



**DIRECTOR GENERAL PROJECT SEABIRD
IHQ MoD(NAVY)
NEW DELHI**

TENDER NO. DGSB/05 of 2014

FOR

SELECTION OF AGENCY

FOR

LAND GEO TECH INVESTIGATION

FOR

PROJECT SEABIRD PHASE IIA

AT NAVAL BASE KARWAR

2014

CONTENTS

Section No.	Description		Page No.
I	Notice Inviting Tender		4
	Annexure A	Specific Confirmation	15
	Annexure B	Notice Inviting Tender	16
	Annexure C	Letter From Contractor	18
	Form- I	Annual Turn Over	20
	Form- II	Experience Record	21
	Form- IIA	Details of Contracts executed	22
	Form- III	Current Contracts Commitment	23
	Form- IV	Equipment Proposed For The Work	24
	Form- V	Personnel Proposed For The Project	25
	Form- VI	Proposed Site Organisation	26
	Form- VII	Additional Information	27
	Annexure D	Checklist	28
II	General Conditions Of Contract		29
	Part I	Definitions	30



	Part II	Scope Of Contract	33
	Part III	Performance Of Contract	45
	Part IV	Valuation and Payment	60
	Part V	Eligibility Criteria & Price Bid Issues	70
	Annexure E	Contract Labour Regulation	72
	Annexure F	Govt Safety Code	76
	Annexure G	Model Rules For Health and Sanitation Arrangements	80
III	Special Conditions Of Contract		84
	Annexure H	BG For Performance Security	103
IV	Technical Specifications and Scope Of Work		105
	Annexure K	Drawings	
V	BILL OF QUANTITIES / PRICE FORMAT		132
	CHAPTER I	Preamble to BOQ	133
	CHAPTER II	Price Format	135



SECTION I

NOTICE INVITING TENDER



Tel: 011 26174312

Headquarters
Project Seabird
West Block V, RK Puram
New Delhi 110605

Ref. No.SB/5/555/Land GeoTech

Date: 31 Dec 2014

M/s.....

SUB: LAND GEO TECH INVESTIGATIONS FOR PROJECT SEABIRD, AT KARWAR

1. DETAILS OF TENDER

A.	TENDER ENQUIRY NO.	DGSB/02 /2014
B.	ITEM DESCRIPTION	Tender For Land Geo Tech Investigation for Project Seabird, at Karwar.
C.	DUE DATE & TIME OF SUBMISSION OF TENDER	: 30 Jan 15 Up to 15:00 Hours
D.	DATE & TIME OF OPENING OF TENDER	: 30 Jan 15, 1515 Hours
E.	PLACE OF SUBMISSION OF YOUR TENDER	Office of: Director General Project Seabird West Block V, R K Puram New Delhi -110605
F.	EARNEST MONEY DEPOSIT	Rs. 2,55,000/-
G.	PERFORMANCE SECURITY	10% of Contract value.
H.	TIME SCHEDULE	7 Months from the effective date of issue of letter of acceptance/ date of signing of Contract
J.	EFFECTIVE DATE	Date of signing of Contract
K.	DETAILS OF THE CONTACT PERSONNEL	Cmde RK Pyasi DDG(Tech)/ Lt Cdr Gaurav Mahajan (AGM) <u>Tel:-</u> 011-26170507/26109224 <u>Fax:-</u> 011-26100608 <u>Email:-</u> dgpsb-navy@nic.in

Dear Sir(s),

We have pleasure in enclosing the following tender documents for the above work and would invite you to submit your best binding offers;



- Section 1. Notice inviting Tender
- Section 2. General Conditions of Contract
- Section 3. Special Terms of Contract
- Section 4. Technical Specifications and scope of work
- Section 5. Bills of Quantities/Price Format

2. **SUBMISSION OF TENDER**

2.1 Tender shall be prepared and submitted in **SEPARATE SEALED COVERS IN TWO PARTS** as follows:

2.1.1 **Part-I: COMPLETE TENDER (INCLUDING EMD, TECHNICAL PART DULY FILLED IN)**

2.1.2 Tenderer is requested to submit Tender Part-1 under a covering letter indicating clearly details of tender, chapters and annexure/schedules of complete Tender. Total Technical Offer including drawings/documents and EMD are to be included in this packet- **Part-I: complete tender (including EMD, Technical part duly filled in)**.

This shall also contain the un-priced bid i.e. bill of quantities of the bid duly filled up but blanking the price figures. The price and rates shall be submitted in Part II.

Part –II : PRICE PART

2.2 Price Part should consist of only price schedule supplied by Project Seabird/Engineer under a covering letter and no other documents. Schedule of price shall be read with work description, relevant specifications, invitation to tender, General Condition of Contract and Special Conditions of Contract.

2.2.1 No soft copy of the tender documents can be given. Tenderer shall photocopy Project Seabird/Engineer's price format (bill of quantities) and fill up the rates in figures and words. Tenderer shall not retype the bill of quantities.

THE PRICE FORMAT GIVEN ALONG WITH SPECIFICATION SHOULD ONLY BE FILLED, STAMPED AND SIGNED.

2.3 Tender must be submitted as under:

2.3.1 Part-I in 3 (three) copies and

2.3.2 Part-II in 3 (three) copies in a separate Sealed Covers as mentioned above, superscribing the Tender No., Part No. (i.e. Part - I or Part-II) and the last date of receipt of tender on the cover.



BOTH SEALED PACKET OF PART-I & PART-II SHALL BE SENT IN ANOTHER COVER DULY SEALED INDICATING TENDER NO. DESCRIPTION AND DUE DATE OF OPENING.

2.4 Insertion, post-script, addition and alteration shall not be recognized unless confirmed by tenderer's signature and stamp.

2.5 Incomplete tender or tenders (not submitted as per requirement as indicated in the 'Invitation to Tender') are likely to be rejected.

2.6 Tenderer shall submit Earnest Money along with Part-I as detailed in the Tender for consideration of the offer.

2.7 The tenders as submitted will consist of the following:

2.7.1 Earnest Money Deposit in line with Notice inviting Tender.

2.7.2 Power of Attorney from court of Law in favour of a person signing the tender documents duly notarised in original. This will be in a stamp paper and the signature of the person shall be duly attested.

2.7.3 One set of entire tender documents duly signed on each page as a token of acceptance of all the tender terms and conditions mentioned therein including priced bill of quantities.

2.7.4 Duly filled in annexure enclosed

2.7.5 Details of work of similar magnitude carried out by the Tenderer in past.

2.7.6 Details of present work Contracts under execution by the Tenderer with their date of completion and any other commitment (work-load if any) as per the Form -III enclosed duly signed by **Auditor**.

2.7.7 Quality Assurance Plan

2.7.8 Man power, tools and equipment deployment programme (category wise and month wise)

2.7.9 Any other technical information the Tenderer wishes to furnish

2.7.10 Latest Sales Tax Clearance Certificate along with PAN and Sales Tax numbers;

2.7.11 Deviation to the Technical Specification/Commercial terms, if any, to be spelt out separately.

2.7.12 Specific confirmation (**Annexure-A**)

2.7.13 Duly filled Check List

2.8 Tenders prepared in any other form may be liable for rejection

2.9 The tenders will be received at the office of -

**Director General
Project Seabird
West Block V, R K Puram
New Delhi -110066**



2.10 **Opening of Tender:-** The Bidders may depute their representatives, duly authorized in writing, to attend the opening of Bids on the Due Date and Time. Rates and important commercial/technical clauses quoted by all Bidders will be read out in the presence of the representatives of all the Bidders. This event will not be postponed due to non-presence of your representative.

2.11 The Tender/ Bids submitted should remain valid for 180 days from last date of submission.

3. SCOPE OF WORK

3.1 The scope of work covers :-

3.1.1 Carry out **312** nos. of boreholes as per details mentioned in **Table 2** indicated at the end of **Section IV**.

3.1.2 Carry out all the in-situ tests in site boreholes as specified.

3.1.3 Collect disturbed and undisturbed samples from each borehole as per specifications.

3.1.4 Sampling, packing and transporting the samples collected to laboratory as specified.

3.1.5 Carry out all the laboratory tests as per specifications.

3.1.6 Carry out Geological classification of soil/rock through a professional geologist/soil mechanics expert.

3.1.7 Recommend type of foundations for various structures along with all the design parameters required to design these foundations.

3.1.8 The number, locations, depth of boreholes and the test on core samples collected may be varied by the Employer's Representative /Engineer depending upon the material found during the progress of investigation at site.

3.1.9 Preparation of draft & final reports comprising the collection of data during boring, results of all the in-situ laboratory tests and analysis in both soft (electronic) and hard copy including all the drawings and figures as laid down in these specifications.

3.1.10 The borehole locations drawing shall be submitted in soft copy (Auto CAD drawing format) with coordinates and grid system incorporated thereon, while including it in the detailed report.

3.1.11 The Tenderer shall carefully check the specifications/ drawings and shall satisfy himself regarding the technical requirement/ completeness of the tender.



3.1.12 Carry out boreholes (30m depth) and geophysical investigation at quarry site to identify the quantity of each material type and its layer profile.

3.1.13 Carry out geological classification of quarry material and identify the suitability of material for different structures.

4. **PRICE**

4.1 The Tenderer shall quote lump sum price in respect of fixed scope of work of each mobilization of equipment & with unit rates duly filled up in price format given in tender documents for variable scope of work. The Contract will be operated on lump sum basis for fixed scope of work and on unit rate basis for variable scope of work. The lump sum price for the fixed scope of work shall be firm and binding for the detailed scope of work as per specifications and drawings.

4.2 For the variable scope of work, the contract price shall be adjusted based on the actual quantity executed under various items of work as per the schedule of items and the unit rates as agreed.

4.3 The tenderer shall quote the prices/unit rates both in figure and words. No material modification to the specifications, item description in schedule of items, contract clauses shall be entertained. However, any deviation and financial implications may be reflected in covering letter of tender under Part-I of tender.

4.4 In case of difference in the rates mentioned in words and figures, the rate mentioned in words shall be considered.

4.5 All the taxes & duties and other Govt. levies as applicable shall be included in the above price, as explained in Clause 5.1 & 5.2 hereinafter.

4.6 The tenderer shall quote the prices considering supply of all materials by tenderer.

4.7 Any work which is not specifically included in drawings/schedule of items but required to be executed to complete the scope of work within the minimum engineering practice shall be done at no extra cost. In case of any additions/deletions in defined scope of work beyond the scope of work as per schedule of quantities, the valuation of deviation shall be made as per Condition 62 of General Conditions of Contract. The total contract price shall be adjusted accordingly.

5. **TAXES AND DUTIES**

5.1 All the taxes & duties are to be included in the enclosed Schedule of rates. The Schedule of rates quoted shall include all applicable taxes (such as value added or sales tax, service tax or income taxes, duties, fees, levies) including tax on Works contract.



5.2 All existing taxes and duties like Excise Duty, Sales Tax, Service Tax, Works Contract Tax, Entry Tax, Fees, levies, octroi or other charges levied on the tenderer in connection with the contract work shall be borne by the tenderer. All new taxes on the Contract as a whole imposed by Govt. legislation during the Contract period shall be reimbursed at actual by Project Seabird (PSB) against documentary evidence. However, such reimbursement shall not apply for any intermediate components/items including raw materials. During the period of Contract, if any tax gets abolished, the same will be refunded to the Employer by the Contractor.

6. TERMS OF PAYMENT

6.1 Subject to any deductions which are authorized to be made under the contract, the contract price shall be payable as indicated in the enclosed General Conditions of Contract.

7. TIME OF COMPLETION

7.1 Time of completion is the essence of the contract. Tenderer shall complete the work in accordance with the Completion Schedule indicated in Notice Inviting Tender.

8. LIQUIDATED DAMAGES

8.1 Liquidated Damages shall be applicable as per General Conditions of Contract.

9. PERIOD OF VALIDITY OF TENDER

9.1 Unless otherwise specified, the Tenderer shall keep his tender valid initially for a period of 180 days from the date on which the tenders are due to be submitted.

10. LANGUAGE

10.1 The tender shall be submitted in English language.

11. EARNEST MONEY DEPOSIT

11.1 The Contractor(s) shall submit Earnest Money Deposit as detailed in Invitation to tender in one of the following form along with their tender.

11.2 FDR/Banker's Cheque/ Bank Guarantee as per Form DPM-13 from any Indian Nationalized bank/Scheduled Commercial Bank in favour of Director General, Project Seabird Payable at New Delhi. The FDR/Banker's Cheque/ Bank Guarantee shall be kept valid initially for a period of 06 (six) months from the due date for submission of tender.

NON-SUBMISSION OF EARNEST MONEY WILL RENDER THE TENDER AS INVALID AND CONSEQUENTLY IGNORED.



12. CAPACITY OF THE TENDERER

12.1 TECHNICAL CAPACITY

The Tenderer shall satisfy Employer's Representative/Engineer that he possesses the necessary technical experience and qualification and that he has at his disposal suitable modern facilities and properly qualified staff to ensure that he can undertake the work to the best of quality and workmanship. The Tenderer shall furnish necessary particulars with documentary proof in this regard with the Tender.

12.2 LEGAL CAPACITY

The Tenderer shall satisfy Employer's Representative/Engineer that he is competent and authorized to submit Tender and/or to enter into a legally binding Contract with Accepting Officer. To this effect any person giving a Tender shall render documentary evidence that his signature on the Tender submitted by him is legally binding upon himself, his firm or company, as the case may be.

12.3 AUTHORITY OF PERSON SIGNING DOCUMENTS

Even in case of firm or companies which have already granted power of Attorney to an individual authorizing him to sign tender and in pursuance of which tenders are being signed by such person as a routine, fresh power of Attorney duly executed in his favour stating specifically that the person has authority to bind such partners of the firm or the company as the case may be to the condition relating to Arbitration Clause, should be submitted with the tender unless such authority has already been given by the firm or the company.

13. ARRANGEMENT OF TENDER

13.1 The Tender shall be neatly arranged, plain and intelligible, type-written on white paper with consecutively numbered pages in solid binding and each page stamped and signed. The tender should not contain any terms and conditions, printed or otherwise, which are not applicable to the tender.

14. NO CLAIM OR COMPENSATION FOR SUBMISSION OF TENDER

14.1 The Tenderer whose Tender is not accepted shall not be entitled to claim any costs, charges, expenses of and incidental to or incurred by him through or in connection with his submission of Tenders, even though DG Project Seabird may withdraw the Invitation to Tender without assigning any reasons to the tenderer.

15. SALES TAX CLEARANCE CERTIFICATE

15.1 The Tenderer shall furnish the Sales Tax Clearance Certificate with the tender duly countersigned by the respective officer. Tenders submitted without valid Sales Tax Clearance Certificate will not be considered valid.



16. **CONDITION OF WORKING**

16.1 The work lies in Restricted Area. Refer Condition 7 of Special Conditions of Contract (Section-III) here-in-after.

17. **SIGNING OF CONTRACT**

17.1 On the Tender being accepted by Accepting Officer, a Contract will be signed and executed by and between Accepting Officer and the successful Tenderer, on the basis of the Terms and Conditions indicated in the Invitation to Tender, Technical Specification and Correspondence exchanged along with other relevant documents.

18. **PERFORMANCE SECURITY**

18.1 Upon acceptance of tender, the contractor within the time specified in the Letter of Acceptance, shall deposit with the Accepting Officer Bank Guarantee as per Proforma, as per **Annexure H**, from any Nationalized Bank Scheduled Commercial Bank for an amount equivalent to 10% (Ten percent) of the total value of the Contract. The contractor shall ensure that Bank Guarantee against Performance Security shall remain valid till successful completion of work.

18.2 Whenever the Consultant determines on addition to the Contract Price as a result of variation amounting to more than 10% (ten percent) of the Contract Price, the contractor at the request of PSB, shall promptly increase the value of the Security Deposit by an equal percentage.

19. **GENERAL INSTRUCTION FOR COMPLIANCE**

19.1 In case of 'BLANK TENDER' is submitted, it should be indicated by endorsement 'BLANK' made prominently on the envelope and signed by the tenderer.

19.2 In view of postal and other delays, it is suggested that the tender be sent by a special messenger if necessary or posted sufficiently in advance of the date and time fixed for receipt of tenders. Tenders received late will not be considered. Telegraphic/ Electronic offers will not be considered even if they are received in time.

19.3 Tenders will be opened in the presence of tenderers on the due date and time for opening of the tender. Tenderers, who have submitted their tenders and are desirous of being present at the time of opening of the tenders, may do so at the appointed time.

19.4 **Critical Path Method (CPM)**

19.4.1 The tender is based on CPM.

19.4.2 The tenderers are expected to be fully conversant with the technique and employ technical staff who can use the technique in



sufficient details. Sufficient books and other literature on the subject are widely available which the tenderer may make use of.

19.4.3 The time allowed for the completion of the work has been worked out through CPM after dividing the work in broad stages.

19.4.4 The tenderer's attention is drawn to special conditions of the tender regarding preparation of the detailed network and time schedule, for the work and it is his liability for employing sufficient resources to adhere to this schedule. Any inability on the part of the tenderer in using the technique will be taken as his technical insufficiency.

19.4.5 The Govt/Engineer may issue amendments/errata to the tender documents before due date of submission of tenders. The tenderer is required to read the tender documents in conjunction with the amendments, if any, issued by the Govt./Engineer. The tenderer is not supposed to incorporate the amendments/errata in the body of the tender documents either in ink or pencil. In case the amendments /errata issued are incorporated by the tenderer in the body of the tender, these shall not be considered and the amendments/errata to tender documents as issued by the Govt/Engineer shall only hold good.

20. Under no circumstances will close relations who have business dealing with one another/sister concern be allowed to tender for the same contract as separate competitors. A breach of this condition will render the tenders of both the parties liable for rejection.
21. The DG, Project Seabird, West Block V, R K Puram, New Delhi – 110066 will be the Accepting Officer here-in-after referred to as such for the purpose of this contract.
22. DG, Project Seabird shall return the Earnest Money where applicable to all unsuccessful tenderers by endorsing an authority on the deposit receipt for its refund. The DG, Project Seabird will either return the earnest money to the successful tenderer by endorsing on the deposit receipt for its refund on receipt of an appropriate amount of security deposit or will retain the same in part or full on account of security deposit if such a transaction is feasible.
23. The Accepting Officer reserves his right to accept a tender submitted by a public undertaking giving a purchase preference over other tender(s) which may be lower as are admissible under the Government Policy. No claim for any compensation or otherwise shall be admissible from such tenderers whose tenders may be rejected on account of the said policy.
24. **The tenderers are advised to visit the site by making prior appointment with Employer's Representative/Engineer.**
25. A tenderer shall be deemed to have full knowledge of all related documents, samples, site etc. whether he has inspected them or not.



26. Any tenderer which proposes any alterations to any of the conditions laid down or which proposes any other conditions of any description whatsoever is liable to be rejected. The specific confirmation sheet enclosed as **ANNEXURE –A** shall be duly signed and submitted.
27. The submission of a tender by a tenderer implies that he had fully read this notice and other communications of contract and has made himself/herself aware of the scope, specifications of and local condition of the work that may be awarded to him and other factors likely to have bearing on the execution of the work.
28. Tenderers must be very careful to deliver a bonafide tender or in the alternative return blank tender complete with all the documents forming part of the tender. A bonafide tender must satisfy each and every condition laid down in this notice.
29. The Accepting Officer does not bind himself to accept the lowest or any Tender or to give reason for not doing so.
30. **PRE-QUALIFICATION (PQ) CRITERIA**

30.1 The tenderers meeting the PQ criteria as per the tender notification enclosed vide **Annexure–B** only shall be considered for further evaluation. The tenderer shall furnish the **Forms I,II,IIA, III, IV,V,VI & VII** duly filled in with all the supporting documents such as annual reports/balance sheets, work order copies and completion certificates from clients in support of meeting the PQ criteria.

31 **ACKNOWLEDGEMENT**

Please acknowledge receipt of this Invitation to Tender and confirm that you will submit the tender on due date. If you are not in a position to quote please return the Tender Document to us.

Thanking you,

Yours Sincerely,
For and on behalf of
DG PROJECT SEA BIRD

Encl: As above.

1. Annexure A
2. Annexure B
3. Annexure C
4. Forms I,II,IIA, III to VII
5. Check List – Annexure D



ANNEXURE-A

**SPECIFIC CONFIRMATION
(TO BE SIGNED BY TENDERER)**

WE HEREBY CONFIRM THE FOLLOWING:

1. Our quotation is in total conformity with the tender stipulations and we do not have any additional technical or commercial conditions.
2. We have familiarised ourselves with the site conditions and have satisfied ourselves of the availability of the specified construction materials.
3. We are submitting the bar chart for the project activities, details of manpower and equipment to be deployed, in line with the indicated completion schedule.
4. We confirm that we will be setting up a quality testing laboratory at site and item rates include this mandatory requirement.
5. We accept all your commercial terms and conditions.

SIGNATURE OF TENDERER

SEAL

PLACE:

DATE



ANNEXURE-B

NOTICE INVITING TENDER

Ref No: SB/5/555/ Land GeoTech

Sealed tenders are invited from eligible contractors/firms under two bid system for the work of **“Land Geo Tech Investigation for Project Seabird, At Karwar.”** as per the details furnished hereunder:-

Cost of tender document : Rs 3,000/- (Rupees three thousand only)

EMD: Rs 2,55,000/- in favour of Director General Project Seabird New Delhi-110605. EMD will be submitted along with offer in the form of DD/FDR/Bankers cheque/Bank Guarantee from any Indian Nationalised Bank/Scheduled commercial Bank. Exemption from submission of EMD is allowed for SSI units registered with NSIC against valid NSIC certificate.

Site of Work: Naval Base at Karwar located at 110 KM South of Goa on Western Coast of India.

Completion period: 7 Months from the effective date of issue of letter of acceptance/ date of signing of Contract

Non transferable tender documents with relevant details can be obtained from the office of DG, Project Seabird, West Block V, RK Puram, New Delhi 110066 between **05 Jan 15 2014 to 27 Jan 15**, during working hours, on payment of non-refundable fee of Rs 3,000/- in the form of Demand Draft drawn in favour of Director General., Project Seabird, New Delhi.

1. Eligibility:

(i) Should have satisfactorily completed the **“similar works”** of values listed below during the last 7 years. (as on 31 December 2014)

- a) Three similar completed works each costing not less than Rs 72 lakhs
(or)
- b) Two similar completed works each costing not less than Rs 90 lakhs
(or)
- c) One similar completed work costing not less than Rs 143 lakhs and

(ii) Average Annual turnover during the last 3 years (as on 31st March 2014) should be at least Rs 54 lakhs

Documentary proof such as work order, completion certificate for experience, audited balance sheet, profit & loss account statement for annual turnover for meeting all the eligibility criteria shall be enclosed with the tender in original or copies notarized .The bids of those firms who do not meet the eligibility criteria shall be treated as invalid and will be summarily rejected and their price bid (under cover II) shall be returned to them unopened. **“Similar Work”** means Land Geo-Tech investigation carried out.



2. Tenderer shall have sufficient experienced specialized manpower and equipment to ensure work of best quality/ workmanship and tenderers shall furnish the organizational technical manpower/ equipment details to support their claim.
3. Qualification shall also be based on the past performance, technical/ financial capability available resources and shall be subject to verification of all statements submitted by applicant to establish his capacity to execute the work.
4. Tenderer will either have an office at site or make adequate arrangements for effective interaction with the Employer. Also, the tenderer shall be required to set up their office at Site for effective execution of the work.
5. The Contractor/Firm should be in sound financial position. Statement submitted to establish his capacity to execute the work shall be subject to verification of all documents.
6. Project Seabird takes no responsibility for delay or non-receipt of offers sent by post. Offers received after due date and time will not be considered.
7. Project Seabird reserves the absolute right to reject any or all offers and cancel the tendering process without assigning any reasons whatsoever. The opinion/decision of Project Seabird shall be final and conclusive. Project Seabird shall neither be held liable for such action nor be under any obligations to inform the applicant of the reasons for the same.
8. Purchase preference policies as per the latest Government of India guidelines will be applicable.
9. Offers from Joint Ventures/ Consortium will not be considered.

Last date for Submission of tender **1500 hrs on 30 Jan 2015**

Date of opening of tender **1515 hrs on 30 Jan 2015 (Part-I) at HQ, Project Seabird.**

For any further details, enquiry can be made from DG, Project Seabird on any working day during working hours (0900 to 1730 hrs).



Annexure C

LETTER FROM THE CONTRACTOR

To,

Director General
Project Seabird
West Block V
RK Puram
New Delhi 110066

Dear Sir,

I/we have examined the following documents and site relating to the Land Geo-Tech Investigation for Project Seabird at Karwar:

1. Invitation of Tender with annexures and forms
2. General Conditions of Contract
3. Special Conditions of Contract
4. Technical Specifications, scope of work, drawings
5. Bills of quantities/Price Format

I/we hereby tender for the works referred to in the aforesaid documents upon the terms & conditions contained or referred to therein and in accordance, in all respect with the specifications of quantities and within the period of completion.

I/we hereby agree to submit Earnest Money deposit (EMD) in favour of Director General Project Seabird along with tender. I/ We agree to keep the EMD as the security deposit, which is not to bear any interest for the due executing of the contract works.

Having examined the tender documents (containing hereto) relating to the works specified in the memorandum here in after set out and having visited and examined the site of the works specified in their said memorandum and having acquired the requisite information relating thereto as affecting the tender. I/We hereby offer to execute the works specified in the said memorandum at the rates mentioned in the schedule of quantities here to and in accordance with all respects of the specifications, design, drawings and instructions in writing referred to in the tender schedule and with such material as are provided with for by and in all other respects in accordance with such conditions so for as they may be applicable.

I/We hereby agree that if the work is not commenced within 2 weeks from the date of issuing the work order, the Employer has the right to cancel the letter of acceptance, work order issued to me/us, agreement entered with me/us and the EMD deposited by me/us can be forfeited without giving any notice to me/us and also the Employer has the right to execute the work to other agencies at our risk



and expense if I/We fail to commence the work within 2 weeks from the date of issuing the Work Order.

My/Our Address is;

My/Our Bankers are:

The names of the partners of our firms are:

The name of the authorized person to sign the contract is:

Or,

Name of the person having the power of attorney to sign the contract is:

Latest Income tax clearance certificate No., issued date, ward no., place:

Yours Sincerely,

Signature of the tenderer along with seal

The undersigned declares that the statement made and the information provided in the application being submitted, are complete, true and correct in every detail.

Signed :

Name :

For and on behalf of :

Note: Certified true copies as proof for power of attorney, it certified to be enclosed along with tender documents.

Signature of the Contractor with seal



FORM – I

Annual turnover data form

(SHOULD BE COUNTERSIGNED BY AUDITOR)

Name of Applicant:	
Annual turnover data for the last 3 years	
Year	Annual Turnover in Rs. In Lakhs
2011-2012	
2012-2013	
2013-2014	

AUDITOR'S SIGNATURE

**TENDERER'S SIGNATURE
WITH STAMP**

Attach: - Copies of audited balance sheets for the year as mentioned above.



FORM – II

PARTICULAR EXPERIENCE RECORD

(List those works which are similar to the proposed works for which the pre-qualification is sought. Should contain only the works awarded and executed from 01 Dec 2007 onwards)

(FURNISH INFORMATION IN THIS FORM FOR ALL SIMILAR WORKS UNDERTAKEN. USE SEPARATE SHEET FOR EACH ITEM)

Name of the Applicant:				
SL. NO.	Work Description	Date of award	Value in Rs (in Lakhs)	Whether Form II A furnished Yes/No
				Yes/No
				Yes/No
				Yes/No
				Yes/No
				Yes/No
				Yes/No
				Yes/No
				Yes/No
				Yes/No
				Yes/No

Signature of the tenderer

In the above Table, list only those works which have similar nature and complexity to the nature of work under this contract. The details of each of the works mentioned in the above table must be provided separately in **Form IIA**.

Where ever **Form IIA** is not furnished for any item, the item will be ignored.



FORM – IIA

DETAILS OF CONTRACTS OF SIMILAR NATURE AND COMPLEXITY

(FURNISH INFORMATION IN THIS **FORM** FOR ALL THE ITEMS LISTED IN **FORM II**. USE SEPARATE SHEET FOR EACH ITEM)

Name of the Applicant:		
1	Name of the Contract	
2	Country	
3	Name of the employer	
4	Employer's Address	
5	Name of works and special feature relevant to this contract	
6	Value of the total contract (Rs. In lakhs)	
7	Date of Award	
8	Date of completion	
9	Specified requirements	
10	Specified requirements	
11	Were there any penalties/fines /stop-notice /compensation/ liquidated damages imposed? (Yes/No) If yes, give amount and explanation	

Provide completion certificates/satisfactory progress for above mentioned work. In the absence of documentary proof, the details will be ignored.



FORM – III

CURRENT CONTRACT COMMITMENTS

(TO BE COUNTERSIGNED BY AN AUDITOR)

Name of the Applicant:					
Name of Contract	Name of client	Value of Firm's portion of total contract (Rs. Lakhs)	Stipulated date of completion	Value of outstanding work for the next 2 years (Rs. Lakhs)	Estimated completion date
Total value					

Signature of Auditor

Signature of Contractor

1. Details of all similar works which are at various stages of execution, including works for which work orders have been received but work is yet to start, or works approaching completion but for which full completion certificates are yet to be issued, are to be provided.
2. Details as available at the time of preparation of this documents have to be provided.
3. Enclose copies of Work Orders.



FORM –IV

Equipment proposed for the work

The tenderer will provide adequate information to demonstrate clearly that it has the capability to meet the requirements for each and all items of equipment listed below.

A. For Bore Hole

List of equipment, Nos. Owned /Proposed to be hired

B. Laboratory Proposed for Soil Investigation

Owned -Yes/ No

If Yes, Details of the Laboratory owned

If No, Proposed Agent for Laboratory Investigation

Note: If the contractor does not own the equipment/laboratory, he should attach the confirmatory letter from the owner of the equipment/laboratory for hiring it/ utilization of service

DATE:

TENDERER'S SIGNATURE WITH STAMP



FORM – V

Personnel/Staff proposed for the Project

(Here specify the qualification and experience summary of the Key Personnel proposed to be employed for the work)

Position

Name

Qualification

Years of experience (general)

Years of experience in the proposed position

DATE:

TENDERER'S SIGNATURE WITH STAMP



FORM – VI
Proposed Site Organisation

(Here narrate the Site Organisation Chart)

DATE:

TENDERER'S SIGNATURE WITH STAMP



FORM VII

Additional Information

Please add any further information that you consider to be relevant to the evaluation of your application for qualification. If you wish to attach any other documents, please list below.

Tenderers should not enclose testimonials, certificates and publicity material with their applications. They will not be taken into account in the evaluation of qualifications and will be discarded.



Annexure D

**CHECK LIST FOR THE INFORMATION TO BE FURNISHED BY THE TENDERER
ALONG WITH OFFER FOR LAND GEO TECH INVESTIGATIONS**

Sl. No	DESCRIPTION	FURNISHED	NOT FURNISHED
1	Earnest Money Deposit in line with Clause 1 of Invitation to Tender.		
2	Power of Attorney from court of Law in favour of a person signing the tender documents duly notarized in original. This will be in a stamp paper and the signature of the person shall be duly attested.		
3	One set of entire tender documents duly signed on each page as a token of acceptance of all the tender terms and conditions mentioned therein including unpriced BOQ and excluding tender drawings.		
4	Duly filled-in Form I, II, IIA, III to VIII with all the supporting documents such as annual reports/balance sheets, work order copies and completion certificates from clients in support of meeting the PQ criteria enclosed.		
5	Details of work of similar magnitude carried out by the tenderer in past.		
6	Details of present work Contracts under execution by the Tenderer with their date of completion and any other commitment (work-load if any) as per the Form-III enclosed duly signed by Auditor.		
7	Quality Assurance Plan		
8	Man power , tools and equipment deployment programme (category wise and month wise)		
9	Any other technical information the tenderer wishes to furnish		
10	Latest Sales tax Clearance Certificate along with PAN and Sales Tax numbers as applicable		
11	Deviations if any, to be spelt out separately		
12	Site organization chart		
13	Specific confirmation (Annexure-A)		
14	Duly signed all correspondence letters received from PSB in token of its acceptance.		



SECTION II

GENERAL CONDITIONS OF CONTRACT



PART I

1. DEFINITIONS

1.1 The “Contract” means the documents forming the tender and acceptance thereof, together with the documents referred to therein including these Conditions, Schedules and/or General Summary attached to the form of tender, the Specifications and the drawings, and all these documents, as applicable taken together shall be deemed to form one Contract and shall be complementary to one another,

1.2 The “tender documents” means the form of tender, the applicable Schedules and/or General Summary, these Conditions, and the Specifications and/or Drawings as loaned to Contractors for the purpose of preparing their tenders.

1.3 The “Works” means the works described in the tender documents, or in individual Works Orders and/or accompanying Drawings and Specifications as may be issued from time to time to the Contractor by the Engineer-in-charge within the powers conferred upon them, including all modified extra or additional works and obligations to be carried out either on the Site or at any factory or workshop or other place for subsequent incorporation, as required for the performance of the Contract.

1.4 The “Site” means the lands and/or other places on, in, into or through which work is to be executed under the Contract or any adjacent land, path or street which may be allotted or used for the purpose of carrying out the Contract.

1.5 The “Contractor” means the individual or firm or company, whether incorporated or not, undertaking the Works and shall include the legal personal representatives of such individual or the persons composing such firm or company, or the successors of such individual or firm or company and the permitted assigns of such individual or firm or company.

1.6 “Government” means the President of India, represented by Director General Project Seabird, his successors in office and assigns and the “Accepting Officer” means the duly authorised officer who signs the contract on behalf of the President of India for this contract, Director General, Project Seabird.

1.7 The word DG/DDG(PI) means Employer who accepts the contract. DDG (PI) is authorised representative of the Employer.

1.8 The “Engineer-in-Charge” means the qualified Engineer/ Project Consultant appointed by the DG, PSB to supervise the Works or part of the Works.

1.9 “Approved” and “directed” mean the approval or direction of the DG, PSB or person deputed by him for the particular purpose.

1.10 “MoD.” means the “Government of India (Ministry of Defence)”.



1.11 "I.S." means "Indian Standards" as issued by the Indian Standards Institution. In the case of Measurement and Term Contracts, "Specifications" means those contained, in the contract together with any amendments, etc., authorised thereto by the tender documents, "Drawings" refer to those accompanying the tender documents and/or any Works Orders referred to therein.

1.12 The "Contract Sum" means: -

1.12.1 In the case of Lump Sum Contracts, the sum for which the tender is accepted;

1.12.2 In the case of Item Rate Contracts for Works by Measurement, the total cost of the work arrived at after extension of the quantities shown in Schedule by the item rates quoted by the tenderer for the various items.

1.13 The "Final Sum" means the amount payable under the contract by Government to the Contractor for the full and entire execution and completion of the Works.

1.14 "Accepted Risks" mean the risk on the Site accepted by the Accepting Officer of riots (otherwise than among Contractor's employees), war, invasion, act of foreign enemies, hostilities, civil war, rebellion, revolution, insurrection, military or usurped power, damage from air craft and acts of God such as earthquake, lightning, unprecedented floods and tornado.

1.15 The "Date for Completion" is the date or dates for completion of the whole or any part of the works, set out or ascertained in accordance with the individual Works Orders or the tender documents, or any subsequent amendment thereto as provided in the condition 9 and 11 hereinafter.

1.16 A "Week" means seven days without regard to the number of hours worked or not worked in any day in that week.

1.17 A "Day" means a day of 24 hours irrespective of the number of hours worked or not worked in that day.

1.18 A "Working Day" means any day other than that prescribed by the Negotiable Instruments Acts as being a holiday and consists of the number of hours of labour as commonly recognised by good employers in the trade in the district where the work is carried out.

1.19 "Emergency Works" mean any urgent measures which, in the opinion of the Engineer-in-Charge, become necessary during the progress of the Works to obviate any risk of accident or failure or which become necessary for security, or rectifications to essential services like water supply and electrification during the maintenance period of the contract.

1.20 "Provisional Items" mean items for which approximate quantities have been included in the tender documents.



- 1.21 “Day work” means items of labour and/or materials which, in the opinion of the Engineer-in-Charge, are not capable of being evaluated by the accepted methods of measurement or assessment.
- 1.22 “Applicable Law” means the laws and any other instruments having the force of law in India for the time being.
- 1.23 “Foreign Currency” means any currency other than the currency of the “Employer’s” country.
- 1.24 “GC” means these General Conditions of Contract.
- 1.25 “Government” means the Government of India.
- 1.26 “Local Currency” means Indian Rupees.
- 1.27 “Member” means any of the entities that make up the joint venture/consortium/association; and “Members” means all these entities.
- 1.28 “Personnel” means professionals and support staff provided by the Contractor or by any Sub-Contractor and assigned to perform the services or any part thereof; “Foreign Personnel” means such professionals and support staff who at the time of being so provided had their domicile outside the Government’s country; “Local Personnel” means such professionals and support staff who at the time of being so provided had their domicile inside the Government’s country; and “Key Personnel” means the Personnel referred to in Clause GC 4.2(a).
- 1.29 “Reimbursable expenses” means all assignment-related costs [such as travel, translation, report printing, secretarial expenses, subject to specified maximum limits in the Contract].
- 1.30 “SC” means the Special Conditions of Contract by which the GC may be amended or supplemented.
- 1.31 “Services” means the work to be performed by the Contractor pursuant to this Contract.
- 1.32 “Sub-contractor” means any person or entity to whom/which the Contractor subcontracts any part of the Services.
- 1.33 “Third Party” means any person or entity other than the “Employer”, or the Contractor.
- 1.34 “In writing” means communicated in written form with proof of receipt.



PART II

SCOPE OF CONTRACT

2 Headings and Secrecy to the Conditions

2.1 The headings to these Conditions shall not affect the interpretation thereof.

2.2 The Contractor shall take all steps necessary to ensure that all persons employed on any work in connection with the Contract have taken due notice that the Indian Official Secrets Act, 1923 (XIX of 1923) applies to them and will continue so to apply even after the execution of such works under the Contract.

3 Contract Documents

3.1 The Contract is confidential and must be strictly confined to the Contractor's own use (except so far as confidential disclosure to sub-contractors or suppliers is necessary) and to the purposes of the Contract.

3.2 The Accepting Officer, empowered to issue the Work Order shall furnish to the Contractor free of cost two copies of the signed Drawings, the Specifications, the blank Bills of Quantities, if any, and two copies of all further drawings issued during the progress of the Works. The Contractor shall keep one copy of all Drawings and of the Specifications on the Site and the Engineer-in-Charge or his representative shall at all reasonable times have access to them.

3.3 All documents, copies thereof and extracts therefrom furnished to the Contractor shall be returned to the Engineer-in-Charge/PSB on the completion of the Works or the earlier determination of the Contract.

4 Works to be carried out (Applicable generally to Measurement and Lump Sum Contracts)

4.1 The Contracts shall, except as provided under Schedules include all labour materials, tools, plant, equipment and transport which may be required in preparation for, and for and in the full and entire execution and completion of the Works. The descriptions given in Schedules and the Bills of Quantities shall, unless otherwise stated, be held to include waste on materials, carriage and cartage, carrying in, return of empties, hoisting, setting, fitting and fixing in position and all other labours necessary in and for the full and entire execution and completion aforesaid in accordance with good practice and recognised principles.

4.2 The Contractor shall be deemed to have satisfied himself as to the nature of the Site, local facilities of access and all matters affecting the execution and completion of the Works. No extra charges consequent on misunderstanding or otherwise will be allowed.



5. **Blank**

6. **Provisional Items**

6.1 The full amount of provisional lump sums and the value annexed to each provisional item inserted in the tender documents shall be deducted from the Contract Sum and the value of work ordered and executed there under shall be ascertained by measurement or valuation as for deviations.

6.2 No work under these items is to be begun without instructions in writing from the Engineer-in-Charge.

6.3 The extent of quantities or items described as “provisional” shall not be varied beyond the limits laid down in Condition 7.

6.4 No addition or deduction shall be made by the Contractor to the amount of the provisional lump sums as included in the tender documents.

6A. Discrepancies and Adjustment of Errors (Applicable generally to Measurement and Lump Sum Contracts)

6.5 The several documents forming the contract are to be taken as mutually explanatory of one another, detailed drawings being followed in preference to small scale drawings and figured dimensions in preference to scale.

6.6 In the case of discrepancy between Schedule, the Bills of Quantities, the Specifications and/or the Drawings, the following order of precedence shall be observed:-

6.6.1 Description of Schedule /Bills of Quantities.

6.6.2 Technical Specification.

6.6.3 Drawings.

6.7 If there are varying or conflicting provisions made in any one document forming part of the Contract DG Seabird shall be the sole deciding authority with regard to the intention of the document and his decision in this respect shall be final and binding.

6.8 Any error in description, quantity or rate in Schedules and Bills of Quantities, or any omission there from shall not vitiate the Contract or relieve the Contractor from the execution of the whole or any part of the Works comprised therein according to the Drawings and Specifications or from any of his obligations under the Contract. Any error in quantity, rate or amount in Schedule/Bills of Quantities and general summary shall be adjusted in accordance with the following rules:-

6.8.1 *General (applicable to all types of contracts):-*

6.8.1.1 In the event of a discrepancy between description in words and figures quoted by a tenderer the description in words shall prevail.



6.8.1.2 In the event of an error occurring in the amount column of Schedule or Bill of Quantities as a result of wrong extension of unit rate and quantity, the unit rate whether inserted by Engineer-in-Charge prior to issue of tenders or quoted by tenderers, shall be regarded as firm and the extensions shall be amended on the basis of the rate. Where Provisional Lump Sum, Provisional Sum and/or "Prime Cost" Sum is/are inserted by Engineer-in-Charge is required to quote a percentage as well as an amount of addition/deduction thereon, and there is any Discrepancy between the percentage and the corresponding amount of addition/deduction, the percentage quoted by the Contractor shall be regarded as firm, the amount and total shall be amended on the basis of the percentage.

6.8.1.3 All errors in totalling in the amount column and in carrying forward totals shall be corrected.

6.8.1.4 Any omissions to include in the totals or to carry forward, the Prime Cost Sums and the percentage thereon, or the Provisional Sums, shall be corrected, if no percentage on Prime Cost Sums is quoted by the Contractor, the percentage shall be considered as 'NIL'.

6.8.1.5 In case of Contracts for addition/alteration works where Contractors are required to quote credit for demolished materials specified to become Contractor's property, in the event of omission on the part of a Contractor to indicate any credit, the tender shall be treated as one with "nil" credit.

6.8.1.6 The totals of Bills of Quantities, as amended above, shall be carried over to Schedule. Similarly, totals of various sections of Schedule as amended shall be carried over to the General Summary and the tendered sum amended accordingly. The tendered sum so altered shall, for the purpose of the tender, be substituted for the sum originally tendered and considered for acceptance instead of the original sum quoted by the Contractor. Any rounding off of totals in various sections of Schedule or in General Summary by the tenderer shall be ignored.

6.8.2 Lump Sum Contracts based on Drawings and Specifications and Item Rate Contracts – The Contractor shall be deemed to have calculated his own details from Drawings and Specifications before quoting unit rates against different items of Schedule. Notwithstanding any errors or inaccuracies in the unit rates quoted by the Contractor those rates shall be deemed to include for the full and entire completion of the items of Work in accordance with the provisions of the Contract and no adjustment shall be made on account of any errors in those rates.

7. Variation (Applicable specifically to Measurement and Lump Sum Contracts)

7.1 The contractor shall not make any alteration in, addition to or omission from the Works as described in the tender documents except in pursuance of the written instructions of the Engineer-in-Charge.



7.2 No work that radically changes the original nature & scope of the Contract shall be ordered as a Variation and in the event of disagreement between the Contractor and Engineer-in-Charge, the decision, of the DG, Project Seabird shall be final and binding on the Contractor.

7.3 The Accepting Officer, or person specially authorised by him on his behalf, may vary either by way of addition to and/or deduction from the Works so described provided that the Contract Sum be not thereby varied on the whole by more than the percentage set out in the tender documents (referred to herein below as the 'Variation Limit'), subject to the following restrictions:-

7.3.1 The Deviation Limit in respect of variable scope of work shall be limited to + (-) 25% of the total value without any limit on variation in quantities of individual items.

7.3.2 Deviation limit in respect of new items if any for fixed scope of work shall not exceed 1% of the total value of the fixed scope.

7.3.3 Overall Variation limit in respect of entire scope of work in this contract shall not exceed 10% of total value in line with Clause 22 of Special Conditions of Contract.

7.4 All additions and deductions will be priced as per Condition 62 hereof and added to or deducted from the Contract Sum. Whenever the Accepting Officer intends to exercise such right his intention shall be communicated to the Engineer-in-Charge whose order in writing shall specify the deviations which are to be made, the lump sum assessment or the proposed basis of payment, the change, if any, in the date or completion of the relevant phase and/or the entire Contract. Any objection by the Contractor to any matter concerning the Variation Order, shall be notified by him in writing to the Engineer-in-Charge within fifteen days from the date of receipt of such order, but under no circumstances shall the progress of the Works be stopped (unless so ordered by the Engineer-in-Charge) owing to differences or controversy that may arise from such objection. In default of such notification the Contractor will be deemed to have accepted the order and the conditions stated therein without in any way affecting the right of the parties to rectify any mistake on the basis of payment only to the extent it differs from Condition 62. In the event of the Contractor failing to agree with the Engineer-in-Charge regarding the proposed alteration of time, the objection shall be referred to the DG Seabird whose decision shall be final and binding.

8. **Emergency Works**

8.1 If any Emergency Works become necessary and the Contractor is unable (in respect whereof the decision of the DG Seabird shall be final and binding) or unwilling at once to carry them out, the DG Seabird may by his own or other work-people, carry them out as he may consider necessary. If the Emergency Works shall be such as the Contractor is liable under the Contract to carry out at his own expense or which are included in the Contract rates for Works being



executed by the Contractor, all expenses incurred on them by Government shall be recoverable from the Contractor, and if necessary, be adjusted or set off against any sum payable to him under this or any other Contract.

9. Suspension of Works

9.1 The Contractor shall, on receipt of the order in writing of the Engineer-in-Charge, suspend the progress of the Works or any part thereof for such time and in such manner as the Engineer-in-Charge may consider necessary for any of the following reasons :

9.1.1 on account of any default on the part of the Contractor; or

9.1.2 for proper execution of the Works or part thereof for reasons other than the default of the Contractor; or

9.1.3 for safety of the Works or part thereof.

9.2 The contractor shall, during such suspension, properly protect and secure the Works to the extent necessary and carry out the instructions given in that behalf by the Engineer-in-Charge.

9.3 If the suspension is ordered for reasons (9.1.2) and (9.1.3) in Sub-para (9.1) above:

9.3.1 the Contractor shall be entitled to an extension of time equal to the period of every such suspension plus 25% for completion of the item or group of items of work for which a separate period of completion is specified in the Contract and of which the suspended work forms a part, and

9.3.2 If the total period of all suspensions in respect of an item or group of items of work for which a separate period of completion is specified in the Contract exceeds 60 days the Contractor shall, in addition, be entitled to compensation, as the Engineer-in-Charge may on the basis of facts consider reasonable, in respect of salaries and/or wages paid by the contractor to his employees & labour at site actually remaining idle during the period of suspension.

9.4 If the Works or part thereof is suspended on the orders of the Engineer-in-Charge for more than four months at a time, except when suspension is ordered for reason (9.1.1) in Sub-para (9.1) above, the Contractor may after 60 days from receipt of such order serve a written notice on the Engineer-in-Charge requiring permission within fifteen days from receipt by the Engineer-in-Charge of the said notice, to proceed with the Works or part thereof in regard to which progress has been suspended and if such permission is not granted within that time, the Contractor, if he intends to treat the suspension, where it affects only a part of the Works as an omission of such part by government under Condition 7 or where it affects the whole of the works, as an abandonment of the Works by Government, shall within ten days of expiry of such period of 15 days give



notice in writing of his intention to the Engineer-in-Charge. In the event of the Contractor treating the suspension as an abandonment of the Contract by Government, he shall have no claim to payment of any compensation on account of any profit or advantage which he may have derived from the execution of the work in full but which he could not derive in consequence of the abandonment. He shall, however, be entitled to compensation, as the Engineer-in-Charge may on the basis of facts consider reasonable, in respect of salaries and/or wages paid by him to his employees and labour at Site actually remaining idle in consequence and also for loss on materials collected which could not be utilised on these or other Works including 5% as overheads on materials, salaries and wages.

10 Materials

10.1 *Materials to be provided by the Contractor –*

10.1.1 The contractor shall, at his own cost and expense, provide all materials required for the Works. All materials to be provided by the Contractor shall be new and in conformity with the specifications laid down in the Contract and the Contractor shall, if requested by the Engineer-in-Charge, furnish proof, to the satisfaction of the Engineer-in-Charge that the materials so comply.

10.1.2 The Contractor shall, at his own cost and expense and without delay, supply to the Engineer-in-Charge samples of materials proposed to be used in the Works. The Engineer-in-Charge shall within seven days of supply of samples or within such further period as he may require and intimate to the Contractor in writing inform the Contractor whether samples are approved by him or not. If samples are not approved the Contractor shall forthwith arrange to supply to the Engineer-in-Charge for his approval fresh samples complying with the specifications laid down in the Contract.

10.1.3 The Engineer-in-Charge shall have full powers to require removal of any or all of the materials brought to Site by the Contractor which are not new and in accordance with the Contract specifications or do not conform in character or quality to samples approved by him. In case of default on the part of the Contractor in removing rejected materials the Engineer-in-Charge shall be at liberty to have them removed by other means at the Contractor's expense and risk. The Engineer-in-Charge shall have full powers to require other proper materials to be substituted for rejected materials and in the event of the Contractor refusing to comply he may cause the same to be supplied by other means. All costs/charges and expenses which may attend upon such substitution shall be borne by the Contractor.

10.1.4 The Contractor shall indemnify Government or any Agent, servant or employee of Government against any action, claim or proceeding relating to infringement or use of any patent or design or any alleged patent or design rights and shall pay any royalties or other charges which may be payable in respect of any article or material or part thereof



included in the Contract. In the event of any claims being made or action being brought against government or any agent, servant or employee of Government in respect of any such matters as aforesaid, the Contractor shall immediately be notified thereof. Provided that such indemnity shall not apply when such infringement has taken place in complying with the specific direction issued by Government but the Contractor shall pay any royalties or other charges payable in respect of any such use, the amount so paid being reimbursed to the Contractor only if the use was the result of any drawing and/or specifications issued after submission of the tender.

10.1.5 Subject as hereinafter provided in Condition 63 all charges on account of octroi, terminal or sales tax and other duties on materials obtained for the Works from any source (excluding materials supplied by Government) shall be borne by the Contractor.

10.1.6 The Engineer-in-Charge shall be entitled to have tests carried out as specified in the contract for any materials supplied by the Contractor other than those for which, as stated above, satisfactory proof has already been furnished, at the cost of the Contractor and the Contractor shall provide at his expense all facilities which the Engineer-in-Charge may require for the purpose. If no tests are specified in the Contract, and such tests are required by the Engineer-in-Charge, the Contractor shall provide all facilities required for the purpose and the charges for these tests shall be borne by the Contractor only if the tests disclose that the said material are not in accordance with the provision of the Contract. The cost of material consumed in tests shall be borne by the Contractor in all cases except when otherwise provided.

10.2 *Materials to be supplied by Government –*

10.2.1 Materials which Government, shall supply are shown in Condition 3.5 of Special Conditions of Contract which also stipulates place of issue and rate(s) to be charged in respect thereof. Soon after acceptance of the tender the Contractor shall agree in writing with the Engineer-in-Charge on a phased programme of his requirements with regard to delivery of materials.

10.2.2 In the event of delay in the supply of any stores and materials mentioned by Government, the Contractor shall be entitled to reasonable extension of time as provided for under Condition 11 but no claim for compensation or damage on any ground whatsoever shall be entertained by the Government.

10.2.3 The Contractor will be paid for “fixing only” in respect of materials salvaged from and re-fixed in the same building or another building situated within a radius of 200 metres whether such salvaged materials are included in the list of materials supplied by Govt. or not.



10.2.4 If after acceptance of the tender the Contractor desires Government to supply any further materials out of those mentioned in the Schedule and/or any other materials, such materials may be supplied by government, if available, at rates to be agreed upon between the parties. For the materials to be supplied by Govt. the Contractor shall give a reasonable notice in writing of his requirements to the Engineer-in-Charge in accordance with the agreed phased programme. Such materials shall be supplied for the purposes of the Contract only and the value of materials so supplied at the rates specified in the aforesaid Schedule shall be set off or deducted from any sums then due or which may thereafter become due to the Contractor, under the Contract.

10.2.5 The Contractor shall bear the cost of loading, transporting to Site, unloading, storing under cover as required, assembling and joining the several parts together as necessary and incorporating or fixing materials in the Works including all preparatory work of whatever description as may be required, and of closing, preparing, loading and returning empty cases or containers to the place of issue.

10.2.6 All materials issued to the Contractor by Government for incorporation or fixing in the Works (including preparatory work) shall, on completion or on foreclosure of the works and before submission of bills, be returned by the Contractor at his expense, at the place of issue, after making due allowance for actual consumption, reasonable wear and tear and/or waste. If the Contractor is required to deliver such materials at a place other than the place of issue, he shall do so and the transportation charges from the Site to such place, less the transportation charges which would have been incurred by the Contractor had such materials been delivered at the place of issue, shall be borne by Government.

10.2.7 Surplus materials returned by the Contractor shall be credited to him by the Engineer-in-Charge at rates not exceeding those at which these were originally issued to him after taking into considerations any deterioration or damage which may have been caused to the said materials whilst in the custody of the Contractor.

10.2.8 If on completion of Works the contractor fails to return surplus materials out of those supplied by Government, then in addition to any other liability which the contractor would incur, the Engineer-in-Charge may, by a written notice to the Contractor, require him to pay within a fortnight of receipt of the notice for such unreturned and surplus materials at double the prevailing market rate as decided by the Engineer-in-Charge. If however, the contractor is not satisfied with the decision of the Engineer-in-Charge with regard to market rate, he shall be entitled to represent the matter to DG Seabird within seven days of receipt of Engineer-in-Charge decision and the decision of the DG Seabird thereon shall be final and binding.

10.3 *General* –



10.3.1 Materials required for the works, whether brought by the Contractor or supplied by Government, shall be stored by the Contractor only at places approved by the Engineer-in-Charge. Storage and safe custody of materials shall be at the risk and the responsibility of the Contractor.

10.3.2 Government officials concerned with the Contract shall be entitled at any time to inspect and examine any materials intended to be used in or on the Works, either on the Site or at factory or workshop or other place(s) where such materials are assembled, fabricated or manufactured or at any place(s) where these are lying or from which these are being obtained and the Contractor shall give such facilities as may be required for such inspection and examination.

10.3.3 All materials brought to the Site shall become and remains the property of Government and shall not be removed off the Site without the prior written approval of the Engineer-in-Charge. But whenever the Works are finally completed and advance, if any, in respect of any such materials is fully recovered, the Contractor shall at his own expense forthwith remove from the Site all surplus materials originally supplied by him and upon such removal the same shall remain in and become the property of the Contractor.

11. Time, Delay and extension –

11.1 Time is of the essence of the Contract and is specified in the contract documents or in each individual Works Order.

11.1.1 As soon as possible after the Contract is signed or any substantial Works Order is placed and before Work under it is begun, the Engineer-in-Charge and the Contractor shall agree upon a Time and Progress Chart. The Chart shall be prepared in direct relation to the time stated in the contract documents or the Works Order for completion of the individual items thereof and/or the Contract or Works Order as a whole. It shall indicate the forecast of the dates for commencement and completion of the various trade processes or sections of the work, and shall be amended as may be required by agreement between the Engineer-in-Charge and the Contractor within the limitation of time imposed in the contract documents or Works Order. If the Works be delayed.

11.1.1.1 by force majeure, or

11.1.1.2 by reason of abnormally bad weather ,or

11.1.1.3 by reason of serious loss or damage by fire, or

11.1.1.4 by reason of civil commotion, local combination of workmen, strike or lockout, affecting any of the trades employed on the work, or



11.1.1.5 by reason of delay on part of nominated sub-contractors, or nominated suppliers which the Contractor has, in the opinion of Engineer-in-Charge, taken all practicable steps to avoid, or reduce, or

11.1.1.6 by reason of delay on the part of Contractors or tradesmen engaged by Government in executing works not forming part of the contract, or

11.1.1.7 by reason of any other cause, which in the absolute discretion of the DG Seabird is beyond the Contractor's control; then, in any such case the Officer hereinafter mentioned may make fair and reasonable extension in the completion dates of individual items or groups of items of Works for which separate periods of completion are mentioned in the contract documents or Works Order, as applicable.

11.1.2 Upon the happening of any such event causing delay, the Contractor shall immediately, but not later than 30 days of the happening of the event, give notice thereof in writing to the Engineer-in-Charge but shall nevertheless use constantly his best endeavour to prevent or make good the delay and shall do all that may reasonably be required to the satisfaction of the Engineer-in-Charge to proceed with the works. Extension of time shall be granted by Accepting Officer of the contract

11.1.3 In case the Contractor fails to notify the Engineer-in-Charge of happening of an event(s) causing delay within the period of 30 days stipulated in sub-para 3 above, he shall forfeit his right to claim extension of time for the delay caused due to such event(s).

11.1.4 Extension of time, as granted above, shall be communicated to the Contractor by Engineer-in-Charge in writing and shall be final and binding.

11.2 If the works be delayed by reason of non-availability of Government materials then, in any such event, notwithstanding the provisions herein before contained, the Accepting Officer may in his discretion grant such extension of time as may appear reasonable to him and the same shall be communicated to the Contractor by Engineer-in-Charge in writing. The decision so communicated shall be final and binding and the contractor shall be bound to complete the works within such extended time.

11.3 No claim in respect of compensation or otherwise, howsoever arising, as a result of extensions granted under Condition 11 above shall be admitted.

12. **Patents and other Industrial Property Rights:** The prices stated in the present Contract shall be deemed to include all amounts payable for the use of patents, copyrights, registered charges, trademarks and payments for any other industrial property rights. The Contractor shall indemnify the Employer against all claims



from a third party at any time on account of the infringement of any or all the rights mentioned in the previous paragraphs, whether such claims arise in respect of manufacture or use. The Contractor shall be responsible for the completion of the supplies including spares, tools, technical literature and training aggregates irrespective of the fact of infringement of the supplies, irrespective of the fact of infringement of any or all the rights mentioned above.

13 Blank

14 Royalties

14.1 No royalty will be recovered for materials, which the Contractor may be allowed to remove from the land/sea which is within the premises of the Naval Base or in charge of the Govt. Authorities.

15. Plant and Equipment

15.1 The contractor shall at his own cost and expense, supply all tools, plants and equipment (hereinafter referred to as T & P) required for the execution of work.

16. Transport (Applicable only to Measurement and Lump sum Contracts).

16.1 The Contractor shall at his own expense supply all transport required for the execution of the Contract.

17. Assignment or Transfer of Contract.

17.1 The Contractor shall not without the prior written approval of the DG Seabird assign or transfer the Contract, or any part thereof or any share, or interest therein. No sum of money to become payable under the Contract shall be payable to any person other than the Contractor unless the prior written approval of the DG Seabird to the assignment or transfer of such money is given.

18. Sub-contracts

18.1 The Contractor shall not sub-let any portion of the Contract without the prior written approval of the DG Seabird. The DG Seabird may invite offers for performance by sub-contractors of any work in satisfaction of prime cost sums included in the tender documents. In the exercise of this option, offers will be made returnable to the DG Seabird who shall select the firm to do the Work and inform the Contractor, who will be required to conclude a Contract with the nominated sub-contractor for the execution of the Work as specified by the DG Seabird to the sub-contractor. The DG Seabird shall not nominate any sub-contractor against whom the contractor shall make reasonable objection.

18.2 The Contractor shall be responsible for any sub-contractor or contractor who may carry out any work or supply any material in connection with the Contract, whether such person be selected by the Accepting Officer or by the Contractor. The Contractor shall make good any loss or damage suffered by



Government by reason of any default, neglect or failure on the part of such person in relation to such work or material.

18.3 Nothing herein contained shall relieve the Contractor of his liabilities and obligations under the Contract or in any way affect the Contractor's direct responsibility to Government nor shall it render Government in any way responsible to such sub-contractor.

- 19. Blank
- 20. Blank
- 21. Blank



PART- III

PERFORMANCE OF THE CONTRACT

22. Performance Security Deposit.

22.1 The Contractor, within thirty days of the receipt of Letter of Acceptance of his tender or signing of Contract whichever is earlier, shall submit a Performance Bank Guarantee (PBG) of the value of 10% of the contract amount, valid till completion of work and payment of Final Bill.

22.2 Earnest Money will be refunded to the Contractor after the PBG has been received.

23. Orders under the Contract.

23.1 All orders, notices, etc., to be given under the Contract shall be in writing, typescript or printed and if sent by registered post to the last known place of abode or business of the Contractor shall be deemed to have been served on the date when in the ordinary course of post it would have been delivered to him. The Contractor shall carry out without delay all orders given to him.

24. Admission to Site.

24.1 The Contractor will not be permitted to enter on (other than for inspection purposes) or take possession of the Site until instructed to do so by the Engineer-in-Charge. The portions of the Site to be occupied by the Contractor will be clearly defined and/or marked on the Site plan, and the Contractor will on no account be allowed to extend his operations beyond these areas.

24.2 The Contractor shall provide if necessary or if required on the Site all temporary access thereto and shall alter, adapt and maintain the same as required from time to time and shall take up and clear away as and when no longer required and make all good.

24.3 Engineer-in-Charge shall have power to execute other Works (whether or not in connection with the Works) on the Site contemporaneously with the execution of the Works and the Contractor shall give reasonable facilities for such purpose.

24.4 The Govt. reserves the right of taking over, at any time, any portion of the Site which it may require and the Contractor shall at his own expense clear such portion forthwith. No photographs of the Site or of the Works or any part thereof shall be taken, published or otherwise circulated, without the prior written approval of the Engineer-in-Charge. No such approval shall however exempt the Contractor from complying with any statutory provisions in regard to the taking and publication of such photographs.

24.5 Any Govt. Officials connected with the Contract shall have right of entry to the Site at all time.



24.6 The Engineer-in-Charge shall have the power to exclude from the site any labour whose admission thereto may in his opinion be undesirable for any reason whatsoever. Engineer-in-Charge shall have the power to exclude from the site any person whose admission thereto may in his opinion be undesirable for any reason whatsoever. The Contractor shall not be allowed any compensation on account of the foregoing.

25. Contractor's Supervision –

25.1 The Contractor shall either himself supervise the execution of the Contract or shall appoint a competent Agent approved by the Engineer-in-Charge to act in his stead.

25.2 Where the Contractor is not a qualified Engineer or even if he is so qualified, he cannot, in the opinion of the Engineer-in-Charge, give his full personal attention to the Works, he shall at his own expense, employ a person, possessing the adequate qualifications and/or experience as his accredited Agent to supervise the Works and to receive instructions from the Engineer-in-Charge.

25.3 The employment of Agent as aforesaid shall be to the approval of the Engineer-in-Charge who may verify his qualifications and experience by referring to original degree /diploma /testimonials which shall be made available to him by the Contractor or by the individual employed or proposed to be employed.

25.4 If the Contractor fails to appoint a suitable Agent on being ordered to do so, the Engineer-in-Charge shall have full powers to suspend the execution of the Works until such date as a suitable Agent is appointed and the Contractor shall be held responsible for the delay so caused to the Works.

25.6 Orders given to the Contractor's Agent shall be considered to have the same force as if they had been given to the Contractor himself.

25.7 The Contractor or his Agent shall be in attendance at the Site during all working hours and shall superintend the execution of the Works with such additional assistance in each trade as the Engineer-in-Charge may consider necessary.

25.8 The Contractor or his accredited Agent shall attend, when required and without making any charge for doing so, either at the office of the Engineer-in-Charge or on the Works to receive instructions.

25.9 The Engineer-in-Charge shall have full powers, and without giving any reason, to require the Contractor immediately to cease to employ in connection with this Contract any Agent, servant or employee whose continued employment is in his opinion undesirable. The Contractor shall not be allowed any compensation on this account.



26. **Labour.-**

26.1 The Contractor shall employ labour in sufficient number to maintain the required rate of progress and of quality to ensure workmanship of the degree required by the Specifications and to the satisfaction of the Engineer-in-Charge.

26.2 The Contractor shall remain liable for the payment of all wages or other moneys to his work-people or employees under the Payment of Wages Act, 1936, Minimum Wages Act, 1948, Employer's Liability Act, 1938, Workmen's Compensation Act, 1923, or any other Act or enactments relating thereto and rules framed there under from time to time. The Contractor shall work only on and during the hours of a working day unless he obtains the prior written approval of the Engineer-in-Charge to do otherwise. If such approval is given no liability in respect of any excess cost arising there from shall be incurred by Government.

26.3 The Contractor shall furnish to the Engineer-in-Charge every morning a distribution return of the number and description by trades of his work-people employed on the Works.

26.4 The Contractor shall during the progress of the Works comply at his own expense with all the rules and provisions contained in the Govt. Model Rules for the protection of health and sanitary arrangements for workers employed by contractors (appended hereto as **Annexure "G"** to these Conditions) and shall at his own expense provide for all facilities in connection therewith to the satisfaction of the Engineer-in-Charge and on his failure to do so, the Engineer-in-Charge shall be entitled to provide the same and recover the cost thereof from the contractor.

26.5 The Contractor shall not employ in connection with the Works any person who has not completed his eighteen years of age.

26.6 The Contractor shall at his own expense arrange for all the safety provisions as per the Govt. Safety Code (appended to these Conditions as an **Annexure "F"**) and shall at his own expense provide for all facilities in connection therewith to the satisfaction of the Engineer-in-Charge and on his failure to do so, the Engineer-in-Charge shall be entitled to provide the same and recover the cost incurred in that behalf from the Contractor. Provided further that in case of failure to arrange for the safety provisions as above the contractor should in addition be liable to pay a penalty of Rs. 500 for each default.

27. **Maternity Benefit Rules for Female Workers employed by Contractor-** Leave and pay during leave shall be regulated iaw the Labour laws and will be the responsibility of the contractor.

28. **Anti-malarial Precautions**

28.1 The Contractor shall, at his own expense conform to all anti-malarial instructions given to him by the Engineer-in-Charge, including the filling up of borrow-pits.



29. **Blank**

30. **Nuisance**

30.1 The Contractor will not at any time do, cause or permit any nuisance or the Site or do anything which shall cause unnecessary disturbance or inconvenience to the owners, tenants or occupiers of other properties near the Site and to the public generally and will secure the efficient protection of all streams and waterways against pollution.

31. **Water**

31.1 Water will not be arranged by Government. Contractor shall make his own arrangements for all requirements of water. The contractor shall make his own arrangements for storing the water required for the works, labour & workmen etc at his own expense. Potable water shall be used to fulfil the requirements.

32. **Temporary Workshops, Stores, etc.**

32.1 The Contractor shall during the progress of the Works provide, erect and maintain at his own expense all necessary temporary workshops, stores, offices, etc., as are required for the proper and efficient execution of the Works. The planning, siting and erection of these buildings shall be to the approval of the Engineer-in-Charge and they shall at all times be kept tidy and in a clean and sanitary condition to the entire satisfaction of the Engineer-in-Charge and at the Contractor's expense.

32.2 On completion of the Works the whole of such temporary buildings shall be cleared away and the Site reinstated and left clean and tidy to the entire satisfaction of the Engineer-in-Charge and at the Contractor's expense.

32.3 Additionally, the Engineer-in-Charge may at his discretion permit the Contractor to occupy as workshops and stores such Government buildings as may be available at the Site or Station for that purpose and, in the event of the Contractor occupying such accommodation, the prescribed rent for the same shall be recoverable from him. The Contractor undertakes to maintain such premises at his own expense in a clean and sanitary condition and to deliver up the same on the completion of the Works or the termination of the Contract, or in the event of the said buildings being required by the Engineer-in-Charge within one month of an order to that effect, in a clean state complete in every particular (damage from the accepted risks and fair wear and tear excepted).

33. **Blank**

34. **Tools and Plant on Site**

34.1 All tools, plant and equipment brought to the Site shall become the property of Government and shall not be removed off the Site without the prior written approval of the Engineer-in-Charge. But whenever the Works are finally completed or the Contract is determined for reasons other than the default of the Contractor, the Contractor shall forthwith remove from the Site all tools,



plant and equipment (other than such as may have been provided by Government) and upon such removal, the same shall revert in, and become the property of the Contractor.

35. Statement of Hire Charges

35.1 A weekly detailed statement of the hire charges incurred in respect of Government tools, plant, equipment and/or transport shall be given to the Contractor by the Engineer-in-Charge.

36. Precautions against Risks

36.1 The Contractor shall be responsible at his own expense, for precautions to prevent loss or damage from any and all risks other than for Accepted Risks and to minimize the amount of any such loss or damage and for the provision of all protective works, casings, coverings, etc., required for the purpose, until the Works have been handed over complete to the Engineer-in-Charge.

36.2 All Government buildings rented to the Contractor for workshops or stores shall be insured by the Contractor in favour of Government to their full value against risk of loss or damage from whatsoever cause arising other than the accepted risk, and the policy of insurance and receipts for premiums shall be produced when required by the Engineer-in-Charge; provided always that where part only of a building is rented to the contractor, he will be required to ensure the building only if used by him for the purpose of storing or using materials of a combustible nature, as to which the decision of the Engineer-in-Charge shall be final and binding.

36.3 The Contractor shall provide all watchmen necessary for the security and protection of the Site, the Works and of materials and plant and all things on the Site during the progress of the Works, and shall solely be responsible for and shall take all reasonable and proper steps for protecting, securing, lighting and watching all places on or about the Works and the Site which may be dangerous to any person whomsoever.

37. Notices and Fees

37.1 Statutory clearance / notices /fees in respect of buildings, water and electricity will be taken care by Project Seabird. All the rest will be responsibility of contractor.

37.2 The Contractor shall give all notices required by any statutory provisions or by the regulations and/or bye-laws of any local authority and/or of any public service, company or authority affected by the Works or with whose systems the same are or will be connected and he shall pay and indemnify Government against any fees, or charges demandable by law under such acts, regulations and/or bye-laws in respect of the Works and shall make and supply all drawings and plans required in connection with any such notices.



38. Setting out the Works

38.1 The Engineer-in-Charge, shall supply dimensioned drawings, levels and other information necessary to enable the Contractor to set out the Works. The Contractor shall set out the Works and shall provide and fix all setting out apparatus required and solely be responsible for the correctness and maintenance of the setting out. No work shall commence till the setting out is approved by the Engineer-in-Charge.

39. Site Drainage

39.1 All water that may accumulate on the Site during the progress of the Works, or in trenches and excavations, from other than the accepted risks, shall be removed from the Site to the entire satisfaction of the Engineer-in-Charge, and at the Contractor's expense.

40. Excavation

40.1 Material of any kind obtained from excavation on the Site shall remain the property of Government and shall be disposed off as Engineer-in-Charge directs.

41. Foundations

41.1 The Contractor shall not lay any foundations until the excavations for the same have been examined and approved in writing by the Engineer-in-Charge.

42. Covering in Work

42.1 The Contractor shall give reasonable notice in writing to the Engineer-in-Charge whenever any work is to be permanently covered or concealed, whether by earth or other means and in default of so doing shall, if required by the Engineer-in-Charge uncover such work at his own expense. Extra soil required for filling, etc. shall be obtained only from those places for which prior written approval has been given by the Engineer-in-Charge.

43. Approval of Works by Stages

43.1 All Work embracing more than one process, shall be subject to examination and approval at each stage thereof and the Contractor shall give due notice in writing to the Engineer-in-Charge when each stage is ready. In default of such notice being received, the Engineer-in-Charge shall be entitled to appraise the quality and extent thereof and in the event of any dispute the decision of the Engineer-in-Charge thereon shall be final and binding.

44. Execution of the Works

44.1 The works shall be executed in a workmanlike manner and to the satisfaction in all respect of the Engineer-in-Charge. In the case of Measurement and Lump Sum Contracts, the Engineer-in-Charge will communicate or confirm his instructions to the Contractor in respect of the



execution of work in a "Works Site Order Book" maintained at his office and the Contractor shall visit this office daily and shall confirm receipt of such instructions by signing the relevant entries in this book. Such entries will rank as orders or notices in writing within the intent and meaning or these conditions.

45. **Day Work**

45.1 No day work shall be performed without the prior instructions of the Engineer-in-Charge.

45.2 The Contractor shall give to the Engineer-in-Charge reasonable notice of the start of any work ordered to be executed by day work and shall deliver to the Engineer-in-Charge within two days of the end of each pay week a return in duplicate giving full detailed account of labour and materials for that pay week. One of these returns if found correct, will be certified by the Engineer-in-Charge and returned to the Contractor and must be produced at the adjustment of account.

45.3 An invoice in duplicate signed by the Contractor or his Agent shall be sent with each delivery of materials for day-work and the Contractor will be furnished with a receipt, signed by the Engineer-in-Charge, specifying the description, quantities, weight or measurement (as the case may be) of the articles approved: reference will be made to this receipt in the return aforesaid and the receipt itself is to be produced in support of the Contractor's bill.

45.3 In the case of Lump Sum Contracts, the rates to be charged and the percentage addition for profit and establishment charges, etc., will be agreed upon between the Accepting officer and the Contractor prior to the execution of the work.

46. **Inspection of the Works**

46.1 Govt. Officers concerned with the contract shall have power at any time to inspect and examine any part of the Works and the Contractor shall give such facilities as may be required to be given for such inspection and examination.

46.2 Should the Engineer-in-Charge consider, at any time during the progress that any work has been executed with unsound, imperfect or unskilful workmanship or of a quality inferior to that contracted for or not otherwise in accordance with the Contract (in respect whereof the decision of the Engineer-in-Charge shall be final and binding), the Contractor shall, on demand in writing from the Engineer-in-Charge specifying the fault notwithstanding that the same may have been inadvertently passed, certified and paid for, forthwith rectify or remove and reconstruct the Work so specified, in whole or in part as the case may require, at his own expense; and in the event of his failing to do so within a period to be specified by the Engineer-in-Charge in his demand aforesaid, the Engineer-in-Charge may carry out the Work by other means at the risk and expense in all respects of the Contractor.



47. Responsibility for Buildings

47.1 In the event of any building or part, of a building being handed over to the Contractor for the execution of Works thereto under the provisions of the Contract, he shall give a written receipt for all fixtures, glass etc., and he shall be required to make good at his own expense all damage resulting from any cause whatsoever, accepted risks and fire excepted (unless such fire shall have been caused through the negligence of the Contractor or any of his agents, servants or employees) while in his charge and to deliver up the said building or part thereof to the Engineer-in-Charge in a clean state complete in every particular, on the completion of the Works.

48. Damage and Loss

48.1 All plant, temporary building, equipment, and things on the Site provided by or on behalf of the Contractor for the construction of, but not for incorporation in the Works shall stand at the risk and be in the sole charge of the Contractor and the Contractor shall be responsible for, and with all possible speed make good, any loss or damage thereto arising from any cause whatsoever, including the accepted risk.

48.2 Save as above, the works and all materials and things whatsoever including such as may have been provided by Government on the Site in connection with and for the purpose of the Contract shall stand at the risk and be in the sole charge of the Contractor and the Contractor shall be responsible for, and with all possible speed make good, any loss or damage thereto arising from any cause whatsoever, other than the accepted risks and shall deliver up all the Works to the Engineer-in-Charge in a clean state, complete in every particular. In the event of any loss or damage to Works & materials on the Site from any of the accepted risks, or loss or damage from accepted risk and fire to Govt. buildings handed over to contractor for execution of works referred to in Condition 47, the following provisions shall have effect:-

48.2.1 the Contractor shall, as may be directed in writing by the Engineer-in-Charge, remove from the Site any debris and so much of the Works as shall have been damaged, taking to the Engineer-in-Charge's store such articles and/or materials as may be directed;

48.2.2 the Contractor shall, as may be directed in writing by the Engineer-in-Charge, proceed with the erection and completion of the Works under and in accordance with the provisions and conditions of the contract; and

48.2.3 there shall be added to the Contract Sum the net amount due, ascertained in the same manner as for deviations, or as prescribed for payment, in respect of the re-execution of the Works lost or damaged, the replacement of any materials and things lost or damaged but not incorporated in the Works at the date when the loss or damage occurred, and the removal by the Contractor as provided above the debris and damaged Work referred to therein.



48.2.4 Provided always that the Contractor shall not be entitled to payment under this Condition in respect of so much loss or damage as has been occasioned by any failure on his part to perform his obligations under the Contract.

48.3 Save as provided above, the Contractor shall at his own expense reinstate and make good to the satisfaction of the Engineer-in-Charge or make compensation for any injury, loss or damage occasioned to any property or right whatever including property and rights of Government (or agents, servants, or employees of Government) being injury, loss or damage arising out of or in any way in connection with the execution or purported execution of the Contract and further, the Contractor shall indemnify Government against all claims enforceable against Government (or any agent, servant or employee of Government) or which would be so enforceable against Government were Government, a private person, in respect of such injury (including injury resulting in death), loss or damage to any person whomsoever or property, including all claims which may arise under the Workmen's Compensation Act or otherwise.

49. **Completion**

49.1 The Works shall be completed to the entire satisfaction of the Engineer-in-Charge and in accordance with the Contractor's forecast of time and progress where operative. All unused stores and materials, tools, plant, equipment, scaffolding, temporary buildings, huts and things belonging to the Contractor (other than such items as are required for rectification of defects) shall be removed and the Site of Works cleared of rubbish and all waste materials by the Contractor, at his own expense and delivered up clean and tidy to the satisfaction of the Engineer-in-Charge on or before the date for completion.

49.2 All unused or surplus stores and materials and other items out of those provided by the Government shall be returned by the Contractor, at his own expense, within such period as may be notified by the Engineer-in-Charge, to the place of issue against written receipts from the Engineer-in-Charge.

49.3 Soon after the rectification of defects, any stores and materials and other items mentioned above, retained for rectification of defects shall also be removed and Site and Works cleared as above and delivered to the Engineer-in-Charge in a neat state.

49.4 Immediately after completion of an item of Works or a group of items of Works for which a separate period of completion has been mentioned in contract, the Contractor shall give notice thereof to the Engineer-in-Charge.

49.5 In the case of groups of items of Works for which separate periods of completion are given in the Contract, the Engineer-in-Charge may take over from the Contractor such individual items as are completed to his satisfaction before the completion of the entire group, but for all purposes of the Contract except for compensation for delay, the completion of the entire group shall be taken into account.



49.6 The Project Seabird based on Engineer-in-Charge's recommendation shall take over from the Contractor from time to time items or groups of items of Works for which separate periods of completion have been mentioned in the contract and which have been completed to the satisfaction of the Project Seabird/Engineer-in-Charge.

49.7 The Project seabird shall certify to the Contractor the Date(s) on which the items or group of items of Works are completed and taken over and the state thereof based on Engineer-in-Charge's certification.

50. **Compensation for Delay**

50.1 If the Contractor fails to complete the Works and clear the site on or before the date(s) fixed for completion, he shall, without prejudice to any other right or remedy of Government on account of such breach, be liable to pay compensation and not as penalty at the ½ % (half a percent) of the Contract value of the item or group of items of Work (excluding the contract value of such individual items as are completed and taken over by Engineer-in-Charge on or before the date(s) fixed for completion, in terms of Condition 49 hereof) for which a separate period of completion is given in the Contract, for every week and /or part thereof that the whole of the work in respect of the item or group of items of Works concerned remains uncompleted, even though the Contract as a whole be completed by the latest date-specified in the Contract for any item or group of items of Works.

50.2 For the purpose of this condition the "Contract Value" shall be the value at contract rates of the work as actually ordered including all deviation orders on the Contractor. When the delay is not a full week or in multiples of a week but involves a fraction of a week the compensation payable for that fraction shall be proportional to the number of days involved. Provided always that the total amount of compensation to be paid under this Condition shall not exceed to 10% (Ten percent) of the contract value of the item or group of items of Work for which a separate period of completion is given.

50.3 The provision under this Clause shall not apply in the cases of delay for which CONTRACTOR is entitled to extension of completion time as per contract.

50.4 The Project Seabird may without prejudice to any other method of recovery, deduct the amount of liquidated damages from any money in his hands due or become due to the CONTRACTOR.

50.5 The payment or deduction of such liquidated damages shall not relieve the CONTRACTOR of his obligation to complete the work or any other of his obligations and liabilities under the Contract.

51. **Laws Governing the Contract**

51.1 This Contract shall be governed by the Indian Laws for the time being in force.



52. Cancellation of Contract for Corrupt Acts

52.1 The Accepting Officer whose decision shall be final and binding, shall, without prejudice to any other right or remedy which shall have accrued or shall accrue thereafter to Government, cancel the Contract in any of the following cases and the Contractor shall be subject to payment of any loss or damage resulting, from any such cancellation to the like extent as is provided in the case of cancellation for default:

If the Contractor shall –

52.1.1 offer or give or agree to give to any person in Government service any gift or consideration of any kind as an inducement or reward for doing or forbearing to do or for having done or forborne to do any act in relation to the obtaining or execution of this or any other Contract for Government service, or

52.1.2 enter into a Contract with Government in connection with which commission has been paid or agreed to be paid by him or to his knowledge, unless the particulars of any such commission and the terms of payments thereof have previously been disclosed in writing to the Accepting Officer, or

52.1.3 obtain a contract with Government as a result of ring tendering or other *non bonafide* methods of competitive tendering without first disclosing the fact in writing to the Accepting Officer.

53. Cancellation of Contract for Insolvency, Sub-letting, etc

53.1 The Accepting Officer may, without prejudice to any other right or remedy which shall have accrued or shall accrue thereafter to Government, cancel the Contract in any of the following cases: -

53.1.1 If the Contractor –

53.1.1.1 being an individual or if a firm, any partner thereof shall at any time be adjudged insolvent or have a receiving order or order for administration of his estate made against him or shall take any proceedings for liquidation or composition under any Insolvency Act for the time being in force or make any conveyance or assignment of his effects or composition or arrangement for the benefit of his creditors or purport so to do or if any application be made under any Insolvency Act for the time being in force for the sequestration of his estate or if a trust deed be granted by him for behalf of his creditors ;

or

53.1.1.2 being a company shall pass a resolution or the Court shall make an order for the liquidation of its affairs or a receiver or manager on behalf of the debenture holders shall be appointed or



circumstances shall arise which entitle the Court or debenture holders to appoint a receiver or manager;

or

53.1.1.3 assigns, transfers, sub-lets or attempts to assign, transfer or sub-let, any portion of the Works without the prior written approval of the Accepting Officer.

53.2 Whenever the Accepting Officer exercises his authority to cancel the Contract under this condition, he may complete the Works by any means at the Contractor's risk and expense provided always that in the event of cost of completion or after alternative arrangements have been finalised by the Government to get the Works completed, estimated cost of completion (as certified by Engineer-in-Charge) being less than the Contract cost, the advantage shall accrue to the Government. If the cost of completion or after alternative arrangements have been finalised by the Government to get the Works completed, estimated cost of completion (as certified by Engineer-in-Charge) exceeds the moneys due to the Contractor under this Contract, the Contractor shall either pay the excess amount ordered by Engineer-in-Charge or the same shall be recovered from the Contractor by other means.

53.3 The Government shall also be at liberty to hold and retain in their hands materials, tackle, machinery and stores of all kinds on Site, as they may think proper and may at any time sell any of the said materials, tackle, machinery and stores and apply the proceeds of sale in or towards the satisfaction of any loss which may arise from the cancellation of the Contract as aforesaid.

53.4 The Government shall also be at liberty to use the materials, tackle, machinery and other stores on site of the contractor as they think proper in completing the work and the Contractor will be allowed the necessary credit. The value of the materials and stores and the amount or credit to be allowed for tackle and machinery belonging to the Contractor and used by the Government in completing the work shall be assessed by the Engineer-in-Charge and the amount so assessed shall be final and binding.

53.5 In case the Government completes or decides to complete the Works under the provisions of this Condition the cost of such completion to be taken into account in determining the excess cost to be charged to the Contractor under this Condition shall consist of the cost or estimated cost (as certified by Engineer-in-Charge) of materials purchased or required to be purchased and/or the labour provided or required to be provided by the Government as also the cost of the Contractor's materials used with an addition of such percentage to cover superintendence and establishment charges as may be decided by the Accepting Officer whose decision shall be final and binding.

54. Cancellation of Contract in part or in full for Contractor's Default

54.1 If the Contractor:-



54.1.1 makes default in commencing the Works within a reasonable time from the date of the handing over the site, and continues in that state after a reasonable notice from Engineer-in-Charge.

or

54.1.2 in the opinion of the Engineer-in-Charge at any time, whether before or after the date or extended date for completion, makes default in proceeding with the Works, with due diligence and continues in that state after a reasonable notice from Engineer-in-Charge.

or

54.1.3 fails to comply with any of the terms and conditions of the Contract, or after reasonable notice in writing with orders properly issued there under,

or

54.1.4 fails to complete the Works, Work order and items of Works, with individual dates for completion and clear the Site on or before the date of completion.

or

54.1.5 Stops the work at site for two week continuously at any time, whether before or after the date or extended date of completion.

or

54.1.6 Shows his inability to continue with the work at any time, whether before or after the date or extended date of completion.

54.2 The Accepting Officer may, without prejudice to any other right or remedy which shall have accrued or shall accrue thereafter to Government, cancel the Contract as a whole or only such Work Order(s) or items of Work in default from the Contract. Whenever the Accepting Officer exercises his authority to cancel the Contract as a whole or in part under this Condition he may complete the Work by any means at Contractor's risk and cost, provided always that in the event of cost of completion or after alternative arrangements have been finalised by the Government to get the Works completed, estimated cost of completion (as certified by Engineer-in-Charge) being less than the Contract cost, the advantage shall accrue to the Government. If the cost of completion or after alternative arrangements have been finalised by the Government to get the Works, completed, estimated cost of completion as certified by Engineer-in-Charge.) exceeds the moneys due to Contractor under this Contract, the Contractor shall either pay the excess amount ordered by Engineer-in-Charge or the same shall be recovered from the Contractor by other means. The Government shall also be at liberty to hold and retain in their hands materials, tackle, machinery and stores of all kinds on Site, as they may think proper and may at any time sell any of the said materials, tackle, machinery and stores and apply the proceeds of sale in or towards the satisfaction of any loss which may arise from the cancellation of the Contract as aforesaid.

54.3 The Government shall also be at liberty to use the materials, tackle, machinery and other stores on Site of the Contractor as they think proper in completing the work and the Contractor will be allowed the necessary credit. The value of the materials and stores and the amount of credit to be allowed for tackle and machinery belonging to the Contractor and used by the



Government in completing the work shall be assessed by the Engineer-in-Charge and the amount so assessed shall be final and binding. In case the Government completes or decides to complete the Works or any part thereof under the provision of this Condition, the cost of such completion to be taken into account in determining the excess cost to be charged to the Contractor under this Condition shall consist of the cost or estimated cost (as certified by Engineer-in-Charge) of materials purchased or required to be purchased and/or the labour provided or required to be provided by the Government as also the cost of the Contractor's materials used with an addition of such percentage to cover superintendence and establishment charges as may be decided by the Accepting Officer, whose decision shall be final and binding.

55. Termination of Contract for Death

55.1 Without prejudice to any of the rights or remedies under this contract, if the Contractor dies, the Accepting Officer shall have the option of terminating the Contract without compensation to the Contractor.

56. Blank

57. Special Powers of Determination (Applicable only to Measurement and Lump Sum Contracts)

57.1 If at any time after the acceptance of the tender, the Government shall for any reason whatsoever not require the whole or any part of the Works, to be carried out, the Accepting Officer shall give notice in writing of the fact to the Contractor, who shall have no claim to any payment of compensation or otherwise howsoever on account of any profit or advantage which he might have derived from the execution of the Works in full but which he did not derive in consequence of the foreclosing of the Works.

57.2 He shall be paid at Contract rates for the full amount of the Work executed including such additional Works, e.g., clearing of Site, etc., as may be rendered necessary by the said foreclosing. He shall also be allowed a reasonable payment (as decided by the Accepting Officer) for any expenses sustained on account of labour and materials collected but which could not be utilised on the Works as verified by the Engineer-in-Charge.

58. Fair Wage

58.1 The contractor shall pay not less than the "fair wage" as defined below or the minimum wage fixed under the Minimum Wages Act, whichever is higher to labourers engaged by him on the Work.

"Fair Wage" means wage whether for time or piece work notified at the time of inviting tenders for the Work and where such wages have not been so notified the wages prescribed by the Accepting Officer for the stations at which the Work is done.

58.2 The Contractor shall notwithstanding the provision of any Contract to the contrary, cause to be paid a "fair wage" or minimum wage fixed under the



Minimum Wages Act whichever is higher to labourers indirectly engaged on the Work including any labour engaged by his sub-contractors in connection with the said Work, as if the labourers had been directly employed by him.

58.3 In respect of all labour directly or indirectly employed on the Works for the performance of the Contractor's part of this Agreement, the Contractor shall comply with or cause to be complied with the Contractor's Labour Regulations (appended hereto as **Annexure "A"** to these Conditions) in regard to all matters provided therein and with all other Labour Laws as may be applicable.

58.4 The Engineer-in-Charge concerned shall have the right to deduct, from the moneys due to the Contractor, any sum required or estimated to be required for making good the loss suffered by a worker or workers by reason of non-fulfilment of the Conditions of the Contract for the benefit of the workers, non-payment of wages or of deductions made from his or their wages, which are not justified by the terms of the Contract or non-observance of the Regulations.

58.5 Vis-à-vis the Government, the Contractor shall be primarily liable for all payments to be made under and for the observance of the Regulations aforesaid without prejudice to his right to claim indemnity from his sub-contractors.

58.6 The Regulations aforesaid shall be deemed to be a part of this Contract and any breach thereof shall be a breach of this Contract.

59 & 60. **Blank**



PART IV VALUATION AND PAYMENT

61. Records and Measurement

61.1 All items having a financial value shall be entered in the Measurement Book or other approved Form, as applicable so that a complete record is obtained of all Work performed under the Contract.

61.2 Mobilisation/ demobilisation, etc priced in Schedule /Bill of quantities as a unit lump sum will be entered by number as the unit lump sum.

61.3 Work carried out for agreed lump sums will be described and similarly recorded.

61.4 Measurement shall be restricted to that required to ascertain the financial liability of Government under the Contract.

61.5 Work which falls to be measured in details shall be measured physically, without reference to any local custom that may obtain, excepting where it may otherwise be directed in the tender documents. The measurements shall be taken jointly by any person or persons duly authorized on the part of the Engineer-in-Charge and by the Contractor.

61.6 The Engineer-in-Charge shall give reasonable notice in writing to the Contractor of appointment for measurement.

61.7 The contractor shall, without extra charge, provide assistance with every appliance and other things necessary for measurement.

61.8 The Contractor shall bear all the costs of his own measurement.

61.9 Measurements shall be entered in the Measurement Book or other approved Form as applicable and signed and dated by both parties each day on the Site on completion of measurement. If the Contractor objects to any of the Measurements recorded on behalf of the Engineer-in-Charge a note to that effect will be made in the Measurement Book or other approved Form as applicable against the item or items objected to; and such note shall be signed and dated by both parties engaged in taking the measurements.

61.10 If as a result of such objection, it becomes necessary to re-measure the Work wholly or in part the expense of such re-measurement shall be borne by the party requiring the measurements to be retaken provided that a net error is found by this re-measurement to amount to less than 5 per cent of the value as recorded by the first measurements. But where the net errors amount to 5 per cent or over of the said value, then the cost is to be borne by the other Party. In any case, if the net value of errors found exceeds Rs.500, the expense of re-measurement is to be borne by the other party.

61.11 If the Contractor's representative fails to attend when required, the Engineer-in-Charge shall have power to proceed by himself to take



measurements and in that case, these measurements shall be accepted by the Contractor as final.

62. Valuation of Variations

62.1 Should it be found necessary to execute any item of work (either in fixed scope or variable scope) which is not included in the scope of contract/drawings, the rates for such item of work shall be fixed as follows:-

62.1.1

62.1.1.1 Where the extra works are of similar character and of equivalent value and/ or executed under similar conditions as to any item of work appearing at schedule of quantities, then the rates for such extra items shall be equal to the rates of such items or lower rate of the identical item

62.1.1.2 If the extra works are of similar character but differing in particulars and value then the rate of such item or items as modified by the applicable price variation or at direct pro-rata rates shall be derived from Schedule of Quantities.

62.1.2 Where items of similar character are not contained in the schedule of quantities and none of the foregoing methods are applicable, rates shall be based on the MES standard schedule of rates (SSR) 2010 (Part II – Rates) together with up-to-date amendments as applicable to said schedule plus 20 % increase.

62.1.3 If the rate cannot be obtained by any of the methods referred above, the rates shall be decided on the basis of the cost to the Contractor at site of work plus 15% to cover overheads and profit.

63. Re-imburement/refund on variation in price

63.1 The contract price/agreed rates shall be firm and binding and shall not be subject to any variation/escalation due to change in cost of materials, labour rates, any exchange variations fluctuations in railway freight and any conditions whatsoever during the tenure of the contract.

64. PAYMENTS TO THE CONTRACTOR

64.1 Total Cost of the Services

(a) The total cost of the services payable is set forth in Appendix 'D' as per the Contractor's proposal to the Employer and as negotiated thereafter.

(b) Except as may be otherwise agreed under Clause 62 subject to Clause GC 64.1(c), payments under this Contract shall not exceed the amount specified in Appendix-D.

(c) Notwithstanding Clause GC 64.1(b) hereof, if pursuant to the Clause GC 7, the Parties shall agree that additional payments shall be



made to the Contractor iaw GC Clause 62 in order to cover any necessary additional expenditures not envisaged in the cost estimates referred to in Clause GC 64.1(a) above, the ceiling or ceilings, as the case may be, set forth in Clause GC 64.1(b) above shall be increased by the amount or amounts, as the case may be, of any such additional payments.

64.2 Currency of Payment: All payments shall be made in Indian Rupees.

64.3 Terms of Payment and Mode of Billing: The payments in respect of the services shall be made as follows:

(a) The Contractor shall submit the invoice for payment when the payment is due as per the agreed terms. The payment shall be released as per the work related milestones achieved and as per the specified percentage as per SC 4.1.1.

(b) Once a milestone is completed, the Contractor shall submit the requisite deliverables as specified in this Contract. The Employer shall release the requisite payment upon acceptance of the deliverables. However, if the Employer fails to intimate acceptance of the deliverables or its objections thereto, within **45** days of receipt of it, the Employer shall release the payment to the Contractor without further delay.

(c) Final Payment: The final payment as specified in SC 4.1.1 and GC Clause 65 shall be made only after the final report and a final statement, identified as such, shall have been submitted by the Contractor and approved as satisfactory by the "Employer". The services shall be deemed completed and finally accepted by the "Employer" and the final report and final statement shall be deemed approved by the "Employer" as satisfactory ninety (90) calendar days after receipt of the final report and final statement by the "Employer" unless the "Employer", within such ninety (90) day period, gives written notice to the Contractor specifying in detail deficiencies in the services, the final report or final statement. The Contractor shall thereupon promptly make any necessary corrections, and thereafter the foregoing process shall be repeated. Any amount, which the "Employer" has paid or caused to be paid in accordance with this Clause in excess of the amounts actually payable in accordance with the provisions of this Contract, shall be reimbursed by the Contractor to the "Employer" within thirty (30) days after receipt by the Contractor of notice thereof. Any such claim by the "Employer" for reimbursement must be made within twelve (12) calendar months after receipt by the "Employer" of a final report and a final statement approved by the "Employer" in accordance with the above.

(d) For the purpose of payment under Clause 64.3 (b) above, acceptance means; acceptance of the deliverables by the Employer



after submission by the Contractor with/without modifications to be communicated in writing by the Employer to the Contractor.

(e) If the deliverables submitted by the Contractor are not acceptable to the Employer/CMC, reasons for such non-acceptance should be recorded in writing; the Employer shall not release the payment due to the Contractor. This is without prejudicing the Employer's right to levy any liquidated damages under Clause 9. In such case, the payment will be released to the Contractor only after it re-submits the deliverable and which is accepted by the Employer.

(f) All payments under this Contract shall be made to the accounts of the Contractor specified in the SC Clause 4.6.

(g) With the exception of the final payment under (c) above, payments do not constitute acceptance of the services nor relieve the Contractor of any obligations hereunder, unless the acceptance has been communicated by the Employer to the Contractor in writing and the Contractor has made necessary changes as per the comments/suggestions of the Employer communicated to the Contractor.

(h) In case of early termination of the contract, the payment shall be made to the Contractor as mentioned here with: (i) Assessment should be made about work done from the previous milestone, for which the payment is made or to be made till the date of the termination. The Contractor shall provide the details of persons reasonably worked during this period with supporting documents. Based on such details, the remuneration shall be calculated based on the man month rate as specified. (ii) A reasonable assessment of the reimbursable and miscellaneous expenses shall be made based on details furnished by the Contractor in this regard with supporting documents and based on the assessment of the work done and the respective rates as provided. Wherever such an assessment is difficult, the rates should be arrived at by calculating the amount on pro-rata basis. The total amount payable shall be the amount calculated as per (i) and (ii) above plus any applicable tax.

(i) No payment shall be due for the next stage till the Contractor completes to the satisfaction of the Authority the work pertaining to the preceding stage.

(j) The Authority shall pay to the Contractor, only the undisputed amount.

(k) Payment will normally be made within **45 days** on satisfactory completion of each activity and submission of bills thereof. The Authority may contest the bill in whole or part thereof within 28 days in writing to the Contractor. The Authority shall process the uncontested whole/part bill for payment by the due date. Reckoning date for the



contested bill would be the date the corrected/rectified bill for payment is accepted by Authority.

(l) Any amount which the Authority has paid or caused to be paid in excess of the amounts actually payable in accordance with the provisions of this Agreement shall be reimbursed by the Contractor to the Authority within 30 (thirty) days after receipt by the Contractor of notice thereof. Any such claim by the Authority for reimbursement must be made within 1 (one) year after receipt by the Authority of a final report and a final statement in accordance with Clause 6.3 (c).

(m) Any delay by the Contractor in reimbursement by the due date shall attract simple interest @ 10% (ten percent) per annum.

(n) All payments under this Agreement shall be made to the account of the Contractor as may be notified to the Authority by the Contractor

65. Final Bill (Applicable only to Measurement and Lump Sum Contracts)

65.1 The Final Bills shall be submitted by the Contractor in seven copies within three months of physical completion of the works to the satisfaction of the Engineer-in-Charge.

65.2 It shall be accompanied by all abstracts, vouchers, etc., supporting it and shall be prepared in the manner prescribed by the Engineer -in -Charge.

65.3 No further claims shall be made by the Contractor after submission of the Final Bill and these shall be deemed to have been waived and extinguished.

65.4 The Contractor shall be entitled to be paid the final sum less the value of payments already made on account, subject to the certification of the final bill by the Engineer-in-Charge.

65.5 No charges shall be allowed to the Contractor on account of the preparation of the final Bill.

65.6 Completion certificate issues by Project Seabird/ Project Consultant.

66. Payments of Bills

66.1 Payment of undisputed items of the Final Bill shall be made within the period specified hereunder, the period being reckoned from the date of receipt of the Bill by the Engineer-in-Charge:-

66.1.1 Contract amount not exceeding Rs.100 lakhs – Two months

66.1.2 Contract amount exceeding Rs.100 lakhs – Three months

66.2 After payment of the amount of the final bill payable as aforesaid has been made, the Contractor, may if he so desires, reconsider his position in respect of the disputed portion of the final bill and if he fails to do so within 90 days, his disputed claim shall be dealt with as provided in the Contract.



66.3 All payments due under this Contract shall be made by means of a crossed cheque to the Contractor "A/c Payee" only or NEFT at the treasury located in the station where either the Work is executed or services rendered or at the treasury nearest to the station where the office of the Accepting Officer is located.

66.4 The Contractor is required to acknowledge receipt of all cheques issued in his favour. With regard to Cheques sent to him by post, he shall acknowledge receipt within fifteen days from the date of their receipt. Failure on the part of the Contractor to acknowledge receipt will render him liable to forfeit the facility of receiving cheques by post and unless the Contractor furnishes a satisfactory explanation for his default in this respect payment through cheques sent by post shall not be resumed, and the Contractor shall be required to obtain cheques for future payments on this Contract from the office of the Accepting Officer after rendering proper receipt.

67. **Recovery from Contractor**

67.1 Whenever any claim(s) for payment of sum of money arise(s) out of or under this Contract against the contractor, the Contractor shall on demand make the payment of the same or agree for effecting adjustment from any amounts due to him by the Government. If, however, he refuses or neglects to make the payment on demand, or does not agree for effecting adjustment from any amounts due to him, Government shall be entitled to withhold an amount not exceeding the amount of the claim(s), from any sum when due or which at any time thereafter may become due to the Contractor, under this or any other Contract with the Government or from any other sum due to the Contractor from the Government (which may be available with the Government) or from the Contractor's Security Deposit or Security Bond amount, and retain the same by way of lien till such time, payment is made by the Contractor or till the claim(s) is/are settled or adjudicated upon, or till the Contractor, at his expense furnishes Fixed Deposit Receipt(s) duly endorsed as directed by the Accepting Officer, or a Guarantee Bond from a Scheduled Bank for an amount equal to the amount of the claim(s) in the form as directed by the Accepting Officer.

67.2 It is an agreed condition of this Contract that the sum of money so withheld or retained as and by way of lien under this condition by the Government, will be kept withheld or retained as such by the Government, till the claim(s) arising out of or under this Contract is/are settled or adjudicated upon and that the Contractor will have no claim for interest or damages whatsoever on any account in respect of such sum so withheld.

67.3 For the purpose of this Condition, where the contractor is a Partnership Firm, the Government shall be entitled to withhold in whole or in part as may be necessary to cover the amount claimed, any sum found payable to any partner of the Firm, whether in his individual capacity or otherwise.

67.4 Any amount due to the Contractor under this contract may be withheld by way of lien against any amount claimed or which may at any time hereafter be claimed by the Government from the contractor on any account whatsoever,



under this or any other contract between them and retained, till the claim(s) is/are settled or adjudicated upon.

67.5 Government reserve the right to carry out post-payment audit and technical examination of the works and Final Bill, including all supporting vouchers, abstracts, etc. Government further reserve the right to carry out the aforesaid examination and enforce recovery when detected, notwithstanding the fact that the amount of the Final Bill may have been included by one of the parties as an item of dispute before an Arbitrator appointed under the Arbitration clause of the Contract and notwithstanding the fact that the amount of the Final Bill figures in the Arbitrator's award.

67.6 If, as a result of such audit and technical examination, any over-payment is discovered in respect of the work done under this Contract, the contractor shall on demand make payment of a sum equal to the amount of over-payment or agree for effecting necessary adjustment from any amounts due to him by Government. If however, he refuses or neglects to make the payment on demand or does not agree for effecting adjustment from any amounts due to him, Government shall be entitled to take action as in sub-para (a) hereinbefore. If as a result of such audit and technical examination any under payment is discovered, the amount of under payment shall be duly paid to the Contractor by Government.

67.7 Provided, that, nothing hereinbefore contained shall entitle the Government to recover any over payment in respect of any price agreed between the Accepting Officer or the Engineer-in-Charge and the Contractor under the circumstances specifically prescribed for such method of assessment and that the said right of the Government to adjust over-payment from any sum due or from any sum which may become due to the Contractor or from Security Deposit or Security Bond amount and adjust under payment, shall not extend beyond a period of two years from the date of payment of the undisputed portion of the Final Bill or in the case of a minus Bill, from the date, the net amount of the final bill is communicated to the Contractor.

67.8 All notices under this condition shall be given by the Engineer-in-Charge/Accepting officer.

68. Refund of Security Deposit.

68.1 The Security Deposit mentioned in Condition 22 above may be refunded to the Contractor after the satisfactory completion and issue of Completion Certificate and payment of the Final Bill provided there are no claims outstanding against the Contractor.

69. Issue of notices.

69.1 Subject as otherwise provided in this Contract, all notices to be given on behalf of the President of India and all other actions to be taken on his behalf may be given or taken on his behalf by the Accepting Officer/ENGINEER-IN-CHARGE or any officer for the time being entrusted with the functions, duties and powers of the Accepting Officer/ENGINEER-IN-CHARGE.



70. Arbitration.

70.1 In accordance with the Arbitration and Conciliation Act, 1996, all disputes, between the parties to the Contract (other than those for which the decision of the Accepting Officer or any other person is by the Contract expressed to be final and binding) shall, within 60 days of written notice by either party to the Contract to the other of them, be referred to the sole arbitration of a serving officer having degree in engineering or equivalent or having passed final/ direct final examination of Sub Division II of Institution of Surveyors (India) recognised by the Govt. of India to be appointed by Addl. Secretary , Government of India, Ministry of Defence.

70.2 Unless both parties agree in writing such reference shall not take place until after the completion or alleged completion of the Work or termination or determination of the Contract under Condition Nos. 55 and 57 hereof.

70.3 Provided that in the event of abandonment of the Works or cancellation of the Contract under Condition 52, 53 or 54 hereof, such reference shall not take place until alternative arrangements have been finalized by the Government to get the Works completed by or through any other Contractor or Contractors or Agency or Agencies.

70.4 Provided always that commencement or continuance of any arbitration proceeding hereunder or otherwise shall not in any manner militate against the Government's right of recovery from the contractor as provided in Condition 67 hereof.

70.5 If the Arbitrator so appointed resigns his appointment or vacates his office or is unable or unwilling to act due to any reason whatsoever, the authority appointing him may appoint a new Arbitrator to act in his place.

70.6 The Arbitrator shall be deemed to have entered on the reference on the date he issues notice to both the parties, asking them to submit to him their statement of the case and pleadings in defence.

70.7 The Arbitrator may proceed with the arbitration, exparte, if either party, inspite of a notice from the Arbitrator fails to take part in the proceedings.

70.8 The Arbitrator may, from time to time with the consent of the parties, enlarge, the time up to but not exceeding one year from the date of his entering on the reference, for making and publishing the award.

70.9 The Arbitrator shall give his award within a period of six months from the date of his entering on the reference or within the extended time as the case may be on all matters referred to him and shall indicate his findings, along with sums awarded, separately on each individual item of dispute.

70.10 The venue of Arbitration shall be such place or places as may be fixed by the Arbitrator in his sole discretion.



70.11 The award of the Arbitrator shall be final and binding on both parties to the Contract.

70.12 The Arbitrator shall give reasons for the award in each and every case irrespective of the value of the claims or counter claims.

71. JURISDICTION OF COURTS

71.1 Irrespective of the place of issue of Tenders, the place of acceptance of Tenders, the place of execution of Contract or the place of payment under the Contract, the Contract shall be deemed to have been made at the place from where the acceptance of Tenders has been issued and the work is executed/ executable. The Courts of the place from where the acceptance of the Tender has been issued or the place where the work is executed/under execution shall alone have jurisdiction to decide any dispute arising out of or in respect of the Contract.

72. INSURANCE

72.1 Contractor's liability and insurance

72.1.1 From commencement of completion of the works, the Contractor shall take full responsibility for the care thereof and for taking precautions to prevent loss or damage to the greatest extent possible and shall be liable for any damage or loss that may happen to the works or any part thereof from any cause whatsoever and shall at his own cost repair and make good the same so that at completion, the works shall be in good order and condition and in conformity in every respect with the requirements of the contract and instructions of the Engineer.

72.1.2 Without limiting his obligations and responsibilities under Condition 47 prior to the commencement of work, the Contractor shall insure in the joint name of the Government and the Contractor against all loss or damage from whatever cause for which he is responsible under the terms of the contract and in such manner that the Employer and the Contractor are covered during the period of construction of the works and that defects liability prior to the commencement of the damage caused by the Contractor in the course of any operation carried by him for the purposes of complying with his obligations on safety code.

72.1.2.1 The works and the temporary works to the full value of such works executed from time to time.

72.1.2.2 The materials constructional plant and other things brought to site by the Contractor to the full value of such materials, constructional plant and other things.

72.2 Damage to persons and property

72.2.1 The Contractor shall indemnify and keep indemnified the Government against all losses and claims for injuries or damage to any



person or any property whatsoever which may arise out of or in consequence of the construction and maintenance of the works and against all claims, demands, proceedings, damages, costs, charges and expenses whatsoever in respect of or in relation thereto.

72.2.2 Before commencing the execution of the work, the Contractor shall without in any way limiting his obligations and responsibilities under the conditions, insure any damage, loss or injury which may occur to any property including that of the Government or to any person (including any employee of Govt.) by or arising out of carrying out of the contract.

72.2.3 Where a Government's building or a part thereof is rented to the Contractor, he shall insure the entire building if the building or any part thereof is used by him for the purpose of storing or using materials of combustible nature. In case of doubt in the matter, the decision of the Engineer shall be final and binding on the Contractor.

72.2.4 All the aforesaid insurance policies shall provide that they shall not be cancelled till the Government has agreed to their cancellation.

72.2.5 The Contractor shall prove to the Engineer-in-Charge or his authorized representative from time to time that he has taken out all the insurance policies referred to above and has paid the necessary premium for keeping the policies alive till the expiry of the Defects Liability period.

72.3 Remedy on Contractors failure to insure

72.3.1 If the Contractor and / or his sub-Contractors (if any) shall fail to effect and keep in force the insurance referred to above or any other insurance which he/they may be required to effect under terms of the contract then and in any such case Government required to effect under terms of the contract then and in any such case Government may without being bound to , effect and keep in force any such insurance and pay such premium or premiums as may be necessary for that purpose and from time to time deduct the amount so paid by the Government for any moneys due or which may become due to the Contractor or recover the same as a debt due from the Contractor Insurance to be taken with.



Part V – Evaluation Criteria & Price Bid issues

73. **Evaluation Criteria** - The broad guidelines for evaluation of Bids will be as follows:

- (a) Only those Bids will be evaluated which are found to be fulfilling all the eligibility and qualifying requirements of the tender, both technically and commercially.
- (b) In respect of Two-Bid system, the technical Bids forwarded by the Bidders will be evaluated by the Buyer with reference to the technical characteristics of the equipment as mentioned in the tender. The compliance of Technical Bids would be determined on the basis of the parameters specified in the tender. The Price Bids of only those Bidders will be opened whose Technical Bids would clear the technical evaluation.
- (c) The Lowest Bid will be decided upon the all inclusive lowest price quoted by the particular Bidder as per the Price Format given at Para 74 below. The ultimate cost to the Buyer would be the deciding factor for ranking of Bids.
- (d) The Bidders are required to spell out the rates of Customs duty, Excise duty, VAT, Service Tax, etc in unambiguous terms; otherwise their offers will be loaded with the maximum rates of duties and taxes for the purpose of comparison of prices. If reimbursement of VAT is intended as extra, over the quoted prices, the Bidder must specifically say so. In the absence of any such stipulation it will be presumed that the prices quoted are firm and final and no claim on account of such duties will be entreated after the opening of tenders. If a Bidder chooses to quote a price inclusive of any duty and does not confirm inclusive of such duty so included is firm and final, he should clearly indicate the rate of such duty and quantum of excise duty included in the price. Failure to do so may result in ignoring of such offers summarily. If a Bidder is exempted from payment of VAT duty upto any value of supplies from them, they should clearly state that no excise duty will be charged by them up to the limit of exemption which they may have. If any concession is available in regard to rate/quantum of VAT, it should be brought out clearly. In respect of the Bidders who fail to comply with this requirement, their quoted prices shall be loaded with the quantum of VAT which is normally applicable on the item in question for the purpose of comparing their prices with other Bidders.
- (e) If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price will prevail and the total price will be corrected. If there is a discrepancy between words and figures, the amount in words will prevail for calculation of price.
- (f) The Lowest Acceptable Bid will be considered further for placement of contract / Supply Order after complete clarification and price negotiations as decided by the Buyer. The Buyer will have the right to award contracts to different Bidders for being lowest in particular items. The Buyer also reserves the right to do Apportionment of Quantity, if it is convinced that Lowest Bidder is not in a position to supply full quantity in stipulated time.



(g) Any other criteria as applicable to suit a particular case.

74. Price Bid Format: The Price Bid Format is given in Section V. Bidders are required to fill this up correctly with full details:

(a) Basic cost of the item/items:

(b) Is VAT extra?

(c) If yes, then mention the following:

i. Total value on which VAT is leviable:

ii. Rate of VAT:

iii. Total value of VAT leviable:

(d) Is Service Tax extra?

(e) If yes, then mention the following:

i. Total value of Services on which Service Tax is leviable:

ii. Rate of Service Tax leviable:

iii. Total value of Service Tax leviable:

(f) Any other Taxes / Duties / Overheads / Other costs:

(g) Grand Total:



ANNEXURE- E

CONTRACTOR'S LABOUR REGULATIONS

1. Short Title-

These regulations may be called "Contractor's Labour Regulations."

2. Definitions-

In these Regulations, unless otherwise expressed or indicated, the following words and expressions shall have the meaning hereby assigned to them respectively, that is to say:-

(a) "Labour" means workers employed by Contractor directly or indirectly through a sub-contractor or other person or by an agent on his behalf, on a payment not exceeding Rs. 400 per month and will not include supervisory staff like overseers, etc.

(b) "Fair Wages" means wages whether for time or piece work notified at the time of inviting tenders for the Work and where such Wages have not been so notified, the Wages prescribed by the State Govt. for the stations at which the Work is done.

(c) "Contractor" shall include every person whether a sub contractor or headman or agent, employing labour on the Work taken on Contract.

(d) "Wages" shall have the same meaning as defined in the payment of Wages Act and includes time and piece rate wage.

3. Display of Notices regarding Wages, etc.-

The Contractor shall-

(a) before he commences his Work on Contract, display and correctly maintain and continue to display and correctly maintain, in a clean and legible condition in conspicuous places on the Work, notices in English and in the local Indian Languages, spoken by the majority of the workers, giving the rate of wages which have been certified by the ENGINEER-IN-CHARGE. as fair wages and the hours of Work for which such wages are earned, and

(b) send a copy of such notices to the certifying officers.

4. Payment of Wages-

(a) Wages due to every worker shall be paid to him direct.

(b) All wages shall be paid in current coin or currency or in both.



5. Fixation of Wage Periods-

- (a) The Contractor shall fix the wage period in respect of which the wages shall be payable.
- (b) No wage period shall exceed one month.
- (c) Wages of every workman employed on the Contract shall be paid before the expiry of seven days, after the last day of the wage period in respect of which the wages are payable.
- (d) When the employment of any worker is terminated by or on behalf of the Contractor, the wages earned by him shall be paid before the expiry of the second working day from the day on which his employment is terminated.
- (e) All payments of wages shall be made on a working day except when the Work is completed before the expiry of the wage period, in which case final payment shall be made within 48 hours of the last working day. *Note.-* The term “working day” means a day on which the work on which the labour is employed is in progress.

6. Wage Book and Wage Slips, etc.-

- (a) The Contractor shall maintain a Wage Book of each worker in such form as may be convenient, but the same shall include the following particulars: -
 - (i) Rate of daily or monthly wages,
 - (ii) Nature of work on which employed.
 - (iii) Total number of days worked during each wage period.
 - (iv) Total amount payable for the work during each wage period.
 - (v) All deductions made from the wages with an indication in each case of the ground for which the deduction is made.
 - (vi) Wages actually paid for each wage period.
- (b) The Contractor shall also maintain a Wage Slip for each worker employed on the Work.

7. Fines and Deductions which may be made from Wages: -

- (a) The Wages of a worker shall be paid to him without any deductions of any kind except the following: -
 - (i) Fines



(ii) Deductions for absence from duty, i.e., from the place or places where by the terms of his employment he is required to work. The amount of deduction shall be in proportion to the period for which he was absent.

(iii) Deductions for damage to or loss of goods expressly entrusted to the employed person for custody or for loss of money for which he is required to account, where such damage or loss is directly attributable to his neglect or default.

(iv) Any other deductions which the Central Government may from time to time allow.

(b) No fines shall be imposed on a worker and no deduction for damage or loss shall be made from his wages until the worker has been given an opportunity of showing cause against such fines or deduction.

(c) The total amount of fines which may be imposed in any one wage period on a worker shall not exceed an amount equal to three percent of the wages payable to him in respect of that wage period.

(d) No fine imposed on any worker shall be recovered from him by instalments or after the expiry of 60 days from the date on which it was imposed.

8. Register of Fines, etc. – (a) The contractor shall maintain a Register of Fines and of all deductions for damage or loss. Such register shall mention the reason for which fine was imposed or deduction for damage or loss was made. (b) The Contractor shall maintain a list, in English and in the local Indian language clearly defining acts and omissions for which penalty of fines can be imposed. He shall display such list and maintain it in a clean and legible condition in conspicuous places on the Work.

9. Preservation of Registers- The Wage Book, the Wage Slip and the Register of Fines and Deductions required to be maintained under these Regulations shall be preserved for 12 months after the date of last entry made in them.

10. Powers of Labour Welfare officers to make investigation or enquiry- The Labour Welfare Officer or any other person authorised by the Government of India on their behalf shall have power to make enquiries with a view to ascertaining and enforcing due and proper observances of the fair wage clauses and the provisions of these Regulations. He shall investigate into any complaint regarding the default made by the Contractor or sub-contractor in regard to such provisions.

11. Delete

12. Appeal against the decision of Labour Welfare Officers: - Any person aggrieved by the decision and recommendation of the Labour Welfare Officer or other person so authorised may appeal against such decision to the Regional Labour Commissioner within 30 days from the date of decision, forwarding simultaneously a copy of his appeal to the Garrison Engineer concerned but subject to such appeal, the decision of the Officer shall be final and binding upon the Contractor.



13. (a) A workman shall be entitled to be represented in any investigation or enquiry under these Regulations by-

(i) an officer of a registered trade union of which he is a member ;

(ii) an officer of a federation of trade unions to which the trade union referred to in clause (i) is affiliated ;

(iii) where the worker is not a member of any registered trade union, by an officer of a registered trade union connected with or by any other workman, employed in the industry in which the worker is employed.

(b) An employer shall be entitled to be represented in any investigation or enquiry under these regulations by –

(i) an officer of an association of employers of which he is a member ;

(ii) an officer of a federation of associations of employers to which the association referred to in clause (i) is affiliated ;

(iii) where the employer is not a member of any association of employers, by an officer of an association of employers connected with or by any other employer, engaged in the industry in which the employer is engaged. (c) No party shall be entitled to be represented by a legal practitioner in any investigation or enquiry under these Regulations.

14. Inspection of Registers- The Contractor shall allow inspection of the Wage Book, the Wage Slips and the Register of Fines and Deductions to any of his workers or to his agent at a convenient time and place after due notice is received or to the Labour Welfare Officer, or any other person authorised by the Government of India on his behalf.

15. Submission of Return – The Contractor shall submit periodical returns as may be specified from time to time.

16. Amendment-The Government of India, may from time to time, add to or amend these Regulations and on any questions as to the application, interpretation or effect of these Regulations the decision of the Chief Labour Commissioner or Deputy Chief Labour Commissioner to the Government of India or any other person authorised by the Government in that behalf shall be final.



ANNEXURE-F

GOVERNMENT SAFETY CODE

1. Suitable scaffolds should be provided for workmen for all Works that cannot safely be done from the ground or from solid construction except such short period Work as can be done safely from ladders. When a ladder is used an extra Mazdoor shall be engaged for holding the ladder and if the ladder is used for carrying materials as well suitable foot-holds and hand-holds shall be provided on the ladder and the ladder shall be given an inclination not steeper than $\frac{1}{4}$ to 1 (1/4 horizontal and 1 vertical).

2. Scaffolding or staging more than 3.5 Metres above the ground or floor, swung or suspended from an overhead support or erected with stationary support shall have a guard rail properly attached, bolted, braced and otherwise secured at least 1 Metre high above the floor or platform of such scaffolding or staging and extending along the entire length of the outside, and ends thereof with only such openings as may be necessary for the delivery of materials. Such scaffolding or staging shall be so fastened as to prevent it from swaying from the building or structure.

3. Working Platform, Gangways and Stairways should be so constructed that they should not sag unduly or unequally, and if the height of the Platform or the Gangway or the Stairway is more than 3.5 Metres above ground level or floor level they should be closely boarded, should have adequate width and should be suitably fenced, as described in (2) above.

4. Every opening in the floor of a building or in a working platform be provided with suitable means to prevent the fall of persons or materials by providing suitable fencing or railing whose minimum height shall be 1 Metre.

5. Safe means of access shall be provided to all working platforms and other working places. Every ladder shall be securely fixed. No portable single ladder shall be over 9 Metres in length while the width between side rails in rung ladder shall in no case be less than 30 cms. for ladder upto and including 3 Metres in length. For longer ladders this width should be increased at least 6 mm for each additional 30 cms. Uniform step spacing shall not exceed 30 cms. Adequate precautions shall be taken to prevent danger from electrical equipment. No materials on any of the Sites of Work shall be so stacked or placed as to cause danger or inconvenience to any person or the public. The Contractor shall also provide all necessary fencing and lights to protect the public from accident and shall be bound to bear the expenses of defence of every suit, action or other proceedings at law that may be brought by any person for injury sustained owing to neglect of the above precautions and to pay any damages and costs which may be awarded in any such suit, action or proceedings to any such person or which may with the consent of the Contractor be paid to compromise any claim by any such person.

6. Excavation and Trenching- All trenches 1.2 Metres or more in depth, shall at all tiProject Seabird be supplied with at least one ladder for each 30 Metres in length or fraction after thereof ladder shall be extended from bottom of the trench to at least 1 Metre above the surface of the ground. The sides of the trenches which are 1.5 Metres or more in depth shall be stepped back to give suitable slope or securely held by timber bracing, so as to avoid the danger of sides to collapse. The excavated



materials shall not be placed within 1.5 Metres of the edge of the trench or half of the depth of the trench whichever is more. Cutting shall be done from top to bottom. Under no circumstances undermining or under cutting shall be done.

7. Demolition- Before any demolition work is commenced and also during the process of the work-

(a) All roads and open areas adjacent to the Work Site shall either be closed or suitably protected;

(b) No electric cable or apparatus which is liable to be a source of danger over a cable or apparatus used by the operator shall remain electrically charged;

(c) All practical steps shall be taken to prevent danger to persons employed from risk or fire or explosion or flooding. No floor, roof or other part of the building shall be so over-loaded with debris or materials as to render it unsafe.

8. All necessary personal safety equipment as considered adequate by the Engineer-in-Charge should be kept available for the use of the persons employed on the Site and maintained in a condition suitable for immediate use; and the Contractor should take adequate steps to ensure proper use of equipment by those concerned.

(a) Workers employed on mixing Asphaltic materials, Cement and lime mortars shall be provided with protective footwear and protective goggles.

(b) Those engaged in white washing and mixing or stacking of cement bags or any materials which are injurious to the eyes shall be provided with protective goggles.

(c) Those engaged in welding works shall be provided with Welder's protective eye shields.

(d) Stone breakers shall be provided with protective goggles and protective clothing and seated at sufficiently safe intervals.

(e) When workers are employed in sewers and manholes, which are in use, the Contractor shall ensure that the manhole covers are opened and are ventilated at least for an hour before the workers are allowed to get into the manholes and the manholes so opened shall be cordoned off with suitable railing and provided with warning signals or boards to prevent accident to the Public.

(f) The contractor shall not employ men below the age of 18 and women on the work of painting with products containing lead in any form. Whenever men above the age of 18 are employed on the Work of lead painting, the following precautions should be taken: -

(i) No paint containing lead or lead products shall be used except in the form of paste or ready made paint.



(ii) Suitable face masks should be supplied for use by the workers when paint is applied in the form of spray or a surface having lead paint dry rubbed and scraped.

(iii) overalls shall be supplied by the Contractors to the workmen and adequate facilities shall be provided to enable the working painters to wash during and at cessation of Work.

9. When the work is done near any place where there is risk of drowning, all necessary equipments should be provided and kept ready for use and all necessary steps taken for prompt rescue of any person in danger and adequate provision should be made for prompt first-aid treatment of all injuries likely to be sustained during the course of the Works.

10. Use of hoisting machines and tackle including their attachments, anchorage and supports shall conform to the following standard or conditions: -

(a) (i) These shall be of good mechanical construction, sound *material* and adequate strength and free from patent defect and shall be kept in good repairs and in good working order.

(ii) Every rope used in hoisting or lowering materials or as a means of suspension shall be of durable quality and adequate strength and free from patent defects.

(b) Every crane driver or hoisting appliance operator shall be properly qualified and no person under an age of 21 years should be in-charge of any hoisting machine including any scaffold winch or give signals to the operator.

(c) In case of every hoisting machine and of every chain ring hook, shackle swivel and pulley block used in hoisting or lowering or as means of suspension the safe working load shall be ascertained by adequate means. Every hoisting machine and all gear referred to above shall be plainly marked with the safe working load. In case of hoisting machine having a variable safe working load, each safe working load of the conditions under which it is applicable shall be clearly indicated. No part of any machine or of any gear referred to above in this paragraph shall be loaded beyond the safe working load except for the purpose of testing.

(d) In case of departmental machine, the safe working load shall be notified by the Electrical Engineer-in-Charge. As regards contractor's machines the Contractor shall notify the safe working load of the machine to the Engineer-in-Charge whenever he brings any machinery to Site of Work and get it verified by the Electrical Engineer concerned.

11. Motor, Gearing, Transmission, Electric wiring and other dangerous parts of hoisting appliances should be provided with efficient safeguards, hoisting appliances should be provided with such means as will reduce to the minimum the risk of accidental descent of the load, adequate precautions should be taken to reduce to the minimum the risk of any part of a suspended load becoming accidentally displaced. When workers are employed on electrical installations which are already energised,



insulating mats, wearing apparel such as gloves, sleeves and boots as may be necessary should be provided. The workers should not wear any rings, watches and carry keys or other materials which are good conductors of electricity.

12. All scaffolds, ladders and other safety devices, mentioned or described herein shall be maintained in safe condition and no scaffold, ladder or equipment shall be altered or removed while it is in use. Adequate washing facilities shall be provided at or near places of work.

13. These safety provisions should be brought to the notice of all concerned by display on a Notice Board at a prominent place at the work spot. The persons responsible for compliance of the safety code shall be named therein by the Contractor.

14. To ensure effective enforcement of the rules and regulations relating to Safety precautions, the arrangements made by the Contractor shall be open to inspection by the Labour Officer, Engineer-in-Charge of the department or their representatives.

15. Notwithstanding the above clauses from (1) to (14) there is nothing in these to exempt the Contractor, to exclude the operations of any other Act or Rules in force in the Republic of India.



ANNEXURE-G

GOVT. MODEL RULES FOR THE PROTECTION OF HEALTH AND SANITARY ARRANGEMENTS FOR WORKMEN EMPLOYED BY CONTRACTORS

1. Application-

These rules shall apply to all the building and construction Works inside Naval Base, Karwar.

2. Definitions-

(a) "Workplace" means a place at which on an average fifty or more workers are employed in connection with construction Work.

(b) "Large Workplace" means a place at which on an average, 500 or more workers are employed in connection with construction Work.

3. First-Aid.

(a) At every workplace, there shall be maintained in readily accessible place first-aid appliances including an adequate supply of sterilized dressings and sterilized cotton wool. The appliances shall be kept in good order and in large work places; they shall be placed under the charge of a responsible person who shall be readily available during working hours.

(b) At large workplaces, where hospital facilities are not available within easy distance of the Works, First-aid posts shall be established and be run by a trained compounder.

(c) Where large workplaces are remote from regular hospitals, an indoor ward shall be provided with one bed for every 250 employees.

(d) Where large workplaces are situated in cities, towns or in their suburbs and no beds are considered necessary owing to the proximity of city or town hospitals, suitable transport shall be provided to facilitate removal of urgent cases to these hospitals. At other workplaces, some conveyance facilities such as a car shall be kept readily available to take injured person or persons suddenly taken seriously ill, to the nearest hospitals.

4. Accommodation of Labour-

The Contractor shall during the progress of the Works provide, erect and maintain at his own expense and to approved standards and scales all necessary temporary-

(a) living accommodation.

(b) bazar.



5. Drinking water-

- (a) In every workplace, there shall be provided and maintained at suitable places easily accessible to labour a sufficient supply of cold water fit for drinking.
- (b) Where drinking water is obtained from an intermittent public water supply, each workplace shall be provided with storage where such drinking water shall be stored.
- (c) Every water supply of storage shall be at a distance of not less than 15 Metres from any latrine, drain or other source of pollution. Where water has to be drawn from an existing well, which is within such proximity of latrine, drain or any other source of pollution, the well shall be properly chlorinated before water is drawn from it for drinking. All such wells shall be entirely closed in and be provided with a trap door, which shall be dust and water proof.
- (d) A reliable pump shall be fitted to each covered well, the trap door shall be kept locked and opened only for cleaning or inspection which shall be done at least once a month.

6. Washing and Bathing Places-

- (a) Adequate washing and bathing places shall be provided separately for men and women.
- (b) Such places shall be kept in clean and drained condition.

7. Scale of Accommodation in Latrine and Urinals-

There shall be provided within the precinct of every workplace latrines and urinals in an accessible place and the accommodation, separately for each of them, shall not be less than the following scales: -

	<u>No.of Seats</u>
(a) Where the number of persons does not exceed 50	2
(b) Where the number of persons exceeds 50. . but does not exceed 100	3
(c) For every additional 100.	3 per hundred

In particular cases the Engineer shall have the power to vary the scale, where necessary.

8. Latrines and Urinals for Women-

If women are employed, separate latrines and urinals screened from those for men and marked in the vernacular in conspicuous letters "FOR WOMEN ONLY" shall be provided on the scale laid in Rule 7. Those for men shall be similarly marked "FOR

MEN ONLY". A poster showing the figure of a man and woman shall also be exhibited at the entrance of latrines for each sex. There shall be adequate supply of water close to the latrines and urinals.

9. Latrines and Urinals-

Except in workplaces provided with water flushed latrines connected with a water borne sewage system all latrines shall be provided with receptacles on dry earth system which shall be cleaned at least four times Project Seabird daily and at least twice during working hours and kept in a strictly sanitary condition. The receptacle shall be tarred inside and outside at least once a year.

10. Construction of Latrines-

The inside walls shall be constructed of masonry or some suitable heat resisting non-absorbent material and shall be cement washed inside and outside at least once a year. The dates of cement washing shall be noted in a register maintained for this purpose and kept available for inspection.

11. Disposal of Excreta-

(a) Unless otherwise arranged for by the local sanitary authority, arrangements for proper disposal of excreta by incineration at the workplace shall be made by means of a suitable incinerator approved by the local Medical, Health and Cantonment Authorities. Alternatively excreta may be disposed off by putting a layer of night soil at the bottom of pucca tank prepared for the purpose and covering it with a 15 cms layer of waste or refuse and then covering it up with a layer of earth for a fortnight (when it will turn into manure).

(b) The Contractor shall at his own expense carry out all instructions issued to him by the Engineer-in-Charge to effect a proper disposal of soil and other conservancy work in respect of the Contractor's work people or employees on the Site. The Contractor will bear the cost of any charges levied by the Cantonment Authority for the execution of such Work on his behalf.

(c) Solid and hazardous waste management shall be as per Municipal Solid Waste (Management & Handling) Rules, 2000 and Hazardous Waste (Management & Handling) Rules, 2000 respectively. Bio-medical waste shall be treated as per Biomedical Waste (Management & Handling) Rules, 1998.

12. Provision of shelters during rest.- At every workplace there shall be provided free of cost four suitable sheds two for meals and two other for rest separately for men and women for the use of labour. The height of the shelter shall not be less than 3.5 Metres from the floor level to the lowest part of the roof.

13. Creche

(a) At every workplace, at which 50 or more women workers are ordinarily employed, there shall be provided two huts for the use of children under

the age of 6 years, belonging to such women. One hut shall be used for infant's games and play, and the other as their bed room. The huts shall not be constructed on a lower standard than the following: -

- (i) thatched roofs,
- (ii) mud floors and walls,
- (iii) plants spread over mud floor and covered with mattings.

(b) Where the number of women workers is more than 25 but less than 50, the Contractor shall provide at least one hut and one Dai to look after the children of women workers.

(c) The size of creche or creches shall vary according to the number of women workers.

(d) The creche or creches shall be properly maintained and necessary equipment like toys, etc. shall be provided.

The huts shall be provided with suitable and sufficient openings for light and ventilation. There shall be adequate provision of sweepers to keep the places clean. There shall be two „dais“ in attendance. Sanitary utensils shall be provided to the satisfaction of the local Medical, Health and Cantonment Authorities. The use of the huts shall be restricted to children, their attendants and mothers of the children.

14. Canteen- A cooked food canteen on a moderate scale shall be provided for the benefit of workers wherever it is considered expedient.

15. The planning, siting and erection of the above buildings shall be approved by the Engineer-in-Charge and the whole of such temporary accommodation shall at all times during the progress of the works be kept tidy and in a clean and sanitary condition to the entire satisfaction of the Engineer-in-Charge and at the Contractor's expense. The Contractor shall conform generally to the sanitary requirements of the local Medical Health/ Naval Authorities, MoEF stipulations and at all times shall adopt such precautions as may be necessary to prevent soil pollution of the Site. On completion of the Works the whole of such temporary buildings shall be cleared away, all rubbish burnt, excreta or other disposal pits or trenches filled in and effectively sealed off and the whole of site left clean and tidy to the entire satisfaction of the Engineer-in-Charge and at the Contractor's expense.

16. Fire Wood- Cutting of trees for use as firewood is not permitted inside Naval Base, Karwar. Norms and guidelines of MoEF will be strictly followed for Tree cutting if unavoidable and prior permission of DDG (PI) would be mandatory.



SECTION III

SPECIAL CONDITIONS OF CONTRACT



1. GENERAL

The following Special Conditions shall be read in conjunction with General Conditions of Contracts. If any provision in these Special Conditions is at variance with that of the aforesaid documents, the former shall be deemed to take precedence there over.

2 SCOPE OF WORK

2.01 The work covered under this tender is Soil Investigation by means of Land boreholes to ascertain the soil profile for geo tech investigation for Project Seabird Karwar. The work shall be executed strictly in accordance with the drawings, specifications, sketches and written and oral instructions (to be subsequently confirmed in writing) of the PSB.

2.02 In the event of any discrepancies between drawings, specifications and bill of quantities, the order of precedence shall be governed by the provisions as contained in Clause 6(A) General Conditions of Contract.

2.03 The CONTRACTOR shall also carry out the work as per the instructions given by the PSB in absence of specifications for any particular item of work. Such clarifications/instructions shall be held to be the correct interpretation/provision of the Agreement.

2.04 The details including the tentative locations of boreholes are shown in the drawing enclosed under schedule of drawings. The general details of work involved are as follows:

- 1) Mobilizing necessary equipment for making land boreholes.
- 2) Taking Un Disturbed Samples (UDS) wherever applicable;
- 3) Taking Disturbed Samples (DS);
- 4) Conducting Standard Penetration Tests (SPT);
- 5) Conducting Laboratory Tests;
- 6) Preparing and submission of Soil Investigation Report
 - a) Draft Report - 2 Hard Copies & a Soft Copy
 - b) Final Report - 6 Hard Copies (in Original) & a Soft Copy
- 7) All other miscellaneous works connected with soil investigation works.

2.05 The scope of work to be carried out by the CONTRACTOR shall also include the following but not limited to:-



- (a) Setting out of the works in respect of position, level, dimensions, alignments, etc, including establishment of bench marks, reference points etc.
- (b) Clearance of the site including removing of bushes.
- (c) Site leveling/site terracing within the limits as shown in the drawings, specifications or as directed by the Engineer.
- (d) Disposal of debris, excavated materials, etc as per instructions of the Engineer-in -Charge.
- (e) All temporary/enabling work such as temporary road including approach road to the site, water supply, drainage and sewerage, power, supply including diesel generator set, temporary offices, stores, construction yards, canteens, toilet blocks, labour camp, fencing, watch and protection of work etc.
- (f) Protection and maintenance of trees, shrubs, green belt and other surfaces as instructed by the Engineer/ Accepting Officer.
- (g) Any other work required in connection with the execution of the contract work.
- (h) The cost of all the work mentioned above shall be considered, to be included in the rates for various items of work although such inclusion may not be specifically spelt out.
- (j) The tenderers shall note that the entire work covered under this tender is a time-bound work and shall be completed within the contract period.

2.6 Along with the offer, the tenderer should submit a CPM indicating their programme of work. On award of contract, the contractor shall, within 15 days after the date of the Letter of Acceptance – Work order, submit to the Engineer for his consent a programme, in such form and detail as the Engineer shall reasonably prescribe, for the execution of the works. The contractor shall whenever required by the Engineer, also provide in writing for his information a detailed description of the arrangements and methods which the contractor proposes to adopt for the execution of the works. If at any time it should appear to the Engineer's representative that the actual progress of the works does not conform to the programme to which consent has been given the contractor shall produce, at the request of the Engineer's representative, a revised programme showing the modifications to such programme necessary to ensure completion of the works within the time for completion. The contractor shall submit to the Engineer within 15 days after the date of Letter of Acceptance and in any case prior to the commencement of the work, three copies of CPM which shall be based on this preliminary programme submitted with the tender. The CPM shall be updated by the contractor every month. The contractor shall submit to the Engineer on the first day of each week or such longer period as the Engineer may from time to time direct, a progress report in an approved form shown up-



to-date total progress, progress achieved against planned progress, during the previous week and progress forecast for the following week for all important items in each section or portion of the works, in relation with the approved bar chart.

2.7 The land boreholes shall be carried out without hindrance to the movement of other activities of PSB. The soil investigation shall be carried in any other suitable system to suit the conditions at the said location. The mobilized system shall be capable of handling personnel, equipment & drilling machinery and it shall have sufficient space for drilling machinery and for drilling operation. The working platform shall provide a stationary work place such that the boring operation is smooth. The contractor shall get written approval prior to mobilizing the appropriate equipment and submit a detailed methodology to carryout the work by satisfy the environmental conditions at the proposed site.

2.8 The equipment shall be positioned at the tentative locations shown in the drawing. The equipment shall be fixed firmly to the ground by using appropriate support system with sufficient penetration into the ground. After fixing the equipment at each borehole location, levels may be recorded continuously in the entire process of bore holing for accurate vertical position of borehole location with respect to chart datum. The located position of the equipment at the selected borehole location shall be checked and approved by the Engineer-in-Charge. Suitable care shall be taken during investigations by providing safety devices to prevent any accidents and onsite life insurance protection policies for the personnel involved. The contractor shall, have sufficient cash flow for erection of work. The submission to and consent by the Engineer of such programme or the provision of such general descriptions or cash flow estimates shall not relieve the contractor of any of his duties or responsibilities under the contract.

2.9. A limited space without affecting the day to day activities of the near by area will be made available to the contractor. No rental charges will be levied for the working area spared to the contractor during the tenure of the contract including extended period, if any granted. During the contract period, necessary safety measures have to be taken for the men working at site. However the contractor shall at their cost arrange for the transportation of men and materials to the site of work.

3. **CONTRACT PRICE**

3.1 The contractor is deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender for works and of the rates and prices quoted in the priced bill of Quantities and the schedule of rates and prices (if any) which rates and prices shall except insofar as they are otherwise provided in the contract, cover all his obligations under the contract apart from all matters and things necessary for the proper completion of the work. The rate quoted shall be inclusive of all taxes, levies, duties, cost of insurance etc. Apart from the cost of materials to be procured by the contractor and also labour, tools, plants, fuel, consumables, etc.



3.2 As per the Service Tax Act 2001, the major and minor Ports are exempted from levy of service tax vide notification No.19/2006 dated 25.04.2006 for the construction work taken part in the Port infrastructures. In case Service Tax is payable by the contractor, the amount of Service Tax will be reimbursed by the PSB only on production of documentary evidence

3.3. "Value Added Tax (VAT) will be applied to this contract as per provision of the act and will be recovered from the works bills as per the Karnataka Govt. VAT provision. Necessary certificate towards such "Tax deduction at source" will be issued by the PSB's Account department.

3.4. If any temporary item of work is needed for the execution of the contract, the required details shall be submitted by the tenderer with the proposals and connected drawings along with the tender in Cover I. No payment shall be made for any temporary items of work. Before any Temporary works are commenced, the contractor shall submit sufficiently in advance to the Engineer-in-Charge or his representative for approval, his proposals for all temporary works including drawings and design calculations. The Engineer-in-Charge or his representative shall be at liberty to make any modifications to the temporary works in accordance with the conditions of the contract and the contractor shall carry out such modifications. In the event of the contractor considering that such modifications required by the Engineer-in-Charge or his representative will affect the security of the temporary works, or increase the contractor's liability under the contract, he shall give notice in writing to the Engineer-in-Charge within seven days of receipt of such communication. The Engineer-in-Charge will thereupon consider the matter and communicate his decision, which shall be final and binding on the contractor. Notwithstanding the approval by the Engineer-in-Charge or his representative of any submitted design for any of the temporary works the contractor shall remain entirely responsible for such works in all respects.

3.5. The description of the item of work given in the schedule of quantities should be read along with the specifications, drawings and the conditions of contract.

3.6. It is to be expressly understood that the measured work is to be taken net (notwithstanding any custom or practice otherwise) according to the drawing or as may be directed from time to time by the Engineer-in-Charge or his representative and that the value of the work done will be calculated by the measurement of various items at the respective rates without additional charges for any necessary incidental or contingent work connected therewith as detailed in specifications and conditions of contract.

3.7. The quantities given under the Bill of Quantities are those upon which the approximate estimated cost of work are based but they are subject to alterations, omissions, deduction and additions and not necessarily show the actual quantities of work to be done and can be increased or decreased at the discretion of the Engineer-in-Charge. However, the consequent variation in the total contract value will be limited to 10% under normal circumstances. The rates quoted shall be firm for such variation. In case the variation results in the total contract value exceeding the prescribed percentage, the revision of rates, if any,

shall be applicable only for that portion of contract carried out in excess of the permissible percentage.

3.8. Drains, pipes, cables, overhead wires and similar services encountered in the course of the work shall be guarded from injury by the contractor at his own cost, so that they may continue in full and uninterrupted use to the satisfaction of the Engineer-in-Charge or his representative thereof and the contractor shall not store materials or otherwise occupy any part of the site in a manner likely to hinder the operation of such services.

3.9. Should any damage be done by the contractor to any mains, pipes, cables or lines (whether above or below structure) whether or not shown in the drawing, the contractor must make good or bear the cost of making good the same without delay, to the satisfaction of the Engineer or his representative.

3.10. The Employer shall not be held liable for any damages or compensation payable under the law in respect or in consequence of any accident or injury to any workmen or other persons in the employment of the contractor or any sub-contractor and the contractor shall indemnify and keep indemnified the Employer against all such damages and compensation and against all claims, demands, proceedings, costs, charges, expenses whatsoever in respect thereof or in relation thereto.

4. TERMS OF PAYMENT

4.1 Subject to any deductions, which the Engineer-in-Charge/ Project Seabird may be authorized to make under this Agreement, the CONTRACTOR shall receive payment as follows:

4.1.1

Sl	Payment Stages	On Completion of Activity	Payment in %
a)	I	On completion of drilling/ investigation of 75 Boreholes and submission of respective Draft report	15%
b)	II	On completion of drilling/ investigation of 150 Boreholes and submission of respective Draft report	30%
c)	III	On completion of drilling/ investigation of 225 Boreholes and submission of respective Draft report	30%
f)	VI	Submission of Final report on Investigation of all Boreholes and its acceptance by the competent authority	25%

4.2 **Retention Money:**

4.2.1 As and by the way of retention money from every progressive on account bill of the contractor 10% of the value of work executed shall be deducted and kept as retention money until the total of the amount so deducted is 10% of the value of work. This amount so retained will be released at the time of Final Bill.

4.1.2 When the retention money deduction in cash form Contractor's bill as above reaches a limit of Rupees fifty lakhs, the CONTRACTOR, if he so desires may convert the amount bank guarantee as per prescribed format.

4.1.3 Any other amount outstanding at the completion of the works also can be converted into Bank Guarantee.

4.3 **Performance Bank Guarantee (PBG):**

4.3.1 The security deposit furnished by the CONTRACTOR will be subject to the terms and conditions of the contract and the Project Seabird/ Engineer-in-Charge shall not be liable for payment for any interest for the PBG or depreciation thereof.

4.3.2 If the CONTRACTOR shall duly and faithfully carry out the provisions of this Agreement and shall duly satisfy all claims properly chargeable against him hereunder, the PBG made by him in terms of the Agreement shall be returned to him in the manner detailed herein below.

4.3.3 Should the CONTRACTOR fail to perform the contract work in terms of the Agreement or fail to maintain the contract work and if the Project Seabird incurs any expenditure or likely to incur any expenditure for completion of the work or rectification of defects, then the Project Seabird shall be entitled to deduct such sum or sums as may be necessary for such completion or rectification from the PBG made by the CONTRACTOR under this Agreement.

4.3.4 The PBG shall be released on satisfactory completion in terms of Clause 18 of Invitation to Tender.

4.4 **Progress Payments:**

4.4.1 The value of work shall be done by the way of progressive stage payments according to the satisfactory progress of work subject to the certification by Engineer-in-Charge. Deductions will comprise of all advances, income tax at source etc. including Retention Money as stipulated above.

4.4.2 All progressive stage payments made shall be regarded as payment by way of advance against final payment only and not as payment for the work occupied till the date of progress payment. The progress payment made shall not preclude the liability of the



CONTRACTOR to finally complete the work strictly in accordance with the specifications and drawings, if required, by reconstructing or re-erecting faulty work.

4.4.3 All invoices for progress payments as well as for final payments shall be submitted in seven copies in prescribed printed computerized forms using any software as approved by Engineer-in-Charge (cost of forms to be borne by the CONTRACTOR) supported by detailed measurement of items of work. Measurement of work will be taken only for variable items of work and site deviation and shall be taken jointly and signed by contractor and consultant.

4.4.4 The computerized final bill shall be submitted by the CONTRACTOR within 3 (three) months from the date of completion of the works accompanied by:

- (a) Completion certificate issued by the Engineer-in-Charge /PSB.
- (b) Measurement Books/Registers in respect of variable scope of work and variation to fixed scope of work.
- (c) No claim certificate by the CONTRACTOR.
- (d) A copy of the drawings showing there on additions and alterations (to be shown in red) made during the execution of the work.
- (e) Recovery statements in respect of Electric, Water, Income Tax at source etc.
- (f) Statement for reconciliation of all the payments and recoveries made in progressive bills.
- (g) Copies of variation statement and order of extension of time, if granted.
- (h) Original guarantees furnished by CONTRACTOR'S suppliers for applicable item.
- (i) Test Certificate for items and materials.
- (j) Original purchase voucher of materials required for the work.
- (k) Return all documents/drawings received from engineer/ Project Seabird.

4.5 Payments due and payable by the PSB shall generally be made within 45 (forty five) days from the date of receipt by Engineer-in-



Charge/Project Seabird of complete, proper and presentable invoices and documents supported by requisite details of measurements.

4.6 All payments to the CONTRACTOR shall be made through E-payment, contractor shall furnish his Bank Account details for the same.

4.7 Bank Guarantees only from NATIONALISED BANKS/ Scheduled Commercial Banks shall be accepted by the OWNER.

4.8 In case CONTRACTOR fails to submit computerized bill (for IPC and final), the certification and payment of bills may be inordinately delayed for which the CONTRACTOR shall be solely responsible.

5. **ADMISSION TO SITE BY CONTRACTOR AND RESPONSIBILITY TO ASCERTAIN HIS OWN INFORMATION**

a) The tenderer shall inspect and examine the site and its surroundings and shall satisfy himself before submitting his tender as to the nature of the site and movement of the traffic, the quantities and nature of work and equipment necessary for the completion of the works and the means of access to the site, the accommodation he may require and in general, shall himself obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect his tender. No extra charges consequent to any wrong assumptions / assessment by the tenderer or otherwise shall be allowed. The tenderer shall take into account all these aspects before quoting their rates and shall not hold the PSB responsible for any details that might have been omitted to be mentioned in the tender schedule which may affect the pricing of the tender and any claim by the tenderer on this account will not be entertained by the PSB. In case any additional investigations are required to be done at site by the tenderer, he may do so at his own cost with the prior approval of the Engineer.

(b) The tenderers shall be deemed to have visited the site(s) and made themselves familiar with the working conditions, whether they actually inspect the site(s) or not.

6. **SECURITY AND PASSES**

6.1 The contractors shall employ his representatives, servants and workmen and verify their antecedents and loyalty before employing them for the works. He shall ensure that no person of doubtful antecedents and nationality is, in any way associated with work. If for reasons of technical collaboration or other consideration, the employment of any foreign national is unavoidable, the contractor shall furnish full particulars to this effect to the Accepting Officer at the time of submission of his tender.

6.2 The contractor shall, on demand by the Engineer-in-Charge, submit list of his agents, employees and work people concerned and shall satisfy the Engineer as to the bonafide of such people. The contractor shall obtain and



submit police verification of their staff/personnel for issuance of pass by the Naval authorities.

6.3 The Engineer/Station Commander, Karwar shall at his discretion have the right to issue passes as per rules and regulations of the installation area in force to control the admission of the contractor, his agents, employees and work people to the site of the work or any part thereof. Passes should be returned at any time on demand by the Engineer or the authorities concerned and in any case on completion of work.

6.4 The contractor and his agents, employees and work people shall observe all the rules promulgated by the authority controlling the installation/area in which the work is to be carried out e.g. prohibition of smoking and lighting, fire precaution, search of persons on entry and exit, keeping to specific routes, observing specified timing etc. Nothing extra shall be admissible for any man hours etc. lost on this account.

7. CONDITIONS OF WORKING IN RESTRICTED AREA

7.1 Work under this contract lies in Restricted Area.

7.2 Visit to the site before tendering. Permission to enter the restricted area at the time of submission of tenders can be obtained through the DDG (PI) Karwar. Tenderers are advised to send prior intimation to the DDG (PI) Karwar about the particulars of their agents, representatives etc, if any, dates and time of their proposed visits so that necessary arrangements may be made by DDG (PI) Karwar to secure admission. Whether a tenderer visits the site or not, he shall be deemed to have full knowledge of the restrictions on entering into/exit from and working within the Restricted Area.

7.3 Entry/Exit. The Contractor, his agent(s), representatives, workmen etc. and his materials, carts, trucks or other means of transports, etc. will be allowed to enter through and leave only from such gate or gates and at such times as the DDG(PI) Karwar or authorities Incharge of the Restricted Areas may at their sole discretion permit to be used. The Contractor's authorized representative is required to be present at the place of entry and exit for the purpose of identifying his carts, trucks etc, to the personnel in charge of the security of Restricted Areas.

7.4 Identity Cards or Passes. The Contractor, his agents and representatives are required individually to be in possession of an identity card or pass duly verified by the Police Department. The identity card or pass will be examined by the security staff at the time of entry into or exit from the Restricted Area and also at any time or number of times inside the Restricted Area.

7.5 Identity of Workmen.

7.5.1 Every workman shall be in possession of an identity card. The identity card will be issued after thorough investigation of the antecedents



of the labourers by the Officer In charge of the unit concerned in accordance with the standing rules and regulations of the units.

7.5.2 Contractor shall be responsible for the conduct and action of his workmen, agents and representative.

7.6 Search. Thorough search of all persons and transport shall be carried out at each gate and for as many times as a gate is used for entry or exit and may also be carried out at any time or any number of times at the work site with the Restricted Area.

7.7 Female Searcher. If the Contractor desires to employ female labour /staff on works to be carried out inside the area of Naval Base and a female searcher is not borne on the authorized strength of the Naval Base at the time of submission of the tender, he shall be deemed to have allowed in his tender for, pay and allowances etc. for a female searcher (Class IV Servant/Gp 'D' servant) calculated for the period female labour is employed by him inside the area. If more than one Contractor has/have to be employed in addition to the authorized strength of the Naval base the salary and allowances paid to the additional female searcher(s) shall be distributed on an equitable basis between the contractors employing female labour taking into consideration the value and period of completion of their contracts. The DDG(PI) Karwar decision in regard to the amount recoverable on this account from any Contractor shall be final and binding.

7.8 Working Hours.

7.9 The units controlling restricted area, usually, work during six days in the week and remain closed on the 7th day. The working hours available to Contractor's labour and staff, however, may appreciably be reduced because of the time taken in security checks carried at the time of entry, exit and during working hours.

7.10 The exact working hours of the days and non-working days observed for the restricted area, where works are to be carried out shall be deemed to have been ascertained by the Contractor before submitting his tender. The tender's attention is invited to the fact that the total number of working hours for a unit are prescribed in regulations and they cannot be increased by the DDG(PI) Karwar.

7.11 Contractor's materials, transport, etc. shall normally be permitted to go out of the area between 9 AM to 5.30 PM only.

7.12 Work on holidays. The Contractor shall not carry out any work on gazette holidays, weekly holidays and other non-working days except when he is specially authorized in writing to do so by the DDG(PI) Karwar. The DDG(PI) Karwar may at his sole discretion declare any day as holiday or non-working day without assigning any reason for such declaration.



7.13 Access to Restricted Area after Completion of Works. After the works are completed and surplus stores etc. returned, the Contractor, his agents, representatives or workmen etc, may not be allowed to have access to the restricted area except for attending any rectification of defects pointed out to him.

7.14 Fire Precautions.

7.14.1 The Contractor, his agents, representatives, workmen etc. shall strictly observe the orders pertaining to fire precautions prevailing within the restricted area.

7.15.2 Motor transport vehicles, if any allowed by authorizes to enter the restricted area, must be fitted with serviceable Fire Extinguishers.

8. MINIMUM WAGES PAYABLE

8.1 Refer condition 58 of General Conditions of Contract (GCC). The contractor shall not pay wages lower than Minimum Wages for labour as fixed by the Government of India/State Government/Union Territory under minimum wages Act as amended from time to time or Contract Labour (Abolition and Regulation Act), whichever is higher.

8.2 The fair wages referred to in condition 58 of GCC will be deemed to be the same as the minimum wages payable as referred to above.

8.3 The contractor shall have no claim whatsoever, if on account of local factors and/or regulations, he is required to pay the wages in excess of minimum wages as described above during the execution of work.

9. Delete

10. LAND FOR TEMPORARY WORKSHOP, STORES ETC.

10.1 The contractor shall be allotted free of the charge the area as marked on the layout plan for the purpose of erection of temporary workshop, stores etc. No MoD land is available for accommodation of labour and canteen in restricted area for which the contractor shall make his own arrangement at his own expenses. However, land for accommodation of labour and canteen in unrestricted area may be allotted to him”.

11. Delete

12. CO-OPERATION WITH OTHER AGENCIES

The contractor shall permit free access and generally afford reasonable facilities to other agencies or department workmen engaged by the Government to carry out their part of the work, if any under separate arrangements.



13. **ELECTRIC SUPPLY**

13.1 Construction Power supply required for the work will not be arranged by Govt. Contractor shall make his own arrangements for all requirements of Construction Power supply. The contractor shall make his own arrangements for the Construction Power supply required for the works, labour & workmen etc at his own expense.

14. **NETWORK ANALYSIS**

14.1 The time and progress chart to be prepared as per Condition 11 of General Conditions of Contracts shall consist of detailed network analysis and a time schedule. The critical path network will be drawn jointly by the Engineer and the contractor soon after acceptance of tender. The time scheduling of the activities will be done by the contractor so as to finish the work within the stipulated time. On completion of the time schedule a firm calendar date schedule will be prepared and submitted by the contractor to the Engineer who will approve it after due scrutiny. The schedule will be submitted in four copies within two weeks from the date of handing over the site.

14.2 During the currency of the work, the contractor is expected to adhere to the time schedule and this adherence will be a part of his / their performance under the contract. During the execution of the work, the contractor is expected to participate in the reviews and updating of the network undertaken by the Accepting officer/Engineer. These reviews may be undertaken at the discretion of the Accepting Officer/Engineer either as a periodical appraisal measure or when the quantum of work ordered on the contractor is substantially changed through deviation orders or amendments. Any revision of the time schedule as a result of the review will be submitted by the contractor to the Engineer within a week for his approval after due scrutiny.

14.3 The contractor shall adhere to the revised time schedule thereafter. In case of contractor disagreeing with revised schedule, the same will be referred to the Accepting Officer, whose decision shall be final, conclusive and binding. Accepting Officer's approval to the revised schedule resulting in a completion date beyond the stipulated date of completion shall not automatically amount to a grant of extension of time. Extension of time shall be considered and decided by the appropriate authority mentioned in Condition 11 of GCC and separately.

14.4 Contractor shall mobilize and employ sufficient resources to achieve the detailed schedule within the broad frame work of the accepted method of working and safety. No additional payment will be made to contractor for any multiple shifts through the time schedule is approved by the department.

15. **PERIOD FOR KEEPING THE TENDER OPEN**

15.1 The tender shall remain open for acceptance for a period of 180 (one hundred eighty) days from the date on which the tenders are due to be submitted.



16. SECURITY OF CLASSIFIED DOCUMENTS

16.1 Contractor's special attention is drawn to Conditions 2 and 3 of General Conditions of Contracts. The contractor shall not communicate any classified information regarding the work either to sub-contractors others without prior approval of the Engineer. The contractor shall also not make copies of the design/drawings and other documents furnished to him in respect of the work, and shall return all documents on completion of the works or either on determination of the contract. The contractor shall along with the final bill, attach a receipt of his having returned the classified documents as per condition 3 of the General Condition of Contract.

17. OFFICIAL SECRETS ACT

17.1 The contractor shall be bound by the Official Secret Act-1923.

18. Blank

19. Blank

20. DAMAGE TO EXISTING STRUCTURES

20.1 Any damage done to the existing pavement and structures etc., during the execution of the work shall be made good by the contractor at his own expense and site of work left clean and tidy on completion. Rectification, reinstatement, replacement, making good and touching up etc., shall be carried out to conform to the materials and workmanship originally as provided and to the satisfaction of the engineer.

21. RECORD OF PLANT/ EQUIPMENT

21.1 The contractor shall furnish to the Engineer every morning distribution return of his plants/ equipment on the site of work stating the following particulars:-

- (i) Particulars of plants/ equipment, their make, manufacture, Model Number if any, Registration Number if any, capacity, year of manufacture and year of purchase etc.
- (ii) Total Number (Quantity) on site of work.
- (iii) Location, indication, Number, quantity at each location of site of works.
- (iv) Purchase value on the date of purchase for the purpose of the condition, plant/equipment, shall be given. Vehicle Number i.e. trucks and lorries but neither the work man tools or any manually operated tools/equipment. The Engineer-in-Charge shall record the particulars supplied by the contractor in the work diary and send the return to the Engineer for record in his office.



22. VARIATION LIMIT

22.1 Deviations in the work may be ordered by Accepting officer vide Condition 7 of General Condition of Contracts up to maximum of 10 Percent of the Contract Sum.

23. TESTING CHARGES

23.1 Testing charges of all specified in technical specifications to be carried out during execution of work departmentally in any laboratory/test house shall be borne by the contractor.

24. MES Standard Schedule of Rates (SSR):

24.1 MES Standard Schedule of Rates 2009 (Part I – Specifications) and 2010 (Part II – Rates) (here in after and in General Condition of Contracts referred to as the “PROJECT SEABIRD Schedule”) shall form part of the Contract for valuation of deviations as specified in Condition 62 of GCC.

25. Labour License

25.1 Before engaging labour for execution of works at site the contractor through Engineer shall request DDG(PI) Project Seabird, Karwar for issue of Labour License (Form V-Certificate by Principal employer) to comply with Contract Labour (Regulation & Abolition) Act 1970 requirements. DDG(PI), Karwar shall issue Form V to Assistant Labour Commissioner, Mangalore/Udipi on the recommendations of Engineer”.

26. Photographic records

26.1 The contractor shall if and in so far required by Engineer before commencing and during the progress of works, take photographs of such sites, erection works, machinery, plant etc., Negatives or the prints there from shall be untouched. The photographs shall be of size 5” by 8” and 12 Nos shall be supplied in three copies to Engineer.

26.2 The negatives/DVD are to remain the property of the Project Seabird to whom they shall in due course be handed over and the copy right and all rights of reproduction shall be reserved to the Engineer.

27. Employment of Local Personnel

27.1 The Contractor is encouraged to the extent practicable and reasonable to employ staff and labour from sources within Karnataka.

28. Employment of persons of Project affected families

28.1 The Contractor shall endeavour to provide employment to project affected families at the maximum level up to their skills.

29 SITE CONDITIONS

29.1 Karwar is the district Headquarters of North Kannada located nearly 270 km North of Mangalore and about 120 kms South of Goa. National Highway No. 17 connecting Mangalore and Goa passes through Karwar. Konkan Railway has a railway station at Karwar.

Maximum Temperature	:	35.3 °C
Maximum Humidity	:	90%
Altitude	:	Less than 5m with respect to sea level.
Atmosphere	:	Highly Corrosive due to seawater

29.2 Location:

The Project area is spread over a coastal area South and South East of Karwar Town, in North Kannada District, in the State of Karnataka.

The site is well connected by existing National Highway NH-17 and is approximately 5 km from Karwar Town. Approximately Geographical Co-ordinates of Project Seabird area can be taken as:

Latitude	:	14°44'41.55" N
Longitude	:	74°13'46.26" E

29.3 Topography:

The terrain in proximity to sea shore is flat only to a limited extent. Topography is highly undulating with elevations ranging from Mean Sea Level to approximately +50m. To the east of NH-17 high hills with peaks up to +200 m are seen.

There is a hillock on the eastern fringe of the Project area having an elevation of 373.80m above MSL. This is the highest ground level in the Project area. The lowest level -0.30m above MSL of the Project is nallah bed level, which falls in the south –west fringe.

29.4 Climate:

The weather conditions at site are typically representative of Konkan region viz. heavy rains and extreme humidity.

Monsoon in this area starts around last week of May and continues up to middle of October. The region receives on an average about 320 cm rainfall. South-West monsoon period i.e. June to September. The number of rainy days has been estimated to be 104.

The lowest monthly mean temperature was 15.5 °C in the months of January and highest monthly mean temperature has been recorded as 35.3 °C in the months of February. However, the possibility of the ambient temperatures going as low as 11^o C during winters exists.

The mean wind speed of 13.1 Km/hr has been observed at Karwar during the monsoon period and average wind speed of 7.9 km/hr and 6.1 km/hr has been observed during pre-monsoon and post-monsoon period respectively. In the period between June to September, Relative humidity varies from 60% to 90%. In the winter months, Relative humidity varies from 60% to 70%.

29.5 **Blank**

29.6 **Regional Geology:**

Parent rocks observed in Project Seabird area are Granite; Granite Gneiss and associates weathered varieties of these two rocks. Predominant soil types are silty sand, sandy silt. In some boreholes falling in agricultural land clayey-silt, silty clay were observed overlaying weathered rock formalities.

Geologically rocks around Karwar fall under Younger Gneiss complexes. Their geological age is 2500 million years to 2700 million years. This younger complex is composed mainly of granodiorite and granite types of rocks.

29.7 **Seismicity:**

Karwar falls under Zone III as per IS: 1893-1984. No recorded seismic history for Karwar is available in literature.

29.8 **Quality of Materials:**

All materials to be used and all equipment to be supplied and installed shall be new and the best of their respective kinds and shall be of the class most suitable for the purpose for which they are intended. They shall conform to the specifications laid down in the Tender. The Tenderer shall, as far as possible make best of efforts to adhere to the preferred makes indicated elsewhere in this Tender. However, the Tenderer shall have the option to change the makes of the hardware/ software, if any subject to unambiguously establishing the reasons for the change and confirming the time & cost benefits are being transferred to the Project in proportionate manner, where admissible.

29.9 **Cleaning & Painting:**

Metal parts of all the equipment shall be protected against corrosion of any kind. Surface of all equipment which are intended to be painted shall be thoroughly cleaned of rust & scale, immediately covered with requisite coats of relevant primer and painted with two coats of finished paint.

The metal enclosures shall be all weatherproof and dust proof and special care shall be taken to render all the equipment proof against entry of rats, lizards and other vermins.

29.10 **Equipment Operating Conditions:**

All hardware to be used for realization of the intended system as per tender, though mainly installed in air-conditioned spaces shall be capable of continuous operation in the following conditions:-

- (a) Ambient Temperature: 35.3⁰ Celsius
- (b) Relative Humidity: Varies from 64% to 86%

30. Tidal conditions:

30.1 The tides are diurnal and the average interval between high tide and low tide is about six and quarter hours. The mean tidal range is of the order of 0.32 m to 1.90 m at spring tides and 0.92 m to 1.64 m during Neap tides. There is no influence of floods

30.2 Wave conditions in the sea:

Normally the sea conditions are calm with ordinary waves of 0.46 m to 0.61m height. The dimension and frequency of the waves varies according to the seasons. Generally during South West monsoon period, the waves have a northerly trend at an angle of 30° out of parallelism with shore line and the maximum height of waves during this period vary from 1.22m to 1.83m outside the harbor the wave period varies from 8 to 30 seconds. However, the highest significant wave height observed during July month was 4.6 m with mean wave period of 4.7 and 7 sec and mean wave direction varied between 217⁰ to 251⁰.

30.3 Swells:

During northeast monsoon period (October to January) the swells in the sea outside harbour vary from 0.91 m to 1.22 m during South West monsoon (April to June) from 0.61 m to 0.91 m. During cyclones which are of short duration the swell goes over 1.5 m and for the rest of the period the conditions are calm.

30.4 Currents:

During North East monsoon period the direction of the current is generally southerly with an average speed of 0.1m/s with current speed upto 0.54m/s During south west monsoon period the current is generally in the northerly direction with an average speed of 0.08m/s with current speed upto 0.3m/s. For the rest of the period the direction of the current is variable with negligible velocity.

30.5 Temperature and relative humidity:

The climates generally dry, particulars regarding humidity and temperature may be get from the meteorological department. The climate is Tropical with the maximum mean temperature at 33°C. Relative humidity varies from 64% to 86%.



30.6 Influence of monsoon:

The North East monsoon is generally more severe than the southwest monsoon and is accompanied by heavy rains and rough sea. However, there is no major disturbance during the monsoon period except cyclones are anticipated, as the work is proposed to be carried out in the sheltered basin.

31. **ADHERENCE TO RULES & REGULATION OF ENVIRONMENT.** The work at the site is to be undertaken in strict compliance with existing rules and regulations of Environment promulgated by MoEF.(Copy available with Project Seabird)



ANNEXURE – H

FORM OF PERFORMANCE BANK GURANTTEE
(To be stamped as per the stamp act)

To:

The President of India acting through
The Director General Project Seabird.
West Block – V, RK Puram,
New Delhi 110605
(hereinafter referred to as the 'Government')

Dear Sir (s),

1. WHEREAS (Name and Address of Contractor) -----
----- (hereinafter called the Contractor) has undertaken, in pursuance of LOA No, ____ dated ____ (Contract No. DGSB----- /--- ---) of Project Seabird for ----- at Karwar (hereinafter called "the Contract") AND WHEREAS as per terms of the said Contract that he is required to furnish a Bank Guarantee from an approved Bank for the sum of Rs.____ (Rupees _____) as security for compliance with his obligations in accordance with the Contract.
2. We _____(hereinafter referred to as "the Bank") at the request of _____ (Contractors) do hereby undertake to pay the Government an amount of not exceeding Rs. _____, against any loss or damage caused to or suffered or would be caused to or suffered by the Government by reason of any breach by the said Contractor of any of the terms or conditions contained in the said Agreement.
3. We _____, do hereby undertake to pay the amounts due and payable under this guarantee without any demur, merely on a demand from the Government stating that the amount claimed is due by way of loss or damage caused to or would be caused to or suffered by the Government by reason of breach by the said Contractor (s), of any of the terms or conditions contained in the said contract or by reason of the Contractor' (s), failure to perform the said contract. Any such demand made on the bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. _____
4. We, _____ (the Bank) hereby, as primary obligor and not merely as surety unconditionally and irrevocably, undertake to pay to the Government any money so demanded notwithstanding any dispute or disputes raised by the Contractors(s)/ supplier(s) in any suit or proceeding pending before any Court or Tribunal relating thereto our liability under this present being absolute and unequivocal. The payment so made by us under this guarantee shall be a valid discharge of our liability for payment there under and the Contractor(s) / supplier(s) shall have no claim against us for making such payment.



5. We, _____ further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said contract and that it shall continue to be enforceable till all the dues of the Government under or by virtue of the said Agreement have been fully paid and its claims satisfied or discharged or till The President of India acting through The Director General – Project Seabird. West Block – V, RK Puram, New Delhi certifies that the terms and conditions of the said Contract have been fully and properly carried out by the said Contractors'(s) and accordingly discharges this guarantee. Unless a demand or claim under this guarantee is made on us in writing on or before the _____ we shall be discharged from all liability under this Guarantee thereafter.
6. We, _____ further agree with Government that the Government shall have the fullest liberty without our consent and without affecting in any manner our obligations here under to vary any of the terms and conditions of the said Contract or to extend time of performance by the said Contractors'(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the Government against the said Contractors'(s) and to forbear or enforce any of the terms and conditions relating to the said Contract and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Contract(s) or for forbearance, act or omission on the part of the Government or any indulgence by the Government to the said Contractors'(s) or by any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving us.
7. This guarantee will not be discharged due to any change in the constitution of the bank or the Contractor.
8. We, _____ lastly undertake not to revoke this guarantee during its currency except with the previous consent of the government in writing.

Dated the _____ day of _____, 2015

for _____
(indicate the name of the bank)

Bank Guarantee No. _____

Bank's Postal Address _____

NOTE	The Bank Guarantee in original shall be accompanied with the Banker's covering letter in their printed letterhead confirming that they are issuing the Bank Guarantee as per the request of the party for the prescribed amount.
-------------	--



SECTION IV

SPECIFICATION OF MATERIALS AND WORKS



1. STANDARDS

Unless otherwise specified in the Contract, the relevant provisions of the appropriate Bureau of Indian Standards shall apply for all materials and workmanship.

2. STANDARD PRODUCTS

If mention is made in the Contract of named products of individual manufacturers, this is indication of the standard or type and workmanship of goods, which are satisfactory to the Engineer. The Contractor may substitute similar Products of at least equal quality and suitability, subject to the approval of the Engineer provided that the Contractor has submitted with his Tender proposals for such substitution with full particulars of the proposed alternative products; otherwise, the Contractor's proposals may not be considered. Proposals by the Contractor for the supply of manufactured products shall be accompanied by certification that the manufacture's products are approved by the relevant standards authority.

3. TECHNICAL SPECIFICATION

3.1 General

This specification covers the field works required to obtain all relevant information pertaining to the soil and sub soil conditions at all sites where construction activities are to be undertaken during phase IIA and preparation of a detailed report with respect to Land geotechnical investigation at Naval Base, Karwar. The investigations will include subsurface explorations and field tests for obtaining soil and rock samples for laboratory testing from carefully identified grid locations in the areas where construction is to be undertaken. Results of the field and laboratory testing programs will be required essentially for engineering analysis and utilized during the design process. The work shall include mobilization of necessary equipment, providing necessary qualified technical personnel, skilled and unskilled labour and such others as required to carry out these tests, analysis/ interpretation of data/ results and preparation of a detailed soil profile report as and when called for by the Engineer, including following:-

- a) Engineering properties of soils and rock for construction related activities.
- b) Recommendations for type of foundation and tentative founding levels.
- c) Bearing capacities of soils for foundation design.

3.2 **Scope of Work.** The scope of the Geotechnical Investigations will need to be such as to enable the design engineer to determine the following:-

- (a) Stratigraphy of the local geology.
- (b) Characteristics of the soil/rock.

(c) Ground water level and artesian conditions.

(d) Quality of the ground water.

(e) Particle size distribution (PSD) and classification of the soil at predetermined intervals including reactivity of the soil (shrinkage/ swell characteristics).

(f) Physical properties of the soil to determine the bearing capacity and settlement.

3.2.1 Geotechnical specific drilling will be performed utilizing ~ 150mm diameter hollow flight augers in the soil with standard penetration tests (SPT) at 1.5m intervals. Collection of disturbed soil samples will be taken from the auger flights and SPT tubing, for future laboratory analysis. Undisturbed sampling will be performed upon the identification by the supervising geotechnical engineer of cohesive (clay) soils, with the penetration of undisturbed sampling tubes (UD tube). The UD tubes will then be sent for tri-axial and shear test laboratory analysis. Diamond core rotary drilling utilizing ~100mm diameter coring equipment shall be used for rock sampling. In circumstances where investigation of soils or weathered rock is required at shallow depths. Test pits or trenches using a backhoe or excavator may be employed for examining and sampling the near surface materials. Test pitting would be considered an appropriate substitute for drilling in the following circumstances:-

(a) Pavement subgrade investigations where cut and fill does not change the RL of the pavement.

(b) Investigations for borrow(fill material).

(c) Small footings/ foundation investigations.

3.2.2 Subgrade Investigation for Pavement Construction. This activity relates to determining the engineering properties of the subgrade soils along the proposed roads and runway alignment. The subgrade testing intervals are as follows:-

(a) Test pits for subgrade soil investigation to be excavated at 500 metre intervals or as determined through visual identification of a change in soil type.

(b) For widening improvements to existing roads, sub-grade soil samples to be collected from the pavement shoulder interface of the existing pavements, or where the widening is intended.

3.2.2.1 The testing of the subgrade soils includes:-

(a) In-situ density (using hand dynamic cone penetrometer (DCP) and also by using sand replacement method) and moisture content at each test pit location.

- (b) Soil characterisation (Particle Size Distribution and Atterberg Limits) at each test pit.
- (c) Laboratory moisture-density characteristics.
- (d) Modified AASHTO compaction test.
- (e) Laboratory CBR (un-soaked and 4-day soak compacted at three energy levels) swelling index and swelling potential
- (f) Plate Load Tests for subgrade modulus for Rigid Pavements (NAS) – IS: 1888.

The standards which should be incorporated for subgrade investigations are detailed in **Table 1** below.

Table1-Standards for subgrade testing for Pavement Construction.

Subgrade Testing for Road Construction		Standards
1.	Guidelines for design of Flexible pavements	IRC:37
2.	Field Density	IS: 2720, Parts VII, VIII and IX
3.	Field Moisture Content	IS: 2720 Part II
4.	Recommended practice for Borrow pits for Road Embankments	IRC:10
5.	Plate Load Tests for subgrade modulus	IS : 1888

3.2.3 Overall Scope of work for this assignment shall be as specified below:-

- (a) Carry out tentatively **312** No's of land boreholes as per details mentioned in **Table 2 and Table 3** indicated at the end of this section and as per groups mentioned at para 3.2.3 (n) below. Proposed borehole drawings for each site (as mentioned in Table 3) are placed at **Enclosure 1**. The location of existing boreholes at Site A are also illustrated in the drawing of Site A.
- (b) Carry out all the in-situ tests inside boreholes as specified.
- (c) Collect disturbed and undisturbed samples from each borehole as per specifications.
- (d) Sampling, packing and transporting the samples collected to laboratory as specified.
- (e) Carry out all the laboratory tests as per specifications.
- (f) Carry out Geological classification of soil/ rock through a professional geologist/ soil mechanics expert.



- (g) Recommend type of foundations for various structures along with all the design parameters required to design these foundations.
- (h) The number, locations and the depth of boreholes and the test on core samples collected may be varied by the Employer's Representative / Engineer depending upon the material found during the progress of investigation at site.
- (j) Preparation of draft and final reports comprising the collection of data during boring, results of all the in-situ and laboratory tests and analyses in both soft (electronic) and hard copy including all the drawings and figures as laid down in these specifications.
- (k) The borehole locations drawing shall be submitted in soft copy (AutoCAD 2008 drawings format) with coordinates and grid system incorporated in that while including it in the detailed report.
- (m) Undertake Subgrade Investigation for Pavement Construction.
- (n) The work will be undertaken in various groups as mentioned below and the priority among groups may be decided in consultation with Project Management Consultant, however the payment will be made stage wise as mentioned in Clause 4 of SCC:-

Group	Site	No. of Boreholes
I	A	123
	B1	4
II	B2	59
III	C1	31
	C2	53
	E	22
IV	Quarry Site	20

3.3 Codes and Standards

3.3.1 All works shall be carried out strictly in accordance with the technical specifications unless otherwise approved or instructed by the Engineer or his representative in writing. The latest editions of one or more of the following Indian Standards, shall apply to the work for guidelines to achieve best possible result. The consultant carrying out the investigations should review these standards and should a more current or relevant Indian or International standard be considered appropriate, then in consultation with client/ Clients Engineer the alternative standard should be incorporated into the testing process. The list provided below is not exhaustive.

Testing	Test	Indian Standards*	Comment	Typical Foundation
In Situ Testing	Standard Penetration Test (SPT)	IS:2131	Test during drilling in soils and weak rock	All 1.5m intervals
	Collection of Samples	IS:1892, IS:2132	Soil and Rock	All
	Plate Load Tests for subgrade modulus	IS : 1888	Shallow soils	Rigid Pavements
	Rock Coring	IS:4078	Drilling	Deep/Piled
	Point load test on rock core	IS:8764	Drill rock core	All 1.5m intervals
	Visual observation for orientation and discontinuities	IS:11358, IS:11315	Drill Core	Deep/Piled, Deep excavation in rock
	In situ determination of rock properties by flat jack	IS:7292		End-bearing piled foundation on rock
Laboratory Testing (Tests on Soil Samples)	Visual and Engineering Classification	IS 1498	All	All
	Sieve Analysis and Hydrometer Analysis	IS:2720, Part IV	All Soils	All
	Liquid and Plastic Limits	IS: 2720, Part V	All Soils	All
	Permeability	IS2720, Pt 17	All Soils	Deep excavation requiring dewatering, stormwater disposal potential.

	Field Moisture Content	IS2720, Pt 18	All samples except sands	Beneath pavements, & pavement basecourse after construction.
	Residual Moisture Content	IS2720, Pt 19	All Soils	All, pavements, & embankments
	Linear Shrinkage	IS 2720. Pt 20	All Soils	All, pavements, & embankments
	Soluble Solids	IS 2720. Pt 21	All Soils	Roads and dam embankments
	Organic Content	IS 2720. Pt 22	All Soils	Road and dam embankments
	Calcium Carbonate Test	IS 2720. Pt 23	Calcareous Soils with potential for foundation fill material	Sensitive Structures
	Cat Ion Exchange Capacity	IS 2720. Pt 24	Cohesive soils potential for fill materials for dam / road embankments	Road and dam Embankments
	Specific Gravity	IS: 2720, Part III	All Soils	Potential Fill materials
	Proctor Compaction Test	IS:2720, Parts VII and VIII	Surface soils and fill material	Pavements, Site Formations
	California Bearing Ratio (CBR)	IS2720, Pt 16 and 31	Surface soils and fill material	Pavement Subgrade
	Field Density	IS: 2720, Parts VII, VIII and IX	Surface soils and fill material	Pavements, Site Formations
	Field Moisture Content	IS: 2720 Part II	All Soils	All

	Direct Shear Test	IS: 2720, Part XIII	Undisturbed soil sample	Embankment slopes
Triaxial Shear Tests:				
	Unconsolidated Undrained (UU)	IS: 2720, Part 11 and 12	Undisturbed soil sample	Fill/Cut Slope on cohesive soils
	Consolidated Undrained (CU)	IS: 2720, Part 11 and 12	Undisturbed soil sample	Fill/Cut Slope on cohesive soils
	Consolidation Test	IS: 2720, Part 25	Undisturbed soil sample	High load foundations on cohesive soils
	Determination of shear strength parameter without the measurement of pore water pressure	IS: 2720, Part 11	All Soils	All
	Determination of shear strength parameter with the measurement of pore water pressure	IS: 2720, Part 12	All Soils	All
	Determination of silica sesquioxide ratio	IS 2720. Pt 25	Guide mineralogical classification of soil	All
	Chloride and Sulphate test	IS: 14685, IS 2720, part 27		Steel Piles, Tower Footings
Rock	Visual	IS :	All rock core	All

Samples	observation for texture, structure, composition, colour, grain size, and rock Classification	11358, IS:13063, IS:11315	samples	foundations on rock
	Specific Gravity	IS :11315	All rock core samples	All foundations on Rock
	Hardness	IS :11315	All rock core samples	De-watering large excavations
	Reactivity	IS :11315	All rock core samples	De-watering large excavations
	Porosity	IS :11315	All rock core samples	De-watering large excavations
	Water absorption	IS :11315	All rock core samples	De-watering large excavations
	Unconfined Compression Test	IS:9143	All rock core samples	All foundations on rock
	Point Load Index	IS:8764	Drill rock core	All

3.3.2 Additional codes :-

IS 8009, I&II Code of practice for calculation of settlement of shallow Foundation

IS 6403 Code of practice for determination of bearing capacity of shallow foundation

IS 12070 Code of practice for design and construction of shallow foundations on rocks

IS 14593 Design and construction of cast- in- situ piles founded on rocks-guidelines

IS 4464 Presentation of drilling information

IS 6926 Code of practice for diamond core drilling for site investigation

- IS 5313 Guide for core drilling observations
- IS 4434 Code of practice for *in-situ* vane shear test for soils
- IS 4968 Method for subsurface sounding for soils Part 3 Static cone penetration test
- IS 8763 Guide for undisturbed sampling of sands
- IS 9640 Specification for split spoon sampler
- IS 10108 Code of practice for sampling of soils by thin wall sampler with stationary piston
- IS 10589 Specification for equipment for subsurface sounding of soils
- IS 11594 Specification for mild steel thin-walled sampling tubes and sampler heads
- IS 2911 (Part I to IV) – Code of practice for designed construction of piled foundations.
- IS 1904 Code of practice for structural safety of building foundation.
- IS 5249 Method of test for determination of In situ dynamic properties of soil.
- IS 5529 Code of practice for in situ permeability test.
- IS 10042 Code of practice for soil investigation for foundation in gravel boulder deposits.
- IS 2809 Glossary of terms relating to soil Engg.
- IS 2810 Glossary of terms relating to soil dynamics.
- IS 4651 Code of practice for planning & design of ports & Harbours.
- IS 7422 (Part-I to IV) - Symbols and abbreviations for use in geological maps, sections and subsurface exploratory logs.
- IS 4453 Subsurface exploration by pits, trenches draft and shafts.
- IS 6935 Determination of water level in bore holes.
- Bieniawski, Z.T (1989) "Engineering Rock Mass Classification" Terzaghi, K. and Peck, R.B. 1975

Where an equivalent Indian Standard is not available, the work shall be carried out in accordance with the relevant British Standards/ASTM (in particular BS 1377: Methods of test for soils for civil engineering purposes , BS 5930: Code



of Practice for site investigations) current on the date of invitation to Bid. Contractor shall keep all the relevant Indian standard codes and British standard at site.

3.4 Object

The primary object of this geotechnical investigation is to ascertain the type of sub-strata such as soil, rock, etc., and their characteristics throughout the depth of each borehole. All the tests as specified in schedule and that are considered necessary in the opinion of the Engineer shall be conducted. Any additional tests/works, change in the number, location and type of specified tests, change in the diameter, depth of boreholes, samples to be collected etc., shall be carried out as directed by the Engineer.

3.5 Setting out of the works

For setting out positions of boreholes, an existing and established Bench Marks available at the site shall be used. Details of reference points will be intimated to the Contractor on mobilization. If the benchmark is not available, the Contractor shall establish one at the site set up with reference to an existing Survey of India benchmark. The Contractor shall be responsible for the setting out of the position of each borehole accurately as directed by the Employer's Representative/Engineer. The Contractor is advised to use Total Station or Differential Global Positioning System (DGPS) equipment for establishing locations of bore holes.

The required accuracy for horizontal control shall be within 1m of true position and for vertical control within 0.1 m of the true water depth. All horizontal and vertical control equipment should be calibrated and all necessary certificates shall be submitted to the Employer's Representative/Engineer for verification.

All the levels shall be reduced to Chart Datum (CD) with reference to an existing Bench Marks. The details of the reference Bench Marks used for this purpose shall be mentioned in the detailed report.

3.6 Boring

3.6.1 Boring in Soil

Boring shall be carried out in accordance with the provisions of IS: 1892. Minimum diameter of boring shall be 100 mm. Auger boring shall be resorted to above the water table, whereas below the water table the boreholes shall be advanced by rotary drilling with water/mud circulation through all kinds of soil other than rock. While boring above water table, no water shall be introduced in the boreholes. Casing shall be used to support the sides of boreholes in soft to loose soils. Water table in the borehole shall be carefully recorded and reported.

Use of chisel and percussion boring shall be permitted exclusively



in strata having N (SPT) value greater than 50 blows per 30 cm of penetration and as per directions of Engineer/Employer's Representative.

The Contractor shall take care in the use of shell and auger casing and attachments to avoid fracturing or otherwise disturbing rock at the interface between soil and rock / weathered rock, such that the true level of the surface of rock / weathered rock and its true in-situ quality will be identified.

3.6.2 Boring in Rock

Where core recovery exceeds 10%, TC bits shall be used for coring in soft/weathered rock and diamond bits for hard rock (Rock Quality Designation (RQD) >50% or core recovery > 75%). Maximum length of run of coring in rock shall be 1.5 m. In hard rock maximum length of coring shall be restricted to 1.0 m.

The Contractor shall ensure that the equipment used for drilling, sampling etc. shall have an adequate capacity to drill bore holes up to specified depth. The Contractor shall make his own arrangements to deploy all the necessary equipment to the borehole location. The rates quoted shall be inclusive of all this and any extra claims on this account shall not be acceptable.

RQD and CR for each sampler are to be immediately recorded after retrieval of the cores. After recording the details of cores, the drill and cutting shall be marked and preserved carefully in core boxes as per the latest IS: 4078 and the selected core samples shall be transported to the laboratory for testing.

The contractor shall ensure that the collection of adequately sized rock samples is key to arrive at the rock parameters and he shall ensure that the same are collected, preserved, transported and tested as per the specifications.

In case the core recovery is not observed to be adequate sufficient measure such as use of bentonite, reduced core lengths and reduced drill speed shall be attempted to obtain better core recovery.

3.6.3 Termination of Boreholes

The bore holes shall be terminated as per following criteria, whichever occurs earlier,

- (a) When the indicative depth for termination is reached.
- (b) When tungsten bit drilling in soft / weak weathered rock reaches 15m depth.

(c) When diamond bit drilling in hard rock reaches 10m depth.

(d) If rock is encountered, continuous coring shall be carried for a minimum 5 m in to good quality rock or to the depth shown on drawing whichever is achieved earlier or as directed by Engineer –in-Charge. Good quality rock is defined as rock with rock quality designed (RQD) value more than 75% for a core run of 1.5m and a core recovery of not less than 90%.

If very hard stratum is met within the borehole at depths shallower than specified, the borehole shall be advanced by chiseling. If in the opinion of the Employer's Representative/Engineer, the rate of advancement of borehole is still low, coring may be resorted to subsequently. The Contractor has to obtain the written permission from the Employer's Representative/Engineer while terminating each borehole.

Immediately on completion of a borehole, bore log shall be prepared in the approved proforma submitted to Employer's Representative/Engineer for further use.

However, the criteria for borehole termination can be changed by the Employer / Employer's Representative during the course of investigation, if the necessity arises. In such an event, the Contractor shall have to adopt the new termination criteria communicated in writing by the engineer.

3.7 Sampling

Frequency of sampling: -

3.7.1 General

In intermittent sampling, undisturbed soil samples are obtained at every change in stratum and at intervals not exceeding 1.5 m within a continuous stratum. On important investigations such as the foundations for an earth dam, continuous core sampling in any soft clay layers may be necessary.

3.7.2 Disturbed Samples

Disturbed samples shall be collected at every 1.5m up to 15 m depth and at intervals of 2.0 m beyond 15 m depth and at every change of strata from borehole. They shall be fully representative of the zone from which they are taken. Weight of disturbed samples shall not be less than 1 kg and shall be taken according to the Indian Standards. They shall be placed immediately in airtight containers with a minimum of air space so as to maintain the natural moisture content for at least one week.

Identification levels indicating depth, borehole number and visual soil classification shall be affixed on the containers.

3.7.3 Undisturbed Samples

Undisturbed samples shall be taken from the boreholes alternatively with disturbed samples at every 3.0m intervals till the borehole termination depth and at every identifiable change of strata whichever is met earlier. Distances shall be measured below the seabed level.

In case of sandy silt strata, the intervals of sampling shall be suitably increased. Sampling procedures and samplers for recovering undisturbed samples shall normally conform to the relevant codes of practice unless otherwise specified and directed by the Employer's Representative/ Engineer.

In the case of cohesive deposits, undisturbed samples shall be taken by an open tube sampler or a piston sampler. The size of the sampler should be such that a sample having a minimum size of 100 mm diameter and 300 mm long can be recovered. The sampler shall be pushed strictly by hand or by jacking in soft to firm deposit and no hammering shall be allowed. Where this is not possible, the sampler may be driven by the blows of a monkey having sufficient weight. Area ratio of all samplers shall be limited to 10% for soft to firm cohesive deposit and use of thick walled samplers may be permitted in the case of deposits having very high consistency, subject to the approval of the Employer's Representative/ Engineer. Recovery ratio shall be observed and reported in the bore logs for every sample.

The samples shall be sealed, packed and properly labeled and transported to the laboratory as laid down in the relevant codes of practice. The top and bottom of a sample along with borehole number, date, depth must be indicated clearly on the sample tube to facilitate the laboratory testing in proper orientation as specified by the Employer/ Engineer. As soon as the sample is obtained from the trial pit or borehole, the ends of the sample should be cut and several layers of molten wax should be applied to each end.

Before taking an undisturbed sample the bottom of the boring shall be carefully cleaned of loose materials and where casing is being used the sample shall be collected from bottom of this casing. Care shall be taken to minimise sample disturbance while collection of samples. Samples shall be collected preferably by pushing the sampler. Driving by hammer above ground level (like SPT) is not acceptable. However, for stiff/hard soil a sliding hammer can be used for driving the sampler at sampler head.

Where an attempt is made to collect an undisturbed sample, which is aborted because of slippage, the boring shall be cleaned out for the full depth to which the sampling tube has been driven and the recovered soil saved as a disturbed sample. A fresh attempt shall then be made from the level of the base of the aborted attempt, and the Contractor may use a core catcher between the cutting shoe and sampling tube; alternatively, an additional sample tube may be coupled. Where full



recovery is not achieved the actual length of sample in the sampling tube shall be recorded and the reason for only partial recovery shall be noted. Samples with recovery of less than 60% shall be regarded as disturbed samples.

It is desirable to test the undisturbed samples within three weeks of taking them from the boring and during the interval while awaiting transport and test, they should be stored, if possible in a cool room, preferably with a high humidity, say 90 percent.

3.7.4 Rock Samples

The rock samples shall be taken at every 1.5 m interval. Cores from core barrel shall be carefully removed and placed in core boxes of 1.5m length divided longitudinally by light battens to hold 10 rows of cores. Care should be taken to see that the cores are not turned end to end, but should lie in correct position. Depths below the surface of the ground should be indicated at 1.5m intervals by writing the depth in indelible pencil on a small block of wood which is inserted in its correct position in the box. The exact depth of any change of strata should be shown in the same way. Where there is a failure to recover core, this should be recorded in the same way. If the core recovery is less than 20%, then SPT shall be performed before commencing the next drill run. At any time, if blocking of the barrel or grinding of the core is indicated, the barrel shall be immediately withdrawn, regardless of the drill run completed.

The description of the core samples shall be recorded as per IS: 4464. When no core is recovered, it shall be recorded as specified in continuous record of core recovery and RQD to be mentioned in the core log as per IS: 11315, Part-II.

The basic information shall gather for the description of rocks shall cover

- i) Degree of weathering
- ii) Discontinuity spacing
- iii) Strength
- iv) Color
- v) Structural condition
- vi) Rock name with special features like joint plane, laminations, faults etc.

3.7.5 Sample Labeling

All samples, irrespective of their type, shall be clearly and permanently labeled with the following information immediately upon recovery,

- a) Project name and location
- b) Borehole number



- c) Depths to top and bottom of sample
- d) Date of recovery
- e) In the case of core samples or undisturbed “tube” samples, the top and bottom of the samples shall be clearly marked as such.

All samples shall be fixed with two labels; one on the lid or screw top, the other on the jar or steel tube.

3.7.6 Packing & Transporting

The Contractor shall be responsible for the packing and transport of sample to the laboratory, approved by the Employer’s Representative/Engineer-in-Charge. All collected samples shall be transported at the end of every borehole to the laboratory. The Contractor shall ensure that all packing and transport arrangements are suited to the type of sample(s) in question and that the least possible disturbance of the samples will occur during transport. In any event, the Contractor shall be held responsible for any damage to samples and will have to recollect the samples in lieu of the damaged ones.

3.8 In-situ Testing

3.8.1 Standard Penetration Test (SPT)

Standard Penetration Tests shall be carried out in accordance with the requirements of IS 2131: Method 3.3 (or similar approved method). Attention is particularly drawn to the requirement of this method concerning the need to keep the level of water or drilling fluid in the borehole up to ground level or above, or if the boring is being carried out over water, to the water level. Automatic trip hammer shall be used for carrying out SPT test.

The basis of the test consists of dropping of a hammer of mass 63.5 kg on to a drive head from a height of 750 mm. The number of such blows (N) necessary to achieve a penetration of the split spoon sampler by 300 mm (after its penetration under gravity and below the seating drive) is regarded as the penetration resistance. The blow counts for each 150 mm penetration were recorded. Small disturbed samples of soil were obtained from the split spoon sampler after completion of the tests.

The Contractor shall provide full records of all standard penetration tests in triplicate on the daily record sheet. The information shall include:

- a) The number of blows for the initial 150 mm penetration.

- b) The number of blows for each successive 75 mm penetration or penetration produced by 50 blows.
- c) Penetration resistance ('N' value)
- d) Boring method, size and depth of casing
- e) Information on added water

3.8.2 Vane Shear Test

Vane tests shall be carried out if clayey soil is encountered using borehole vane test apparatus in accordance with the requirements of IS: 4434. A vane 150 mm long and 75 mm wide shall be used.

The vane shear test is most appropriate for the determination of the shear strength of saturated clays, especially of the 'soft' to 'medium' consistency. The test is especially appropriate for determining the shear strength of sensitive disturbances. This test shall be conducted at the soft clay zone encountered in the bore hole.

The Contractor shall provide full records of all vane tests in triplicate, two copies of which shall be handed to the Employer's Representative within one day of completion of the test and the remaining copy retained at the testing site or on completion of the test in the Contractor's office on Site for inspection by the Employer's Representative/Engineer on request.

3.8.3 In-Situ California Bearing Ratio Test

The in-situ California bearing ratio test should be carried out for the evaluation of strengths of sub-grade and bases for roads and runway pavements. The procedure for conducting the test should conform to BS: 1377 (Part 9)/ IS: 2720 (Part 31). The spacing of the tests should be such that operations in one area do not disturb the soil in the other area. This test should be conducted at locations and depth as decided by the Engineer Incharge. The bearing ratio shall be reported correct to the first decimal place. The record of test results should be as per the IS: 2720 (Part 31).

3.8.4 In-Situ Permeability Test

The purpose of permeability test is to determine the coefficient of permeability of coarse grained and fine grained soils by falling head method. The test procedure and equipment shall be confirmed to IS: 5529 (Part1) .The report should contain coefficient of permeability of each soil stratum.

3.8.5 Plate Load Test

The methodology of plate load test shall be conducted to determine the in-situ strength of the natural ground or fill layers for the design and evaluation of different structures. Testing and reporting shall be as per IS: 1888 – 1982, “Method of load test on soils”. For repetition each load, the deflection at which the rate of deflection is exactly 0.02 mm/minute shall be determined. Cyclic plate load test should be done. The report should contain continuous listing of all time, load and settlement data, for each test shall be recorded with details of test elevation, natural water table, Profile of test pit, size of bearing plate, Bearing capacity, subgrade modulus and irregularity, if any, in routine procedure.

3.8.6 Pressure meter Test

A pressure meter applies a uniform radial stress to the bore hole at any desired depth and measures consequent deformation of soils / rocks. Testing and reporting shall be confirmed to IS: 1892 – 1979/ASTM D4719, “Subsurface investigation for foundations”/ “ Standard test for prebored Pressuremeter Test”. The test involves lowering of an inflatable cylindrical probe to the test depth in a bore hole. The probe is inflated by applying water pressure from a reservoir. Under pressure it presses against the unlined wall of the bore hole and causes volumetric deformation. The stress on the bore-hole wall is the pressure of water applied. The deformation of the bore hole is read in terms of volume corresponding to fall in water level of the reservoir. Both Cyclic and direct pressure meter test should be done .The report should contain pressure meter modulus, limiting pressure and bearing capacity.

3.8.7 Seismic Refraction Test

The seismic refraction survey has application in a variety of geological exploration problems, where information on the depth and strength of subsurface materials is required. These surveys provide subsurface information over large areas at relatively low cost, locate critical areas for more detailed testing by drilling and can readily eliminate less favourable alternative sites. Seismic surveys can also reduce the number of boreholes required to test a particular site and improve correlation between boreholes. . Testing and reporting shall be confirmed to IS: 15681 – 2006/ASTM D5777, The geophones and the seismic source must be placed in firm contact with the soil or rock. The geophones are usually located in a line, sometimes referred to as a geophone spread. The seismic source maybe a sledge hammer, a mechanical device that strikes the ground, or some other type of impulse source. Explosives are used for deeper refractors or special conditions that require greater energy. Geophones convert the ground vibrations into an electrical signal. This electrical signal is recorded and processed by the seismograph. The travel time of the seismic wave (from the source to geophone) is determined from the seismic wave form.

3.8.8 Soil Resistivity Test

The soil resistivity test is used to determine the resistance of various soil Stratum. The purpose of resistivity testing is to obtain a set of measurements which may be interpreted to yield an equivalent model for the electrical performance of the earth, as seen by the particular earthing system. The electrodes and the electric source must be placed in firm contact with the soil or rock. The electrodes are usually located in a line, sometimes referred to as a geophone spread. Testing and reporting shall be confirmed to IS: 15736 – 2007/ASTM G187-12a.

3.9 Laboratory Testing

3.9.1 General

After collecting disturbed and undisturbed samples from different boreholes at different depths, a laboratory test schedule shall be prepared and submitted to Employer's Representative/Engineer for approval.

The Contractor shall allow the Employer's Representative / Engineer access to the laboratory at all reasonable time for the purpose of witnessing tests, and shall co-operate fully with the Employer's Representative/Engineer in carrying out the testing programme.

All tests shall be carried out by competent, trained staff suitably experienced in laboratory testing to a high standard and capable of producing reliable and consistent results. Only apparatus complying with the relevant testing standard shall be used.

The laboratory tests shall essentially comprise of but not limited to the following,

3.9.2 Moisture Content Determination

The natural moisture content of all the soil samples brought from the site should be determined as prescribed in IS: 2720.

3.9.3 Dry and Wet Density and Specific Gravity

The dry and wet densities of all soil samples shall be determined as prescribed in IS: 2720. The specific gravity shall also be determined.

3.9.4 Grain Size Distribution

Sieve analysis for given size distribution shall be conducted on all the undisturbed samples collected from boreholes. The hydrometer analysis should be carried out on fractions less than 75 micron wherever applicable as per IS: 2720. For the hydrometer analysis, the hydrometer should be calibrated appropriately and all corrections viz. meniscus, temperature and dispersing agent corrections applied to the readings. The grain size distribution curve i.e. percent finer vs particle diameter

should be plotted. The table showing the percentage of various grain sizes (gravel to clay), D10, D60, Uniformity Coefficient Cu and Coefficient of Curvature Cc for each test should be given.

3.9.5 Atterberg Limits

These tests shall be carried out on clay fraction (size < 75 microns) for all disturbed and undisturbed samples. The test results should include liquid limit, plastic limit and plasticity index and shrinkage limit of the soil samples tested. These tests shall be conducted as per IS: 2720, Parts V & VI. In swelling type of soils, the free index should be determined.

3.9.6 Test on Swelling Type of Soils

This test shall be conducted on swelling type of soils. The swell pressure of such soils shall be determined using the Consolidometer method. A plot of the dial gauge reading versus the pressure applied shall be plotted and the pressure corresponding to zero dial gauge reading shall be reported as the swell pressure. A test to determine the differential free swell shall also be conducted and the free swell index reported.

3.9.7 Consolidation Tests

The tests shall be conducted on undisturbed samples for vertical drainage only. The following loading stages shall be employed:

0.1, 0.25, 0.50, 1.0, 2.0, 4.0, 8.0 kg/cm².

From e vs log p curves, pre-consolidation pressure shall be determined to establish whether the soil is normally consolidated or over-consolidated. The point (e, p) showing initial condition of the soil under test must be specifically marked on the consolidation curves. Cycle(s) of loading, unloading and reloading shall be applied. The field virgin compression curve shall be established. Settlement predictions based on the field virgin compression curve shall only be acceptable. The procedure adopted in respect of obtaining compression indices from the field curve and that for computing settlements for the type of soil under consideration shall be clearly illustrated in the report. It is to be noted that deviations from the standard procedure of performing consolidation tests given in IS:2720, Part XV are permissible in order to enable computation of settlements based on the above procedure.

The following curves shall be included in the report:

- a) e vs log p
- b) e vs p

c) Compression vs log (t) or compression vs square root 't'

The choice of relationship in part (c) depends upon the shape of the plot that enables clear determination of C_v , the coefficient of consolidation. The time period required for 50% and 90% primary consolidation shall be given in the report.

Location of p_c (pre-consolidation pressure) shall be clearly indicated in the e-log p curve.

Values of m_v and C_v shall be furnished for different pressure ranges including the values of e_0 , C_c & p_c in tabular form. Computation of secondary settlements, if significant, shall also be made and included in the report.

3.9.8 Unconfined Compressive Strength (UCS)

These tests shall be done as per IS: 2720, Part X on undisturbed soil samples of saturated (or nearly saturated) non-fissured cohesive soils. The cylindrical soil samples should be tested quickly without allowing for drainage, in vertical compression. The UCS of the samples shall be observed and reported according to standard practice.

3.9.9 Tri-axial Tests

These tests shall be done on specimen saturated by the application of backpressure. Only if the water table is at sufficient depth so that chances of its rising to the base of the footing are meagre or nil, the Tri-axial tests shall be performed on specimens at natural moisture content. The magnitude of the backpressure applied shall be indicated in the report.

All the stress-strain diagrams as well as Mohr's circle envelopes shall be included in the report. Density and water content of the sample tested and modulus of elasticity along with shear strength parameters shall be reported.

3.9.10 Direct Shear

This test should be performed on remoulded soil specimens of silty sand or fine sand in nature prepared to a density corresponding to in-situ conditions with a minimum particle size of 4.75 mm as per IS: 2720 Part XIII. The density to which the sample shall be prepared shall be based on the observed SPT N value and the corresponding relative density. Plot shear normal stress displacement curve and find:

- Cohesion intercept, and
- Angle of shearing resistance.

3.9.11 Proctor compaction Test

The purpose of a laboratory compaction test is to determine the proper amount of mixing water to be used, when compacting the soil in the field and the resulting degree of denseness which can be expected from compaction at optimum moisture content. To accomplish this, a laboratory test which will give a degree of compaction comparable to that obtained by the field method used is necessary. This procedure is satisfactory for cohesive soils but does not well suited to the study of the compaction characteristics of clean sands or gravels which displace easily when struck with the rammer. The test for determining water content-dry density relationship of soil using light compaction method and heavy compaction method should confirm to IS: 2720 (Part VII) and IS: 2720 (Part VIII) respectively.

The experimental points and the smooth curve drawn through them showing the relationship between moisture content and dry density shall be reported. The optimum moisture content and maximum dry density should present in the curve.

3.9.12 California bearing ratio Test

The purpose of a laboratory California bearing ratio test is to determine strengths of sub-grade for roads and runway pavements. The test method is standardised by IS: 2720 (Part XVI). The mould, collar, base plate of the test equipment should be in accordance to IS: 9669. The test can be performed on undisturbed or remoulded specimens, which may be compacted either statically or dynamically. If test is done on a soaked sample, the sample with the mould after compaction is allowed for 72 hours of soaking by maintaining a constant water level throughout the duration. The load required for penetration of 2.5 mm and 5 mm of circular plunger is noted. Load versus penetration is plotted and should be corrected if required as per codal specifications. This test shall be carried out on the borrow material.

3.9.13 Tests on Quarry Site

A geotechnical site investigation of proposed quarry site and at stock pile materials sources is required in order to determine the quality and quantity of materials available for Seabird construction projects. After quarry site investigation, a separate geotechnical and material investigation report shall be submitted by the contractor.

Seismic refraction surveys shall be undertaken to determine the depth of various soil, weathered rock and hard rock layer (up to 30m below the crown) along the proposed quarry site, and to identify local zones of weathering characteristic. The results of a seismic survey are used to select the most appropriate positions for exploratory boreholes and to assist with the interpretation of geotechnical conditions between boreholes and to identify the rock quantities.

Carry out boreholes (30m depth) and geophysical investigation at quarry site to identify the quantity of each material type and its layer profile.

After collecting rock/ soil sample carry out lab test as specified on undisturbed & disturbed soil sample as directed by the Engineer-in-charge. Carry out geological classification of quarry material and identify the suitability of material for different structures.

The tests on Quarry sites are generally carried out of suitability of material for construction. Testing and reporting shall be confirmed to IS: 2386,

3.9.14 Point Load Test on Rock Cores

Intact samples of minimum 50 mm diameter and length equal to 1.5 times the diameter should be tested on a Point Load Tester and its point load index shall be determined. The Uni-axial Compressive Strength (UCS) of the sample should be calculated from the point load index. The index as well as the UCS should be reported.

3.9.15 Uni-axial Compressive Strength of Intact Rock Samples

Intact rock cores of minimum NX size and length 2.5 to 3 times the diameter should be tested for its uni-axial compressive strength. The test should be conducted on perfectly cylindrical sample, which shall be polished and conform to Indian Standard Code of practice. The UCS of the sample should be reported along with the diameter and length of the sample.

3.9.16 Chemical Tests

Chemical test shall be conducted on soils samples as per relevant BIS latest revisions to report the following:

- a) pH.
- b) Chlorides in ppm & percentage.
- c) Sulphates in ppm and percentage and expressed as SO₃ & SO₄.
- d) Total hydrocarbon present in the soil (in ppm).
- e) Calcium content, Potassium and Nitrate Content.
- f) Conductivity and total dissolved solids in water.
- g) Electrical resistivity test to determine the corrosivity properties.
- h) Presence of Toxic metals such as Chromium, Arsenic, Mercury, Lead etc.

3.9.17 Resonance Tests on Rock Samples

Dynamic moduli of rock cores were determined by resonance frequency method, which is based on the standing wave phenomenon. In this method, a supported specimen is forced to vibrate by an electro-mechanical driving unit. The specimen response is monitored by a lightweight pickup unit on the specimen. The driving frequency is varied until the measured specimen response reaches maximum amplitude. The value of the frequency causing maximum response is the resonant frequency of the specimen. The fundamental frequencies for the two different modes of vibration are obtained by proper location of the driver and the pickup unit.

Determination of Resonant Frequencies

Dynamic Modulus of Elasticity:

The specimen tested for resonant frequency in longitudinal mode to determine dynamic modulus of elasticity (Dynamic E). Vibrations were imparted at the centre of the one end of the specimen while the pick was placed in the center of the other end as shown in figure-1 above.

Dynamic E in Kg/cm² was calculated using the following equation,

$$\text{Dynamic E} = D \times W \times n^2$$

Where, $D = 519.4 \times 10^{-5} \times L / d^2 \text{ sec}^2 / \text{cm}^2$

L= Length of specimen in cm

d= Diameter of specimen in cm

W= weight of specimen in Kg

n= Fundamental Longitudinal frequency in Hz

Dynamic Shear Modulus:

Dynamic shear modulus (Dynamic G) of the specimen shall be obtained by conducting resonant tests in torsional mode of vibrations. The exciter shall be placed laterally at the one end of the specimen. The accelerometer is to be placed laterally at the other end of the specimen.

3.9.18 Tests on Rock Samples

Other tests on rock shall include unit weight, specific gravity, water absorption, porosity and crushing strength determination. The crushing strength of rock shall be determined on the collected rock samples as per IS code standard and reported in the final report along with other details such as design unit skin friction and bearing values in case of different types of piles in rock i.e. bored cast-in-situ concrete piles, drilled and grouted piles.

3.10 Deliverables



3.10.1 Preliminary Report and Records

On completion of each borehole, 2 (two) copies of a preliminary borehole log shall be submitted to the Engineer-in-Charge.

These preliminary bore logs shall show:

- a) Ground level w.r.t mean sea level.
- b) The locations of the boreholes, on a plan.
- c) The preliminary description of each stratum.
- d) The thickness of each stratum with the boundaries referred to the Chart Datum.
- e) The position, type and identification of each sample and site test with reference to Chart Datum.
- f) Any site test results available with reference to RL.
- g) The levels at which each separate ground water level is first encountered at which it comes to rest (standing water level).
- h) Weekly report containing the results of laboratory test shall be submitted to the Engineer.

3.10.2 Detailed Draft Reporting

On completion of all field and laboratory testing, detailed Draft Report shall be prepared and submitted to the Employer. The Geotechnical Report should be completed in accordance with the latest version of IS:1892-1979 and IRC:78, or to relevant and equivalent international standards. Three (3) copies of detailed draft report are required to be submitted including the soft copies in CD and AutoCAD 2008 drawings of the survey output / maps. The Geotechnical Report should include, but not limited to the following:

- a) Description of the site and surroundings.
- b) Description of the ground conditions.
- c) Recommendations, which takes into account the soil, rock and ground water conditions as appropriate, on the following (but not limited to) issues:
 - (i) Suitability of in-situ materials for use as various fills, e.g. general fills to raise the site, select fills for road subgrade, road embankments, road base materials etc.

- (ii) Design parameters for roads, pavements, hard stands such as runway, floor of warehouse buildings etc, including relevant construction quality control issues (compaction control, CBR testing etc).
 - (iii) Design parameters for Earth Retaining Structures (retaining walls, sheet pile walls, temporary cofferdams etc).
 - (iv) Design parameters for un-supported deep excavations, including dewatering options.
 - (v) Design parameters for soil and rock anchors.
 - (vi) Design parameters for settlements associated with:
 - (aa) Ground improvement by surcharge, including the magnitude and the rate of settlement, ie realistic estimate of coefficient of consolidation (cv) taking into account the horizontal drainage of in-situ soil layers and local experience.
 - (ab) Shallow footings.
 - (ac) Friction piles, if competent bearing layers are deep.
 - (vii) Design parameters for axial and laterally loaded piles for on-land and over the water (marine) conditions (eg jetty, wharf, mooring dolphins etc), including negative shaft frictions due to down drag force of "settling" soft ground arises from placement of fills to raise the site level.
 - (viii) Design parameters for slope stability of cuts into natural soil.
 - (ix) Design parameters for the formation of rock cuts, taking into account the solid (finite size) and rock mass properties including predominant dips and strikes of bedding planes, fractures, etc.
- d) Description of the proposed construction.
- e) Statements on the codes and standards applied.
- f) Assumptions, data, methods of calculation.
- g) Statements on the suitability of the site with respect to the proposed construction and the level of acceptable risks.
- h) Foundation design recommendations.

- i) A note of items to be checked during construction or requiring maintenance or monitoring.
- k) *Description showing the position of all boreholes*
- l) *Description of the procedures of investigation and testing employed*
- m) *Generalized soil profiles and characterization shall be provided and shall include the following static properties:*
- (i) Moisture content*
 - (ii) Dry and submerged unit weight*
 - (iii) Grain size distribution*
 - (iv) Liquid and plastic limits for cohesive soils*
 - (v) Liquid and plastic limits for cohesive soils*
 - (vi) Unconfined compression strength*
 - (vii) Shear & length parameters*
 - (viii) Compressibility coefficients (Cc, Cv)*
 - (ix) Constraint modulus*
 - (x) Specific gravity*
 - (xi) Corrosion potential*
- n) *Detailed bore logs, subsoil sections in different directions, laboratory and field tests results both in tabular as well as in graphical form, indicating variations in each of the soil properties with depths in each borehole*
- p) *The stress-strain diagrams as well as Mohr circle envelopes for unconfined compression tests, tri-axial tests and crushing strength of rock sample.*
- q) *Modules of Elasticity calculated from the crushing strength of rock.*
- r) *'e' vs. log 'p', compression vs. log 't' or compression vs. 't' plots depending upon the shape of the plot to determine the coefficient of consolidation 'Cv' and time for 90% and 100% consolidation.*
- s) *Coefficient of volume compressibility (mv) and coefficients of permeability shall be determined and reported. Pre-consolidation pressure shall be determined for each test and shall be taken into consideration in recommending the anticipated settlement along with the time to achieve the same.*
- t) *Electrical Resistivity of soil based on in-situ electrical resistance tests including electrode spacing vs commutative resistivity curve.*
- u) *Dynamic soil properties such as Dynamic shear modulus, Poisson's Ratio; Coefficients of Elastic Uniform Compression,*

elastic non-uniform compression, elastic uniform shear and elastic non-uniform shear and also the vertical and horizontal stiffness of the soil-pile system.

v) Protective measures against aggressive chemical constituents (if found through chemical analysis), sulphate and acidity in soil shall be detailed. Susceptibility of soil to termite attack and remedial measures for the same.

w) Susceptibility of sub soil to liquefaction in the event of earthquake. If so recommendation for remedial measures.

x) Analysis & Recommendation

All field and laboratory test data shall be reviewed and evaluated to provide soil parameters and recommendations. The soil parameters and recommendations shall include but not necessarily be limited to, the parameters indicated below:

Evaluation of soils for their suitability as fill material for use in reclamation.

a) Load carrying capacity of piles

Load carrying capacity of piles (Vertical and horizontal) shall be presented in the report for 600mm, 800 mm, 1000mm, and 1200mm diameter piles.

b) Foundation

Type of foundations to be adopted for various structures and equipment considering total permissible and differential settlements, water table and depth of foundation etc. The provision of relevant IS Codes shall be followed.

If piling is envisaged, the type of pile with reasons, suitable founding strata for the piles, estimated length and safe capacity for 600 mm, 800mm, 1000mm and 1200 mm diameter shall be furnished. End bearing and skin friction shall be indicated separately and termination criteria shall be specified. Magnitude of skin friction, if any, and pile spacing to be adopted in design shall be furnished. In case of rock socketing, recommended length of socketing for each dia of pile, strata & type, where socketing shall be done to be recommended.

c) Properties of material within design dredged depths

Comments on chemical nature of ground water and soil with due

regard to potential deleterious effect on steel and other materials and firm recommendations on protective measures. Also remedial measure for sulphate attack or acidity shall be dealt with in detail giving clear practical recommendations.

3.10.3 Detailed Final Reporting

Upon receiving the detailed draft report, the comments on the same shall be issued to the Contractor by the Employer / Employer's Representative. The detailed final report shall be submitted within two weeks incorporating these comments on the detailed draft report. Five (5) copies of detailed final report are required to be submitted including the soft copies in CD and AutoCAD 2008 drawings of the report.

Table 2-Details of Geotechnical investigations required as part of early works.

Site	Location	Proposed Structure(s)	Geotechnical Investigation	Quantity	Total
A	Naval officers Institute	G+1	Drilling	1	123
	MES service centre, Convenience shopping centre, Family welfare centre, officers institute	G+1	Drilling	8	
	Proposed admiral Bungalow	G+1	Drilling	1	
	Commodore	G+1	Drilling	2	
	Single officers accommodation	G+4	Drilling	2	
	Dockyard	G+4	Drilling	16	
	Augmentation of BVY	Industrial building	Drilling	9	
	BVY, BLOGO, Wed, Admin. Block, Augumentation of weapon equipment, Augmentation of MO	G+3	Drilling	8	
	Naval Met office, Jawans Accommodation, Juniors sailors Block	G+1/G+3	Drilling	7	
	CoY complex, CoY stores	G+1/G+3	Drilling	2	
	Fleet support unit, DSS-II, Ship store	G+1/G+3	Drilling	3	
	LS/Seaman/Jawan complex	G+1/G+3	Drilling	17	
	Single PO's Accommodation, Augumentation of sailors institute , JCO Club	G+3	Drilling	5	
Shore office, Training simulator complex, Ship store, Energy Block	G+1/G+3	Drilling	0		



	Married PO/NCO complex	G+10	Drilling	17	
	Tech/Admin Building	G+10	Drilling	3	
	Bridge	Bridge/(Culvert)	Drilling	17	
	Igloo, Torpedo storage, Armament Wharf	Industrial building	Drilling	5	
B1	Transmitting station, Waterman ship Training Centre, CDT complex, Environmental Park	G+1/G+2	Drilling	4	4
B2	Civilian housing Accommodation	G+10	Drilling	59	59
C1	Single sailors Accommodation/NAS/sailors mess	G+3	Drilling	4	31
	Admin Building, Logistic complex	G+3	Drilling	1	
	Domestic Fire Station, MT Section		Drilling	1	
	Power House & Substation	G+0	Drilling	1	
	Bulk Fuel Storage Complex	Industrial Building	Drilling	1	
	Sick Bay/Crash ward	Industrial Building	Drilling	1	
	Hanger	Industrial Building	Drilling	4	
	AED	Industrial Building	Drilling	1	
	Ordinance loading apron & facilities	Industrial Building	Drilling	1	
	Runway and Taxiway	Industrial Building	Drilling	16	
C2	Admin Office & senior sec. School	G+2	Drilling	1	53
	Officers Institute	G+1	Drilling	3	
	Capt./Commander, LT, Sub LT, RIS	G+5	Drilling	5	
	Single Officers Accommodation & Mess	G+3	Drilling	3	
	Married sailors Accommodation, PO Auditorium	G+5	Drilling	9	
	Stadium, LS/Seaman/Jawans	G+3	Drilling	9	
	Receiving Station	G+1	Drilling	5	
	DSC, Marshalling/camping area, MO store, Advance railway facility	G+3	Drilling	11	
	Flyover & ROB	Bridge	Drilling	7	
E	MTP Phase IIA development	Industrial Building	Drilling	6	22



	NAI	G+1/G+2	Drilling	1	
	Common Facilities Area	G+!	Drilling	4	
	Demolition Ground		Drilling	1	
	NAD Phase IIA Development	Industrial Building	Drilling	10	
Total number of Boreholes proposed					292

Table 3. Proposed Borehole Drawings.

S.No	Drawing Title	Drawing No.
1.	Borehole Location-Site A (Proposed and existing)	DELD14065-PSB-DWG-10-PMC01-CP-0007 DELD14065-PSB-DWG-10-PMC01-CP-0008 DELD14065-PSB-DWG-10-PMC01-CP-0009
2.	Borehole Location Phase IIA Site B – Civilian Colony	DELD14065-PSB-DWG-10-PMC01-CP-0010
3.	Borehole Location Phase IIA-SiteC	DELD14065-PSB-DWG-10-PMC01-CP-0011
4.	Borehole Location Phase IIA-SiteE	DELD14065-PSB-DWG-10-PMC01-CP-0012



SECTION V

PREAMBLE TO BILL OF QUANTITIES

CHAPTER I

1. General

1.1 The contractor's attention is drawn to the conditions of contract, the specifications and the drawings all of which are to be read in conjunction with the Bill of Quantities hereinafter. Directions and descriptions of work and material given in the other parts of the Contract Documents are not necessarily repeated in the Bill of Quantities. The total cost of complying with all the provisions, conditions, obligations and liabilities etc. described in the contract and of carrying out the works as specified including, but not by way of limitation, all charges and the rates and prices inserted in the Bill of Quantities hereinafter unless expressly otherwise provided for in the contract. Consequently, the contractor shall have no claim for further or extra payment in respect of any work or rates and prices set against each item are to be for full and / or described in the specification which can reasonably be inferred there from and are to cover the cost of provision of all labour, materials, tools, tackles, plants, equipment, fuel etc. all as per conditions stipulated elsewhere. The rates shall also include all contingent cost and charges whatsoever including all taxes such as sales tax and general tax and all the contractor's obligations under the contract and all matters and things necessary for the proper completion and maintenance of the works.

1.2 The quantities given in the Bill of Quantities are estimated and provisional with the exception of lump sum items, the basis of payment shall be the actual quantities of work ordered and carried out as measured by the contractor and verified by the Engineer or his representative and valued at the rates and prices specified in the Bill of Quantities, where acceptable and otherwise at such rates and prices as the Engineer may fix within the terms of the contract.

1.3 The quantities of work and materials stated in the Bill of Quantities shall not be considered as limiting of extending the amount of work to be done or material to be supplied by the contractor. The contractor is deemed to be familiar with all site conditions at the Port Site, weather all site investigation records, available means of access and the locality of any existing services and working restrictions due to testing site features or other contractor's works in order to execute the works. General directions and descriptions of work and materials are not necessarily repeated or summarized in the Bill of Quantities. The contractor is deemed to have referred to the relevant sections of the contract documentation and prices incorporated against each item in the Bill of Quantities. The method of measurement is described in the following preambles and / or is demonstrated in the measured items included in the Bill of Quantities Provisional Sums included and so designated in the Bill of Quantities shall be expanded in whole or in part at the direction and discretion of the Engineer. Unless separate items are measured, rates and prices must include for all testing in accordance with the specification.

1.4 The following abbreviations have been used:

LS	-	Lump Sum
M /m	-	metre



M2/ m2	-	square metre
M2	-	Square millimeters
M3/ m3	-	cubic metre
T/t /Te/ te/MT	-	tonne
wk	-	week
No./Nos	-	Number/ Numbers
Rs.	-	Indian Rupee
KG	-	Kilogram
RM/Rm	-	Running metre
mm	-	Millimeters
Km	-	Kilometre
M2/day	-	Square per day
sum	-	Sum
nr	-	Number
h	-	Hour
v.wk	-	Vehicle week
item	-	Item
day	-	Day
sp.day	-	Specimen day

2. MEASUREMENT

2.1 General

Unless stated or billed otherwise, quantities shall be measured in accordance with IS: 1200 and are net as they are finished and fixed in the works. The rates and prices shall include whatever allowance is considered by the contractor to be necessary for working area, construction slopes, batter etc. The method of measurement shall comply with the provision hereafter.

3. MODE OF MEASUREMENT AND PAYMENT

3.1 General

Payment shall be made on the recorded measurements and the contractor will have to prepare and submit by himself the bills in the prescribed form once in a month, Payment will be made ordinarily once in a month. The Project shall pay 75% of the net amount of the bill submitted within 10 days from the date of receipt of the bill and the balance within 30 days from the date of receipt of the bill. On completion of the work or on the prior termination of the contract final measurement will be taken and account adjusted accordingly. The net amount payable means gross amount less all statutory levies such as Income tax, Sales tax on works contract and any other amount due to the Project Seabird.



CHAPTER II

PRICE FORMAT/BILL OF QUANTITIES

Price schedule for LAND GEO TECH INVESTIGATIONS FOR PROJECT SEABIRD, AT KARWAR (rates inclusive of all taxes & duties)

Item No.	Description of Items	Unit	Qty.	Rate per Unit	Amount
1	Mobilisation of suitable land boring equipment's, personnel and all other necessary machinery, tools, plant and materials for carryout the Land Soil Investigation, including all accessories, transportation, fixing tying in position, temporary setting etc, complete all as specified and directed by the Engineer-in-charge.	LS	LS	Rs	Rs.
2	Demobilisation of Land boring equipment, personnel and all other machinery, tools, plant and materials including all accessories, from the site etc, complete all as directed by the Engineer-in-charge.	LS	LS	Rs	Rs.
3	Providing and erection of equipment and personnel for land boring at each bore hole including shifting to next location etc, complete all as specified and directed by the Engineer-in-charge.	EACH	312	Rs	Rs.
4	Material and labour for land boring 150 mm dia in all soils other than rock of varying depths from existing ground / bed levels complete all as directed by the Engineer-in-charge. (N value < 50)				
a).	Depth from existing ground level to 10 m.	Running Metre	2603	Rs	Rs.



Project Seabird Phase IIA
Land Geo Tech Investigation

Item No.	Description of Items	Unit	Qty.	Rate per Unit	Amount
b).	Depth exceeding 10 m but not exceeding 20 m.	Running Metre	293	Rs	Rs.
c).	Depth exceeding 20 m but not exceeding 30 m.	Running Metre	Rate only	Rs	
5	Material and labour for land boring with double tube core barrel (NX size bore) in weathered / hard rock including necessary equipment, tools and plants complete all as directed by the Engineer-in-charge. (N value > 50)				
a).	Depth from existing ground level to 10 m.	Running Metre	465	Rs	Rs.
b).	Depth exceeding 10 m but not exceeding 20 m.	Running Metre	1562	Rs	Rs.
c).	Depth exceeding 20 m but not exceeding 30 m.	Running Metre	465	Rs	Rs.
d).	Depth exceeding 30 m but not exceeding 40 m.	Running Metre	Rate only	Rs	Rs.
e).	Depth exceeding 40 m but not exceeding 50 m.	Running Metre	Rate only	Rs	Rs
6	Excavation, including dewatering, manually/mechanically and lateral supporting wherever required, for trial pits (plan size 1.5m x 1.5m) of depth varying from 2m to 3m, and also taking photographs using digital camera at the time of excavation for every 1m depth and keeping sign boards after refilling with proper compaction after inspection by the EIC. The item shall include, conducting in-situ density test as specified in section 3.2.2.	Each	180	Rs	Rs



Project Seabird Phase IIA
Land Geo Tech Investigation

Item No.	Description of Items	Unit	Qty.	Rate per Unit	Amount
7	Collecting disturbed soil samples from the boreholes at specified depths including packing, sealing & labelling complete all as specified and directed by the Engineer-in-charge	Each	483	Rs	
8	Collecting undisturbed soil samples from the boreholes at specified depths including packing, sealing & labelling complete all as specified and directed by the Engineer-in-charge.	Each	724	Rs	Rs.
9	Collecting piston samples from the boreholes at specified depths including packing, sealing & labelling complete all as specified and directed by the Engineer-in-charge	Each	241	Rs	Rs.
10	Collecting and Testing of ground water samples for chemical analysis(Sulphate, Chloride, pH value and Organic matter content) including packing, sealing & labelling complete all as specified and directed by the Engineer-in-charge	Each	94	Rs	Rs.
11	Collecting and Testing of soil samples for chemical analysis (Sulphate, Chloride and Organic matter content) including packing, sealing & labelling complete all as specified and directed by the Engineer-in-charge	Each	94	Rs	Rs.
12	Providing necessary equipment and conducting Standard Penetration Tests at every 1.50m depth or at every change of stratum whichever occurs earlier in disturbed samples in all types of soil complete all as specified and directed by the Engineer-in-charge	Each	966	Rs	Rs.



Item No.	Description of Items	Unit	Qty.	Rate per Unit	Amount
13	Conducting & carrying out Field Vane Shear tests in bore holes as per IS 4434 :1978 during boring in soil if hard soil strata is met or as directed including cleaning of bore holes before conducting the test.	Each	156	Rs	Rs.
14	Providing necessary equipment and Conducting Field CBR Tests in soil at specified locations complete all as specified and directed by the Engineer-in-charge.	Each	15	Rs	Rs.
15	Providing necessary equipment and Conducting Plate Load Tests in soil at specified locations complete all as specified and directed by the Engineer-in-charge	Each	4	Rs	Rs.
16	Providing necessary equipment and Conducting Field Falling Head Permeability Tests in soil at specified locations complete all as specified and directed by the Engineer-in-charge	Each	10	Rs	Rs.
17	Mobilization and demobilization of Pressure Meter Test equipment. Conducting pressure meter test in rock with equipment of minimum capacity of 80 Kg/m ² to ascertain the modulus of elasticity 'E' of the rock.	Each	30	Rs	Rs.
18	Electrical Resistivity Test on Soil Stratum	Each	12	Rs	Rs.
19	<u>LABORATORY TEST ON SOIL</u>				
a).	To determine Moisture content	Each	1207	Rs	Rs.



Item No.	Description of Items	Unit	Qty.	Rate per Unit	Amount
b).	To determine Specific gravity	Each	845	Rs	Rs.
c).	To determine Dry & Wet density	Each	845	Rs	Rs.
d).	To determine Liquid limit, Plastic limit and Plasticity index	Each	724	Rs	Rs.
e).	To carryout Particle size Analysis both by Sieve and Hydrometer	Each	435	Rs	Rs.
f).	To carryout Unconfined Compressive Strength of 38 m diameter specimen	Each	218	Rs	Rs.
g).	To carryout Un-drained shear strength (UU Test) of a set of three 38 mm diameter specimens in tri-axial compression without the measurement of pore pressure	Each	362	Rs	Rs.
h).	To carryout Direct Shear Test on cohesion less soil	Each	362	Rs	Rs.
i).	To carryout Consolidated un drained tri-axial compression test with measurement of pore pressure (set of three 38 mm specimens) , test duration not exceeding 4 days per specimen	Each	37	Rs	Rs.
j).	To carryout Consolidation test on cohesive soil.	Each	73	Rs	Rs.
k).	To carryout Free Swell Index and Swell Pressure Test on soft clayey soil.	Each	37	Rs	Rs.
l).	To carryout Lab Compaction & Relative density Test on sandy and gravelly strata.	Each	80	Rs	Rs.



Item No.	Description of Items	Unit	Qty.	Rate per Unit	Amount
m).	To carryout Lab California Bearing Ratio Test on soil as specified in IS 2720 (Part-16) 1987	Each	60	Rs	Rs.
20	<u>LABORATORY TEST ON ROCK</u>				
a).	To carryout Unit Weight , Specific gravity , Water absorption and Porosity test of Rock samples	Each	997	Rs	Rs.
b).	To carryout Tri-axial Compression Strength of rock core	Each	125	Rs	Rs.
c).	To carryout Uniaxial compressive strength test	Each	997	Rs	Rs.
d).	To determine Modulus of Elasticity & Poisons Ratio	Each	468	Rs	Rs.
e).	To carryout Brazilian Tensile Strength of rock (Saturated/Unsaturated) core	Each	499	Rs	Rs.
f).	To determine Point load strength of rock specimen	Each	997	Rs	Rs.
g).	To carryout Resonance column test as per ASTM	Each	50	Rs	Rs.
21	<u>FIELD TEST ON QUARRY SITE</u>				
a).	Seismic Refraction Test on quarry site	Running Metre	3600	Rs	Rs.
22	<u>LAB TEST ON QUARRY MATERIAL</u>				



Item No.	Description of Items	Unit	Qty.	Rate per Unit	Amount
a).	Determination of Aggregate Crushing Value, 10 percent Fines Value, Aggregate Impact Value, Aggregate Abrasion Value, Polished Stone Value, Crushing Strength.	Each	50	Rs	Rs.
b).	Determination of Particle size shape test, deleterious material and organic impurities, Density , Sp Gravity, Alkali Aggregate Reactivity	Each	50	Rs	Rs.
c).	Determination of Soundness & Petrographic Study	Each	50	Rs	Rs.
23	APPENDIX A – RATES FOR GEOTECHNICAL AND OTHER PERSONNEL				
a).	Technician	h		Rs	Rs.
b).	Graduate Client Geotechnical Engineer/Geologist/Environmental scientist with at least 3 years of relevant experience since graduation	h		Rs	Rs.
c).	Principal Chartered Client/Geologist/Environmental scientist with at least 10 years of relevant experience	h		Rs	Rs.
d).	Expenses incurred by staff on site visits or who are resident by agreement with the client	Visit		Rs	Rs.
e).	Travel costs from Contractor's premises and return for items 1 and 2	Visit		Rs	Rs.
f).	As above but for item 3	Visit		Rs	Rs.
g).	All other expenses incurred in conjunction with a site visit where a return journey is made on the same day for items 1 and 2	Visit		Rs	Rs.



Project Seabird Phase IIA
Land Geo Tech Investigation

Item No.	Description of Items	Unit	Qty.	Rate per Unit	Amount
h).	As above but for item 3	Visit		Rs	Rs.
i).	All other expenses incurred in connection with a site visit where an overnight stay is necessary for items 1 and 2	Night		Rs	Rs.
j).	As above but for item 3	Night		Rs	Rs.
k).	Preparation and submission of four sets of hard copies and two sets of soft copies of factual report of Land Geotechnical Investigation	LS	LS	Rs	Rs.
l).	Preparation and submission of four sets of hard copies and two sets of soft copies of interpretative report of Land Geotechnical Investigation	LS	LS	Rs	Rs.
m).	Preparation and submission of Digital data and photographs in electronic format	LS	LS	Rs	Rs.
Total				Rs	Rs.

(Rupees _____
only)

Signature of contractor