from the following intervals at the site:

- Sample 1: from 0 (NGL) to -2m, SS13-C-1-2m
- Sample 2: from -2m to -4m, SS13-C-3-4m
- Sample 3: from -4m to -6m, SS13-C-5-6m
The following table indicates the borehole log

<table>
<thead>
<tr>
<th>Depth</th>
<th>USCS</th>
<th>Type of soil</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1m</td>
<td>SC</td>
<td>Clayey sand</td>
<td>dark brown</td>
</tr>
<tr>
<td>1-2m</td>
<td>SC</td>
<td>Clayey sand</td>
<td>dark brown</td>
</tr>
<tr>
<td>2-3m</td>
<td>SC</td>
<td>sand, slightly clayey</td>
<td>Yellow</td>
</tr>
<tr>
<td>3-4m</td>
<td>SC</td>
<td>sand, slightly clayey</td>
<td>Yellow</td>
</tr>
<tr>
<td>4-5m</td>
<td>MH</td>
<td>Clayey silt with sand</td>
<td>slight brown</td>
</tr>
<tr>
<td>5-6m</td>
<td>MH</td>
<td>Clayey silt with sand</td>
<td>slight brown</td>
</tr>
</tbody>
</table>

A 10m plain casing pipe was inserted and steel pipe with lid 0.5 M, the borehole was then sealed and covered.

**Drilling the sites for piezometers**

2. **SS13-P1**

Drilling date 09/09/2019

Site location flag pole SS13-P1

GPR location  N 09 39.782       E/  43 47.200

P1 is located on the upper stream of the SS3 site, that means it is 100m south of the proposed area, and it is 10m away and west bank of the wadi.

The borehole was drilled with double core barrel HQ

The drilled was stopped at the depths of 15 Meter width 8 inch. Two plastic casings were inserted; 6-inch internal casing and 8-inch external casing. Inner casing was perforated using saw and cutting longitudinal fractures along the plastic casing. Aggregate was then filled between the two casings; only the first one meter is left unfilled, and the outer casing has been removed. The first one meter of the internal casing has been cut and replaced with steel casing that has an outside threaded lid which can be opened with a spanner.

Concrete has been used to fix the casing to the earth.

Water table was detected at 10m during drilling at SS13-P1.
SS13-P2

Drilling date 22/06/2019

Site location flag poll SS13-P2

GPR location N 09 39.782 E/43 47.200

P2 is located on the lower stream of the SS03 site - 50m North of the proposed area, and it is 10m away and East of the wadi.

The borehole was drilled with double core barrel HQ.

The drilled was stopped at the depths of 15 Meter width 8 inch. Two plastic casings were inserted; 6-inch internal casing and 8-inch eternal inch. Inner casing was perforated using saw and cutting longitudinal fractures along the plastic casing. Aggregate was then filled between the two casings; only the first one meter is left unfilled, and the outer casing has been removed. The first one meter of the internal casing has been cut and replaced with steel casing that has an outside threaded lid, than can be opened with a spanner.

Concrete has been used to fix the casing to the earth.

Water table was detected during drilling at a depth of 10m.

Drilling of SS04 sampling site- Arabsiyo

SS04-A

Drilling date 02/10/2019

Site location flag poll SS04-A

GPR location N/ 09°41.586 E/ 43°45.788

The borehole was drilled with double core barrel HQ.

The drilled was stopped at the depths of 6 Meter width 4 inch. Five soil samples direct boring were collected and retained for analysis. The soil samples were collected from the following intervals at the site:
Sample 1: from 0 (NGL) to -2m, SS04-A-1-2M
Sample 2: from -2m to -4m, SS04-A-3-4m
Sample 3: from -4m to -6m, SS04-A-5-6m

The first three meters is sand, these are dark brown in color with low plasticity, followed by 2 meters of sandy clay which is underlain by sand with clay till the eighth meter.

The following table Tab. 4.1 indicates the borehole log:
<table>
<thead>
<tr>
<th>Depth</th>
<th>USCS</th>
<th>Type of soil</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1m</td>
<td>SW</td>
<td>Sand well graded</td>
<td>dark brown</td>
</tr>
<tr>
<td>1-2m</td>
<td>SW</td>
<td>Sand well graded</td>
<td>brown</td>
</tr>
<tr>
<td>2-3m</td>
<td>BC</td>
<td>Metamorphic rock</td>
<td>Highly weathered</td>
</tr>
<tr>
<td>3-4m</td>
<td>BC</td>
<td>Metamorphic rock</td>
<td>Highly weathered</td>
</tr>
<tr>
<td>4-5m</td>
<td>BC</td>
<td>Metamorphic rock</td>
<td>Greenish mica</td>
</tr>
<tr>
<td>5-6m</td>
<td>BC</td>
<td>Metamorphic rock</td>
<td>Greenish mica</td>
</tr>
</tbody>
</table>

A 6m plain casing pipe was inserted and steel pipe with lid 0.5 M, the borehole was then sealed and covered.

**SS04-B**

Drilling date 03/10/2019

Site location flag poll SS04-B

GPR location N 09°41.553 E 43°45.833

The borehole was drilled with double core barrel HQ.

The drilled was stopped at the depths of 6 Meter width 4 inch. Five soil samples direct boring were collected and retained for analysis. The soil samples were collected from the following intervals at the site.

- Sample 1: from 0 (NGL) to -2m, SS04-B-1-2M
- Sample 2: from -2m to -4m, SS04-B-3-4m
- Sample 3: from -4m to -6m, SS04-B-5-6m
The following table indicates the borehole log:

**Borehole profile SS04-B**

<table>
<thead>
<tr>
<th>Depth</th>
<th>USCS</th>
<th>Type of soil</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1m</td>
<td>CL</td>
<td>Loamy clay</td>
<td>dark brown</td>
</tr>
<tr>
<td>1-2m</td>
<td>CL</td>
<td>Loamy clay</td>
<td>brown</td>
</tr>
<tr>
<td>2-3m</td>
<td>GC</td>
<td>Clay gravelly</td>
<td>Light brown</td>
</tr>
<tr>
<td>3-4m</td>
<td>BC</td>
<td>Metamorphic rock</td>
<td>Highly weathered</td>
</tr>
<tr>
<td>4-5m</td>
<td>BC</td>
<td>Metamorphic rock</td>
<td>Highly weathered</td>
</tr>
<tr>
<td>5-6m</td>
<td>BC</td>
<td>Metamorphic rock</td>
<td>Highly weathered</td>
</tr>
</tbody>
</table>

A 6m plain casing pipe was inserted and steel pipe with lid 0.5 M, the borehole was then sealed and covered.

**SS04-C**

Drilling date 04/11/2019

Site location flag poll SS04-C

GPR location N 09°41.614 E 43°45.793

The borehole was drilled with double core barrel HQ.

The drilled was stopped at the depths of 6 Meter width 4 inch. Five soil samples direct boring were collected and retained for analysis. The soil samples were collected from the following intervals at the site:

- Sample 1: from 0 (NGL) to -2m, SS04-C-1-2m
- Sample 2: from -2m to -4m, SS04-C-3-4m
- Sample 3: from -4m to -6m, SS04-C-5-6m

The following table indicates the borehole log.
### Table 12  Borehole profile SS04-C

<table>
<thead>
<tr>
<th>Depth</th>
<th>USCS</th>
<th>Type of soil</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1m</td>
<td>SC</td>
<td>Clayey sand with gravel</td>
<td>dark brown</td>
</tr>
<tr>
<td>1-2m</td>
<td>SC</td>
<td>Clayey sand with gravel</td>
<td>dark brown</td>
</tr>
<tr>
<td>2-3m</td>
<td>SC</td>
<td>sand, slightly clayey</td>
<td>Yellow</td>
</tr>
<tr>
<td>3-4m</td>
<td>BC</td>
<td>Metamorphic rock</td>
<td>Highly weathered</td>
</tr>
<tr>
<td>4-5m</td>
<td>BC</td>
<td>Metamorphic rock</td>
<td>weathered</td>
</tr>
<tr>
<td>5-6m</td>
<td>BC</td>
<td>Metamorphic rock</td>
<td>weathered</td>
</tr>
</tbody>
</table>

A 10m plain casing pipe was inserted and steel pipe with lid 0.5 M, the borehole was then sealed and covered.

**Drilling the sites for piezometers**

3. **SS04-P1**

Drilling date 07/10/2019

Site location flag poll SS04-P1

GPR location N 09°41.561 E / 43°45.750

P1 is located on the upper stream of the SS4 site, that means it is 100m south of the proposed area, and it is in the west corner of the wadi.

The borehole was drilled with double core barrel HQ.

The drilled was stopped at the depths of 15 Meter width 8 inch. Two plastic casings were inserted; 6-inch internal casing and 8-inch external casing. Inner casing was perforated using saw and cutting longitudinal fractures along the plastic casing. Aggregate was then filled between the two casings; only the first one meter is left unfilled, and the outer casing has been removed. The first one meter of the internal casing has been cut and replaced with steel casing that has an outside threaded lid which can be opened with a spanner.

Concrete has been used to fix the casing to the earth.

Water table was detected at 2m during drilling at SS04-P1.
SS04-P2

Drilling date 8/10/2019

Site location flag poll SS04-P2

GPR location N/09°41.593 E/43°45.846

P2 is located on the lower stream of the SS03 site - 50m North of the proposed area, and it is 15m away and East of the wadi.

The borehole was drilled with double core barrel HQ.

The drilled was stopped at the depths of 15 Meter width 8 inch. Two plastic casings were inserted; 6-inch internal casing and 8-inch eternal inch. Inner casing was perforated using saw and cutting longitudinal fractures along the plastic casing. Aggregate was then filled between the two casings; only the first one meter is left unfilled, and the outer casing has been removed. The first one meter of the internal casing has been cut and replaced with steel casing that has an outside threaded lid, than can be opened with a spanner.

Concrete has been used to fix the casing to the earth.

Water table was detected during drilling at a depth of 2m.
Drilling of SS16 sampling site- Arbsiyo

SS16-A

Drilling date 16/10/2019

Site location flag poll SS16-A

GPR location N 09 39°090 E/ 43°44.228

The borehole was drilled with double core barrel HQ.

The drilled was stopped at the depths of 6 Meter width 4 inch. Five soil samples direct boring were collected and retained for analysis. The soil samples were collected from the following intervals at the site:

- Sample 1: from 0 (NGL) to -2m, SS16-A-1-2M
- Sample 2: from -2m to -4m, SS16-A-3-4m
- Sample 3: from -4m to -6m, SS16-A-5-6m
- Sample 4: from -7m to -8m, SS16-A-7-8m
- Sample 5: from -9m to -10m, SS16-A-9-10m

The following table Tab. 4.1 indicates the borehole log:

<table>
<thead>
<tr>
<th>Depth</th>
<th>USCS</th>
<th>Type of soil</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1m</td>
<td>SW</td>
<td>Sand</td>
<td>dark brown</td>
</tr>
<tr>
<td>1-2m</td>
<td>SW</td>
<td>Sand</td>
<td>brown</td>
</tr>
<tr>
<td>2-3m</td>
<td>SM</td>
<td>Silty Sand With gravel</td>
<td>brown</td>
</tr>
<tr>
<td>3-4m</td>
<td>SM</td>
<td>Silty Sand With gravel</td>
<td>slight brown</td>
</tr>
<tr>
<td>4-5m</td>
<td>SC</td>
<td>Clayey Sand with gravel</td>
<td>slight brown</td>
</tr>
<tr>
<td>5-6m</td>
<td>SC</td>
<td>Clayey Sand with gravel</td>
<td>slight brown</td>
</tr>
<tr>
<td>6-7m</td>
<td>CL</td>
<td>Clay</td>
<td>pinkish</td>
</tr>
<tr>
<td>7-8m</td>
<td>CL</td>
<td>Clay</td>
<td>pinkish</td>
</tr>
<tr>
<td>8-9m</td>
<td>CL</td>
<td>clayey sand</td>
<td>Pinkish yellow</td>
</tr>
<tr>
<td>9-10m</td>
<td>CL</td>
<td>clayey sand</td>
<td>Pinkish yellow</td>
</tr>
</tbody>
</table>
SS16-B

Drilling date 20/10/2019

Site location flag poll SS16-B

GPR location N 09°39.918 E/ 43°44.230

The borehole was drilled with double core barrel HQ

The drilled was stopped at the depths of 6 Meter width 4 inch. Five soil samples direct boring were collected and retained for analysis. The soil samples were collected from the following intervals at the site.

- Sample 1: from 0 (NGL) to -2m, SS16-B-1-2M
- Sample 2: from -2m to -4m, SS16-B-3-4m
- Sample 3: from -4m to -6m, SS16-B-5-6m
- Sample 4: from -7m to -8m, SS16-B-7-8m
- Sample 5: from -9m to -10m, SS16-B-9-10m

The following table indicates the borehole log:

<table>
<thead>
<tr>
<th>Depth</th>
<th>USCS</th>
<th>Type of soil</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1m</td>
<td>SW</td>
<td>sand</td>
<td>Light brown</td>
</tr>
<tr>
<td>1-2m</td>
<td>SW</td>
<td>Sand</td>
<td>Light brown</td>
</tr>
<tr>
<td>2-3m</td>
<td>CM</td>
<td>Silty clay</td>
<td>dark brown</td>
</tr>
<tr>
<td>3-4m</td>
<td>CM</td>
<td>Silty clay</td>
<td>dark brown</td>
</tr>
<tr>
<td>4-5m</td>
<td>CL</td>
<td>Clay</td>
<td>slight brown</td>
</tr>
<tr>
<td>5-6m</td>
<td>CL</td>
<td>Clay</td>
<td>slight brown</td>
</tr>
<tr>
<td>6-7m</td>
<td>CL</td>
<td>Clay</td>
<td>reddish pink</td>
</tr>
<tr>
<td>7-8m</td>
<td>CL</td>
<td>Clay</td>
<td>reddish pink</td>
</tr>
<tr>
<td>8-9m</td>
<td>CL</td>
<td>Clay</td>
<td>reddish pink</td>
</tr>
<tr>
<td>9-10m</td>
<td>CL</td>
<td>Clay</td>
<td>reddish pink</td>
</tr>
</tbody>
</table>
A 6m plain casing pipe was inserted and steel pipe with lid 0.5 M, the borehole was then sealed and covered.

**Drilling the sites for piezometers**

4. **SS16-P1**

Drilling date 27/10/2019

Site location flag poll SS16-P1

GPR location N 09°39.879 E / 43°44.217

P1 is located on the upper stream of the SS4 site, that means it is 100m south of the proposed area, and it is in the east corner of the wadi.

The borehole was drilled with double core barrel HQ

The drilled was stopped at the depths of 15 Meter width 8 inch. Two plastic casings were inserted; 6-inch internal casing and 8-inch external casing. Inner casing was perforated using saw and cutting longitudinal fractures along the plastic casing. Aggregate was then filled between the two casings; only the first one meter is left unfilled, and the outer casing has been removed. The first one meter of the internal casing has been cut and replaced with steel casing that has an outside threaded lid which can be opened with a spanner.

Concrete has been used to fix the casing to the earth.

Water table was detected at 7m during drilling at SS16-P1.
Drilling of SS07 sampling site - Udan

SS07-A

Drilling date 06/11/2019

Site location flag poll SS07-A

GPR location N 09°38.480  E/ 043°50.710

The borehole was drilled with double core barrel HQ.

The drilled was stopped at the depths of 6 Meter width 4 inch. Five soil samples direct boring were collected and retained for analysis. The soil samples were collected from the following intervals at the site:

- Sample 1: from 0 (NGL) to -2m, SS07-A-1-2M
- Sample 2: from -2m to -4m, SS07-A-3-4m
- Sample 3: from -4m to -6m, SS07-A-5-6m
- Sample 4: from -7m to -8m, SS07-A-7-8m
- Sample 5: from -9m to -10m, SS07-A-9-10m

The following table Tab. 4.1 indicates the borehole log:

<table>
<thead>
<tr>
<th>Depth</th>
<th>USCS</th>
<th>Type of soil</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1m</td>
<td>SW</td>
<td>Sand</td>
<td>brown</td>
</tr>
<tr>
<td>1-2m</td>
<td>SW</td>
<td>Sand</td>
<td>brown</td>
</tr>
<tr>
<td>2-3m</td>
<td>SC</td>
<td>Sandy clay</td>
<td>brown</td>
</tr>
<tr>
<td>3-4m</td>
<td>SC</td>
<td>Sandy clay</td>
<td>brown</td>
</tr>
<tr>
<td>4-5m</td>
<td>SM</td>
<td>Silty sand with gravel</td>
<td>slight brown</td>
</tr>
<tr>
<td>5-6m</td>
<td>SM</td>
<td>Silty sand with gravel</td>
<td>slight brown</td>
</tr>
<tr>
<td>6-7m</td>
<td>SP</td>
<td>Poorly graded sand with gravel</td>
<td>light brown</td>
</tr>
<tr>
<td>7-8m</td>
<td>SP</td>
<td>Poorly graded sand with gravel</td>
<td>light brown</td>
</tr>
<tr>
<td>8-9m</td>
<td>CM</td>
<td>Silty clay with sand</td>
<td>Yellowish</td>
</tr>
</tbody>
</table>
SS16-B

Drilling date 10/11/2019

Site location flag poll SS07-B

GPR location  N 09°38.478 E/ 43°50.719

The borehole was drilled with double core barrel HQ

The drilled was stopped at the depths of 6 Meter width 4 inch. Five soil samples direct boring were collected and retained for analysis. The soil samples were collected from the following intervals at the site.

- Sample 1: from 0 (NGL) to -2m, SS07-B-1-2M
- Sample 2: from -2m to -4m, SS07-B-3-4m
- Sample 3: from -4m to -6m, SS07-B-5-6m
- Sample 4: from -7m to -8m, SS07-B-7-8m
- Sample 5: from -9m to -10m, SS07-B-9-10m

The following table indicates the borehole log:

<table>
<thead>
<tr>
<th>Depth</th>
<th>USCS</th>
<th>Type of soil</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1m</td>
<td>SW</td>
<td>Sand</td>
<td>dark brown</td>
</tr>
<tr>
<td>1-2m</td>
<td>SC</td>
<td>Clayey sand</td>
<td>brown</td>
</tr>
<tr>
<td>2-3m</td>
<td>CL</td>
<td>Silty clay</td>
<td>Dark coloured</td>
</tr>
<tr>
<td>3-4m</td>
<td>CL</td>
<td>Silty clay</td>
<td>Dark coloured</td>
</tr>
<tr>
<td>4-5m</td>
<td>SC</td>
<td>Clayey sand</td>
<td>slight brown</td>
</tr>
<tr>
<td>5-6m</td>
<td>SC</td>
<td>Clayey sand</td>
<td>slight brown</td>
</tr>
<tr>
<td>6-7m</td>
<td>SM</td>
<td>Silty sand</td>
<td>brown</td>
</tr>
<tr>
<td>7-8m</td>
<td>SM</td>
<td>Silty sand</td>
<td>brown</td>
</tr>
<tr>
<td>8-9m</td>
<td>SP</td>
<td>Poorly graded sand</td>
<td>brown</td>
</tr>
<tr>
<td>9-10m</td>
<td>SP</td>
<td>Poorly graded sand</td>
<td>brown</td>
</tr>
</tbody>
</table>
A 6m plain casing pipe was inserted and steel pipe with lid 0.5 M, the borehole was then sealed and covered.

**Drilling the sites for piezometers**

5. **SS07-P1**

Drilling date 17/11/2019

Site location flag poll SS07-P1

GPR location N 09°38.453 E 43°50.703

P1 is located on the upper stream of the SS4 site, that means it is 100m south of the proposed area, and it is in the west corner of the wadi.

The borehole was drilled with double core barrel HQ

The drilled was stopped at the depths of 15 Meter width 8 inch. Two plastic casings were inserted; 6-inch internal casing and 8-inch external casing. Inner casing was perforated using saw and cutting longitudinal fractures along the plastic casing. Aggregate was then filled between the two casings; only the first one meter is left unfilled, and the outer casing has been removed. The first one meter of the internal casing has been cut and replaced with steel casing that has an outside threaded lid which can be opened with a spanner.

Concrete has been used to fix the casing to the earth.

Water table was detected at 10m during drilling at SS07-P1.
German Financial Cooperation with Republic of Somaliland

“WATER SUPPLY & BASIC SANITATION AND SUSTAINABLE LAND MANAGEMENT”

Bidding Documents

for

Procurement of Works – Construction of Subsurface Dams works

Contract C1

Bill of Quantities

Tender Procedures: Two Envelope Post-qualification

Employer: Ministry of Agricultural Development (MoAD)

November 2019

Project ID: BMZ No. 32642 / 2015 67 924
KfW MoAD - SOM 2, Sustainable Land Management in Somaliland; Subproject: Construction of subsurface dams - Works Contract C1 for Lot (A)SS01,SS03,SS04 and Lot (B) SS07,SS13,SS16
This General items is included all 6 subsurface dams locations

<table>
<thead>
<tr>
<th>Summary Sheet</th>
<th>Construction of Subsurface dams</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>General items</td>
</tr>
<tr>
<td></td>
<td>total</td>
</tr>
</tbody>
</table>
### Bill 1 - General and Preliminary Items

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price US $</th>
<th>Total Price US $</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>General and Preliminary items</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mobilisation, demobilisation, site installations, topography</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td>Mobilisation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Costs in accordance with the Technical Specifications (TS): preparation of all access roads and all temporary construction roads as are necessary for the works execution for this contract; location of temporary construction roads need approval by the Engineer; mobilisation includes providing all conditions for works at the site - machines, equipment, staff requirements (office, camp, shelter, workshops, fuel/diesel station; the storage areas, construction and installation of the work site sign board (from side of the Contractor) and fencing; rainy season and adverse weather conditions do not entitle for any extra payments.</td>
<td>6</td>
<td>ls</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2</td>
<td>Mobilisation, maintenance of facilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>This item is for period of works for subsurface dams structures; Costs in accordance with the TS, the Engineer/ Employers requirements as detailed specified in TS; all costs related to this item shall cover the Contractor’s expenses connected with - the maintenance and the operation of the site installations during the construction period; - all obligations referring to H&amp;S and EMP - taking over of works after completion of the whole contract; - related costs during the 12 months DLP for works</td>
<td>8</td>
<td>months</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.3</td>
<td>Demobilisation and clearance of the construction site</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>This is a non revisable fixed cost covering all the operations of disassembling and withdrawal of equipment/tools used for the construction work and shelters for the working staff, the reconditioning of the borrow areas etc. It is payable at HUNDRED PERCENT (100%) at the end of the construction work, after the withdrawal of all temporary structures and the equipment/tools belonging to the Enterprise, after making the place tidy.</td>
<td>6</td>
<td>ls</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.4</td>
<td>Insurances</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>This item shall cover expenses for keeping all insurances due to national law (Somaliland) and international standards during the works period and for DLP as necessary. Among others the following insurances shall be kept valid and the Contractor shall yearly forward by own accord all 6 months the valid insurance policy certificate (copy) to the Engineer and shall amend and prolong insurance policy in time: - Worker’s social insurance (acc. to Somaliland law) - Machines insurances, transport vehicles insurance (acc.to Somaliland law) - Damage liability, third party insurance (acc.to Appendix to Bid, cl. 18.3) - Maximum amount of deductibles for insurance of the Employer’s risks (per occurrence – in accordance with Appendix to Bid, cl. 18.2d) - Works execution liability - insurance of all related issues due to employed Sub-contractors and suppliers - Damage liability for executed works and the site - flood, rain, storm/ cyclone winds, fire. If appropriate, particulars are described in Technical Specifications. The insurance certificate must be in accordance with national and international requirements and must satisfy KfW standard.</td>
<td>1</td>
<td>ls</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.5</td>
<td>Material testing laboratory facilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The Contractor is obliged to establish material testing laboratory at site or to prove a concluded agreement of Contractor with a licensed laboratory for material and soil sample testing. This item remunerates sampling and testing (incl. report with the test protocols/diagrams) in accordance with the TS.</td>
<td>6</td>
<td>ls</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item</td>
<td>Description</td>
<td>Code</td>
<td>Qty.</td>
<td>Unit</td>
<td>Unit Price US $</td>
<td>Total Price US $</td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
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<td>-----------------</td>
</tr>
<tr>
<td>1.6</td>
<td>Photographical records of the site prior, during and at the end of works execution</td>
<td>(1)</td>
<td>(3)</td>
<td>(1) x (3)</td>
<td>6 ls</td>
<td>6.00 ls</td>
</tr>
<tr>
<td></td>
<td>With commencement of Works the Contractor shall make a photographic record (with date on pictures) of the construction sites, of the roads and the site surrounding; this is for documentation of the situation prior to the construction works. During the construction works the Contractor shall monthly document the status and progress of Works. To end of works period, after demobilisation, the situation at site shall be recorded by photo for assessment that the site is left in condition not deteriorated or damaged compared to situation at start of Works.</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1.7</td>
<td>As - Built Documentation/ As- Built Drawings and necessary declarations</td>
<td>6.00</td>
<td>ls</td>
<td>6 ls</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>This cost remunerates the preparation of location and measurements of built gabion structures; a location map showing location, topography and key dimensions of byre structures - to be submitted in 2 hard copies and digital on CD, the topographic data in digital form and with reference to the international reference system UTM-36 WGS 84 or otherwise agreed with the Engineer</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>As built documentation on basis of approved drawings, technical specifications and Contractor's Method Statement shall be done by the Contractor in parallel with the particular works execution or thereafter as directed by the Engineer. Within the as-built documentation the actual at site measurements for payments shall be regarded;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.8</td>
<td>Manual O&amp;M for all building structures, as per TS (the yearly maintenance and monitoring of the byre, to close erosion gullies, the masonry works)</td>
<td>6</td>
<td>ls</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.9</td>
<td>Topographic surveys</td>
<td>6</td>
<td>ls</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The survey shall be done to the satisfaction of the Engineer (approval of survey procedure, accuracy, timing and plausibility of results are to be approved in written form/ protocol by the Engineer). The topographic survey is basis for the monthly works measurements and for the as-built documentation; the topographic survey is referring to the gabion locations; when instructed by the Engineer, the Contractor shall carry out other topographic surveys (e.g. related to extent of the erosion gully) - these additional topographic surveys shall be paid - when written according instruction is given by the Engineer - under &quot;Daywork Item&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subtotal 1.a - Mobilisation, site installations, topographic survey (items 1.1 to 1.9)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Worker's health &amp; safety</td>
<td>6.00 ls</td>
<td>6 ls</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The Contractor is obliged to keep the workers health and safety - in accordance with the &quot;Environmental and Social Management Specifications&quot;; part of the technical specifications), incl. OHS training and HIV prevention awareness, - in accordance with the GCC FIDIC stipulations MDB harmonized edition June 2010 (FIDIC pink), - and in accordance with the requirements as per KfW Guidelines for Construction Environmental and Social management Plan (ESMP); All general requirements in regard of compliance with H&amp;S are considered to be included in the overheads of the several works items, and only the items under 1.1.2.1 to 1.1.2.5 are to consider as budget allocation for particular measures in regard of H&amp;S; Within the mobilisation plan and maintenance of the mobilisation facilities the Contractor shall ensure and keep all safety provisions, duly traffic regulations, site lighting, fencing, guarding. The Contractor is obliged to organize a Defence Driving Course to all his driving staff; when a new driver is employed he shall also attend such a driving Defence Course; the Contractor submits evidence to the Engineer of course program and the drivers having successful passed the course, in case a driver is identified without course certificate the consequence is penalty for the Contractor, and the driver is banned. The drivers shall prove certificate that the drivers conditions in regard of eyesight is sufficient (the same procedures/ consequences as above).</td>
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</tr>
</tbody>
</table>
## Bill 1 - General and Preliminary Items

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty</th>
<th>Unit</th>
<th>Unit Price</th>
<th>Total Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.10</td>
<td>H&amp;S Plan</td>
<td>(1)</td>
<td>6</td>
<td>ls</td>
<td></td>
<td>US $</td>
</tr>
<tr>
<td></td>
<td>the Contractor shall forward H&amp;S plan for the Engineer's approval; including the staff training program and staff medical examination program and first aid facilities at site; the procedures of information record keeping, reporting, audits and inspections; all requirements as per TS 1.3.4.2(a) to fulfill, including H&amp;S reporting, including the H&amp;S specifications in the Contractor's Method Statement (MS)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>US $</td>
</tr>
<tr>
<td>1.11</td>
<td>H&amp;S - having at site sanitation conditions</td>
<td>(3)</td>
<td>6</td>
<td>ls</td>
<td></td>
<td>US $</td>
</tr>
<tr>
<td></td>
<td>the Contractor shall fulfill responsibility for having at site available all sanitation, hygiene facilities - mandatory are the provision of mobile latrines at site during construction period, caring for clean water, fire prevention...; all requirements as per TS 1.3.4.2(d) to fulfill</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>US $</td>
</tr>
<tr>
<td></td>
<td>Environment protection, environment monitoring - EMP</td>
<td>(1)</td>
<td>6</td>
<td>ls</td>
<td></td>
<td>US $</td>
</tr>
<tr>
<td></td>
<td>Provision to fulfill all requirements related to environment protection, environment monitoring and all required environment documentation (in accordance with the “Environmental and Social Management Specifications/ ESIA”, part of the technical specifications and the EMP report). In accordance with the “Environmental and Social Management Specifications”, part of the technical specifications), incl. OHS training and HIV prevention awareness, for berkad rehabilitation/ repair works the Contractor shall provide just a basic Environment Monitoring Plan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>US $</td>
</tr>
<tr>
<td></td>
<td>all general requirements in regard of compliance with EMP and EIA are considered to be included in the overheads of the several works items, and only the items under 1.1.3.1 to 1.1.3.4 are to consider as budget allocation for particular measures in regard of EMP:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>US $</td>
</tr>
<tr>
<td>1.12</td>
<td>Environment and Social implementation Plan ESMIP - preparation/ monthly update</td>
<td>(3)</td>
<td>6</td>
<td>ls</td>
<td></td>
<td>US $</td>
</tr>
<tr>
<td></td>
<td>the Contractor shall submit the ESMIP in regard of stipulations in TS and the EIA/ EMP for environment protection and keep updated; all requirements as per TS 1.3.4.1(a) to fulfill; including the specifications in regard of ESIA in the Contractor's MS, including emission reducing measures as necessary, including all reporting in regard of ESIA as contractually required; for berkad rehabilitation/ repair works the Contractor shall provide just a basic Environment Monitoring Plan.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>US $</td>
</tr>
<tr>
<td></td>
<td>Subtotal 1.b - H&amp;S; EMP (items 1.10 to 1.12)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>US $</td>
</tr>
<tr>
<td>1.13</td>
<td>Provide Engineers' site offices, establishing (with office room for Employer)</td>
<td>(4)</td>
<td>0</td>
<td>ls</td>
<td></td>
<td>US $</td>
</tr>
<tr>
<td></td>
<td>Engineers and Employer site office room made available, including all related maintenance expenses in accordance with TS and agreed with the Engineer office furnitue and software;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>US $</td>
</tr>
<tr>
<td></td>
<td>Subtotal 1.c - Engineer's and Employer's requirements, Miscellaneous (items 1.13 to 1.15)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>US $</td>
</tr>
<tr>
<td></td>
<td>Summary 1 - General and Preliminary Items (items 1.1 to 1.15) - carried forward to &quot;Total Summary Sheet&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>US $</td>
</tr>
</tbody>
</table>
Contract – C1

Lot A

SS01, SS03, SS04
BoQ
Lot A
SS01
<table>
<thead>
<tr>
<th>Summary Sheet</th>
<th>Subproject: Construction of Subsurface Dam SS01 (X = 36 31 07.38, Y = 106 17 85)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>General items</td>
</tr>
<tr>
<td></td>
<td>are according to separate BoQ for all SS dam sites under this works contract C1</td>
</tr>
<tr>
<td>2</td>
<td>Earthworks</td>
</tr>
<tr>
<td>3</td>
<td>Civil Works</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total - SS01 - construction</strong></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Miscellaneous (optional items for shallow well; not included in contract value)</td>
</tr>
<tr>
<td></td>
<td>optional only</td>
</tr>
<tr>
<td>5</td>
<td>Dayworks</td>
</tr>
</tbody>
</table>
### Bill 2 - General earthworks

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price (US $)</th>
<th>Total Price (US $)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4) x (3)</td>
<td></td>
</tr>
<tr>
<td><strong>Preparatory Earthworks</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>The following items are referring to “Earthworks”</strong>: the unit price shall include all costs for machine, labour, materials and for site access and all temporary and auxiliary works required for execution; the earthworks items shall cover all earthworks which are appearing in scope of the several sub-projects in regard of site preparations, clearing, recovery, restoration, works for inflow area terrain scaping, for excavations of silt trap and overflow areas - where necessary and so on.</td>
<td></td>
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</tr>
<tr>
<td><strong>2.1 Provisional Item - only on request of the Engineer - Site geotechnical field investigations</strong></td>
<td>Provision for trial pits, drilling and other field works and for soil mechanics; the provisional budget of this item must be kept unchanged by bidders.</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2.2 Clearing (for clearing the Contractor submits a written inventory of the construction site - i.e. number and species of vegetation and shrubs - to the Engineer and clearing works are allowed only in scope as permitted in detail by the Engineer); offence will be prosecuted according to Technical Specifications (TS), removal of shrubs, vegetation with stems diameter up to 5 cm is considered as shrubs; for SS dam structures - this item is for clearing at the river bank sides load, transport and unload of the topsoil and shrubs to disposal site or storage place (heap up to windrows, max. height 2 m - or as directed by the Engineer); transport distance max. 1 km works strictly to be done with regard of the requirements to protect environment in the project area (works according to Environment Management Plan);</strong></td>
<td>400</td>
<td>m³</td>
<td>2,000.00</td>
<td>2,000.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2.3 Cleaning of masonry/ concrete structure</strong></td>
<td>this item shall be provision for cleaning an existing structure (in case of structure rehabilitation, e.g cleaning of bottom of existing berkads and similar works - when required); this item covers all related works</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>2.4 Cutting trees</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>of diameter &gt; 15 cm ... &lt; 30 cm (measured 1 m above ground level) when cannot be avoided; only according to a explicit by the Engineer approved procedure; sawing of trees and the transportation of wood to the area of storing of the wood as indicated by the Engineer; transport distance max. 2 km; the ownership of wood is regulated by applicable technical specification; vegetation with stem diameter 5 cm is considered as shrubs and are covered under item 2.2</td>
<td>2</td>
<td>piece</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2.5 Cutting trees</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>- as above, but size &gt; 5 cm ...&lt; 15 cm (measured 1 m above ground level) - when cannot be avoided; vegetation with stem diameter 5 cm is considered as shrubs and are covered under item 2.2</td>
<td>5</td>
<td>piece</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Demolition Works</strong></td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td><strong>2.6 Demolition works</strong></td>
<td>any necessary demolition of remainings of infrastructure, left reinforcement parts or other debris, pipes, ... masonry; in case of slab bottom rehabilitation which needs removal of previous concrete parts; demontage/ demolition, load on truck, transport to municipal landfill site and unload;</td>
<td>0</td>
<td>m³</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Subtotal 2a - Preparatory earthworks (items 2.1 to 2.5)</strong></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Excavation (all excavation works include the necessary groundwater and surface water management, pumping, diversion, ...); and including all necessary provisions of securing temporary construction pits against collapsing, as required and when instructed by the Engineer;</strong></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>2.7 Excavation in loose soils</strong></td>
<td>not water saturated but silt, sand and or gravelly soils; soils can be re-used for backfilling when approved by the Engineer depth of excavation up to 4.5 m depth, transport to designated dump, distance max. 1 km</td>
<td>1,000</td>
<td>m³</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Bill 2 - General earthworks

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price US $</th>
<th>Total Price US $</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.8</td>
<td>Excavation of sludge (e.g., excavations for rehabilitation in bailey area)</td>
<td></td>
<td>300</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- sludge is defined as water saturated sand, silts and clays and mixtures with liquid consistency;</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>- load and transport to designated dump place, distance max. 1 km</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>2.9</td>
<td>Excavation of loose rock (highly weathered rock - joint spacing &lt; 20 cm) and conglomerates: transport to designated dump, distance max. 1 km</td>
<td></td>
<td>50</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.10</td>
<td>Excavation of medium to strong rock (slightly weathered or unweathered - joint spacing &gt; 20 cm); transport to designated dump, distance max. 1 km</td>
<td></td>
<td>1</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Subtotal 2b - Excavations (items 2.6 to 2.10)**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price US $</th>
<th>Total Price US $</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.11</td>
<td>Backfilling, subbase, site rehabilitation (recultivation)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.12</td>
<td>Backfilling works</td>
<td></td>
<td>1,200</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- refill of excavations where necessary or backfill of structures, gravelly silty sand (gravel - min content 10%, max grain size 32 mm; sand - min content 60%, fines (silt) - max. 30%); water content according to compaction requirement, i.e., in range wopt +/- 3% in layers not exceeding 30 cm thickness before compaction, compacted to 95% Proctor or more; profiling as required; backfilling of over excavation will not be paid</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- supply, place and compact</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.13</td>
<td>Subbase where required for construction of masonry weir; gravelly silty sand (gravel min 15%, max 16 mm; fines max. 10%); profiling as necessary (cross falls for dewatering); supply, place and compact - min: 97% Proctor compaction</td>
<td></td>
<td>15</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.14</td>
<td>Erosion Protection - gabions (downstream of weir crest and the abutment sides/ river bank) stones: 100 mm ... 300mm in wire basket; gabion d=0.50 m; for supporting erosion protection works (at abutments/ river banks and downstream of masonry weir axis)</td>
<td></td>
<td>100</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.15</td>
<td>Bedding layer for foundation of gabion baskets</td>
<td></td>
<td>40</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gravel/Cobble 10mm-100mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.16</td>
<td>Geotextile</td>
<td></td>
<td>200</td>
<td>m²</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>to provide a geotextile; 500 g/m² minimum (and according to TS); for separation of foundation soils to subbase structures or slope protection, where required placing where directed by the Engineer</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>2.17</td>
<td>SB - soil bund implementation (when necessary on both sides of riverbed on top of banks, upstream directed) to prevent flooding of agriculture area; SB: height 1.50 m; on top (crest) 0.5 m width; in layers (max. 30 cm); with some handtool compaction, min 95% Proctor</td>
<td></td>
<td>200</td>
<td>m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.18</td>
<td>Provisional Sum - this provisional sum is for site rehabilitation works after completion of the earthworks and civil structure works; the demobilisation includes all provisions to restore and leaving the site in proper condition and are not to cover with this item; the provisional item shall be kept unchanged by the Bidder</td>
<td></td>
<td>1</td>
<td>prov. sum</td>
<td>1,000.00</td>
<td>1,000.00</td>
</tr>
</tbody>
</table>

**Subtotal 2c - Excavations (items 2.11 to 2.18)**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price US $</th>
<th>Total Price US $</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.19</td>
<td>Contingencies, 10% - for sub-total 2.1.1 (items 2.1 to 2.18)</td>
<td></td>
<td>1</td>
<td>ls</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Summary 2 - General earthworks (items 2.1 to 2.15) - carried forward to "Summary"**
**Bill 2 - Civil works (reinforced concrete, mass concrete, steel structures, timber) and masonry**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price US $</th>
<th>Total Price US $</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Concrete, formwork (as required for repairs of concrete structures and new construction)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Concrete, formwork**
  - The costs of making, storing and testing of concrete test cubes as required under clause 7 “Tests” of SANS 2001:CC1 shall include the cost of providing cube moulds necessary for the purpose, for testing costs and for submitting reports on the tests to the Engineer. The testing shall be undertaken by an independent firm or institution nominated by the contractor to the approval of the Engineer. (Test cubes are measured separately).
  - All required formworks shall be deemed to be included as part of the concreting works. Formworks execution according to TS. Smooth or rough formwork as required according to regulations for structures (foundation beams or pilles or slabs etc.); formworks - degree of accuracy II (see TS for formworks).
  - Formwork to sides of bases, pile caps, ground beams, etc. will only be measured where it is prescribed by the engineer for design reasons. Formwork necessitated by irregularity or collapse of excavated faces will not be measured and the cost thereof shall be deemed to be included in the allowance for taking the risk of collapse of the sides of the excavations, provision for which is made in “Earthworks”.
  - Descriptions of formwork shall be deemed to include use and waste only (except where described as “left in” or “permanent”), for fitting together in the required forms, wedging, plumbing and fixing to true angles and surfaces as necessary to ensure easy release during stripping and for re-use. The vertical strutting shall be carried down to such construction as is sufficiently strong to afford the required support without damage and shall remain in position until the newly constructed work is able to support itself.
  - Formwork to soffits of solid slabs etc. shall be deemed to be to slabs not exceeding 250mm thick unless otherwise described. Formwork to sides of bases, pile caps, ground beams, etc. will only be measured where it is prescribed by the engineer for design reasons. Formwork necessitated by irregularity or collapse of excavated faces will not be measured and the cost thereof shall be deemed to be included in the allowance for taking the risk of collapse of the sides of the excavations, provision for which is made in “Earthworks”.
  - The total alkali content for exposed concrete and concrete on or below ground must be limited to a maximum of 2.1 kg/m³.
  - Reinforced concrete will be required for structure (berkad slabs, walls, ...) for roof post fundaments and others; masonry works for repairs and for additional structures as silt trap or overflows, stairs, canals or guiding walls in inflow area - were are required and in coordination with the Engineer; the BoQ are connected with items, payment will be made on basis of measurement (actually done work);

- **3.1a** mass concrete (C16/20; min compressive strength 20 Mpa), not reinforced; all works and materials included as per TS; including all temporary and auxiliary works
  - 2 m³

- **3.1b** reinforced concrete (C20/25, min compressive strength: 25 Mpa), all works and materials (incl. reinforcement bars) included as per TS; including all temporary and auxiliary works
  - 2 m³

- **3.2** sealing geo-membrane below new constructed concrete bottom slab (for berkad attactures - when required); deliver PE 2 mm thick (min) with material certificate, placing and welding
  - 0 m²

- **3.3** Construction joints, including surface sealing 8 x 20mm Construction joints in top of concrete including 8mm foam backing strip (or equivalent)
  - 0 m

**Subtotal 3a - Concrete, formworks (items 3.1 to 3.3)**

**Masonry (repair works of masonry structures, eg. Berkads and new Berkad construction)**
### Bill 2 - Civil works (reinforced concrete, mass concrete, steel structures, timber) and masonry

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code¹</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price² US $</th>
<th>Total Price² US $</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.4</td>
<td>Stone masonry - according to TS and drawings, construction material delivery, works and machine employment, testing</td>
<td></td>
<td>300</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.5</td>
<td>Half brick walls</td>
<td></td>
<td>0</td>
<td>m²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.6</td>
<td>One brick walls</td>
<td></td>
<td>0</td>
<td>m²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.7</td>
<td>280mm Hollow walls of two half brick skins including wire ties</td>
<td></td>
<td>0</td>
<td>m²</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Movement joints between vertical concrete and brick surfaces</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.8</td>
<td>12mm Joints not exceeding 300mm wide</td>
<td></td>
<td>0</td>
<td>m</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Brickwork reinforcement</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.9</td>
<td>75mm Wide reinforcement built in horizontally</td>
<td></td>
<td>0</td>
<td>m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.10</td>
<td>150mm Wide reinforcement built in horizontally</td>
<td></td>
<td>0</td>
<td>m</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Subtotal 3b - Masonry (items 3.4 to 3.10)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.11</td>
<td>Contingencies, 10 % of the sub-total 3a to 3g</td>
<td></td>
<td>1</td>
<td>ls</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Summary 3 - Civil works (items 3.1 to 3.11) - carried forward to “Summary”**
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price US $</th>
<th>Total Price US $</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td><strong>Miscellaneous works</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>shallow well as optional scope of works:</strong> a price for unit items shall</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>be introduced under 4.1 to 4.5; the total price for items 4.1 to 4.5 shall</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>not be filled in (optional only); the items under Subbill 4 include works,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>materials and delivery to site</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>implementing of shallow wells, upstream of SS weir axis; diameter 3 m,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>depth 5 m (SS01) m, concrete rings (caisson method);</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 wells (distance from axis about 50 m and 100 m),</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.1</td>
<td>excavations for shallow well</td>
<td>optional</td>
<td>50</td>
<td>m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.2</td>
<td>concrete rings, delivery, installing, backfilling</td>
<td>optional</td>
<td>5</td>
<td>m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.3</td>
<td>preparing top of well according to drawings, provide top cover</td>
<td>optional</td>
<td>1</td>
<td>ls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.4</td>
<td>submergible pump, procuremnt, installing, instructing farmer in using the</td>
<td>optional</td>
<td>1</td>
<td>units</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>pump, including all auxiliary materials, bolts etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.5</td>
<td>set of solar panels compatible with the pump, sufficient capacity;</td>
<td>optional</td>
<td>1</td>
<td>sets</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>warranty 2 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>**Summary 4 - Miscellaneous works (items 4.1 to 4.6) - carried</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>forward to &quot;Total Summary Sheet&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Bill 5 - Day works - (5.1) labourers, (5.2) materials, (5.3) machine employment, (5.4) transport and pumping/ dewatering

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price US $</th>
<th>Total Price US $</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Day works</td>
<td></td>
<td></td>
<td></td>
<td>(1) x (3)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Works, machine employment, materials and pumping in scope of &quot;day works&quot; are foreseen and may only be effected upon explicit instruction by the Engineer. The unit price shall be applicable independent from the actual used or need of quantity in the items. For staff employment the Contractor shall provide daily time sheets. The hourly rates shall include all expenses for staff employment as travel, daily allowances, accommodation, taxes, insurances, accessory charges. For machine employment the Contractor shall provided protocols or site book entrances. Any time (&quot;hours&quot;) required for repairs or machine maintenance shall not be considered and are not paid. The unit price on hour basis for machine employment shall include all expenses as machine operator, energy/ fuel/ lubricants, machine depreciation, repairs, spare parts and maintenance. Unit price for transport, materials and pumping hours are applicable only for unforeseen situations and/ or any extra work instructed by the Engineer.</td>
<td></td>
<td>2</td>
<td>US $</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Day works (A) - Labourers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.1</td>
<td>Provision for staff employment Technician</td>
<td>5.1</td>
<td>10</td>
<td>h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.2</td>
<td>Provision for staff employment Foreman</td>
<td>5.2</td>
<td>20</td>
<td>h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.3</td>
<td>Provision for staff employment skilled labourer</td>
<td>5.3</td>
<td>50</td>
<td>h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.4</td>
<td>Provision for staff employment unskilled labourer</td>
<td>5.4</td>
<td>50</td>
<td>h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.5</td>
<td>Provision for staff employment carpenter/ woodworker crew (crew of min. 3 labourers)</td>
<td>5.5</td>
<td>0</td>
<td>h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.6</td>
<td>Provision for staff employment concrete labourers crew (crew of min. 3 labourers)</td>
<td>5.6</td>
<td>0</td>
<td>h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.7</td>
<td>Provision for staff employment reinforcement labourers crew (crew of min. 3 labourers)</td>
<td>5.7</td>
<td>0</td>
<td>h</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Subtotal 5a - Day works, labourers (item 5.1 to 5.7)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Day works (B) - Machines (per h basis)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.8</td>
<td>Provision for machines employment; incl. all costs for operation and maintenance; incl. engine operator Bulldozer 195 PS (power, min); width of shield min 3,3 m²/ 3,89 m³</td>
<td>5.8</td>
<td>10</td>
<td>h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.9</td>
<td>Provision for machines employment; incl. all costs for operation and maintenance; incl. engine operator Bulldozer 300 PS (power); width of shield 4 m²/ 8,7 m³</td>
<td>5.9</td>
<td>0</td>
<td>h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.10</td>
<td>Provision for machines employment; incl. all costs for operation and maintenance; incl. engine operator Backhoe (small) 90 PS min (power); bucket vol min 0,80 m³</td>
<td>5.10</td>
<td>10</td>
<td>h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.11</td>
<td>Provision for machines employment; incl. all costs for operation and maintenance; incl. engine operator Backhoe (medium) 100 PS (power); bucket vol in 1,10 m³</td>
<td>5.11</td>
<td>0</td>
<td>h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.12</td>
<td>Provision for machines employment, per hour, unit price; incl. all costs for operation and maintenance; incl. engine operator Grader (medium) 175 PS (power);</td>
<td>5.12</td>
<td>0</td>
<td>h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.13</td>
<td>Provision for machines employment, per hour, unit price; incl. all costs for operation and maintenance; incl. engine operator small machines for excavations (front or rear bucket, min 0.3 m³); with shield, ...(width min 1.5 m) for levelling, min 50 PS (as SKIDSTEER LOADER S130 or equivalent)</td>
<td>5.13</td>
<td>10</td>
<td>h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.14</td>
<td>Provision for machines employment, per hour, unit price; incl. all costs for operation and maintenance; incl. engine operator small transporter or machine for loading/ side loader, min 50 PS (as SKIDSTEER LOADER S130 - or equivalent)</td>
<td>5.14</td>
<td>0</td>
<td>h</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Subtotal 5b - Day works, machines (items 5.8 to 5.14)</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item</td>
<td>Description</td>
<td>Code</td>
<td>Qty</td>
<td>Unit</td>
<td>Unit Price US $</td>
<td>Total Price US $</td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
<td>------</td>
<td>-----</td>
<td>------</td>
<td>-----------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>5.15</td>
<td>Cement, ton</td>
<td>5</td>
<td>t</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.16</td>
<td>Stones 2.65 t/m³, ton</td>
<td>20</td>
<td>t</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.17</td>
<td>Mass concrete C35/C45, m³</td>
<td>1</td>
<td>m³</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.18</td>
<td>Reinforced concrete 150 kg/m³ steel, m³</td>
<td>1</td>
<td>m³</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Subtotal 5c - Day works, materials (items 5.15 to 5.18)

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty</th>
<th>Unit</th>
<th>Unit Price US $</th>
<th>Total Price US $</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.19</td>
<td>Transport per tons and 100 km</td>
<td>0</td>
<td>per t and 100 km</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>5.20</td>
<td>Pumping hour - 200 l/min</td>
<td>0</td>
<td>h</td>
<td></td>
<td></td>
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<tr>
<td>5.21</td>
<td>Pumping hour - 1200 l/min</td>
<td>0</td>
<td>h</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.22</td>
<td>Pumping hour - 5000 l/min</td>
<td>0</td>
<td>h</td>
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</tbody>
</table>

Subtotal 5d - Day works, transport, pumping hours (items 5.19 to 5.22)

Summary 5 - Day works/ materials/ machine employment/ transport and pumping hours (items 5.1 to 5.22) forward to “Total Summary Sheet”
BoQ
Lot A
SS03
<table>
<thead>
<tr>
<th>Summary Sheet</th>
<th>Subproject: Construction of Subsurface Dam SS03 (X = 36 27 77, Y = 106 43 28.9)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>General items</td>
<td>are according to separate BoQ for all SS dam sites under this works contract C1</td>
</tr>
<tr>
<td>2</td>
<td>Earthworks</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Civil Works</td>
<td></td>
</tr>
<tr>
<td></td>
<td>total - SS03 - construction</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Miscellaneous</td>
<td>optional only</td>
</tr>
<tr>
<td>5</td>
<td>Dayworks</td>
<td></td>
</tr>
</tbody>
</table>
## Bill 2 - General earthworks

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price</th>
<th>Total Price</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Preparatory Earthworks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The following items are referring to &quot;Earthworks&quot;; the unit price shall include all costs for machine, labour, materials and for site access and all temporary and auxiliary works required for execution; the earthworks items shall cover all earthworks which are appearing in scope of the several sub-projects in regard of site preparations, clearing, recovery, restoration, works for inflow area terrain scaping, for excavations of silt trap and overflow areas - where necessary and so on.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1</td>
<td>Provisional Item - only on request of the Engineer - Site geotechnical field investigations</td>
<td>1</td>
<td></td>
<td></td>
<td>provisional</td>
<td>2,000.00</td>
</tr>
<tr>
<td></td>
<td>Provision for trial pits, drilling and other field works and for soil mechanics; the provisional budget of this item must be kept unchanged by bidders.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2</td>
<td>Clearing (for clearing the Contractor submits a written inventory of the construction site - ie. number and species of vegetation and shrubs - to the Engineer and clearing works are allowed only in scope as permitted in detail by the Engineer); offence will be prosecuted according to Technical Specifications (TS), removal of shrubs, vegetation with stems diameter up to 5 cm is considered as shrubs; load, transport and unload of the topsoil and shrubs to disposal site or storage place (heap up to windrows, max. height 2 m - or as directed by the Engineer); transport distance max. 1 km works strictly to be done with regard of the requirements to protect environment in the project area (works according to Environment Management Plan);</td>
<td>400</td>
<td></td>
<td></td>
<td>m²</td>
<td></td>
</tr>
<tr>
<td>2.3</td>
<td>Cleaning of masonry/ concrete structure</td>
<td>0</td>
<td></td>
<td></td>
<td>ls</td>
<td></td>
</tr>
<tr>
<td></td>
<td>this item shall be provision for cleaning an existing structure (in case of structure rehabilitation, e.g. cleaning of bottom of existing berkads and similar works - when required); this item covers all related works</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.4</td>
<td>Cutting trees of diameter &gt; 15 cm ... &lt; 30 cm (measured 1 m above ground level) when cannot be avoided: only according to a explicit by the Engineer approved procedure; sawing of trees and the transportation of wood to the area of storing of the wood as indicated by the Engineer; transport distance max. 2 km; the ownership of wood is regulated by applicable technical specification; vegetation with stem diameter 5 cm is considered as shrubs and are covered under item 2.2</td>
<td>2</td>
<td></td>
<td></td>
<td>piece</td>
<td></td>
</tr>
<tr>
<td>2.5</td>
<td>Cutting trees - as above, but of diameter &gt; 5 cm ... &lt; 15 cm (measured 1 m above ground level) - when cannot be avoided; vegetation with stem diameter 5 cm is considered as shrubs and are covered under item 2.2</td>
<td>5</td>
<td></td>
<td></td>
<td>piece</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Demolition Works</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.6</td>
<td>Demolition works any necessary demolition of remainings of infrastructure, left reinforcing parts or other debris, pipes, ... masonry; in case of slab bottom rehabilitation which needs removal of previous concrete parts; demontage/ demolition, load on truck, transport to municipal landfill site and unload;</td>
<td>0</td>
<td></td>
<td></td>
<td>m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Subtotal 2a - Preparatory earthworks (items 2.1 to 2.5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.7</td>
<td>Excavation in loose soils not water saturated out silt, sand and or gravelly soils; soils can be re-used for backfilling when approved by the Engineer depth of excavation up to 4.5 m depth, transport to designated dump, distance max. 1 km</td>
<td>2,300</td>
<td></td>
<td></td>
<td>m³</td>
<td></td>
</tr>
</tbody>
</table>
### Bill 2 - General earthworks

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price USD</th>
<th>Total Price USD</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.8</td>
<td>Excavation of sludge (e.g. excavations for rehabilitation in bailey area or SS dam area, when assessed; water content &gt; 25 %) - sludge is defined as water saturated sand, silts and clays and mixtures with liquid consistency; - load and transport to designated dump place, distance max. 1 km</td>
<td>1</td>
<td>700</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.9</td>
<td>Excavation of loose rock (highly weathered rock - joint spacing &lt; 20 cm) and conglomerates; transport to designated dump, distance max. 1 km</td>
<td>1</td>
<td></td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.10</td>
<td>Excavation of medium to strong rock (slightly weathered or unweathered - joint spacing &gt; 20 cm); transport to designated dump, distance max. 1 km</td>
<td>1</td>
<td></td>
<td>m³</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td><strong>Subtotal 2b - Excavations (items 2.6 to 2.10)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.11</td>
<td>Backfilling, subbase, site rehabilitation (recultivation)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.12</td>
<td>Backfilling works - refill of excavations where necessary or backfill of structures, gravelly silty sand (gravel - min content 10 %, max grain size 32 mm; sand - min content 60 %; fines (silt) - max. 30 %); water content according to compaction requirement, i.e.. in range wopt +/- 3 % in layers not exceeding 30 cm thickness before compaction, compacted to 95 % Proctor or more; profiling as required; backfilling of over excavation will not be paid supply, place and compact</td>
<td>1</td>
<td>2,700</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.13</td>
<td>Subbase where required for construction of masonry weir; gravelly silty sand (gravel min 15 %, max 16 mm; fines max. 10 %); profiling as necessary (cross falls for dewatering); supply, place and compact - min: 97 % Proctor compaction</td>
<td>1</td>
<td>15</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.14</td>
<td>Erosion Protection - gabions stones: 100 mm … 300mm in wire basket; gabions d=0,50 m; for supporting erosion protection works (at abutments/ river banks and downstream of masonry weir axis)</td>
<td>1</td>
<td>120</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.15</td>
<td>Bedding layer for foundation of gabion baskets Gravel/Cobble 10mm-100mm</td>
<td>1</td>
<td>40</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.16</td>
<td>Geotextile to provide a geotextile; 500 g/m² minimum (and according to TS); for separation of foundation soils to subbase structures or slope protection, where required placing where directed by the Engineer</td>
<td>1</td>
<td>300</td>
<td>m²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.17</td>
<td>SB - soil bund implementation (when necessary on both sides of riverbed on top of banks, upstream directed) to prevent flooding of agriculture area; SB: height 1,50 m; on top (crest) 0,5 m width; in layers (max. 30 cm); with some handtool compaction, min 95% Proctor</td>
<td>1</td>
<td>200</td>
<td>m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.18</td>
<td>Provisional Sum - this provisional sum is for site rehabilitation works after completion of the earth works and civil structure works; the demobilisation includes all provisions to restore and leaving the site in proper condition and are not to cover with this item; the provisional item shall be kept unchanged by the Bidder</td>
<td>1</td>
<td>prov. sum</td>
<td>1,000.00</td>
<td>1,000.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Subtotal 2c - Excavations (items 2.11 to 2.18)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.19</td>
<td>Contingencies, 10 % - for sub-total 2.1.1 (items 2.1 to 2.18)</td>
<td>1</td>
<td></td>
<td>Is</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td><strong>Summary 2 - General earthworks (items 2.1 to 2.15) - carried forward to &quot;Summary&quot;</strong></td>
<td></td>
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</tbody>
</table>
**Bill 2 - Civil works (reinforced concrete, mass concrete, steel structures, timber) and masonry**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code¹</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price²</th>
<th>Total Price²</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Concrete, formwork (as required for repairs of concrete structures and new construction)</td>
<td></td>
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</tr>
</tbody>
</table>

Concrete, formwork

The costs of making, storing and testing of concrete test cubes as required under clause 7 “Tests” of SANS 2001:CC1 shall include the cost of providing cube moulds necessary for the purpose, for testing costs and for submitting reports on the tests to the Engineer. The testing shall be undertaken by an independent firm or institution nominated by the contractor to the approval of the Engineer. (Test cubes are measured separately).

All required formworks shall be deemed to be included as part of the concreting works. Formworks execution according to TS. Smooth or rough formwork as required according to regulations for structures (foundation beams or pilles or slabs etc.); formworks - degree of accuracy II (see TS for formworks).

Formwork to sides of bases, pile caps, ground beams, etc. will only be measured where it is prescribed by the engineer for design reasons. Formwork necessitated by irregularity or collapse of excavated faces will not be measured and the cost thereof shall be deemed to be included in the allowance for taking the risk of collapse of the sides of the excavations, provision for which is made in “Earthworks”.

Descriptions of formwork shall be deemed to include use and waste only (except where described as “left in” or “permanent”), for fitting together in the required forms, wedging, plumbing and fixing to true angles and surfaces as necessary to ensure easy release during stripping and for re-use. The vertical strutting shall be carried down to such construction as is sufficiently strong to afford the required support without damage and shall remain in position until the newly constructed work is able to support itself.

Formwork to soffits of solid slabs etc. shall be deemed to be to slabs not exceeding 250mm thick unless otherwise described. Formwork to sides of bases, pile caps, ground beams, etc. will only be measured where it is prescribed by the engineer for design reasons. Formwork necessitated by irregularity or collapse of excavated faces will not be measured and the cost thereof shall be deemed to be included in the allowance for taking the risk of collapse of the sides of the excavations, provision for which is made in “Earthworks”.

The total alkali content for exposed concrete and concrete on or below ground must be limited to a maximum of 2.1 kg/m³.

Reinforced concrete will be required for structure (berkad slabs, walls, ...) for roof post fundaments and others; masonry works for repairs and for additional structures as silt trap or overflows, stairs, canals or guiding walls in inflow area - were are required and in coordination with the Engineer; the BoQ are connected with items, payment will be made on basis of measurement (actually done work):

| 3.1a | mass concrete (C16/20; min compressive strength 20 Mpa), not reinforced; all works and materials included as per TS; including all temporary and auxiliary works | | 2 | m³ |
| 3.1b | reinforced concrete (C20/25; min compressive strength: 25 Mpa), all works and materials (incl. Reinforcement bars) included as per TS; including all temporary and auxiliary works | | 2 | m³ |
| 3.2 | sealing geo-membrane below new constructed concrete bottom slab (for berkad attachments - when required); deliver PE 2 mm thick (min) with material certificate, placing and welding | | 0 | m² |
| 3.3 | Construction joints, including surface sealing 8 x 20mm Construction joints in top of concrete including 8mm foam backing strip (or equivalent) | | 0 | m |

**Subtotal 3a - Concrete, formworks (items 3.1 to 3.3)**

Masonry (repair works of masonry structures, eg. Berkads and new Berkad construction)
## Bill 2 - Civil works (reinforced concrete, mass concrete, steel structures, timber) and masonry

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price (US $)</th>
<th>Total Price (US $)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2</td>
<td>US $</td>
<td></td>
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<td></td>
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<tr>
<td>3</td>
<td>(1) (3) (1) x (3)</td>
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</tr>
<tr>
<td>4</td>
<td>Where sizes in descriptions are given in brick units, &quot;one brick&quot; shall represent the length and &quot;half brick&quot; the width of a brick.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>5</td>
<td>Descriptions of hollow walls shall be deemed to include leaving every fifth perpend of the bottom course of the external skin open as a weep hole.</td>
<td></td>
<td></td>
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<tr>
<td>6</td>
<td>Face bricks shall be ordered timeously to obtain uniformity in size and colour.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>7</td>
<td>Descriptions of recessed pointing to fair face brickwork and face brickwork shall be deemed to include square recessed, hollow recessed, weathered pointing, etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>8</td>
<td>Samples of all masonry building units, except those for walls described as &quot;load bearing&quot;, shall consist of a minimum of 6 units. Samples of building units to be used in walls described as &quot;load bearing&quot; shall consist of 30 units from every 30 000 units delivered to site.</td>
<td></td>
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<tr>
<td>9</td>
<td>Bidders are to preambles that stainless wire butterfly ties are to used for face brickwork.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>10</td>
<td>Super structure brickwork</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Brickwork of NFP bricks (7 MPa nominal compressive strength) in class II mortar</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>3.4</td>
<td>Stone masonry - according to TS and drawings, construction material delivery, works and machine employment, testing</td>
<td>880</td>
<td>m³</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.5</td>
<td>Half brick walls</td>
<td>0</td>
<td>m²</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.6</td>
<td>One brick walls</td>
<td>0</td>
<td>m²</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.7</td>
<td>280mm Hollow walls of two half brick skins including wire ties</td>
<td>0</td>
<td>m²</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Movement joints between vertical concrete and brick surfaces</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.8</td>
<td>12mm Joints not exceeding 300mm wide</td>
<td>0</td>
<td>m</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Brickwork reinforcement</td>
<td></td>
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<tr>
<td>3.9</td>
<td>75mm Wide reinforcement built in horizontally</td>
<td>0</td>
<td>m</td>
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<tr>
<td>3.10</td>
<td>150mm Wide reinforcement built in horizontally</td>
<td>0</td>
<td>m</td>
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<tr>
<td></td>
<td>Subtotal 3b - Masonry (items 3.4 to 3.10)</td>
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<tr>
<td>3.11</td>
<td>Contingencies, 10 % of the sub-total 3a to 3g</td>
<td>1</td>
<td>ls</td>
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<td>Summary 3 - Civil works (items 3.1 to 3.11) - carried forward to &quot;Summary&quot;</td>
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<tr>
<td>Item</td>
<td>Description</td>
<td>Code</td>
<td>Qty.</td>
<td>Unit</td>
<td>Unit Price* US $</td>
<td>Total Price* US $</td>
</tr>
<tr>
<td>------</td>
<td>------------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>4</td>
<td>Miscellaneous works</td>
<td></td>
<td></td>
<td></td>
<td>(1)</td>
<td>(3)</td>
</tr>
<tr>
<td></td>
<td><strong>shallow well as optional scope of works:</strong> a price for unit items shall be</td>
<td></td>
<td></td>
<td></td>
<td>(1) x (3)</td>
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</tr>
<tr>
<td></td>
<td>introduced under 4.1 to 4.5; the total price for items 4.1 to 4.5 shall not</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td></td>
<td>be filled in (optional only); the items under Subbill 4 include works,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>materials and delivery to site</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>**implementing of shallow wells, upstream of SS weir axis; diameter 3 m,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>depth 15 m, concrete rings (caisson method); 2 wells (distance from axis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>about 50 m and 100 m)**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.1</td>
<td>excavation</td>
<td>optional</td>
<td>100</td>
<td>m</td>
<td></td>
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<tr>
<td></td>
<td><strong>unit price only</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.2</td>
<td>concrete rings, delivery, installing, backfilling</td>
<td>optional</td>
<td>15</td>
<td>m</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td><strong>unit price only</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>4.3</td>
<td>preparing top of well according to drawings, provide top cover</td>
<td>optional</td>
<td>1</td>
<td>ls</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>unit price only</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>4.4</td>
<td>submergible pump, procurement, installing, instructing farmer in using the</td>
<td>optional</td>
<td>1</td>
<td>units</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>pump, including all auxiliary materials, bolts etc.</td>
<td></td>
<td></td>
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<td><strong>unit price only</strong></td>
<td></td>
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</tr>
<tr>
<td>4.5</td>
<td>set of solar panels compatible with the pump, sufficient capacity; warranty</td>
<td>optional</td>
<td>1</td>
<td>sets</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>2 years</td>
<td></td>
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<td></td>
<td><strong>unit price only</strong></td>
<td></td>
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<tr>
<td></td>
<td>**Summary 4 - Miscellaneous works (items 4.1 to 4.6) - carried forward to</td>
<td></td>
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<tr>
<td></td>
<td>&quot;Total Summary Sheet&quot;</td>
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<tr>
<td></td>
<td><strong>optional only</strong></td>
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</tbody>
</table>
### Bill 5 - Day works - (5.1) labourers, (5.2) materials, (5.3) machine employment, (5.4) transport and pumping/ dewatering

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price US $</th>
<th>Total Price US $</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Day works</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Works, machine employment, materials and pumping in scope of &quot;day works&quot; are foreseen and may only be effected upon explicit instruction by the Engineer. The unit price shall be applicable independent from the actual used or need of quantity in the items. For staff employment the Contractor shall provide daily time sheets. The hourly rates shall include all expenses for staff employment as travel, daily allowances, accommodation, taxes, insurances, accessory charges. For machine employment the Contractor shall provided protocols or site book entrances. Any time (&quot;hours&quot;) required for repairs or machine maintenance shall not be considered and are not paid. The unit price on hour basis for machine employment shall include all expenses as machine operator, energy/ fuel/ lubricants, machine depreciation, repairs, spare parts and maintenance. Unit price for transport, materials and pumping hours are applicable only for unforeseen situations and/ or any extra work instructed by the Engineer.</td>
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</tbody>
</table>

#### Day works (A) - Labourers

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1</td>
<td>Provision for staff employment Technician</td>
<td></td>
<td>10 h</td>
<td></td>
</tr>
<tr>
<td>5.2</td>
<td>Provision for staff employment Foreman</td>
<td></td>
<td>20 h</td>
<td></td>
</tr>
<tr>
<td>5.3</td>
<td>Provision for staff employment skilled labourer</td>
<td></td>
<td>50 h</td>
<td></td>
</tr>
<tr>
<td>5.4</td>
<td>Provision for staff employment unskilled labourer</td>
<td></td>
<td>50 h</td>
<td></td>
</tr>
<tr>
<td>5.5</td>
<td>Provision for staff employment carpenter/ woodworker crew (crew of min. 3 labourers)</td>
<td></td>
<td>0 h</td>
<td></td>
</tr>
<tr>
<td>5.6</td>
<td>Provision for staff employment concrete labourers crew (crew of min. 3 labourers)</td>
<td></td>
<td>0 h</td>
<td></td>
</tr>
<tr>
<td>5.7</td>
<td>Provision for staff employment reinforcement labourers crew (crew of min. 3 labourers)</td>
<td></td>
<td>0 h</td>
<td></td>
</tr>
</tbody>
</table>

**Subtotal 5a - Day works, labourers (item 5.1 to 5.7)**

#### Day works (B) - Machines (per h basis)

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.8</td>
<td>Provision for machines employment; incl. all costs for operation and maintenance; incl. engine operator Bulldozer 195 PS (power, min); width of shield min 3,3 m/ 3,89 m³</td>
<td></td>
<td>10 h</td>
<td></td>
</tr>
<tr>
<td>5.9</td>
<td>Provision for machines employment; incl. all costs for operation and maintenance; incl. engine operator Bulldozer 300 PS (power); width of shield 4 m/ 8,7 m³</td>
<td></td>
<td>0 h</td>
<td></td>
</tr>
<tr>
<td>5.10</td>
<td>Provision for machines employment; incl. all costs for operation and maintenance; incl. engine operator Backhoe (small) 90 PS min (power); bucket vol min 0,80</td>
<td></td>
<td>10 h</td>
<td></td>
</tr>
<tr>
<td>5.11</td>
<td>Provision for machines employment; incl. all costs for operation and maintenance; incl. engine operator Backhoe (medium) 100 PS (power); bucket vol in 1,10 m³</td>
<td></td>
<td>0 h</td>
<td></td>
</tr>
<tr>
<td>5.12</td>
<td>Provision for machines employment, per hour, unit price; incl. all costs for operation and maintenance; incl. engine operator Grader (medium) 175 PS (power);</td>
<td></td>
<td>0 h</td>
<td></td>
</tr>
<tr>
<td>5.13</td>
<td>Provision for machines employment, per hour, unit price; incl. all costs for operation and maintenance; incl. engine operator small machines for excavations (front or rear bucket, min 0,3 m³); with shield, ...(width min 1,5 m) for levelling, min 50 PS (as SKIDSTEER LOADER S130 or equivalent)</td>
<td></td>
<td>10 h</td>
<td></td>
</tr>
<tr>
<td>5.14</td>
<td>Provision for machines employment, per hour, unit price; incl. all costs for operation and maintenance; incl. engine operator small transporter or machine for loading/ side loader, min 50 PS (as SKIDSTEER LOADER S130 - or equivalent)</td>
<td></td>
<td>0 h</td>
<td></td>
</tr>
</tbody>
</table>

**Subtotal 5b - Day works, machines (items 5.8 to 5.14)**
### Bill 5 - Day works - (5.1) labourers, (5.2) materials, (5.3) machine employment, (5.4) transport and pumping/dewatering

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price US $</th>
<th>Total Price US $</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.15</td>
<td>Cement, ton</td>
<td>5</td>
<td>t</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.16</td>
<td>Stones 2.65 t/m³, ton</td>
<td>20</td>
<td>t</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.17</td>
<td>Mass concrete C35/C45, m³</td>
<td>1</td>
<td>m³</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.18</td>
<td>Reinforced concrete 150 kg/m³ steel, m³</td>
<td>1</td>
<td>m³</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Subtotal 5c - Day works, materials (items 5.15 to 5.18)**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price US $</th>
<th>Total Price US $</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.19</td>
<td>Transport per tons and 100 km</td>
<td>0</td>
<td>per t and 100 km</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.20</td>
<td>Pumping hour - 200 l/min</td>
<td>0</td>
<td>h</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.21</td>
<td>Pumping hour - 1200 l/min</td>
<td>0</td>
<td>h</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.22</td>
<td>Pumping hour - 5000 l/min</td>
<td>0</td>
<td>h</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Subtotal 5d - Day works, transport, pumping hours (items 5.19 to 5.22)**

**Summary 5 - Day works/ materials/ machine employment/ transport and pumping hours (items 5.1 to 5.22) forward to “Total Summary Sheet”**
BoQ
Lot A
SS04
**Summary Sheet**

<table>
<thead>
<tr>
<th></th>
<th>Subproject: Construction of Subsurface Dam SS04 (X = 36 43 54.86, Y = 107 17 49.93)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>General items</td>
</tr>
<tr>
<td>2</td>
<td>Earthworks</td>
</tr>
<tr>
<td>3</td>
<td>Civil Works</td>
</tr>
</tbody>
</table>

**total - SS04 - construction**

<table>
<thead>
<tr>
<th></th>
<th>Miscellaneous</th>
<th>optional only</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Dayworks</td>
<td></td>
</tr>
</tbody>
</table>

KfW/ MoAD - SOM 2, Sustainable Land Management in Somaliland;
Subproject: Construction of Subsurface Dam SS04 (X = 36 43 54.86, Y = 107 17 49.93), village Arbsiyow
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code 1</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price(^*) US $</th>
<th>Total Price(^*) US $</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Preparatory Earthworks</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The following items are referring to “Earthworks”; the unit price shall include all costs for machine, labour, materials and for site access and all temporary and auxiliary works required for execution; the earthworks items shall cover all earthworks which are appearing in scope of the several sub-projects in regard of site preparations, clearing, recovery, restoration, works for inflow area terrain scaping, for excavations of silt trap and overflow areas - where necessary and so on.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1</td>
<td><strong>Provisional Item - only on request of the Engineer - Site geotechnical field investigations</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Provision for trial pits, drilling and other field works and for soil mechanics; the provisional budget of this item must be kept unchanged by bidders.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2</td>
<td><strong>Clearing</strong> (for clearing the Contractor submits a written inventory of the construction site - i.e. number and species of vegetation and shrubs - to the Engineer and clearing works are allowed only in scope as permitted in detail by the Engineer); offence will be prosecuted according to Technical Specifications (TS), removal of shrubs, vegetation with stems diameter up to 5 cm is considered as shrubs; load, transport and unload of the topsoil and shrubs to disposal site or storage place (heap up to windrows, max. height 2 m - or as directed by the Engineer); transport distance max. 1 km works strictly to be done with regard of the requirements to protect environment in the project area (works according to Environment Management Plan);</td>
<td>1</td>
<td></td>
<td></td>
<td>2,000.00</td>
<td>2,000.00</td>
</tr>
<tr>
<td>2.3</td>
<td><strong>Cleaning of masonry/ concrete structure</strong></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>this item shall be provision for cleaning an existing structure (in case of structure rehabilitation, e.g. cleaning of bottom of existing berkads and similar works - when required); this item covers all related works</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.4</td>
<td><strong>Cutting trees</strong> (of diameter &gt; 15 cm ... &lt; 30 cm (measured 1 m above ground level) when cannot be avoided; only according to a explicit by the Engineer approved procedure; sawing of trees and the transportation of wood to the area of storing of the wood as indicated by the Engineer; transport distance max 2 km; the ownership of wood is regulated by applicable technical specification; vegetation with stem diameter 5 cm is considered as shrubs and are covered under item 2.2</td>
<td>2</td>
<td></td>
<td></td>
<td>piece</td>
<td>piece</td>
</tr>
<tr>
<td>2.5</td>
<td><strong>Cutting trees</strong> - as above, but of diameter &gt; 5 cm ... &lt; 15 cm (measured 1 m above ground level) - when cannot be avoided; vegetation with stem diameter 5 cm is considered as shrubs and are covered under item 2.2</td>
<td>5</td>
<td></td>
<td></td>
<td>piece</td>
<td>piece</td>
</tr>
<tr>
<td></td>
<td><strong>Demolition Works</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.6</td>
<td>Demolition works any necessary demolition of remainings of infrastructure, left reinforcement parts or other debris, pipes, ... masonry; in case of slab bottom rehabilitation which needs removal of previous concrete parts; demontage/ demolition, load on truck, transport to municipal landfill site and unload;</td>
<td>0</td>
<td></td>
<td></td>
<td>m(^3)</td>
<td>m(^3)</td>
</tr>
<tr>
<td></td>
<td><strong>Subtotal 2a - Preparatory earthworks (items 2.1 to 2.5)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Excavation</strong> (all excavation works include the necessary groundwater and surface water management, pumping, diversion, ...); and including all necessary provisions of securing temporary construction pits against collapsing, as required and when instructed by the Engineer; length SS04 is 60 m (plus 5 m and 5 m into both sides of riverbank); height of masonry weir is 4 m;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.7</td>
<td>Excavation in loose soils not water saturated out silt, sand and or gravelly soils; soils can be re-used for backfilling when approved by the Engineer depth of excavation up to 4,5 m depth, transport to designated dump, distance max. 1 km</td>
<td></td>
<td>2,000</td>
<td></td>
<td>m(^3)</td>
<td>m(^3)</td>
</tr>
</tbody>
</table>
### Bill 2 - General earthworks

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price US $</th>
<th>Total Price US $</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.8</td>
<td>Excavation of sludge (e.g. excavations for rehabilitation in bailey area) - sludge is defined as water saturated sand, silts and clays and mixtures with liquid consistency; - load and transport to designated dump place, distance max. 1 km</td>
<td>1</td>
<td>300</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.9</td>
<td>Excavation of loose rock (highly weathered rock - joint spacing &lt; 20 cm) and conglomerates; transport to designated dump, distance max. 1 km</td>
<td></td>
<td>50</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.10</td>
<td>Excavation of medium to strong rock (slightly weathered or unweathered - joint spacing &gt; 20 cm); transport to designated dump, distance max. 1 km</td>
<td>1</td>
<td></td>
<td>m³</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Subtotal 2b - Excavations (items 2.6 to 2.10)**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price US $</th>
<th>Total Price US $</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.11</td>
<td>Backfilling, subbase, site rehabilitation (recultivation)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.12</td>
<td>Backfilling works - refill of excavations where necessary or backfill of structures, gravelly silty sand (gravel - min content 10 %, max grain size 32 mm; sand - min content 60 %; fines (silt) - max. 30 %); water content according to compaction requirement, i.e...</td>
<td>1</td>
<td>1,800</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.13</td>
<td>Subbase where required for construction of masonry weir; gravelly silty sand (gravel min 15 %, max 16 mm; fines max. 10 %); profiling as necessary (cross falls for dewatering); supply, place and compact - min: 97 % Proctor compaction</td>
<td>15</td>
<td></td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.14</td>
<td>Erosion Protection - gabions stones: 100 mm ... 300mm in wire basket; gabion d=0.50 m; for supporting erosion protection works (at abutments/ river banks and downstream of masonry weir axis)</td>
<td>60</td>
<td></td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.15</td>
<td>Bedding layer for foundation of gabion baskets Gravel/Cobble 10mm-100mm</td>
<td>40</td>
<td></td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.16</td>
<td>Geotextile to provide a geotextile; 500 gl/m2 minimum (and according to TS); for separation of foundation soils to subbase structures or slope protection, where required placing where directed by the Engineer</td>
<td>150</td>
<td></td>
<td>m²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.17</td>
<td>SB - soil bund implementation (when necessary on both sides of riverbed on top of banks, upstream directed) to prevent flooding of agriculture area; SB: height 1,50 m; on top (crest) 0,5 m width; in layers (max. 30 cm); with some handtool compaction, min 95% Proctor</td>
<td>100</td>
<td></td>
<td>m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.18</td>
<td>Provisional Sum - this provisional sum is for site rehabilitation works after completion of the earth works and civil structure works; the demobilisation includes all provisions to restore and leaving the site in proper condition and are not to cover with this item; the provisional item shall be kept unchanged by the Bidder</td>
<td>1</td>
<td></td>
<td>prov. sum</td>
<td>1,000.00</td>
<td>1,000.00</td>
</tr>
</tbody>
</table>

**Subtotal 2c - Excavations (items 2.11 to 2.18)**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price US $</th>
<th>Total Price US $</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.19</td>
<td>Contingencies, 10 % - for sub-total 2.1.1 (items 2.1 to 2.18)</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Summary 2 - General earthworks (items 2.1 to 2.15) - carried forward to "Summary"**
## Bill 2 - Civil works (reinforced concrete, mass concrete, steel structures, timber) and masonry

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty</th>
<th>Unit</th>
<th>Unit Price (US $)</th>
<th>Total Price (US $)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1a</td>
<td>mass concrete (C16/20; min compressive strength 20 Mpa), not reinforced; all works and materials included as per TS; including all temporary and auxiliary works</td>
<td></td>
<td>2</td>
<td>m3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.1b</td>
<td>reinforced concrete (C20/25, min compressive strength: 25 Mpa), all works and materials (incl. Reinforcement bars) included as per TS; including all temporary and auxiliary works</td>
<td></td>
<td>2</td>
<td>m3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2</td>
<td>sealing geo-membrane below new constructed concrete bottom slab (for berkad structures - when required); deliver PE 2 mm thick (min) with material certificate, placing and welding</td>
<td></td>
<td>0</td>
<td>m2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.3</td>
<td>Construction joints, including surface sealing 8 x 20mm Construction joints in top of concrete including 8mm foam backing strip (or equivalent)</td>
<td></td>
<td>0</td>
<td>m</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Subtotal 3a - Concrete, formworks (items 3.1 to 3.3)**

Masonry (repair works of masonry structures, eg. Berkads and new Berkad construction)
### Bill 2 - Civil works (reinforced concrete, mass concrete, steel structures, timber) and masonry

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price(^*) US $</th>
<th>Total Price(^*) US $</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 3.1  | Where sizes in descriptions are given in brick units, "one brick" shall represent the length and "half brick" the width of a brick. Descriptions of hollow walls shall be deemed to include leaving every fifth perpend of the bottom course of the external skin open as a weep hole. Face bricks shall be ordered timeously to obtain uniformity in size and colour. Descriptions of recessed pointing to fair face brickwork and face brickwork shall be deemed to include square recessed, hollow recessed, weathered pointing, etc. Samples of all masonry building units, except those for walls described as "load bearing", shall consist of a minimum of 6 units. Samples of building units to be used in walls described as "load bearing" shall consist of 30 units from every 30 000 units delivered to site. Bidders are to preambles that stainless wire butterfly ties are to used for face brickwork. Super structure brickwork
<p>|      | Brickwork of NFP bricks (7 MPa nominal compressive strength) in class II mortar |      |      |      |                       |                        |
| 3.4  | Stone masonry - according to TS and drawings, construction material delivery, works and machine employment, testing | 600  | m(^3) |      |                       |                        |
| 3.5  | Half brick walls | 0   | m(^2) |      |                       |                        |
| 3.6  | One brick walls | 0   | m(^2) |      |                       |                        |
| 3.7  | 280mm Hollow walls of two half brick skins including wire ties | 0   | m(^2) |      |                       |                        |
|      | Movement joints between vertical concrete and brick surfaces |      |      |      |                       |                        |
| 3.8  | 12mm Joints not exceeding 300mm wide | 0   | m |      |                       |                        |
|      | Brickwork reinforcement |      |      |      |                       |                        |
| 3.9  | 75mm Wide reinforcement built in horizontally | 0   | m |      |                       |                        |
| 3.10 | 150mm Wide reinforcement built in horizontally | 0   | m |      |                       |                        |
|      | Subtotal 3b - Masonry (items 3.4 to 3.10) |      |      |      |                       |                        |
| 3.11 | Contingencies, 10 % of the sub-total 3a to 3g | 1   | ls |      |                       |                        |
|      | Summary 3 - Civil works (items 3.1 to 3.11) - carried forward to &quot;Summary&quot; |      |      |      |                       |                        |</p>
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price US $</th>
<th>Total Price US $</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Miscellaneous works</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>shallow well as optional scope of works; a price for unit items shall be</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>introduced under 4.1 to 4.5; the total price for items 4.1 to 4.5 shall not</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>be filled in (optional only); the items under Subbill 4 include works,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>materials and delivery to site</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>implementing of shallow wells, upstream of SS weir axis; diameter 3 m,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>depth 6 m (SS04), concrete rings (caisson method); 2 wells (distance from</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>axis about 50 m and 100 m),</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.1</td>
<td>excavation</td>
<td>optional</td>
<td>100</td>
<td>m</td>
<td>unit price only</td>
<td></td>
</tr>
<tr>
<td>4.2</td>
<td>concrete rings, delivery, installing, backfilling</td>
<td>optional</td>
<td>15</td>
<td>m</td>
<td>unit price only</td>
<td></td>
</tr>
<tr>
<td>4.3</td>
<td>preparing top of well according to drawings, provide top cover</td>
<td>optional</td>
<td>2</td>
<td>ls</td>
<td>unit price only</td>
<td></td>
</tr>
<tr>
<td>4.4</td>
<td>submersible pump, procurement, installing, instructing farmer in using the</td>
<td>optional</td>
<td>1</td>
<td>units</td>
<td>unit price only</td>
<td></td>
</tr>
<tr>
<td></td>
<td>pump, including all auxiliary materials, bolts etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.5</td>
<td>set of solar panels compatible with the pump, sufficient capacity; warranty</td>
<td>optional</td>
<td>2</td>
<td>sets</td>
<td>unit price only</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Summary 4 - Miscellaneous works (items 4.1 to 4.6) - carried forward to &quot;</td>
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<tr>
<td></td>
<td>&quot;Total Summary Sheet&quot;</td>
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</tbody>
</table>
### Bill 5 - Day works - (5.1) labourers, (5.2) materials, (5.3) machine employment, (5.4) transport and pumping/ dewatering

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price* US $</th>
<th>Total Price* US $</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Day works</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Works, machine employment, materials and pumping in scope of &quot;day works&quot; are foreseen and may only be effected upon explicit instruction by the Engineer. The unit price shall be applicable independent from the actual used or need of quantity in the items. For staff employment the Contractor shall provide daily time sheets. The hourly rates shall include all expenses for staff employment as travel, daily allowances, accommodation, taxes, insurances, accessory charges. For machine employment the Contractor shall provided protocols or site book entrances. Any time (&quot;hours&quot;) required for repairs or machine maintenance shall not be considered and are not paid. The unit price on hour basis for machine employment shall include all expenses as machine operator, energy/ fuel/ lubricants, machine depreciation, repairs, spare parts and maintenance. Unit price for transport, materials and pumping hours are applicable only for unforeseen situations and/ or any extra work instructed by the Engineer.</td>
<td></td>
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<tr>
<td></td>
<td>Day works (A) - Labourers</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>5.1</td>
<td>Provision for staff employment Technician 10 h</td>
<td></td>
<td></td>
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<tr>
<td>5.2</td>
<td>Provision for staff employment Foreman 20 h</td>
<td></td>
<td></td>
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<tr>
<td>5.3</td>
<td>Provision for staff employment skilled labourer 50 h</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>5.4</td>
<td>Provision for staff employment unskilled labourer 50 h</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>5.5</td>
<td>Provision for staff employment carpenter/ woodworker crew (crew of min. 3 labourers) 0 h</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>5.6</td>
<td>Provision for staff employment concrete labourers crew (crew of min. 3 labourers) 0 h</td>
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<td></td>
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</tr>
<tr>
<td>5.7</td>
<td>Provision for staff employment reinforcement labourers crew (crew of min. 3 labourers) 0 h</td>
<td></td>
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<tr>
<td></td>
<td>Subtotal 5a - Day works, labourers (item 5.1 to 5.7)</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Day works (B) - Machines (per h basis)</td>
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<tr>
<td>5.8</td>
<td>Provision for machines employment; incl. all costs for operation and maintenance; incl. engine operator Bulldozer 195 PS (power, min); width of shield 3,3 m / 3,99 m³</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>5.9</td>
<td>Provision for machines employment; incl. all costs for operation and maintenance; incl. engine operator Bulldozer 300 PS (power); width of shield 4 m / 8,7 m³</td>
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</tr>
<tr>
<td>5.10</td>
<td>Provision for machines employment; incl. all costs for operation and maintenance; incl. engine operator Backhoe (small) 90 PS min (power); bucket vol min 0.80 m³</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>5.11</td>
<td>Provision for machines employment; incl. all costs for operation and maintenance; incl. engine operator Backhoe (medium) 100 PS (power); bucket vol 1,10 m³</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.12</td>
<td>Provision for machines employment, per hour, unit price; incl. all costs for operation and maintenance; incl. engine operator Grader (medium) 175 PS (power)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.13</td>
<td>Provision for machines employment, per hour, unit price; incl. all costs for operation and maintenance; incl. engine operator small machines for excavations (front or rear bucket, min 0.3 m³), with shield, ...(width min 1.5 m) for levelling, min 50 PS (as SKIDSTEER LOADER S130 or equivalent) 10 h</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>5.14</td>
<td>Provision for machines employment, per hour, unit price; incl. all costs for operation and maintenance; incl. engine operator small transporter or machine for loading/ side loader, min 50 PS (as SKIDSTEER LOADER S130 - or equivalent) 0 h</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Subtotal 5b - Day works, machines (items 5.8 to 5.14)</td>
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</table>
Bill 5 - Day works - (5.1) labourers, (5.2) materials, (5.3) machine employment, (5.4) transport and pumping/ dewatering

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price US $</th>
<th>Total Price US $</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.15</td>
<td>Cement, ton</td>
<td>5</td>
<td>t</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.16</td>
<td>Stones 2.65 l/m³, ton</td>
<td>20</td>
<td>t</td>
<td></td>
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</tr>
<tr>
<td>5.17</td>
<td>Mass concrete C35/C45, m³</td>
<td>1</td>
<td>m³</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>5.18</td>
<td>Reinforced concrete 150 kg/m³ steel, m³</td>
<td>1</td>
<td>m³</td>
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</tr>
</tbody>
</table>

Subtotal 5c - Day works, materials (items 5.15 to 5.18)

Dayworks (D) - transport, pumping costs

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price US $</th>
<th>Total Price US $</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.19</td>
<td>Transport per tons and 100 km</td>
<td>0</td>
<td>per t and 100 km</td>
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<tr>
<td>5.20</td>
<td>Pumping hour - 200 l/min</td>
<td>0</td>
<td>h</td>
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<tr>
<td>5.21</td>
<td>Pumping hour - 1200 l/min</td>
<td>0</td>
<td>h</td>
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<td></td>
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<tr>
<td>5.22</td>
<td>Pumping hour - 5000 l/min</td>
<td>0</td>
<td>h</td>
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</tbody>
</table>

Subtotal 5d - Day works, transport, pumping hours (items 5.19 to 5.22)

Summary 5 - Day works/ materials/ machine employment/ transport and pumping hours (items 5.1 to 5.22) forward to “Total Summary Sheet”
Contract – C1

Lot B

SS07, SS13, SS16
BoQ
Lot B
SS07
### Summary Sheet

**Subproject:** Construction of Subsurface Dam SS07 (X = 37 32 93.65, Y = 106 59 70.46)

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>General items</td>
<td>are according to separate BoQ for all SS dam sites under this works contract C1</td>
</tr>
<tr>
<td>2</td>
<td>Earthworks</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Civil Works</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>total - SS07 - construction</strong></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Miscellaneous</td>
<td>optional only</td>
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<tr>
<td>5</td>
<td>Dayworks</td>
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</table>
## Bill 2 - General earthworks

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price</th>
<th>Total Price</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Preparatory Earthworks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The following items are referring to “Earthworks”; the unit price shall include all costs for machine, labour, materials and for site access and all temporary and auxiliary works required for execution; the earthworks items shall cover all earthworks which are appearing in scope of the several sub-projects in regard of site perparations, clearing, recovery, restoration, works for inflow area terrain scaping, for excavations of silt trap and overflow areas - where necessary and so on.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>2.1</td>
<td>Provisional Item - only on request of the Engineer - Site geotechnical field investigations</td>
<td>1</td>
<td>provision</td>
<td>2,000.00</td>
<td>2,000.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Provision for trial pits, drilling and other field works and for soil mechanics; the provisional budget of this item must be kept unchanged by bidders.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2.2</td>
<td>Clearing (for clearing the Contractor submits a written inventory of the construction site - ie. number and species of vegetation and shrubs - to the Engineer and clearing works are allowed only in scope as permitted in detail by the Engineer); offence will be prosecuted according to Technical Specifications (TS), removal of shrubs, vegetation with stems diameter up to 5 cm is considered as shrubs; load, transport and unload of the topsoil and shrubs to disposal site or storage place (heap up to windrows, max. height 2 m - or as directed by the Engineer); transport distance max. 1 km works strictly to be done with regard of the requirements to protect environement in the project area (works according to Environment Management Plan);</td>
<td>400</td>
<td>m²</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2.3</td>
<td>cleaning of masonry/ concrete structure</td>
<td>0</td>
<td>l</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>this item shall be provision for cleaning an existing structure (in case of structure rehabilitation, e.g cleaning of bottom of existing berkads and similar works when required); this item covers all related works</td>
<td></td>
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<tr>
<td>2.4</td>
<td>Cutting trees of diameter &gt; 15 cm ... &lt; 30 cm (measured 1 m above ground level) when cannot be avoided: only according to an explicit by the Engineer approved procedure; sawing of trees and the transportation of wood to the area of storing of the wood as indicated by the Engineer; transport distance max. 2 km; the ownership of wood is regulated by applicable technical specification; vegetation with stem diameter 5 cm is considered as shrubs and are covered under item 2.2</td>
<td>2</td>
<td>piece</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2.5</td>
<td>Cutting trees - as above, but of diameter &gt; 5 cm ... &lt; 15 cm (measured 1 m above ground level) - when cannot be avoided; vegetation with stem diameter 5 cm is considered as shrubs and are covered under item 2.2</td>
<td>5</td>
<td>piece</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Demolition Works</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>2.6</td>
<td>Demolition works any necessary demolition of remainings of infrastructure, left reinforcement parts or other debris, pipes, ... masonry; in case of slab bottom rehabilitation which needs removal of previous concrete parts; demontage/ demolition, load on truck, transport to municipal landfill site and unload;</td>
<td>0</td>
<td>m³</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Subtotal 2a - Preparatory earthworks (items 2.1 to 2.5)</td>
<td></td>
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<tr>
<td>2.7</td>
<td>Excavation (all excavation works include the necessary groundwater and surface water management, pumping, diversion, ...); and including all necessary provisions of securing temporary construction pits against collapsing, as required and when instructed by the Engineer;</td>
<td>2,000</td>
<td>m³</td>
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<tr>
<td></td>
<td>Excavation in loose soils not water saturated but silt, sand and or gravelly soils; soils can be re-used for backfilling when approved by the Engineer depth of excavation up to 4,5 m depth, transport to designated dump, distance max. 1 km</td>
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</tr>
<tr>
<td>Item</td>
<td>Description</td>
<td>Code</td>
<td>Qty.</td>
<td>Unit</td>
<td>Unit Price US $</td>
<td>Total Price US $</td>
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<tr>
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</tr>
<tr>
<td>2.8</td>
<td>Excavation of sludge (e.g. excavations for rehabilitation in bailey area)</td>
<td>1</td>
<td>300</td>
<td>m³</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>- Sludge is defined as water saturated sand, silts and clays and mixtures with liquid consistency;</td>
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<tr>
<td></td>
<td>- Load and transport to designated dump place, distance max. 1 km</td>
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<tr>
<td>2.9</td>
<td>Excavation of loose rock (highly weathered rock - joint spacing &lt; 20 cm) and conglomerates; transport to designated dump, distance max. 1 km</td>
<td>1</td>
<td>1</td>
<td>m³</td>
<td></td>
<td></td>
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<tr>
<td>2.10</td>
<td>Excavation of medium to strong rock (slightly weathered or unweathered - joint spacing &gt; 20 cm); transport to designated dump, distance max. 1 km</td>
<td>1</td>
<td>1</td>
<td>m³</td>
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</table>

Subtotal 2b - Excavations (items 2.6 to 2.10)

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price US $</th>
<th>Total Price US $</th>
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<tr>
<td>2.11</td>
<td>Backfilling, subbase, site rehabilitation (recultivation)</td>
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<td>2.12</td>
<td>Backfilling works</td>
<td>1</td>
<td>2,000</td>
<td>m³</td>
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<tr>
<td></td>
<td>- Refill of excavations where necessary or backfill of structures, gravelly silty sand (gravel - min content 10 %, max grain size 32 mm; sand - min content 60 %, fines (silt) - max. 30 %); water content according to compaction requirement, i.e., in range wp0 +/- 3 %</td>
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<tr>
<td></td>
<td>- In layers not exceeding 30 cm thickness before compaction, compacted to 95 % Proctor or more; profiling as required; backfilling of over excavation will not be paid</td>
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<tr>
<td></td>
<td>- Supply, place and compact</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>2.13</td>
<td>Subbase</td>
<td>1</td>
<td>15</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Where required for construction of masonry weir; gravelly silty sand (gravel min 15 %, max 16 mm; fines max. 10 %); profiling as necessary (cross falls for dewatering); supply, place and compact - min: 97 % Proctor compaction</td>
<td></td>
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</tr>
<tr>
<td>2.14</td>
<td>Erosion Protection - Gabions</td>
<td>1</td>
<td>120</td>
<td>m³</td>
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</tr>
<tr>
<td></td>
<td>- Stones: 100 mm ... 300 mm in wire basket; gabion d=0,50 m; for supporting erosion protection works (at abutments/ river banks and downstream of masonry weir axis)</td>
<td></td>
<td></td>
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<tr>
<td>2.15</td>
<td>Bedding layer for foundation of gabion baskets Gravel/Cobble 10mm-100mm</td>
<td>1</td>
<td>40</td>
<td>m³</td>
<td></td>
<td></td>
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<tr>
<td>2.16</td>
<td>Geotextile</td>
<td>1</td>
<td>400</td>
<td>m²</td>
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<tr>
<td></td>
<td>- To provide a geotextile; 500 g/m² minimum (and according to TS); for separation of foundation soils to subbase structures or slope protection, where required placing where directed by the Engineer</td>
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<tr>
<td>2.17</td>
<td>SB - Soil bund implementation (when necessary on both sides of riverbed on top of banks, upstream directed) to prevent flooding of agriculture area; SB: height 1,50 m; on top (crest) 0,5 m width; in layers (max. 30 cm); with some handtool compaction, min 95% Proctor</td>
<td>1</td>
<td>200</td>
<td>m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.18</td>
<td>Provisional Sum - this provisional sum is for site rehabilitation works after completion of the earth works and civil structure works; the demobilisation includes all provisions to restore and leaving the site in proper condition and are not to cover with this item; the provisional item shall be kept unchanged by the Bidder</td>
<td>1</td>
<td>prov. sum</td>
<td>1,000.00</td>
<td>1,000.00</td>
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Subtotal 2c - Excavations (items 2.11 to 2.18)

<table>
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<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price US $</th>
<th>Total Price US $</th>
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<tr>
<td>2.19</td>
<td>Contingencies, 10 % - for sub-total 2.1 (items 2.1 to 2.18)</td>
<td>1</td>
<td></td>
<td>Is</td>
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</tbody>
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Summary 2 - General earthworks (items 2.1 to 2.15) - carried forward to "Summary"
**Bill 2 - Civil works (reinforced concrete, mass concrete, steel structures, timber) and masonry**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty</th>
<th>Unit</th>
<th>Unit Price (US $)</th>
<th>Total Price (US $)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Concrete, formwork (as required for repairs of concrete structures and new construction)</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The costs of making, storing and testing of concrete test cubes as required under clause 7 “Tests” of SANS 2001:CC1 shall include the cost of providing cube moulds necessary for the purpose, for testing costs and for submitting reports on the tests to the Engineer. The testing shall be undertaken by an independent firm or institution nominated by the contractor to the approval of the Engineer. (Test cubes are measured separately).</td>
<td></td>
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<tr>
<td></td>
<td>All required formworks shall be deemed to be included as part of the concreting works. Formworks execution according to TS. Smooth or rough formwork as required according to regulations for structures (foundation beams or pilles or slabs etc.); formworks - degree of accuracy II (see TS for formworks).</td>
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<tr>
<td></td>
<td>Formwork to sides of bases, pile caps, ground beams, etc. will only be measured where it is prescribed by the engineer for design reasons. Formwork necessitated by irregularity or collapse of excavated faces will not be measured and the cost thereof shall be deemed to be included in the allowance for taking the risk of collapse of the sides of the excavations, provision for which is made in “Earthworks”.</td>
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<td></td>
<td>Descriptions of formwork shall be deemed to include use and waste only (except where described as “left in” or “permanent”), for fitting together in the required forms, wedging, plumbing and fixing to true angles and surfaces as necessary to ensure easy release during stripping and for re-use. The vertical strutting shall be carried down to such construction as is sufficiently strong to afford the required support without damage and shall remain in position until the newly constructed work is able to support itself.</td>
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<tr>
<td></td>
<td>Formwork to soffits of solid slabs etc. shall be deemed to be to slabs not exceeding 250mm thick unless otherwise described. Formwork to sides of bases, pile caps, ground beams, etc. will only be measured where it is prescribed by the engineer for design reasons. Formwork necessitated by irregularity or collapse of excavated faces will not be measured and the cost thereof shall be deemed to be included in the allowance for taking the risk of collapse of the sides of the excavations, provision for which is made in “Earthworks”.</td>
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<td></td>
<td>The total alkali content for exposed concrete and concrete on or below ground must be limited to a maximum of 2.1kg/m³.</td>
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<td></td>
<td>Reinforced concrete will be required for structure (berkad slabs, walls, ..) for roof post fundaments and others; masonry works for repairs and for additional structures as silt trap or overflows, stairs, canals or guiding walls in inflow area - were are required and in coordination with the Engineer; the BoQ are connected with items, payment will be made on basis of measurement (actually done work);</td>
<td></td>
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</tr>
<tr>
<td>3.1a</td>
<td>mass concrete (C16/20; min compressive strength 20 Mpa), not reinforced; all works and materials included as per TS; including all temporary and auxiliary works</td>
<td></td>
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<tr>
<td>3.1b</td>
<td>reinforced concrete (C20/25, min compressive strength: 25 Mpa), all works and materials (incl. Reinforcement bars) included as per TS; including all temporary and auxiliary works</td>
<td></td>
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<tr>
<td>3.2</td>
<td>sealing geo-membrane below new constructed concrete bottom slab (for berkad attrucures - when required); deliver PE 2 mm thick (min) with material certificate, placing and welding</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>3.3</td>
<td>Construction joints, including surface sealing 8 x 20mm Construction joints in top of concrete including 8mm foam backing strip (or equivalent)</td>
<td></td>
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<tr>
<td></td>
<td><strong>Subtotal 3a - Concrete, formworks (items 3.1 to 3.3)</strong></td>
<td></td>
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<td></td>
<td>Masonry (repair works of masonry structures, eg. Berkads and new Berkad construction)</td>
<td></td>
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</tbody>
</table>
### Bill 2 - Civil works (reinforced concrete, mass concrete, steel structures, timber) and masonry

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code 3</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price (\text{us s} )</th>
<th>Total Price (\text{us s} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.4</td>
<td>Stone masonry - according to TS and drawings, construction material delivery, works and machine employment, testing</td>
<td>540</td>
<td></td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.5</td>
<td>Half brick walls</td>
<td></td>
<td>0</td>
<td>m²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.6</td>
<td>One brick walls</td>
<td></td>
<td>0</td>
<td>m²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.7</td>
<td>280mm Hollow walls of two half brick skins including wire ties</td>
<td></td>
<td>0</td>
<td>m²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.8</td>
<td>12mm Joints not exceeding 300mm wide</td>
<td></td>
<td>0</td>
<td>m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.9</td>
<td>75mm Wide reinforcement built in horizontally</td>
<td></td>
<td>0</td>
<td>m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.10</td>
<td>150mm Wide reinforcement built in horizontally</td>
<td></td>
<td>0</td>
<td>m</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td><strong>Subtotal 3b - Masonry (items 3.4 to 3.10)</strong></td>
<td></td>
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</tr>
<tr>
<td>3.11</td>
<td>Contingencies, 10% of the sub-total 3a to 3g</td>
<td></td>
<td>1</td>
<td>ls</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td><strong>Summary 3 - Civil works (items 3.1 to 3.11) - carried forward to &quot;Summary&quot;</strong></td>
<td></td>
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<tr>
<td>Item</td>
<td>Description</td>
<td>Code</td>
<td>Qty.</td>
<td>Unit</td>
<td>Unit Price</td>
<td>Total Price</td>
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<td>------------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>4</td>
<td>Miscellaneous works</td>
<td></td>
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<tr>
<td></td>
<td>Shallow well as optional scope of works: a price for unit items shall be introduced under 4.1 to 4.5; the total price for items 4.1 to 4.5 shall not be filled in (optional only); the items under Subbill 4 include works, materials and delivery to site</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Implementing of shallow wells, upstream of SS weir axis; diameter 3 m, depth 15 m, concrete rings (caisson method); 2 wells (distance from axis about 50 m and 100 m),</td>
<td></td>
<td></td>
<td></td>
<td>(1) x (3)</td>
<td></td>
</tr>
<tr>
<td>4.1</td>
<td>Excavation</td>
<td>optional 100</td>
<td>m</td>
<td>unit price only</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.2</td>
<td>Concrete rings, delivery, installing, backfilling</td>
<td>optional 15</td>
<td>m</td>
<td>unit price only</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.3</td>
<td>Preparing top of well according to drawings, provide top cover</td>
<td>optional 1</td>
<td>l</td>
<td>unit price only</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.4</td>
<td>Submersible pump, procurement, installing, instructing farmer in using the pump, including all auxiliary materials, bolts etc.</td>
<td>optional 1</td>
<td>units</td>
<td>unit price only</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.5</td>
<td>Set of solar panels compatible with the pump, sufficient capacity; warranty 2 years</td>
<td>optional 1</td>
<td>sets</td>
<td>unit price only</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Summary 4 - Miscellaneous works (items 4.1 to 4.6) - carried forward to &quot;Total Summary Sheet&quot;</td>
<td></td>
<td></td>
<td></td>
<td>optional only</td>
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### Bill 5 - Day works - (5.1) labourers, (5.2) materials, (5.3) machine employment, (5.4) transport and pumping/ dewatering

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price US $</th>
<th>Total Price US $</th>
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<tbody>
<tr>
<td></td>
<td><strong>Day works</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Works, machine employment, materials and pumping in scope of “day works”</td>
<td></td>
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<tr>
<td></td>
<td>are foreseen and may only be effected upon explicit instruction by the</td>
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<td></td>
<td>Engineer;</td>
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<td></td>
<td>The unit price shall be applicable independent from the actual used or need</td>
<td></td>
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<td></td>
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<tr>
<td></td>
<td>of quantity in the items.</td>
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<td></td>
<td>For staff employment the Contractor shall provide daily time sheets.</td>
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<td></td>
<td>The hourly rates shall include all expenses for staff employment as travel,</td>
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<tr>
<td></td>
<td>daily allowances, accommodation, taxes, insurances, accessory charges.</td>
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<td></td>
<td>For machine employment the Contractor shall provided protocols or site book</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>entrances. Any time (“hours”) required for repairs or machine maintenance</td>
<td></td>
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<tr>
<td></td>
<td>shall not be considered and are not paid.</td>
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<td></td>
<td>The unit price on hour basis for machine employment shall include all</td>
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<tr>
<td></td>
<td>expenses as machine operator, energy/ fuel/ lubricants, machine</td>
<td></td>
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<tr>
<td></td>
<td>depreciation, repairs, spare parts and maintenance.</td>
<td></td>
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<tr>
<td></td>
<td>Unit price for transport, materials and pumping hours are applicable only</td>
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<tr>
<td></td>
<td>for unforeseen situations and/ or any extra work instructed by the Engineer.</td>
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<tr>
<td></td>
<td><strong>Day works (A) - Labourers</strong></td>
<td></td>
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<tr>
<td>5.1</td>
<td>Provision for staff employment</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Technician</td>
<td>10</td>
<td>h</td>
<td></td>
<td></td>
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<tr>
<td>5.2</td>
<td>Provision for staff employment</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Foreman</td>
<td>20</td>
<td>h</td>
<td></td>
<td></td>
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<tr>
<td>5.3</td>
<td>Provision for staff employment</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>skilled labourer</td>
<td>50</td>
<td>h</td>
<td></td>
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<tr>
<td>5.4</td>
<td>Provision for staff employment</td>
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<tr>
<td></td>
<td>unskilled labourer</td>
<td>50</td>
<td>h</td>
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<tr>
<td>5.5</td>
<td>Provision for staff employment</td>
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<tr>
<td></td>
<td>carpenter/ woodworker crew (crew of min. 3 labourers)</td>
<td>0</td>
<td>h</td>
<td></td>
<td></td>
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<tr>
<td>5.6</td>
<td>Provision for staff employment</td>
<td></td>
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<tr>
<td></td>
<td>concrete labourers crew (crew of min. 3 labourers)</td>
<td>0</td>
<td>h</td>
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<td>5.7</td>
<td>Provision for staff employment</td>
<td></td>
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<tr>
<td></td>
<td>reinforcement labourers crew (crew of min. 3 labourers)</td>
<td>0</td>
<td>h</td>
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<tr>
<td></td>
<td><strong>Subtotal 5a - Day works, labourers (item 5.1 to 5.7)</strong></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price US $</th>
<th>Total Price US $</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Day works (B) - Machines (per h basis)</strong></td>
<td></td>
<td></td>
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<tr>
<td>5.8</td>
<td>Provision for machines employment; incl. all costs for operation and</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>maintenance; incl. engine operator</td>
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</tr>
<tr>
<td></td>
<td>Bulldozer 195 PS (power, min); width of shield min 3,3 m²/ 3,89 m³</td>
<td>10</td>
<td>h</td>
<td></td>
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<tr>
<td>5.9</td>
<td>Provision for machines employment; incl. all costs for operation and</td>
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<td></td>
<td>maintenance; incl. engine operator</td>
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<tr>
<td></td>
<td>Bulldozer 300 PS (power); width of shield 4 m²/ 8,7 m³</td>
<td>0</td>
<td>h</td>
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<tr>
<td>5.10</td>
<td>Provision for machines employment; incl. all costs for operation and</td>
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<td></td>
<td>maintenance; incl. engine operator</td>
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<tr>
<td></td>
<td>Backhoe (small) 90 PS min (power); bucket vol min 0,80</td>
<td>10</td>
<td>h</td>
<td></td>
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<tr>
<td>5.11</td>
<td>Provision for machines employment; incl. all costs for operation and</td>
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<td></td>
<td>maintenance; incl. engine operator</td>
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<tr>
<td></td>
<td>Backhoe (medium) 100 PS (power); bucket vol in 1,10 m³</td>
<td>0</td>
<td>h</td>
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<tr>
<td>5.12</td>
<td>Provision for machines employment, per hour, unit price;</td>
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<td></td>
<td>incl. all costs for operation and maintenance; incl. engine operator</td>
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<tr>
<td></td>
<td>Grader (medium) 175 PS (power);</td>
<td>0</td>
<td>h</td>
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<tr>
<td>5.13</td>
<td>Provision for machines employment, per hour, unit price;</td>
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<td></td>
<td>incl. all costs for operation and maintenance; incl. engine operator</td>
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</tr>
<tr>
<td></td>
<td>small machines for excavations (front or rear bucket, min 0.3 m³), with</td>
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<tr>
<td></td>
<td>shield, _ (width min 1.5 m) for levelling, min 50 PS</td>
<td>10</td>
<td>h</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(as SKIDSTEER LOADER S130 or equivalent)</td>
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<tr>
<td>5.14</td>
<td>Provision for machines employment, per hour, unit price;</td>
<td></td>
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<tr>
<td></td>
<td>incl. all costs for operation and maintenance; incl. engine operator</td>
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<tr>
<td></td>
<td>small transporter or machine for loading/ side loader, min 50 PS</td>
<td>0</td>
<td>h</td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>(as SKIDSTEER LOADER S130 or equivalent)</td>
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<tr>
<td></td>
<td><strong>Subtotal 5b - Day works, machines (items 5.8 to 5.14)</strong></td>
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## Bill 5 - Day works - (5.1) labourers, (5.2) materials, (5.3) machine employment, (5.4) transport and pumping/ dewatering

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price US $</th>
<th>Total Price US $</th>
</tr>
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<tbody>
<tr>
<td><strong>Day works - Materials</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.15</td>
<td>Cement, ton</td>
<td>5</td>
<td>t</td>
<td>20</td>
<td>1 m³</td>
<td><strong>US $</strong></td>
</tr>
<tr>
<td>5.16</td>
<td>Stones 2.65 t/m³, ton</td>
<td>20</td>
<td>t</td>
<td>1</td>
<td><strong>US $</strong></td>
<td><strong>US $</strong></td>
</tr>
<tr>
<td>5.17</td>
<td>Mass concrete C35/C45, m³</td>
<td>1</td>
<td>m³</td>
<td>1</td>
<td><strong>US $</strong></td>
<td><strong>US $</strong></td>
</tr>
<tr>
<td>5.18</td>
<td>Reinforced concrete 150 kg/m³, m³</td>
<td>1</td>
<td>m³</td>
<td>1</td>
<td><strong>US $</strong></td>
<td><strong>US $</strong></td>
</tr>
<tr>
<td><strong>Subtotal 5c - Day works, materials (items 5.15 to 5.18)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dayworks (D) - transport, pumping costs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.19</td>
<td>Transport per tons and 100 km</td>
<td>0</td>
<td>per t and 100 km</td>
<td>0</td>
<td><strong>US $</strong></td>
<td><strong>US $</strong></td>
</tr>
<tr>
<td>5.20</td>
<td>Pumping hour - 200 l/min</td>
<td>0</td>
<td>h</td>
<td>0</td>
<td><strong>US $</strong></td>
<td><strong>US $</strong></td>
</tr>
<tr>
<td>5.21</td>
<td>Pumping hour - 1200 l/min</td>
<td>0</td>
<td>h</td>
<td>0</td>
<td><strong>US $</strong></td>
<td><strong>US $</strong></td>
</tr>
<tr>
<td>5.22</td>
<td>Pumping hour - 5000 l/min</td>
<td>0</td>
<td>h</td>
<td>0</td>
<td><strong>US $</strong></td>
<td><strong>US $</strong></td>
</tr>
<tr>
<td><strong>Subtotal 5d - Day works, transport, pumping hours (items 5.19 to 5.22)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Summary 5 - Day works/ materials/ machine employment/ transport and pumping hours (items 5.1 to 5.22) forward to &quot;Total Summary Sheet&quot;</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
BoQ
Lot B
SS13
<table>
<thead>
<tr>
<th>Summary Sheet</th>
<th>Subproject: Construction of Subsurface Dam SS13 (X = 36 68 74.82, Y = 106 83 34.31)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>General items</td>
</tr>
<tr>
<td></td>
<td>are according to separate BoQ for all SS dam sites under this works contract C1</td>
</tr>
<tr>
<td>2</td>
<td>Earthworks</td>
</tr>
<tr>
<td>3</td>
<td>Civil Works</td>
</tr>
<tr>
<td></td>
<td><strong>total - SS13 - construction</strong></td>
</tr>
<tr>
<td>4</td>
<td>Miscellaneous</td>
</tr>
<tr>
<td>5</td>
<td>Dayworks</td>
</tr>
<tr>
<td></td>
<td>optional only</td>
</tr>
</tbody>
</table>
## Bill 2 - General earthworks

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price (US $)</th>
<th>Total Price (US $)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Preparratory Earthworks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1</td>
<td>Provisional Item - only on request of the Engineer - Site geotechnical field investigations</td>
<td>1</td>
<td>provisional</td>
<td>2,000.00</td>
<td>2,000.00</td>
<td></td>
</tr>
<tr>
<td>2.2</td>
<td>Clearing (for clearing the Contractor submits a written inventory of the construction site - ie. number and species of vegetation and shrubs - to the Engineer and clearing works are allowed only in scope as permitted in detail by the Engineer); offence will be prosecuted according to Technical Specifications (TS), removal of shrubs, vegetation with stems diameter up to 5 cm is considered as shrubs; load, transport and unload of the topsoil and shrubs to disposal site or storage place (heap up to windrows, max. height 2 m - or as directed by the Engineer); transport distance max. 1 km works strictly to be done with regard of the requirements to protect environment in the project area (works according to Environment Management Plan);</td>
<td>400</td>
<td>m²</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.3</td>
<td>cleaning of masonry/ concrete structure</td>
<td>0</td>
<td>Is</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.4</td>
<td>Cutting trees of diameter &gt; 15 cm ... &lt; 30 cm (measured 1 m above ground level) when cannot be avoided: only according to a explicit by the Engineer approved procedure; sawing of trees and the transportation of wood to the area of storing of the wood as indicated by the Engineer; transport distance max. 2 km; the ownership of wood is regulated by applicable technical specification; vegetation with stem diameter 5 cm is considered as shrubs and are covered under item 2.2</td>
<td>2</td>
<td>piece</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.5</td>
<td>Cutting trees - as above, but of diameter &gt; 5 cm ...&lt; 15 cm (measured 1 m above ground level) - when cannot be avoided; vegetation with stem diameter 5 cm is considered as shrubs and are covered under item 2.2</td>
<td>5</td>
<td>piece</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.6</td>
<td>Demolition Works</td>
<td>0</td>
<td>m³</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.7</td>
<td>Excavation (all excavation works include the necessary groundwater and surface water management, pumping, diversion, ...); and including all necessary provisions of securing temporary construction pits against collapsing, as required and when instructed by the Engineer; length SS13 is 65 m (plus 5 m and 5 m into both sides of riverbank); height of masonry weir is 4 m;</td>
<td>3,800</td>
<td>m³</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
</tr>
</tbody>
</table>

Subtotal 2a - Preparatory earthworks (items 2.1 to 2.5)
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price</th>
<th>Total Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.8</td>
<td>Excavation of sludge (e.g., excavations for rehabilitation in bailey area) - sludge is defined as water saturated sand, silts and clays and mixtures with liquid consistency; load and transport to designated dump place, distance max. 1 km</td>
<td></td>
<td>500</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.9</td>
<td>Excavation of loose rock (highly weathered rock - joint spacing &lt; 20 cm) and conglomerates; transport to designated dump, distance max. 1 km</td>
<td></td>
<td>1</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.10</td>
<td>Excavation of medium to strong rock (slightly weathered or unweathered - joint spacing &gt; 20 cm); transport to designated dump, distance max. 1 km</td>
<td></td>
<td>1</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Subtotal 2b - Excavations (items 2.6 to 2.10)**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price</th>
<th>Total Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.11</td>
<td>Backfilling, subbase, site rehabilitation (recultivation)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.12</td>
<td>Backfilling works - refill of excavations where necessary or backfill of structures, gravelly silty sand (gravel - min content 10 %, max grain size 32 mm; sand - min content 60 %, fines (silt) - max. 30 %); water content according to compaction requirement, i.e., in range wopt +/- 3 % in layers not exceeding 30 cm thickness before compaction, compacted to 95 % Proctor or more; profiling as required; backfilling of over excavation will not be paid</td>
<td></td>
<td>3,600</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.13</td>
<td>Subbase where required for construction of masonry weir; gravelly silty sand (gravel min 15 %, max 16 mm; fines max. 10 %); profiling as necessary (cross falls for dewatering); supply, place and compact - min: 97 % Proctor compaction</td>
<td></td>
<td>15</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.14</td>
<td>Erosion Protection - gabions - stones: 100 mm ... 300mm in wire basket; gabion d=0,50 m; for supporting erosion protection works (at abutments/ river banks and downstream of masonry weir axis)</td>
<td></td>
<td>150</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.15</td>
<td>Bedding layer for foundation of gabion baskets - Gravel/Cobble 10mm-100mm</td>
<td></td>
<td>40</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.16</td>
<td>Geotextile to provide a geotextile; 500 g/m² minimum (and according to TS); for separation of foundation soils to subbase structures or slope protection, where required placing where directed by the Engineer</td>
<td></td>
<td>500</td>
<td>m²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.17</td>
<td>SB - soil bund implementation (when necessary on both sides of riverbed on top of banks, upstream directed) to prevent flooding of agriculture area; SB: height 1,50 m; on top (crest) 0,5 m width; in layers (max. 30 cm); with some handtool compaction, min 95% Proctor</td>
<td></td>
<td>200</td>
<td>m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.18</td>
<td>Provisional Sum - this provisional sum is for site rehabilitation works after completion of the earth works and civil structure works; the demobilisation includes all provisions to restore and leaving the site in proper condition and are not to cover with this item; the provisional item shall be kept unchanged by the Bidder</td>
<td></td>
<td>1</td>
<td>prov. sum</td>
<td>1,000.00</td>
<td>1,000.00</td>
</tr>
</tbody>
</table>

**Subtotal 2c - Excavations (items 2.11 to 2.18)**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price</th>
<th>Total Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.19</td>
<td>Contingencies, 10 % - for sub-total 2.1.1 (items 2.1 to 2.18)</td>
<td></td>
<td>1</td>
<td>ls</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Summary 2 - General earthworks (items 2.1 to 2.15) - carried forward to "Summary"**
## Bill 2 - Civil works (reinforced concrete, mass concrete, steel structures, timber) and masonry

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty</th>
<th>Unit</th>
<th>Unit Price</th>
<th>Total Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Concrete, formwork (as required for repairs of concrete structures and new construction)</td>
<td>(1)</td>
<td>(3)</td>
<td>US $</td>
<td>(1) x (3)</td>
<td></td>
</tr>
</tbody>
</table>

### Concrete, formwork

The costs of making, storing and testing of concrete test cubes as required under clause 7 “Tests” of SANS 2001:CC1 shall include the cost of providing cube moulds necessary for the purpose, for testing costs and for submitting reports on the tests to the Engineer. The testing shall be undertaken by an independent firm or institution nominated by the contractor to the approval of the Engineer. (Test cubes are measured separately).

All required formworks shall be deemed to be included as part of the concreting works. Formworks execution according to TS. Smooth or rough formwork as required according to regulations for structures (foundation beams or pilles or slabs etc.); formworks - degree of accuracy II (see TS for formworks).

Formwork to sides of bases, pile caps, ground beams, etc. will only be measured where it is prescribed by the engineer for design reasons. Formwork necessitated by irregularity or collapse of excavated faces will not be measured and the cost thereof shall be deemed to be included in the allowance for taking the risk of collapse of the sides of the excavations, provision for which is made in “Earthworks”.

Descriptions of formwork shall be deemed to include use and waste only (except where described as “left in” or “permanent”), for fitting together in the required forms, wedging, plumbing and fixing to true angles and surfaces as necessary to ensure easy release during stripping and for re-use. The vertical strutting shall be carried down to such construction as is sufficiently strong to afford the required support without damage and shall remain in position until the newly constructed work is able to support itself.

Formwork to soffits of solid slabs etc. shall be deemed to be to slabs not exceeding 250mm thick unless otherwise described. Formwork to sides of bases, pile caps, ground beams, etc. will only be measured where it is prescribed by the engineer for design reasons. Formwork necessitated by irregularity or collapse of excavated faces will not be measured and the cost thereof shall be deemed to be included in the allowance for taking the risk of collapse of the sides of the excavations, provision for which is made in “Earthworks”.

The total alkali content for exposed concrete and concrete on or below ground must be limited to a maximum of 2.1kg/m³.

Reinforced concrete will be required for structure (berkad slabs, walls, ..) for roof post fundaments and others; masonry works for repairs and for additional structures as silt trap or overflows, stairs, canals or guiding walls in inflow area - were are required and in coordination with the Engineer; the BoQ are connected with items, payment will be made on basis of measurement (actually done work):

### 3.1a Mass concrete (C16/20; min compressive strength 20 Mpa), not reinforced; all works and materials included as per TS; including all temporary and auxiliary works

<table>
<thead>
<tr>
<th>Code</th>
<th>Qty</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>m3</td>
</tr>
</tbody>
</table>

### 3.1b Reinforced concrete (C20/25, min compressive strength: 25 Mpa), all works and materials (incl. Reinforcement bars) included as per TS; including all temporary and auxiliary works

<table>
<thead>
<tr>
<th>Code</th>
<th>Qty</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>m3</td>
</tr>
</tbody>
</table>

### 3.2 Sealing geo-membrane below new constructed concrete bottom slab (for berkad atrructures - when required); deliver PE 2 mm thich (min) with material certificate, placing and welding

<table>
<thead>
<tr>
<th>Code</th>
<th>Qty</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>m2</td>
</tr>
</tbody>
</table>

### 3.3 Construction joints, including surface sealing 8 x 20mm Construction joints in top of concrete including 8mm foam backing strip (or equivalent)

<table>
<thead>
<tr>
<th>Code</th>
<th>Qty</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>m</td>
</tr>
</tbody>
</table>

### Subtotal 3a - Concrete, formworks (items 3.1 to 3.3)

<table>
<thead>
<tr>
<th>Code</th>
<th>Qty</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Masonry (repair works of masonry structures, eg. Berkads and new Berkad construction)

<table>
<thead>
<tr>
<th>Code</th>
<th>Qty</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Bill 2 - Civil works (reinforced concrete, mass concrete, steel structures, timber) and masonry

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price (US $)</th>
<th>Total Price (US $)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.4</td>
<td>Stone masonry - according to TS and drawings, construction material delivery, works and machine employment, testing</td>
<td>1000</td>
<td>m³</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.5</td>
<td>Half brick walls</td>
<td>0</td>
<td>m²</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.6</td>
<td>One brick walls</td>
<td>0</td>
<td>m²</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.7</td>
<td>280mm Hollow walls of two half brick skins including wire ties</td>
<td>0</td>
<td>m²</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Movement joints between vertical concrete and brick surfaces</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.8</td>
<td>12mm Joints not exceeding 300mm wide</td>
<td>0</td>
<td>m</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Brickwork reinforcement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.9</td>
<td>75mm Wide reinforcement built in horizontally</td>
<td>0</td>
<td>m</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.10</td>
<td>150mm Wide reinforcement built in horizontally</td>
<td>0</td>
<td>m</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Subtotal 3b - Masonry (items 3.4 to 3.10)</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>3.11</td>
<td>Contingencies, 10 % of the sub-total 3a to 3g</td>
<td>1</td>
<td>ls</td>
<td></td>
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</tr>
</tbody>
</table>

### Summary 3 - Civil works (items 3.1 to 3.11) - carried forward to "Summary"
### Item Description

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Miscellaneous works</td>
</tr>
</tbody>
</table>

#### Item 4.1: Excavation
- **Description:** Excavation of shallow wells, upstream of SS weir axis; diameter 3 m, depth 15 m, concrete rings (caisson method); 2 wells (distance from axis about 50 m and 100 m).
- **Unit Price (US $):** Unit price only

<table>
<thead>
<tr>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price (US $)</th>
<th>Total Price (US $)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100</td>
<td>m</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Item 4.2: Concrete Rings, Delivery, Installing, Backfilling
- **Description:** Concrete rings, delivery, installing, backfilling.
- **Unit Price (US $):** Unit price only

<table>
<thead>
<tr>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price (US $)</th>
<th>Total Price (US $)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>15</td>
<td>m</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Item 4.3: Preparing Top of Well According to Drawings, Provide Top Cover
- **Description:** Preparing top of well according to drawings, provide top cover.
- **Unit Price (US $):** Unit price only

<table>
<thead>
<tr>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price (US $)</th>
<th>Total Price (US $)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>ls</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Item 4.4: Submersible Pump, Procurement, Installing, Instructing Farmer in Using the Pump, Including All Auxiliary Materials, Bolts etc.
- **Description:** Submersible pump, procurement, installing, instructing farmer in using the pump, including all auxiliary materials, bolts etc.
- **Unit Price (US $):** Unit price only

<table>
<thead>
<tr>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price (US $)</th>
<th>Total Price (US $)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>units</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Item 4.5: Set of Solar Panels Compatible with the Pump, Sufficient Capacity; Warranty 2 Years
- **Description:** Set of solar panels compatible with the pump, sufficient capacity; warranty 2 years.
- **Unit Price (US $):** Unit price only

<table>
<thead>
<tr>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price (US $)</th>
<th>Total Price (US $)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>sets</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Summary 4 - Miscellaneous works (items 4.1 to 4.6) - carried forward to "Total Summary Sheet"
- **Unit Price (US $):** Optional only
### Bill 5 - Day works - (5.1) labourers, (5.2) materials, (5.3) machine employment, (5.4) transport and pumping/ dewatering

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price</th>
<th>Total Price</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Day works</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Works, machine employment, materials and pumping in scope of &quot;day works&quot; are foreseen and may only be effected upon explicit instruction by the Engineer.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The unit price shall be applicable independent from the actual used or need of quantity in the items.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>For staff employment the Contractor shall provide daily time sheets. The hourly rates shall include all expenses for staff employment as travel, daily allowances, accommodation, taxes, insurances, accessory charges.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>For machine employment the Contractor shall provided protocols or site book entances. Any time (&quot;hours&quot;) required for repairs or machine maintenance shall not be considered and are not paid.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The unit price on hour basis for machine employment shall include all expenses as machine operator, energy/ fuel lubricants, machine depreciation, repairs, spare parts and maintenance.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unit price for transport, materials and pumping hours are applicable only for unforeseen situations and/ or any extra work instructed by the Engineer.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Day works (A) - Labourers

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price</th>
<th>Total Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1</td>
<td>Provision for staff employment Technician</td>
<td></td>
<td>10</td>
<td>h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.2</td>
<td>Provision for staff employment Foreman</td>
<td></td>
<td>20</td>
<td>h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.3</td>
<td>Provision for staff employment skilled labourer</td>
<td></td>
<td>50</td>
<td>h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.4</td>
<td>Provision for staff employment unskilled labourer</td>
<td></td>
<td>50</td>
<td>h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.5</td>
<td>Provision for staff employment carpenter/ woodworker crew (crew of min. 3 labourers)</td>
<td></td>
<td>0</td>
<td>h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.6</td>
<td>Provision for staff employment concrete labourers crew (crew of min. 3 labourers)</td>
<td></td>
<td>0</td>
<td>h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.7</td>
<td>Provision for staff employment reinforcement labourers crew (crew of min. 3 labourers)</td>
<td></td>
<td>0</td>
<td>h</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Subtotal 5a - Day works, labourers (item 5.1 to 5.7)**

#### Day works (B) - Machines (per h basis)

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price</th>
<th>Total Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.8</td>
<td>Provision for machines employment; incl. all costs for operation and maintenance; incl. engine operator Bulldozer 195 PS (power, min); width of shield min 3,3 m/ 3,89 m³</td>
<td></td>
<td>10</td>
<td>h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.9</td>
<td>Provision for machines employment; incl. all costs for operation and maintenance; incl. engine operator Bulldozer 300 PS (power); width of shield 4 m/ 8,7 m³</td>
<td></td>
<td>0</td>
<td>h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.10</td>
<td>Provision for machines employment; incl. all costs for operation and maintenance; incl. engine operator Backhoe (small) 90 PS min (power); bucket vol min 0,80 m³</td>
<td></td>
<td>10</td>
<td>h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.11</td>
<td>Provision for machines employment; incl. all costs for operation and maintenance; incl. engine operator Backhoe (medium) 100 PS (power); bucket vol in 1,10 m³</td>
<td></td>
<td>0</td>
<td>h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.12</td>
<td>Provision for machines employment, per hour, unit price; incl. all costs for operation and maintenance; incl. engine operator Grader (medium) 175 PS (power);</td>
<td></td>
<td>0</td>
<td>h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.13</td>
<td>Provision for machines employment, per hour, unit price; incl. all costs for operation and maintenance; incl. engine operator small machines for excavations (front or rear bucket, min 0.3 m³); with shield, ..(width min 1.5 m) for levelling, min 50 PS (as SKIDSTEER LOADER S130 or equivalent)</td>
<td></td>
<td>10</td>
<td>h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.14</td>
<td>Provision for machines employment, per hour, unit price; incl. all costs for operation and maintenance; incl. engine operator small transporter or machine for loading/ side loader, min 50 PS (as SKIDSTEER LOADER S130 - or equivalent)</td>
<td></td>
<td>0</td>
<td>h</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Subtotal 5b - Day works, machines (items 5.8 to 5.14)**
### Bill 5 - Day works - (5.1) labourers, (5.2) materials, (5.3) machine employment, (5.4) transport and pumping/ dewatering

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price* US $</th>
<th>Total Price* US $</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.15</td>
<td>Cement, ton</td>
<td></td>
<td>5</td>
<td>t</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.16</td>
<td>Stones 2.65 t/m³ ton</td>
<td></td>
<td>20</td>
<td>t</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.17</td>
<td>Mass concrete C35/C45, m³</td>
<td></td>
<td>1</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.18</td>
<td>Reinforced concrete 150 kg/m³ steel, m³</td>
<td></td>
<td>1</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Subtotal 5c - Day works, materials (items 5.15 to 5.18)**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price* US $</th>
<th>Total Price* US $</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.19</td>
<td>Transport per tons and 100 km</td>
<td></td>
<td>0</td>
<td>per t and 100 km</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.20</td>
<td>Pumping hour - 200 l/min</td>
<td></td>
<td>0</td>
<td>h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.21</td>
<td>Pumping hour - 1200 l/min</td>
<td></td>
<td>0</td>
<td>h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.22</td>
<td>Pumping hour - 5000 l/min</td>
<td></td>
<td>0</td>
<td>h</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Subtotal 5d - Day works, transport, pumping hours (items 5.19 to 5.22)**

**Summary 5 - Day works/ materials/ machine employment/ transport and pumping hours (items 5.1 to 5.22) forward to "Total Summary Sheet"**
BoQ
Lot B
SS16
### Summary Sheet

<table>
<thead>
<tr>
<th></th>
<th>Subproject: Construction of Subsurface Dam SS16 (X = 36 17 79.38, Y = 106 87.84.48)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>General items</td>
</tr>
<tr>
<td></td>
<td>are according to separate BoQ for all SS dam sites under this works contract C1</td>
</tr>
<tr>
<td>2</td>
<td>Earthworks</td>
</tr>
<tr>
<td>3</td>
<td>Civil Works</td>
</tr>
<tr>
<td></td>
<td><strong>total - SS16 - construction</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Miscellaneous</th>
<th>Optional only</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Miscellaneous</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Dayworks</td>
<td></td>
</tr>
</tbody>
</table>
### Bill 2 - General earthworks

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code 1</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price(^3) US $</th>
<th>Total Price(^3) US $</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Preparatory Earthworks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The following items are referring to “Earthworks”; the unit price shall include all costs for machine, labour, materials and for site access and all temporary and auxiliary works required for execution; the earthworks items shall cover all earthworks which are appearing in scope of the several sub-projects in regard of site preparations, clearing, recovery, restoration, works for inflow area terrain scaping, for excavations of silt trap and overflow areas - where necessary and so on.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1</td>
<td>Provisional Item - only on request of the Engineer - Site geotechnical field investigations</td>
<td>1</td>
<td></td>
<td></td>
<td>provision</td>
<td>2,000.00</td>
</tr>
<tr>
<td></td>
<td>Provision for trial pits, drilling and other field works and for soil mechanics; the provisional budget of this item must be kept unchanged by bidders.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2</td>
<td>Clearing (for clearing the Contractor submits a written inventory of the construction site - i.e. number and species of vegetation and shrubs - to the Engineer and clearing works are allowed only in scope as permitted in detail by the Engineer); offence will be prosecuted according to Technical Specifications (TS), removal of shrubs, vegetation with stems diameter up to 5 cm is considered as shrubs; load, transport and unload of the topsoil and shrubs to disposal site or storage place (heap up to windrows, max. height 2 m - or as directed by the Engineer); transport distance max. 1 km (works strictly to be done with regard of the requirements to protect environment in the project area (works according to Environment Management Plan);</td>
<td>400</td>
<td>m(^2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.3</td>
<td>Cleaning of masonry/ concrete structure</td>
<td>0</td>
<td></td>
<td></td>
<td>l(^3)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>this item shall be provision for cleaning an existing structure (in case of structure rehabilitation, e.g cleaning of bottom of existing berkads and similar works - when required); this item covers all related works</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.4</td>
<td>Cutting trees of diameter &gt; 15 cm ... &lt; 30 cm (measured 1 m above ground level) when cannot be avoided; only according to a explicit by the Engineer approved procedure; sawing of trees and the transportation of wood to the area of storing of the wood as indicated by the Engineer; transport distance max. 2 km; the ownership of wood is regulated by applicable technical specification; vegetation with stem diameter 5 cm is considered as shrubs and are covered under item 2.2</td>
<td>2</td>
<td>piece</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.5</td>
<td>Cutting trees - as above, but of diameter &gt; 5 cm ... &lt; 15 cm (measured 1 m above ground level) - when cannot be avoided; vegetation with stem diameter 5 cm is considered as shrubs and are covered under item 2.2</td>
<td>5</td>
<td>piece</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Demolition Works</td>
<td>0</td>
<td></td>
<td></td>
<td>m(^3)</td>
<td></td>
</tr>
<tr>
<td>2.6</td>
<td>Demolition works</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>any necessary demolition of remainings of infrastructure, left reinforcement parts or other debris, pipes, ... masonry; in case of slab bottom rehabilitation which needs removal of previous concrete parts; demontage/ demolition, load on truck, transport to municipal landfill site and unload;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Subtotal 2a - Preparatory earthworks (items 2.1 to 2.5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.7</td>
<td>Excavation (all excavation works include the necessary groundwater and surface water management, pumping, diversion, ...); and including all necessary provisions of securing temporary construction pits against collapsing, as required and when instructed by the Engineer; length SS16 is 42 m (plus 5 m and 5 m into both sides of riverbank); height of masonry weir is 4 m;</td>
<td>1,800</td>
<td>m(^3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Excavation in loose soils are not water saturated out silt, sand and or gravelly soils; soils can be re-used for backfilling when approved by the Engineer</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>depth of excavation up to 4.5 m depth, transport to designated dump, distance max. 1 km</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Bill 2 - General earthworks

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price US $</th>
<th>Total Price US $</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.8</td>
<td>Excavation of sludge (e.g., excavations for rehabilitation in bailey area)</td>
<td></td>
<td>500</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.9</td>
<td>Excavation of loose rock (highly weathered rock - joint spacing &lt; 20 cm) and conglomerates; transport to designated dump, distance max. 1 km</td>
<td></td>
<td>1</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.10</td>
<td>Excavation of medium to strong rock (slightly weathered or unweathered - joint spacing &gt; 20 cm); transport to designated dump, distance max. 1 km</td>
<td></td>
<td>1</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Subtotal 2b - Excavations (items 2.6 to 2.10)**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price US $</th>
<th>Total Price US $</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.11</td>
<td>Backfilling, subbase, site rehabilitation (recultivation)</td>
<td></td>
<td>2,000</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.12</td>
<td>Backfilling works</td>
<td></td>
<td>15</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.13</td>
<td>Subbase where required for construction of masonry weir; gravelly silty sand (gravel - min content 10 %, max grain size 32 mm; sand - min content 60 %; fines (silt) - max. 30 %); water content according to compaction requirement, i.e., in range wopt +/- 3 %; in layers not exceeding 30 cm thickness before compaction, compacted to 95 % Proctor or more; profiling as required; backfilling of over excavation will not be paid; supply, place and compact</td>
<td></td>
<td>100</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.14</td>
<td>Erosion Protection - gabions; stones: 100 mm ... 300mm in wire basket; gabion d=0,50 m; for supporting erosion protection works (at abutments/ river banks and downstream of masonry weir axis)</td>
<td></td>
<td>200</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.15</td>
<td>Bedding layer for foundation of gabion baskets; Gravel/Cobble 10mm-100mm</td>
<td></td>
<td>40</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.16</td>
<td>Geotextile; to provide a geotextile; 500 g/m² minimum (and according to TS); for separation of foundation soils to subbase structures or slope protection, where required placing where directed by the Engineer</td>
<td></td>
<td>200</td>
<td>m²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.17</td>
<td>SB - soil bund implementation (when necessary on both sides of riverbed on top of banks, upstream directed) to prevent flooding of agriculture area; SB: height 1,50 m; on top (crest) 0,5 m width; in layers (max. 30 cm); with some handtool compaction, min 95% Proctor</td>
<td></td>
<td>200</td>
<td>m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.18</td>
<td>Provisional Sum; this provisional sum is for site rehabilitation works after completion of the earth works and civil structure works; the demobilisation includes all provisions to restore and leaving the site in proper condition and are not to cover with this item; the provisional item shall be kept unchanged by the Bidder</td>
<td></td>
<td>1</td>
<td>prov. sum</td>
<td>1,000.00</td>
<td>1,000.00</td>
</tr>
</tbody>
</table>

**Subtotal 2c - Excavations (items 2.11 to 2.18)**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price US $</th>
<th>Total Price US $</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.19</td>
<td>Contingencies, 10 % - for sub-total 2.1.1 (items 2.1 to 2.18)</td>
<td></td>
<td>1</td>
<td>Is</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Summary 2 - General earthworks (items 2.1 to 2.15) - carried forward to "Summary"**
## Bill 2 - Civil works (reinforced concrete, mass concrete, steel structures, timber) and masonry

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code¹</th>
<th>Qty</th>
<th>Unit</th>
<th>Unit Price² US $</th>
<th>Total Price² US $</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Concrete, formwork (as required for repairs of concrete structures and new construction)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Concrete, formwork</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The costs of making, storing and testing of concrete test cubes as required under clause 7 “Tests” of SANS 2001:CC1 shall include the cost of providing cube moulds necessary for the purpose, for testing costs and for submitting reports on the tests to the Engineer. The testing shall be undertaken by an independent firm or institution nominated by the contractor to the approval of the Engineer. (Test cubes are measured separately). All required formworks shall be deemed to be included as part of the concreting works. Formworks execution according to TS. Smooth or rough formwork as required according to regulations for structures (foundation beams or pilles or slabs etc.); formworks - degree of accuracy II (see TS for formworks). Formwork to soffits of solid slabs etc. shall be deemed to be to slabs not exceeding 250mm thick unless otherwise described. Formwork to sides of bases, pile caps, ground beams, etc. will only be measured where it is prescribed by the engineer for design reasons. Formwork necessitated by irregularity or collapse of excavated faces will not be measured and the cost thereof shall be deemed to be included in the allowance for taking the risk of collapse of the sides of the excavations, provision for which is made in “Earthworks”. The total alkalai content for exposed concrete and concrete on or below ground must be limited to a maximum of 2.1kg/m³. Reinforced concrete will be required for structure (berkad slabs, walls, ..) for roof post fundaments and others; masonry works for repairs and for additional structures as silt trap or overflows, stairs, canals or guiding walls in inflow area - were are required and in coordination with the Engineer; the BoQ are connected with items, payment will be made on basis of measurement (actually done work);</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.1a</td>
<td>mass concrete (C16/20; min compressive strength 20 Mpa), not reinforced; all works and materials included as per TS; including all temporary and auxiliary works</td>
<td>2</td>
<td>m3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.1b</td>
<td>reinforced concrete (C20/25, min compressive strength: 25 Mpa), all works and materials (incl. Reinforcement bars) included as per TS; including all temporary and auxiliary works</td>
<td>2</td>
<td>m3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2</td>
<td>sealing geo-membrane below new constructed concrete bottom slab (for berkad structures - when required); deliver PE 2 mm thick (min) with material certificate, placing and welding</td>
<td></td>
<td>m2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.3</td>
<td>Construction joints, including surface sealing 8 x 20mm Construction joints in top of concrete including 8mm foam backing strip (or equivalent)</td>
<td></td>
<td>m</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Subtotal 3a - Concrete, formworks (items 3.1 to 3.3)**

Masonry (repair works of masonry structures, eg. Berkads and new Berkad construction)
### Bill 2 - Civil works (reinforced concrete, mass concrete, steel structures, timber) and masonry

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price</th>
<th>Total Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.4</td>
<td>Stone masonry - according to TS and drawings, construction material delivery, works and machine employment, testing</td>
<td>600</td>
<td>m³</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.5</td>
<td>Half brick walls</td>
<td>0</td>
<td>m²</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.6</td>
<td>One brick walls</td>
<td>0</td>
<td>m²</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.7</td>
<td>280mm Hollow walls of two half brick skins including wire ties</td>
<td>0</td>
<td>m²</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Movement joints between vertical concrete and brick surfaces**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Qty.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.8</td>
<td>12mm Joints not exceeding 300mm wide</td>
<td>0</td>
<td>m</td>
</tr>
</tbody>
</table>

**Brickwork reinforcement**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Qty.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.9</td>
<td>75mm Wide reinforcement built in horizontally</td>
<td>0</td>
<td>m</td>
</tr>
<tr>
<td>3.10</td>
<td>150mm Wide reinforcement built in horizontally</td>
<td>0</td>
<td>m</td>
</tr>
</tbody>
</table>

**Subtotal 3b - Masonry (items 3.4 to 3.10)**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Qty.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.11</td>
<td>Contingencies, 10 % of the sub-total 3a to 3g</td>
<td>1</td>
<td>ls</td>
</tr>
</tbody>
</table>

**Summary 3 - Civil works (items 3.1 to 3.11) - carried forward to "Summary"**
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price** US $</th>
<th>Total Price** US $</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Miscellaneous works</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**shallow well as optional scope of works**: a price for unit items shall be introduced under 4.1 to 4.5; the total price for items 4.1 to 4.5 shall not be filled in (optional only); the items under Subbill 4 include works, materials and delivery to site

Implementing of shallow wells, upstream of SS weir axis; diameter 3 m, depth 15 m, concrete rings (caisson method); 2 wells (distance from axis about 50 m and 100 m),

| | | | | | | |
| 4.1 | excavation | optional | 100 | m | unit price only | |
| 4.2 | concrete rings, delivery, installing, backfilling | optional | 15 | m | unit price only | |
| 4.3 | preparing top of well according to drawings, provide top cover | optional | 1 | ls | unit price only | |
| 4.4 | submergible pump, procurement, installing, instructing farmer in using the pump, including all auxiliary materials, bolts etc. | optional | 1 | units | unit price only | |
| 4.5 | set of solar panels compatible with the pump, sufficient capacity; warranty 2 years | optional | 1 | sets | unit price only | |

**Summary 4 - Miscellaneous works (items 4.1 to 4.6) - carried forward to "Total Summary Sheet"**

optional only
### Bill 5 - Day works - (5.1) labourers, (5.2) materials, (5.3) machine employment, (5.4) transport and pumping/ dewatering

#### Day works

Works, machine employment, materials and pumping in scope of “day works” are foreseen and may only be effected upon explicit instruction by the Engineer.

The unit price shall be applicable independent from the actual used or need of quantity in the items. For staff employment the Contractor shall provide daily time sheets. The hourly rates shall include all expenses for staff employment as travel, daily allowances, accommodation, taxes, insurances, accessory charges. For machine employment the Contractor shall provided protocols or site book entrances. Any time (“hours”) required for repairs or machine maintenance shall not be considered and are not paid. The unit price on hour basis for machine employment shall include all expenses as machine operator, energy/ fuel/ lubricants, machine depreciation, repairs, spare parts and maintenance. Unit price for transport, materials and pumping hours are applicable only for unforeseen situations and/ or any extra work instructed by the Engineer.

#### Day works (A) - Labourers

<table>
<thead>
<tr>
<th>Code</th>
<th>Item Description Code</th>
<th>Qty</th>
<th>Unit</th>
<th>Unit Price US $</th>
<th>Total Price US $</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>Day works</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **5.1** Provision for staff employment
  - Technician: 10 h

- **5.2** Provision for staff employment
  - Foreman: 20 h

- **5.3** Provision for staff employment
  - skilled labourer: 50 h

- **5.4** Provision for staff employment
  - unskilled labourer: 50 h

- **5.5** Provision for staff employment
  - carpenter/ woodworker crew (crew of min. 3 labourers): 0 h

- **5.6** Provision for staff employment
  - concrete labourers crew (crew of min. 3 labourers): 0 h

- **5.7** Provision for staff employment
  - reinforcement labourers crew (crew of min. 3 labourers): 0 h

**Subtotal 5a - Day works, labourers (item 5.1 to 5.7)**

#### Day works (B) - Machines (per h basis)

<table>
<thead>
<tr>
<th>Code</th>
<th>Item Description Code</th>
<th>Qty</th>
<th>Unit</th>
<th>Unit Price US $</th>
<th>Total Price US $</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>Day works</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **5.8** Provision for machines employment; incl. all costs for operation and maintenance; incl. engine operator
  - Bulldozer 195 PS (power, min); width of shield 3.3 m³ 3.99 m³: 10 h

- **5.9** Provision for machines employment; incl. all costs for operation and maintenance; incl. engine operator
  - Bulldozer 300 PS (power); width of shield 4 m³ 8.7 m³: 0 h

- **5.10** Provision for machines employment; incl. all costs for operation and maintenance; incl. engine operator
  - Backhoe (small) 90 PS min (power); bucket vol min 0.80 m³: 10 h

- **5.11** Provision for machines employment; incl. all costs for operation and maintenance; incl. engine operator
  - Backhoe (medium) 100 PS (power); bucket vol in 1.10 m³: 0 h

- **5.12** Provision for machines employment, per hour, unit price; incl. all costs for operation and maintenance; incl. engine operator
  - Grader (medium) 175 PS (power): 0 h

- **5.13** Provision for machines employment, per hour, unit price; incl. all costs for operation and maintenance; incl. engine operator
  - small machines for excavations (front or rear bucket, min 0.3 m³), with shield, ..(width min 1.5 m) for levelling, min 50 PS (as SKIDSTEER LOADER S130 - or equivalent): 10 h

- **5.14** Provision for machines employment, per hour, unit price; incl. all costs for operation and maintenance; incl. engine operator
  - small transporter or machine for loading side loader, min 50 PS (as SKIDSTEER LOADER S130 - or equivalent): 0 h

**Subtotal 5b - Day works, machines (items 5.8 to 5.14)**
### Bill 5 - Day works - (5.1) labourers, (5.2) materials, (5.3) machine employment, (5.4) transport and pumping/ dewatering

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit</th>
<th>Unit Price US $</th>
<th>Total Price US $</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.15</td>
<td>Cement, ton</td>
<td></td>
<td>5 t</td>
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<td></td>
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<tr>
<td>5.16</td>
<td>Stones 2.65 t/m³ ton</td>
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<td>20 t</td>
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<tr>
<td>5.17</td>
<td>Mass concrete C35/C45, m³</td>
<td></td>
<td>1 m³</td>
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<tr>
<td>5.18</td>
<td>Reinforced concrete 150 kg/m³ steel, m³</td>
<td></td>
<td>1 m³</td>
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<td><strong>Subtotal 5c - Day works, materials (items 5.15 to 5.18)</strong></td>
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<tr>
<td>5.19</td>
<td>Transport per tons and 100 km</td>
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<td>per t and 100 km</td>
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<td>5.20</td>
<td>Pumping hour - 200 l/min</td>
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<td>5.21</td>
<td>Pumping hour - 1200 l/min</td>
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<tr>
<td>5.22</td>
<td>Pumping hour - 5000 l/min</td>
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<td>0 h</td>
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<td><strong>Subtotal 5d - Day works, transport, pumping hours (items 5.19 to 5.22)</strong></td>
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<td><strong>Summary 5 - Day works/ materials/ machine employment/ transport and pumping hours (items 5.1 to 5.22) forward to “Total Summary Sheet”</strong></td>
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</tr>
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Contract Sum