



The Federal Democratic Republic of Ethiopia

## **Ethiopian Airport of the Ethiopian Airlines Group**



### **Bidding Document for Design-Build and Financing of**

### **Addis Ababa Bole International Airport Apron Expansion Project**

**(Volume I)**

**Contents of Volume I**

Bidding Procedure (Section I-XIV)

**Procurement Reference Number:**

**Addis Ababa, Ethiopia**

**December 2017**



The Federal Democratic Republic of Ethiopia

# Ethiopian Airport of the Ethiopian Airlines Group



## Bidding Document for Design-Build and Financing of

## Addis Ababa Bole International Airport Apron Expansion Project

### (Volume II)

#### Contents of Volume II

Section XII Qualification Questionnaire

**Procurement Reference Number:**

**Addis Ababa, Ethiopia**

**December 2017**



The Federal Democratic Republic of Ethiopia

## Ethiopian Airport of the Ethiopian Airlines Group



### Bidding Document for Design-Build and Financing of

### Addis Ababa Bole International Airport Apron Expansion Project

**(Volume III)**

#### Contents of Volume III

Section VII Form of Bid, Appendix to  
Section VIII Bill of Quantities

**Procurement Reference Number:**

**Addis Ababa, Ethiopia**

**December 2017**



The Federal Democratic Republic of Ethiopia

## **Ethiopian Airport of the Ethiopian Airlines Group**



### **Bidding Document for Design-Build and Financing of**

### **Addis Ababa Bole International Airport Apron Expansion Project**

**(Volume IV)**

#### **Contents of Volume IV**

Section VI    Employer's Requirement

**Procurement Reference Number:**

**Addis Ababa, Ethiopia**

**December 2017**

## **NOTICE OF INVITATION FOR AN INTERANTIONAL BID ON BASIS OF DESIGN AND BUILD**

1. The Ethiopian Airlines Group intends to invite qualified bidders for **Design-Build and Financing of Addis Ababa Bole International Airport Apron Expansion Project**. The project is located on the south-east direction of Addis Ababa Bole International Airport. The average elevation above sea level is 2333 meters.
2. The Apron to be expanded under this contract has an estimated total Area of **233,365.00 m<sup>2</sup>**. Generally, the scope of the work related to construction of rigid and flexible pavement for the Apron Expansion work covers mainly the following:

<b>ACTIVITY (AREA m2)</b>				
	<b>ASPHALT</b>	<b>RIGID</b>	<b>OVERLAY</b>	<b>FILLET WIDENING</b>
<b>AREA</b>	<b>130,644.00</b>	<b>48,440.00</b>	<b>48,440.00</b>	<b>5,841.00</b>
<b>TOTAL AREA</b>	<b>233,365.00</b>			

- Rigid Pavement apron expansion (estimated area the above table)
- Flexible pavement apron expansion (estimated area the above table)
- Construction of Two New Taxiways for code C aircraft (estimated length 140 meters each)
- Construction of One New Taxiways for code E aircraft (estimated length 272 meters for joining alpha taxiway with cargo Apron)
- Upgrading of Two taxiways for code C aircraft (estimated length 135 meters each).
- Construction of Ground Service Equipment Parking(GSEP)
- Associated Drainage and structure works
- Repositioning of flood lights and Visual Docking Guidance System(VDGS)
- Pavement marking
- Extension of security fence around apron with estimated length of 2500 meter (with minimum 2 meters height wire mesh)
- Refer the drawings and contour map annexed with this document.
- The schematic drawings attached with this document for the Apron Expansion Of Addis Ababa Bole International Airport are just guide line for the bidder, the bid winner will be expected to propose the best and cost effective design proposal including if any items are missed.

The construction work is going to be undertaken within an operational airport, where all air flight and other services required to be undertaken uninterruptedly, so the contractor is expected to comply with all operational, safety, and security requirements. The period of construction are **270 calendar days including 30 days** of mobilization time.

3. The Ethiopian Airlines Group now invites bidders to submit sealed bids for providing the necessary **Finance, labor, material and equipment for the Design and Construction works of the above Apron Expansion project**.
4. The Ethiopian Airlines Group now invites eligible bidders, which fulfill the following requirements, to submit sealed bids for the construction of the project mentioned in item(1):-
  - a) Business Organization Registration Certificate or Trade License issued by the Country of establishment.

5. Bidding will be conducted through an International Competitive Bidding (ICB) procedures and is open to all eligible bidders as specified and defined in the Bidding Documents. The minimum General and Specific Construction Experience for each of the Contracts is as shown below:
6. Interested eligible bidders may obtain further information and the bidding documents from:

**Address: Ethiopian Airlines, Procurement & Supplies Chain Management,  
Tel: +251 115 174028**

7. Bidders shall submit two envelopes, "Qualification Application" in one envelope and "Financial Bid" in the other envelope, the two envelopes shall be sealed in an outer envelope.
8. Evaluation is to be carried out in two stages, Qualification application first and Bids of qualified Bidders next.
9. Bids must be delivered to the address below before **January 28 2018** Qualification information and Bid security of the bidders will be opened in the presence of bidders' or without the presence of bidders representatives who chose to attend, on the final date and time of bid submission as stated above.

Ethiopian Airlines Group  
Procurement & Supplies Chain Management  
Africa Avenue, Bole International Airport  
Addis Ababa, Ethiopia  
Tel.: **+251 115 174028**

10. The Ethiopian Airlines Group reserves the right to accept any or reject any or all bids.

**The Ethiopian Airlines Group**

## **SECTION II**

### **INSTRUCTIONS TO BIDDERS**

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## Instructions to Bidders

### A. General

- 1. Scope of Bid**
- 1.1 The Employer, as defined in the **Bidding Data** and Appendix to Bid, hereinafter “the Employer,” wishes to receive bids for the construction of Works, as described in these Bidding Documents
- 1.2 The successful bidder will be expected to complete the Works within the period stated in the Appendix to Bid from the date of commencement of the Works.
- 1.3 Throughout these bidding documents, the terms “bid” and “tender” and their derivatives (“bidder/tenderer,” “bid/tendered,” “bidding/tendering,” etc.) are synonymous, and *day* means calendar day. Singular also means plural.
- 2. Source of Funds**
- 2.1 The source of fund is shown in the **Bidding Data**.
- 3. Eligible Bidders**
- 3.1 This invitation to bid is open to any foreign bidder (including all members of a joint venture and all subcontractors of a bidder) meeting all three of the following requirements:
- (a) A bidder shall be from any country as defined under Section XIV:
- (b) A bidder shall not be affiliated with a firm or entity
- (i) that has provided consulting services related to the Works to the Employer during the preparatory stages of the Works or of the Project of which the Works form a part, or
- (ii) that has been hired (or is proposed to be hired) by the Employer as Engineer for the contract.
- (c) A bidder shall not be under a declaration of ineligibility for corrupt or fraudulent practices issued by the FDRE in accordance with Sub-Clause 39.1 (a).
- 3.2. Bidders shall provide evidence of eligibility in accordance with Sub-Clause 3.1
- 3.3 Majority publicly owned enterprises from the any eligible country may be eligible to qualify if, in addition to meeting all the above requirements, they are also legally and financially autonomous, operate under commercial law and are not a dependent agency of the state where they exist.
- 4. Eligible Materials, Plant, Supplies, Equipment, and Services**
- 4.1 The Materials, Plant or Contractor’s Equipment, other supplies, and services to be supplied under the Contract, shall have their origin in eligible source countries, defined under the Section XIV, and all expenditures made under the Contract will be limited to such materials, Plant or Contractor’s Equipment, other supplies, and services.
- 4.2 For purposes of Sub-Clause 4.1 above, “origin” means the place where the materials, Plant, equipment, and other supplies are mined, grown, produced, manufactured, or assembled and from which the services are supplied.
- 5. Qualification**
- 5.1 To be qualified for the award of the Contract, bidders shall provide evidence satisfactory to the Employer of their capability and adequacy of resources to

**of the Bidder**

carry out the Contract effectively. Bidders as part of their qualification document shall submit all the information in the forms included in Section XII: Qualification Questionnaire of the Bidding Document

5.2 Bids submitted individually, as a partner in a Joint Venture or as group as the case may be, must comply with the qualification requirements set in the Bidding document, Qualification Questionnaires. Moreover the Joint Venture shall satisfy the following:

- (a) The bid, and in case of a successful bid, the Form of Agreement, shall be signed so as to be legally binding on all partners;
- (b) One of the partners shall be nominated as being in charge and shall be responsible on behalf of all the partners to the Joint Venture, and this authorization shall be evidenced by submitting a power of attorney signed by legally authorized signatories of all the partners;
- (c) The partner in charge shall be authorized to incur liabilities and receive instructions for and on behalf of any and all partners of the joint venture, and the entire execution of the Contract, including payment, shall be done exclusively with the partner in charge;
- (d) All partners of the joint venture shall be liable jointly and severally for the execution of the Contract in accordance with the Contract terms, and a statement to this effect shall be included in the authorization mentioned under (c) above, as well as in the Form of Bid and in the Form of Agreement (in case of a successful Bid); and
- (e) A copy of the Joint Venture Agreement entered into by all partners shall be submitted with the Qualification Information. Alternatively, a Letter of Intent to execute a Joint Venture Agreement in the event of a successful Bid shall be signed by all partners and submitted with the bid, with a copy of the proposed Agreement.

5.3 For the purposes of this particular Contract, bidders shall meet the Compliance Requirements specified in the Section XII of Qualification Questionnaire.

5.4 The figures for each of the partners of a joint venture shall be added together to determine the bidder's compliance with the minimum Compliance Requirements set out in Sub-Clause 5.3 above.

5.5 Domestic bidders or/ and joint ventures of domestic bidders applying for eligibility for a 7½ percent margin of preference in bid evaluation shall supply all information required to satisfy the criteria for eligibility as described in Clause 32 of these Instructions.

The qualifications, capacity, and resources of proposed sub-contractors will not be taken into account in assessing those of individual or joint venture bidders, unless they are named specialist subcontractors and the scope of their specialized participation in the Works is clearly defined in the bid.

**6. One Bid per Bidder**

6.1 A firm shall submit only one bid in the same bidding process, either individually as a bidder or as a partner in a joint venture. No firm can be a subcontractor while submitting a bid individually or as a partner of a joint venture in the same bidding process. A firm, if acting in the capacity of subcontractor in any bid,

may participate in more than one bid, but only in that capacity. A bidder who submits or participates in more than one bid will cause all the proposals in which the bidder has participated to be disqualified.

**7. Cost of Bidding**

7.1 The bidder shall bear all costs associated with the preparation and submission of its bid, and the Employer will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

**8. Site Visit**

8.1 The bidder is advised to visit and examine the Site of Works and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the bid and entering into a contract for construction of the Works. The costs of visiting the Site shall be at the bidder's own expense.

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

8.3 The Employer may conduct a Site visit concurrently with the pre-bid meeting referred to in Clause 19.

**B. Bidding Documents**

**9. Content of Bidding Documents**

9.1 The bidding documents are those stated below and should be read in conjunction with any Addenda issued in accordance with Clause 11:

**Volume I**

Section I: Invitation for Bids

Section II: Instructions to Bidders

Section III: Bidding Data

Section IV: Conditions of Contract part I – General Conditions

Section V: Conditions of Contract Part II –Conditions of Particular Application

Section IX: Contract Forms: Forms of Agreement, Performance Guarantee (Unconditional), Performance Guarantee (Conditional), Advance Payment Guarantee (Unconditional), Advance Payment Guarantee (Conditional), Form of Advance Payment Disbursement Agreement, Advance Payment Disbursement Schedule.

Section XI: Explanatory Notes (Not Applicable)

Section XIII : Disputes Settlement Procedure

Section XIV :Eligible Countries

**Volume II**

Section XII : Qualification Questionnaires

### **Volume III**

Section VII: Form of Bid, Appendix to Bid, and Bid Security

Section VIII: Bill of Quantities (NOT Applicable)

### **Volume IV**

Section VI: Technical Specifications

### **Volume V**

Section X: Drawings

Additional information that will be accessible to the Bidders is given in the **Bidding Data**

- 10. Clarification of Bidding Documents**
- 10.1 A prospective bidder requiring any clarification of the bidding documents may notify the Employer in writing or by cable (hereinafter, the term "cable" is deemed to include telex and facsimile at the address to request any clarification as indicated in the **Bidding Data**. The Employer will respond to any request for clarification that he receives earlier than 21 days prior to the deadline for submission of bids. Copies of the Employer's response will be forwarded to all purchasers of the bidding documents, including a description of the inquiry but without identifying its source.
- 11. Amendment of Bidding Documents**
- 11.1 At any time prior to the deadline for submission of bids, the Employer may amend the bidding documents by issuing Addenda.
- 11.2 Any Addendum thus issued shall be part of the bidding documents pursuant to Sub-Clause 9.1 and shall be communicated in writing or by cable to all purchasers of the bidding documents. Prospective bidders shall promptly acknowledge receipt of each Addendum by cable to the Employer.
- 11.3 To give prospective bidders reasonable time in which to take an Addendum into account in preparing their bids, the Employer may extend as necessary the deadline for submission of bids, in accordance with Clause 22.

## **C. Preparation of Bids**

- 12. Language of Bid**
- 12.1 The bid, and all correspondence and documents related to the bid exchanged by the bidder and the Employer, shall be written in the bid language stipulated in the **Bidding Data** and Conditions of Particular Application. Supporting documents and printed literature furnished by the bidder may be in another language provided they are accompanied by an accurate translation of the relevant passages in the above stated language, in which case, for purposes of interpretation of the bid, the translation shall prevail.
- 13. Documents Comprising the Bid**
- 13.1 The bid submitted by the bidder shall comprise the following: duly filled-in Form of Bid and Appendix to Bid, Bid Security, priced Bill of Quantities, Qualification Information, alternative offers where invited, and any information or other materials required to be completed and submitted by bidders in accordance with these Instructions to Bidders. The documents listed under Sections VII, VIII and XII shall be filled in

without exception, subject to extensions thereof in the same format as dictated in the **Bidding Data** or elsewhere in the Bidding Documents and to the provisions of Sub-Clause 17.2 regarding the alternative forms of bid security.”

13.2 If so indicated in the Bidding Data, bidders bidding for this contract, together with other contracts to form a package will so indicate in the bid, together with any discounts offered for the award of more than one contract.

#### **14. Bid Prices**

14.1 Unless stated otherwise in the bidding documents, the Contract shall be for the whole Works as described in Sub-Clause 1.1, based on the unit rates and prices in the Bill of Quantities submitted by the bidder.

14.2 The bidder shall fill in rates and prices for all items of the Works described in the Bill of Quantities. Items against which no rate or price is entered by the bidder will not be paid for by the Employer when executed and shall be deemed to be covered by the rates for other items and prices in the Bill of Quantities.

14.3 All duties, taxes, and other levies payable by the Contractor under the Contract, or for any other cause, as on the date 28 days prior to the deadline for submission of bids, shall be included in the rates and prices and the total Bid Price submitted by the bidder. Value Added Tax (VAT) shall be shown separately in the appropriate summary table of the priced Bill of Quantities (BOQ)

14.4 Unless otherwise provided in the **Bidding Data** and Conditions of Particular Application, the rates and prices quoted by the bidder are subject to adjustment during the performance of the Contract in accordance with the provisions of Clause 70 of the Conditions of Contract. The bidder shall furnish the necessary information and supporting documentation for the values in the price adjustment formulae in the Appendix to Bid, and shall submit with its bid such other supporting information as required under Clause 70 of the Conditions of Contract. The Employer may require the bidder to justify its proposed submission.

#### **15. Currencies of Bid and Payment**

15.1 The currency (ies) of the bid shall be as specified in Sub-Clause 15.2 of the **Bidding Data**.

15.2 The unit rates and the prices shall be quoted by the bidder entirely in the currency of the Employer’s country specified in the **Bidding Data**. A bidder expecting to incur expenditures in other currencies for inputs to the Works supplied from outside the Employer’s country (referred to as “the foreign currency requirements”) shall indicate in the **Appendix to Bid** the percentage(s) of the Bid Price (excluding Provisional Sums) needed by him for the payment of such foreign currency requirements, limited to no more than three freely convertible foreign currencies.

15.3 The rates of exchange to be used by the bidder in arriving at the local currency equivalent and the percentage(s) mentioned in Sub-Clause 15.2 above shall be specified by the bidder in the Appendix to Bid, and

shall apply for all payments under the Contract so that no exchange risk will be borne by the successful bidder.

15.4 Bidders shall indicate their expected foreign currency requirements in the Appendix to Bid.

15.5 Bidders may be required by the Employer to clarify their local and foreign currency requirements, and to substantiate that the amounts included in the unit rates and prices and shown in the Appendix to Bid are reasonable and responsive to Sub-Clause 15.2, in which case a detailed breakdown of its foreign currency requirements shall be provided by the bidder.

15.6 During the progress of the Works, the foreign currency portions of the outstanding balance of the Contract Price may be adjusted by agreement between the Employer and the Contractor in order to reflect any changes in foreign currency requirements for the Contract, in accordance with Sub-Clause 72.4 of the Conditions of Particular Application. Any such adjustment shall be effected by comparing the percentages quoted in the bid with the amounts already used in the Works and the Contractor's future needs for imported items.

**16. Bid Validity** 16.1 Bids shall remain valid for the period stipulated in the **Bidding Data** after the deadline for bid submission as specified in Clause 22.

16.2 In exceptional circumstances, prior to expiry of the original bid validity period, the Employer may request that the bidders extend the period of validity for a specified additional period. The request and the responses thereto shall be made in writing or by cable. A bidder may refuse the request without forfeiting its bid security. A bidder agreeing to the request will not be required or permitted to modify its bid, but will be required to extend the validity of its bid security for the period of the extension and in compliance with Clause 17 in all respects.

**17. Bid Security** 17.1 If required in the **Bidding Data**, the bidder shall furnish, as part of its bid, a bid security in the amount stipulated in the **Bidding Data** in the currency of the Employer's country, or the equivalent amount in a freely convertible currency.

17.2 If required the bid security shall:

(a) at the bidder's option, be in the form of either a letter of credit, or a bank guarantee from a banking institution, or a bond issued by an insurance or bonding institution;

(b) be issued by a reputable institution selected by the bidder and located in any eligible country. If the institution issuing the bond is located outside the Employer's Country, it shall have a correspondent financial institution located in the Employer's country to make it enforceable.

(c) be substantially in accordance with one of the forms of bid security included in Section VII or other form approved by the Employer prior to bid submission;

- (d) be payable promptly upon written demand by the employer in case any of the conditions listed in Sub-Clause 17.7 are invoked;
- (e) be submitted in its original form; copies will not be accepted;
- (f) remain valid for a period of 28 days beyond the original validity period of bids, or beyond any period of extension subsequently requested under Sub-Clause 16.2.

17.3 The bid security of a joint venture shall be issued so as to commit fully all partners to the proposed joint venture.

17.4 Any bid not accompanied by an acceptable bid security shall be rejected by the Employer as non-responsive.

17.5 The bid securities of unsuccessful bidders will be returned as promptly as possible, but not later than 28 days after the expiration of the original period, or any subsequently extended period of bid validity.

17.6 The bid security of the successful bidder will be returned when the bidder has signed the Agreement and furnished the required performance security.

17.7 The bid security may be forfeited

- (a) if the bidder withdraws its bid, except as provided in Sub-Clause 24.2; or
- (b) in the case of a successful bidder, if he fails within the specified time limit to
  - (i) sign the Agreement, or
  - (ii) Furnish the required performance security.
  - (iii) accept arithmetic correction made by the Employer

## 18. Alternative Proposals by Bidders

18.1 When alternative times for completion are explicitly invited, a statement to that effect will be included in the **Bidding Data**, as will the method of evaluating different times for completion.

## 19. Pre-Bid Meeting

19.1 The bidder's designated representative is invited to attend a pre-bid meeting, if convened, which will take place at the venue and time stipulated in the **Bidding Data**.

19.2 The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.

19.3 The bidder is requested, as far as possible, to submit any questions in writing or by cable, to reach the Employer not later than one week before the meeting. It may not be practicable at the meeting to answer questions received late or those requiring further examination, but questions and responses will be transmitted in accordance with the following sub-clause.

19.4 Minutes of the meeting, including the text of the questions raised and the responses given, together with any responses prepared after the meeting, will be transmitted without delay to all purchasers of the bidding documents. Any modification of the bidding documents listed in Sub-Clause 9.1 that may become necessary as a result of the pre-bid meeting shall be made by the Employer exclusively through the issue of an Addendum pursuant to Clause 11 and not through the

minutes of the pre-bid meeting.

19.5 Nonattendance at the pre-bid meeting will not be a cause for disqualification of a bidder.

## 20. Format and Signing of Bid

20.1 The bidder shall prepare one original for each of Qualification Information, Bid Security and Financial Bid as described in clause 13 and clearly marked each of them as “**Original**”. In addition, the bidder shall submit copies in the number specified in the **Bidding Data** and clearly marked “copies.” In the event of discrepancy between the copies and the original, the original shall prevail.

20.2 The original and all copies of the bid shall be typed or written in indelible ink (in the case of copies, photocopies are also acceptable) and shall be signed by a person or persons duly authorized to sign on behalf of the bidder. All pages of the bid and where entries or amendments have been made shall be initialed by the person or persons signing the bid.

20.3 The bid shall contain no alterations, omissions, or additions, unless such corrections are initialed by the person or persons signing the bid.

20.4 The bidder shall furnish information as described in paragraph 8 of the Form of Bid on commissions or gratuities, if any, paid or to be paid to agents relating to this Bid, and to contract execution if the bidder is awarded the Contract.

### D. Submission of Bids

## 21. Sealing and Marking of Bids

21.1 The bidder shall seal each copy of his Bid, as defined in Clause 20, in separate envelopes, the first marked: “**Qualification Information and Bid security**” shall contain:

- The Qualification Information,
- The Bid Security

The second marked: “**Financial Bid**” shall contain:

- The Form of Bid and it’s Appendices and
- The Priced Bill of Quantities

The two envelopes shall then be sealed in an outer envelope.”

21.2 The inner and outer envelopes shall

- (a) be addressed to the Employer at the address provided in the **Bidding Data**;
- (b) bear the name and identification number of the Contract as defined in the **Bidding Data**; and
- (c) Provide a warning not to open before the time and date for bid opening, as specified in the **Bidding Data**.

The envelope marked “**Financial Bid**” shall provide a further warning



on the cover stating:

“Not to open until advised by the Employer in accordance with ITB Sub-clause 25.5.”

21.3 In addition to the identification required in Sub-Clause 21.2, the inner envelopes shall indicate the name and address of the bidder to enable the bid to be returned unopened in case it is declared “late” pursuant to Clause 23 or not meeting the minimum qualifying criteria as set out in clause 5.3 Qualification Questionnaire, of the Bidding document and for matching purposes under Clause 24.

21.4 If the outer envelope is not sealed and marked as above, the Employer will assume no responsibility for the misplacement or premature opening of the bid. If the outer envelope discloses the bidder’s identity, the Employer will not guarantee the anonymity of the bid submission, but this shall not constitute grounds for rejection of the bid.

## **22. Deadline for Submission of Bids**

22.1 Bids must be received by the Employer at the address specified in Sub-Clause 21.2 no later than the time and date stipulated in the **Bidding Data**.

22.2 The Employer may, in exceptional circumstances and at its discretion, extend the deadline for submission of bids by issuing an Addendum in accordance with Clause 11, in which case all rights and obligations of the Employer and the bidders previously subject to the original deadline will thereafter be subject to the deadline as extended.

## **23. Late Bids**

23.1 Any bid received by the Employer after the deadline for submission of bids prescribed in Clause 22 will be returned unopened to the bidder.

## **24. Modification and Withdrawal of Bids**

24.1 The Bidder may modify or withdraw his bid after bid submission, provided that written notice of the modification or withdrawal is received by the Employer prior to the deadline for submission of bids.

24.2 The Bidder's modification or withdrawal notice shall be prepared, sealed, marked, and delivered in accordance with the provisions of Clause 21, with the outer and inner envelopes additionally marked "MODIFICATION" or "WITHDRAWAL", as appropriate. A withdrawal notice may also be sent by cable but must be followed by a signed confirmation copy.

Modifications should be submitted separately for “**Qualification Information and Bid security**” and “**Financial Bid**” and the envelopes shall be correspondingly marked as “**Modifications- Qualification Information and Bid security**” and “**Modifications- Financial Bid**”

24.3 No bid may be modified by the Bidder after the deadline for submission of bids, except in accordance with Sub-clause 24.1 and 29.2.

24.4 Except as provided in Sub-clause 24.1, withdrawal of a bid during the interval between the deadline for submission of bids and the expiration of the period of bid validity specified in Clause 16 may result in the forfeiture of the bid security pursuant to Sub Clause 17.7.

## **E. Bid Opening and Evaluation**

- 25. Bid Opening**
- 25.1 The Employer will open the Qualification Information and Bid Security envelope, including withdrawals and modification made pursuant to Clause 24, in the presence of bidders' designated representatives who choose to attend, at the time, date and location stipulated in the **Bidding Data** by a committee of officials. The **Financial Bid** envelope will remain sealed signed by the committee and deposited with Chairman of the Contract Award Committee or independent authority until they are opened publicly. The bidders' representatives who are present shall sign a register evidencing their attendance.
- 25.2 Envelopes marked "Withdrawal" will be opened first, and the name of the bidder will be read out. Bids for which an acceptable notice of withdrawal has been submitted pursuant to Clause 24 will not be opened. Subsequently Qualification Information and Bid Security submissions will be opened and initialed by the Committee of officials. No bid shall be rejected at bid opening except for late bids pursuant to Clause 23.
- 25.3 Bidders shall not contact the Client on any matter relating to the bid from the time of submission of the bid to the time the Contract is awarded except as stipulated in clauses 26 and 27.
- 25.4 The Employer will notify in writing the bidders that passed the Qualification requirements and indicate the date, time, and address for opening of the Bid envelopes. The opening date will not be sooner than five calendar days after the notification date. The notification may be sent by registered letter, cable, telex, facsimile or electronic mail.
- 25.5 The envelopes containing the Financial Bid of the firms that have passed qualification requirement shall be opened.
- 25.6 The Employer shall prepare minutes of the bid opening, including the information disclosed during the bid opening, to those notified in accordance with Sub-Clause 25.4.
- 25.7 Financial Bids not opened and read out at bid opening shall not be considered further for evaluation, irrespective of the circumstances.
- 26. Process to be Confidential**
- 26.1 Information relating to the examination, clarification, evaluation, and comparison of bids, and recommendations for the award of a contract, shall not be disclosed to bidders or any other persons not officially concerned with such process until the award to the successful bidder has been announced. Any effort by a bidder to influence the Employer's processing of bids or award decisions may result in the rejection of the bidder's bid.
- 27. Clarification of Bids and Contacting the Employer**
- 27.1 To assist in the examination, evaluation, and comparison of bids, the Employer may, at its discretion, ask any bidder for clarification of its bid, including breakdowns of unit rates. The request for clarification and the response shall be in writing or by cable, but no change in the price or substance of the bid shall be sought, offered, or permitted except as required to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the

bids in accordance with Clause 29.

27.2 From the time of bid opening to the time of Contract award, if any bidder wishes to contact the Employer on any matter related to the bid, it should do so in writing.

27.3 Any effort by the bidder to influence the Employer in the Employer's bid evaluation, bid comparison, or Contract award decisions may result in the rejection of the bidder's bid.

**28. Examination of Bids and Determination of Responsive-ness**

28.1 Prior to the detailed evaluation of bids, the Employer will determine whether each bid

(a) meets the eligibility criteria of Volume I of Section XIV and Qualification criteria set in Volume II of Section XII of the Bidding Document

(b) has been properly signed;

(c) is accompanied by the required securities;

(d) is substantially responsive to the requirements of the bidding documents as set out in the Bidding Documents; and

(e) Provides any clarification and/or substantiation that the Employer may require to determine responsiveness pursuant to Sub-Clause 28.2. Furthermore, the bidder shall, if required, provide substantiation that the Employer may require, pursuant to Sub-Clause 15.5.

28.2 A substantially responsive bid is one that conforms to all the terms, conditions, and specifications of the bidding documents without material deviation or reservation. A material deviation or reservation is one

(a) that affects in any substantial way the scope, quality, or performance of the Works;

(b) that limits in any substantial way, inconsistent with the bidding documents, the Employer's rights or the bidder's obligations under the contract; or

(c) whose rectification would affect unfairly the competitive position of other bidders presenting substantially responsive bids.

28.3 If a bid is not substantially responsive, it will be rejected by the Employer and may not subsequently be made responsive by correction or withdrawal of the nonconforming deviation or reservation.

**29. Correction of Errors**

29.1 Bids determined to be substantially responsive will be checked by the Employer for any arithmetic errors. Errors will be corrected by the Employer as follows:

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

(b) where there is a discrepancy between the unit rate and the

line item total resulting from multiplying the unit rate by the quantity, the unit rate as quoted will govern, unless in the opinion of the Employer there is an obviously gross misplacement of the decimal point in the unit rate, in which case the line item total as quoted will govern and the unit rate will be corrected.

29.2 The amount stated in the bid will be adjusted by the Employer in accordance with the above procedure for the correction of errors and, with the concurrence of the bidder, shall be considered as binding upon the bidder. If the bidder does not accept the corrected amount of bid, its bid will be rejected.

### **30. Conversion to Single Currency for Comparison of Bids**

30.1 For comparison of bids, the Bid Price, corrected pursuant to Clause 29, shall first be broken down into the respective amounts payable in various currencies by using the exchange rates specified by the bidder in accordance with Sub-Clause 15.3.

30.2 In the second step, the Employer will convert the amounts in various currencies in which the Bid Price is payable (excluding Provisional Sums but including Day works where priced competitively) to the currency of the Employer's country at the selling rates established for similar transactions by the authority specified in the **Bidding Data** on the date stipulated in the **Bidding Data**;

### **31. Evaluation and Comparison of Bids**

31.1 The Employer will evaluate and compare only the bids determined to be substantially responsive in accordance with Clause 28.

31.2 In evaluating the bids, the Employer will determine for each bid the Evaluated Bid Price by adjusting the Bid Price as follows:

- (a) making any correction for errors pursuant to Clause 29;
- (b) excluding Provisional Sums and the provision, if any, for contingencies in the Summary Bill of Quantities, but including Day works, where priced competitively;
- (c) converting the amount resulting from applying (a) to (b) above and (f) below, if relevant, to a single currency in accordance with Clause 30;
- (d) making an appropriate adjustment on sound technical and/or financial grounds for any other quantifiable acceptable variations, deviations, or alternative offers;
- (e) making an allowance for varying times for completion offered by bidders, if permitted in the **Bidding Data** and in the manner prescribed therein; and
- (f) Applying any discounts offered by the bidder for the award of more than one contract, if bidding for this Contract is being done concurrently with other Contracts (Sub-Clause 13.2).

31.3 The Employer reserves the right to accept or reject any variation, deviation, or alternative offer. Variations, deviations, alternative offers, and other factors that are in excess of the requirements of the bidding documents shall not be taken into account in bid

evaluation.

31.4 The estimated effect of the price adjustment provisions of the Conditions of Contract, applied over the period of execution of the Contract, shall not be taken into account in bid evaluation.

31.5 If the bid, which results in the lowest Evaluated Bid Price, is seriously unbalanced or front loaded in relation to the Engineer's estimate of the items of work to be performed under the Contract, the Employer may require the bidder to produce detailed price analyses for any or all items of the Bill of Quantities, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analyses, taking into consideration the schedule of estimated Contract payments, the Employer may require that the amount of the performance security set forth in Clause 37 be increased at the expense of the bidder to a level sufficient to protect the Employer against financial loss in the event of default of the successful bidder under the Contract.

### 32. Preference for Domestic Bidders

32.1 If so indicated in the **Bidding Data**, domestic bidders may receive a margin of preference in bid evaluation for which this clause shall apply.

32.2 Domestic bidders shall provide all evidence necessary to establish that they meet the following criteria to be eligible for a 7½ percent margin of preference in the comparison of their bids with those of bidders who do not qualify for the preference.

32.3 A domestic bidder is one that meets the following criteria:

- (a) for an individual firm:
  - (i) is registered in the country of the Employer;
  - (ii) has more than 50 percent ownership by nationals of the country of the Employer;
  - (iii) Does not subcontract more than 10 percent of the Contract Price, excluding Provisional Sums, to foreign contractors.
- (b) for a joint venture (JV) of domestic firms:
  - (i) individual member firms shall satisfy Sub-Paragraphs 32.3 (a) (i) and (a) (ii) above;
  - (ii) the JV shall be registered in the country of the Employer;
  - (iii) the JV shall not subcontract more than 10 percent of the Contract Price, excluding Provisional Sums, to foreign firms.

32.4 The following procedure will be used to apply the margin of preference:

- (a) After bids have been converted to a single currency in accordance with the provisions of Paragraphs 31.2 (c) above, responsive bids will be classified into the following groups:
  - (i) Group A: bids offered by domestic bidders and joint ventures meeting the criteria set out in the above Sub-

Clause 32.3; and

(ii) Group B: all other bids.

(b) For the purpose of further evaluation and comparison of bids only, an amount equal to 7½ percent of the evaluated Bid Price determined in accordance with the provisions of Paragraphs 31.2 (a), (b), (c), and, where applicable, (f), will be added to all bids classified in Group B.

32.5 Alternative offers, where solicited or permitted, will be evaluated separately, in accordance with the provisions of Clause 18, and shall be subject to the margin of preference in accordance with Sub-Clause 32.4.

#### **F. Award of Contract**

### **33. Award**

33.1 Subject to Clause 34, the Employer will award the Contract to the bidder whose bid has been determined to be substantially responsive to the bidding documents and who has offered the lowest Evaluated Bid Price pursuant to Clauses 31 and 32, provided that such bidder has been determined to be

(a) eligible in accordance with the provisions of Sub-Clause 3.1;

and

(b) Qualified in accordance with the provisions of Clause 5.

33.2 If, pursuant to Sub-Clause 13.2, this Contract is being let on a “slice and package” basis, the lowest evaluated Bid Price will be determined when evaluating this Contract in conjunction with other contracts to be awarded concurrently, taking into account any discounts offered by the bidders for the award of more than one contract.

### **34. Employer’s Right to Accept Any Bid and to Reject Any or All Bids**

34.1 The Employer reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids, at any time prior to award of Contract, without thereby incurring any liability to the affected bidder or bidders or any obligation to inform the affected bidder or bidders of the grounds for the Employer’s action.

### **35. Notification of Award**

35.1 The employer shall notify the evaluation result to all the bidders within five days of completion and approval of evaluation of the bids.

If any unsuccessful bidder believes that he has been unfairly treated during evaluation, he may lodge a complaint to the CEO of Ethiopian Airlines Group within five working days of his receipt of notification for being unsuccessful. The CEO will respond within fifteen working days. If the firm is dissatisfied with Ethiopian Airlines Group response or Ethiopian Airlines Group does not issue the decision in fifteen days he may take up the matter to the Board of Directors of Ethiopian Airlines, within five working days with a copy to the CEO of Ethiopian Airlines Group. Otherwise, if the bidder does not lodge complaint in the specified dates, it shall be considered that the bidder has accepted the evaluation result and

Ethiopian Airlines Group's response.

- 35.2 Prior to expiration of the period of bid validity prescribed by the Employer, the Employer will notify the successful bidder in writing that its bid has been accepted. This letter (hereinafter and in the Conditions of Contract called the "Letter of Acceptance") shall specify the sum that the Employer will pay the Contractor in consideration of the execution and completion of the Works and the remedying of any defects therein by the Contractor as prescribed by the Contract (hereinafter and in the Conditions of Contract called "the Contract Price").
- 35.3 The notification of award will constitute the formation of the Contract.
- 35.4 Upon the successful bidder's furnishing of the performance security pursuant to ITB Clause 37, the Employer will promptly notify the name of the winning bidder to each unsuccessful bidder and will discharge the bid security of the unsuccessful bidders, pursuant to ITB Clause 17.

### **36. Signing of Agreement**

- 36.1 At the same time that the Employer notifies the successful bidder that its bid has been accepted, the Employer will send the bidder the Agreement in the form provided in the bidding documents, incorporating all agreements between the parties.
- 36.2 Within 28 days of receipt of the Letter of Acceptance, the successful bidder shall sign the Agreement and return it to the Employer, together with the required performance security.
- 36.3 Upon fulfillment of Sub-Clause 36.2, the Employer will promptly notify the other bidders that their bids have been unsuccessful and their bid security will be returned as promptly as possible, in accordance with Sub-Clause 17.5.

### **37. Performance Security**

- 37.1 Within 28 days of receipt of the Letter of Acceptance from the Employer, the successful bidder shall furnish to the Employer a performance security in the form provided in Section IX of the bidding documents. This form must be used unless another form proposed by the Bidder is approved by the Employer.
- 37.2 If it is stipulated in the **Bidding Data** that the performance security is to be provided by the successful bidder in the form of a bank guarantee, it shall be issued either at the bidder's option, by a bank located in the country of the Employer or by a foreign bank through a correspondent bank located in the country of the Employer.
- 37.3 If it is stipulated in the **Bidding Data** that the performance security may also be provided by the successful bidder in the form of a bond, it shall be issued by a bonding or insurance company that has been determined by the successful bidder to be acceptable to the Employer. A foreign institution providing a bond shall have a correspondent financial institution located in the Employer's Country.

37.4 Failure of the successful bidder to comply with the requirements of Clauses 36 or 37 shall constitute a breach of Contract, cause for annulment of the award, forfeiture of the bid security, and any such other remedy the Employer may take under the Contract, and the Employer may resort to awarding the Contract to the next ranked bidder.

**38. Disputes Review Method**

38.1 The disputes review method (i.e., the Disputes Review Board or the Disputes Review Expert) is indicated in the **Bidding Data**. The Employer and the successful bidder will select Disputes Review Board members or the Disputes Review Expert, as the case may be, according to the procedure set forth in Clause 67 of the Conditions of Particular Application.

**39. Corrupt & Fraudulent Practices**

39.1 The Employer requires that its officials as well as bidders / suppliers / Contractors under this and similar contracts, observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this, the Employer:

(a) Defines, for the purposes of this provision, the terms set forth below as follows:

(i) "Corrupt practice" means the offering, giving, receiving, or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution; and

(ii) "Fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Borrower, and includes collusive practice among bidders (prior to or after bid submission) designed to establish bid prices at artificial noncompetitive levels and to deprive the Borrower of the benefits of free and open competition;

(iii) "Collusive practice" means a scheme or arrangement between two or more bidders, with or without the knowledge of the Employer, designed to establish bid prices at artificial, noncompetitive levels; and

(iv) "Coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the procurement process or affect the execution of a contract;

(v) "Obstructive Practices" is

(a) deliberately destroying, falsifying, altering or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a Employer's investigation in to allegations or a corrupt, fraudulent, coercive or collusive practice; and/or threatening, harassing or intimidating any part to prevent it from disclosing its knowledge matters relevant to the investigation or from



pursuing the investigation, or

(b) acts intended to materially impede the exercise of the Employer's inspection and audit rights.

- (b) Will reject a proposal for award if it determines that the Bidder recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive practices or obstructive practices in competing for the Contract in question;
- (c) Will sanction a firm or individual, including declaring them ineligible, either indefinitely or for a stated period of time, to be awarded a Government-financed contract if it at any time determines that they have, directly or through an agent, engaged, in corrupt, fraudulent, collusive, coercive practices or obstructive practices in competing for, or in executing, a Government-financed contract; and

39.2 Furthermore, bidders shall be aware of the provision stated in Sub-Clause 63.5 of the General Conditions of Contract, Part II—Conditions of Particular Application.

## **SECTION III**

### **BIDDING DATA**

## Bidding Data

Whenever there is a conflict, the provisions herein shall prevail over those in the Instructions to Bidders.

Instruction to Bidders Clause Reference	Bidding Data
1.1	<p>Name and address of the Employer:</p> <p><i>Ethiopian Airlines Group                      Africa Avenue, Bole International Airport                      Tel.: +251 115 174028                      Addis Ababa                      Ethiopia</i></p>
1.1	<p>Summary of the Works:</p> <p><b><u>Name of Project: Design -Build Of Addis Ababa Bole International Airport Apron Expansion Project Including Project Financing.</u></b></p> <p>The Apron Expansion under this contract has an estimated total Area of <b><u>233,365.00 m2.</u></b></p> <p>Generally, the scope of the work related to construction of Rigid and Flexible pavement for the Apron Expansion work covers mainly the following:</p> <ul style="list-style-type: none"> <li>• Rigid Pavement apron expansion</li> <li>• Flexible pavement apron expansion</li> <li>• Construction of Two New Taxiways for code C aircraft (estimated length 140 meters each)</li> <li>• Construction of One New Taxiways for code E aircraft (estimated length 272 meters for joining alpha taxiway with cargo Apron)</li> <li>• Upgrading of Two taxiways for code C aircraft (estimated length 135 meters each).</li> <li>• Construction of Ground Service Equipment Parking(GSEP)</li> <li>• Associated Drainage and structure works</li> <li>• Repositioning of flood lights and Visual Docking Guidance System(VDGS)</li> <li>• Pavement marking</li> <li>• Extension of security fence around apron with estimated length of 2500 meter (with minimum 2 meters height wire mesh)</li> <li>• Refer the drawings and contour map annexed with this document.</li> <li>• The schematic drawings attached with this document for the Apron Expansion Of Addis Ababa Bole International Airport are just guide line for the bidder, the bid winner will be expected to propose the best and cost effective design proposal including if any items are missed.</li> </ul> <p>The construction work is going to be undertaken within an operational airport, where all air flight and other services required to be undertaken uninterruptedly, so the contractor is expected to comply with all operational, safety, and security requirements.</p>
1.2	<p>Time of completion of the project is <b>270 Calendar days</b> including 30 days of mobilization</p>

	<b>365 calendar days</b> of Defect Liability
<b>2.1</b>	The Source of Fund: <b>The Bidder should bring Financer.</b>
<b>5.2</b>	Joint Venture association is not allowed in this project
<b>10.1</b>	Address to request any clarification:  Procurement & Supplies Chain Management Ethiopian Airlines Group Tel: +251 11 5 174028 Addis Ababa Ethiopia  Bidders can present their clarification request up to 14 days prior to the bid opening date.
<b>12.1</b>	Bid Language is: <b>English</b>
<b>14.1, 14.2, 14.3</b>	The financial proposal and agreement shall be a lump sum contract and bidder shall be responsible for the quantity and for missed items and no variation is entertained in the contract generally due to the site condition and for missed quantity. Bidders are required to include all work to make the project complete and operational.  Further bidders for all imported construction items which will be integrated in the construction can use Ethiopian Airlines duty free privilege, import in the name of Ethiopian and needs to show such material list in their bid in foreign amount as part of their financial bid proposal.
<b>14.4</b>	The Contract is NOT subject to any price adjustment.
<b>15.1</b>	Bidders shall quote in Ethiopian Birr (ETB) & United State Dollar (USD) by proportioning the work which requires import and local material. Bidders are required to consider Ethiopian Airlines duty free privilege to import construction material in the name of Ethiopian and consider in their financial proposal.  Bidders are required to submit with their document payment term along with milestone.
<b>15.2</b>	Currency of the bid shall be the <b>Ethiopian Birr &amp; USD.</b>
<b>16.1</b>	Period of bid validity.  The period of Bid Validity shall be <b>120 days</b> from the latest date for submission of bids, extended, if applicable, in accordance with the provisions of sub-clause 22.2 of the Instructions to Bidders.
<b>17.1</b>	Bid security is not required.
<b>18.1</b>	Alternative time of completion: Not Applicable
<b>19.1</b>	The Pre-bid Meeting shall be held: <b>To be advised.</b> <u>Venue</u>  Attention: <b>Helen Nigussu</b> Floor/Room number:

	<p><b><u>Procurement &amp; Supply Chain Management Department</u></b>                  Street Address: <b><u>Ethiopian Airlines Head Office, Africa avenue, Bole International Airport</u></b>                  City: <b><u>Addis Ababa</u></b>                  Post Code: <b><u>1755</u></b>                  Country: <b><u>Ethiopia</u></b>                  Telephone: <b><u>011-517-4028</u></b>                  E mail address: <b><u>Helenn@ethiopianairlines.com</u></b></p>
20.1	<p>Number of copies of bid to be completed and returned.  <b>ONE ORIGINAL Plus ONE COPY</b></p>
21.2(a)	<p>Employer's address for the purpose of bid submission is:                  Name and address of the Employer:                  Attention: <b><u>Helen Nigussu</u></b> Floor/Room number:  <b><u>Procurement &amp; Supply Chain Management Department</u></b>                  Street Address: <b><u>Ethiopian Airlines Head Office, Africa avenue, Bole International Airport</u></b>                  City: <b><u>Addis Ababa</u></b>                  Post Code: <b><u>1755</u></b>                  Country: <b><u>Ethiopia</u></b>                  Telephone: <b><u>011-517-4028</u></b>                  E mail address: <b><u>Helenn@ethiopianairlines.com</u></b></p>
21.2 (b)	<p>The name and identification number of the contract is:                  Addis Ababa Bole International Airport Apron Expansion Project  <b>Identification No: None</b></p>
21.2 (c)	<p>Do Not Open Before : <b>January 28,2018 at 3pm</b></p>
22.1	<p>Deadline for submission of bid is:                  Date: <b>January 28,2018</b>                  Time: <b>3pm</b></p>
25.1, 25. 2, 25.3, 25.4, 25.5, 25.6, 25.7	<p>Venue, time, and date of bid opening are:                  Venue                  Attention: <b><u>Helen Nigussu</u></b> Floor/Room number:  <b><u>Procurement &amp; Supply Chain Management Department</u></b>                  Street Address: <b><u>Ethiopian Airlines Head Office, Africa avenue, Bole International Airport</u></b>                  City: <b><u>Addis Ababa</u></b>                  Post Code: <b><u>1755</u></b></p>

	<p>Country: <b><u>Ethiopia</u></b></p> <p>Telephone: <b><u>011-517-4028</u></b>                  E mail address: <b><u>Helenn@ethiopianairlines.com</u></b></p> <p>Date: <b><u>January 28 2019</u></b>                  Time: <b><u>3:00PM</u></b></p> <p><i>Ethiopian Airlines to get maximum advantages in the financial evaluation and further negotiation with possible bidders the following steps shall be followed by disregarding ITB 25.</i></p> <ol style="list-style-type: none"> <li><b>1. Technical documents of bidders opened in front of bidders and bid evaluation committee members</b></li> <li><b>2. Bidders who are technically responsive and qualified shall be considering for financial evaluation.</b></li> <li><b>3. Ethiopian Airlines shall not communicate bidders for any result of the technical evaluation.</b></li> <li><b>4. Those bidders who are technically responsive their document shall be opened in front of the Bid Evaluation committee members and without the presence of bidders.</b></li> <li><b>5. Those bidders who give the best &amp; the lowest financial offer will call for further negotiation. After the negotiation a bidder who gives the lowest price offer shall be called for contract negotiation.</b></li> <li><b>6. All bidders shall be notified for the bid result and they can file their concern within 5days.</b></li> <li><b>7. Contract shall be concluded with the winner bidder.</b></li> </ol>
30.2	Source of Exchange Rate: National Bank of Ethiopia Exchange Rate Date: The exchange rate date shall be <b>28 days prior</b> to the latest date for submission of Bids
31.2 (e)	Allowance for varying time of completion: Not Applicable
32.1	Domestic bidders shall not receive a margin of preference.
36.2	The winner bidder shall sign the contract within 7days and furnish the performance security in 14 days.
37.2	The Performance Security shall be provided in the form of an Unconditional Bank Guarantee.
37.3	The amount of Performance Security is amount of 10 % of the Contract Price.
38	Disputes Review Method is: Not applicable.

## **Section IV- Part I: General Conditions of Contract**

Employer: **Ethiopian Airlines**

Name of Contract: ***Design and Build of Addis Ababa Bole  
International Airport Apron Expansion Project***

**CONDITIONS OF CONTRACT**

**PART I: GENERAL CONDITIONS**

**Conditions of Contract for EPC/Turn-key projects  
FIDIC FIRST EDITION 1999 SHALL BE  
APPLICABLE**

Copies of the FIDIC Conditions of Contract can be obtained from:

FIDIC Secretariat  
P.O. Box 86  
1000 Lausanne 12  
Switzerland

Facsimile: 41 21 653 5432  
Telephone: 41 21 653 5003

## **Conditions of Contract**

### **Part II: Conditions of Particular Application**

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## Particular Conditions

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### **Particular Conditions**

All sub-clause mentioned in this particular conditions are in conjunction with the general condition.

#### **1. General Provisions**

1.1.14. The words “Tender , and Tenderer” shall have the same meaning as “Bid and Bidder respectively”

#### **Sub clause 1.4 law and language**

Law of the contract shall be the law of the Federal Democratic Republic of Ethiopia

The ruling language shall be English language

The language of the communication shall be English

#### **Sub clause 1.13 compliance with laws**

Except that the contractor shall submit in good time the details of goods to the employer, who shall then promptly obtain all import permit or licenses required for these Goods. The employer shall also obtain or grant all contents including permit-to-work, way leaves and approvals required for the works.

#### **Sub- clause 3.1 the employer’s representative**

Insert at the end of sub-clause 3.1

The employer will appoint a Consulting Engineer to act on behalf of the Employer for the checking the design of the contractor’s the execution,

supervision and administration of the contract. But the checking and approval of the Employer's representative does not release the contractor from his responsibility for the correctness and completeness of the Design.

#### **Sub- clause 4.2 Performance Security**

The contract security amount shall be 10% of the contract amount and shall be valid until provision acceptance of the project is conducted. This shall be reduced to 5% and again be valid until final acceptance is conducted.

#### **Safety and Security Sub-Clause 4.8**

Regulations concerning entrance to and movement within the Employer's facility as well as all applicable safety and security rules and procedures have to be strictly observed by all workers, suppliers and other persons employed by the Contractor for whose action or omission will the Contractor be liable. The Employer reserves the right to eject any personnel or sub-contractor of the Contractor for non-observance of any safety and security rules and procedure of the Employer or any applicable authority.

At the commencement of the work on site, the contractor shall designate one of his senior staff who shall have knowledge of safety and security regulations on similar projects as safety officer. This safety officer shall ensure that all applicable safety rules and procedures shall be complied with and shall also promote safety and security at the site.

#### **Contractors operation on site –sub-clause 4.23**

The materials which shall be used by the contractor for the temporary fence of the works site shall be acceptable to the safety requirement.

### **Sub-clause 5.2 Contractor's documents**

The technical documents required satisfying the regulatory approvals but not limited to:-

- Design
- Qualification information
- Technical specification
- Working method and
- Work program
- Each review period shall not exceed 21 days

### **Sub-clause 6.5 Working hours**

Normal working hours shall be according to the labor law of Ethiopia

### **Sub-clause 6.8 Contractor's superintendence**

Add at the end of sub-clause 6.8

The contractor may import any personnel who are necessary for the execution of the works. The contractor must ensure that these personnel are provided with required residence visas and work permit. The contractor shall be responsible for the return to the place where they were recruited or to their domicile of imported contractor's personnel. In the event of the death in the country of any of these personnel or members of their families, the contractor shall similarly be responsible for making the appropriate arrangements for their return or burial.

The contractor shall not give, barter or otherwise dispose of to any person or persons, any access or communication of any kind, or allow contractor's personnel to do so. The contractor shall respect the countries recognized festivals, days of rest and religious or other customs.

### **Sub-clause 7.8 Royalties**

Add as item (c) the employer when requested by the contractor may assist in acquiring permission for disposal area but in no case the location and the distance of the disposal area affect the contract price.

#### **Sub-clause 8.1 commencement, mobilization & completion**

Time for completion of works **270 calendar days including 30 days of mobilization.**

#### **Sub-clause 8.7 delay damages**

In sub-clause 8.7 the sum referred to in the second sentence shall be **0.1% or 1/1000** of the contract price, as delay damages in respect of the works payable (per/day) in the proportions of the contract price. For each section, such daily sum shall be **0.1% or 1/1000** of the final contract value of such section, payable (per/day) in the currency of the contract. The maximum amount of delay damage shall be **ten percent (10%)** of the contract price stated in the contract agreement.

#### **Sub-clause 13.8 Adjustment for changes in costs**

The contract **is not** subjected to price adjustment

#### **Sub-clause 14.1 (b) the contract prices**

##### **Taxes and duties**

**The Employer has a duty free privilege and all imported items as long as they are imported in the name of the employer are going to be duty free. Therefore, contractors have to consider this tax exemption in their offer.**

All imported materials for the works, which are not incorporated in or expended in connection with the works shall be exported on completion of the works by the contractor at its cost or if it fails to do so by the Employer at the contractors cost. If not exported, the goods will be assessed for duties as applicable to the goods involved in accordance with the laws of Ethiopia and the contractor shall be responsible for payment of such duties.

Expatriate (foreign) personnel of the contractor shall be liable to pay for income tax levied in Ethiopia on their earnings paid in any currency.

All taxes on income of any nature, that may be levied in accordance with the laws and regulations of Ethiopia on the contractor equipment, plant; materials and supplies (permanent, temporary & consumable) acquired for the purpose of the works and on the services performed under the works including but not limited to sub contract service shall be paid by the contractor. Nothing in the contract documents shall relieve the contractor from its responsibility to pay any tax that may be levied in Ethiopia on income obtained by the contractor in respect of the works.

The contractor's staff, personnel and labor for the works will be liable to pay personal income taxes in Ethiopia in respect of their salary and wages as are chargeable under the laws and regulations for the time being in force, and the contractor shall perform such duties in regard to such deductions thereof as may be imposed on him by such laws and regulations.

Expatriate (foreign) personnel shall not be liable for income tax levied in the country on earnings paid in any foreign currency for income tax levied on subsistence, rentals, and similar services directly furnished by the contributor to contractor's personnel, or for allowance in lieu.

#### **Sub-clause 14.2 Advance payment**

Advance payment shall be 20% of the contract amount.

Amount of performance security shall be **10%** of the contract amount.

#### **Sub-clause 14.4 schedule of payments**

##### **Modify**

(a) The installments quoted in the schedule payments shall be the estimated contract values based on the cost break down in the contract for the purpose of sub paragraph (a) of sub-clause 14.3.

#### **Sub-clause 14.9 payment of retention money**

##### **Add**

Retention amount be 5% of the contract amount

If part of the retention money is to be released and substituted by an appropriate guarantee. The employer shall make payment of the outstanding balance of the retention money to the contractor if he obtains a guarantee provided by in a form a financial institute and conditions approved by the employer in amounts and currencies equal to the payment.

The guarantee shall be valid until the contractor has executed and completed the works and remedied any defects, as specified for the performance Security in sub-clause 4.2, and shall be returned to the contractor accordingly.

This release of retention shall be in lieu of the release of the second half of the retention money under the second paragraph of sub-clause 14.9

#### **Sub clause 15.2 of the General Conditions of Contract**

Under clause 15.2 (a) add “or Advance payment guarantee and insurance certificates “after “Performance Security”

Add the following as sub-clause 15.2 (g):

“Fails to perform the works strictly as per the terms and conditions of the contract documents or is in breach of its representations”

Add the following as a new paragraph before the last paragraph under sub clause 15.2.

“For the purpose of sub-clause 15.1, a fourteen days’ notice period shall be deemed to be reasonable”.

**Sub-clause 17.(1) (b) of the General Conditions of Contract**

Delete the phrase in bracket “(other than the works)”

**Sub-clause 17.4 (a) of the General Conditions of Contract**

Add “the duration of such extension to be determined by the Employer” in the first line after “Such delay”.

**Sub-clause 17.5 of the General Conditions of Contract**

To be deleted

**Sub clause 17.6**

Delete second paragraph

**Sub-clause 18.1 of the General Conditions of Contract**

In the 4<sup>th</sup> paragraph delete (ii).

**Sub-clause 18.3 Insurance against injury to person and damage to property**

Periods of submission of evidence of insurance and relevant policies shall be within the mobilization period.

The contractor shall be responsible for any third party damage and injury.

**General requirements for Insurance**

The contractor shall provide or cause to be provided certificates of insurance sufficiently covering workmen’s compensation, third party liability and liability for damages or destruction of the works and buildings, property until issuance of Final Acceptance Certificate by the Employer.

**The contractor** shall cause the Employer to be named as additional assured under the contractor’s liability insurance

The contract shall produce the insurance certificates within thirty days after signing of the Agreement and as a precondition condition for effecting any payment to it by the Employer.

The insurance shall be

- From an insurer with terms and conditions acceptable to the Employer.
- Valid for the period of the works until Final Acceptance Certificate.
- Be primary insurance and that other insurances, if any shall be secondary

The minimum insurance cover and deductibles shall be:

1. The minimum cover for insurance of the Works, Plant and Materials is **110%** of the contract value.
  - (b) No deductible for insurance of the Works, Plant and Materials.
  - (c) The minimum cover for insurance of Equipment is **100%** of the contract value.
  - (d) No deductible for insurance of Equipment.
  - (e) The maximum cover for insurance of property is **USD 5 million**.
  - (f) No deductible for insurance of property.
  - (g) The minimum cover for personal injury or death insurance is **USD 10,000.00 per person to an aggregate of USD 1 million** with no deductible

The risk of loss and damage to the works shall be transferred to the Employer upon Final Acceptance.

#### **Notice of Delay-Sub Clause 19.2**

If at any time during performance of the Agreement, Contractor should encounter conditions impeding timely delivery of the works, the contractor shall promptly notify the Employer in writing of the fact of the delay, its likely duration and its cause. The contractor shall exert best effort to reduce the delay. As soon as practicable after receipt of the Contractor's



notice the Employer shall evaluate the situation and may extend its execution period of the works, in which case such extension shall be ratified by the parties through amendment of the Agreement.

**Sub clause 19.5 (a) of the General Conditions of Contract**

Add the following at the end of the sentence:

“Such extension of time shall be equal to the period during which the contractor is prevented from performing by the force majeure situation.

**Sub clause 19.6 (a) of the General Conditions of Contract**

To be deleted and replaced by the following:

“If the circumstance of force majeure continue over a period of three months from date of notice of its existence, either party may terminate this Agreement by a written notice addressed to the other party.”

**Sub-clause 20.2**

- **No adjudicator is to be appointed under this contract.**
- **The contract shall be administered by Ethiopian Law.**

## **SECTION-IX FORM OF AGREEMENT**

### **AGREEMENT**

This Agreement is made and entered into as effective on (day, month, year) between Ethiopian Airlines Group of mailing address:

Ethiopian Airlines Group  
Africa Avenue, Bole International Airport  
Addis Ababa, Ethiopia

(Hereinafter called "THE EMPLOYER") of the one part and (...Name of Contractor...) of (... Mailing Address of Contractor...) (Hereinafter called "THE CONTRACTOR") of the other part.

Whereas the Employer is desirous that certain works should be executed, viz. (...Brief Description of Works...) and has, by Letter of Acceptance dated (... Date of Letter of Acceptance....) accepted a bid by the Contractor for the Agreement witnesses as follows:

#### **General Provision**

In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the General Conditions of Contract, Conditions of Particular Application hereinafter referred to.

The aforesaid documents shall be taken as complementary and mutually explanatory of one another, but in the case of ambiguities or discrepancies shall take precedence in the order set out herein below.

In consideration of the payment to be made by the Employer to the Contractor as hereinafter mentioned herein below, the Contractor hereby covenants with the Employer to execute, complete and maintain the works in conformity in all respects with the provision of the Contract.

#### **The Contract Documents**

The following documents shall be deemed to form, be read and construed as part of this Contract Agreement as per the this order of precedence namely, the

- a) The Contract Agreement
- b) Letter of Acceptance and its annexes
- c) Addendum (if any), the Bid data and Appendix to Bid
- d) Conditions of Particular Application
- e) General Conditions of Contract
- f) Technical Specification of Particular Application
- g) Employer Requirement
- h) ERA Standard Technical Specifications 2013 and FAA AC No: 270/5370-10G
- i) The Drawings

- j) Priced Bill of Quantities
- k) Other documents as listed in the Appendix to Bid

**Agreement Consideration**

The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects therein (...Contract Price in figures and words...) such other sum as may become payable under the provisions of the Contract.

In witness whereof, the parties hereto have caused their respective common seals to be hereunto affixed and have hereunto set their respective hands and seals the day and year first above written.

For and on behalf of ***Ethiopian Airlines Group***

---

*[Authorized Representative]*

**In the Presence of**

Name \_\_\_\_\_

In the Capacity of \_\_\_\_\_

Signature \_\_\_\_\_

**In the Presence of**

Name \_\_\_\_\_

In the Capacity of \_\_\_\_\_

Signature \_\_\_\_\_

For and on behalf of (Name of the Contractor)

---

*[Authorized Representative]*

**In the Presence of**

Name \_\_\_\_\_

In the Capacity of \_\_\_\_\_

Signature \_\_\_\_\_

**In the Presence of**

Name \_\_\_\_\_

In the Capacity of \_\_\_\_\_

Signature \_\_\_\_\_

## PERFORMANCE (BANK) GUARANTEE (Unconditional)

To: Ethiopian Airlines Group

Tel.: +251 116 650462/+251 116 650582

Addis Ababa, Ethiopia

WHEREAS *[name and address of contractor]* (herein after called "the contractor") has undertaken, in pursuance of contract No. \_\_\_\_\_ dated \_\_\_\_\_ to **Addis Ababa Bole International Airport Apron Expansion Project** (Hereinafter called "the Contract");

AND WHEREAS it has been stipulated by you in the said Contract that the contractor shall furnish you with a (Bank/Insurance) Guarantee by a recognized (Bank/Insurance) for the sum specified therein as security for compliance with his obligation in accordance with Contract;

AND WEHERAS we have agreed to give contractor such a (Bank/Insurance) Guarantee;

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you, on behalf of the contractor, up to a total of *[amount of Guarantee],[amount in words]*, such sum being payable in the types and proportions of currencies in which the Contract Price is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of *[amount of guarantee]* as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Contractor before presenting us with the demand.

We further agree that no change or addition to other modification of the terms of the contract or the works to be performed hereunder or any of the contract documents which may be made between you and the Contractor shall in any way release us from any liability under this guarantee and we hereby waive notice of any such change, addition or modification.

This guarantee shall be valid until a date 28 days from the date of issue of the taking-over Certificate.

### SIGNATURE AND SEAL OF THE GUARANTOR

Name of (Bank/Insurance): \_\_\_\_\_

Address: \_\_\_\_\_

Date: \_\_\_\_\_

## **BANK GUARANTEE FOR ADVANCE PAYMENT (Unconditional)**

To: Ethiopian Airlines Group

Tel.: +251 116 650462/+251 116 650582

Addis Ababa, Ethiopia

Name of Contract: **Addis Ababa Bole International Airport Apron Expansion Project**. In accordance with the provision of the Conditions of Contract, Sub-clause 60 (7) (“Advance Payment”) of the above mentioned Contract, [*name and address of contractor*] hereinafter called Contractor’) shall deposit with Ethiopian Airlines Group a bank/Insurance guarantee to guarantee his/her proper and faithful performance under the said clause of the contract in an amount of [*amount of guarantee*], [*amount in words*].

We, the [*Bank/ Insurance Company*], as instructed by the Contractor, agree unconditionally and irrevocably to guarantee as primary obligator and not as Surety merely, the payment to **Ethiopian Airlines Group** on his first demand without whatsoever right of objection on our part and without his first claim to the Contractor, in the amount not exceeding [*amount of Guarantee*], [*amount in words*], such amount to be reduced periodically by the amounts recovered by you from the proceeds of the Contract.

We further agree that no change or addition to or other modification of the terms of the Contract or of Works to be performed there under or of any of the Contract Documents which may be made between **Ethiopian Airlines Group** and the Contractor, shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition, or modification.

No drawing may be made by you under this guarantee until we have received notice in writing from you that Advance Payment of the amount listed above has been paid to the Contractor pursuant to the Contract.

This guarantee shall remain valid and in full effect from the date of the Advance Payment under the Contract until **Ethiopian Airlines Group** receives full repayment of the same amount from the Contractor or until the contract completion time whichever comes earlier.

Yours truly,

SIGNATURE AND SEAL:

Name of Bank/Insurance Company: \_\_\_\_\_

Address: \_\_\_\_\_

Date: \_\_\_\_\_

## ANTI-BRIBERY PLEDGE FORM

To \_\_\_\_\_  
Addis Ababa

Gentlemen;

Having examined the under mentioned “corrupt, fraudulent, collusive and coercive practice” we have agreed to sign this Anti-Bribery Pledge form for the construction of **Addis Ababa Bole International Airport Apron Expansion Project**. We confirm and insure to the employer that we will not at any time engage ourselves into evil practices.

In pursuance of this policy the employer defines:-

- i. “corrupt practice” means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution; and
- ii. “fraudulent practice” means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the purchaser and includes collusive practice among Bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the purchaser of the benefits of free and open competition;
- iii. “Collusive practice” means a scheme or arrangement between two or more bidders, with or without the knowledge of the Employer, designed to establish bid prices at artificial, noncompetitive levels; and
- iv. “Coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the procurement process or affect the execution of a contract
- v. "Obstructive Practices" is
  - (a) deliberately destroying, falsifying, altering or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede Employer's investigation into allegations or a corrupt, fraudulent, coercive or collusive practice; and/or threatening, harassing or intimidating any part to prevent it from disclosing its knowledge matters relevant to the investigation or from pursuing the investigation, or
  - (b) acts intended to materially impede the exercise of the Employer's inspection and audit rights.

The employer will reject a bid for award if it determines that the bidders recommended for award has engaged in corrupt, fraudulent, collusive or coercive practices in competing for the contract in question;

The employer will declare a firm ineligible, either indefinitely or for a stated period of time, to be awarded a contract if it at any time determines that the firm has engaged in corrupt, fraudulent, collusive or coercive practices in competing for, or in executing, a contract.

In addition to this, we understand that the employer has the right to reject firms which

are found to be corrupt and fraudulent.

**This Anti-Bribery Pledge Form is signed the \_\_\_\_\_ day \_\_\_\_\_**

\_\_\_\_\_  
**Name**

\_\_\_\_\_  
**Signature and Seal**

\_\_\_\_\_  
**In Capacity of**

## FORM OF ADVANCE PAYMENT DISBURSEMENT AGREEMENT

Account No. \_\_\_\_\_

This Agreement is made and entered into as effective on (....day/month/year....) between **Ethiopian Airlines Group** of Mailing Address:

Ethiopian Airlines Group  
Tel.: +251 116 650462/+251 116 650582  
Addis Ababa, Ethiopia

(hereinafter called " THE EMPLOYER") of the one part and (...Name of Contractor..) of (.... Mailing Address of Contractor...) (Hereinafter called "THE CONTRACTOR") of the other part.

Whereas the Employer is desirous that the advance payment should be properly and fully expended for the project **Addis Ababa Bole International Airport Apron Expansion Project** use only as per the advance payment disbursement schedules.

### General Provision

In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the General Conditions of Contract, Conditions of Particular Application hereinafter referred to.

In consideration of the advance payment, pursuant to Clause 60 of the General Conditions of Contract and Sub-Clause 60.8 of Conditions of Particular Applications, the maximum amount is as indicated on the Appendix to bid of the bidding document and Advance Payment shall be made by the Employer to the Contractor after the Employers receipt of the Advance payment guarantee and as per the conditions of agreement set herein below and signing of this Advance Payment Disbursement Agreement, the Contractor hereby covenants with the Employer to absolute consumption and utilization of the advance payment as per the approved advance payment disbursement schedule for the project use only and in conformity in all respects with the provision of the Contract.

The CONDITIONS of the Agreement is:-

- i. The contractor shall open and maintain a separate ledger account (to be filled with this agreement) through which the contractor's receipts and disbursements of the advance payment shall be channeled,
- ii. Any amount of money from the account shall be withdrawn with the dual signature of both the Employer & the Contractor,
- iii. The Contractor is required to submit a detailed advance payment schedule for Engineer's review and/or approval. Within ten calendar-days of the receipt of such schedule the Engineer shall review and approval the detailed advance payment schedule, as long as the contractor submitted a proper schedule. Then, after the contractor acquires the Engineer's approval, the contractor could withdraw from the above-referred account as specified on the above condition, condition (ii), of this agreement and the Contractor should expend it only for the purpose of the project as indicated on the General Provisions of this agreement. However, if the Contractor failed to expend the advance payment for the project use only, the Engineer to this effect shall give him notification in writing that the contractor is required to rectify these failures within a maximum period of thirty calendar-days. Having been so notified by the Engineer if the Contractor is unable to rectify his failures, the Engineer will inform the Employer in writing for the Contractors failure and improper expenditure of the advance payment. Subsequently, on the basis of this advance payment disbursement



agreement, the Employer shall claim for the advance payment guarantee bond.

**Agreement Consideration**

The Employer hereby covenants to pay the Contractor in consideration of the Advance payment.

In witness whereof, the parties hereto have caused their respective common seals to be hereunto affixed and have hereunto set their respective hands and seals the day and year first above written.

For and on behalf of **Ethiopian Airlines Group**

\_\_\_\_\_  
*[Authorized Representative]*

**In the Presence of**

**In the Presence of**

Name \_\_\_\_\_

Name \_\_\_\_\_

In the Capacity of \_\_\_\_\_

In the Capacity of \_\_\_\_\_

Signature \_\_\_\_\_

Signature \_\_\_\_\_

For and on behalf of **(Name of the Contractor)**

\_\_\_\_\_  
*[Authorized Representative]*

**In the Presence of**

**In the Presence of**

Name \_\_\_\_\_

Name \_\_\_\_\_

In the Capacity of \_\_\_\_\_

In the Capacity of \_\_\_\_\_

Signature \_\_\_\_\_

Signature \_\_\_\_\_

Item No.	Description	Unit	Quantity	Unit Price (Birr)	Value (Birr)	MONTH										Remark	
						1	2	3	4	5	6	7	8	9	10		
1	Mobilization - Camp etc.																
2	Material																
3	Equipment - Rent																
4	Salaries and Wages																
5	Etc, ...																

**Section XIII**  
**Dispute Settlement Procedures**  
**Not Applicable**

## Declaration of Site Visit And Understanding of the Works

(a) The bid document (*The Contract*) for the \_\_\_\_\_ Project has been collected from the office \_\_\_\_\_ (*The Employer*) and \_\_\_\_\_ (*The Contractor*) has inspected the site.

(b) The undersigned has visited and accepted the project nature to my satisfaction.

NOW THEREFORE, the undersigned hereby declare as follows:

I accept the scope of work and agree to execute the project having satisfied myself from the site visit and to be bound by the terms of the contract.

Name \_\_\_\_\_  
Date \_\_\_\_\_  
Signature \_\_\_\_\_  
In the capacity of \_\_\_\_\_

Witness

Name \_\_\_\_\_  
Date \_\_\_\_\_  
Signature \_\_\_\_\_  
In the capacity of \_\_\_\_\_

## Section XIII: Eligible Countries

Procurement Reference Number: -----

All countries are eligible except countries subject to the following provisions.

A country shall not be eligible if:

- (a) As a matter of law or official regulation, the Government of the Federal Democratic Republic of Ethiopia prohibits commercial relations with that country, provided that the Government is satisfied that such exclusion does not preclude effective competition for the provision of the works required; or
  
- (b) By an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, the Government of the Federal Democratic Republic of Ethiopia prohibits any procurement of works from that country or any payments to persons or entities in that country.

## Section XII. Qualification Questionnaire

This Section contains all the factors, methods and criteria that the Employer shall use to evaluate Qualifications. The information to be provided in relation to each factor and the definitions of the corresponding terms are included in the respective Qualification Forms.

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		Qualification Criteria		Compliance Requirements			Documentation
No.	Subject	Requirement	Single Entity	Joint Venture (N/A)			Submission Requirements
				All Parties Combined	Each Party	One Party	
<b>1. General Qualification Q</b>							
1.1	<b>Legal Status</b>	The bidder shall submit copies of original documents defining the constitution or legal status, place or registration and principal place of business, written power of attorney of the signatory of the Bid to commit the bidder; and also:- <ul style="list-style-type: none"> <li>• Business organization registration certificate or trade license or equivalent issued by the country of establishment.</li> </ul>	Must meet requirement	N/A	N / A	N / A	Forms-QUA.-1.1(a), 1.1(b) and 1.2 with attachments.
1.2	<b>Major Equipment</b>	The contractor should own, or have assured access to (through hire, lease, purchase agreement, or other means) list of equipment in full working order the following essential major equipment for the execution of the Contract. Note: The equipment listed here below are indicative and for evaluation purpose. Selected bidder shall deploy sufficient equipment as required for proper execution of the contract.	<a href="#">Has to meet requirement</a>	N / A	N / A	N / A	<a href="#">Forms-QUA.-1.3 List of Major Equipment</a>

		Qualification Criteria			Compliance Requirements			Documentation
No.	Subject	Requirement		Single Entity	Joint Venture (N/A)			Submission Requirements
		No	Equipment Type and Characteristics		Minimum Number Required	All Parties Combined	Each Party	
		1	Bulldozer – (200Hp - 300Hp)	4				
		2	Wheel Loader/Traxcavator, 2.5 m <sup>3</sup>	6				
		3	Motor grader (130 – 140 HP )	6				
		4	Vibratory sheep foot roller	1				
		5	Vibrating rollers (>12 ton)	5				
		6	Water truck (12000 – 14000 lts.)	7				
		7	Dump Truck (12 m <sup>3</sup> )	25				
		8	Pneumatic Tired Roller (16 ton)	2				
		9	Mechanical broom	1				
		10	Chain Loader (2.7m <sup>3</sup> )	2				
		11	Concrete Batching Plant	1				
		12	Truck Mounted Concrete Mixer	2				
		13	Pavement marking machine	1				
		14	Excavator(110 HP)	2				
		15	Truck Mounted Concrete Pump Crane	2				
		16	Asphalt Plant (>110 ton/hour)	2				
		17	Asphalt concrete paver	2				
		18	Rigid concrete Paver	2				
		19	Aggregate Crushing Plant (100ton/hour)	2				



Qualification Criteria			Compliance Requirements				Documentation
No.	Subject	Requirement	Single Entity	Joint Venture (N/A)			Submission Requirements
				All Parties Combined	Each Party	One Party	
1.3	<b>Key personnel</b>	The qualifications and experience of key technical and supervising staff proposed for the execution of the Contract, both on and off site; with the following minimum requirements The requirements for qualification and experience of the key personnel are indicated in <b>Table 2</b> below.	Has to meet requirement	N / A	N / A	N / A	Forms-QUA.-1.4 Organizational Chart of Management Staff
1.4	<b>Proposal for subcontracting</b>	a) any proposals for subcontracting elements of the Works such that the total of subcontracting is not more than 30 percent of the Bid Price; (as per the Appendix to bid) b) detail proposals for subcontracting any highly specialized elements of the Works to named specialist subcontractors;	Has to include information.  Has to include information. Must meet requirement.	N / A	N / A  N / A	N / A  N / A	Qualification Submission Sheet  Qualification Submission Sheet
1.5	<b>Proposal of work methods and programs</b>	Proposal of work methods and program, in sufficient detail to demonstrate the adequacy of the bidder's proposals to meet the technical specifications with in the completion period.	Has to include information.	N / A	N / A	N / A	Forms-QUA.-1.5 (a) & (b) Proposed Construction Schedules & Methodology

Qualification Criteria			Compliance Requirements			Documentation	
No.	Subject	Requirement	Single Entity	Joint Venture (N/A)			Submission Requirements
				All Parties Combined	Each Party	One Party	
<b>2. Historical Contract Non-Performance</b>							
2.1	<b>History of Non-Performing Contracts</b>	i.) Nonperformance of a contract did not occur within the last <b>Two (2) years</b> prior to the deadline for Qualification submission based on all information on fully settled disputes or litigation. A fully settled dispute or litigation is one that has been resolved in accordance with the Dispute Resolution Mechanism under the respective contract, and where all appeal instances available to the Bidder have been exhausted. In addition to the submitted information, the Employer reserves the right to obtain any records of non-performance of the Bidders in the past 2 years from official records within or outside of Ethiopia as a basis for qualification.	Must meet requirement	N / A	N / A	N / A	Form CON – 2
		<ul style="list-style-type: none"> <li>If the Employer, based on full documentary evidence, establishes poor performance by any Bidder engaged in similar works in Africa and other developing countries, on any contracts carried out over the last 2 years. Or if a</li> </ul>		N / A		N/A	N / A

		Qualification Criteria	Compliance Requirements			Documentation	
No.	Subject	Requirement	Single Entity	Joint Venture (N/A)			Submission Requirements
				All Parties Combined	Each Party	One Party	
		bidder is not performing to the satisfaction of the Employer on the already awarded contracts, then the Employer may use this information in the assessment of the Bidders' qualifications. <ul style="list-style-type: none"> <li>• Evaluation of Contractor's Performance shall be conducted regularly</li> <li>• If EAE found Nonperformance or poor Performance history of a Bidder at any stage of the tendering process before signing of the contract agreement, the bidder will be rejected from the proceeding stage of the tendering.</li> </ul>					
2.2	<b>Pending Litigation</b>	All pending litigation shall in total not represent more than <b>Thirty Percent (30%)</b> of the Bidder's net worth and shall be treated as resolved against the Bidder.	Must meet requirement	N / A	N / A	N / A	Form CON - 2
<b>3. Financial Situation</b>							
3.1	<b>a) Historical Financial Performance</b>	Submission of audited balance sheets for the last <b>Five(5) years</b> to demonstrate the current soundness of the Bidders financial	Must meet requirement	N / A	N / A	N / A	Form FIN - 3.1(a) with attachments

Qualification Criteria			Compliance Requirements				Documentation
No.	Subject	Requirement	Single Entity	Joint Venture (N/A)			Submission Requirements
				All Parties Combined	Each Party	One Party	
	<b>b) Current Contract Commitments</b>	position and its prospective long term profitability,  i.) Bidders should provide information on their current commitments on all contracts that have been awarded, or for which a letter of intent or acceptance has been received, or for contracts approaching completion, but for which an unqualified, full completion certificate has yet to be issued.	Must meet requirement	N / A		N / A	Form FIN - 3.1(b)(i)
		ii.) The Applicant must demonstrate access to, or availability of, financial resources such as liquid assets, unencumbered real assets, lines of credit, and other financial means, other than any contractual advance payments to meet the following cash-flow requirement: USD Seven million (USD 7,000,000)	Must meet requirement	N / A		N / A	Form FIN - 3.1(b)(ii)
<b>3.2</b>	<b>Annual Construction Turnover</b>	Average annual construction turnover of USD Fifty million (USD 50,000,000) calculated as total certified payments received for contracts in progress or completed within the last Five (5) years.	Must meet requirement	N / A	N/A	N/A	Form FIN - 3.2

Qualification Criteria			Compliance Requirements				Documentation
No.	Subject	Requirement	Single Entity	Joint Venture (N/A)			Submission Requirements
				All Parties Combined	Each Party	One Party	
<b>4. Experience</b>							
4.1	<b>General Construction Experience</b>	<p>Experience in construction contracts in the role of contractor for at least the last five (5) years prior to the submission deadline with minimum 3 (three) projects each with value at least USD twenty million (USD 20,000,000).</p> <p>Activity in at least nine (9) months in each year.</p> <p>“The general experience of the Contractor shall be considered after the signing of the company’s first contract.”</p>	Must meet requirement	N / A	N/A	N / A	Form EXP-4.1
4.2(a)	<b>Specific Construction Experience</b>	<p>The Applicant has successfully participated as contractor in at least one Apron/runway construction, rehabilitation or upgrading project of airport/Airfield works within the last five years, each with a value of at least <b>USD forty five million (USD 45,000,000)</b> for that have been successfully completed (100% ).</p> <p>Note:</p> <p>- <i>Bidders shall attach their documents</i></p>	Must meet requirement	N / A	N / A	N/A	Form EXP 4.2(a)

		Qualification Criteria	Compliance Requirements			Documentation	
No.	Subject	Requirement	Single Entity	Joint Venture (N/A)			Submission Requirements
				All Parties Combined	Each Party	One Party	
		<i>showing the substantial completion of their specific experience.</i>  - <i>“Specific experience of foreign firms shall be authenticated by appropriate notary public.”</i>					
<b>5. Site Visit</b>							
<b>5.1</b>	<b>Declaration of Site Visit and Understanding of the Work</b>	The bidder has to visit the site of works and fill in the site visit form.	Must meet requirement	N / A	N / A	N / A	Form DSV - 5.1

**Table 2: Requirements for Qualification and Experience of Key Personnel**

<b>Personnel Requirement for the Construction Crew</b>				
<b>Position</b>	<b>Total Work Experience</b>	<b>General experience</b>	<b>Experience in Similar Works</b>	<b>Min Qualification</b>
Project Manager	8	5	3	B.Sc. in Civil Engineering
Material/Pavement Engineer	6	4	2	B.Sc. in Civil Engineering
Construction Engineer	6	4	2	B.Sc. in Civil Eng.
Structural Engineer	6	4	2	B.Sc. in Civil /Structural Eng.
Electrical Engineer	8	4	2	B.Sc. in Electrical Eng.
Chief Surveyor	8	5	3	Diploma from Technical School
Lab. Technician	8	5	3	Diploma from Tech. School
<b>Personnel Requirement For the Design Crew</b>				
Highway Design Engineer	8	6	2	B.Sc. in Civil Engineering
Material /Pavement Engineer	8	6	2	B.Sc. in Civil Engineering
Bridge and Structural Design Engineer	8	6	2	B.Sc. in Civil/Bridge/Structural Engineering
Senior Hydrologist/Hydraulic Engineer	8	6	2	B.Sc. in Civil Engineering or in related field
Electrical Engineer	8	4	2	B.Sc. in Electrical Eng.
Geotechnical Engineer	8	6	2	B.Sc. in Civil Engineering or in related field
CAD Engineer	8	6	2	B.Sc. in Civil Engineering
Chief Surveyor	10	8	2	Diploma from Technical School

## Section XII. Qualification Forms

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### **Instructions for Completing the Qualification Forms**

The Bidder shall fill in and complete all the blank spaces in the Qualification Forms in accordance with the instructions for each form indicated below. The Bidder shall note that the forms included here are for guidance purposes only and that the Bidder shall prepare its qualification using the corresponding blank forms.

### Qualification Submission Sheet

Date: \_\_\_\_\_  
Identification No.: \_\_\_\_\_

To: \_\_\_\_\_

We, the undersigned, apply to be qualified for the **Addis Ababa Bole International Airport Apron Expansion Project** and declare that:

(a) we, including any subcontractors or suppliers for any part of the contract subject to this qualification do not have any conflict of interest, in accordance with ITB Sub-Clause 3.2 of the Bidding document

(b) we, in accordance with, Section XII, Qualification Criteria, Sub-Factor 1.4(a) plan to subcontract the following elements of the works:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(c) We, in accordance with, Section 7, Appendix to bid, and Conditions of Contract Sub-Clause 4.3 plan to subcontract some key activities and/or parts of the works.”

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(d) We agree to abide by this bid until the date 120 days from the date of bid submission specified in the Bidding Data and it shall remain binding upon us and may be accepted at any time before that date.

Signed \_\_\_\_\_

Name \_\_\_\_\_ In the Capacity of \_\_\_\_\_

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

Bidder's Legal Name  
\_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Dated on \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.

**Form QUA – 1.1(a)**

**Bidder Information Sheet**

Date: \_\_\_\_\_  
Identification No.: \_\_\_\_\_  
Page \_\_\_\_\_ of \_\_\_\_\_ pages

Bidder's legal name
In case of JV, legal name of each party:
Bidder's country of constitution:
Bidder's year of constitution:
Bidder's Legal Address in country of constitution:
Bidder's authorized representative information Name: Capacity: Address: Telephone: Fax numbers: E-mail address:
Attached are copies of original documents of: <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1. In case of single entity, articles of Incorporation or Documents of Constitution of the legal entity named above, in accordance with Section XII, Qualification Criteria, 1.1 <input type="checkbox"/> 2. In case of JV, letter of intent to form JV or JV agreement, in accordance with Section XII, Qualification Criteria, 1.1

**Form QUA – 1.1(b)**

**POWER OF ATTORNEY**

Principal ----- [Full name & position]  
Address \_\_\_\_\_  
(Hereinafter named as “the principal”)

Agent <sup>[1]</sup> ----- [Full name & position]  
Address \_\_\_\_\_  
(Hereinafter named as “the Agent”)  
Specimen of signature / initial \_\_\_\_\_

1. I, the undersigned principal, in my capacity as a \_\_\_\_\_<sup>(2)</sup> of *[Name of the Company]* by the power conferred to me in the \_\_\_\_\_<sup>(3)</sup> hereby delegate fully and without any restriction whatsoever to the Agent whose full details appeared above, to sign on the bid/ proposal to be submitted to the **Ethiopian Airlines Group** in relation to [Name of the project] in my name and on behalf of [Name of the company].
2. The Agent may not delegate this authority to any third person without prior consent of the principal which should be in writing and be communicated to the **Ethiopian Airport Group**.
3. This power of Attorney is made pursuant to Article 2199 of the Ethiopian Civil Code and shall be effective as of [date of signature].

Name & title of the Principal  
[Signature & Stamp]

\_\_\_\_\_

<sup>[1]</sup> If the Agent is the General Manager (GM) or Managing Director (MD) of the company and if there is no person of higher authority other than him/her, then attach the Memorandum of Association/Article of Association of the company/ business license to your application which empowers the person to sign on the application for prequalification + bid.

<sup>[2]</sup> General Manager/Chairman of Board of Directors/ etc. who is empowered to give such delegation

<sup>[3]</sup> Article(s)-of the Memorandum of Association/Article(s)-of the Association/Minutes of Board of Directors Meeting dated \_\_\_\_\_ reference No \_\_\_\_\_/etc. (*should be attached with this Power of Attorney*)

**Form QUA – 1.2**

**Bidder Information Sheet  
for each JV Party/Subcontractor as per Section XII Qualification Criteria 1.4(b)**

Date: \_\_\_\_\_  
Identification No.: \_\_\_\_\_  
Page \_\_\_\_\_ of \_\_\_\_\_ pages

Bidder's legal name:
JV's party/Subcontractor's legal name:
JV's party/Subcontractor's country of constitution:
JV's party/Subcontractor's year of constitution:
JV's party/Subcontractor's legal address in country of constitution:
JV's party authorized representative information Name: Capacity: Address: Telephone: Fax numbers: E-mail address:
Attached are copies of original documents of: <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Articles of Incorporation or Documents of Constitution of the legal entity named above, in accordance with Section XII, Qualification Criteria, 1.1

**Form QUA-1.3**  
**List of Major Equipment**

Bidder's Legal Name: \_\_\_\_\_ Date: \_\_\_\_\_

JV Party Legal Name: \_\_\_\_\_ Identification No.: \_\_\_\_\_

Subcontractor's Legal Name (as per Section XII, Qualification Criteria 1.4(b): \_\_\_\_\_

Page \_\_\_\_\_ of \_\_\_\_\_ pages

ii.)

The Bidder shall provide adequate information to demonstrate clearly that it has the capability to meet the requirements for each and every item of equipment the Bidder considers necessary to successfully complete the Works within the Time for Construction. A separate Form shall be prepared for each item of equipment listed.

Item of equipment	
Equipment information	1. Name of manufacturer
	2. Model and power rating
	3. Capacity
	4. Year of manufacture
Current Status	5. Current location
	6. Details of current commitments
Source	7. Indicate source of the equipment
	Owned: <input type="checkbox"/> Rented: <input type="checkbox"/> Leased: <input type="checkbox"/> Specially manufactured: <input type="checkbox"/>

The following information may be omitted only in respect of equipment owned by the Bidder or partner:

Owner	8. Name of owner
	9. Address of owner
	10. Telephone
	11. Contact name and title
	12. Fax
	13. Telex
Agreements	14. Details of rental / lease / manufacture agreements specific to the project:

**Form QUA-1.4  
 Organization Chart of Management Staff.**

Bidder's Legal Name: \_\_\_\_\_ Date: \_\_\_\_\_

JV Party Legal Name: \_\_\_\_\_ Identification No.: \_\_\_\_\_

Subcontractor's Legal Name as per Section XII, Qualification Criteria Sub factor 1.4(b): \_\_\_\_\_

Page \_\_\_\_\_ of \_\_\_\_\_ pages

Bidders shall provide the following:

1. An organization chart for Head Office staff who would be directly concerned with the Contract.
2. An organization chart for Site management and key technical supervisory staff.
3. A schedule of all proposed Site management and key technical supervisory staff, corresponding to item 2 above, in the following format:

Name and Nationality	Qualifications (See note 1)	Proposed Position & Responsibility	Years of Experience at this Position/ Level	Years of Experience in works of comparable nature and complexity (See note 2)

Note 1: The ability including evidence to speak the Contract language English should be stated, as well as academic and technical qualifications.

Note 2: This must clearly state periods during which the nominee has been involved in works which directly fit them for the position proposed. (E.g. For an Asphalt Pavement Engineer relevant work should directly involve construction of asphaltic mixtures.)

**Form QUA-1.5(a)**  
**Proposed Construction Schedule**

Bidder's Legal Name: \_\_\_\_\_

Date: \_\_\_\_\_

Identification No.: \_\_\_\_\_

Page \_\_\_\_ of \_\_\_\_ pages

The Contractor is required to complete the Works within the date stated in the Appendix to the Form of Bid. The Bidder shall provide a construction schedule, showing the sequence of all major work items, and identifying any critical path operations. The schedule shall show the resources associated with each construction operation and, in particular, shall show a histogram of the requirement for all major items of Contractor's Equipment taking in to account the effect of rainy season. The following shall specifically be shown:

1.	Date of Commencement.	The date of receipt, by the Contractor, of the Engineer's Notice to Commence.
2.	Time for Completion.	The Time for Completion shall be <b>270 calendar days</b> (including 30 days for mobilization).
3.	Completion of the Contractor's and the Engineer's establishment, including transport for the Engineer.	The Engineer's establishment, including offices, laboratory and transport.
4.	Provision of temporary facilities for the Engineer until the long-term ones are complete	In accordance with the provisions of the Technical Specifications.



**Form QUA-1.5(b)**  
**Proposed Construction Methodology**

Bidder's Legal Name: \_\_\_\_\_

Date: \_\_\_\_\_

Identification No.: \_\_\_\_\_

Page \_\_\_\_\_ of \_\_\_\_\_ pages

The Bidder shall submit a narrative outlining his intended methods for undertaking the Works. This narrative should include, but not be limited to, details of the following:

- i) The methods to be used in procuring the necessary resources, their transportation to the Site and their installation;
- ii) Methods to be employed in constructing the Works, including specific details of the Contractor's and Engineer's establishments, earthworks, the production and construction of: gravel sub-base, crushed aggregate base, asphalt surfacing, the repair of existing concrete structures and clearance of the Site after completion of construction;
- iii) The methods to be employed in meeting the Contractor's obligations for providing for the safety of public traffic during construction operations;
- vi) Proposals for sources of construction materials, including bitumen, and detailed proposals for the sourcing, winning and processing of naturally occurring materials (e.g. borrows and quarries);
- v) Measures envisaged to avoid or to minimize negative consequences and environmental pollution resulting from the execution of the Contract, the avoidance of pollution, the disposal of all wastes or any noxious substances, arising from the Contract.
- vi) Prepare and approve to the Employer's representative construction safety and phasing plan (CSPP) ahead of construction.
- vii) Since the airport is operational the design –builder should consider the safety and emergency plans ahead of the construction.

**Form CON – 2**

**Historical Contract Non-Performance and Pending Litigation**

*Bidder's Legal Name:* \_\_\_\_\_ *Date:* \_\_\_\_\_  
*JV Party Legal Name:* \_\_\_\_\_ *Identification No.:* \_\_\_\_\_  
 Page \_\_\_\_\_ of \_\_\_\_\_ pages

<i>Non-Performing Contracts in accordance with Section XII, Qualification Criteria</i>			
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <i>Contract non-performance did not occur during the stipulated period, in accordance with Sub-Factor 2.1 of Section XII, Qualification Criteria</i>			
<i>Pending Litigation, in accordance with Section XII, Qualification Criteria</i>			
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <i>No pending litigation in accordance with Sub-Factor 2.2 of Section XII, Qualification Criteria</i>			
<input type="checkbox"/> <i>Pending litigation in accordance with Sub-Factor 2.2 of Section XII, Qualification Criteria, as indicated below</i>			
Year	Outcome as Percent of Net worth	Contract Identification	Total Contract Amount (ETB)
_____	_____	<i>Contract Identification: Name of Employer: Address of Employer: Matter in dispute:</i>	_____
_____	_____	<i>Contract Identification: Name of Employer: Address of Employer: Matter in dispute:</i>	_____

**Form FIN – 3.1(a) (i)**

**Financial Situation**

Bidder's Legal Name: \_\_\_\_\_ Date: \_\_\_\_\_  
 JV Party Legal Name: \_\_\_\_\_ Identification No.: \_\_\_\_\_  
 Page \_\_\_\_\_ of \_\_\_\_\_ pages

To be completed by the Bidder and, if JV, by each party

Financial information in ETB	Historic information for previous five (_5_) years				
	2012	2013	2014	2015	2016
Information from Balance Sheet					
Total Assets (TA)					
Total Liabilities (TL)					
Net Worth (NW)					
Current Assets (CA)					
Current Liabilities (CL)					
Information from Income Statement					
Total Revenue (TR)					
Profits Before Taxes (PBT)					

- Attached are copies of financial statements (balance sheets, including all related notes, and income statements) for the years required above complying with the following conditions:
  - a) Must reflect the financial situation of the Bidder or party to a JV, and not sister, subsidiary or parent companies
  - b) Historic financial statements must be audited by a certified accountant
  - c) Historic financial statements must be complete, including all notes to the financial statements
  - d) Historic financial statements must correspond to accounting periods already completed and audited (statements for partial periods shall not be accepted)

**Form FIN – 3.1(b) (i)**

**Financial Situation**

**Summary Sheet: Current Contract Commitments / Works in Progress**

Bidder's Legal Name: \_\_\_\_\_  
 JV Party Legal Name: \_\_\_\_\_

Date: \_\_\_\_\_  
 Identification No.: \_\_\_\_\_  
 Page \_\_\_\_\_ of \_\_\_\_\_ pages

To be completed by the Bidder and, if JV, by each party

Name of contract	Employer, contact address/tel /fax	Value of outstanding work (ETB)	Commencement date	Original completion date (if not yet completed as originally scheduled)	Estimated Completion date	Remaining Period to completion (months)	Average monthly invoicing over last six months (ETB/month)
1.							
2.							
3.							
4.							
5.							
etc.							

N.B Information related to value of outstanding work with regard to each project above shall be accompanied by confirmation of the respective Supervising Engineers of the projects.

**Form FIN – 3.1(b) (ii)**  
**Financial Situation**  
**(b)Proposed Source of Financing**

Bidder's Legal Name: \_\_\_\_\_  
 JV Party Legal Name: \_\_\_\_\_

Date: \_\_\_\_\_  
 Identification No.: \_\_\_\_\_  
 Page \_\_\_\_\_ of \_\_\_\_\_ pages

Specify proposed sources of financing, such as liquid assets, unencumbered real assets, lines of credit, and other financial means, net of current commitments, available to meet the total four months construction cash flow demands of the subject contract. The source of financing should be exclusive to the project.

Source of financing	Amount (ETB)
1.	
2.	
3.	
4.	

Autonomous construction subdivisions of parent conglomerate businesses shall submit financial information related only to the particular activities of the subdivision.

<b>Banker</b>	Name of banker	
	Address of banker	
	Telephone	Contact name and title
	Fax	Telex

**N.B**

Tenderer's are instructed to attach letters authorizing EAE to request information from each of the Tenderer's Bankers.

**Form FIN – 3.2**  
**Annual Construction Turnover**

Bidder's Legal Name: \_\_\_\_\_ Date: \_\_\_\_\_  
JV Party Legal Name: \_\_\_\_\_ Identification No.: \_\_\_\_\_  
Page \_\_\_\_\_ of \_\_\_\_\_ pages

Year	Amount in ETB
2015	_____
2014	_____
2013	_____
2012	_____
2011	_____

**Form EXP – 4.1**  
**General Construction Experience**

Bidder's Legal Name: \_\_\_\_\_ Date: \_\_\_\_\_

JV Party Legal Name: \_\_\_\_\_ Identification No.: \_\_\_\_\_

Page \_\_\_\_\_ of \_\_\_\_\_ pages

Starting Month / Year *	Ending Month / Year	Contract Identification	contract Amount	Role of Bidder
_____	_____	Contract name: Brief Description of the Works performed by the Bidder: Name of Employer: Address:	_____	_____
_____	_____	Contract name: Brief Description of the Works performed by the Bidder: Name of Employer: Address:	_____	_____
_____	_____	Contract name: Brief Description of the Works performed by the Bidder: Name of Employer: Address:	_____	_____
_____	_____	Contract name: Brief Description of the Works performed by the Bidder: Name of Employer: Address:	_____	_____
_____	_____	Contract name: Brief Description of the Works performed by the Bidder: Name of Employer: Address:	_____	_____
_____	_____	Contract name: Brief Description of the Works performed by the Bidder: Name of Employer: Address:	_____	_____

\*List calendar year starting with the earliest year

**Form EXP – 4.2(a)**

**Specific Construction Experience**

Bidder's Legal Name: \_\_\_\_\_ Date: \_\_\_\_\_

JV Party Legal Name: \_\_\_\_\_ ICB No.: \_\_\_\_\_

Page: \_\_\_\_\_ of \_\_\_\_\_ pages

Similar Contract Number: _____ of _____ required	Information		
Contract Identification:	_____		
Award date:	_____		
Completion date:	_____		
Role in Contract:	<input type="checkbox"/> Contractor	<input type="checkbox"/> Management Contractor	<input type="checkbox"/> Subcontractor
Total contract amount:	_____		ETB _____
If party in a JV or subcontractor, specify participation of total contract amount:	_____%	_____	ETB _____
Employer's Name:	_____		
Address:	_____ _____ _____		
Telephone/fax number:	_____ _____		
E-mail:	_____		



**Form EXP – 4.2(a) (cont.)**

**Specific Construction Experience (cont.)**

Bidder's Legal Name: \_\_\_\_\_ Date: \_\_\_\_\_

JV Party Legal Name: \_\_\_\_\_ Identification No.: \_\_\_\_\_

Page \_\_\_\_\_ of \_\_\_\_\_ pages

Similar Contract No. _____ of _____ required	Information
Description of the similarity in accordance with Sub-Factor 4.2(a) of Section XII:	
1. Amount	_____
2. Physical size	_____
3. Complexity	_____
4. Methods/Technology	_____
5. Other Characteristics	_____

**Form EXP – 4.2(b)**  
**Specific Construction Experience in Key Activities**

iii.)

Bidder's Legal Name: \_\_\_\_\_ Date: \_\_\_\_\_

JV Party Legal Name: \_\_\_\_\_ Identification No.: \_\_\_\_\_

Subcontractor's Legal Name (as per Section XII, Qualification Criteria 4.2(b): \_\_\_\_\_

Page \_\_\_\_\_ of \_\_\_\_\_ pages

	Information		
Contract Identification	_____		
Award date	_____		
Completion date	_____		
Role in Contract	<input type="checkbox"/> Contractor	<input type="checkbox"/> Management Contractor	<input type="checkbox"/> Subcontractor
Total contract amount	_____		ETB _____
If party in a JV or subcontractor, specify participation of total contract amount	_____ %	_____	ETB _____
Employer's Name:	_____		
Address:	_____		
Telephone/fax number:	_____		
E-mail:	_____		

Production rates of the key construction activities described in Qualification Criteria, Experience (Table 2):

<b>Key Construction Activities</b>	<b>Year 1 (2011)</b>	<b>Year 2 (2012)</b>	<b>Year 3 (2013)</b>	<b>Etc</b>
Earth work (cut & borrows to fill, cut to spoil)				
Sub base				
Crushed stone base				
Bituminous pavement works (Surface Dressing or AC)				

**Form EXP – 4.2 (b)(cont.)**

**Specific Construction Experience in Key Activities (cont.)**

Bidder's Legal Name: \_\_\_\_\_ Page \_\_\_\_ of \_\_\_\_\_ pages

JV Party Legal Name: \_\_\_\_\_

Subcontractor's Legal Name (as per Section XII, Qualification Criteria 4.2(b): \_\_\_\_\_

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

**Form DSV – 5.1**  
**Declaration of Site Visit**  
**And**  
**Understanding of the Works**

(c) The bid document (*The Contract*) for the \_\_\_\_\_ Project has been collected from the office \_\_\_\_\_ (*The Employer*) and \_\_\_\_\_ (*The Contractor*) has inspected the site.

(d) The undersigned has visited and accepted the project nature to my satisfaction.

NOW THEREFORE, the undersigned hereby declare as follows:

I accept the scope of work and agree to execute the project having satisfied myself from the site visit and to be bound by the terms of the contract.

Name \_\_\_\_\_

Date \_\_\_\_\_

Signature \_\_\_\_\_

In the capacity of \_\_\_\_\_

Witness

Name \_\_\_\_\_

Date \_\_\_\_\_

Signature \_\_\_\_\_

In the capacity of \_\_\_\_\_

## **SECTION VII**

### **Form of Bid, Appendix to Bid and Bid Security**

## **Section VII**

### **Form of Bid/Tender**

Name of Contract: **Addis Ababa Bole International Airport Apron Expansion Design-Build and finance Project**

To: Ethiopian Airlines Group  
Africa Avenue, Bole International Airport  
Addis Ababa, Ethiopia  
Tel.: **+251 116 650462/+251 116 650582**

Gentlemen:

1. Having examined the Conditions of Contract, Employer's requirement, and Addenda Nos. [Insert Addenda Nos.] for the **Design and execution and Finance** of the above-named Works we, the undersigned, offer to execute and complete such Works and remedy any defects therein in conformity with the Conditions of Contract, Employer's requirement, , and Addenda with:  
  
Total Lump Sum cost of [insert amount in figures and words] including VAT, which we have estimated for the sum (s) [insert amounts in numbers and words]
2. We acknowledge that the Appendix forms part of our Bid.
3. We undertake, if our Bid is accepted, to commence the Works as soon as is reasonably possible after the receipt of the Engineer's notice to commence but not later than the date specified in the Appendix to Bid, and to complete the whole of the Works comprised in the Contract within the time stated in the Appendix to Bid.
4. We agree to abide by this Bid until the date 120 days from date of bid submission specified in the Bidding Data and it shall remain binding upon us and may be accepted at any time before that date.
5. Unless and until a formal Agreement is prepared and executed, this Bid, together with your written acceptance thereof, shall constitute a binding Contract between us.
6. We understand that you are not bound to accept the lowest or any bid you may receive.
7. We certify/confirm that we comply with the eligibility requirements as per ITB Clause 3 of the bidding documents.
8. Commissions or gratuities, if any, paid or to be paid by us to agents relating to this Bid, and to Contract execution if we are awarded the Contract, are listed below:

Name and address of agent	Amount and currency	Purpose of commission or gratuity
_____	_____	_____
_____	_____	_____
_____	_____	_____

(if none, state "none")

9. We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in bribery.

Dated this \_\_\_\_\_ day of \_\_\_\_\_ 20 \_\_\_\_\_

Signature \_\_\_\_\_ in the capacity of \_\_\_\_\_  
duly authorized to sign bids for and on behalf of \_\_\_\_\_

*[in block capitals or typed]*

Address: \_\_\_\_\_

Witness: \_\_\_\_\_

Address: \_\_\_\_\_

Occupation \_\_\_\_\_

## Appendix to Tender/Bid

[Note: with the exception of the items for which the Employer's requirements have been inserted, the following information must be completed before the Tender is submitted]

Description	Condition of Contract Sub-Clause	Additional Text
Employer's name and address	1.1.2.1 & 1.8	Full Employer's name and address is as follows <b>Ethiopian Airlines Group</b> Africa Avenue, Bole International Airport Addis Ababa, Ethiopia Tel.: <b>+251 115 174028</b>
Contractor's name and address	1.1.2.2 & 1.8	(To be inserted later)
Name and address of the Employer's Representative	1.1.2.3 & 1.8	(To be notified later)
Time for Completion of the Works <i>If Sub-Clause 13.15 does not apply:</i>	1.1.3.4	<ul style="list-style-type: none"> <li>➤ 270 Calendar days for construction period including 30 calendar days of mobilization.</li> <li>➤ Warranty periods three (3) years after the ends of the Defects Liability Period (365 Calendar days of Defects Liability Period)</li> </ul>
Law of the Contract	1.4	The Laws in the Federal Democratic Republic of Ethiopia
Ruling language	1.4	English
Language for communications	1.4	English
Electronic transmission systems	1.8	N/A
Amount of performance security	4.2	10 (Ten) % of the contract Price.
Limit of Subcontracting	4.5 (e)	Proposals for subcontracting elements of the Works such that the percentage of subcontracting shall be a maximum of 30% of the contract price.
Time for submission of program	4.14	Within 15 (Fifteen) days after commencement date
Normal working hours	6.5	As defined in the applicable labour law of the Federal Democratic Republic of Ethiopia
Commencement of Works	8.1	15 days after the effective date (contract signing date)
Liquidated damages for the Works	8.6	0.1% of the Contract price less the value of the completed sections already handed over to the Employer per day.
Limit of liquidated damages for delay	8.6	10 ( Ten ) % of the contract Price
The contract Price	13.1(d)	Refer the payment schedule attached with this Appendix to



		Tender/Bid
Total amount of Advance Payment	13.2	1.The amount of the advance payment shall be <b>20%</b> of the total contract price.
Start repayment of advance payment	13.2(a)	Starting from the first interim payment
Repayment of advance payment	13.2(b)	25% (thirty) percent of the amount of monthly Interim Payment Certificates  The advance payment shall be completely re-paid prior to the time when 80% of the Contract price has been certified for payment.
Percentage of retention	13.3	5 (Five) % of monthly interim payment certificate less VAT.  Retention money may be replaced by unconditional Bank Guarantee of an equal amount.
Limit of Retention Money	13.3	5 (Five) % of the Contract Price less VAT which is specified at the time of contract agreement.
If Sub clause 13.5 applies: Plant and Materials for Payment when delivered to the Site	13.5	Material advance payment is not applicable for this contract as EAE purchase is considered as advance.
Minimum amount of Interim payment Certificate	13.6	<b>USD Seven hundred fifty thousand (USD 750,000)</b>
Rates of interest upon unpaid sums	13.8	At same rate National Bank of Ethiopia lending rate for payments in local currency.

Amount of third party insurance	18.3	The minimum insurance cover and deductibles shall be: <ul style="list-style-type: none"> <li>▪ The minimum cover for insurance of the Works, Plant and Materials is <b>110%</b> of the contract value.</li> <li>▪ The minimum cover for insurance of Equipment is 100% of the contract value.</li> <li>▪ The maximum cover for insurance of property is USD 5 million.</li> <li>▪ No deductible for insurance of property.</li> <li>▪ The minimum cover for personal injury or death insurance is <b><u>USD 10,000.00 per person to an aggregate of USD 1 million</u></b> with no deductible</li> </ul>
Periods for submission of insurance: (a) Evidence of Insurance (b) Relevant Policy	18.5	(a) & (b) as soon as practicable after the respective insurances are taken out but in any case prior to the start of the work at site.

Number of members of Dispute review Expert	20.3	Not Applicable
The appointed person or administration in case of disagreement	20.3	<ul style="list-style-type: none"><li>•No adjudicator is to be appointed under this contract.</li><li>•The contract shall be administered by Ethiopian Law.</li></ul>

**Table D: Schedule of Named Specialist Subcontractors<sup>a</sup>**

<i>Item</i>	<i>Element of work</i>	<i>Approximate value</i>	<i>Name and address of subcontractor</i>	<i>Statement of similar works executed</i>

*a. The bidder shall enter in this schedule a list of the specialized works and approximate value of the work for which he proposes to use specialist subcontractors, together with the names and addresses of the proposed subcontractors.*

## **Payment Schedule**

Bidders Are Required to Submit Payment Term or proposal Along With Milestone and This Can Be Negotiated.

Each of the works should be in compliance with, Federal Aviation Administration latest standards and ERA's 2013 Standard Technical Specifications and Method of Measurement for Road Works.

All references to roles of the parties described in the Standard Specifications are to be understood to be as described in the Part I, part II of conditions of contract and Employer requirement.

**TECHNICAL SPECIFICATION  
(Employer's Requirement)**

**FOR  
Addis Ababa Bole International Airport Apron  
Expansion Design-Build and finance Project**

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## 6.1. Introduction

### 6.1.1. Project Summary

#### 6.1.1.1. Project Overview

The Government of the Federal Democratic Republic of Ethiopia (FDRE) continues its commitment to give Air transport sectors the highest priority and is preparing more projects for funding from the national budget.

In accordance with its overall air transport sector strategy, The Ethiopian Airlines Group intends to invite qualified bidders for **Design-Build** and **Financing of Addis Ababa Bole International Airport Apron Expansion Project**.

The project is located on the south-east direction of Addis Ababa Bole International Airport. The average elevation above sea level is 2333 meters.

The Apron under this contract has an estimated total Area of **233,365.00 m2**.

Generally, the scope of the work related to construction of rigid and flexible pavement for the Apron Expansion work covers mainly the following:

- Rigid Pavement apron expansion (estimated area on the table below)
- Flexible pavement apron expansion (estimated area on the table below)
- Construction of Two New Taxiways for code C aircraft (estimated length 140 meters each)
- Construction of One New Taxiways for code E aircraft (estimated length 272 meters for joining alpha taxiway with cargo Apron)
- Upgrading of Two taxiways for code C aircraft (estimated length 135 meters each).
- Construction of Ground Service Equipment Parking(GSEP)
- Associated Drainage and structure works
- Repositioning of flood lights and Visual Docking Guidance System(VDGS)
- Pavement marking
- Extension of security fence around apron with estimated length of 2500 meter (with minimum 2 meters height wire mesh)
- Refer the drawings and contour map annexed with this document.
- The schematic drawings attached with this document for the Apron Expansion Of Addis Ababa Bole International Airport are just guide line for the bidder, the bid winner will be expected to propose the best and cost effective design proposal including if any items are missed.

ACTIVITY (AREA m2)				
	ASPHALT	RIGID	OVERLAY	FILLET WIDENING
AREA	130,644.00	48,440.00	48,440.00	5,841.00
TOTAL AREA	233,365.00			

The construction work is going to be undertaken within an operational airport, where all air flight and other services required to be undertaken uninterrupted, so the contractor is expected to comply with all operational, safety, and security requirements. The period of construction are 270 calendar days including 30 days of mobilization period.

The project involves handing over of the selected site, designing and constructing of the Apron with Asphalt and Rigid Pavement using ICAO and other applicable international and local standards.

#### **6.1.1.2. Special Instruction**

The Design builder should consider this special instruction

- The apron expansion includes both rigid pavement and Flexible pavement.
- Construction of One New Taxiways for code E aircraft has estimated length 272 meters for joining cargo Apron to alpha Taxiway. And, the contractor is required to present his design proposal to the Employer representative for approval.
- Pavement should mean flexible and rigid pavement if this requirement described in the requirement.
- The drawings provided are general guide lines for the bidder, so, the bidder should asses the area in detail according to the standards mentioned.
- If any work item is missed with in the employer's requirement the contractor should incorporate in the design and amend accordingly.
- The site visit should be done before entering the contract.
- The airport is operational and the contractor should consider that in its schedule and prepare construction safety and phasing plan.
- All areas of Apron expansion and estimated length of Taxiways are for preliminary estimations for information purpose of the Design-Builder, the exact design will be based on latest standards to complete the works.

#### **6.1.1.3. Scope of the work**

In addition to the general items included in this contract are described above in section 6.1.1.1 the following items are required.

The Contractor shall not rely on the physical description contained in this Section to identify all Project components. The Contractor shall determine the full scope of the Project through examination of the contract and the Project Site, or as may be reasonably inferred from such examination.

Generally the project will comprise the following activities, but not limited:

- Handing over of the selected site
- Investigating, surveying, designing and constructing of the Apron and any necessary structures
- Designing and constructing the Apron elements.
- Designing and constructing protection works.
- Studying and applying applicable environmental mitigation measures at design stage so that the impact of construction the Apron on the environment shall be prevented initially

- And other necessary works to meet the employer's requirement
- Preparing all relevant engineering design in all respects including data analysis and construction in strict accordance with the highest standards of the engineering profession and the applicable ICAO and other relevant standards
- Detailed engineering design and construction of Apron for the **Design Aircraft** (refer the drawing provided) or maximum Design load available and any necessary structures based on applicable international and local standards.
- Clear description in sufficient detail of the work methodology to be utilized in the works, lists of relevant international and local standards, and appropriate documentation necessary for a complete execution of the works.
- Preparation of complete design documents and construction of Apron at the approved site. The scope of the work which shall be carried out during the design stages shall comprise of but is not limited to the following;
  - Carry out an assessment of the suitability of the area selected for the Apron considering all **ICAO Standard/FAA requirements for the design aircraft.**
  - Assessment and evaluation of the impact of natural features such as rivers, stream etc. on the proposed site.
  - Assessment of the altitude of the selected site for determination of design parameters.
  - Assessment of the adequacy of the site for the proposed aircraft type and possibility and potential for future expansion and accommodation of large aircraft and other airport facilities.
  - Assessment of a general environmental impact on the surrounding areas.
  - Carrying out geotechnical investigation services.
  - Based on the findings of the above assessments and soil investigation reports, carry out a complete structural (rigid pavement) and hydraulic/drainage designs.

#### **6.1.1.4. Items of work**

The work shall consist of complete analysis of the selected site, furnishing all design plans, documentation, equipment, materials, labor and incidentals necessary to successfully complete the project in compliance with the contract provisions. The Contractor for this project shall perform, as minimum, the primary item of work listed below. This list is not all-inclusive and the Contractor shall be responsible for identifying all items of work and executing them according to the design and specifications to meet the employer's requirement.

##### **1) Reporting Requirement**

- Detailed Engineering Design Report
- Site Assessment Report

- Topographic Survey Report
- Soils and Materials Report
- Hydrological / Hydraulics and Structural Report
- Drawings
- Geotechnical investigation & Recommendations
- Pavement Design
- Engineering Cost Estimate
- Land Acquisition Plans and Report

## **2) Design Report**

- Detailed Engineering Design including structural, electrical and mechanical (if any).
- Topographic Surveying of the Apron
- Geo-technical Investigation and Recommendations
- Hydraulics Recommendations
- Soils and Materials Investigation
- Pavement Design
- Construction Quantities and Cost Estimate

## **3) Design work Items (Detailed Engineering Design)**

- Analysis of proposed sites
- Topographic Survey of the Apron
- Geotechnical investigation and recommendation
- Hydraulics Recommendation
- Soils and Material Investigation
- Geometric and Pavement design of Apron.
- Any required Structure design
- Apron Marking
- Quality management program of implementation
- Design Document
- Record drawings of As Built plans

## **4) Construction work Items**

- Construction of Apron with Pavement concrete.
- Construction of Apron with flexible Pavement concrete.
- Constructing the required structures
- Apron Markings and signage work
- Constructing other ancillary works

### **6.1.2. Standards and Design References**

The design and construction work shall be performed in accordance with the following standards, specification or Reference Documents. If a specific standard, specification or reference document is not listed herein, the Employer's Representative shall identify the pertinent standard, specification or Reference Document to the Contractor. The Contractor must meet the minimum Apron standards & criteria (ICAO Standard). Minimum design standards of criteria can only be utilized upon approval of the Employer's Representative.

- ICAO Standard /FAA requirements
- Geometric Design Manual (ICAO)
- Geotechnical Design Manual (ERA 2013)
- Flexible Pavement Design Manual (ICAO), FAA & ERA 2013
- Site Investigation Manual (ERA2013)
- Drainage Design Manual (ERA 2013)

- ERA Standard Drawing (ERA 2013)
- ERA Standard Technical Specification (2013)
- Environmental Management System Manual (ICAO)

Where the aforesaid codes, standards and specifications are silent on any aspect, the following standards in order of preference shall be adopted, unless otherwise directed by EA /Employer's Representative:

- (a) ERA manual 2002
- (b) American Association of State Highway and Transport Officials (AASHTO).
- (c) American Society of Testing Materials (ASTM).
- (d) British Standards (BS)
- (e) Any other standard proposed by the Contractor and approved by EA

### **6.1.3. Project Conceptual Designs**

The Design-Builder shall develop the Project design so as to meet all the requirements of the Contract Documents. The Employer has proposed the preliminary concept design prepared as **scope /conceptual design** and the same is recommended only to a limited level. If the Design-Builder adopts the Conceptual Design as the basis from which it will design the Project, the Design-Builder is responsible for:

- Ensuring that the resulting design meets the requirements of the Contract Documents.
- Assuming responsibility for any Project requirements arising from using the Conceptual Designs as the basis of the Project design and construction.
- The schematic drawings attached with this document for the Apron Expansion Of Addis Ababa Bole International Airport are just guide line for the bidder, the bid winner will be expected to propose the best and cost effective design proposal.
- The scope presented should be considered as the minimum employer's requirement.

## **6.2. General Requirement**

### **6.2.1. Contract Duration**

The Contractor shall establish the contract duration for the subject project. In no event shall the contract duration exceed the days provided on the appendix to bid. The schedule supporting the proposed contract duration will be submitted with the Post-Qualification Application.

### **6.2.2. Project Schedule**

The Contractor shall submit a project schedule to establish contract duration as per the conditions of the contract. The Proposed schedule should allow 15 working days for EA/Employer's Representative review of design submittals. The minimum of activities shall be those listed below:

- Anticipated Award Date
- Design Submittals
- Design Survey
- Design Review by Employer's Representative
- Design Review/ Acceptance Milestones
- Geotechnical Investigation
- Construction Mobilization
- Start of Construction
- Clearing and Grubbing
- Embankment/Excavation
- Foundation Design
- Apron Design
- Apron Construction
- Crushed road base construction
- Signage and Apron Marking Design
- Signage and Apron Marking Construction
- Environmental management activities including erosion control
- Additional Construction Milestones as determined by the Contractor
- Final Completion Date for All work

The Contractor schedule should allow for a fifteen (15) working days review time for EA's/ Employer's Representative for review of the design submittals. However, the Employer's Representative has right to give comments at whole the time before the construction if he found any discrepancy between the design and the Employer's requirement. The review period commences upon the Employer's Representative/EA's receipt of the valid submittal or re-submittal and terminates upon the transmittal of the submittal back to the Contractor. EA's/ Employer's Representative review is not meant to be a complete and detailed review, and shall not absolve the Contractor's obligation under the contract.

Final signed plans will be delivered to EA's/Employer's Representative a minimum of 10 working days prior to construction of that component.

EA's/Employer's Representative will sign and stamp "Released for construction". Only stamped plans are valid and all work that Contractor performs in advance of EA's/Employer's Representative release of Plans will be at the Contractor's risk.

The Software requirement for all schedules shall be Primavera Project Planner/Microsoft Project planer recent version or equivalent.

The design documents shall be submitted for the completed section of the Apron; Apron & apron within four months after handing over of the selected site.

### **6.2.3. Key Personnel/Staffing**

The Contractor's work shall be performed and directed by key personnel identified in the proposal document submitted by the Contractor. Any changes in the indicated personnel shall be subject to review and approval by EA/Employer's Representative. In case the Contractor outsources the design task to a professional design firm, the firm to render these services shall not be affiliated with the Employer's Representative and also the Contractor is responsible for all issues of the design.

### **6.2.4. Meetings and Progress Reporting**

The Contractor shall anticipate periodic meetings with EA Personnel and other bodies as required for resolution of design and/or construction issues.

During construction, the Contractor shall meet with Employer's Representative on a weekly basis and provide a one-week look ahead for activities to be performed during the coming week. The Contractor shall, on monthly basis, provide written reports that describe the items of concern and the work performed in comparison with the plan on each task for that particular month. The Design-Builder shall:

- Plan and schedule weekly meetings with Employer's Representatives to discuss Project progress, issues, and planned Work for all phases of design and construction.
- The Design-Builder shall develop the meeting agendas and shall provide meeting facilities.
- Record minutes of each coordination meeting and distribute copies to the participants within five calendar days of the meeting date for the Employer's Representative information and confirmation

#### **6.2.5. Engineer's (Employer's Representative) Facilities**

The Contractor shall provide office and equipment as specified in this section. This shall include providing a common location for Contractor staff and EA/Employer's Representative staff. All Contractor staff including administration, design and construction staff offices shall be located in the Apron Project except that construction staff may be located in field offices located on the Project site.

The Contractor shall make its proposed facilities available for inspection and approval by EA/Employer's Representative prior to EA/Employer's Representative occupying any Contractor provided facilities. Both parties shall participate in a facility condition inspection prior to and at the completion of occupancy.

The Contractor shall secure site, install, set up and provide utility services and maintain the facilities as part of the work.

In the event that office or appurtenant facilities are stolen, destroyed, or damaged during the work, the Contractor shall bear the cost of repairing or replacing those items provided to their original condition within ten working days except for those reasons beyond the Contractor's control (force majeure).

The Contractor has to provide temporary facility, to the satisfaction of the Employer's Representative, starting from commencement of the works contract until the permanent Employer's Representative facility is established to a maximum of **One month** period. If the facilities are not ready for occupation when the permanent works are commenced, the Contractor shall continue to provide the temporary facility, at his own cost, to the satisfaction of the Employer's Representative.

If the Contractor fails to provide the permanent Employer's Representative facilities within the specified one month period from the commencement, the Contractor shall continue to provide the individual temporary facilities by increasing the quantity of temporary facilities equal to the quantity of permanent Employer's Representative facilities free of charge." This is without prejudicing the Employer's representative right to take other contractual measures as per ERA 2013 standard.

#### **6.2.5.1. Project Office**

The project office shall be located in the vicinity located by the employer. The selected site shall be approved by EA/Employer's Representative before the commencement of the establishment of the project office. The Contractor shall provide office and facilities to allow EA's /Employer's Representative Staffs to co-locate within the same compound as Contractor staff.

#### **6.2.5.2. Laboratory**

Fully furnished laboratory, as per the requirement of this section will be provided by the Contractor for the sole use of the Employer's Representative on the site or on land approved by the Employer adjacent to the site for this purpose and are in close proximity to the Contractor's offices and laboratories.

The Contractor shall provide for the site laboratory specified in the Contract and for the exclusive use of the Engineer, the minimum equipment listed in Appendix A of this document.

If required for the progress of the works the Employer's Representative may instruct the Contractor to provide any additional equipment which deemed necessary.

#### **6.2.5.3. Vehicles**

The Contractor shall supply new vehicles and maintain them for the exclusive use of the Employer's representative and his staff. Vehicle supplied by the contractor shall be ready for use within Two months of the commencement date.

The contractor shall supply type B vehicle as per ERA 2013 standard technical specification and method of measurement for works. A detail minimum specification requirement of the vehicle is provided in appendix A of this document.

### **6.2.6. Proposed Site Assessment and Selection**

#### **6.2.6.1. Background**

Generally, the Design-Builder shall first carryout site selection work by assessing the proposed alternative options to select a site. The selected site shall be accepted by the employer; corresponding minutes of meeting regarding the same shall be submitted together with the final site selection report. The Design-Builder shall involve all the stakeholders within reasonable time to avoid unnecessary delay during site selection, design and construction and the selected site shall be first approved before proceeding to the detail topographic surveying work.

#### **6.2.6.2. Site Selection**

The main interest of the Proposed Alternative Site Assessment and Selection is to locate the most viable site for the subject project, in which the Design-Builder will investigate and select the most viable from the proposed alternative sites. This shall be carried out through a desktop study using aerial photographs and topographic maps, site visit and consultation of local people and administrators.

The Design-Builder shall carryout a site survey/field investigation with a team of professionals consisting of the Senior Pavement Engineer, Highway Engineer, Materials Engineer, Hydrologist, Surveyor, Structural Engineer and Environmentalist. The site



survey/field investigation will assist to get actual information of the site, which helps to adjust the desk study interpretations to suit the site conditions.

During the survey, the following information shall be collected:

- Slope stability and the location of previous landslides;
- Rock types, geological structures, dip orientations, rock strength and rip ability;
- Percentage of rock in excavations;
- Materials sources, availability and distribution;
- Water sources;
- Soil types (identification of poor/unsuitable roadbed materials and swamp areas)
- Slope drainage and groundwater conditions;
- Drainage stability and the location of shifting channels and bank erosion;
- Land use and its likely effect on drainage, especially through irrigation;
- Likely foundation conditions for major structures;
- Approximate bridge spans and the sizing and frequency of culverts;
- Flood levels and river training/protection requirements;
- Environmental considerations, including forest resources, land use impacts and socio-economic considerations;
- Verify the accuracy of the information collected during the desk study;
- The possibility of using any existing Apron alignments including local realignment Improvements; and
- Socio-economic situations which will identify existing and potential socio-economic activities in the area based on sample survey on selected representative areas.
- Environmental conditions which includes scope of influence, any relevant environmental characteristics of the route corridor.

During the site inspection the team shall examine all alternatives. This information shall be combined with the results of the desk study to determine the most appropriate alternative site.

The Design-Builder shall consider the Engineering, the Socio-Economic, Environmental and Administrative parameters in the selection and evaluation of the alternatives site. If there exists any anticipated geotechnical problem on the alternatives sites, detail risk analysis shall be carried out and these shall presented in the site selection report.

The Design – Builder shall involve the stakeholders within reasonable time to avoid unnecessary delay during site selection, design and construction. In any case, it is the responsibility of the Design-Builder to select the site that meets all the requirements of the Contract Documents.

The Design – Builder shall prepare and submit a Site Assessment and Selection Report to EA/Employer’s Representative within One months from the commencement of works. The report shall include preliminary reconnaissance survey, the result of desktop studies and all other necessary information of the evaluation and selection process. The selected site shall be accepted by all the stakeholders in the project area and corresponding minutes of meeting regarding the same shall be submitted together with the Site Selection Report.

The final Site Selection Report must be approved by EA/Employer’s Representative in writing prior to start of any detailed topographic surveying work.

### **6.3. Topographic Survey and Construction Staking**

The Design Builder shall conduct all work necessary to meet the requirements associated

with land surveying including horizontal and vertical control surveys, topographic surveys, right-of-way surveys, design survey, construction surveys, and all other land surveying services necessary to complete the project in an accurate, neat and timely fashion.

### **6.3.1. Standards and References**

The Contractor shall use the following manual for all design and construction of the survey works. This is not a comprehensive list and other publications may be required to complete all design and construction elements. Additional publications may be used upon the approval of Employer's Representative.

- ICAO Standard/FAA requirements
- ERA's 2013 Standard Technical Specification
- ERA's 2002 Standard Drawing

If a specific standard, specification or Reference document is not listed herein, the Employer's Representative shall identify the pertinent standard, specification or Reference Document to the Contractor.

The Contractor shall request clarification of any ambiguity or conflict in these standards from EA. interpretation and decision shall be final.

### **6.3.2. Performance Requirement**

The Contractor shall establish, locate and carryout detailed survey activities for the project. The Contractor shall designate a Survey Manager for the project. The Survey Manager shall manage all survey activities associated with the project and shall be responsible for directing and reviewing all survey work and be the point of contact for all survey activities.

### **6.3.3. Design and Construction Criteria**

#### **6.3.3.1. Design Survey Work**

The Contractor shall carry out detailed ground survey along the length of the proposed project site using the most up-to-date surveying equipment such as total station, GPS, to examine the Apron alignment and cross section and any bridge sites and culvert sites that are considered necessary to complete the detailed design and the estimation of quantities.

The center lines shall then be set out, leveled, cross sectioned and benchmarks established. The coordinates of all intersection points shall be tied to the National Survey Grid, and levels related to the National Benchmarks.

The Contractor shall establish a paired (coupled) inter-visible Horizontal control points at least 100m apart from each other. The control points shall be placed on easily accessible site in visible condition with spacing of not more than 0.5-km interval. The location of these Control Points shall be determined by reviewing existing topographic maps and site conditions of the project site.

- a) The monument for each Control Point shall be die-stamped in the field; the Contractor shall provide a standard canopy drawing to EA/Employer's Representative for approval before the establishment of the control points.
- b) The Design-Builder shall maintain an accuracy level of 10mm+5ppm for the (x, y) coordinates of all the control points.

The vertical control points shall be referenced in the field on permanent concrete posts with an interval of 200m and shall be shown on the plan and profile drawings apart from list of benchmarks to be provided on a separate sheet accompanied by a photo of each benchmark. The Contractor shall establish at least two setting-out benchmarks at each bridge or major culvert site, will be located away from areas to be disturbed by the construction activities

Differential level methods shall be used to establish elevations for the vertical Control Points. The closing error of a leveled circuit shall not exceed  $\pm\sqrt{K}$  cm in height difference between the forward and reverse leveling of successive permanent survey stations. K is a distance in Km between two consecutive benchmarks.

Along the whole road route a detailed topographic survey with sufficient points for creating dense triangulation model shall be carried out. The centerline of the road will be defined every 20 meters interval. Topographical cross-sections, extending at least 75 meters either side of the centerline, will be taken at each of the centerline reference points.

Major drainage location which requires bridges and multiple spans slab culverts shall be identified during desk study on the maps and reconnaissance site visits by hydrologist, the location shall be given to the surveyors to carry out detail topographic survey.

The format of delivery of ground data to the Engineer will be agreed with the Engineer in advance of commencing the survey, but will be expected to be required in electronic format, recorded on compact disk, compatible with the Apron alignment design software provided for the use of the Engineer. Notwithstanding, the Contractor shall deliver ground data for the first 1kilometer of Apron surveyed, to the Engineer, for his examination and approval. If the data does not conform to the Engineer's requirements, then it will be adjusted by the Contractor to conform to those requirements, and the required format shall be adhered to for all further deliveries of data.

All topographical surveys undertaken by the Contractor shall be to acceptable international standards for such works, and after approval by EA, shall be recorded in standard or electronic survey field books, which shall become the property of EA upon the completion of the project.

The Contractor shall provide all survey data to the Employer's Representative for review. Any discrepancy found in the data provided shall be corrected by the Contractor. The Contractor shall be responsible for this additional field survey work.

### **6.3.3.2. Construction Surveying**

#### **6.3.3.2.1. General**

The Contractor shall be responsible for all survey works necessary to complete the work. All survey control data, calculations, surveying and measuring required for setting and maintaining the necessary lines and grades shall be the Contractor's responsibility.

Detailed survey records shall be maintained, including a description of the work performed on each shift, the methods utilized and control points used. The record shall be adequate to allow the survey to be reproduced. This record shall include graphic notes depicting control points used and relationship to other control points or reference points, description, coordinates and location description. Bench marks and Temporary bench marks shall also have graphic notes depicting description, elevation, coordinates and location description. The Survey Manager shall provide a copy of each day's record to EA or the Employer's Representative when requested within three calendar days after the end of the shift.

### **6.3.3.2.2. Construction Stakes, Lines and Grades**

1. The Contractor shall:-perform the construction engineering, necessary calculations, staking work, include:
  - a) Reestablish survey point and centerlines
  - b) Reference control points, when necessary
  - c) Run a level circuit to check or reestablish plan benchmarks
  - d) Set stakes for construction limits, right-of-way, drainage items, slopes, pavement structure, embankment and subgrade controls, bridge control points for vertical and horizontal alignment of all components, and any other stakes necessary to control lines and grades
2. Furnish all stakes, templates, straightedges, and other devices necessary to check, mark, and maintain points, lines and grades
3. Run level circuits to verify benchmarks the full length of the Apron construction project. On bridges, establish four benchmarks, two on each side of each structure unless physical conditions prohibit placement.
4. Maintain orderly and clear field notes in standard field notebook consistent with standard engineering practice
  - Use standard field books consistent with those customarily used by the construction industry
  - Allow EA's/Employer's Representative to inspect these field books at any time
  - The books become EA's property once work is completed
5. Correct any errors at the Contractor's own cost
6. Assume any responsibility for final accuracy of construction

### **6.3.4. Survey Records**

Survey records shall be delivered in hardcopy format and also in electronic file format. The electronic format shall be in ASCII, .dwg, or DXF format. They shall be delivered at the time of substantial completion unless requested by EA or Employer's Representative at an earlier time.

### **6.3.5. As-Built**

The Contractor shall produce reports documenting the location of the as-built alignments, profiles, drainage structure locations, and survey control monuments placements. These reports shall include descriptive statements for survey methods used to determine the as-built location of the features being surveyed. The Contractor as-built data shall include the coordinate types (x, y and/or z) and feature codes in the format acceptable to EA.

The as-built data shall be submitted in 3(three) hardcopies and 1(one) soft copy in CD-ROM prepared in appropriate software with the format agreed with EA's/ Employer's representatives.

## **6.4. Apron Geometric Design**

### **6.4.1. General**

Design and construct the Apron in accordance with the ICAO standard/FAA requirements with rigid pavement, including referenced standards and publications, performance requirements, design and construction criterion, and required submittals.

#### **6.4.2. Performances requirements**

The Design–Builder shall provide the engineering services required to furnish the work products identified in the contract. The service includes the tasks of data preparation, data interpretation, and design of construction documents. The design and construction documents shall be prepared by (or under the direction of) professional highways engineer. The Contractor shall design all Apron geometrics including horizontal alignment, vertical alignment, cross section elements and super elevation in accordance with the design criteria of this section.

The Design –Builder shall design and construct the Apron Project to meet the following requirement.

- (1) Maintain a safe environment for aircrafts using the Apron and give special consideration to winding potentially hazardous conditions.
- (2) Design a Apron meeting the requirements of **ICAO**.
- (3) The Design – Builder shall coordinate and ensure that the project design accommodates and allows for the design of technically and environmentally sound project.

#### **6.4.3. Mandatory standards and Reference Publications**

**General:** Design and construct the Apron in accordance with the requirements of the standards listed below in the order of priority.

- ICAO/FAA Design Manual
- ERA’s Drainage Design Manual (2013)
- ERA Standard Drawing (2002)
- ERA Standard Technical Specification (2013)
- ICAO Environmental Management Manual
- American Association of State Highway and Transport Officials (AASHTO).

**Conflicts & Priority:** If there is any conflict among standards, adhere to the standard with the highest priority.

**Ambiguity:** If there is any vagueness in standards, obtain clarification from EA/Employ’s representative before proceeding with design or construction. EA’s decision shall be final.

#### **6.4.4. Design Criteria**

The Contractor shall conduct all work necessary to complete the design and construction of the Apron geometry in coordination with all other elements of work required for the project.

The Contractor shall design and construct the Apron using the maximum design Aircraft as indicated by the employer prior to commencement and in ICAO standard/FAA requirements.

#### **6.4.5. Geometric Design**

The Contractor shall prepare the final horizontal & vertical design of the Apron & structures. The Contractor shall be responsible for ensuring that the criteria, as listed in this section, will meet the intent and the constraints of the project as described in the contract document.

#### **6.4.6. Construction Quantities**

The Contractor shall submit constructions Quantities to EA's/ Employer's Representative. The Contractor shall prepare quantity takeoffs, tabulations and backup calculations for QC/QA purpose. The calculated quantities for the items of construction shall be based on the final design drawings. The earthwork quantities shall be derived from calculation based on the field cross sections along the centerlines of Apron.

#### **6.4.7. Plan Submittal Requirements**

The Contractor shall produce plans & specification that aid & facilitate design review by the Employer's Representative and provide adequate information for safe, efficient & high quality construction. The plans shall include (at a minimum) the following items:

- Cover sheet & list of Standard Drawings
- General rules & general layout sheet
- Typical sections
- Apron plan and profile
- Apron, cross section
- Horizontal alignment data
- Vertical alignment data
- Drainage schedule

The Contractor shall prepare and submit a draft and final Engineering Design Documents along with the Set of Drawings to EA/Employer's Representative. The final Design Documents must be approved by EA/Employer's Representative in writing prior to start of any construction related permanent activities/operations in the project.

#### **As Built Plans**

The Contractor shall be responsible for producing a complete set of as-built plans upon substantial or final completion of the project. As-built plans shall incorporate all design changes of field changes that occurred throughout the project duration. As built plans shall at a minimum contain the following items,

- Cover sheet:
  - Project Location Map
  - Locations, lengths, Reference points
  - Scales, North Arrow, Station Equations
  - Beginning and End of project
  - Title Block, Signature Block
- General Notes
- Typical sections
- Plan and Profile sheets
  - Alignments
  - Ditch Grades
  - Culvert
- Culvert Plans
- Apron cross sections
- Source of construction material

## **6.5. Apron Surfacing & Geotechnical Considerations**

### **6.5.1. Rigid and Flexible Pavement**

#### **6.5.1.1 General**

The Contractor shall design and construct rigid and flexible pavement for Apron in accordance with the requirements of this section, including referenced sections and publications, performance requirements, design and construction criteria.

#### **6.5.1.2 Mandatory Standards**

The following list of standards shall be used for all design and construction of the pavement. This is not a comprehensive list, and other applicable publications may be required to complete all design and construction elements.

- ICAO Standard/FAA requirements
- ICAO Site investigation Manual
- ERA 2013 Standard Technical Specification
- TRRL ROAD NOTE 3
- AASHTO Guide for the Design of Pavement Structures, 1993
- AASHTO Standard Specification for Transportation Materials and Methods of Sampling and Testing, Part I, Latest edition
- AASHTO Standard Specification for Transportation Materials and Methods of Sampling and Testing, Part II, Latest edition

**Conflicts and priority:** If there is any conflict among standards, adhere to the standard with the highest priority or one directed by the Employer.

**Ambiguity** If there is any vagueness in standards, obtain clarification from EA/Employer's representative before proceeding with design or construction. EA's/Employer's Representative decision shall be final.

#### **6.5.1.3. Performance Requirement**

The Contractor shall perform analysis and prepare a design using the criteria specified within this section, and produce pavement that meets the following minimum requirements:

- Design and Construct Rigid and flexible Pavement Concrete Apron with ICAO standard using the design Aircraft.

#### **6.5.1.5. Pavement Report**

A draft rigid and flexible pavement report shall be submitted, detailing the pavement design, for approval to EA/Employer's Representative prior to any pavement operation. Any comments on the draft report will be forwarded to the Contractor for incorporating the comments during the finalization of the report. The Final report shall be submitted to EA/Employer's Representative for approval after incorporating or properly addressing the comments. The final report must be approved by EA prior to commencement of pavement related operation.

The pavement report shall address site - specific conditions and proposed treatments,

including, but not limited to:

- Subgrade Conditions
- Pavement Design
- Sources of Materials
- Any unsuitable subgrade soils such as expansive etc
- Any unsuitable areas such as swampy, erodible areas

#### **6.5.1.6. Submittals**

The Contractor shall prepare and submit a draft and final pavement report to EA/Employer's Representative. The final pavement report must be approved by EA/Employer's Representative in writing prior to start of any pavement related permanent activities/operations in the project.

#### **6.5.2. Sub grade Soil Investigation and Construction Material Investigation**

##### **6.5.2.1. General**

The Contractor shall evaluate the requirements of the work, and carry out a thorough subgrade soil investigation, construction material investigation, geotechnical analysis, and laboratory testing sufficient to provide pavement designs and construction of the pavement and earthwork.

##### **6.5.2.2. Mandatory Standards**

The following is a list of publications that shall be used for all design and construction pavement and earthwork. This is not a comprehensive list and other publications may be required to complete all design and construction elements. Additional publications may be used upon the approval of EA/Employer's Representative.

Standards and References to be used:

- ICAO Standard/FAA requirement
- ERA's 2013 Site Investigation Manual
- ERA's 2013 Geotechnical Design Manual
- ERA's 2013 Standard Technical Specification
- AASHTO Manual on Subsurface Investigations, 1988
- AASHTO Guide for the Design of Pavement Structures, 1993
- AASHTO Standard Specification for Transportation Materials and Methods of Sampling and Testing, Part I, Latest edition
- AASHTO Standard Specification for Transportation Materials and Methods of Sampling and Testing, Part II, Latest edition
- TRRL ROAD NOTE 3

The Contractor shall request clarification of any ambiguity or conflict in these mandatory standards from EA. The Employer's (EA) interpretation and decision shall be final.



### 6.5.2.3. Performance Requirement

The Contractor shall conduct a Construction material investigation and sub grade investigation to provide information for the pavement design and earth work. The investigation work shall be carried out as set out in the standards and references. The Contractor shall determine the specific locations, frequency, and scope of construction material and sub grade investigation

The Contractor shall submit the plan for the investigation to Employer's Representative for review and comment prior to start-up of any of the investigation work and subsequent pavement construction operation. This submittal shall include the number and depths of the proposed pitting and field investigations, and the proposed sampling and testing, to meet the minimum requirements for the project.

Soil Properties used for design shall be determined in accordance with the standards and references given for this section. Field tests shall be conducted in general accordance with appropriate AASHTO and ERA Standards.

The Contractor shall carry out the following minimum work elements and requirements; it may be appropriate for the Contractor to include work elements or procedures not listed here in order to provide the requested end product.

<b>Minimum Work Elements and Requirements</b>	
1.	The Contractor will review printed literatures including topographic maps, agricultural maps, aerial photography, ground water resources, historic construction records and other geotechnical related resources. Prior to field reconnaissance, consultant shall identify areas with problematic soil conditions based on the available maps
2.	Study project setting, geology and site conditions.
3.	Identify and evaluate potential material sources by reconnaissance or hand methods.
4.	Identify and evaluate geological and geotechnical hazards by reconnaissance or hand methods.
5.	Identify sub-excavation and water-problem areas.
6.	Identify designed cut and fill slope ratios and make recommendations for proposed slopes and ditches.
7.	Develop preliminary subsurface drainage recommendations.
8.	Conduct soil survey, including assessment of rock outcrops.
9.	Record other geotechnical observations that could impact design or construction.
10.	To the maximum extent practical, record observations in table format with reference to station intervals.
11.	Evaluate any further reconnaissance required, and mapping and subsurface investigation needs, and anticipated difficulties in completing investigation work.
12.	Develop a site investigation program Submit a copy of the program to EA/ Employer's Representatives for its approval twenty (20) days prior to investigation.
13.	Conduct field exploration and record data (individual logs, etc.). The sampling interval for classification and identification shall not be more than 500m
14.	Collect Samples for CBR-value (three point CBR) and moisture-density relationship at every 500 m for pavement design.
15.	Conduct laboratory testing and record test data; include tests AASHTO classification for foundations, earthwork and materials.

<b>Minimum Work Elements and Requirements</b>	
16.	Backfill all holes and restore site to an acceptable condition.
17.	Draw a cross-sectional sketch at exploration locations (to be included in the material report) showing the locations relative the centerline and a generalized test pit profile.
18.	Photograph all sites of construction material.
19.	Refine soil profile recorded in the field, based on the results of laboratory testing.
20.	Tabulate laboratory test results for inclusion in the soil and material report.
21.	Develop interpretive tables and figures to present the field exploration and lab test data, and how the data were interpreted for analysis and design.
22.	Present interpreted explorations and geophysical results on plans and profiles
23.	Present interpretation of regional geology and geologic setting.
24.	Evaluate alternative geotechnical designs where alternate designs may be viable.
25.	Identify cuts by station limits from which materials conforming to the requirements for Soil materials can be obtained.
26.	Identify section of road with expansive sub grade soil and give corresponding treatment method
27.	Identify cuts (if any) that should be wasted. Recommend disposal sites along the alignment for unusable materials.
28.	Develop final pavement and sub grade recommendations.
29.	Develop final earthwork recommendations. Provide recommendations for shrink/swell, embankment foundation preparation, embankment design, and embankment construction. Identify possible embankment construction problems, such as "pumping" soils, need for maintenance rock, or need for sub grade reinforcement.
30.	Based on preliminary assessment develop design slope and rock fall recommendations.
31.	Conduct global stability analysis for walls (sliding, bearing, overturning, and slope stability) and develop design recommendations.
32.	Conduct shallow foundation analysis and settlement analysis, and develop design recommendations.
33.	Provide recommendations to eliminate or minimize potential for foundation settlements in areas of compressible soils (if any).
34.	Discuss special design considerations.
35.	Discuss special construction considerations.
36.	Compile site photographs and include in reports.
37.	Recommend additional investigation if required. Provide specific recommendations with respect to type of work and location, and expected benefit.
38.	Environmental impact assessment and mitigation measure
39.	Present findings and recommendations in <b>Draft Materials and Site Investigation Report</b> . Include a limitations paragraph describing the potential variations between explorations and that exploration were conducted for design purposes only.
40.	Incorporate EA's/Employer's Representative review and comments in the <b>Final Materials and Site Investigation Report</b> .

#### **6.5.2.4. Submittals**

The Contractor shall prepare and submit a draft and final Soil and material report to EA's/Employer's Representative. The final soil and material report must be approved by EA's /Employer's Representative in writing prior to start of any pavement related activities/operations in the project.

#### **6.6. Hydrology/Hydraulics**

The Contractor shall conduct detailed hydrological study and hydraulic analysis/design. All available data and information shall be collected and analyzed. The Contractor shall determine existing and developed conditions, discharges for pertinent drainage system, and existing flow patterns; assesses possible drainage problems, identify possible solutions and propose hydraulic improvement measures.

The Contractor shall carry out the following minimum work elements and requirements; it may be appropriate for the Contractor to include work elements or procedures not listed here in order to provide the requested end product.

1. Conduct a reconnaissance site investigation, which includes examination of the overall site, existing streams, existing structures (bridges, culverts and ditches), locations, and condition. The investigator shall be equipped with GPS unit, with the approximate accuracy of 3 to 5 meters to document the location of culverts and other drainage features which are necessary for the design. These locations shall be transferred on topographic maps.
2. Develop and define design criteria and computational methods to be used for the hydrological study and hydraulic analyses/design of ditches, culverts and bridges, including appropriate design standards and flood frequency. If there are other hydraulic features, e.g. storm drains and curb/gutter, propose design criteria for these features. Criteria and methods should be consistent with ERA's 2013 Drainage Design Manual as well as pertinent site-specific considerations. Submit the design criteria and methods to be used to EA's/Employer's Representative as part of the Draft Hydrology/Hydraulics Report for review and approval. Subsequent hydrological study and hydraulic analysis/design should be conducted based on the approved criteria and computational methods.
3. Prepare Reconnaissance and Preliminary Hydrological Study and Hydraulic Analysis Report, including, but not limited to the following as part of Hydrology/Hydraulics Report :
  - a. Documentation of approved design criteria and methods
  - b. Documentation of data collected and site investigation
  - c. Documentation of preliminary hydrologic and hydraulic computations, if applicable.
  - d. Electronic files for floodplain analysis, if applicable
  - e.
4. Develop Draft Hydrology/Hydraulics Report. The report will provide the necessary hydrologic and hydraulic analysis to complete the design. Contents of the report shall follow the guidance in the ERA's DDM in a bound format. In addition the report shall include:

- a. Maps indicating the general and specific project location including the stream channel(s) to proposed structure locations and drainage basin boundaries. The catchment shall be delineated on available topographic maps of scale 1:50,000 with code number of the catchment shall be presented with the hydrology and hydraulics report
- b. Prepare soil map and land use map of the drainage area to estimate rainfall-runoff characteristics of the catchment (runoff coefficient or runoff curve number);
- c. Brief discussions, documentation, and summaries of all analysis and design activities (including any assumptions used) and results
- d. Detailed hydraulic design as well as rational for selecting all drainage structures/systems
- e. Appendices containing copies of any hand or spreadsheet calculations and the input and output data from any computer models used
- f. Maps and/or exhibits showing the location and orientation of all cross-sections and cross section plots for all locations
- g. Electronic copies of computer input/output files

## **6.7. Drainage**

### **6.7.1. General Requirements**

The design and construction of all drainage structures and appurtenances shall adequately address functionality, durability, ease of maintenance, maintenance access, safety, aesthetic and protection against vandalism according to contract specifications and standards. In fulfilling the requirements for drainage, the Contractor shall abide by and fulfill the requirements related to drainage features while at the same time meeting requirements of other required design elements on the project.

Drainage design should achieve the most effective and economical methods by which runoff water can be passed through and removed from the Apron. The primary objective should be to:

- Maintain natural drainage pattern undisturbed and stable as much as possible
- Provide drainage structures (culverts and ditch including turnout ditches where required) for natural drainage channels and provide stream training works.
- Sufficient outlet protection works shall be provided to dissipate the flow energy.
- Prevent undue accumulation and retention of water upon and adjacent to the Apron.
- Provide the Apron against storm and subsurface water damage.

The Contractor shall be responsible for the drainage system along the project. All design work shall comply with the ERA's 2013 Drainage Manual. This work shall include the engineering analysis necessary to design any drainage structures.

### **6.7.2. Drainage Submittals/Plans**

The Contractor must prepare plan sheets, notes, and details to include inter-alia the following:

- Drainage structures schedule
- Ditch and outfall cross section sheets

- Pipe and Box/ slab culvert tabulation
- Erosion control details and plan

### **6.7.3. Design Loads**

In general, structures shall be designed for the loads of loading conditions specified in ICAO Standard/FAA requirements.

#### **6.7.3.1. Submittals and Design Calculations**

The Contractor shall prepare all drawings and calculations in support of the design and in the accordance with the standards provided in this section of the contract document. The detail drawings and calculations shall be submitted to EA's/Employer's Representative as a draft for review and comments. Any comments on the draft drawings and calculations will be returned to the Contractor for incorporating the comments during the finalization of the documents. The Final report shall be submitted to EA/ Employer's Representative for approval after addressing the comments. The final report must be approved by EA prior to commencement of any activity related with the construction of bridges.

#### **6.7.4. Geotechnical Design**

The Contractor shall evaluate the requirements of the work, and perform geotechnical explorations, geotechnical analysis, and laboratory testing, sufficient to provide geotechnical designs and construction for foundations of Bridges. The following is a list of publications that shall be used for all design and construction. This is not a comprehensive list and other publications may be required to complete all design and construction elements. Additional publications may be used upon the approval of EA.

The Contractor shall request clarification of any ambiguity or conflict in these mandatory standards from EA. EA's interpretation and decision shall be final.  
Standards and References to be used:

- ICAO Standard/FAA requirements
- ERA's latest Bridge Design Manual
- ERA's latest Drainage Design Manual
- ERA's latest Standard Technical Specification
- ERA's latest Site Investigation Manual
- AASHTO Manual on Subsurface Investigations, 1988
- AASHTO Bridge Design Specification 2007
- AASHTO Standard Specification for Transportation Materials and Method for Sampling and Testing, recent edition
- Other internationally accepted design manuals proposed by the Contractor and approved by EA.

#### **6.7.5. Performance Requirement**

##### **1) Subsurface Investigation Plan (SIP)**

The Contractor shall conduct a Subsurface Investigation Plan to provide information for the geotechnical design of foundations for Bridges. The exploration work for bridge sites shall

be carried out as set out in the standards and references. The Contractor shall determine the specific locations, frequency, and scope of Subsurface Investigation Plan.

The SIP shall be submitted to EA for review and comment prior to start-up of any earthwork or excavation. This submittal shall include the number and depths of the proposed borings and field investigations, and the proposed sampling and testing, to meet the minimum requirements of the project.

Soil Properties used for design shall be determined in accordance with the standards and references given for this section. Field tests shall be conducted in general accordance with appropriate AASHTO and ERA Standards.

Following completion of exploratory work, all boring locations shall be surveyed, and stations and offset, elevation and plane coordinates, shall be determined and included on the boring logs. Following drilling and laboratory work, the Contractor shall retain samples and shall provide samples to EA, if requested, before the start of any excavation work.

## **2) Laboratory Tests**

Laboratory testing of collected soils and groundwater samples shall be conducted in accordance with the applicable ERA manual and AASHTO testing procedures. Laboratories conducting geotechnical testing shall be Ethiopian registered soil and material laboratories. The contractor shall verify for calibration of all the necessary laboratory equipment. All test results shall be included in the Draft and Final Geotechnical Reports.

For geotechnical Analysis, Index parameter such as Cohesion(C) and angle of friction( $\Phi$ ) shall be determined from laboratory and if required the value will be verified by empirical formulas.

## **3) Field Logs**

The field logs shall be prepared in accordance with the requirements of ERA manual and AASHTO Standards. Logs of all field explorations shall be included in the Contractor's Draft and Final Geotechnical Report for the Project.

### **6.7.6. Geotechnical Analysis**

The project road traverses mostly on very rugged topography, and much roadway excavation therefore is required to maintain the road standard class. Although any sign of movements on the natural ground is not identified during the preliminary investigation stage, this does not warrant the ground is stable due to the intervention of the construction work, the existence of unstable ground cannot be ruled out. Some segments of the surveyed alignment might be vulnerable because of conditions existing at the particular location. Often these conditions are related to the geometry of the location, to the prevailing drainage patterns, or to localized geologic conditions (rocks/soil).

Therefore, the Contractor shall perform geotechnical and engineering geologic analysis (such as bearing capacity computation for all bridge foundations, ground water study, slope stability analysis for all slide susceptible areas, high embankment (>8mt), Deep cut (>4mt)) based on the findings from subsurface investigations and laboratory testing programs, and results of engineering analysis, in accordance with the ERA Geotechnical Investigation Manuals and standard publications. Landslide vulnerable locations which require appropriate caution in the project includes: side-hill cut and fill sections, poorly drained

locations, vertical or nearly vertical rock/weathered rock faces near roadway, special cases and materials such as existence of colluvium, soft sensitive clay, talus slope, etc.

### **6.7.7. Submittals/Deliverables**

All submittals shall be submitted in draft form to EA/ Employer's Representative for review and compliance with the contract document and the standards referenced herein. Comments submitted by EA/Employer's Representative shall be addressed by the Contractor to the satisfaction of EA. Final versions of deliverables shall be signed and sealed by either a geotechnical engineer or an engineering geologist.

The following copies of document shall be submitted to EA:

- Subsurface Investigation Plan (3 copies Draft and 5 Copies Final)
- Geotechnical Report (3 copies Draft and 5 Copies Final)

The Contractor shall prepare a Final Geotechnical Report that summarizes the results of field and laboratory investigation programs, engineering studies and geotechnical design recommendations.

## **6.8. Culvert**

### **6.8.1. General Requirements**

The Contractor shall provide a well-drained corridor and a safe environment for the individuals who use and maintain the road. The design and construction of all drainage structures and appurtenances shall adequately address functionality, durability, ease of maintenance, maintenance access, safety, aesthetic and protection against vandalism according to contract specifications and standards. In fulfilling the requirements for drainage, the Contractor shall abide by and fulfill the requirements related to drainage features while at the same time meeting requirements of other required design elements on the project.

Drainage design should achieve the most effective and economical methods by which runoff water can be passed through and removed from the roadway. The primary objective should be:

- Maintain natural drainage pattern undisturbed as much as possible provide drainage structures (bridges, culverts and ditch including turnout ditches where required) for natural drainage channels.
- Provide relief structures (minimum pipe culvert size of 36") in flat terrain with maximum spacing of 300-500 m with proper identification of outlet locations. And in flood plain, the maximum spacing shall be less than 300m and determined as per the site condition to avoid any undesired environmental and social impact.
- Sufficient outlet protection works shall be provided to dissipate the flow energy.
- Prevent undue accumulation and retention of water upon and adjacent to the roadway.
- Provide the roadway against storm and subsurface water damage.
- Providing a safe driving surface for the traveling public.
- Avoid constriction of natural channel during hydraulic opening size determination. Also proper river training shall be incorporate on areas where the river/stream has probability of changing river course.

- Inlet structure shall be designed to fit the natural situation it shall be sufficiently wide enough to allow accesses for inspection and clearing. The standard drawings may be revised as per the advice of the Employer's Representative.

The Contractor shall be responsible for the drainage system along the project. All design work shall comply with the ERA's 2013 Drainage Manual. This work shall include the engineering analysis necessary to design any drainage structures.

The contractor is supposed to consider in his bid any associated cost which may arise due to interference of primary, secondary and tertiary irrigation canals with the project route/alignment.

## **6.8.2. Design**

### **6.8.2.1. Culvert Design**

#### **6.8.2.1.1. Minimum and maximum size**

The Contractor shall use 900mm pipe size as a minimum pipe size for the project. The maximum multiple box culvert cell number should not exceed two cells. The total width of the road including the shoulders, the fill height, the fill slope and flow gradient shall be considered to determine the length of barrel of all culverts. The total road way width including the shoulder width shall be maintained on top of all culverts.

#### **6.8.2.1.2. Major/ Minor Culverts**

Minor Culverts are less than or equal to 48 inches; major culverts are greater than 48 inches.

#### **6.8.2.1.3. Culvert Material**

Reinforced concrete shall be used for all pipe and box culverts crossing the roadway centerline. Reinforced concrete and class 'B' stone masonry shall be used for all slab culverts crossing the roadway centerline. Materials for culvert outside of the roadway must be determined based on engineering analysis.

The Contractor shall provide sufficient justification as to how selection between slab and box culverts is made, based on geotechnical investigation findings and other considerations, for each and every major culvert to be constructed.

#### **6.8.2.1.4. Pipe Class**

The Contractor shall use ERA's 2013 standard drawing, ERA's 2013 Drainage Manual and ERA's 2013 Standard Specification for the selection of pipe class. The more conservative (safe) detail prevails whenever there is discrepancy between the different details of the standard drawings, like discrepancy of diameter and/or spacing of reinforcing bars.



#### **6.8.2.1.5. Pipe Bedding**

The Contractor shall use ERA's 2013 standard drawing, ERA's 2013 Drainage Manual and ERA's 2013 Standard Specification for the selection of pipe bedding.

#### **6.8.2.1.6. Culvert Documentation**

The Contractor must supply the following for culvert documentation:

- For minor culvert: Culvert Design Sheet
- For Major culvert: Design computation

#### **6.8.3. Open Channels and Ditches**

The Contractor shall use ERA's 2013 standard drawing, ERA's 2013 Drainage Manual and ERA's 2013 Standard Specification for design and construction of Open Channels and Ditches, town section ditches shall be provided as per the typical section of each administration levels and shall be covered with ditch cover.

##### **6.8.3.1. Open Channels, Ditches and Side Drains**

The contractor shall use ERA's 2013 standard drawing, ERA's 2013 Drainage Design Manual and ERA's 2013 Standard Specification for design and construction of drainage structures, Open Channels and Ditches.

The minimum size/diameter of pipe for closed side drains in Woreda seats shall be 900mm, and the minimum clear dimensions of U-drains shall be 600mm width and 800mm depth and will have ditch cover, while the actual size may be higher depending upon the hydrological requirements.

#### **6.8.4. Drainage Submittals/Plans**

The Contractor must prepare plan sheets, notes, and details to include inter-alia the following:

- Drainage structures schedule
- Ditch and outfall cross section sheets
- Pipe and Box/ slab culvert tabulation
- Erosion control details and plan

## **6.9. Retaining Walls**

### **6.9.1. General Requirements**

The Contractor shall perform structural analysis and design of retaining walls and structures required to retain embankments and/or cut slopes in the project.

### **6.9.2. Standards**

The Contractor shall design and construct Retaining walls in accordance with the following specifications & guidelines.

- ICAO Standard/FAA requirements
- Recent AASHTO Specification for design of Highway Bridges
- ERA's 2013 Geotechnical Design manual
- ERA's 2013 Standard Drawings
- ERA's 2013 Bridge design manual
- ERA's 2013 Site Investigation Manual
- Other internationally accepted design manuals proposed by the Contractor and approved by ERA.

### **6.9.3. Performance Requirements**

The retaining structures shall be designed and checked for safety against sliding, overturning, bearing, settlement and any other structural failure.

The Contractor shall design, furnish and construct retaining walls for the project. The following list of retaining walls is acceptable for consideration for permanent applications.

- Gravity walls
- Cast-in-place cantilever walls with or without counter forts.
- Other internationally acceptable types of retaining walls like reinforced earth retaining walls, soil nailing etc., in which case it is the Contractor's own responsibility to confirm safety, functionality and sustainability of the retaining structures using internationally accepted design standards, manuals and construction specifications which address the special considerations and requirements related with these type of retaining structures.

## **6.10. Apron Markings Marking**

### **6.10.1. Standards**

The Contractor shall design and install pavement markings in accordance with the following specifications & guide lines

- ICAO Standard
- ERA's 2013 Standard Specifications for construction
- ERA's 2002 Standard Drawing
- Any other standard proposed by the Contractor and approved by EA

### **6.10.2. Performance Requirements**

The Contractor shall design & install pavement markings that will be uniform in type, color, dimensions, location & reflectivity as provided in ERA's 2013 Standard technical Specification and FAA Requirements.

### **6.10.3. Design and Construction Criteria**

Effective pavement marking shall serve as a means of informing, guiding, warning, and controlling aircraft operator.

### **6.11. Fencing works (security fence)**

The Contractor shall design and install security fences in accordance with the following specifications & guide lines for the expanded apron section.

- ICAO Standard
- ERA's 2013 Standard Specifications for construction
- ERA's 2002 Standard Drawing
- Any other standard proposed by the Contractor and approved by EA

### **6.12. Permanent Signing**

#### **6.12.1. Standards**

The Contractor shall comply with the following standards:

- ICAO Design Manual
- ERA's Standard Specification (2013)
- ERA's Standard Drawing (2002)
- Any other standard proposed by the Contractor and approved by ERA

### **6.13. Control of Work and Material**

#### **6.13.1. Construction Specification**

The 2013 ERA's Standard specification shall be used by the Contractor as a minimum requirement for material and construction requirements by the Contractor to address project specific needs. The Contractor shall prepare Construction specification for Materials and construction items and procedures not adequately covered by ERA's 2013 Standard Specifications, maintaining or improving the level of quality represented therein.

The Contractor shall identify all Divisions and special provisions which will apply to the work. The Contractor shall also include all Technical Special Provisions, which will apply to the work. Technical Special Provisions may be written only for items not addressed by ERA's Specification, and may not be used as a means of changing ERA's Specification.

Before construction activities can begin, the Contractor shall prepare and submit for review a signed construction specification package for the project, containing all applicable Divisions and Special Provisions in hard and softcopies to EA'S/ Employer's Representative. The signed specifications package shall also include individually signed and sealed Technical Provisions for any and all work not addressed by ERA's standard Specification.

The Contractor must account for this review time in its schedule. Upon review and approval by EA/Employer's representative, the Construction Specification Package will be stamped "Released for Construction" and initialed and dated by the reviewer.

Measurement and Payment provisions of the construction specification shall be Lump sum basis and shall be paid upon completion of each of the work items pursuant to the payment schedule indicated under Appendix to Tender/Bid.

### **6.13.2. Plans and Working Drawings**

- A. Contractor is responsible for the design and will be required to provide project Design Documents to EA/Employer's Representative for review and approval.
- B. The Contractor shall construct the Project in accordance with the Released construction Documents.
- C. Keep one full set of the Released construction documents on the project site during construction duration.
- D. Reviews, inspections, tests, and approvals conducted by EA/Employer's Representative and others acceptance/approval will not absolve the Contractor's obligation under the contract of the materials or Work reviewed, tested, or inspected. EA/Employer's Representative may reject or accept any Work or materials, request changes, and/or identify additional Work that must be done to bring the project into compliance with contract requirements at any time prior to the Final acceptance of the contract, whether or not EA/Employer's Representative or any such Persons conducted pervious reviews inspections, tests, or approvals. The Contractor shall not be relived of obligations to perform the Work in accordance with the contract Documents or any of its obligations, by reviews, tests, inspections, or approvals performed by any Persons, or by any failure of any Person to take such action.
- E. Shop and working drawings for permanent work. Shop and working drawings shall be reviewed and approved by the Employer's Representative who prepared the Project Design Documents. Work shall not be performed or materials ordered until working drawings for such work, or changes thereto, are approved. Such approval shall not relieve the Contractor of responsibility for the successful completion of the Work.
- F. The Contractor shall be responsible for agreement of dimensions and details as well as for conformity of his working drawings with the contract. The Contractor shall indicate all deviations from the contract and shall also itemize and explain all deviations in the letter of transmittal.
- G. Upon receipt of an approved copy of the shop working drawings, the Contractor shall furnish to EA/Employer's Representative.

1. Two approved sets of prints
2. An electronic file that is viewable and printable with EA/Employer's Representative hardware and software.

### **6.13.3. Conformity With Contract and Contractor's Plans and Specifications**

- A. Perform Work and furnish materials to meet contract requirements, including the requirements established in the "Released for Construction" Design Documents.
- B. When Work fails to meet the Contract requirements but is adequate to serve the Work's intended purpose, EA/Employer's Representative will decide the extent to which the Works will be accepted and remain in place. The EA/Employer's Representative will document the basis of acceptance by change Order and adjust payment.
- C. Remove, replace, or correct Work at the Contractor's expense when a work item does not meet specified requirements and results in work inadequate to serve the design purpose.

### **6.14. Quality Assurance/Quality Control (QA/QC)**

Contractor shall submit its QA/QC plan to EA for review and approval at the meeting held after Date of Commencement. Along with QA/QC plan submittal, the quality assurance Manager (QAM) shall provide a presentation of the QA/QC plan for both design and construction utilizing project related scenarios.

#### **6.14.1. Design Quality Management Plan**

The Contractor is responsible for design quality. The QAM, assigned by the Contractor, shall be responsible for overall management of the QA/QC programs for design. This individual, who shall report directly to the Contractor's Project manager, is essentially responsible for all of the design QA activities. The QAM shall maintain close communication with the Contractor's Project Manager and shall ensure the Project is completed in accordance with the requirements of the Contract Documents. The QAM shall perform all of the design oversight reviews. EA and the EA's representative will participate in these reviews. Under this procedure, the QAM will provide EA with draft design plan for review and approval to confirm that the design work complies with the requirements of the Contract Documents prior to initiation of construction activities on the Project.

Plans to be reviewed shall be submitted to EA's Project Manager/Employer's Representative who will review and approve the plans. EA shall have the right to review and comment on all Draft Plans and Specifications and Special Provisions for compliance with the requirements of the Contract Documents and Reference Documents.

The Contractor shall, at any time and condition, be responsible to satisfy all such requirements and acknowledge that EA will have the right to disapprove any design approach that is not in compliance with the requirements of the Contract documents and Referenced documents even said approach was previously approved in writing by EA.

The Contractor shall revise and modify all draft design plans so as to fully reflect all comments and shall deliver the revised submittal to EA's Project Manager/Employer's Representative, who will distribute plans to appropriate EA/Employer's Representative staff

for review and comments. Final plans are to be submitted to EA for review and approval by the Employer's Representative prior to the construction of the element. The time frame for plan review and approval shall be in accordance with the requirement of the Contract Documents.

#### **6.14.2. Construction Quality Management Plan (CQMP)**

By way of complying with the requirements of the Standard Specification the Contractor shall develop a Quality Control System which shall be described in a Quality Control Manual (QCM). This shall be presented in draft in four (4) copies, two (2) to EA and two (2) to the Supervisor, for review and comment during the mobilization period. The Contractor shall modify the QCM if required and submit controlled copies of the final document for the use of EA and the Supervisor also in four (4) plus two (2) copies. The QCM shall be in a suitable binding approved by the Supervisor so that the QCM can be updated from time to time on approval by the Supervisor.

The Quality Control Manual shall include *inter alia*:

- The Contractor's general approach in providing a Quality Control System.
- The QC organization with details of staffing and interrelationships and responsibilities within the Contractor's organization and with the Supervisor.
- A detailed description of the request system for checking completed works and for the inspection of elements when required prior to performing works.
- Methods and frequency of testing for all elements of the works.
- Reporting procedures.
- Procedures for rectifying deficiencies identified.
- Standard Formats proposed for use in the system with a description of how they are to be used during the project.
- Software proposed for use in maintaining system records and reporting. Where the Contractor proposes software for use in the system copies must be provided for the free use of both ERA and the Supervisor.

The methods of reporting and any standard formats proposed must be compatible with the inputs required by ERA's record system. The QC Manual must be in conformance with the requirements of the Standard Specification and any Special Provisions.

### **6.15. Environment and Safety**

#### **6.15.1. General**

While implementing the project Apron, the Design-Builder shall primarily try, to the extent possible, avoid impacts to the environment including: biophysical resources, the livelihood of the community, historic, cultural, and archaeological resources as well as sites of scenic value. However, if impacts are unavoidable, the Design-Builder shall make every effort to substantially reduce or minimize the unavoidable impacts as the case may be.

On the other hand, the Design-Builder shall foster good relationships with federal, regional, and local agencies, and local stakeholders by ensuring that the commitments the Employer

has made are reflected in the project's final design and fulfilled during construction. The Design-Builder shall accomplish this by meeting or exceeding all environmental requirements listed in the contract. The Design-Builder shall comply with all federal, regional and local laws, regulations, and ordinances (throughout this chapter referred to as regulations) and receive no violations in law.

### **6.15.2. Mandatory Standards**

The Design-Builder shall implement the environmental commitments of Negele-Borena Apron Project in accordance with the relevant environmental regulations as well as the requirements of the standards provided by the employer.

### **6.15.3. Performance Requirements**

The Design-Builder shall prepare and implement Site Environmental Management and Monitoring Plan (SEMP), which shall be incorporated in the Quality Management Plan that identifies methodologies for implementation of environmental and safety mitigation measures, key personnel roles and responsibilities, identifies procedures for environmental compliance, establishes procedures for identifying and correcting non-compliance and establishes procedures for emergency responses.

The SEMP shall include the following plus others deemed appropriate by the Design-Builder in order to achieve environmental compliance:

1. Commitment for Implementation
2. Environmental Plans and Strategies

The Design-Builder shall comply with all applicable Laws. The Design-Builder is responsible for Environmental Assessment (EA) re-evaluation required for the proposed Work.

The Design-Builder shall submit to the Employer copies of all environmental reports.

### **6.15.4. Design Level Issues**

#### **6.15.4.1. Undertaking Environmental Assessment**

The Design-Builder shall undertake EA re-evaluation of the proposed work prior to embarking on construction activities, and considers relevant environmental issues and findings in the design.

- Although the major ones are listed above, the Design-Builder shall familiarize himself with the relevant policies and legal frameworks, and present brief description of the relevant environmental policies and guidelines, legal and institutional frameworks within which the project shall be implemented. The policies will include the Environmental Policy of Ethiopia, Conservation Strategies at federal and regional level, EIA Proclamations, land use and administration Proclamations, Proclamations on preservation and protection of cultural and historical heritages and religious establishments, etc.

- The Design-Builder shall conduct environmental scoping to define the scope of environmental impacts, identify zone of influence of the Apron project impacts, and identify valued or sensitive environmental components (VEC)<sup>1</sup> falling within the influence areas of the project. For these activities the Design-Builder shall make site visits and investigation; contact the relevant stakeholders including; administrations of the involved Zone and Kebeles, the community and interested groups in the areas, and conduct consultations and group discussions with all the stakeholders. The views and opinions of the consulted groups shall be considered as inputs for the impacts analyses and for identification of the proposals of mitigation measures to be taken;
- The Design-Builder shall conduct an assessment that will specifically focus on the Apron corridor and zone of direct influence including; the Apron alignment, material sites, Aprons to material and facilities sites, camp sites, plant sites, garage and workshop sites. The Design-Builder shall also conduct brief discussion of the project and on the activities to be undertaken, sites to be occupied temporarily by the project and /or to be developed for ancillary works.
- The Design-Builder shall carry out the necessary investigations and identify VEC and related likely impacts. This is done both through observations during site visits and consultation of stakeholders.
- The Design-Builder shall conduct assessment of baseline environmental conditions, including examination of the overall site environmental conditions. Such assessment include, but not limited to, existing land use /land cover (with major focus on settlements and settlement patterns), existing properties to be affected, grave yards, churches and mosques within the ROW or to be affected, rivers and streams crossed, utility service lines falling within the ROW width, topography, etc.;
- Based on the Baseline environmental condition assessment, analyze the likely beneficial and adverse impacts of the project on the biophysical and socio-economic environment and enhancement mitigation measures to be taken for adverse impacts and enhancement measures for beneficial impacts;

#### **6.15.5. CONSTRUCTION LEVEL ISSUES**

##### **6.15.5.1. Preparation Of Site Plans**

###### **6.15.5.1.1. Preparation Of SEMP**

- The contraction stage environmental management will begin with the preparation of a detailed SEMP. The Design-Builder will prepare the management plan upon mobilization on site for the construction works. The SEMP is prepared based on and in harmony with the EA outcomes or recommendations as follows:
- The management plan will consider both Apron alignment and off site works like material production sites, (borrow pits, quarries and sand production), camp sites, garages and workshop sites, explosive storage sites and blasting operation.



- The management plan will consider the environmental plan for the bio-physical environment, social and economic issues, occupational health and safety of workers, public health and traffic safety management, general STD and HIV/AIDS Prevention and Control program implementation, etc. and
- The Design-Builder will prepare both the environmental and safety plan and get it approved by the Employer's Representative (ER), and endorsed by the Client, prior to implementation. The Design-Builder will incorporate comments of the Engineer and the Client and will prepare final SEMP to be used as Guidelines for the environmental monitoring works on the site.

#### **6.15.5.2. Landscape Restoration (Reinstatement)**

##### **(a) General**

The Design-Builder shall exercise due care to preserve the natural landscape and shall conduct his construction operations so as to avoid any unnecessary destruction, scarring, or defacing of the natural surroundings in the vicinity of the work. Except where clearing is required for permanent works, approved construction roads, earthworks operations; all trees, native shrubbery, and vegetation shall be preserved and shall be protected from damage by the Contractor's construction operations and equipment. The edges of clearings through trees, shrubbery, and vegetation shall be irregularly shaped to soften the undesirable visual impact of straight lines. Movement of labour and equipment within the right-of-way (RoW) and over routes provided for access to the work shall be performed in a manner to prevent damage to the land of all uses or properties thereon.

All unnecessary destruction, scarring, damage, or defacing of the landscape resulting from the Design-Builder's activities shall be reinstated, replanted, reseeded or otherwise corrected as directed by the EA.

##### **(b) Haul Roads**

The location and alignment of haul roads shall be subject to the approval of the EA. When no longer required, these roads shall, if required by the EA, be restored to their original contour and made impassable to vehicular traffic. The surfaces of such roads shall be scarified and ripped as necessary to create loose soil which will allow or facilitate natural re-vegetation, provide for proper drainage, and prevent erosion.

##### **(c) Design-Builder's Facilities**

The Design-Builder's facilities such as workshop, office, storage and plant areas shall be located and arranged in a manner that will preserve trees and vegetation to the maximum practicable. On abandonment, all temporary buildings, including concrete footings and slabs, and all construction materials and debris shall be removed from the sites and disposed of to the satisfaction of the ER. The area shall be re-graded, as required, so that all surfaces drain naturally, blend with the natural terrain, and are left in a condition that will facilitate natural re-vegetation, provide for proper drainage, and prevent erosion.

##### **(d) Blasting Precautions**

In addition to the requirements of local regulations, the Design-Builder shall adopt precautions when using explosives, which will prevent flying rocks, stumps, or other debris

outside the work area, and prevent damage to life and properties (including vegetation) in the surrounding.

**(f) Quarries, Borrow Pits, Plant and Storage Areas, etc.**

When they are no longer required, all quarry sites, borrow pits and areas used for the disposal or storage of surplus materials and asphalt plants, shall be reinstated by landscaping including the replacement and finally spreading of topsoil as directed by and to the satisfaction of the EA.

**(a) Abatement of Noise**

The Contractor shall comply with applicable Ethiopian laws, orders, and regulations concerning the prevention, control, and abatement of excessive noise.

Blasting, the use of jack hammers, rock crushing, or other operations producing high intensity impact noise may be performed at night only upon approval of the Engineer.

**6.15.6. Collection and Disposal of Waste Materials**

**(a) Collection of Waste Materials**

The Design-Builder shall, at all times, keep the construction area, including storage areas used, free from accumulations of waste materials or rubbish.

All waste water and sewage from office, residential and mobile camps shall be piped to soak pits or other disposal areas constructed in accordance with local regulations, and, where and when such regulations require it, the Design-Builder shall obtain a permit or other appropriate documentation approving the disposal methods being used.

All used fuels, oils, other plant or vehicle fluids, and old tires and tubes shall be collected to a central disposal point, on a regular basis and disposed of as approved by the Engineer.

All household, office, workshop and other solid waste shall be collected to a central disposal area, on a daily basis and disposed of in a manner approved by the Engineer.

Servicing of plant, equipment and vehicles shall, whenever possible, be carried out at a workshop area. This workshop area shall be equipped with secure storage areas for fuels, oils and other fluids constructed in such a way as to contain any spillages which may occur, and similar storage where used fluids can be stored securely prior to their disposal.

When the servicing of plant, equipment and vehicles is carried out away from the workshop area it shall be done at locations and in such a manner as to avoid spillage and contamination of streams and other drainage courses. Any spillages shall be cleaned up by either burning in place or collecting the contaminated soils and burning them at the central disposal area, all to the satisfaction of the Engineer.

Prior to completion of the work, the Design-Builder shall remove from the vicinity of the work all plant facilities, buildings, rubbish, unused materials, concrete formworks, and other similar material, belonging to him or used under his direction during construction, All work areas shall be graded and left in a neat manner conforming, to the extent possible, to the natural appearance of the landscape.

Any residue deposited on the ground from washing out transit mix trucks or any similar concrete operations shall be buried or cleaned up in a manner acceptable to the Engineer.

In the event of the Contractor's failure to perform the above work, the work may be performed by the Contracting Authority, at the expense of the Design-Builder and his sureties shall be liable thereof.

**(b) Disposal of Waste Material**

Waste materials including, but not restricted to, refuse, garbage, sanitary wastes, industrial wastes, and oil and other petroleum products, shall be disposed of by the Design-Builder. Disposal of combustible materials shall be by burying, where burial of such materials is approved by the Engineer; by burning, where burning of approved materials is permitted; or by removal from the construction area. Disposal of non-combustible materials shall be by burying; where burial of such materials is approved by the ER; or by removal from the construction area. Waste materials removed from the construction area shall be dumped at approved dumping sites.

In general, the Design-Builder shall follow the widely accepted waste management hierarchy; or the Reduce, Reuse or Recycle approach (the three Rs) with other details.

**(e) Disposal of Material by Burying**

Only materials approved by the Engineer may be buried. Burial shall be in pits and the location, size and depth of which shall be approved by the Engineer. The pits shall be covered by at least 600mm of earth material prior to abandonment.

**(f) Disposal of Material by Burning**

All materials to be burned shall be piled in designated burning areas in such a manner as will cause the least fire hazards. Burning shall be thorough and complete and all charred pieces remaining after burning, except for scattered small pieces, shall be removed from the construction area and disposed of as otherwise provided in this Section.

The Design-Builder shall, at all times, take special precautions to prevent fire from spreading beyond the piles being burned and shall be liable for any damage caused by his burning operations. The Design-Builder shall have available, at all times, suitable equipment and supplies for use in preventing and suppressing fires and shall be subject to all laws and regulations locally applicable for pre-suppression, suppression, and prevention of fires.

**(g) Disposal of Material by Removal**

Material to be disposed of by removal from the construction area shall be removed from the area prior to the completion of the works under the Contract.

Materials to be disposed of by dumping shall be hauled to the approved dumping site(s). It shall be the responsibility of the Design-Builder to make any necessary arrangements with private parties and with local officials pertinent to locations and regulations of such dumping.

**6.15.7. Site Clean-up**

After completion of the project, the Design-Builder shall remove all types of wastes, resulted from the project activities, from the project sites and dump or dispose at designated sites by the Engineer.

While cleaning up, the Design-Builder shall give special emphasis to demolishing of structures of the camp sites. That is, all the superstructures and substructures of buildings and other structures shall be removed completely and disposed at approved sites by the Engineer.

#### **6.15.8. Environmental and Safety Compliance Monitoring**

To ensure the sustainability of environmental and safety compliance monitoring, the Design-Builder shall:

- Include a Health, Safety and Environment (HSE) unit in its organizational structure for the health, safety and environmental management during the construction works. The unit shall be led by a qualified and skilled HSE Officer, and will have trained staff under him/her;
- undertake health, safety and environmental monitoring based on the TMP, OHSP and SEMP and will report to the ER on regular basis;
- include health, safety and environmental monitoring reports in every progress report submitted to the ER; and
- Consider and rectify any non-compliances recorded and transmitted to him by the ER within the instructed time frame as stipulated in the letter of instruction by the ER.

#### **6.15.9. Deliverables**

The Design-Builder shall submit the following information and documentation, at a minimum; to the Employer (some of them could be part of the others as agreed or approved by the latter):

1. Environmental Compliance Plan
2. Traffic Management Plan
3. Occupational Health and Safety Plan
4. Temporary Erosion and Sediment Control Plan
5. Archaeological Survey and Monitoring Plan
6. Wetlands Delineations, if any, and
7. Regular Environmental and Safety Inspection/Monitoring Reports

#### **6.16. General Warranty**

The Design-Builder warrants that:

1. All design work performed pursuant to the Contract Documents, including that done by the Subcontractors and manufacturers, shall conform to all professional Employer's Representative principles generally accepted as standards of the industry;
2. The Project shall be free of defects, including design errors, omissions, inconsistencies and other defects;
3. Materials and equipment furnished under the Contract Documents shall be of good quality and when installed shall be new;
4. The Work shall meet all of the requirements of the Contract Documents;
5. The specifications and/or drawings selected or prepared for use during construction are appropriate for their intended use; and
6. The Project shall be fit for use for the intended function.

##### **6.16.1. General Warranty – Time of General Warranty**

The General Warranty shall commence after issuance of defect liability certificate. The General Warranty shall remain in effect until three years after the date of issuance of defect

liability certificate. If the Employer determines that any of the Work has not met the standards set forth in this Section at any time during the Warranty period for such Work, then the Design-Builder shall correct such Work as specified below even if the performance of such correction Work extends beyond the stated Warranty period. Within 45 calendar days of receipt by the Design-Builder of notice from the Employer specifying a failure of any of the Work to satisfy the Design-Builder's Warranties, or of any Subcontractor representation, Warranty, guarantee, or obligation which the Design-Builder is responsible to enforce, the Employer shall decide when and how the Design-Builder shall remedy such defects/failure, provided, however, that in case of an emergency requiring immediate corrective action, the Design-Builder shall implement such action as it deems necessary and shall notify the Employer of the urgency of a decision. The Design-Builder and the Employer shall agree on a remedy immediately upon notice by or to the Employer of such emergency. If the Design-Builder does not use its best efforts to proceed to effectuate such remedy within the agreed time, or if the Design-Builder and the Employer fail to reach such an agreement within such 45 calendar days period (or immediately, in the case of emergency conditions), then the Employer upon notice to the Design-Builder, shall have the right to order the Design-Builder to perform the work or to perform or have performed by third parties and the costs thereof shall be borne by the Design-Builder.

#### **6.16.2. General Warranty - Performance Responsibility**

The Design-Builder retains responsibility for all Work performed on the Project, including all Work of Subcontractors and all Materials and Equipment provided by suppliers, vendors and/or manufacturers. Upon receipt from the Employer of notice of a failure of any of the Work, the Design-Builder shall be responsible for enforcing or performing any Warranty, guarantee, or obligation, in addition to the Design-Builder's other obligations hereunder. The Employer's rights under this Section shall commence at the time such representation; Warranty, guarantee, or obligation is furnished and shall continue until the expiration of the Design-Builder's relevant Warranty (including extensions for redone Work). Until such expiration, the cost of any Equipment, Material, labor (including re-engineering), and/or shipping shall be for the account of the Design-Builder if such cost is covered by such a Warranty, and the Design-Builder shall be required to replace or repair defective Equipment, Material, or workmanship furnished by Subcontractors.

#### **6.16.3. General Warranty – Extension of General Warranty**

The Design-Builder's Warranties shall apply to all Work re-done pursuant to the terms of this Contract. The Design-Builder's Warranty for repaired or replaced elements of the Work shall extend beyond the original Warranty period if necessary to provide a three year Warranty period following acceptance for any repaired or replaced Work.

#### **6.16.4. General Warranty – No Limitations of Liability**

The foregoing Warranties are in addition to all rights and remedies available under the Contract Documents or applicable law, and shall not limit the Design-Builder's liability or responsibility imposed by the Contract Documents or applicable law with respect to the Work, including liability for design defects, latent construction defects, strict liability negligence, or fraud provided.

#### **6.16.5. Damages for Breach of Warranty**

In addition to all rights and remedies available under the Contract Documents or applicable law, if the Design-Builder fails or refuses to provide the Warranty remedy described in this Section, notwithstanding a valid request by the Employer, the Design-Builder shall be liable for the cost of performance of the Warranty work by others. The Employer may also call the warranty performance bond.

#### **6.16.6. Warranty Bond**

Amount and Term. The Design-Builder must furnish a single - term warranty bond (unconditional guaranty) in the amount of 10 percent of the contract price. The effective starting date of the warranty bond must be the date of issuance of Defect Liability Certificate (DLC) for any section or the entire project road as the case may be. Percentage of the warranty bond will be released at the end of the warranty period or after the warranted work has been completed and the required service level or threshold limit is met for the respective warranted item of work, whichever is latest. (1st installment 20% of the warranty bond shall be released at the end of the 1st year of the warranty period, 2nd installment 20% shall be released at the end of the 2nd year and 3rd installment remaining 60% shall be released at the end of the warranty period).

#### **6.16.7. Warranty Performance Requirements**

In addition to the Warranty provisions of this Section, Project components shall meet the specific performance requirements specified in the Contract Documents.

### **6.17.11 Disputes**

Any disagreement between the Employer and Design-Builder relating to items with many causes for failure, and may be difficult to determine a precise cause shall be evaluated by a conflict resolution team (CRT) to be established for the purpose; The CRT will consist of two Design-Builder representatives, two Employer representatives, and one from independent third party which is selected by both the Employer and Design-Builder mutual agreement. The cost of the third party will be equally shared between the Employer and Design-Builder. The team members will be identified in writing prior to the start of identifying the causes for failures, which are subjected to dispute.

### **6.17.12 Evaluation Method**

**Segmentation:** For evaluating pavement, the Employer will divide the project into segments. Each individual critical section of the Apron outside shoulder will be divided into 100-meter segments for measuring and quantifying the condition parameters. Evaluation will be made periodically on **six month** basis or on an as needed basis, whichever suits the Employer, during the warranty period by the Employer. The evaluation will be made using the Employer's Pavement Management System.

**POB and POE:** The beginning point for laying out segments will be the point of beginning (POB) of the project. Segments will be laid out consecutively to the point of ending (POE) of the project. The original segmentation of the project will be used for all successive reviews throughout the warranty period.

If any of the threshold levels are met or exceeded and the contractor agrees to the validity of the pavement distress survey, the contractor will remedy the distress. If any of the threshold levels are met or exceeded and the contractor does not agree to the validity of the pavement distress survey results, the Conflict Resolution Team will resolve the dispute within 30 days.

### **6.17.13 Costs of Correction of Work**

All costs of correcting such rejected Work, including additional testing and inspections, shall be deemed to be covered by the Design-Builder.

### **6.17.14 Pavement Warranty**

**Application:** This section applies to pavement warranties on new AC pavement placed on an unbound or stabilized aggregate base. Distress identification must be according to the Distress Identification used in ICAO's Pavement Management system.

**Limits of Warranted Work:** The warranted work includes all AC pavement on driving lanes and shoulders within the project limits.

**Warranty Term:** The warranty term shall be *three years* from the end date of Defect Liability Period (DLP). The extent of warranty work and the Design-Builder's liability for the work that may be required by these warranty provisions is not limited by the warranty bond amount.

### 6.17.14.1 Mandatory Standards

**Conflicts and Priority:** If there is any conflict in standards, adhere to the standard with the highest priority indicated in the contract. However, if the Design-Builder's Proposal has a higher standard than any of the listed standards, adhere to the Design-Builders Proposal standard.

**Ambiguity:** If there is any unresolved ambiguity in standards; obtain clarification from the Employer before proceeding with design or construction. The Design-Builder shall request clarification of any ambiguity or conflict contained in these mandatory standards from the Employer. Employer's interpretation and decision shall be final.

**Version and Date:** Use the most current version of each listed standard as of the initial publication date of this contract unless modified by change order.

### 6.17.14.2 Performance

The parameters that will be used by the Employer to evaluate performance of all constructed pavements for this Project are ride quality, pavement friction, pavement surface condition, structural strength and material quality. These parameters will be measured and evaluated by the Employer periodically on six month basis or on an as needed basis during the warranty period, whichever suits the Employer.

At least 60 calendar days prior to the expiration of the warranty or at any time deemed necessary by the Employer, the Employer will notify the Design-Builder in writing if the pavement distress exceeds the criteria outlined in the following table.

**Table 6.13: Allowable Threshold Limits and Corrective Actions - New Constructed DBST**

Pavement, Roadside Slopes and Clearway			
Item	Threshold Limits	Method of Detection and Measurements	Time allowed for repairs
Potholes	Potholes < 5 nos./Km of diameter < 270 mm	Visual inspection Rulers, measuring tape. Measure the depth, count the number of potholes, and measure the diameter of the pothole in a length of 100m.	Within 7 (Seven) days after detection
Narrow Crack (1- 3mm)	Cracking < 5% of paved area per segment (i.e. 100m)	Visual assessment of the affected surface area  Or Will be measured using Crack measuring gauge or small transparent ruler with mm gradations	Within 28 (Twenty Eight) days after detection
Wide cracks	Wide Structural	Visual assessment of the affected	



<b>Pavement, Roadside Slopes and Clearway</b>			
<b>Item</b>	<b>Threshold Limits</b>	<b>Method of Detection and Measurements</b>	<b>Time allowed for repairs</b>
(Crack width more than 3mm)	Cracking's 0% of paved area per segment	<p>surface area</p> <p>Or</p> <p>Will be measured using Crack measuring gauge or small transparent ruler with mm gradations</p> <p>For isolated cracks, the "cracked area" includes 0.5 m on each side of the crack, multiplied by the length of the crack plus</p> <p>0.5 m at each end.</p>	Within 28 (Twenty Eight) days after detection
Shoving /Localized plastic movement (Bulging)	<p>Height of bulge should not more than 20mm continuously in 10 m length per segment of the Roadway</p> <p>With maximum length of shoving not exceeding 100 m (cumulative) on the entire project Road.</p>	Visual Inspection and Place a 1.5m straightedge over the affected area and measure height of bulge.	Within 28 (Twenty Eight) days after detection
Ravelling	No ravelling exceeding 5% of paved area per segment of the Roadway.	Visual inspection and measuring tape and rulers	Within 28 (Twenty Eight) days after detection
Edge Break	Edge Break < 1 Sq.m of paved area per segment	Visual assessment of the affected surface area confirmed with a ruler or measuring tape	Within 28 (Twenty Eight) days after detection
Rutting	Not more than 15mm in depth continuously in 10 m length per segment; with maximum length of rutting	Visual inspection and measurement confirmed by using a 1.5m- long straight edge placed across-wide placed cross-wide the pavement above the deformed area	Within 28 (Twenty Eight) days after detection

<b>Pavement, Roadside Slopes and Clearway</b>			
<b>Item</b>	<b>Threshold Limits</b>	<b>Method of Detection and Measurements</b>	<b>Time allowed for repairs</b>
	not exceeding 100 m (cumulative) on the entire project Road.		
Depressions & Settlements	There shall be no detrimental depressions or/and settlements greater than 25 mm in a length of 10m on the Roadway.	Visual inspection and Straight Edge, ruler and measuring tape	Within 28 (Twenty Eight) days after detection
<b>Shoulders and verges ( Road side slopes)</b>			
Shoulder drop-off  / Height of shoulder Vs Height of Pavement	The edge of paved shoulders shall be even with or have no more than 15 mm drop off to the adjacent earthen shoulder extension.	Visual inspection and confirmed by Placing a straightedge along the transverse direction on the edge of the pavement, and measure the difference in elevation (h) between the shoulder and the pavement. by ruler or measuring tape with scale in mm	Within 15 (Fifteen) days after detection
<b><i>N: B; - Recommended corrective actions must be first approved by the Employer.</i></b>			

Within three days of receiving notice, the Design-Builder shall commence to undertake the warranty work, submit a plan for completing the work. If the Design-Builder fails to undertake warranty work within 30 calendar days after receiving written notice from the Employer, the Employer will complete the warranty work or contract to have it completed and the Design-Builder shall be responsible for the total cost of the warranty work.

All repair, maintenance, and warranty work performed as part of this warranty provision shall be covered by the warranty provision for the remainder of the warranty term.

During the warranty period, the warranty work shall be performed at no cost to the Employer. Maintenance (corrective and preventative action) work that the Design-Builder elects to perform during the warranty period shall be at no cost to the Employer. If corrective action needs to be taken, the Design-Builder shall coordinate all such activities to minimize disruption to the traffic and shall be approved by the Employer.

Maintenance or Warranty work that requires a resurfacing of the pavement shall not be performed on any wet surface, or when weather conditions otherwise prevent the proper handling or finishing of the bituminous mixtures.

#### **6.17.14.2.1 Material Quality**

Material quality shall be evaluated prior to and during construction through the Design-Builder's approved Quality Management Plan. Materials specified in the design and meeting the requirements outlined in the Standard Specifications shall be evaluated to meet or exceed requirements. Materials not meeting these specifications shall be removed immediately and replaced with acceptable material.

#### **6.17.14.2.2 Ride Quality**

Baseline measure of the International Roughness Index (IRI) will be conducted using the Employer's profiler and rough meter and shall meet the performance criteria of ICAO standard:

#### **6.17.14.2.3 Pavement Friction**

Pavement friction shall meet the performance criteria under ICAO standard:

### **6.17.15 All Major and Minor drainage structures**

**Application:** This section applies to all drainage structures designed and constructed by the Design-Builder.

**Limit of Warranty Term:** The warranty work includes all major and minor drainage structures. Any sort of defect to be identified on any of the major structures and minor drainage structures shall be rectified.

**Warranty Term:** The Warranty Term shall be three years from the date of issuing Performance Certificate,

**Warranty Requirements:** The Design-Builder must repair any surface defects such as small areas of honeycombing, cavities produced by form ties, large isolated blow-holes, broken corner edges, etc. shall be repaired with mortar having a cement and sand ratio equal to that of the concrete being repaired.

For the repair of large or deep areas of honeycombing and defects, special approved methods and techniques, such as pneumatically applied mortar, pressure grouting and epoxy bonding agents may be used on approval of the Engineer.

Where, in the opinion of the Engineer, the extent of the honeycombing or defects is of such a degree that doubt exists about the effectiveness of repair work, the Contractor shall, at his own cost, perform a load test to prove that the structural safety of the repaired member has not been prejudiced, failing which, the structure shall be rebuilt in part or in full at the Contractor's cost.

Where the concrete has been damaged by adhesion to the formwork panel, the cracked and loose concrete shall be removed; or where the fresh concrete has lifted off at construction joints, the crack shall be scraped out immediately on both sides of the wall to a depth of at least 50 mm. The cavities so formed shall then be repaired.

#### **6.17.16 Settlement of New Apron Grade**

**Application:** This section applies to settlement warranties on all new Apron subgrades constructed within the project limits.

**Limits of Warranted Work:** The warranted work includes all subgrade excavation, embankment, and aggregate base placed on the Apron below the bituminous pavements, including bridge approach panels and bituminous pavement over culverts.

**Warranty Term:** The warranty term shall be *three years* from the end of Defect Liability Period (DLP).

#### **6.17.17. Signing (Permanent)**

**Application:** This section applies to all permanent signing furnished and installed by the Design-Builder.

#### **6.17.18. Landscaping and Turf Establishment (Plantings, Trees, and Grasses)**

**Application:** This section applies to turf establishment warranties on all disturbed areas within the project limits.

**Limits of Warranted Work:** The warranted work includes all seeding, fertilizing, and mulching necessary to reestablish turf within the project limits.

**Warranty Term:** The warranty term shall be *two year* from the end date of Defect Liability Period (DLP)

**Warranty Requirements:** The Design-Builder shall provide a minimum level of landscaping or turf reestablishment as outlined in the Employer's Requirement for a period of *one year* from the date of taking over certificate under the contract for any section or the entire Apron project as the case may be. At the end of the one-year warranty period, the Design-Builder and a representative from the Employer will inspect all the areas that were seeded to ensure that all plant matter is alive and that plant coverage is acceptable to prevent erosion. The Design-Builder shall reestablish areas where the plant matter is dead or coverage is inadequate. Once the inspected areas have been reestablished by the Design-Builder, the Employer will notify the Design-Builder that the terms of the warranty period have been met and that the warranty period is complete.

#### **Methodology for evaluation of conditions of signage and Apron safety**

**Traffic Signs –** Traffic signs are defined as any sign, information, mandatory/regulatory, cautionary/ warning, delineators, Road stud, and route markers or otherwise, that is required on the Apron.

## **APPENDIX A**

### **OFFICES, LABORATORY, TRANSPORTATION AND OTHER FACILITIES FOR THE EMPLOYER REPRESENTATIVE'S SITE PERSONNEL DRAWINGS**

## **I. SCOPE**

This section covers the provision of accommodation and transportation for the Employer Representative's supervisory staff. This accommodation shall include the necessary office and laboratory accommodation, Transportation, Survey Equipment, Communication Radios and the provision of all the necessary services. The provisions of this section are to be read in conjunction with the various sub-sections of annex.

Only office and laboratory accommodation are applicable here, if in case some words are stated about Housing accommodation you should avoid it and only consider office and laboratory accommodation.

## **II. OFFICES and LABORATORY ACCOMODATIONS**

### **a) General**

The various units of accommodation and the fittings shall be constructed in accordance with the requirements set-out below and in sub-sections A.1, A.2 and A.3 of Annex, and the details provided by the Employer's Representative.

Buildings for offices and laboratories shall be constructed from fiber cement or other approved materials. The buildings shall have double walls filled with insulating material and lined on the inside with timber or other approved material. Ceilings shall be provided for both office and laboratory buildings. Office buildings shall have concrete floors with vinyl floor tiles and laboratory buildings shall have concrete floors. Window areas of these buildings shall be at least equal to 25% of the floor area. Each building shall be provided with a verandah on one side, running for the full length of the building. The verandah shall be 1.5 m wide and shall have a 100 mm thick concrete floor.

Stores shall have galvanized corrugated steel roofs and 100 mm thick concrete floors. The sides of the stores shall be fenced off from floor level to the roof with 50 mm diamond-mesh wire. Each store shall have one lockable door.

Office and laboratory buildings shall be painted with an approved paint after erection. The paintwork shall be maintained during the contract period, whenever instructed by the Employer's Representative.

Each door shall be provided with a lock and two keys. The setting, orientation and materials to be used for construction of all offices, laboratories, housing or other accommodation shall be to the Employer Representative's satisfaction and shall be decided in consultation with him and confirmed by him in writing before erection. All accommodation shall include the provision of 220 volt electricity, and where required, fresh clean potable water and sewerage,

including septic tanks, if necessary, which will be considered as part and parcel of the accommodation provided and will not be paid for separately.

The clear height of all offices between floor and ceiling shall be 2.6 m minimum. All windows shall be of the type that can open over the full window area. The Contractor's Site Office shall be situated in the vicinity, but at reasonable distance from the Employer Representative's Site Office. All accommodation shall be approved by the Employer's Representative.

**b) Offices**

The various types of offices required, and their fittings, furniture and equipment, shall be in accordance with the requirements of sub-section A.2 of Annex A. These shall conform also to the following requirements:

- i. Each office desk shall have a surface area of at least 1.5m<sup>2</sup> and shall be provided with at least three drawers, one of which can be locked.
- ii. General purpose steel cabinets shall have at least 1.5 m<sup>2</sup> shelf area and a volume of 0.70 m<sup>3</sup> each. Each cabinet shall have a lock with two keys.
- iii. Steel filing cabinets shall each be fitted with four drawers on runners. Each cabinet shall be fitted with a lock and shall be 1,300 mm high, 460 mm wide and 600 mm from front to back.
- iv. Shelves shall be suitable for storing all the contract drawings or shall else be as detailed on the Drawings.
- v. Each wash hand basin shall be fitted with taps and a drain.
- vi. Each office shall be provided with Air Conditioning unit. Air-conditioning units shall be as specified in Sub clause II (f).
- vii. Lights shall be of the fluorescent type either double 80 watt, single 80 watt or double 55 watt or of the incandescent type according to what is required or specified.
- viii. Each draughtsman's stool shall be fitted with a padded seat with an adjustable seat height.
- ix. Electric power plug points shall be provided. Each office shall have at least two 15 ampere plug points.
- x. Each drawing table shall have either an inclined or a horizontal surface as specified, and a smooth top built to the dimensions shown on the Drawings or as approved by the Employer's Representative.
- xi. Chairs shall be robust and comfortable.
- xii. A complete telephone service, together with an exchange line and the number of extensions specified or ordered by the Employer's

Representative shall be provided. The tendered amount shall also include the cost of all telephone calls in connection with the project administration.

- xiii. Each conference table shall be large enough to seat twelve people and shall have an area of at least 5 m<sup>2</sup>.
- xiv. Blinds shall be of the types as specified or ordered by the Employer's Representative.
- xv. Adjustable Venetian blinds or opaque roller blinds shall be supplied to the Employer Representative's satisfaction so as to permit light to enter the room but excluding direct light.
- xvi. A complete facsimile service, complete with a dedicated telephone line and fax paper for the maintenance of the service and for any other costs, including rentals, associated with the service.
- xvii. Computers shall be of the following types (or their equivalent as approved by the Employer's Representative:

**1. Type A. Dell OptiPlex 7010 specs (Core i3 3220 3.3 GHz)**

- Processor / Chipset
  - Type 3rd Gen Core i3, Intel 3 i3-3220 / 3.3 GHz
- RAM
  - Installed Size 4 GB / 16 GB (max)

**2. Type B. Dell OptiPlex 790 specs (Core i5 2400 3.1 GHz)**

- Processor / Chipset
  - Type Intel 2nd Gen Core i5 2 i5-2400 / 3.1 GHz
- Cache Memory
  - Installed Size L3 cache - 6.0 MB

**3. Type C. L855/L955 Satellite Laptop Specifications**

- Processor
  - Intel® Core™ i5-3317U Processor
- Operating System
  - Windows 8/8.1

- xviii. Computer printers shall be LaserJet technology with speed of 15 pages per minute resolution 600\*600 size A4 and desk jet A3 & A4



size color & Black and white resolution 1200\*1200 DPI or more recent. At least one printer shall be suitable for printing color photographs from a digital camera. Each printer will be supplied with suitable cables and switches to connect the printer to the computers all to the satisfaction of the Employer's Representative. The tendered amount will include for the maintenance of the printer throughout the Contract period.

xix. Scanner resolution 4800DPI size A4 or similar approved by the Employer's Representative.

xx. Computer software for each computer of Type A, B and C shall include:

1. MS windows XP or higher
2. MS office 2007 professional or latest.
3. Approved virus detection software with update support.
4. Lap link for windows with associated cable (type C computers only )
5. MS Project 2002 or latest for Windows.

Computer software for each computer of Type B and C shall include also:

1. AutoCAD 2002 or more recent for Windows
2. The following modules of Eagle Points Civil Series software

for Windows for road design and earthworks calculations: Road calc, Surface Modeling, Profiles, COGO, Data Transfer, Data Collection, Drafting, Intersection Design, running in AutoCAD environment. In alternative to the above mentioned modules of Eagle Point Civil Series software for road design, the Employer's Representative may instruct the Contractor to provide software, of similar characteristics, for road design from a different software producer.

The latest versions of the above mentioned software, compatible with each other, shall be supplied. All to the satisfaction of the Employer's Representative.

xxi. External CD-Drive/Recorder CD-RW of type compatible with the computers Types A, B and C and as approved by the Employer's Representative.

xxii. Photocopy machine- Administration Office

- (1) The photocopy machine shall have speed of 15 pages per minutes A3 size with good zooming capacity and shall be capable of self-feeding and producing copies up to A3 size, with capabilities for the reduction and enlargement of documents. The tendered amount shall include for the provision, installation and maintenance of the machine.

xxiii. Plotter

The plotter shall be of the Hewlett-Packard Design Jet 750 type or approved similar type and shall be used for the automatic plotting of road surveys alignment drawings and cross-sections at up to A0 size.

xxiv. Digital camera

The camera shall be of the Casio or equivalent digital camera type, image resolution 640 x 480, high resolution, 61 image memory type or similar as approved by the Employer's Representative and should be supplied with all relevant computer hardware accessories and software. The camera should also be compatible with the supplied computer hardware and software as in (xvii) to (xx) above.

xxv. Photo camera

**c) Laboratory**

The size, layout and other details of the laboratory shall be in accordance with the schedules of fittings, equipment and furniture contained in sub-section A.1 of Annex A.

All laboratory equipments, fittings, furniture, etc. shall be new and shall be maintained to full working conditions throughout the Contract period.

The laboratories, fittings, furniture and equipment shall also conform to the following requirements:

- i. Ordinary chairs, telephone extensions, 15 ampere 220 volt electricity plug points and air-conditioners and lights shall meet the same requirements as specified for offices.
- ii. Shelf space provided against walls shall be of robust construction and shelving shall be of suitable timber or fibers cement material depending on requirements. Shelving below work tables shall be 390 mm above floor level and above working areas 1 980 mm above floor level.
- iii. Work bench areas shall be of two types as specified.

1. Of wooden construction. The tops shall be hard and smooth, free from warping or other defects.
2. With concrete tops. The tops shall be at least 75 mm thick concrete slabs with a smooth hard steel-trowelled finish.

All work benches shall be robust and their upper surface shall be 920 mm above floor level.

- iv. Gas installations shall consist of the necessary gas cylinders, regulators, tubing, and taps.
- v. High stools for use at work benches shall be robust and, if of fixed height, shall be 800 mm high.
- vi. A 380 volt 3-phase electric power supply shall be provided. Power points for ovens and a crusher shall be suitable for the purpose. Power points in oven rooms shall be 1.2 m above floor level.
- vii. Concrete working floors shall be at least 125 mm thick and provided with a hard smooth finish. The working areas shall be either entirely open or under a shelter as required.
- viii. Wash basins shall be as prescribed either of stainless steel or precast concrete with an area of at least 0.3 m<sup>2</sup> and minimum depth 0.3 m. They shall be provided with swan neck type laboratory taps and drain pipes.
- ix. A supply of fresh clean potable water at a constant head of not less than 3 m at the taps shall be provided. Storage capacity in respect of the laboratory water supply shall not be less than 700 liters.
- x. Fire extinguishers shall be of the BCF (Bromo chloro difluoro methane) type manufactured to BS 1721 and suitable for Types A, B, C and E fires. The extinguishers shall contain not less than 2.5 kg of extinguishing fluid and shall be fitted to the wall at suitable positions by means of quick release brackets. They shall be freshly charged and the seals shall be unbroken. Fire extinguishers shall be checked and maintained on a regular basis bi-annually or as required.
- xi. Extractor fans shall be mounted as to operate noiselessly. They shall have a capacity of at least 0.15 KW each.
- xii. Where required, concrete footings and pedestals shall be constructed to the dimensions indicated by the Employer's Representative for installing certain testing equipment.
- xiii. Baths for curing concrete test cubes, beams and cylinders shall be provided. The baths shall be rectangular in shape and regarding the inside dimensions the width shall not exceed 1.0 m and the depth shall

not exceed 0.6 m. The baths shall be made from concrete, plastered brick, or other suitable material.

xiv. A 0.3 m<sup>3</sup> capacity refrigerator shall be supplied.

xv. The ownership of the laboratory equipment shall be transferred to the Contractor upon completion of the project.

**d) Car ports**

Car ports shall be so constructed with the office as to protect the vehicles parked under them at all times against the direct rays of the sun. The car port shall be at least 20 m<sup>2</sup> in area and the floors shall consist of a layer of broken/crushed stone to alleviate dusty and muddy conditions.

**e) Areas around Employer Representative's office and laboratories**

The access and other roads around the offices shall be treated to make them dust free either by crushed stone, suitable dust retardant oils or bituminous surfacing. They shall be well-drained and kept trafficable and free from mud at all times. Foot paths shall be similarly treated to provide convenient access to all buildings.

**f) Air-conditioning units**

The Contractor shall provide and install air-conditioning units to the office, laboratory.

The Contractor shall clean, maintain and service the air-conditioners at regular intervals of one month or as directed by the Employer's Representative. If, in the opinion of the Employer's Representative, the air-conditioners do not work satisfactorily, they shall be replaced by the Contractor at his own cost as instructed by the Employer's Representative.

The air-conditioning units shall be of the electrically operated compressor type with closed circuit and of the evaporation type. The capacity of the air-conditioning units shall be at least 2.2 KW each.

**g) Ablution units**

Ablution units shall be well-ventilated units. They may be constructed from fiber-cement sheeting with steel frames or from other suitable approved materials, and the floors shall be of concrete with vinyl floor tiles. Latrines shall be provided with vitreous enamel W.C. pans with PVC seats and covers and flush cisterns. Wash basins shall be in vitreous enamel, complete with taps and drains.

Provision shall be made for suitable sewerage as specified in clause 1.3.4 where required a separate shower and changing room shall be provided complete with shower, hot and cold running water and drains. Each room shall be provided with a latch fitted door on the inside. Each ablution unit shall be

provided with an outside door with a lock. At least two keys shall be provided for each lock.

### III. VEHICLES

The Contractor shall provide new vehicles for the sole use of the Employer's Representative and his staff in accordance with the following requirements and in the quantities specified in sub-section A.4 of Annex A.

- (a) The vehicles shall be registered and insured comprehensively as well as for third party liability to cover any licensed driver. The insurance policies and registration shall be kept current to comply with the laws of Ethiopia.
- (b) The following vehicle type will be provided:
  - i. **Vehicle type B:** the Two vehicles are Four-wheel-drive double cabin pick-up, with canopy, heavy duty diesel, complying with the minimum requirements specified in sub-section A.4 of Annex A.
- (c) All vehicles shall be provided with radio/Tape player, fuel tank, two spare wheels and air conditioning units.
- (d) All vehicles shall be maintained to comply with the laws of Ethiopia.
- (e) On the instruction of the Employer's Representative, the Contractor shall be responsible for replacement whether temporary or permanent, of any vehicle that is not operational at the project be it due to repair accident or loss.
- (f) The Contractor shall provide each vehicle with an experienced driver and shall be available to the Employer's Representative staff on full time basis.
- (g) The vehicles shall be provided with fuel and lubricants as required and shall be serviced and maintained so as to be in a safe, reliable and roadworthy condition at all times until the completion of the work.
- (h) The ownership of the vehicles shall be transferred to the Employer (EAE) upon completion of the project.

### IV. SURVEY EQUIPMENT

- (a) The Contractor shall supply new surveying equipment as specified in sub-section A.5 of Annex A and shall maintain them in full working order during the progress of the works. The Contractor is responsible for the supply of expendable material and the attendance of chainmen, other helpers and laborers as required from time to time in connection with the works.
- (b) The Contractor shall provide the surveying equipment specified in Annex including walky-talky of the type suitable for satisfactory communication during the

carrying out of the surveying work and as approved by the Employer's Representative; each with spare batteries and charging units. In addition, all necessary equipment such as compasses, plumb bobs, hand levels, staffs, range rods, tapes, pegs, templates and other items necessary for checking the survey, setting out and measurement of the works shall be supplied by the Contractor. All equipment shall be new.

- (c) The Contractor shall provide adequate supplies of approved expendable materials such as pegs, brushes, paint and other similar items as required by the Employer's Representative.
- (d) The ownership of the surveying equipment shall be transferred to the Contractor upon completion of the project.

## **V. RADIOS**

The Contractor shall supply, install and maintain a suitable radio communications system for the sole use of the Employer's Representative and the Employer in accordance with the following requirements.

This system shall ensure communications between the Employer's Representative and Contractor's offices and vehicles in the area of the construction site as well as with the Employer office in Addis Ababa. Communication between the Employer's Representative radio system to the Contractor's site office and at least to one mobile unit in the Contractor's vehicles should be ensured. The ownership of the whole equipment shall be transferred to the Contractor upon completion of the project.

The receivers and transmitters (HF SSB) shall form a radio telex system comprising the following units:

### **(a) Base station**

- i. HF SSB Transceiver codan type 8528 front control fitted with LSB/USB, selective call, interface facility and fan. Programmable channels, power supply unit 220 V AC/12 V DC with cable kit. Folded dipole antenna 270 W PEP with co-axial cable 30m.
- ii. Modem codan type 9001 with 9102 software, laptop computer IBM compatible. Printer telex roll holder with cables and mounting hardware. Fax machine type SAGEM SAFAX -240.

### **(b) Mobile radio system**

- i. HF SSB Transceiver codan type 8528 extended control fitted with LSB/USB, antenna interface, selective call and program channels control head and loudspeaker automatic tuning whip antenna complete with vehicle mounting accessories, etc.
- ii. HF SSB transceiver codan type X/2 125 W PEP mobile complete with program channels antenna vehicle installation mounting hardware and accessories.

The actual numbers of units to be provided are 10. The radio antenna shall be constructed after approval of the type and location by the Employer's Representative complete with all connections to the office.

In addition the Contractor shall provide the Employer's Representative with three (3) hand-held VHF/FM portables with chargers.

The Contractor must allow in his rates for compliance with the Government regulations.

## **VI. SERVICES**

### **(a) Progress photographs**

The Contractor shall be responsible for supplying and developing 36mm color films and printing the required number of copies from photo camera and/or digital camera as and when requested by the Employer's Representative.

### **(b) Assistance to the Employer's Representative.**

The Contractor shall provide at all times during the period of the Contract , for the exclusive use of the Employer's Representative, all such workmen as the Employer's Representative may deem necessary for the carrying out of his duties in connection with the contract:

- iii. Drivers
- iv. Laborers (office boys, helpers, etc.)

Such staff shall be approved by the Employer's Representative and shall be responsible to him, although they are the employee of the Contractor.

## **VII. GENERAL**

- (a) The Contractor shall not order any housing, office, laboratory, vehicles, survey, equipment or fittings and materials on the basis of what is specified or scheduled without written confirmation from the Employer's Representative. No buildings shall be erected without the Employer Representative's written instructions as to the exact position and orientation of the buildings.
- (b) Unless otherwise agreed on, the offices and laboratories shall be erected in close proximity to the Contractor's offices and laboratories. Should the Contractor decide to move a substantial or essential part of his own offices and/or laboratories to a new site, the offices, laboratories and other buildings erected for the use of the Employer's Representative shall be moved to the new site and re-erected, if so ordered by the Employer's Representative, at no additional charge.
- (c) Office and laboratory fully furnished and equipped, Vehicles, Surveying Equipment, Communication Radios to be supplied by the Contractor for the use of the Employer's Representative shall be ready for use within **Three months** of the commencement of the work.

- (d) If any further accommodation is required (subject to the approval of the Employer) during the period of the Contract the Employer's Representative shall instruct the Contractor at least three months before such additional accommodation is to be ready for use.
- (e) The Contractor shall take all reasonable precautions to prevent unauthorized entry to the offices and laboratories and ensure the general security of the offices and laboratories.
- (f) The Contractor shall ensure that all accommodation complies with the appropriate statutory provisions operative in the area concerned.

If any of the vehicles, equipment, or furniture becomes unavailable to the Employer's Representative for any reason, including theft, the Contractor shall immediately replace the unavailable vehicle, equipment or furniture.

- (g) The Contractor shall pay all charges associated with the license and use of the radio, walky-talky to Ethio-Telcom or any other mandated government body.
- (h) The Contractor shall pay all charges associated with the Employer's Representative's vehicles license and registration for use to any concerned government body.

#### **VIII. OWNERSHIP OF THE EMPLOYER REPRESENTATIVE'S SITE FACILITIES**

- (a) Ownership of all vehicles after completion of the contract will be to the Employer.
- (b) All testing equipments, furniture, office equipments, computers, accessories, survey instruments and walky-talky, Radio Communication Equipment supplied for the use of the Employer's Representative, shall remain and become the property of the Contractor upon completion of the contract.
- (c) All housing, offices and laboratory buildings constructed/supplied and their fixtures for the use of Employer's Representative shall become the property of the Employer upon completion of the Contract.



## ANNEX A:

### Employer's Representative Site Facilities

#### 1. Laboratory Area

The laboratory shall consist of a single building adjacent to the Employer Representative's Offices not less than 120 m<sup>2</sup> in area (excluding the area of the verandah), and shall consist of the following separate sub-divisions within the building (minimum internal area indicated) unless otherwise directed by the Employer's Representative.

Description	Area
Materials Employer Representative's Office	12 m <sup>2</sup>
Soils Laboratory	15 m <sup>2</sup>
Concrete and asphalt Testing Laboratory	50 m <sup>2</sup>
Oven and soaking room	14 m <sup>2</sup>
Sample storage room	12 m <sup>2</sup>
Ablution unit	5m <sup>2</sup>
General Office	12m <sup>2</sup>
<b>TOTAL</b>	<b>120m<sup>2</sup></b>

#### 2. Furniture and Equipment

The Contractor shall provide and install in the laboratory all the necessary equipment, apparatus and materials for the performance of all the standard tests required for testing and control of the works and materials as called for in the Employer's Requirements..

The below listed items shall be the minimum to be supplied and installed in the laboratory and shall be new. Sufficient consumable items shall be supplied with the equipment and shall be replenished when requested by the Employer's Representative.

### Mixing and Preparation Equipment

Quantity[No.]	Description
20	Glass Marking Pencil
1	Metal Thermometer, 0-100°C
6	Metal Thermometer, 0-240°C
2	Magnet Holder for Dial Indicator
1	Battery Filler
2	Rectangular Mixing Pans, 600 mm square
2	Stainless Steel Mixing Bowl, 300 mm x 250 mm
2	Stainless Steel Mixing Bowl, 220 mm x 110 mm
2	Round Aluminum Pan, 300 mm x 50 mm
15	Square Tin Pan, 500 mm x 350 mm
1	Straight Edge, 300 mm
3 dozen	Ounce Tin Sample Boxes
1	Riffle Box with 15 mm slot width with 3 metal containers
1	Riffle Box with 25 mm slot width with 3 metal containers
2	Wheel Barrow

### Ovens and Hot Plates

Quantity[No.]	Description
2	Stainless Steel Laboratory Oven, 100 litres
2	Stainless Steel Laboratory Oven, 240 litres
3	Hot Plate, 6" Square
1	Burner Gas

### Scales and Balances

Quantity[No.]	Description
---------------	-------------

2	Heavy Duty Solution Balance, 20 Kilogram Capacity $\pm$ 1 g
1	8-12 Kg Capacity Electronic Balance, $\pm$ 0.1 g
1	5-8 Kg Capacity Electronic Balance, $\pm$ 0.1 g
1	200-300 g Capacity Electronic Balance, $\pm$ 0.01 g

### Classification Equipment

Quantity[No.]	Description
2	Complete Liquid Limit Set
1	Plastic Limit Set
1	Liquid Limit Penetrometer
15	Shrinkage Troughs
1	Shrinkage Limit (with adequate quantity of mercury)

### Specific Gravity Equipment

(Coarse and Fine, also see Concrete Test Set)

Quantity[No.]	Description
1	Pycnometer Top and Jar
4	Specific Gravity Bottles, 100ml
3	Specific Gravity Bottles, 220-250 ml

### Compaction Equipment

Quantity[No.]	Description
3	Modified Hammer, 10 lbs. by 18" Drop
1	Standard Hammer, 5 lbs by 12" Drop
2	Standard Compaction Mould

30	Ounce Moisture Content Cans, 50 ml
2	Dozen Straight Edge, 12"
6	12" Ruler Knife
2	Vacuum ainer

#### Sample Preparation Equipment

Quantity[No.]	Description
1	Hydraulic Sample Ejector
1	Soil Mortar
1	Soil Pestle
1	Paraffin Warmer (2 qts.)
1	Sealing Paraffin (50 lbs.)
1	Cone Mould and Tamping Rod, set
1	Density Basket

#### Aggregates

Quantity[No.]	Description
2	Flakiness Gauge
10	Sodium/Magnesium Sulfate salt, Kg
1	Los Angeles Abrasion Machine
1	Organic Impurities Test Set
1	Aggregate Crushing Value

#### Field Density Test

Quantity[No.]	Description
4	1" Steel Chisel
4	Large Sand Scoop
10	Peg

<b>Quantity[No.]</b>	<b>Description</b>
4	Density Pack
4	Mixing Trowel
4	Rubber Mallet
4	Field Density Plate
4	Sampling Spoon
4	Sand Density Apparatus, complete with plastic jugs, set
4	Plastic Jug
One Gallon	Field Can
4	Steel Hammer, 1 Kg
1	Cylindrical Container for Sand Calibration, H = 152, dia = 152

#### **Concrete Testing**

<b>Quantity[No.]</b>	<b>Description</b>
1	Concrete Measure ½ (cu. ft).
4	Slump Cone, Set
4	Tamping Rod
1	Folding Rule, 3 m
18	Cubic Moulds, 6"
1	250,000 lb. Capacity Testing Machine
1	Guard for above tester, Set
1	Cubic Specimen Capping Set
6	Concrete Curing bottle, with Thermometer
2	Cyclap Concrete Capping Compound - 100 lbs.

### Sand Equivalent Test

Quantity[No.]	Description
1	Sand Equivalent Test Set
10	Sand Equivalent Stock Solution (8 oz.), Bottle

### Moisture - Density Test

Quantity[No.]	Description
1	CBR Loading Machine, electrical
4	Modified Compaction Mould
36	CBR Mould
3	Slotted Surcharge Weight
72	Annular Surcharge Weight
2	Filter Screen
2	Trimming Knife, 6" Blade
2	Plastic Graduated Cylinder, 100 ml.
2	Plastic Graduated Cylinder, 200 ml.
2	Plastic Graduated Cylinder, 1000 ml
10	Wash Bottle
4	Small Sand Scoop
4	Flexible Spatula 6". Blade 1" wide
2	Sample Extruder
3	Collar, Detachable
3	Tripod
2	Spacer Disc
4	Heavy compaction rammer

### Relative Density of Cohesion less Soils for Sand

Quantity[No.]	Description
1	Complete Relative Density Set. 220/50/1 ph A.C. (0.1 and 0.5 cu. ft.)
1	Mixing Pan, 24 x 24 x 3" Deep
1	Portable Platform Scale
1	Straight Edge
1	Hoist, minimum lifting capacity, 125 kg.

### Water

Quantity[No.]	Description
1	Quality of Water Test, Set

### Mechanical Analysis of Soils

Quantity[No.]	Description
1	Hydrometer, ASTM 151 H
4	Stopwatch 30 min., 1/5 sec.
1	Beaker Glass, 250 ml.
6	Graduated Cylinder, 100 ml
1	High Speed Stirrer
3	Dispersing Agent, Kg

### Time of Setting of Hydraulic Cement

Quantity[No.]	Description
1	Scales
1	Weights, Set
1	Glass Graduate – 200 or 250 ml capacity
1	Vicat Apparatus

### Sampling Bituminous Materials

Quantity[No.]	Description
24	1Qt. Sample Can

24	1 Qt. Small Mouth Can
----	-----------------------

**Specific Gravity of Bituminous Materials**

Quantity[No.]	Description
6	Hubbard - Carmick Specific Gravity Bottle

**Viscosity of Bituminous Materials**

Quantity[No.]	Description
1	Kinematic Viscometer (Complete)
2	Thermometers
1	Water Bath (Thermostatical)
1	Timer

**Miscellaneous**

Quantity[No.]	Description
1	Dynamic Cone Penetrometer (Heavy Duty)
1	DCP Spare Standard and Hammer Shaft, Set
	Piezometer
5	settlement gauges
2	Timing Device
1	¾" Sample Splitter
1	2" Sample Splitter
20	Laboratory Thermometer
6	Armoured Thermometer
10	Pair - Asbestos Gloves
10	Pair - Rubber Gloves
48	Sample Bags
1	Trowel, Triangular blade
2	Deep Cement Pans, 18" X 18" X 3"
1	Concrete Test Hammer



<b>Quantity[No.]</b>	<b>Description</b>
1	Chloride, Alkalinity and Water Hardness, Set
1	Extra 200,000 lb 12" Capacity Gauge
1	Gas or Kerosene - 3 Burner Stove
3	Pocket Calculators, Scientific
2	Type 30° and 45° - 12" Triangle, Set
2	Each Type 30° and 45° - 6" Triangle, Set
2	Rapidograph Lettering Set
2	Set English Lettering Template (Plastic)
1	Pocket Type Thermometers 25 - 125 F', Set
2	Sieve, 75 mm, 300 mm diam.
2	Sieve, 50 mm, 300 mm diam.
2	Sieve, 37.5 mm, 300 mm diam.
2	Sieve, 28 mm, 300 mm diam.
2	Sieve, 20 mm, 200 mm diam.
2	Sieve, 14 mm, 200 mm diam.
2	Sieve, 10 mm, 200 mm diam.
2	Sieve, 6.3 mm, 200 mm diam.
2	Sieve, 5 mm, 200 mm diam.
2	4 mm, 200 mm diam.
2	3.35 mm, 200 mm diam.
2	2.36 mm, 200 mm diam.
2	2.0 mm, 200 mm diam.
2	1.18 mm, 200 mm diam.
2	1 mm, 200 mm diam.
2	0.850 mm, 200 mm diam.
2	Sieve, 0.600 mm, 200 mm diam.

<b>Quantity[No.]</b>	<b>Description</b>
2	Sieve, 0.425 mm, 200 mm diam.
2	Sieve, 0.300 mm, 200 mm diam.
2	Sieve, 0.270 mm, 200 mm diam.
2	Sieve, 0.075 mm, 200 mm diam.
1	Mechanical Sieve Shaker
2	English Ruler
2	Metric Ruler
2	Large Log Book
2	Pencil Sharpener
2	6" Protractor
1	Assorted French Curve Set
2	Claw Hammer
2	Hammer for Pull up Nails
3	Dish Glass
3	6" X 6" Ground Plate Glass
2	Assorted Screwdrivers (Set)
6	Fire Extinguisher (Dry Type)
6	Flash Light and Battery (Good Quality)
6	15" Clip Board
6	Cross Section Paper (GraphiquesCanson) – Pad
6	Table Brush
1	10cm Coring Machine with Extra Bits, Set
2	Vacuum Pump
12	Vacuum Pycnometers
1	Plastic Tubing for Vacuum Line, meter
3	Laboratory Tongs

<b>Quantity[No.]</b>	<b>Description</b>
2	Vernier Caliper
3	Brass or Copper Brush
3	Nailbrush (hard bristle)
3	Point Brush 20-50 mm
1	Point Brush 5-10 mm
	Trolley
3	Refuse Bin
1	Rain Gauge
3	Shovel
3	Spade
3	Steel hammer, 2 Kg
1	Water Still
1	Rapid Moisture Apparatus including calcium carbide, Set
50	Heat Resistant Gloves

**Manuals**

<b>Quantity[No.]</b>	<b>Description</b>
1	AASHTO Standard Testing & Specification Part I&II
1	ASTM Standard Vol. 04.08 Soil & Rock, Building Stones, Geotextiles

## Materials Employer Representative's Office

(1 room required in the laboratory building)

Quantity[No.]	Description
6	Stools, 3-legged, wood or plastic seat, stackable, 800 mm
5m	Shelf space provided against walls shall be of heavy construction and shelving shall be in a suitable timber or steel material as required
As required	<p>Work bench areas shall be of two types as may be required (1.5m x 2m):</p> <p>(1) Wooden construction. The tops shall be hard and smooth, free from warping or other defects.</p> <p>(2) Concrete tops. The tops shall be at least 75 mm thick concrete slabs with a smooth hard steel trowelled finish.</p> <p>All work benches shall be sturdy and the upper surface shall be 920 mm above floor level</p>
Areas as required	Concrete working floors shall be at least 125 mm thick and provided with a hard smooth finish. The working floors shall be either entirely open or under a lean -to roof required.
2	Wash basins shall be as ordered either in stainless steel or precast ceramic with an area of at least 0.3 sq.m. and minimum depth 0.3 m. They shall be provided with swan neck type laboratory taps and drain pipe
1	Metal Desk, 1.50 m X 0.75 m, 6 -side drawers and 1 centre drawer
1	Revolving Executive Chair
2	<p>File Cabinet, four drawers, lock type, legal size with metal clip hanging files</p> <p>(30 per drawer)</p>
1	Bookcase, 0.30 m X 0.90 m X 0.80 m high, wood or metal
1	Desk Lamp (Fluorescent)
2	Straight Chair
1	Typewriter Table, metal, on rollers
1	English Typewriter, 33cm. carriage, elite type
4	Electronic Hand Calculator, with AC adapter, card reading and

	printing set
1	Metal Cabinet, 0.40 m X 1.00 m, 1.90 m high, adjustable shelves, lockable
1	Air Conditioner, electric, 12.500 BTU (heating/cooling system)
1	Computer, type A, 1 no. wide carriage printer and 1 no. laser printer
3	Telephone extensions and telephones to be provided in the laboratory

## A-2 OFFICES

### 1. Site Office

The Employer Representative's Office shall be contained in a single building unit, not less than 145 m<sup>2</sup> in area (excluding the area of the veranda) and shall consist of the following separate accommodation within the building (minimum internal area indicated):

Quantity	Type	Area
1	Resident Engineer's Office	15 m <sup>2</sup>
1	Ass Resident Engineer's Office	10 m <sup>2</sup>
1	General Office 1 (Pool for key staff)	30 m <sup>2</sup>
1	General Office 1 (Pool for support staff )	30 m <sup>2</sup>
1	Secretary Office	10 m <sup>2</sup>
1	Conference room	25 m <sup>2</sup>
1	Kitchen unit	10 m <sup>2</sup>
1	Toilet unit + 1 wash basin	10 m <sup>2</sup>
	<b>TOTAL</b>	<b>145 m<sup>2</sup></b>

### 2. Furnishings and Equipment

The below listed items shall be supplied and shall be new. The items listed below shall be as approved by the Employer's Representative and at his full satisfaction.

Description	Number
Conference Table and Chairs (Seating 12)	1
Desk 1.5m X 1.0 m with lockable drawers & swivel chairs(various Types)	22
Chairs	44
Draughtsman Stools	2
Waste Paper Baskets	22
2.4m X 1.2 m Wall board	5
1.0m X 1.2 m Wall board	7
Steel Cupboards with Shelves	22

Description	Number
Steel filing Cabinets	22
Plan Chest	5
Heavy Duty Shelving in Stores	120 Lin. M.
Portable fans	12
Computer Type A	6
Computer Type B	2
Computer Type C	2
Scanner HP 3570	2
External CD Driver/Recorder CD-RW	5
Computer Printer & stand – Laser (A3/A4)	2
Computer Printer & stand – Laser (A4)	6
Computer Printer & stand – Wide carriage	2
Photocopy machine A4/A3 size - Administration Office	1
Photocopy Machine A4/A3 size - Employer's Representative Drawings	2
Digital camera	2
Electronic calculating machine for use by surveyors in field	12
Electronic calculating machine (desk top)	2
Drawing board (A0) on stand base and with light	2
Box of railways curves	2
Staple Machine(normal)	22
Staple Machine (large – heavy duty)	2
Paper punch – standard	22
Paper punch - multiple hole	5
Binding Machine	1
1 m steel straight edge	5
Filing trays	22

Description	Number
Electric water heater	5
Electric refrigerator (100lit)	2
Electric kettle	3
Electric space heaters (1.5 kw)	16
Reading lamp	22
Bookshelves	22
Kitchen Sink Unit	1
Drawing racks	6
Teacups and teaspoons	40
Milk jug, sugar bowls, teapot	6
Rain gauge	2
Thermometer (max/min)	2
First Aid outfit	2
Fire extinguishers	5
Telephone extensions and telephones	2 direct lines plus extension to all offices, rooms and laboratory
Set of all standards mentioned in the specifications	5
Air conditioners, electric, 12,500 BTU (heating/cooling system)	20
Bottled gas for gas stove, 50kg.	2
Consumable office stationary materials such as paper, pens, pencils, notebook, ink/cartridges for the printers and photocopy machines, etc.	As per the Employer's Representative's Request



### A- 4 VEHICLES

TYPE	No.
B	2

Minimum Requirement, Specifications for **Vehicle Type B.**

#### **Pick up Double cab 4x4**

1 **ENGINE (Fundamental)**

Diesel, delivering 85-120hp

2 **ELECTRICAL SYSTEM**

12 V electric starting, charging & lighting system.

3 **INSTRUMENTS**

Shall include Speedometer with odometer calibrated in kilometers/hr, Water temperature, oil pressure and Fuel gauges/ indicators, Ammeter, High beam, Parking light and Directional signal lamp indicators.

4 **TRANSMISSION**

Min. Five speeds forward and one reverse speed

5 **TRANSFER CASE(Fundamental)**

Tow speed, high and low range

6 **STEERING (Fundamental)**

Left hand drive, power steering **(Fundamental)**

7 **BRAKES(Fundamental)**

Hydraulic service brake, and mechanical parking brake

8 **TIRES SIZE**

6.50X16

9 **WHEEL BASE AND GROUND CLEARANCE**

Long wheel base and high ground clearance

10 **CAB**

Laminated Windshield glass, 5 seats, equipped with heater/defroster, ashtray, cigar lighter and four-band radio cassette

player. Driver seat shall be separated from front passenger seat.  
Front seats shall be adjustable, sliding & fully reclining type

11 **GVW**

Min.2, 500kg

12 **PICK-UP BODY**

Metal box construction

13 **ACCESSORIES AND EQUIPMENT**

- a. Sun visors
- b. Internal rear view and two side view mirrors
- c. Intermittent windshield wipers and automatic washers
- d. Front hook and rear trailer towing attachment
- e. Heavy duty suspension, off road package type
- f. Lockable glove box
- g. Head rest
- h. Lockable fuel tank cap
- i. Safety belts (seat belts)
- j. Spare wheel & tire with carries

Upon completion of the project all vehicles shall become the property of the Contractor.

### A-5 SURVEY EQUIPMENT

The below listed items shall be supplied for the project and all items shall be new.

Level Books	100
Field books	100
Total Station with data recorder and recording cards type: LEICA or any other equivalent standard	2
Level type: LEICA NAK 2 or any other equivalent standard including:	2
spare batteries	2
rapid charger	1
reflectors with mount	5
triple prism mount with reflectors	2
tripods	4
Leveling staff (5m), foldable	5
Ranging rods (2.5m) joinable, metal	30
Optical square	4
100m steel tape	4
30m linen tape	12
Steel pocket tape (3m).	8
Hammer (2kg)	4
Steel arrows	100
Survey Umbrellas	4
Steel tape repair kit	2
Leica NA2002 Barcode level and barcode staff	2
Measuring wheel	2
Spray paint road marking	As required
Fixtuel hammer (4 Kg)	2
Spirit levels for staves	6

Metal pocket rules (5 m)	10
Reflection road safety vests	12
Drawing boards (field book frames A6 size metal or wood with plastic cover)	10
Walky-talky	4

# DRAWINGS

### **Special Note to the Drawing**

**The schematic drawings attached with this document for the Apron Expansion Of Addis Ababa Bole International Airport are just guide line for the bidder, the bid winner will be expected to propose the best and cost effective design proposal and include any missed items.**

- 1. GENERAL LAYOUT OF THE PROJECT**
- 2. TOPOGRAPHIC MAP OF THE AIRPORT**
- 3. TAXIWAY FILLET WIDENING DRAWING**
- 4. RIGID CONCRETE PAVEMENT EXPANSION**
- 5. OVERLAY CONSTRUCTION WITH ASPHALT**
- 6. UPGRADING OF TAXIWAYS (TWO)**
- 7. NEW CONSTRUCTION OF TWO TAXIWAYS**
- 8. NEW GSE PARKING CONSTRUCTION WITH ASPHALT CONCRETE**
- 9. RELOCATION WORK OF 18 MASTS.**
- 10. FLEXIBLE PAVEMENT APRON EXPANSION**



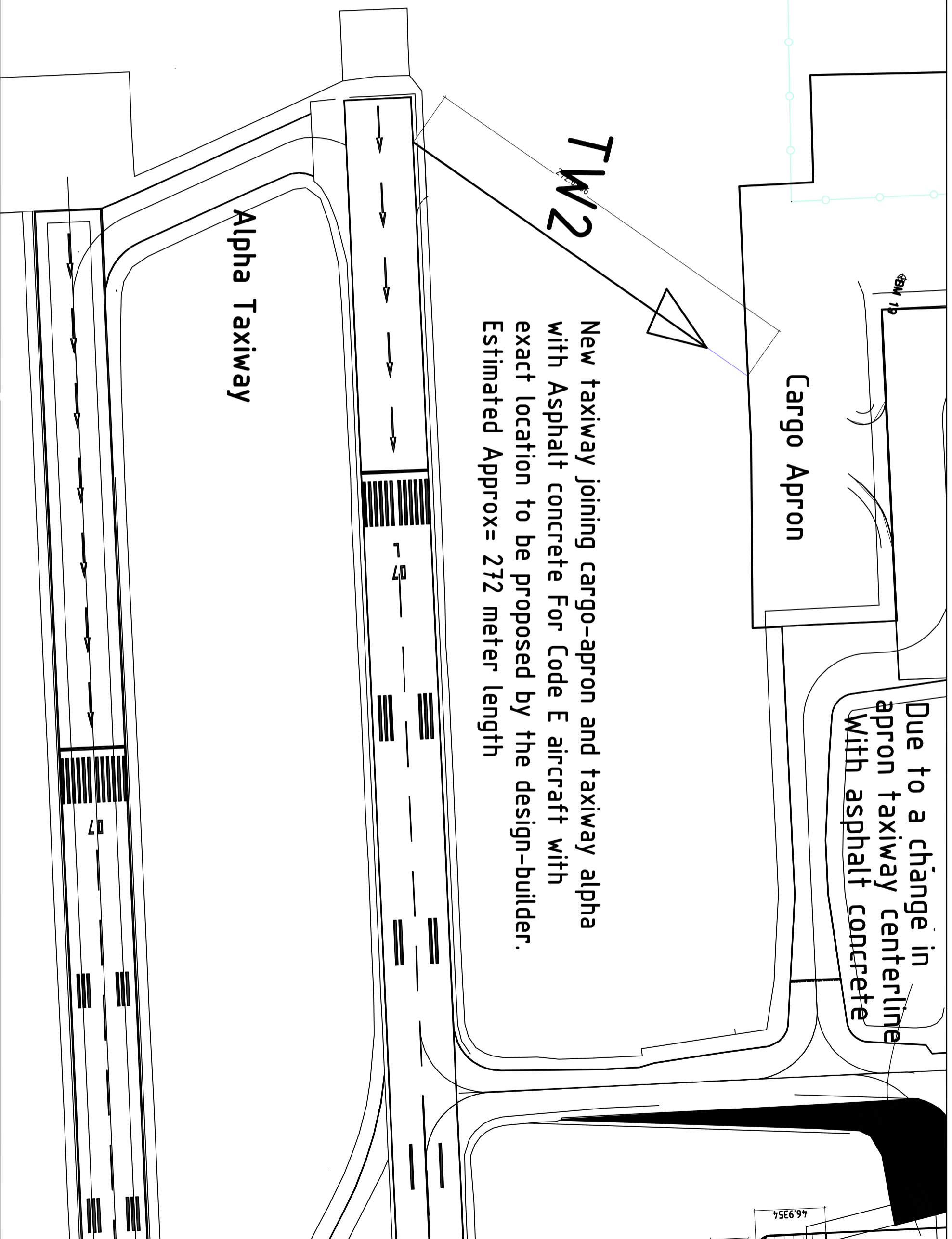
Cargo Apron

Due to a change in  
apron taxiway centerline  
with asphalt concrete

TW2

New taxiway joining cargo-apron and taxiway alpha  
with Asphalt concrete For Code E aircraft with  
exact location to be proposed by the design-builder.  
Estimated Approx= 272 meter length

Alpha Taxiway



469354

PROJECT TITLE  
ADDIS ABABA BOLE INTERNATIONAL AIRPORT

LOCATION  
ADDIS ABABA

DESIGN STAGE	DATE	AUGUST 2010
1	2	3
4	5	6

Scale  
GRAPHIC SCALE



DRAWING TITLE

DRAWN BY

PREPARED BY

CHECKED BY

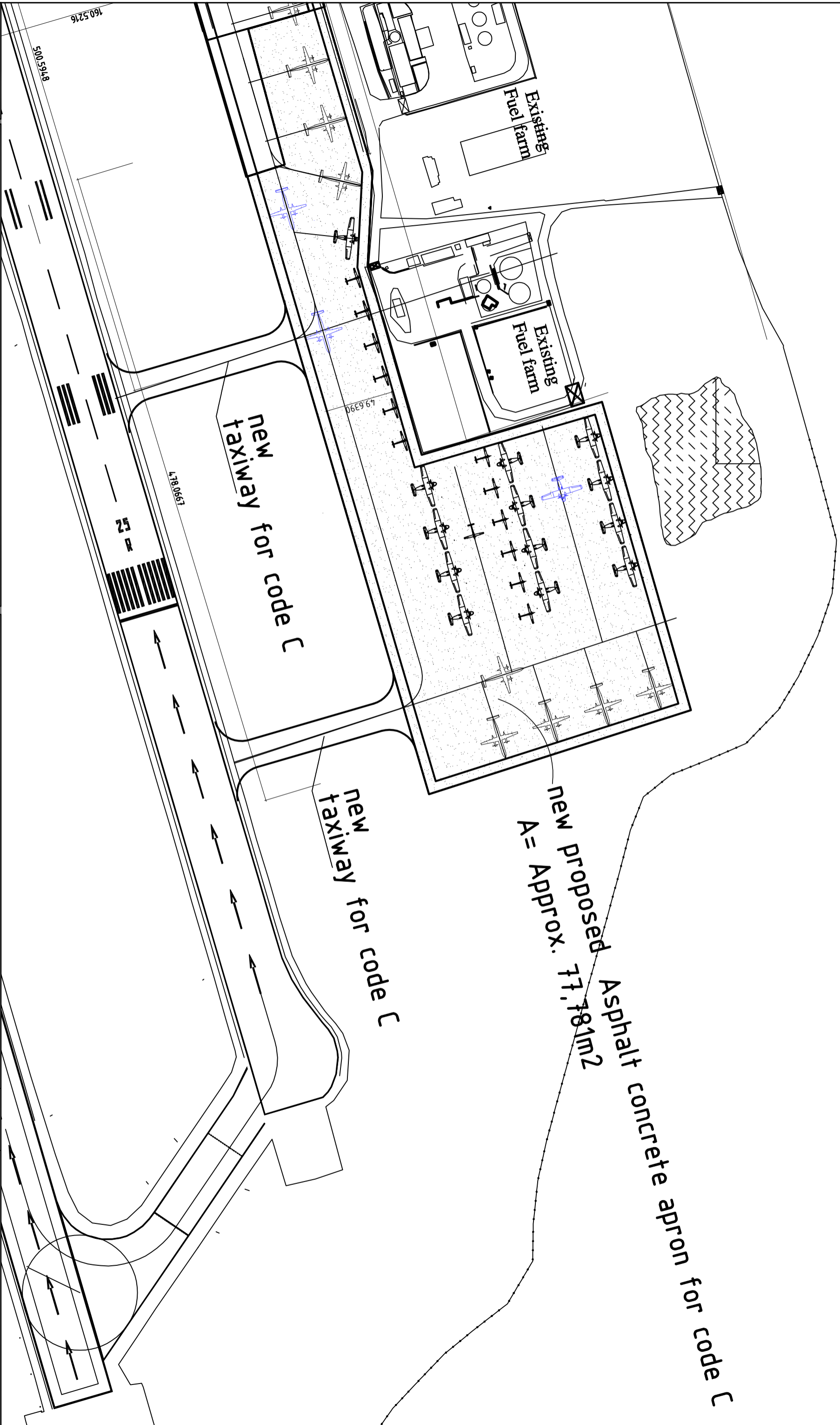
APPROVED BY

DRAWING NO.

AIRPORT INFRASTRUCTURE DIRECTORATE

P.O.Box 90658 Telephone - +251 11 66660400 Addis Ababa - Ethiopia





AIRPORT INFRASTRUCTURE DIRECTORATE  
P.O.Box 90658 Telephone - +251 11 66660400 Addis Ababa - Ethiopia

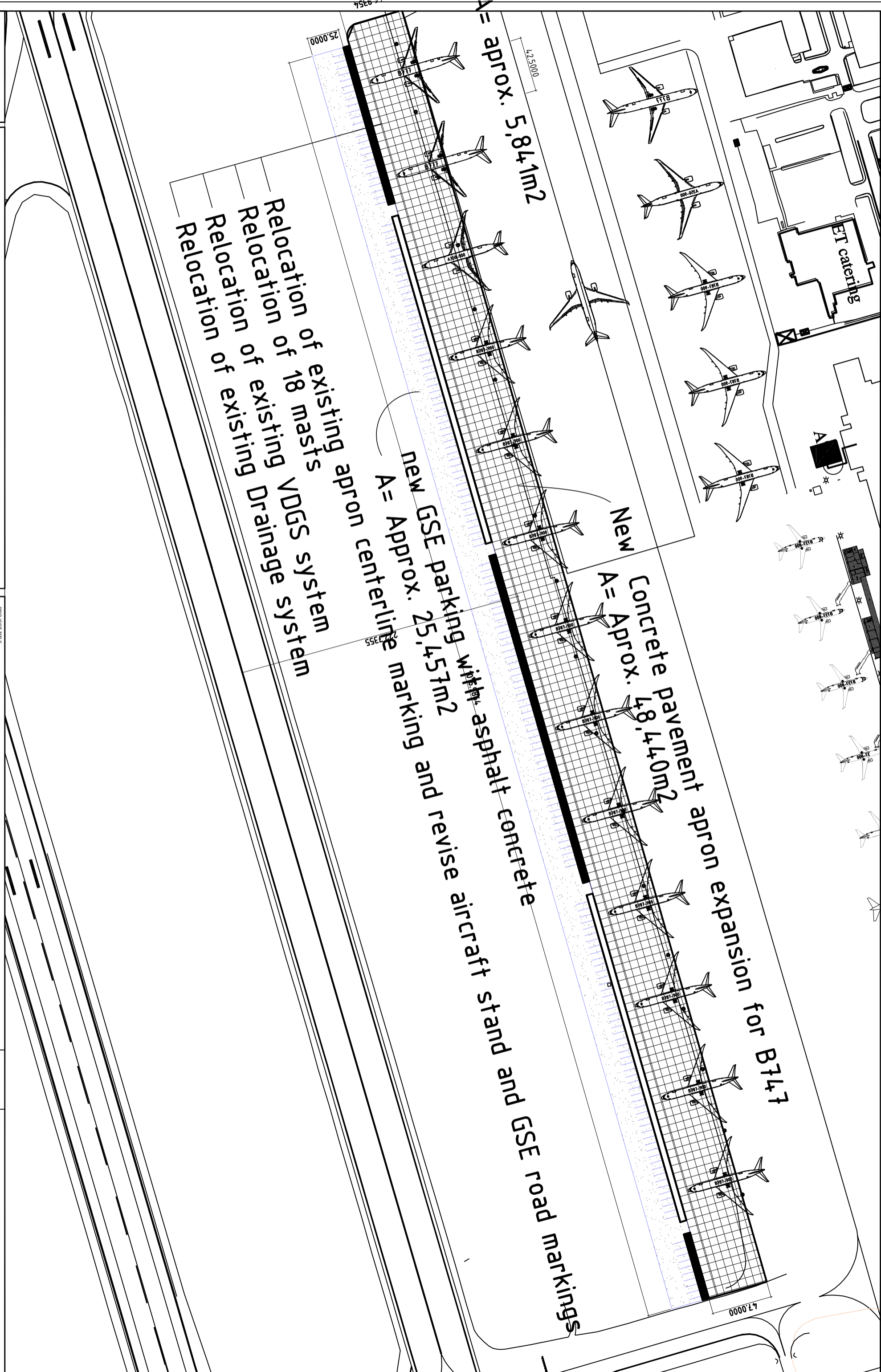
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ADDIS ABABA BOLE INTERNATIONAL AIRPORT

LOCATION  
ADDIS ABABA

DESIGN STAGE

DATE	REVISION	SCALE
AUGUST 2010	1	GRAPHIC SCALE
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DRAWN BY	
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Relocation of existing apron centerline marking and GSE road markings

Relocation of existing aircraft stand and GSE road markings

Relocation of existing VDGS system

Relocation of 18 masts

Relocation of existing Drainage system

New Concrete pavement apron expansion for B747  
 A= Approx. 48,440m<sup>2</sup>

new GSE parking with asphalt concrete  
 A= Approx. 25,457m<sup>2</sup>

A= aprox. 5,841m<sup>2</sup>

<b>AIRPORT INFRASTRUCTURE DIRECTORATE</b> P.O.Box 90658 Telephone +251 11 66660400 Addis Ababa - Ethiopia																
<b>PROJECT TITLE</b> ADDIS ABABA BOLE INTERNATIONAL AIRPORT	<b>DRAWING TITLE</b>															
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cargo apron

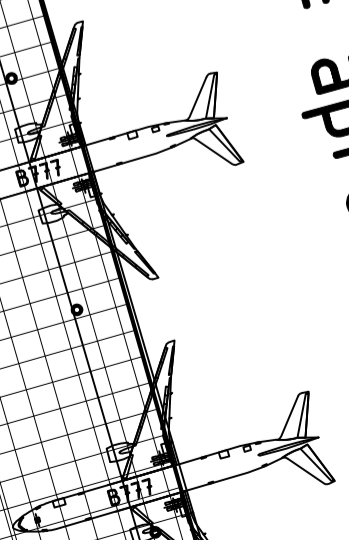
Expansion  
Due to a change in centerline  
with asphalt concrete

A = approx. 5,841m<sup>2</sup>

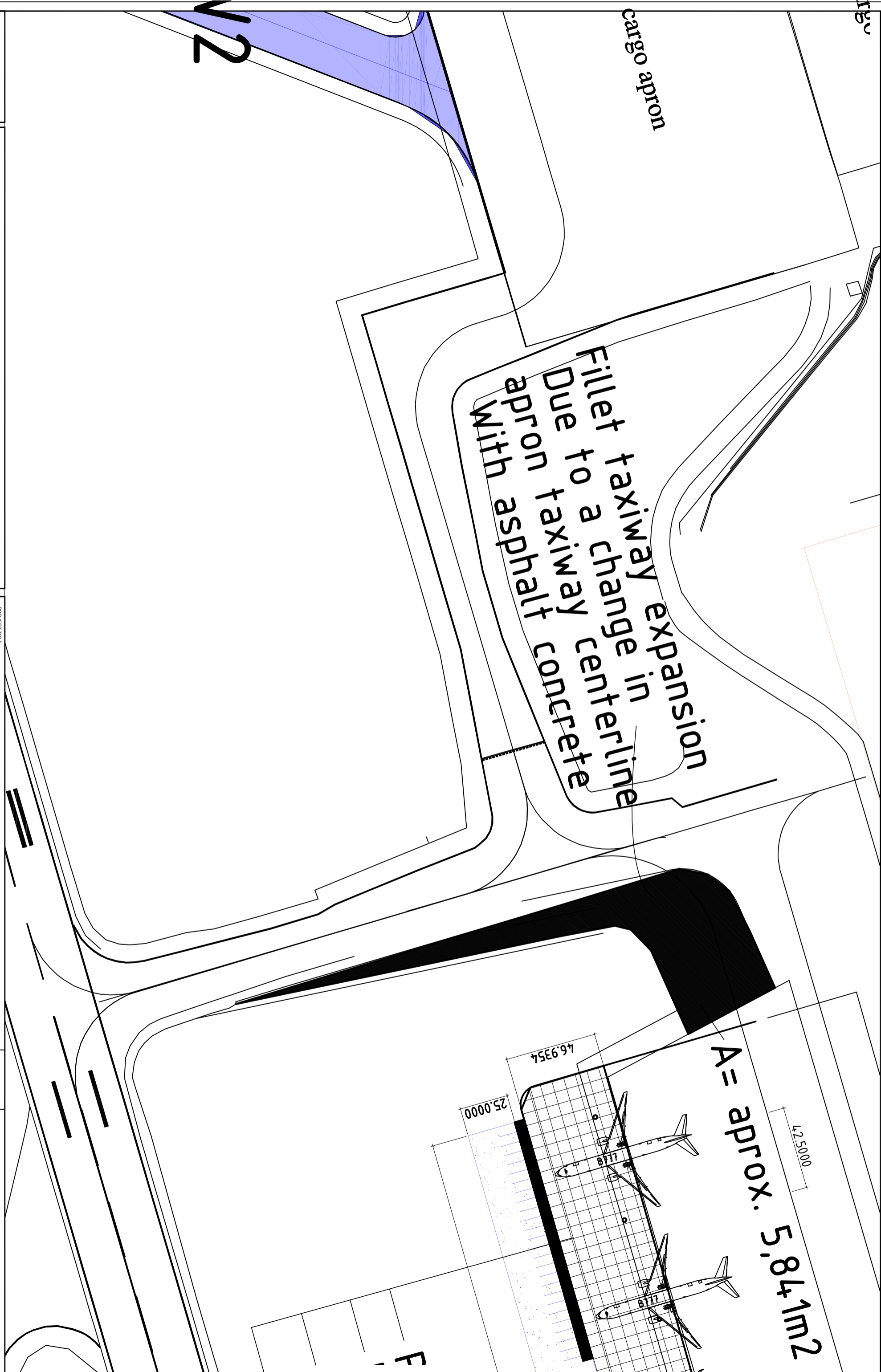
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**PROJECT TITLE**  
ADDIS ABABA BOLE INTERNATIONAL AIRPORT

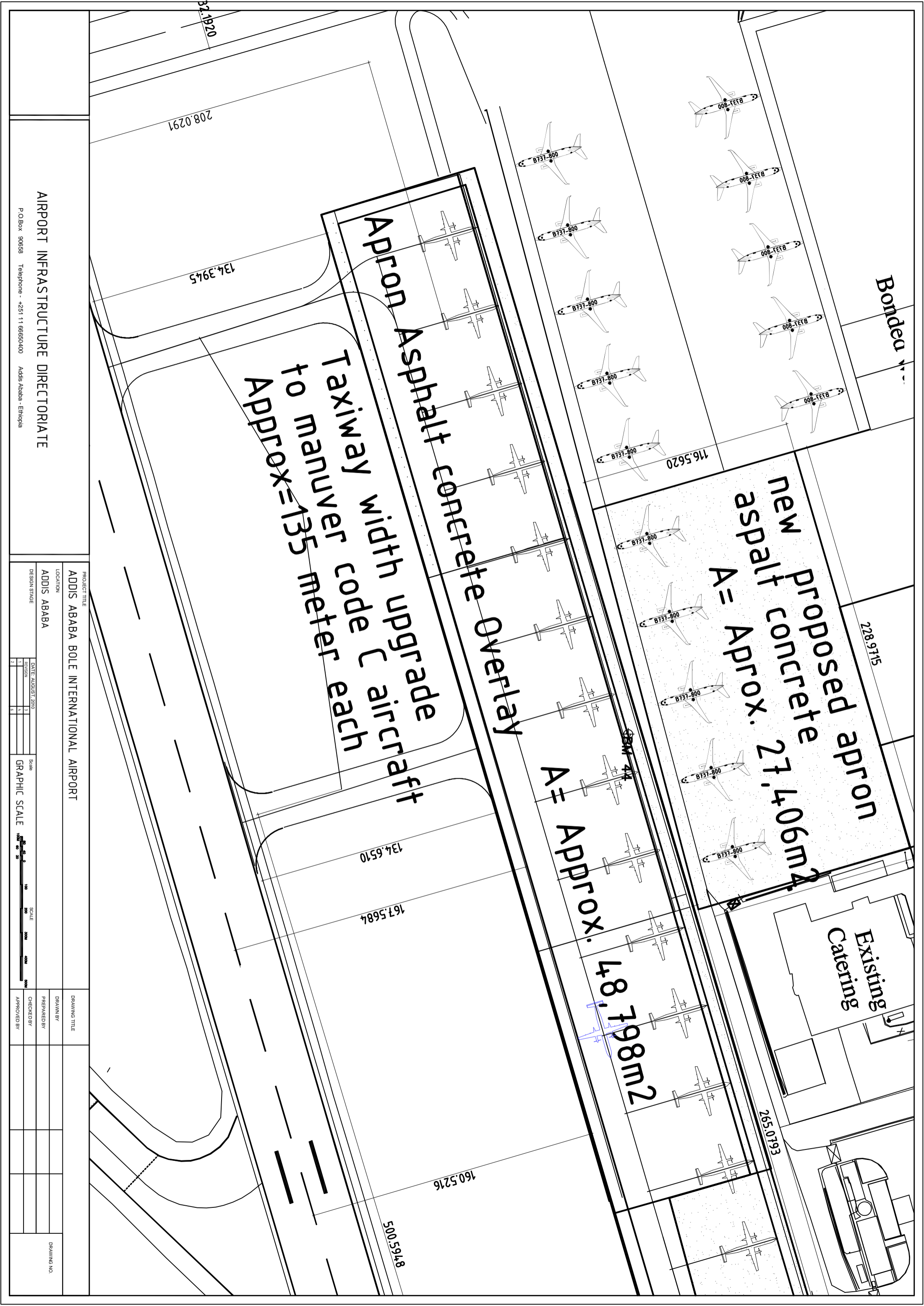
**LOCATION**  
ADDIS ABABA

**DESIGN STAGE**

NO.	REVISION	DATE
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GRAPHIC SCALE 1:2000

DRAWING TITLE	DRAWING NO.
<b>DRAWN BY</b>	
<b>PREPARED BY</b>	
<b>CHECKED BY</b>	
<b>APPROVED BY</b>	



**AIRPORT INFRASTRUCTURE DIRECTORATE**  
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PROJECT TITLE		ADDIS ABABA BOLE INTERNATIONAL AIRPORT	
LOCATION		ADDIS ABABA	
DESIGN STAGE	DATE	APPROVED BY	DATE
1	AUGUST 2010		
2			
3			
4			
DRAWING TITLE		DRAWING NO.	
DRAWN BY			
PREPARED BY			
CHECKED BY			
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