

Contract No:

Project:

**C04 Plot West
Side Land
Levelling
Project of
Starting Zone of
DIFTZ Phase 1**

Contract Documents

Employer:
Khor Ambado FZCO

Contractor :
ENTREPRISE AHAD

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CONTRACT AGREEMENT

This Contract Agreement is made and entered into on this day of _____ 2023

By and between

Khor Ambado FZCO, a company duly incorporated under the laws of Djibouti of P.O. Box 197, Djibouti, Republic of Djibouti (hereinafter referred to as the “**Employer**”) which term or expression as herein used shall where the context so requires or admits of construction mean and include the Employer, its successors and permitted assigns of the **FIRSTPART**.

And

[**ENTREPRISE AHAD**], a company duly incorporated under the laws of Djibouti having its registered office and/or principal place of Djibouti (hereinafter referred to as the “**Contractor**”) which term or expression as herein used shall where the context so requires or admits of construction mean and include the Contractor, its successors and permitted assigns of the **SECOND PART**.

Both the Employer and the Contractor are hereinafter collectively referred to as the "Parties" or individually as the "Party".

WHERE AS:

1. The Contractor has expert knowledge in construction of land levelling, foundation treatment, retaining wall, existing manholes protection and removal, road and other works stated in the specification and drawings.
2. The Employer desires that the Works known as construction of **C04 Plot West Side Land Levelling Project of Starting Zone of DIFTZ Phase 1** located at Southwest of the new FTZ Zone, Djibouti (hereinafter referred to as the “Works”) should be executed by the Contractor;
3. The Employer has accepted the Tender for the Works and the remedying of any defects therein in accordance with the terms and conditions of the Contract.

The Employer and the Contractor agree as follows:

1. In this Contract Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to.
2. The Contract Amount is 451025.90 USD (Four Hundred and Fifty-One Thousand and Twenty-Five Dollars and Ninety Cents Only)
3. The following documents shall be deemed to form and be read and construed as part

of this Contract Agreement:

- (a) this Contract Agreement;
- (b) the Addenda;
- (c) the Particular Conditions of Contract;
- (d) the General Conditions of Contract;
- (e) the Drawings;
- (f) the Bill of Quantities;
- (g) any other documents forming part of the Contract.

4. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to design (to the extent specified in this Contract Agreement), execute and complete the Works and promptly remedy any defects therein in conformity in all respects with the provisions of the Contract.

5. The Employer hereby covenants to pay the Contractor in consideration of the design (to the extent specified in this Contract Agreement), execution and completion of the Works and the remedying of defects therein, the Contract Price payable under the provisions of the Contract at the times and in the manner prescribed in the Contract.

Signed by

Sign by

(Signature)

(Signature)

(Name)

(Name)

For and on behalf of

For and on behalf of

[Employer]

[Contractor]

Appendix to Tender

Item	Sub- Clause	Data
Employer's name and address and fax number	1.1.2.2 and 1.3	Khor Ambado FZCO P.O. Box 197, Djibouti, Republic of Djibouti Email: gongchengbu@cmdiftz.com
Contractor's name, address, fax number and email address	1.1.2.3 and 1.3 Fax: No.: Email:
Engineer's name, address, fax number and email address	1.1.2.4 and 1.3	 Fax: No.: Email:
Defects Notification Period	1.1.3.7	365 days
Project	1.1.5.9	C04 Plot West Side Land Levelling Project of Starting Zone of DIFTZ Phase 1, located at Free Trade Zone, Djibouti.
Electronic transmission systems	1.3	Means by fax and email.
Governing Law	1.4	Law of the Country
Ruling Language	1.4	English
Language for communications	1.4	English
Time for access to the Site	2.1	On the Commencement Date
Amount of Performance Security	4.2	0% of the Accepted Contract Amount

Normal working hours	6.5	8 hours
Time for Completion of the Works & Sections	8.2	90 days from the Commencement Date
Delay damages for the Works	8.7 and 14.15(b)	Unite States Dollar Five Hundred (US \$500) per day.
Maximum amount of delay damages	8.7	10% of the Accepted Contract Amount
Percentage for adjustment of Provisional Sums	13.5(b)	This provision does not apply
Adjustments for Changes in Cost	13.8	This provision does not apply
Total advance payment	14.2	20% of the Accepted Contract Amount
Percentage of Retention	14.3	This provision does not apply
Limit of Retention Money	14.3	This provision does not apply
Plant and Materials intended for the Works	14.5	This provision does not apply
Minimum amount of Interim Payment Certificates	14.6	0.00
Currency/currencies of payment	14.15	US Dollars (US\$)

CONDITIONS OF CONTRACT

General Conditions of Contract

The Conditions of Contract shall be the “Conditions of Contract for Construction FOR BUILDING AND ENGINEERING WORKS DESIGNED BY THE EMPLOYER FIRST EDITION 1999, First Edition 1999”, as prepared by the Federation Internationale des Ingenieurs-Conseils (FIDIC). These General Conditions are subject to variations and additions set out in Part II of the Conditions of Contract entitled “Particular Conditions”. Copies of the “Conditions of Contract for Construction, First Edition 1999” are available from FIDIC via its web site: <http://www.fidic.org/> and can be obtained from:

Fédération Internationale des Ingénieurs-Conseils (FIDIC)

P.O Box 86,

CH-1000 Lausanne 12, Switzerland.

Phone: +41 21 654 44 11

Fax: +41 21 653 54 32

Email: fidic.pub@pobox.com WWW: <http://www.fidic.org>

CONDITIONS OF CONTRACT

Particular Conditions of Contract

The following Particular Conditions amend and/or add to the General Conditions of Contract as and where noted. These Particular Conditions take precedence over the General Conditions of Contract.

Clause 1.0 General Provisions

- | | |
|---|--|
| Sub-Clause 1.1.2
Parties and
Persons | 1.1.2.9 DAB

Delete the wording in the sub-clause and replace with "Not Used". |
| Sub-Clause 1.1.5
Works and Goods | At the end of Sub-Clause 1.1.5.8 insert a new Sub-Clause:

1.1.5.9 "Project" means the project identified in the Appendix to Tender. |
| Sub-Clause 1.3
Communications | At the end of sub-paragraph (b), insert a new paragraph:

(c) Electronic submissions shall use:

(i) Microsoft Windows compatible software for the general preparation,

(ii) AutoCAD compatible DWG files for the preparation and transmission of drawings,

(iii) Primavera P6 or MS Project Files for the preparation and transmission of programmes. |
| Sub-Clause 1.5
Priority of
Documents | Delete items (a) to (h) and substitute:

(a) the Contract Agreement;
(b) the Addenda;
(c) the Particular Conditions of Contract;
(d) the General Conditions of Contract;
(e) the Drawings;
(f) the Bill of Quantities;
(g) any other documents forming part of the Contract. |
| Sub-Clause 1.13 | Amend Sub-Clause 1.13 as follows: |

**Compliance with
Laws**

Add “other than the taxes and duties exempted pursuant to Clause 21 [*Taxes and Duties*]” after “, pay all taxes, duties and fees”, in Sub-Clause 1.13(b).

At the end of Sub-Clause 1.13, insert:

The Engineer acting reasonably may require an immediate removal from the Site and the Works of any person who, in the opinion of the Engineer, fails properly to observe the provisions of Sub-Clause 1.13 [*Compliance with Laws*] and such persons shall not be again employed upon the Works without the approval of the Engineer. The Contractor shall give prompt and due consideration to any matter to which the Engineer in the course of his duty may find it necessary to call attention for the purpose or ensuring compliance with the foregoing.

Clause 2

The Employer

**Sub-Clause 2.4
Employer's
Financial
Arrangements**

Delete Sub-Clause 2.4 in its entirety.

Funding for this project has been implemented. Same to 14.7 payment conditions

Clause 3

The Engineer

**Sub-Clause 3.1
The Engineer's
Duties and
Authority**

At the end of second paragraph of Sub-Clause 3.1, insert two new paragraphs:

The Engineer will not be responsible for the Contractor's failure to perform any of its duties, obligations or responsibilities under the Contract. The Engineer will not be responsible for acts or omissions of the Contractor, the Contractor's Personnel or any other persons or entities performing portions of the Works.

Sub-Clause 3.3
Instruction of the Engineer

Insert “one original three (3) copies, endorsed by the Employer, of ” after “modified” and before “Drawings” in the first sentence.

Clause 4 The Contractor

Sub-Clause 4.1
Contractor’s

At the end of second paragraph of Sub-Clause 4.1, insert two new paragraphs:

General
Obligations

The Contractor shall be solely responsible for the coordination of the project, such as working with the relevant authorities, employer and the other contractors on site.

The Contractor shall take the responsibility of the costs including but not limited to the materials, equipment and personnel and other construction materials entering the construction site costs, roads costs, water costs, electricity costs, construction site security costs, personal pass cost to the park, vehicles pass cost and all other related costs to the completion of the project.

The Contractor shall take the responsibility of design optimizing and complete the deepen design if need, but changes arisen from deepening design is not the reason for extending the duration or increasing the cost.

The Site Data stated in Instructions to tenderers, appendix D is just for reference, the Contractor is obliged to conduct a careful exploration and review of the site whatever to the ground and underground. The Contractor's rate quotation shall be deemed made under full consideration of the site. Any cost changes and time extension caused by the on-site condition shall not be considered.

Sub-clause 4.10
Site Data

Insert at the end of the first paragraph of Sub-Clause 4.10:

and the Employer makes no representation as to the adequacy or reliability thereof.

Delete the words “To the extent which was practicable (taking account of cost and time)” from the first sentence of the second paragraph, and the words “To the same extent” from the second

sentence of the second paragraph.

Sub-Clause 4.12
Unforeseeable
Physical
Conditions

Delete Sub-Clause 4.12

Sub-Clause 4.19
Electricity, Water
and Gas

At the end of Sub-Clause 4.19, insert a new paragraph:

The Employer has no responsibility for the impact of provision of all power, water and other services on construction period and any other impacts.

Sub-Clause 4.23
Contractor's
Operations on Site

At the end of the second paragraph of Sub-Clause 4.23, insert a new paragraph:

Should at any time after due and reasonable written warning from the Engineer, the Site not be kept clear, the Employer may arrange for clearing of the Site to be carried out by others and deduct the cost thereof from monies due or becoming due to the Contractor or recover the same as a debt due from the Contractor.

Sub-Clause 4.25
Bribery

At the end of Sub-Clause 4.25, insert new Sub-Clauses:

Any commission, advantage, gift, gratuity, reward or bribe given, promised or offered by or on behalf of the Contractor or his agent or servant or any other person on his or their behalf to any officer, servant, representative or agent of the Employer or of the Engineer or to any person on their behalf or on behalf of any of them in relation to the obtaining or to the execution of this Contract or of any other contract with the Employer shall, in addition to any criminal liability which may be thereby incurred, subject the Contractor to the cancellation of this Contract and of all other contracts which he may have entered into with the Employer and also to the payment of any loss or damage resulting from such cancellation.

The Employer shall be entitled, upon informing in writing to the Engineer, to deduct the amounts so certified from any monies due to the Contractor under this or any other contract or to recover the said amounts as a debt due or partly the one and

partly the other as the Employer shall deem advisable.

Sub-Clause 4.26
Agency

The Contractor shall have exclusive control over its personnel in the conduct of activities under this Contract and shall be regarded as an independent contractor.

The Contractor is not constituted as an agent of the Employer for any purpose whatsoever and is expressly prohibited from doing any acts which do or may create the impression or inference that the Contractor is an agent of the Employer.

Further, the Contractor is not granted any right or authority to create any obligation or responsibility, express or implied, on behalf of, or in the name of the Employer in any manner whatsoever.

Sub-Clause 6.9
Contractor's
Personnel

At the end of Sub-Clause 6.9, insert two new paragraphs:

The management team of the project shall enter into the construction within 7 days from the receipt of the letter of acceptance. The project manager must stay on site. Without the permission of the Employer, the project manager shall not leave Djibouti or be changed.

If the Contractor fails to employ or replace any personnel requested to be removed by the Engineer within 28 days, then the Employer may appoint a suitable replacement and all costs related to such deployment shall be recovered from the sums payable under the Contract. The Employer or the Engineer is not liable or responsible for the performance of the personnel thus appointed by the Employer.

Sub-Clause 6.11
Disorderly
Conduct

At the end of Sub-Clause 6.11, insert a new paragraph:

The Contractor shall forthwith remove from the Site any of the Contractor's Personnel whose conduct, in the reasonable opinion of the Engineer, is unacceptable.

**Sub-Clause 6.12
Alcoholic Liquor
or Drugs**

The Contractor shall not, otherwise than in accordance with the Statutes, Ordinances and the Country's Regulations or Orders for the time being in force, import, sell, give, barter or otherwise dispose of any alcoholic liquor or drugs or permit or suffer any such importation, sale, gift, barter or disposal by Subcontractors, agents or employees.

**Sub-Clause 6.13
Arms and
Ammunition**

The Contractor shall not give, barter or otherwise dispose of to any person or persons, any arms or ammunition of any kind or permit or suffer the same.

**Sub-Clause 6.14
Festivals and
Religious
Customs**

The Contractor and Subcontractors including agents and other personnel shall, in all their dealings with their labour for the time being employed or in connection with the Works, have due regard to all recognized festivals, customs and other official public holidays of the Country.

**Sub-Clause 6.15
Epidemic**

In the event of any outbreak of illness of epidemic nature the Contractor shall comply with and carry out such regulations, orders and requirements as may be made pursuant to the Laws, Medical, Sanitary or other appropriate Authorities for the purpose of dealing with and overcoming the same.

**Sub-Clause 6.19
Accidents**

The Contractor shall within twenty-four (24) hours of the occurrence of any accident on the site or in connection with the execution of the Works supply the Engineer with full written details thereof in triplicate.

The Contractor shall from time to time supply such information as may be required by the Engineer in order to satisfy him that the conditions of this Clause have been complied with.

Clause 7

Plant, Materials and Workmanship

Sub-Clause 7.1
Manner of Execution

At the beginning of Sub-Clause 7.1, insert a new phrase:

Without limiting his responsibilities under sub-clause 4.1 [Contractor's General Obligations],

Clause 8 Commencement, Delays and Suspension

Sub-Clause 8.1
Commencement of Works

Replace the first paragraph of Sub-Clause 8.1 with the following:

The third day after the contract is signed.

Sub-Clause 8.13
Time Impact Analysis
— Extension of Time

In order to determine the amount of such extension of time, the Engineer may request the Contractor to prepare a "Time Impact Analysis" in an acceptable format.

This analysis shall include the following:

- a. identification of the cause of delay including dates, when, where, how, why and by whom the delay was caused.
- b. statement giving the status of the work at the time of the delay including all necessary drawings and photos to substantiation such status.
- c. analysis of the time impact of each delay on the activities contained within the programme and the effect on the Time for Completion.
- d. graphical and quantitative comparison of the revised programme against the original programme.
- e. analysis of how the float has been used to minimise the additional time required.
- f. narrative of how the delay could be minimised to avoid further disruption to the Works.
- g. identification of any required alterations to the Works as a result of the delay.

Should the Contractor not submit a "Time Impact Analysis" and

not provide such additional supporting information as the Engineer may require within twenty eight (28) calendar days after being requested to do so, the Engineer will determine the extension of time for completion, if any, pursuant to Sub-Clause 20.1 [Contractor's Claim].

Clause 11

Defects Liability

Sub-Clause 11.1 Completion of Outstanding Work and Remedying Defects

At the end of Sub-Clause 11.1, insert two new paragraphs:

The Contractor shall carry out and complete its obligations under this Sub-Clause in such way (including without limitation, at such times and in such locations) so as not to interrupt or disrupt the Employer's operations or business.

If the Contractor fails to execute the outstanding works as identified in accordance with Sub-Clause 11.1(a) within the time stated in the relevant Taking-Over Certificate, after giving seven (7) days' notice to the Contractor, the Employer is entitled to deploy another contractor to carry out such outstanding works and recover the cost of carrying out such work from the Contractor in accordance with Sub-Clause 2.5 [*Employer's Claims*] of the Conditions of Contract.

Sub-Clause 11.2 Cost of Remedying Defects

In the third line, after the word "Contractor" insert the following:

"who shall also pay all the costs of the Engineer incurred in the inspection thereof"

At the end of Sub-Clause 11.11, insert a new Sub-Clause:

- Sub-Clause 11.12** Notwithstanding the provisions of Sub-Clause 11.4 [*Failure to*
Emergency *Remedy Defects*], if any defect or damage is due to a cause
Rectification of stated in Sub-Clause
Defects 12.2 [*Delayed Tests*] and its nature is such that its immediate
rectification is necessary to ensure continuation of full operation
of the Port, the Employer may (at his sole discretion):
- (a) without giving notice to the Contractor carry out the work
himself or by others, in a reasonable manner and at the
Contractor's risk and cost. Such works may only provide a
temporary solution to the defect or damage. Except where
such work provides a permanent solution to the defect or
damage, the Contractor shall remain responsible until the
defect or damage is rectified to the satisfaction of the
Employer. The costs properly incurred by the Employer in
remedying the defect or damage shall be recoverable from
the Contractor by the Employer; and
 - (b) require the Engineer to determine and certify a reasonable
reduction in the Contract Price.

Clause 12 Measurement and Evaluation

Delete the following Sub-Clauses 12.1, replace with the
following:

- Sub-Clause 12.1** Hereof, the works, which are described and delineated in the
Quantities Tender Documents, including (but not limited to) the Drawings,
Bill of Quantities and Specification, are all deemed to meet the
Employer's requirements, the quantities of such works included
in lump sum price shall not be varied.

Clause 14 Contract Price and Payment

- Sub-Clause 14.1** The total price of this contract is a lump sum contract, and the
The Contract Price contract price will not be adjusted as the cost of personnel,
machinery and materials increases.

- Sub-Clause 14.2** 20% of the Accepted Contract Amount
Advance Payment

Sub-Clause 14.3

**Application for
interim Payment
certification**

Delete sub-clause 14 (e) in its entirety.

Sub-Clause 14.4

**Schedule of
Payment**

Delete sub-clause 14.4 in its entirety.

Sub-clause 14.5

**Plant and
materials**

Delete sub-clause 14.5 in its entirety.

Sub-Clause 14.7

Payment

Delete Sub-Clause 14.7(a),(b),(c) and substitute:

The contract payment is divided into three times.

Within one week of signing the contract, a Advance payment of 20% of the Accepted Contract Amount will be paid.

After one month of project commencement, a payment of 40% of the Accepted Contract Amount will be paid.

The remaining balance of 40% of the Accepted Contract Amount will be paid after the final acceptance of the completion.

Clause 17

Risk and Responsibility

Sub-Clause 17.7

Warranty

At the end of Sub-Clause 17.6, insert a new Sub-Clause:

Notwithstanding the issue of a Performance Certificate, the Contractor shall remain liable for the Works in respect of:

- (a) its statutory duties pursuant to Laws;
- (b) all and any extended warranties for particular items of equipment or parts of the Works as identified in the Contract; and
- (c) any ongoing maintenance obligations of the Contractor under the Contract or under any other contract.

Clause 18

Insurance

Sub-Clause 18.1
General
Requirements for
Insurances

At the end of Sub-Clause 18.1, insert a new paragraph:

The Contractor shall ensure that, the insurer of the Contractor shall deliver to the Employer a letter of confirmation evidencing all insurance policies procured by the Contractor shall adequately cover the requirements and the Contractor's obligations under Clause 18 and a letter of undertaking to immediately inform the Employer of any cessation of the insurance policies for whatsoever reasons.

Sub-Clause 18.3
Insurance
Against Injury to
Persons and
Damage to
Property

At the end of Sub-Clause 18.3, insert a new paragraph:

The public liability policy(s) shall contain a cross liability clause so that in the event of any loss, damage or injury to persons or property of a party, the fact that the party sustaining the same and the party causing the same are both insured under such policy(s) shall not prevent a claim being made under the subject insurance policy(s).

Clause 20

Claims, Disputes and Arbitration

Delete Sub-Clauses 20.2, 20.3, 20.4, 20.5, 20.6, 20.7, and 20.8, and substitute:

Sub-Clause 20.2
Amicable
Settlement

Unless otherwise specifically provided for in the Contract, any dispute, controversy, difference or claim arising out of or relating to this Contract, including the existence, validity, interpretation, performance, breach or termination thereof or any dispute regarding non-contractual obligations arising out of or relating to it (singularly, a "Dispute", and collectively, "Disputes") shall be resolved in the following manner:

- (a) As soon as a party is aware of any Dispute, it shall give written notice to the other party including all available details and relevant copy documents (a "Dispute Notice");
- (b) Within ten (10) days from the date of receipt of the Dispute Notice in accordance with Sub-Clause 20.2.(a),

the Parties shall meet and shall through reasoned discussion and in good faith attempt to resolve such Dispute by negotiation during a period of not less than twenty-one (21) days;

- (c) If the parties are unable to resolve the Dispute within the twenty- one (21) day period set out in Sub-Clause 20.2(b) and unless within that period the Parties agree to refer such Dispute to expert determination or mediation or further structured negotiation (in any such case on agreed written terms), then either party may refer such Dispute to arbitration.

**Sub-Clause 20.3
Arbitration**

Any Dispute referred to arbitration shall be finally resolved by arbitration will be administered by the Hong Kong International Arbitration Centre (HKIAC) under the HKIAC Administered Arbitration Rules in force when the Notice of Arbitration is submitted.

The arbitrator(s) shall determine the rights and obligations of the Parties according to the law of the Country.

The seat of arbitration shall be Hong Kong.

The number of arbitrators shall be three. The arbitration proceedings shall be conducted in English.

C04 Plot West Side Land Levelling Project of Starting Zone of DIFTZ Phase 1

Volume II- Specification

Khor Ambado FZCO

P.O. Box 197, Djibouti, Republic of Djibouti

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VOLUME II - SPECIFICATION

1. General Requirements
2. Technical Requirements

C04 Plot West Side Land Levelling Project of Starting Zone of DIFTZ Phase 1

General Requirements

Khor Ambado FZCO

P.O. Box 197, Djibouti, Republic of Djibouti

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General Requirements

1. GENERAL

- 1.1. The Conditions of Contract and the Drawings shall be read in conjunction with the Specification and matters referred to, shown or described in the former are not necessarily repeated in the latter. The Specification includes these General Requirements and the Design Statement, and shall be read in conjunction with each other.
- 1.2. Notwithstanding the subdivision of these General Requirements into various headings, every part is to be deemed to be complementary to every other part, and the various parts are to be read with each other, so far as may be practicable.

2. SCOPE OF WORKS

- 2.1. Khor Ambado FZCO intent to carry out the Land Levelling the C04 Plot West Side in Starting Zone of DIFTZ Phase 1 consisting of earth excavation, backfilling, foundation treatment, retaining wall construction, existing manholes protection and removal, road and other related work.
- 2.2. As shown in the Drawings and specified in the Specification, the scope of works for C08-02 & C08-06 and C03 Plot Land Levelling project of Starting Zone of DIFTZ Phase 1 shall consist of the following but not limited to:
- (a) Earth excavation, transfer and backfilling
 - (b) Levelling and Compaction
 - (c) Dismantle and rebuild the existing curbs, road, and so on
 - (d) The retaining wall construction
 - (e) The reserved manholes
 - (f) Other works
- 2.3. In addition to the above, the Scope of Works shall include for, but is not limited to, the following works:
- (a) All temporary works, including their design;
 - (b) Carrying out all Site surveys including site investigation (if necessary), surveying existing infrastructure, services, pipelines, etc.;

(c) Manage, co-ordinate and supervise the work of subcontractors to ensure that the Works are performed to the required schedule, quality and safety requirements. The Contractor is fully responsible for the performance of all Sub- Contractors;

(d) Procuring all materials, equipment, etc., as required for completing the Works;

(e) Inspecting, expediting, forwarding, obtaining customs clearance and delivering all materials to the Site;

(f) Constructing, installing, inspecting, testing of the Works;

(g) Provide assistance and attendance to the nominated subcontractors; and

(h) Providing as-built information and drawings, maintenance and operation manuals and the Project Record Documentation.

2.4 Remedying any defects whatsoever and any latent defects, which may appear during the Defects Notification Period.

3. PROJECT SITE

3.1 The Employer, through the Engineer shall handover to the Contractor the Site. The Site means all land and other locations, which the Employer passes to the Contractor to construct the Works and as mentioned in the Contract and as indicated on the drawings. The Site shall not be used for any purpose other than that of carrying out the Works. The Site, the equipment used upon it and the Works shall be kept clean at all times.

3.2 The Contractor shall arrange for, construct, maintain and afterwards remove and reinstate any access required for and in connection with the execution of the Works.

3.3 The Contractor shall coordinate with and allow access to the Site all the Employer's other consultants, specialist advisors, and their designers and contractors and any other organizations and companies that the Employer may employ on the Project through the Engineer.

3.4 The Contractor shall make all arrangements, including payment. If needed, for providing any land necessary as a working area outside the road right of way. The Employer shall not be liable for the use of such land. The Contractor shall be responsible for all roads and temporary facilities necessary to alter the traffic direction, as may be required to facilitate the progress of the Works.

3.5 The Contractor shall at all times during the Contract maintain safe and proper access

to and from adjacent buildings and properties.

4. REGULATORY REQUIREMENTS

Jurisdictional Authorities

- 4.1 The Contractor shall be responsible for adherence to all requirements of jurisdictional authorities by his personnel, subcontractors and suppliers.
- 4.2 Where reference is made to "local authorities", or "jurisdictional authorities", or "authorities having jurisdiction", or similar terminology it shall mean all authorities who have within their constituted powers the right to enforce the laws of the Country.
- 4.3 Requirements of jurisdictional authorities shall apply to Works in precedence to the requirements of the Contract Documents.

Products

- 4.4 Products incorporated in the Works shall meet all requirements of jurisdictional authorities as applicable.

Fire Prevention and Safety

- 4.5 Enforce fire detection and protection methods, good housekeeping, and adherence to local and underwriter's fire regulations. Provide approved fire extinguishers, and other fire detection and firefighting services and equipment except where more explicit requirements are specified as the responsibility of individual Sections.
- 4.6 Maintain clear emergency exit paths for personnel at all times.
- 4.7 Use only fire resistant tarpaulins and similar protective covering on site.

Requirements of Regulatory Agencies

- 4.8 Works shall include protection measures consisting of materials, constructions and methods required by jurisdictional authorities to save persons and property from harm.
- 4.9 Ensure that pollution and environmental control of construction activities are exercised as required by jurisdictional authorities during progress of work.

Site Access

- 4.10 The Contractor shall be responsible for making arrangements with and obtaining necessary permits and visas from jurisdictional authorities to ensure access to the site for construction personnel, delivery of products and construction equipment, and

performance of work. The Employer will assist the Contractor to obtain necessary site entry permits and work visas.

4.11 The Contractor is required to maintain and provide satisfactory temporary access and traffic flow to, from and within the areas of the works. Temporary traffic signs and lighting for temporary roads and diversions are to be in strict accordance with the local regulations and any additional requirements instructed by the Traffic Police or the Engineer. Details of proposals for any such measures are to be submitted by the Contractor for approval to the Traffic Police and the Engineer prior to the implementation of the diversions or temporary roads unless otherwise instructed. Such approval shall not relieve the Contractor of any of his duties or responsibilities under the Contract.

4.12 Except where special permission is obtained, maintain clear access for roads and sidewalks on public property.

4.13 Maintain roads and sidewalks clear of construction materials and debris, including excavated material. Clean roads and sidewalks as frequently as required to ensure that they are cleared of materials, debris and excavated material.

5. APPROVAL OF SOURCES AND TYPES OF MATERIALS

5.1 All materials, manufactured articles incorporated in the permanent works shall meet all quality requirements of the Contract. The Engineer, unless otherwise noted, prior to their inclusion into the Works must in all cases, approve them.

5.2 The Contractor shall, before placing any purchase orders for materials and manufactured articles that form a part of the permanent works, submit for the approval of the Engineer at least twenty eight (28) calendar days prior to beginning the work to which they are related (excluding the time necessary for delivery or postage), a complete description of such items, the names of the firms from whom he proposes to obtain such items, together with a list of the items he proposes each firm would supply. No materials or manufactured articles shall be ordered from any firm without the written approval of the Engineer. When directed by the Engineer or as specified in the Contract, the Contractor shall submit samples for approval.

5.3 If it is found later that the product and/or sources of supply for previously approved materials, manufactured articles, do not comply with the Specification, the Contractor shall furnish the items from other sources and which must be approved by the Engineer prior to incorporation of such items in to the Works.

5.4 When the source of materials are not designated on the plans and/or described in the Specification, the Contractor shall be totally responsible for locating and producing materials meeting the Specification.

5.5 No material (that has to be tested in accordance with the Specification) shall be incorporated in the Works until such test results have been approved by the Engineer.

6. ROYALTIES

The Contractor shall be responsible for all compensation and royalties due in respect of all Goods and services used for the Works including any materials extracted from quarries and borrow pits, or from any part of the Site.

7. SUBMITTAL PROCEDURE

Submittals

7.1 Submit to the Engineer for his review, shop drawings, calculations, samples and other items, in strict accordance with the provisions of this Section, and as per the Specification and the Drawings. All submittals shall be submitted at least **twenty-eight (28) calendar days** prior to beginning the work to which they are related (excluding the time necessary for delivery or postage).

7.2 The Contractor shall prepare and submit a list of all submittals, required by the Contract or otherwise, showing the forecast date for submission of each item within **twenty-eight (28) calendar days** after receiving the notice under Sub-Clause 8.1 [Commencement of Works] of the Conditions of Contract.

7.3 All submittals should be submitted together with the transmittal form approved by the Engineer.

7.4 The approval of submittals shall not relieve the Contractor of his responsibility for any deviation from the requirements of the Contract Documentation unless otherwise agreed with, and confirmed in writing by, the Engineer. Any approval from the Engineer shall not relieve the Contractor of his responsibility for errors or omissions in the submittals

7.5 All submittals to include prepaid carrying and all other charges. The Contractor shall be responsible for and shall pay the extra cost, if any, occasioned by any discrepancies, errors, or omissions in submittals supplied by him, whether they have been approved by the Engineer or not.

7.6 Extension of time will not be granted because of the Contractor's failure to make timely and correctly prepared and presented submittals with allowance for the checking and review periods.

7.7 The Contractor shall not proceed with any related work which may be affected by the work covered under submittals until the applicable submittals have been approved.

Shop Drawings

7.8 Shop drawings generally means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by the Contractor to illustrate details of a portion of the Works and how it shall be carried out.

7.9 If the Contract requires the Contractor to design part of the Works or the works carried out by the Nominated Subcontractors, the Contractor shall arrange for the preparation of clearly identified shop drawings as the Engineer may reasonably request.

7.10 Prior to submission to the Engineer, the Contractor shall review all shop drawings. By this review the Contractor represents that he has determined and verified all field measurements, field construction criteria, materials, catalogue numbers and similar data or will do so and that he has checked and coordinated each shop drawing with the requirements of the Works and of the Contract Documents. The Contractor's review of each shop drawing shall be indicated by stamp, date and signature of an authorized person.

7.11 The Contractor shall submit shop drawings to the Engineer for his review with reasonable promptness and in orderly sequence so as to cause no delay in the Works or in the work of other contractors, and in line with the programme requirements described in this document.

7.12 If the Engineer so requests, the Contractor shall jointly prepare a schedule fixing the dates for submission and return of shop drawings. The Contractor shall allow a minimum of **twenty-one (21)** calendar days for the Engineer to review each of the shop drawing submission. The period shall be calculated from the date of receipt by the Engineer to the date of return to the Contractor.

7.13 Shop drawings shall be submitted in the form of **one (1)** soft copy CD and **two (2)** **white** prints. At the time of submission, the Contractor shall notify the Engineer in writing of any deviations in the shop drawings from the requirements of the Contract Documents.

- 7.14 With prior approval of the Engineer, catalogue cuts showing all aspects, design, sizes, components and rough-in information for equipment may be submitted as shop drawings, placed in 3-ring binders. **Three** copies of each catalogue cut are required.
- 7.15 The Contractor shall make changes in shop drawings which the Engineer may require consistent with the Contract Documents and resubmit unless otherwise directed by the Engineer. When resubmitting, the Contractor shall notify the Engineer in writing of any revision other than those requested by the Engineer.
- 7.16 Shop drawings shall define the division of responsibility between different trades. Shop drawings shall show materials, methods of construction and attachment or anchorage, erection diagrams, connections and other details necessary to complete the Work. Shop drawings shall show cross references to the Specification.
- 7.17 The review by the Engineer is for the sole purpose of ascertaining conformance with the general design concept and/or the requirements of the Contract Documents. The review shall not mean that he approves the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor, and such review shall not relieve the Contractor of his responsibility for errors or omissions in the shop drawings or of his responsibility for meeting all requirements of the Contract Documents. The Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of the work of all sub-trades and work of other contractors.
- 7.18 Any comments made on the shop drawings by the Engineer are not intended to change the Contract Price. If the Contractor deems that such adjustments effect the value of the work, he shall so state in writing before proceeding with the fabrication and installation of the work.
- 7.19 Make shop drawings accurately to a scale sufficiently large to show pertinent features of the item to be supplied and the method of connection to the Works including attachments, reinforcing, anchorage and location of exposed fastenings.
- 7.20 The Engineer will not provide electronic drawing files for use by the Contractor or any other party.

Samples

- 7.21 Samples, when requested by the Engineer, shall be submitted showing material, colour and finish. Materials used in the construction shall correspond to the approved samples. Approved samples returned to the Contractor may only be incorporated into

the Works upon written approval of the Engineer.

7.22 Samples are to be submitted in quantity which is required to be returned plus one which will be retained by the Engineer.

7.23 Refer to individual sections for more particular requirements for specified samples.

7.24 Identify each sample with Project Number, Job Name, Specification Section, Part and applicable Paragraph numbers and drawing numbers, Date of Submittal, Type of Material, Names of Contractor, subcontractor and Manufacturers and Product identification (trade name).

7.25 The Contractor shall maintain a separate room to carefully store the submitted samples (approved and rejected), to the satisfaction of the Engineer.

7.26 At each stage as may requested by the Engineer, assemble and submit all relevant samples in context, at one time.

8. CONSTRUCTION PROGRESS DOCUMENTATION

8.1 The Project Control System provides the tools for planning, organizing, and measuring the performance of project.

8.2 The Project Control System is designed to do the following:

- (a) Assist in the preparation of the Project Programme
- (b) Document the Programme as a monitoring baseline
- (c) Gather progress on a timely basis
- (d) Provide the means and methods for analysis and decision making based on the data
- (e) Provide timely and accurate reporting to allow monitoring and controlling the works
- (f) Assist the Engineer in achieving programme goals of the Project
- (g) Ensure the use of effective documentation and communication for the Project

Planning and Programme

8.3 Within the time stipulated in the Contract, the Contractor must provide the preliminary Level 3 Programme for review by the Engineer. The Contractor shall ensure that its

programme is properly prepared, represents the Scope of Works, includes all critical milestones and shows the proper relationships between the activities.

8.4 The Contractor must endeavour to minimize the number of activities whose duration exceeds one week. The Contractor must minimize the use of date constrained activities. Negative lags for relationships will not be allowed. All activities must be tied logically with only one 'start' activity and one 'end' activity for the contractor's or vendor's network of activities. Durations must be in work days with the Contractor anticipating the effect of seasonal weather conditions, holidays, or other non-work periods on the construction activities. The Engineer may propose a 'Working Calendar' which will incorporate official holidays, and the Contractors shall modify their programmes and durations of affected activities to incorporate this calendar.

8.5 The programme must be updated monthly by the Contractor and must include status updates from their subcontractors or suppliers as well as their own engineering and construction progress. The Contractor is required to weekly 'walk' the Project with the Engineer for the purpose of validating the claimed status, and must provide sufficient information or analysis as may be required by the Engineer for determining the correctness of the Contractor's claimed status or forecast of remaining duration. The information required by from the Contractor for update is:

- (a) Actual Start Date if an activity has started during the week
- (b) Actual Finish Date if an activity has finished during the week
- (c) Physical Percent Complete based on installed quantities
- (d) Estimated Remaining Duration from the update date
- (e) Suggested logistics changed to reflect actual project conditions. These must be approved by the Engineer prior to inclusion in the control programme

8.6 The Engineer will evaluate each update and will review any requested logic changes necessitated by project circumstances.

Due Dates for Submission of the Level 3 Contractor's Baseline Programme

8.7 The Contractor is required to submit the Level 3 resource-loaded Programme to the Engineer for his consent within the time allotted according to the Conditions of Contract. The Contractor may submit the Programme without resources for the Engineer's comment however such submission will not be reason for granting an extension of time, nor review by the Engineer as accepting the programme as the Contractor's Baseline Programme.

8.8 The Engineer's review of the Contractor's Baseline Programme does not relieve the Contractor of any responsibilities under the Contract, including but is not limited to its use and control of resources and the work sequence to properly execute the work under the Contract.

Level 3 - Contractor's Baseline Programme

8.9 The Contractor's Baseline Programme is a CPM (critical path method) programme in bar chart format, utilizing the specified scheduling software, which shows the major work items and clearly defines the critical path of the Project. It is developed and maintained by the Contractor's planner and is made up of the detailed construction and engineering programmes of the Employer, the Contractor and his subcontractors and vendors.

8.10 The Contractor's Baseline Programme is divided into the following phases:

- (a) Contractor Engineering and Submittal Phase
- (b) Material Procurement Phase
- (c) Construction Phase
- (d) Close-out Phase

8.11 The Contractor shall provide this programme to the Engineer for his approval, after which it will load the man-hours and costs onto the activities. The Contractor must verify the resource loading for man-power and adjust the Programme as necessary and according to the manpower resources available to the Contractor.

8.12 Once the final, resource-loaded programme is agreed, it is frozen into a baseline programme, against which all subsequent programmes and updates will be measured.

Contractor Engineering and Submittals

8.13 This portion of the programme includes both off-site and on-site mobilization details. Tasks include:

- (a) Preparation and submittal of the construction or manufacture programme
- (b) Preparation and issue of the other requirements such as manpower programme, equipment listing, subcontractors and vendor listing, etc.
- (c) Preparation and submittal of a list of required submittals
- (d) Preparation and submittal of the required submittals

- (e) Review of submittals
- (f) Site mobilization details such as acceptance of site.
- (g) Milestone indicating ready to start construction.

Material Procurement and Long-Lead Items

8.14 The Contractor is to establish groups of activities for each material purchase order to be issued by the Contractor or the Employer for major materials, equipment and long-lead items. The items tracked for each package should include as applicable:

- (a) Receipt of Notice to Proceed, which could be a letter of acceptance, a letter to proceed, or a contract or purchase order.
- (b) Engineering and Submittal preparation, submittal and approval (if any).
- (c) Release for Fabrication
- (d) Fabrication details, including measurable milestones for progress tracking, agreed with the vendor in advance of signing the contract.
- (e) Shipment and delivery details for shipment to the Site.
- (f) Site preparation, if needed, to prepare the item for installation.

Close-out Phase

8.15 The close-out programme is one of the most critical in the project and should be one of the first parts of the control programme developed. It should include all the major testing and commissioning and turnover activities, punch-listing, document preparation and submittals, required training, permitting/licensing requirements, and anything else necessary to allow the Employer to have taking over of the Project.

Other Programmes

8.16 The Contractor's Control Programme is the primary planning, tracking, and reporting tools. However they are not the only programmes which will be developed and used during the course of the Project. Other programmes may include:

- (a) Recovery programmes are developed by the Contractor or Subcontractors or vendors to show how they plan to recover delays in their programme performance.
- (b) What-if programmes are developed to study the effects of different construction methods or potential scope changes to give management the

cost and programme impact information necessary to make decisions.

(c) Snag list programmes are developed if necessary to coordinate the efforts of multiple contractors punch list efforts.

Programme Reports

8.17 Various programme reports will be used throughout the Project. Most will be special 'layouts' or organized sub-sets of the Level 3 Programme designed to convey the status of the programme or elements of the programme. The typical programme reports to be used will be:

- (a) Control Programme issued weekly to the Engineer to reflect ongoing detailed progress. The baseline or target programme can be turned on or off depending on the preference of the user.
- (b) 2-Week Contractor Look-ahead programme issued by the Contractor weekly, usually done manually and in more detail than the control programme, but it should support the control programme.
- (c) Critical Path programme issued weekly and indicating just the activities on or near the critical path (total float less than 8 days). This programme is based on the control programme, and is grouped by total float and sorted by early start then early finish.
- (d) Ad-hoc programmes for miscellaneous planning or reporting.

Percent Complete

8.18 Percent Complete as used in this Project for updating activity progress shall mean physical percent complete and not elapsed timebased.

Project Reporting

Forecasting and Trend Analysis

8.19 Forecasting and trend analysis will be performed on a monthly basis by the Engineer based on information supplied by the Contractor.

8.20 If the Contractor is behind in programme and/or achieving a poor productivity rate, then the Engineer will review the Contractor's resources, especially man-power, equipment, and staffing, planned vs. actual, and will notify the Contractor to take appropriate action to remedy the situation.

Contemporary records

8.21 The Contractor, for the use the Engineer, shall provide with the following information on monthly intervals commencing from the Commencement Date:

- (a) Site records including weather data;
- (b) Updated programmes and cash flow statements;
- (c) Daily manpower, plant, machinery and material records;
- (d) Idle time of all plant, machinery and labour;
- (e) A record of all verbal and written Instructions received by an authorized persons including comments on shop drawings, correspondence in any nature and remarks on Requests for Information;
- (f) A record of amended drawings and specifications;
- (g) Mitigation measures adopted by the Contractor.

Cost Monitoring and Reporting Document Control

8.22 Document Control system is to manage and monitor the flow and distribution of correspondence, drawings, specifications, reports and other project documents between the Contractors, the Engineer, other consultants and the Employer in a timely manner.

Drawings, Shop Drawings and Submittals

8.23 The flow of drawings, shop drawings and submittals will be dependent on the terms defined in the Contract. Accurate records of all drawings and specifications including revisions and shop drawings for the Contract (including Nominated Subcontract Works) must be maintained.

8.24 The Contractor shall be responsible for:

- (a) Review the Contract Documents for the quantities of the various submittals/shop drawings to be provided
- (b) Prepare a listing and schedule of submissions for all submittals/shop drawings.
- (c) Prepare and submit shop drawings and approval information, in a timely manner, so as not to delay the manufacture or fabrication process and thus the overall Project Schedule.
- (d) Notify the Engineer of problems with submittals which may affect

scope/cost/time or quality of the Works.

9. STANDARDS, MATERIALS, GOODS, WORKMANSHIP AND LABOUR

- 9.1 In various places, reference is made to the Chinese Standards, Codes and specifications which are annexed to this General Requirements. These references shall in every case be deemed to include the latest edition or issue of such Standards, Codes and specifications including all revisions, amendments. In cases where Chinese Codes and Standards do not exist, the materials used shall be of the best type available and shall generally be to the Engineer's satisfaction.
- 9.2 Materials and goods shall be of the best quality of their respective kinds and, as far as applicable, shall comply in every respect with the requirements of the quoted Standards, Codes of practice and specifications or any other national standard approved by the Engineer.
- 9.3 Whereas specification for materials is not given the quality shall be of the highest standards including workmanship all to the requirements and satisfaction to the Engineer.
- 9.4 The Contractor shall submit for the approval of the Engineer list of names and addresses of the manufacturers and trademarks or names of all the various types of materials and goods he proposed to use in the Works.
- 9.5 Orders for materials and goods shall be placed subsequent to notice of the Engineer.
- 9.6 Workmanship shall be of the best kind. Labour shall be best standard for each profession. Materials to be used for construction shall be of the best types according to the Specification. Tolerances for materials and workmanship shall satisfy the most rigid local standards.
- 9.7 The Contractor shall be responsible for the disposal of all Construction Surplus (overbuy) in compliance with local regulations.

10. TEMPORARY OFFICES, STORAGE AREAS AND FACILITIES FOR THE ENGINEER

Contractor's Office and Storage areas

- 10.1 The Contractor shall provide, maintain and dismantle an office for his own use. All the Contractor's offices and storage areas shall be fit for their intended purposes. The Contractor shall include in his price and be responsible for the setting up, maintenance and clearing away on completion of all temporary storage facilities for

the storage of products, materials, tools and equipment for the use of the Contractor and all Nominated Subcontractors; he may require either on site or off site.

10.2 The Contractor shall confine his operations to within the area of the Site to the approval of the Engineer. No Preliminary Handing over the Project shall take place unless the Contractor removes the temporary storage facilities and/or plant, and any adjacent areas affected by the building operations shall be properly cleared of all temporary works, debris and other rubbish and all disturbed works and ground made good to the entire satisfaction of the Engineer, and repairs all damages and pays whatever due to the land proprietors for the use if needed.

10.3 Site accommodations for the Contractor's labours shall be in accordance with the local regulation.

10.4 No final Taking Over Certificate will be issued the Contractor unless the Contractor removes the temporary storage facilities, all temporary works and/or plant, and properly clears any adjacent areas affected by the building operations shall be properly cleared of all temporary works, debris and other rubbish and all other disturbed works and reinstates the ground to its original condition to the entire satisfaction of the Engineer, and repairs all damages and pays whatever due to the land proprietors for the use if needed.

11. TEMPORARY CONTROLS

Water and Electricity for the Works

11.1 All costs connected with the supply of water both for construction purposes and the site offices and temporary facilities shall be borne by the Contractor.

11.2 The Contractor shall make provisions for all necessary electricity for the site offices, temporary facilities and the Works and circuiting to suit the Permanent Works and Temporary Works. The whole installation shall be removed on completion.

Product Handling

11.3 Protection: Use all means necessary to maintain temporary facilities and controls in proper and safe condition throughout progress of the Works.

11.4 Replacements: In the event of loss or damage, immediately make all repairs and replacements necessary to the approval of the Engineer and at no additional cost to the Employer.

Temporary Fire Protection

11.5 Provide and pay for all temporary fire protection required and maintain in good order throughout the Works. Fire protection shall be to the approval of authorities having jurisdiction. This includes service for Nominated Subcontractors.

11.6 Provide adequate portable fire extinguishers throughout the construction areas. Conform to fire authority requirements regarding locations, types, maintenance and sizes of extinguishers. Extinguishers shall remain the property of the Contractor and shall be removed at completion of the Works.

Temporary Ventilation

11.7 Ventilate enclosed areas to assist curing of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapours, or gases.

Barriers

11.8 Provide barriers to prevent unauthorized entry to construction areas and to protect existing and to protect existing facilities and adjacent properties from damage from construction operations.

11.9 Provide protection for plant life designated to remain. Replace damaged plant life.

11.10 Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

Dust Control

11.11 Execute Works by methods to minimize raising dust from construction operations.

11.12 Provide positive means to prevent air-borne dust from dispersing into atmosphere.

Temporary Sanitary Facilities

11.13 The Contractor is responsible for providing and maintaining temporary sanitary conveniences and washbasins for the use of the workmen on the Works.

Protection Devices

11.14 Erect fencing, barricades, covered ways, tarpaulins, steps, bridges, platforms, notice and warning boards, and maintain all lights, signals and protection of all kinds for the protection of the workmen engaged on the Works, for the protection of adjoining property and for protection of the public in accordance with local regulations.

11.15 The Contractor shall take every precaution to preserve from damage any adjoining property, public or private, including buildings, fences, roads, trees and shrubs which are situated on or near the site and shall not demolish or remove any property except

as specified herein or on the specific instruction of the Engineer. Where any building and property is in close proximity to the Works (including any trench, excavation, demolition or pumping operation), the Contractor shall support, shore or otherwise protect such building and property and shall be responsible for making good any damage which, in the opinion of the Engineer is attributable to or in consequence of the carrying out of the Works.

Security

11.16 Provide security for the site to protect the Works from theft and vandalism and to prevent entry by non-authorized persons.

11.17 Make enclosures weather-tight and dust-proof. Install a solid door, opening towards the Works, complete with lock.

Name Board

11.18 The Contractor shall provide and erect a temporary name board at the location approved by the Engineer in the site compound. Name board shall include the Project name, Employer's name, Engineer's name and the Contractor's name.

12. PROTECTION OF EXISTING PROPERTIES

The Contractor shall protect buildings, sign boards, fences, roads, passages and others if found and he shall not demolish or remove any of these works except according to specific instructions by the Engineer. In the case of existence of buildings, ditches, excavations or any other work adjacent to the Site, then in this case he shall make necessary arrangements and take other precautions for their support and protection. The responsibility lies with the Contractor to repair any damaged property or works caused during the duration the execution of the Works.

13. PROTECTION OF WORKS FROM WEATHER

The Contractor shall protect the executed works and materials from the effects of weather. Also, in case of any damage to these Works, the Contractor shall repair and replace then at his own expense and according to the direction of the Engineer.

14. TEMPORARY WORKS

14.1 The Contractor shall execute all necessary temporary works for the completion of this Works. The plans and method statements for these temporary works shall be

submitted to the Engineer for review before proceeding with their execution. The Contractor remains responsible for any harm or damage resulting from these temporary works, notwithstanding any consent given by the Engineer.

14.2 The cost of the “Temporary Works” shall not be paid directly but it shall be included in the Contract Price.

14.3 Temporary Works that are required or intended to support structural loads shall be designed and certified by suitably qualified and experienced Engineers.

15. TEMPORARY SCAFFOLDING AND HOISTS FOR STRUCTURES

15.1 If required, the Contractor shall provide temporary scaffolding and hoists to permit the completion of the construction, as may be required. Scaffolding shall be of adequate design and specially built to take the required loads.

15.2 Complete details for the proposed methods shall be presented to the Engineer for approval. In any case, such approval does not relieve the Contractor from his responsibility of the scaffolding adequacy.

15.3 Scaffolding shall only be erected, maintained and dismantled by suitably qualified personnel. The standard “tag” system shall be strictly implemented and maintained at all times.

15.4 The cost of the above temporary scaffolding and hoists shall not be paid directly but it shall be included in the Contract Price.

16. CONSTRUCTION INSPECTION

16.1 The Engineer shall inspect the Works during construction according to the Specification, and he shall run tests and experiments on the materials to be used for construction, as deemed necessary. The Engineer has the right to reject any materials, mechanical equipment and methods of construction, if they differ from the Specification.

16.2 The Contractor shall furnish sufficient help in the way of instruments, tools and technical labour to assist the Engineer or Inspector in carrying out with the inspections.

16.3 Any approval from the Engineer shall not relieve the Contractor of responsibility for errors or omissions in the Works

17. NOTICE TO PROCEED WITH THE SITE WORKS

For site inspection and approval, the Contractor shall give notice in writing to the Engineer. Where no period of notice is stated elsewhere in the contract, such notice shall not be less than twenty-four (24) hours before the work is ready for final inspection. The Engineer will require reasonable time during the normal working hours to carry out his inspection. Forms shall be supplied by the Contractor to the approval of the Engineer. No further work shall commence until the Engineer's written approval has been given.

18. CONTRACTOR' S PERSONNEL

The Contractor shall provide the Engineer with his proposed supervision staff in a man-month schedule to cover all disciplines, prior to starting of site activities.

The Contractor shall, upon receiving a notice from the Engineer to remove a person due to the reasons stated above, temporary replace such person with a suitable personnel within 7 days of such notice and replace permanently within 28 days of such notice.

19. QUALITY ASSURANCE STANDARDS

General

19.1 The Contractor shall document and operate a Quality Management System complying with the latest edition of Chinese standards, to be approved by the Engineer.

19.2 The Contractor shall prepare a Quality Plan for the Works. The Plan shall be submitted within twenty-eight (28) calendar days after receiving the notice under Sub-Clause 8.1 [Commencement of Works] of the Conditions of Contract.

19.3 The Project Quality Plan shall describe the Contractor's Quality Management System that will be used throughout the Contract and the contents shall include but not be limited to the following:

- (a) Front Cover
- (b) Table of Contents
- (c) Project Scope, Requirements and Quality Objectives
- (d) Quality Policy and a relevant certificate issued in accordance with the Chinese standards (if applicable)

- (e)Control of Project Quality Plan
- (f)Reference Documentation
- (g)Project Management, Planning and Resources
- (h)Management, Organization and Responsibilities
- (i)Contract Review
- (j)Project Deliverables
- (k)Communication with the Engineer
- (l)Management of Documents, Data and Records
- (m)Design (Including Temporary Works)
- (n)Procurement of Services, Equipment and Materials
- (o)Method Statements
- (p)Inspection and Test
- (q)Product Identification and Traceability
- (r)Owner Supplied Product
- (s)Handling, Storage, Packaging and Delivery
- (t)Non-conformance, Corrective and Preventative Action
- (u)Control of Inspection, Measuring and Test Equipment
- (v)Audits
- (w)Training
- (x)Key Performance Indicators and Continual Improvement
- (y)Management Review
- (z)Quality Meetings
- (aa) Monthly Quality Report
- (bb) Commissioning
- (cc) Interface Management
- (dd) Project Completion and Handover

(ee) Appendices

19.4 The Quality Plan shall be reviewed, updated and resubmit for approval as necessary throughout the Contract.

19.5 The Quality Plan shall specifically address the procedures for maintaining the Project Quality requirements with respect to the use of subcontractors, vendors and suppliers. The requirements for Quality surveillance shall reflect the criticality of the item or material concerned.

19.6 A separate Quality Plan for the Works shall be prepared. This plan shall be controlled by the main quality plan.

19.7 The Contractor shall co-operate with the Engineer, and provide all necessary access to works and records to enable the Engineer to assess the Contractor's Quality Management System and to audit the implementation of the Quality Plan and associated procedures.

19.8 The Contractor shall note that the Contract Price includes the execution programme for provision and implementation of a Quality Management System to ensure that the appropriate standards are enforced throughout construction, pre-commissioning and commissioning stages of the Works

19.9 No construction shall begin and no requests for payment from the Contractor shall be processed until the Project Quality Plan is approved

Quality Organization Plan

19.10 The Contractor shall submit a Quality Organization Plan to the Engineer for approval within twenty-eight (28) calendar days after receiving the notice under Sub-Clause 8.1 [Commencement of Works] of the Conditions of Contract.

19.11 The Quality Organization Plan shall provide the names, qualifications, experience and skills of all the QA/QC Team and key support staff.

19.12 The Quality Organization Plan shall show the Organization of Contractor's quality team and shall include, but not be limited to, the following:

- (a) an Organization chart identifying all personnel responsible for quality
- (b) Identify the quality team showing that the team is independent of the job supervisory staff with clear lines of authority to top tier management.
- (c) Indicate and describe the area of responsibility and authority of each individual in the quality assurance team.

19.13 The Quality Organization Plan should also define quality responsibilities of any of the Contractors team with responsibilities under the Contractors Project Quality Plan.

19.14 The Contractor's Quality staff shall have relevant educational and professional qualifications, training and the ability to communicate in multiple languages. The Contractor is not permitted to execute any form of the works at the work site until such time as approved quality personnel have been deployed on a full time basis to the work site. The Contractor shall not remove or replace the appointed quality personnel without prior approval from the Engineer.

19.15 The Quality Organization Plan may form part of the Project Quality Plan or be prepared as a standalone document and cross-referenced within the Project Quality Plan.

Quality Assurance and Control Program

19.16 The responsibility for the required quality of work / service (inclusive of all aspects of Quality Assurance and Control) lies entirely with the Contractor.

19.17 The Contractor shall have in force a Quality Management in accordance with Chinese quality standards approved by the Engineer.

19.18 Works shall not proceed until the Quality Management System has been verified by the Engineer and/or consultant to be in place. Any delay emanating from the sub-contractors inability, lack of timeliness, reticence or inertia is the sole responsibility of the Contractor.

19.19 The Contractor shall monitor and supervise his workforce's implementation of the Quality Assurance and Quality Control Systems while they execute their Works.

19.20 The Contractor shall impose all quality assurance requirements upon sub-contractors, suppliers, manufacturers and any other parties associated with the Contractor that are involved in the Project

19.21 The Contractor is required to copy to the Engineer any formal quality related communication between the Contractor and enforcing authorities or government Organizations.

19.22 The Contractor shall use purpose made software for managing and maintaining the entire Quality Management System.

19.23 The Engineer shall conduct audits upon the Contractor to ensure that he is in

compliance with the requirements of the Contract Documents.

19.24 The Quality Manual (inclusive of the activity chart, quality control documents, written procedures, method statements and work instructions) shall be used by the Contractor to demonstrate how the specific requirements and quality targets of the contract will be met. The combination of resources (human, plant and finance), proposed to be used to complete the activities in time and to the required quality, shall be entered as inputs in the quality plan.

(a) The Contractor shall produce monthly quality reports (in digital and hard copy) and submit to the Engineer.

(b) The Contractor shall appoint for the Project an experienced and qualified Quality Assurance/Quality Control (QA/QC) Engineer (as specified above) who shall have broad knowledge and experience of quality management, its principles, concepts, the implementation and in the use of applied statistics.

(c) The Quality Management System for the Contract shall be in place as required by respective Appendices. The Contractor shall, within twenty eight (28) calendar days after receiving the notice under Sub-Clause 8.1 [Commencement of Works] of the Conditions of Contract, submit to the Engineer his proposed Quality Management System in triplicate.

(d) The Contractor shall review the Contract and prepare a specific schedule of Quality Control and Quality Assurance requirements for his own operations and in verification of the requirements.

(e) The Contractor shall continuously promote the implementation of quality assurance and quality improvements during the execution of the Works.

Method Statements

19.25 As part of the Project Quality Plan the Contractor shall submit a Method Statement Schedule to the Engineer for approval within twenty eight (28) calendar days after receiving the notice under Sub-Clause 8.1 [Commencement of Works] of the Conditions of Contract.

19.26 The Method Statement Schedule shall define the Method Statements to be prepared for the Works and the target dates for their submission to the Engineer for his approval.

19.27 The Method statements shall address as a minimum the following:

- (a) Introduction/Scope
- (b) Location and identification of the work covered by the method statement
- (c) Permits and Licenses Required
- (d) Specific Health and Safety Issues including Risk Assessments and Job Hazard Analysis
- (e) Environmental Issues
- (f) Quality Issues

- (g) Responsibilities
- (h) Sequence of Work
- (i) Resources
- (j) Drawings and Sketches
- (k) Reference documentation

19.28 Method Statements are required for all operations including temporary works.

19.29 No work covered by the Method Statement shall begin until it has been approved by the Engineer.

Procedures

19.30 The Contractor shall not commence any item of permanent work until he has submitted to the Engineer a written statement of his own inspections of that item, recording such inspections of that item, recording such inspection and obtaining the Engineer's written approval thereof. Every such statement shall identify the individuals on the Contractor's or sub-contractors staff who are responsible for inspecting the workmanship and/or testing the materials for the item in question, the place of inspection, the stages at which inspections and tests are to be made and the detailed aspects to be verified or measured in each inspection. Each inspection shall be recorded.

19.31 The Contractor shall provide schedule for his routine and specific monitoring and inspection of the construction processes.

19.32 The Contractor shall develop and implement Non-conformance Reporting (NCR) Corrective Action Reporting (CAR) and the Statistical Quality control (SQC)

procedures, which are compatible with those of the Engineer.

19.33 In the case of defects in the work designed and/or work constructed, the Contractor shall propose to the Engineer a methodology for correcting the defects.

19.34 The Contractor shall systematically monitor the Works in progress for the prompt correction of dangerous defects. The Contractor shall supervise all remedial works and confirm the correction of the defects.

19.35 The Contractor shall provide, in his weekly report to the Engineer, the details of the work(s). The Contractor shall carry out in routine and specific monitoring and inspection of the construction processes.

Contractor's Inspection

19.36 The Contractor shall be responsible for testing and inspecting all materials and workmanship. No work shall be covered up without the written approval of the Engineer. All items of work concealed in the finished work shall be inspected by the Contractor immediately before they are covered up. Inspection and testing shall be recorded according to the procedure specified in the Specification.

Test and Inspection Records

19.37 The contractor shall implement a computerized inspection and test management system. This management system shall be a relational database which permits the registering the inspection and test data by location (x, y, z), time, material (foundation fill, concrete, reinforcement, etc), work package of structure, condition and protection. The entered data shall automatically update multiple forms so that information is simultaneously assembled.

19.38 The record shall identify the inspector, the place, the date and time when the inspection was completed, the section of the Works and the materials tested or inspected, and its state of completion. Reference shall be made to the relevant detailed working Drawings and the specific aspects or properties which were checked or measured shall be recorded. Two (2) copies of each record of inspection by the Contractor shall be submitted to the Engineer. The records of inspections and tests shall be stored in an orderly fashion on the Site by the Contractor until the issue of the Performance Certificate of the Works, or such earlier time as the Engineer may instruct, and the Engineer shall have the right of access to them at all times.

19.39 After the issuance of the Performance Certificate for the Works, or such earlier time

as the Engineer may instruct, the Contractor shall, as instructed by the Engineer, either dispose of the records or deliver them as directed.

Engineer's Testing and Inspection

19.40 In addition to the Contractor's testing and inspection, the Contractor shall afford and facilitate access at all times for the Engineer's inspection and testing of materials and workmanship on site and, when so ever required by the Engineer, off-site and at manufacturers. The Contractor shall provide means of safe access and assistance (equipment, instruments, qualified personnel, and facilities) as may reasonably be required by the Engineer. For all items of work the Contractor shall give adequate notice in writing to the Engineer that the item in question is complete and is ready for inspection, and shall not cover it by subsequent work until the Engineer has confirmed in writing that it has been inspected and is approved. No inspection or approval by the Engineer shall relieve the Contractor or any of his duties and obligations under the Contract.

Notice of Works Off-Site

19.41 The Contractor shall give adequate written notice to the Engineer of the preparation or manufacture at a place not on the Site of any pre-constructed units or parts of units or materials to be used in the works. Such notice shall state the place and time of the preparation, manufacture, quarrying or extraction, and be sufficiently in advance as to enable the Engineer to make arrangements which he may deem necessary for inspection before the start and at any stage of work. Works off site shall not commence without the prior approval of the Engineer. If the place of inspection is located outside of the Country, then the Contractor shall make suitable arrangement for the Engineer's inspection and bear all costs incurred by the Engineer for such inspection.

Inspection and Test Plans

19.42 The Contractor shall prepare, and submit for approval, Inspection and Test Plans for all supplies, materials and prefabricated items and, where required by the Engineer, for works on the Site. The format of such plans shall be to the approval of the Engineer and shall indicate all tests, inspections and hold points for the inspections, audits and approvals to be carried out by the manufacturer, third party inspection body, the Contractor and the Engineer. The plans shall cover manufacture, transportation, acceptance, storage, installation, commissioning and test, as appropriate.

19.43 Notwithstanding all of the above, the Contractor shall also comply fully with any /all requirements as may be detailed in the specific and dedicated Mechanical and Electrical specification, manufacturer's instruction and requirements and any other item relating to the correct and proper execution of testing and commissioning.

Standards

19.44 Materials and workmanship shall conform to the latest edition (at the Base Date as defined Sub-Clause 1.1.3.1 of the Conditions of Contract) of the relevant applicable Chinese standards or to other standards specified or approved by the Engineer.

19.45 Materials meeting other internationally accepted equal or better standards will generally be accepted subject to review by the Engineer. Any such, alternative standard proposed by the Contractor shall be submitted in the English language for approval by the Engineer.

19.46 The Contractor shall supply to the Engineer one set of each of the Standards, Codes and References referred to in the Contract Documents and all such other documents that are used in the planning, procurement and execution of the Works including in addition one copy of any other standard or code specified or alternatively proposed. All standards shall be in English and shall be provided to the Engineer within twenty eight (28) calendar days after receiving the notice under Sub-Clause 8.1 [Commencement of Works] of the Conditions of Contract. On completion of the Contract all standards, codes and references so provided shall become the property of the Employer.

Proprietary Products

19.47 Where a proprietary or brand name or the name of a supplier or manufacturer is indicated in the Specification this is in respect of items which are not otherwise adequately described by American, British, Chinese or equivalent recognized standards. Alternative items based on recognized National standards of the country of origin may be accepted provided that documented proof in the English language is submitted to the Engineer for his approval sufficiently in advance and showing that the alternative proposed is of equal or higher quality and performance than the specified item.

Materials to be New

19.48 All materials used in the Permanent works shall be new unless otherwise specified or agreed by the Engineer in writing.

19.49 No materials to be incorporated in the Permanent Works shall have previously been used in the Temporary Works unless otherwise specified or agreed by the Engineer in writing.

Orders for Materials

19.50 Before orders are placed for any materials of any description to be used in the Permanent Works the Contractor shall submit not less than twenty eight (28) calendar days before the intended use the names and addresses of the Manufacturers or suppliers proposed for approval of the Engineer. Following approval by the Engineer, the Contractor shall submit to the Engineer copies of all orders placed for such materials.

Samples and Approval

19.51 All items and materials must be approved by the Engineer in accordance with the current operating procedures of the Employer. Approval must be obtained prior to their use in the Project.

19.52 The process of review, comment, acceptance or approval or non-conformance of the submitted product, procedure of process shall not relieve the Contractor of his responsibility for timely completion of the Project.

19.53 In accordance with the relevant provision of the Conditions of Contract, the Contractor shall as directed by the Engineer supply samples of materials to be incorporated into the works. The samples required for approval shall be submitted by the Contractor in labeled boxes suitable for storage, and in sufficient time for testing, due allowance being made for the fact that if samples are rejected, further samples and testing will be required. Approval samples will be kept by the Engineer who will reject any materials not corresponding in character and quality with the approved samples.

Certificates

19.54 All manufacturers certificates of tests, proof sheets, mill sheets etc, showing that the materials have been tested in accordance with the requirements of the relevant Standard or other approved standard or the Specification, shall be supplied in the English Language by the Contractor to the Engineer free of charge.

Commissioning Plan

19.55 The Contractor shall submit a Commissioning Plan to the Engineer for approval no later than twenty eight (28) calendar days before the start of the commissioning of

the Works or any part thereof.

19.56 The Commissioning Plan shall consider the requirements of each Section of the Specification in turn and shall identify the following:

- (a) all required commissioning work required by that Section of the Specification
- (b) any prerequisites to commissioning
- (c) a description of the commissioning procedure.

19.57 No work covered by the Commissioning Plan shall begin until the plan has been approved.

20. HEALTH AND SAFETY REQUIREMENTS

General Approach

20.1 Environmental, health, safety and security issues are paramount importance and the Contractor shall ensure that his workforce and sub-contractors comply with all HSE requirements in this regard. The Contractor's Safety Officer shall be totally independent and have full authority to stop any activity that he deems to be unsafe and dangerous.

Contractor's Safety Management Systems

20.2 The Contractor shall be required to implement an environmental, health, safety and security system consistent with legal requirements and the best practices of the construction industry. The Contractor shall actively promote commitment to this system to ensure that all operations are performed with the utmost regard for the health and safety of all personnel and the general public.

Contractor's HSE and Security Plans

20.3 The Contractor shall be required to establish and implement a suitable Project Health and Safety Plan within twenty eight (28) calendar days after receiving the notice under Sub-Clause 8.1 [Commencement of Works] of the Conditions of Contract. The purpose of which is to ensure that the activities of the Project participants are planned, carried out, controlled and directed so that safety objective is achieved. The following essential features shall be addressed in the plans:

- (a) Provision of competent, dedicated health and safety personnel;
- (b) Establishment of clear lines of responsibility for health and safety;

- (c) Awareness of legal and local authorities requirements;
- (d) Effective training;
- (e) Adoption of best standards, procedures and working practices;
- (f) Setting of realistic objectives and targets;
- (g) Identification and control of "safety critical" activities;
- (h) Audit for reviewing procedures and working practices;
- (i) Thorough investigation and follow-up of accidents and incidents;
- (j) Effective motivation, communication and participation;
- (k) Design, project and operation interfaces;
- (l) Safety goal and criteria;
- (m) Reporting of accidents, injuries and job disruptions;
- (n) Monitoring of commitment to health and safety;
- (o) Job specific method statements and risk assessments for all major activities.

20.4 The Contractor shall prepare a Site specific HSE Plan for the Works. The HSE and Security Plan shall be submitted to the Engineer for approval within twenty eight (28) calendar days after receiving the notice under Sub-Clause 8.1 [Commencement of Works] of the Conditions of Contract.

Safety File

20.5 The Contractor shall develop and maintain Safety File that will have all weekly monthly and yearly status.

Compliance with Safety Requirements

20.6 The Contractor shall monitor and supervise his workforce and subcontractors adherence to safe working practices and take any action necessary to ensure that as far as is reasonably practicable hazard are eliminated and risk controlled.

Contractor Emergency Plan and Procedures

20.7 The contractor shall monitor and supervise on his workforce and sub-contractors on site security matters, such as:

- (a) Identification of risk,

- (b) Documenting on site security arrangements
- (c) Reviewing local public/private facilities work permit procedures
- (d) Reviewing contractors' evacuation plans and procedures
- (e) Checking first aid facilities
- (f) Security management proposals (crisis plan, etc.)
- (g) Reviewing fire protection plans.

21. PROJECT RECORD DOCUMENTS

Submittals

21.1 Prior to application to Take-Over Certificates, submit to Engineer triplicate copies of the following project record documents:

- (a) Record Drawings: Marked-up Record Prints
- (b) Record Specification: including addenda and contract modification
- (c) Record Product Data: Each Product Data submittal. Where Record Product Data is required as part of operation and maintenance manuals, submit marked-up Product Data as inserts in manual instead of submittal as Record Product Data.

Products

Record Drawings

21.2 Record Prints: Maintain one set of white prints of the Drawings and shop drawings.

(a) Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally.

- (1) Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
- (2) Accurately record information in an understandable drawing technique.
- (3) Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
- (4) Record any variations from work, engineering or shop drawings particularly underground services, footings and foundations.

(b) Content: Types of items requiring marking include, but are not limited to, the

following:

- (1) Dimensional changes.
 - (2) Revisions to details shown on Drawings.
 - (3) Depths of foundations below first floor.
 - (4) Locations and depths of underground utilities.
 - (5) Revisions to routing of piping and conduits.
 - (6) Revisions to electrical circuitry.
 - (7) Actual equipment locations.
 - (8) Duct size and routing.
 - (9) Locations of concealed internal utilities.
 - (10) Changes made by Change Orders, Field Orders, Variation Orders and Supplementary Instructions. Note references of changes by order numbers and similar identification, where applicable.
 - (11) Details not on original Contract Drawings.
 - (12) Field records for variable and concealed conditions.
 - (13) Record information on the Works that is shown only schematically.
- (c) Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
- (d) Mark record sets with erasable, red-colored pencil Use other colors to distinguish between changes for different categories of the work at same location.
- (e) Mark important additional information that was either shown schematically or omitted from original Drawings.

21.3 Record Transparencies: Immediately before inspection for Taking-Over Certificate, review marked-up Record Prints with Engineer. When authorized, prepare a full set of corrected transparencies of the Drawings and Shop drawings.

- (a) Incorporate changes and additional information previously marked on Record Prints. Erase, redraw, and add details and notations where applicable.
- (b) Refer instances of uncertainty to the Engineer for resolution.

(c) Engineer will furnish Contractor one set of transparencies of the Contract Drawings for use in recording information.

21.4 Record CAD Drawings: immediately before inspection for Take-Over Certificate, review marked-up Record Prints with Engineer. When authorized, prepare a full set of corrected CAD Drawings of the drawings, as follows:

(a) Format: Same CAD program, version, and operating system as the original Contract Drawings.

(b) Incorporate changes and additional information previously marked on Record Prints. Delete, redraw, and add details and notations where applicable.

(c) Refer instances of uncertainty to Engineer for resolution.

(d) Engineer will furnish Contractor one set of CAD Drawings of the Drawings for use in recording information.

(1) The Engineer makes no representations as to the accuracy or completeness of CAD Drawings as they relate to the Drawings.

(2) CAD Software Program: The Drawings are available in AutoCAD.

21.5 Format: Identify and date each Record Drawing: include the designation "PROJECT RECORD DRAWING" in a prominent location.

(a) Record Prints: Organize Record Prints and newly prepared Record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.

(b) Record Transparencies: Organize into unbound sets matching Record Prints. Place transparencies in durable tube-type drawing containers with end caps. Mark end cap of each container with identification. If container does not include a complete set, identify Drawings included.

(c) Record CAD Drawings: Organize CAD information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each CAD file.

(d) Identification: As follows:

(1) Project name and address.

(2) Name of Employer.

(3) Date.

(4) Designation "PROJECT RECORD DRAWINGS."

(5) Name of Engineer.

(6) Name of Contractor.

Record specifications

21.6Preparation: Mark specifications to indicate the actual product installation where installation varies from that indicated in the Specification, addenda, and contract modifications.

- (a) Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
- (b) Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
- (c) Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
- (d) Note related Engineer's written Orders, Record Product Data, and Record Drawings where applicable.

Record Product Data

21.7Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

- (a) Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
- (b) Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
- (c) For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
- (d) Note related Engineer's written Orders, Record specifications, and Record Drawings where applicable.

Record As-Built Records

21.8As-Built Records, which are to be submitted in accordance with Sub-Clause 4.1(d) of

the Conditions of Contract, shall include, but are not limited to, the following:

- (a) The Contractor shall keep an accurate record of 'as-built' conditions. Collect, co- ordinate and file all nominated and domestic sub contractor ' s documentation. Record clearly as the work progresses, using industry standard drafting procedures, any variations from work, engineering or shop drawings particularly underground services, footings and foundations.
- (b) Maintain documents in clean, dry, legible condition.
- (c) As-built drawings are in addition to any 'as-built' or 'record' drawings that may be required of Subcontractors under various trade sections.
- (d) In addition to the information provided from the various subcontractors 'as-built' or 'record' drawings shall include revisions arising from approved Site instructions, Variation Orders and Supplementary Instructions.
- (e) These Drawings will remain on the site, available for the periodic review of the Engineer and Local Authorities.
- (f) The review by the Engineers of the survey of the completed excavation.
- (g) Immediately prior to completion of the project submit these drawings in triplicate (one (1) soft copy set and two (2) hard copy sets) to Engineer, assembled as per their requirements.

21.9 The Contractor shall submit to the Engineer "As Built" Drawings.

21.10 The Contractor shall record all as-built data in a digital format (Auto CAD). All data sheets shall be developed and recorded in spread sheet format to the latest release of Microsoft Excel. Similarly, all topographic and the Site survey data shall be recorded in an approved spread sheet format, the format for which shall be submitted to the Engineer along with general drawing control procedures.

21.11 All reproducible and print copies shall be made using the latest technology process only; photocopy process will not be accepted.

21.12 The Contractor shall prepare photographic documentation showing the most representative phases of the work. The photos shall be collected in two copies in albums, which will be delivered to the Engineer at the end of each month and, to the Engineer at the end of the Project together with number twenty (20) colour photos framed 90cm x 60cm (glossy finish) previously selected by the Employer.

21.13 The cost related to the execution of the Working Drawings, As Built Drawings,

photographic record, shall be borne directly by the Contractor and no separate payment shall be considered.

Demonstration of Systems

21.14 Demonstrate and instruct the Employer's personnel in operation and maintenance of all systems.

Miscellaneous Record Submittals

21.15 Assemble miscellaneous records required by the Specification for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

Execution

Site diary

21.16A Site Diary shall be kept on site by the Contractor and entered daily for the duration of the Contract. The diary must be entered neatly and legibly in English and should indicate all visitors to the Site and the reason for the visit. The diary shall also record the following:

- (a) Labour on site by trade and its location,
- (b) Subcontractors (both domestic and nominated) working on site,
- (c) Material and equipment delivered to the site,
- (d) Material and equipment utilized,
- (e) Plant, equipment and tools brought on to or removed from the site including hired plant,
- (f) Work progress during the day,
- (g) Verbal instructions requiring written confirmation,
- (h) Temperature and weather conditions (rainy, shower, dusty, windy, and etc.),
- (i) Details of any occurrence which may affect the progress of the Works.

21.17 The diary shall become the property of the Employer on completion of the Works.

Documents

21.18 Collect reviewed submittals and assemble documents executed by Subcontractors,

suppliers and manufacturers.

21.19 Submit material and equipment data sheets, operation and maintenance and manuals “as-built”/ record shop drawings in triplicate, (one (1) soft copy set, two (2) hard copy sets and one set of diskette or CD for drawings).

21.20 Provide warranties and certificates fully executed in the original version.

21.21 Meet with nominated Contractors and hand-over completed work in a manner that permit a smooth transit from one aspect of the work to the next.

Recording and Maintenance

21.22 Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of the Project.

21.23 Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for the Engineer's reference during normal working hours.

22. OPERATION AND MAINTENANCE DATA

General

22.1 Submittals

- (a) Initial Submittal: Submit two draft copies of each manual at least 15 days before requesting inspection for issuance of Taking-Over Certificate. Include a complete operation and maintenance directory. Engineer will return one copy of draft and mark whether general scope and content of manual are acceptable.
- (b) Final Submittal: Submit two copies of each manual in final form at least 15 days before the final inspection. Engineer shall return copy with comments within 15 days after the final inspection.
- (c) Correct or modify each manual to comply with Engineer's comments. Submit three copies of each corrected manual within 15 days of receipt of Engineer's comments.

Products

22.2 Operation and Maintenance Documentation Directory

- (a) Organization: Include a section in the directory for each of the following:
 - (1) List of documents.
 - (2) List of systems.
 - (3) List of equipment.
 - (4) Table of contents.
- (b) List of Systems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
- (c) List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
- (d) Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.
- (e) Identification: In the documentation directory and in each operation and maintenance manual, identify each system and piece of equipment with same designation used in the Contract Documents.

22.3 Manuals – General

- (a) Organization: Unless otherwise indicated, organize each manual into a separate section for each system, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
 - (1) Title page.
 - (2) Table of contents.
 - (3) Manual contents.
- (b) Title Page: Enclose title page in transparent plastic sleeve. Include the following information:
 - (1) Subject matter included in manual.
 - (2) Name and address of Project.

- (3) Name and address of Employer.
 - (4) Date of submittal
 - (5) Name, address, and telephone number of Contractor.
 - (6) Name and address of Engineer.
 - (7) Cross-reference to related systems in other operation and maintenance manuals.
- (c) Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
- (d) If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.
- (e) Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system and equipment. If possible assemble instructions for equipment and components of one system into a single binder.
- (1) Binders: Heavy-duty 4-ring vinyl-covered loose-leaf binders, in thickness necessary to accommodate contents, sized to hold A4 paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
- (a) If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
 - (b) Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL" Project title or name, the Specification and subject matter of contents. Indicate volume number for multiple-volume sets.
- (2) Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider cross referenced to the Specification and title of Project Manual.

(3) Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes or CD for computerized electronic equipment.

(f) Supplementary Text: Prepared on A4 size white bondpaper.

(g) Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.

(1) If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.

(2) If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

22.4 Emergency Manuals

(a) Content: Organize manual into a separate section for each of the following:

(1) Type of emergency.

(2) Emergency instructions.

(3) Emergency procedures.

(b) Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, piece of equipment, and component:

(1) Fire.

(2) Flood.

(3) Gas leak.

(4) Water leak.

(5) Power failure.

(6) Water outage.

(7) System or equipment failure.

(8) Chemical release or spill.

(c) Emergency Instructions: Describe and explain warnings, trouble indications,

error messages; and similar codes and signals. Include responsibilities of Employer's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.

(d) Emergency Procedures: Include the following, as applicable:

- (1) Instructions on stopping.
- (2) Shutdown instructions for each type of emergency.
- (3) Operating instructions for conditions outside normal operating limits.
- (4) Required sequences for electric or electronic systems.
- (5) Special operating instructions and procedures.

22.5 Operation Manuals

(a) Content: In addition to requirements in this Section, include operation data required in the Specification and the following information:

- (1) System and equipment descriptions.
- (2) Performance and design criteria if Contractor is delegated design responsibility.
- (3) Operating standards.
- (4) Operating procedures.
- (5) Operating logs.
- (6) Wiring diagrams.
- (7) Control diagrams.
- (8) Piped system diagrams.
- (9) Precautions against improper use.
- (10) License requirements including inspection and renewal dates.

(b) Descriptions: Include the following, as applicable:

- (1) Product name and model number.
- (2) Manufacturer's name.
- (3) Equipment identification with serial number of each component.

- (4) Equipment function.
- (5) Operating characteristics.
- (6) Limiting conditions.
- (7) Performance curves.
- (8) Engineering data and tests.
- (9) Complete nomenclature and number of replacement parts.

(c) Operating Procedures: Include the following, as applicable:

- (1) Start up procedures.
- (2) Equipment or system break-in procedures.
- (3) Routine and normal operating instructions.
- (4) Regulation and control procedures.
- (5) Instructions on stopping.
- (6) Normal shutdown instructions.
- (7) Seasonal and weekend operating instructions.
- (8) Required sequences for electric or electronic systems.
- (9) Special operating instructions and procedures.

(d) Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

(e) Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

22.6 Product Maintenance Manual

- (a) Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- (b) Source Information: List each product included in manual identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference the Specification Section

number and title in Project Manual.

(c) Product Information: Include the following, as applicable:

- (1) Product name and model number.
- (2) Manufacturer's name.
- (3) Color, pattern and texture.
- (4) Material and chemical composition.
- (5) Reordering information for specially manufactured products.

(d) Maintenance Procedures: Include manufacturer's written recommendations and the following:

- (1) Inspection procedures.
- (2) Types of cleaning agents to be used and methods of cleaning.
- (3) List of cleaning agents and methods of cleaning detrimental to product.
- (4) Schedule for routine cleaning and maintenance.
- (5) Repair instructions.

(e) Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

(f) Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

- (1) Include procedures to follow and required notifications for warranty claims.

22.7 Systems and Equipment Maintenance Manual

(a) Content: For each system and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.

(b) Source Information: List each system and piece of equipment included in manual identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference the

Specification and title in Project Manual.

- (c) **Manufacturers' Maintenance Documentation:** Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
 - (1) Standard printed maintenance instructions and bulletins.
 - (2) Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
 - (3) Identification and nomenclature of parts and components.
 - (4) List of items recommended to be stocked as spare parts.
- (d) **Maintenance Procedures:** Include the following information and items that detail essential maintenance procedures:
 - (1) Test and inspection instructions.
 - (2) Troubleshooting guide.
 - (3) Precautions against improper maintenance.
 - (4) Disassembly; component removal, repair, and replacement; and reassembly instructions.
 - (5) Aligning, adjusting, and checking instructions.
 - (6) Demonstration and training documentation, if available.
- (e) **Maintenance and Service Schedules:** include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
 - (1) **Scheduled Maintenance and Service:** Tabulate actions for daily, weekly, monthly, quarterly, semi-annual, and annual frequencies.
 - (2) **Maintenance and Service Record:** Include manufacturers' forms for recording maintenance.
- (f) **Spare Parts List and Source Information:** Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

- (g) Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.
- (h) Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
- (i) Include procedures to follow and required notifications for warranty claims.

Execution

22.8 Manual Preparation

- (a) Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals.
- (b) Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Employer's operating personnel for types of emergencies indicated.
- (c) Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product. material, and finish incorporated into the Work
- (d) Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system and piece of equipment not part of a system.
 - (1) Engage a factory-authorized service representative to assemble and prepare information for each system and piece of equipment not part of a system.
 - (2) Prepare a separate manual for each system in the form of an instructional manual for use by the Employer's operating personnel.
- (e) Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the work and delete references to information not applicable.
 - (1) Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and

maintenance of equipment or systems.

- (f) Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.

Note: Do not use original Project Record Documents as part of operation and maintenance manuals.

C04 Plot West Side Land Levelling Project of Starting Zone of DIFTZ Phase 1

Technical Requirements

Khor Ambado FZCO

P.O. Box 197, Djibouti, Republic of Djibouti

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1. General Layout

1.1. Overview

Djibouti International Free Trade Zone ("DIFTZ") Starting Zone locates in southwest of the planning DIFTZ, the properties of land are trade & logistics zone, export processing zone and management & business area. The N1 highway, which is short-term main access of Starting Zone, to the south of the project as the southern border. The east side border to the existing plant and residential community, and the west border to the water plant, arranged as an irregular polygons shape, occupied an area of 2,400,272 m², the length from east to west is 2,370m, and wide from north to south is 1,350m.

The major construction contents including fence, gate, parking lot, office building, hotel, customs inspection place, rest building, firefighting building, roads, two warehouses and ancillary works etc.

2. Technical Requirements

2.1 Standards and Specifications

Chinese Standards shall be strictly followed in this project, including but not limited to the standards for design, construction, and inspection.

2.2 Scope of the project

This project includes land levelling work of C04 Plot West Side; the new access ramp linked roads internal and surrounding the plot, which includes the existing pipelines and manholes protection and removal work, reconstruction of street lamps, curbstones, the pavement, the slope protection along the boundary and other works specified in the specification, BOQ and drawings.

2.3 Location of the pointed spoil ground and borrow pit

Please note that the Contractor shall consider the excavation and backfilling balance within C04 Plot West Side first, this borrow pit can be used only when the excavated quantity is not enough for backfilling.

The soil and stones from this borrow pit shall only be used as backfilling material but not the 150mm thick natural graded gravel surface course.

Please note that the Contractor shall strictly follow the instruction from the Employer or Engineer when move the spare excavated soil and stones to the plots within the starting zone in consideration of the earthwork balance, the loss caused by any failure to following

the drawings and instructions will be borne by the Contractor, the Contractor shall remedy itself as required or be deducted the cost from the Contract amount to pay for other Contractor assigned by the Employer if the Contractor refuses to remedy.

The Contractor shall fully consider the route to borrow pit and spoil ground, and give his proposal carefully, no claim or additional cost will be accepted caused by the haul distance.

The Contractor shall be responsible for acquiring the in/out DIFTZ permit from DIFTZ's related management department and paying related charges. Such payment shall be included in the tender price, no claim or additional cost consequent will be accepted by the Employer.

C04 Plot West Side Land Levelling Project of Starting Zone of DIFTZ Phase 1

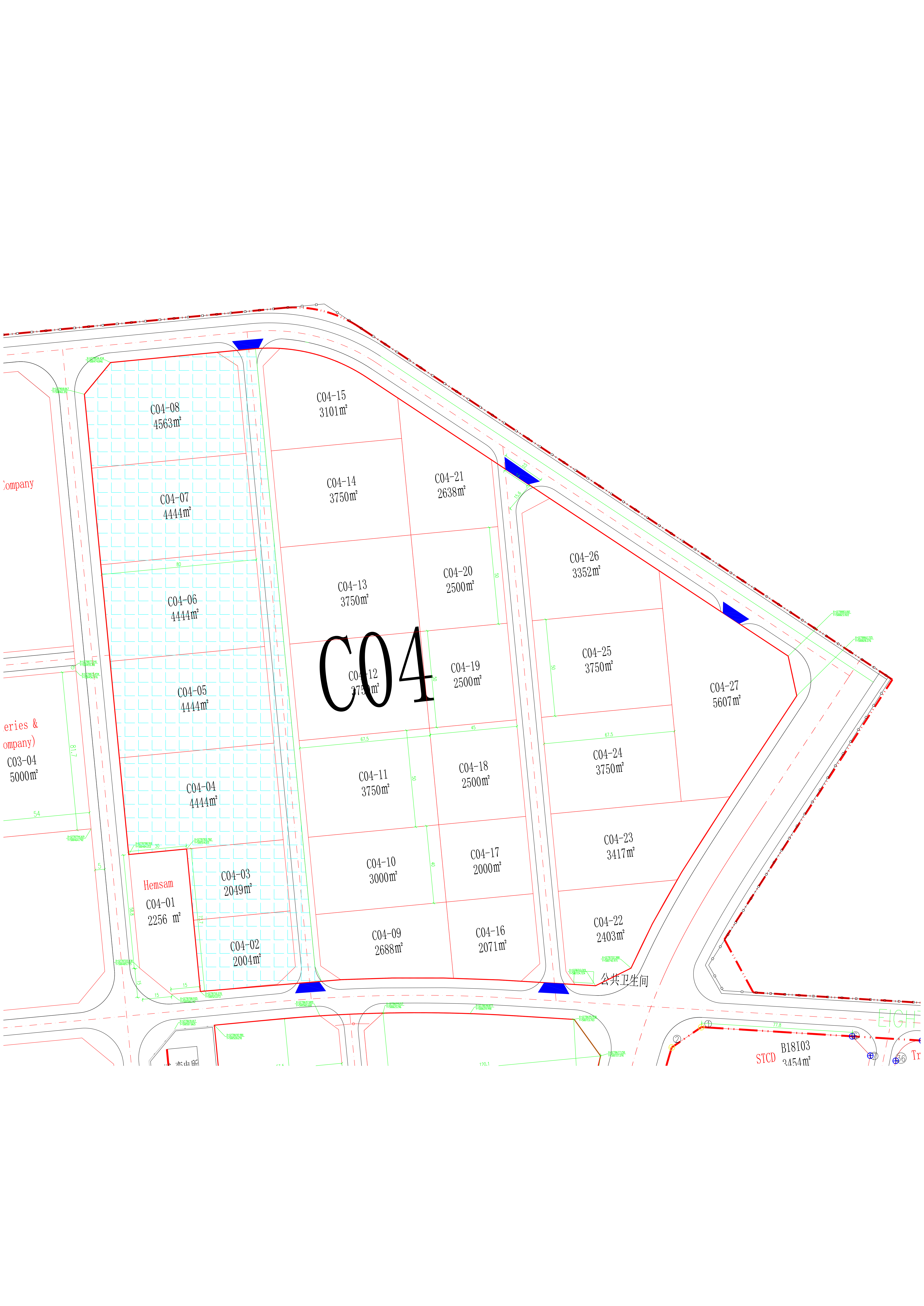
Volume III- Bill of Quantities

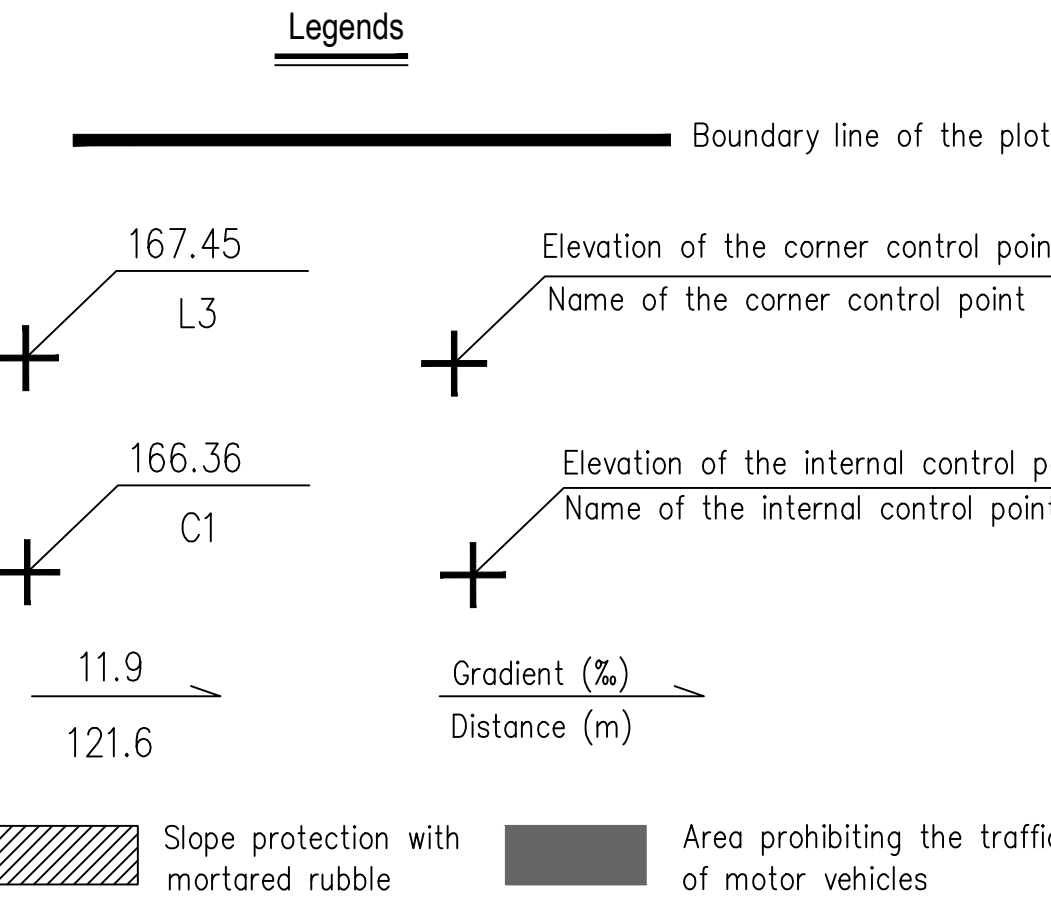
Khor Ambado FZCO

P.O. Box 197, Djibouti, Republic of Djibouti

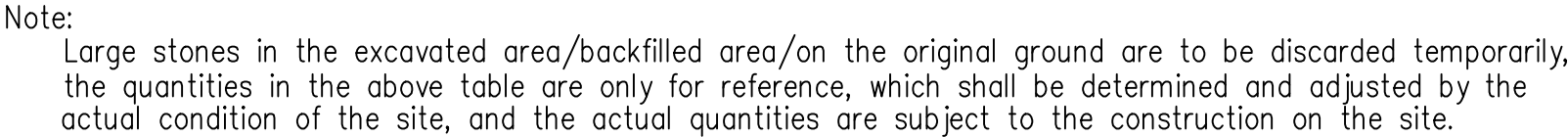
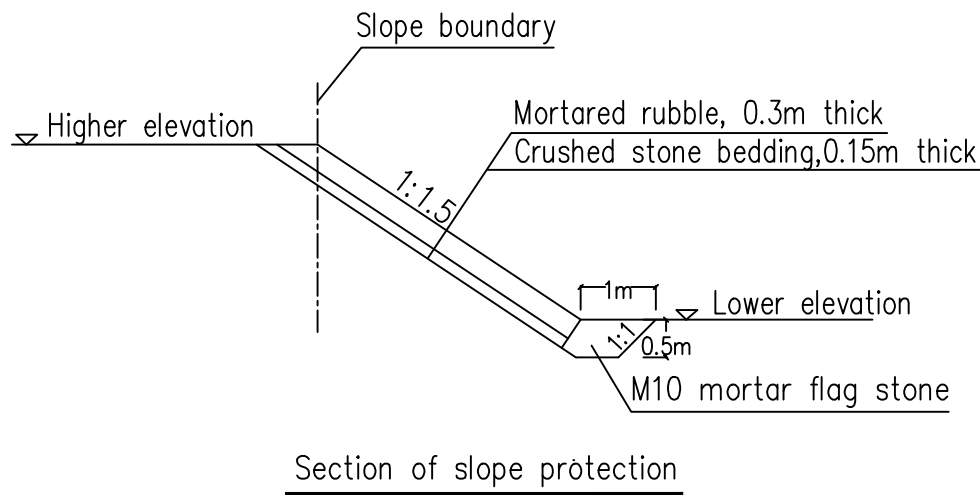
C04 plot land Levelling work BOQ

No	Item	Description	Unit	Qty.	Rate	Amount	Remark
1	Excavation	1.earth and stone	m3	4,629.63	16.00	74,074.08	
2	Backfilling	1.Backfill: using the earth from moving stone,	m3	10,413.27	16.00	166,612.32	
3	Removal for Residuary Earthwork	1.Large stone, remove distance is within 2km	m3	2,347.00	16.00	37,552.00	
4	Concrete Slab Pavement	250mm Concrete slab (C35) with reinforcement (Φ16) , Three pre-buried pipes	m3	32.50	35.00	1,137.50	
5	Dismantle curbstone	1.structure: concrete	m	32.00	100.00	3,200.00	
6	Curbstone	1.structure: concrete	m	24.00	110.00	2,640.00	
7	Nature gravels (Same as B18 plot)	1.Thickness: 150mm	m3	4,070.25	20.00	81,405.00	
8	15cm of water-stable layer	15cm thick, 5% cement stabilized gravel layer	m3	4,070.25	20.00	81,405.00	
9	Plot division positioning pile	10*10*30cm, concrete pier column, buried depth 20cm, The top is painted red	Un	20.00	150.00	3,000.00	
Total			USD			451,025.90	





1. Chart datum is used as the elevation datum, and the port independent coordinate system is adopted.
2. Unless otherwise noted, elevations and dimensions are all in meters.
3. The backfill of this project adopts the excavated earthwork from the excavated area, and the backfill shall not contain plant residues, garbage and other impurities.
For the pavement design of next stage, it is required that the maximum particle size of the backfilled material within 1m below the levelled elevation of the site is no larger than 30cm, and that within 1m~2m below the levelled elevation of the site is no larger than 60cm.
4. After excavation and backfilling, the site shall be compacted by rolling, and compactness at the top surface of the ground shall be not less than 94%.
5. Only earthwork is included in this project, ground treatment and pavement structure are not included.
6. A slope is adopted for the transition of differential elevation at the boundary, with mortared rubble for the slope protection, see the section of slope protection.



O	2020.11			
REV	DATE	DESCRIPTION		
OWNER				
DESIGNER				
	中交第三航务工程勘察设计院有限公司 CCCC Third Harbor Consultants Co.,Ltd			
PROJECT				
Regulatory Plan and Urban Design of Starting Area of Djibouti International Free Trade Zone				
TITLE				
Design Elevation of Plot C-04				
Stage	Classification	Scale	Drawing No.	
Detailed Design	Pavement and Yard	1:1000	SA-2020-0129D-PY002	
Approved By	Reviewed By	Checked By	Designed By	Drawn By
周俊卿	张诚	李惠娟	熊恩辉	滕云鹏
ZHOU JUNQH	ZHANG BEN	LI HUIJUAN	XIONG HUOXIAN	TENG YUNCONG

Construction Note and standard

1. Leveling shall be carried out according to the requirements of the Design Elevation.
2. All dimension are in meters. Elevations are in meters to the local chart datum.
3. Geographical coordinate system: Coordinate system which specified by investigation organization.
4. Slope Protection is set on the edge of the block, Retaining wall height is according to the land leveling and the elevation of the peripheral road, no protection is set inside the block.
5. The backfill used in the project is excavated in the excavation area, and the backfill does not contain impurities such as plant residues and garbage. The particle size of backfill is no more than 30cm.
6. After the earthwork is finished, the backfilling area is treated by vibration rolling, After the treatment, the surface bearing capacity characteristic value of the foundation is not less than 120 kPa, and the compaction degree in the range of 0.8m of the foundation soil is not less than 94%.
7. After the foundation treatment is completed, 150mm thick natural grade gravel is laid on the upper as a temporary surfacing cushion, a compaction of more than 96%.
8. A 150mm thick, 5% cement-stabilized crushed stone water-stable layer on top of the existing natural gravels layer for the yard surface. Concrete pouring and curing should be maintained for a minimum of 7 days.
9. Test frequency requirements: The plate loading test frequency is according to the 10000 m² one point. The compactness sampling frequency is according to the 5000 m² one point. the testing point requirements uniform distribution in the processing area.