

ISLAMIC REPUBLIC OF IRAN
THE MINISTRY OF AGRICULTURE

THE HARAZ RIVER BASIN
AGRICULTURAL DEVELOPMENT PROJECT

**TENDER DOCUMENTS
FOR
CAPIC'S FACILITIES**

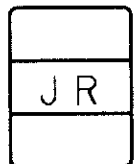
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FEBRUARY, 1991.

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PART 1 INVITATION TO TENDER

TO : Messrs.

Re : Erection Work for Facilities of CAPIC in the Haraz River Basin Agricultural Development Project

With reference to technical cooperation for implementation of the Haraz River Basin Agricultural Development Project in Mazandaran Province, based on the Record of Discussion (R/D) made between Japan International Cooperation Agency (hereinafter referred to as JICA) and the Ministry of Agriculture in Islamic Republic of Iran, JICA would like to select a capable Iranian construction company for executing the erection work of CAPIC's facilities (hereinafter referred to as the Project) located at Kolodeh-Tashbandan Lands (after 10 kms from Amol to Mahmudabad) in the captioned project area.

If you are interested in the execution of the Project, please submit your price quotation and other documents mentioned in the Instruction to Tenderer in PART 2.

PART 2 INSTRUCTION TO TENDER

PART 2 INSTRUCTION TO TENDERER

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PART 2 INSTRUCTION TO TENDERER

2.1 General Description

- (1) Subject of Tender : Erection Works for CAPIC's Facilities
- (2) Location : Mazandaran Province
- (3) Employer : Japan International Cooperation Agency(JICA) in cooperation with the Ministry of Agriculture
- (4) Supervision Authority : JICA's experts and engineers of the Ministry of Agriculture

JICA awards the Contract for erection of the above works through tendering and under the following conditions:

(5) Type of works:

-Main works:

Including preparation of shop drawings, contractor's temporary work, mobilization of staff and construction equipment to the job sites, erection works of three buildings (Houses: Farming, Hanger, Post harvest) and two Glass houses as well as including the plumbing work (fresh water supply and sewerage systems) and electrical lighting and telephone systems.

And demobilization of staff and equipment.

-Other works:

Including repair work for guarantee period of twelve (12) months after Provisional take-over by JICA in case of the contractor's failure work and/or supply materials.

2.2 Method of the Proposal

(1) Preparation

The Proposal of the contractor shall be placed in Envelopes 'A' and 'B' and delivered after sealing them. All papers and documents related to Envelopes 'A' and 'B' shall be signed individually by the participant who is authorized to sign them and shall bear the seal of the Company. The tender documents comprise the details mentioned in below:

a) Envelope 'A'

The Envelope 'A' shall be enclosed with:

- Company Qualification ----- (T) Appendix-3
- Qualification of Staff Organization ----- (T) Appendix-4
- Mobilization Schedule for Construction Equipment
----- (T) Appendix-5
- Work Schedule for the Project execution----- (T) Appendix-6
- Form of Contract in PART 3
- Form of Guarantee Letter for Good Performance
----- (C) Appendix-1
- Conditions of Contract in PART 4
- Technical Specifications in PART 5
- Tender Drawings in PART 6
- Addendum

b) Envelope 'B'

The Envelope 'B' shall be enclosed with:

- Cost quotation for the Project execution--- (T) Appendix-7
- Form of guarantee Letter for Tender----- (T) Appendix-2
- Bill of Quantities ----- (T) Appendix-8

Note: The amount of the Guarantee in (T) Appendix-2 shall be

Rials equivalent to five (5) percent of proposed price in US dollars calculated on the basis of the current exchange rate in the Central Bank of Iran.

(2) Date of submission

The above documents including one original and two copies shall be submitted by hand delivery on _____, 1991 (at 10:00 am.) to the following address:

to : Mr. Norio CHIDA

Representative of JICA

C/O Project office of the Haraz River Basin

Agricultural Development Project, Amol

Tel 02421-3005

2.3 Definition of Tender Documents

(1) Site Condition and Environment

The tenderer shall, before submitting their proposals inspect the site carefully and fully acquaint themselves with all local conditions and characteristics. The tenderer shall also study the Form of Contract Documents with care. It is obvious that any probable losses due to negligence of the above shall be borne by the tenderer.

(2) Clarification

The tenderer shall acknowledge a favor of the Employer within five (5) days after delivery of the tender documents and should any tenderer determine that there existing ambiguities in any part of the tender documents, he must notify the matter in

writing to the Representative of JICA within five (5) days after delivery of the tender documents and request written clarification.

The Employer reserves the right to amend, modify or revise the specifications or drawings before expiration of the designated period for submission of the Proposal, if necessary. In such an event the Employer shall deliver to the tenderer all revisions made through an enclosure.

(3) Price Quotation

The price quotation for the project execution and its breakdown with the Bill of Quantities shall be estimated by the tenderer's responsibility themselves for any materials, transportation and erection work.

The Contractor undertakes to execute all latest approvals in respect to labor, insurance, tax and social insurance laws for his workers, and no claims for lack of knowledge of such laws shall be acceptable.

2.4 Opening of proposals

(1) Opening of Proposal

The Proposal shall be opened at 10.00 a.m. on _____, 1991 by the authorized members of the Employer and the Ministry of Agriculture.

Presence of the tenderer or their representatives at the time of opening of Envelope 'B' shall be free. In case of discrepancy between amounts in figures and words, the words shall be governed and accepted by the authorized members of appointed by the Employer.

The total price quotation proposed by the tenderer shall be arranged on a paper and signed by the representatives of tenderer and authorized members of the Employer.

(2) Evaluation of Proposal

After opening of envelopes, no verbal or written comment submitted by the tenderer in connection with their proposals shall be accepted and no extension shall be granted to them. The authorized members shall evaluate their all proposed documents based on the following conditions:

a) No any alternative dimensions against the tender drawings shall be accepted in relation to the price reduction for their quotation. Any suggestion for amendment of proposal shall also be rejected by the authorized members.

b) The authorized members shall not only assess their lowest price quotation but also evaluate excellence on staff organization, mobilization of construction equipment and work schedule for this project.

c) After evaluation of their tender documents, the first and second winners are declared, the bank guarantees of other participants shall be released and for the two participants, the bank guarantees shall be retained on the date of contract conclusion by the first winner or the second winner.

2.5 Conclusion of Contract

(1) Negotiation

After being declared two negotiable tenderer, the authorized members shall enter into negotiations with the first winner for the final conclusion to prepare the performance bond of five (5)

percent for his contracting price and, legal documents connected to signing of the Contract, drawings and all papers related to the Contract. In case of failure of the negotiation, the second winner shall be given a right of the negotiation.

(2) Conclusion

The Employer shall, one week from the date of opening their tender quotation, declare its views on conclusion of the contract.

Other information relating to execution of the Contractor's obligations is defined in documents attached to the Contract and relevant enclosures. The Contractor confirms that he has studied all the documents and shall have no right to claim or protest with respect to their proper execution.

(T) Appendix-1

Tender Conditions

Other documents that should be delivered in Envelope 'A'.

1. A statement of the tenderer's name and address and, in case the tenderer have no domicile in Iran, an address in Iran to which all communications relative to his tender may be forwarded with the same effect as if they were delivered directly to the tenderer.

2. Catalogs or references, providing that the tenderer has previously carried out works of the same nature as and comparable with the works comprised of the tender.

3. The Tender shall be valid for at least 30 days reckoned from the opening date of Tender.

4. The tender documents shall be prepared only in English and the paper has to be stamped and signed by the tenderer. As regards other documents, no Farsi text is valid.

(T) Appendix-2

FORM OF GUARANTEE LETTER FOR TENDER

Whereas _____ Name of Tenderer _____ Co. is willing to participate in tender covering the tender documents which comprises the tender price quotation for the erection work of the CAPIC's facilities and its supporting documents, this Bank guarantees that, if _____ Name of Tenderer _____ Co. notifies that the proposal of the above participant has been accepted but he has failed to sign the relevant Contract or to submit his Good Performance bond during the designated period, it will pay the amount of Rials upon receipt of the first written request with no requirement to prove the matter or verify or state any reason or resort to legal or administrative procedure, to the Employer.

This guarantee is valid until the last hour of working day of _____ and shall be extendible at the request of the Employer for the Period requested. Should the Bank be unwilling or fail to extend this Guarantee or _____ Name of Tenderer _____ Co. fail to prolong this guarantee, in such a case the Bank shall be obliged to pay the above amount to JICA.

Bank

(T) Appendix-3

COMPANY QUALIFICATION

(1) Name of Company

(2) Year and No. of Company Registration

(3) Registered Capital

(4) Name of Board of Directors and/or Partners

(5) Address of Company

(6) Telephone No.:

Telefax No:

(7) Work Experiences in Mazandaran Province

| <u>Name of Project</u> | <u>Location</u> | <u>Name of Client</u> | <u>Executed Year</u> |
|------------------------|-----------------|-----------------------|----------------------|
|------------------------|-----------------|-----------------------|----------------------|

Note: Contracted Works in recent five(5) years are to be marked by '*' .

Sign of Authorized Person

(T) Appendix-4

QUALIFICATION OF STAFF ORGANIZATION

(1) Organization

Site Manager: _____
Civil and Erection Works: _____
Mechanical Work: _____
Electrical Work: _____
Administration: _____
Accountant: _____

(2) Name

(3) Date and Place of Birth

(4) No. and Place of Issuance ID Card

(5) Last Education

(6) Major Works Engaged

| <u>Name of Project</u> | <u>Location</u> | <u>Name of Client</u> | <u>Engaged years</u> |
|------------------------|-----------------|-----------------------|----------------------|
|------------------------|-----------------|-----------------------|----------------------|

Sign of Authorized Person

(T) Appendix-5

MOBILIZATION SCHEDULE FOR CONSTRUCTION EQUIPMENT

- (1) Name of Construction Equipment
- (2) Type and made in country/year
- (3) Working History of Equipment

Sign of Authorized Person

(T) Appendix-6

WORK SCHEDULE FOR PROJECT EXECUTION

Tentative Work Schedule

| Works \ Months | May | June | July | August | Septem. |
|-------------------------------------|-----|------|------|--------|---------|
| (1) Temporary Work and Mobilization | | | | | |
| (2) Foundation Work | | | | | |
| a- Farming Lot | | | | | |
| b- Hangar Lot | | | | | |
| c- Post Harvest Lot | | | | | |
| d- Glass Houses Lot | | | | | |
| (3) Building Works | | | | | |
| a- Farming House | | | | | |
| b- Hangar House | | | | | |
| c- Post Harvest House | | | | | |
| d- Glass Houses | | | | | |
| (4) Plumbing and Electrical Works | | | | | |
| a- Plumbing Work | | | | | |
| b- Electrical Work | | | | | |
| (5) Demobilization Work | | | | | |

sign of Authorized Person

(T) Appendix-7

COST QUOTATION FOR PROJECT EXECUTION

To : Mr.Norio CHIDA
Representative of JICA

Re : Erection work for CAPIC's Facilities in the Haraz River
Basin Agricultural Development Project

We, (name of Company) ,herewith submit our quotation for the
Erection Work for Facilities of CAPIC after we read the Tender
Documents attached to your invitation Letter and prepared our
selves understanding the Works, as below:

- (1) Cost of Temporary Work and Mobilization : _____
- (2) Cost of Foundation Work : _____
- (3) Cost of Three Buildings and : _____
two glass houses
- (4) Plumbing and Electrical Works : _____
- (5) Demobilization : _____
- total : _____

The Cost quotation is sum of (words) US dollars only (figures).
The breakdown for above costs is referred to the Bill of Quanti-
ties attached hereto.

Note: This Form shall be typed on your company's letter head
paper in English and to be signed by your authorized person.

(T) Appendix-8

BILL OF QUANTITIES

| | | | | Unit:US\$ |
|-------------|---|-------------|-----------------|---------------|
| <u>Item</u> | <u>Descriptions</u> | <u>unit</u> | <u>Quantity</u> | <u>Amount</u> |
| 1. | Temporary Work for Contractor's Facilities and Mobilization in accordance with section 1 in the Technical Specifications | | L.S | _____ |
| 2. | Foundation Work in accordance with drawings and section 2 and 3 in the Technical Specifications | sq.m | 1600 | _____ |
| 3. | Three Buildings and two Glass Houses Work in accordance with drawings and section 4,5,8 and 9 in the Technical Specifications | sq.m | 1120 | _____ |
| 4. | Plumbing and Electrical Works in accordance with drawings and section 6 and 7 in the Technical Specifications | | L.S | _____ |
| 5. | Demobilization Work in accordance with the Technical Specifications | | L.S | _____ |
| | <u>TOTAL</u> | | | ===== |

Note: The three buildings above are a Farm building, a Hanger and a Post-Harvest building.

PART 3 FORM OF CONTRACT

PART 3 FORM OF CONTRACT

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Appendix:

(C) Appendix-1 Form of Guarantee Letter for Good Performance

PART 3 FORM OF CONTRACT

This contract is made between Japan International Cooperation Agency who will be known as Employer, represented by Mr. Norio CHIDA ,c/o the Haraz River Basin Agricultural Development Project in Mazandaran Province, the Ministry of Agriculture on the one hand and _____ Company that has been registered under No. _____ dated _____ in the Registration Department of the Ministry of Interior ,hereinafter called the Contractor ,and whose legal place is represented by _____ on the other hand.

Article 1 Purpose of the Contract

The purpose of this Contract comprises the execution of the following operations.

Main Works:

- a) Preparation of shop drawings, construction of temporary work and mobilization of staffs and construction equipment.
- b) Construction of foundation work and three buildings (Farming, Hangar and Post harvest) and two Glass houses erection works.
- c) Preparation and installation of plumbing and electrical works.

Other Works:

- a) Repair work for guarantee period of twelve months(12) after Provisional take-over by the Employer.

Article 2 Documents of the Contract

This Contract includes the following documents:

- a) The Present Contract
- b) Conditions of Contract
- c) Technical Specifications
- d) Bill of Quantities
- e) Contract Drawings
- f) Work Schedule
- g) Mobilization Schedule for Construction Equipment
- h) Addendum including process-verbals and any kind of other documents that will be prepared during the negotiation period under the signs by both representatives.

Note 1: The detailed shop drawings for execution work shall be prepared by the Contractor and submitted to the Supervisor's approval.

Note 2: In case of discrepancies between Articles and chapters of some of the documents above, in the first place the Present Contract and in the second place the Conditions of contract and in the third place the Technical specifications and Bill of Quantities and in the fourth place the drawings will be taken as basis for action.

Article 3 Contract Amount

The amount of the Contract is _____ (in words) _____
_____ (in figures) _____ that is computed on the basis
of unit price proposed by the Contractor and the quantities in

the Bill of Quantities under the Contract.

Article 4 Payment

On the basis of the Bill of Quantities in the Contract Documents, the Payment Schedule shall be established in three stages such as first, interim and final payment respectively.

The retention money of ten(10) percent shall be deducted from the first and interim payments.

4.1 First Payment

The first payment amounts _____ (in words) _____
_____ (in figures) _____ of forty (40) percent of the Contract Amount in Article 3 of this Contract, shall be paid to the Contractor within three(3) weeks after the date of the first Process-Verbal made on the Site hand over to the Contractor, based on the first statement which the amount shall be calculated by the equipment and materials brought into the job site and written order to obtain the materials and equipment and its certificates approved by the Supervisor according to Article 25 of the Conditions of Contract.

4.2 Interim Payment

The interim payment amounts _____ (in words) _____ (in figures) _____ of fifty five(55) percent of the Contract Amount in Article 3 of this Contract, shall be paid to the Contractor based on the Statement which the contracted work of 97 percent completed and Process-Verbal made on Provisional take over by the Employer according to Article 26 of the Conditions of Contract.

4.3 Final Payment

The final payment amounts _____ (in words) _____ (in figures) shall be paid to the Contractor, including the remaining amounts _____ (in words) _____ (in figures) of the Contract Amount in Article 3 of this Contract.

Article 5 Period of the Contract

The Contract Period is one hundred thirty(130) days counted from the date of the first process-verbal delivery which states hand-over of the Site to the Contractor made after the signing of the Contract according to Article 20 in the Conditions of Contract.

Article 6 Guarantee Period of the Works

For twelve months from the date of Provisional take over this period shall be called the period of guarantee. During this period, in case of defects or deficiencies are noticed from the result of not following the specifications or using inferior materials, the Contractor undertakes to eliminate these defects and deficiencies at his own cost, according to Article 32 in the Conditions of Contract.

Article 7 Supervisor

The supervisor, authorized to act on behalf of the Employer will be appointed by the Employer, in writing from time to time during the period of superintendence.

The supervisor shall advice and guide to the Contractor's execu-

tion of the works, delivery of instruction letter and/or drawings and approval of shop drawings prepared by the Contractor and any submitting erection plan, documents, samples and its specifications as well as site superintendence for proper execution of the Work, checking, comments and approval of their progress work on weekly and/or monthly intervals.

Article 8 Settlement of Dispute

In the event of any dispute arising from the interpretation and the performance of the terms of this Contract, both parties agree to make the best attempt with sincerity and in good faith to negotiate and amicably settle the dispute.

Should the parties fail to end the dispute by mutual agreement, then such dispute shall be settled by appealing to the competent courts of justice.

Article 9 Notice

All notices required by the terms of this Contract shall be made in writing, and delivered by hand and registered in their own note-book. In case of notice in Farsi, the English translation shall be attached to the notice.

The Employer : Mr.Norio CHIDA
Representative of Japan International
Cooperation Agency

c/o The Haraz River Basin Agricultural
Development Project

P.O.Box 413,Amol

Tel : 02421-3005
Fax : 02421-5555

The Contractor : Mr.

Title :

Address:

Tel :

Fax :

This Contract is signed by the following representatives of the
Employer and the Contractor on duplicate, one of original in the
Employer and the other in the contractor.

The Employer

The Contractor

Mr.Norio CHIDA

Mr.

Representative of JICA

Witness

Mr.Jamil Alizadeh Shayegh

Project Manager
The Haraz River Basin Agricultural
Development Project
The Ministry of Agriculture

(C) Appendix-1

Form of Guarantee Letter for Good Performance

Bank Guarantee No. _____ related to Contract
No. _____ dated _____ concluded between Name of Contractor and Name of the Employer for good performance of the obligations of the above Contract undertaken by Name of Contractor this Bank agrees that, should Name of Contractor as determined by the Employer, has failed to fulfill any one of its commitments under the Contract pay up to an amount of _____
_____ Rials as requested by the Employer under any condition or for any reason and upon the first written request, without resorting to legal or administrative procedures or without need to prove or verify the offense or violation of Name of Contractor to Name of the Employer.

The period of this guarantee is up to the last working day of the Contract period and shall be extendible by request of the Employer for any period desired. Should the Bank fail or be unwilling to extend the Guarantee or Name of Contractor fail to arrange an extension of the Guarantee before the date of expire, in such an event the Bank shall be obliged to pay the above amount to the Employer.

Bank

PART 4 CONDITIONS OF CONTRACT

PART 4 CONDITIONS OF CONTRACT

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PART 4 CONDITIONS OF CONTRACT

CHAPTER 1 DEFINITIONS

The works and expressions used in the documents listed under Article 2 of the Form of Contract are defined as follows:

Article 1: Contract

The Contract means the entire documents listed in Article 2 of the Form of Contract under 'Contract Documents' including Notes hereto.

Article 2: Employer

The Employer means the legal person who is a signatory to the Contract, having Power Attorney as representative of Japan International Cooperation Agency with the execution of the Works subject to the Contract.

Article 3 Contractor

The Contractor means the legal person who is the other signatory to the Contract, having undertake to carry out the Works forming the subject matter of the Contract.

Article 4 Supervisor

The Supervisor means the person, the Japanese expert and/or Iranian engineer, appointed by the Employer and introduced to the Contractor in writing for execution of the Article 7 of the Form of Contract.

Article 5 Site Manager

The Site Manager means the person, introduced by the Contractor to the Employer and/or Supervisor in writing for execution of the works subject to the Contract at the site.

Article 6 Drawings and Documents in the Contract

Drawings mean all drawings which consist of contract drawings, instruction drawings, shop drawings and as built drawings.

Documents in the Contract other than referred to in Article 2 of the Form of Contract include process-verbals and written instructions issued from the supervisor.

Article 7 Approvals

Approvals mean letter of agreement and/or instructions to the Contractor in writing by the supervisor. The verbal agreements and instructions shall at no time be considered as valid.

Article 8 Months, Years and Dates

Months, Year and Date mean Gregorian Calender according to the calender issued by the Government of Japan.

Article 9 Weight and Measures

All weights and measures shall be based on Metric and Gram systems.

CHAPTER 2 COMMITMENT AND OBLIGATIONS OF CONTRACTORS

Article 10 Commitments of Contractor

The Contractor declares the followings:

10.1 He has fully considered the document and drawings listed under article 2 of the Form of Contract and is fully aware of the contents thereof both partly and totally.

10.2 He has examined and ascertained the possibilities of employing an adequate number of ordinary and skilled workers, and provision of materials, on the place of works or from other centers, all in accordance with the requirements of the specifications. He has also considered in the calculations the rate of wages and cost of transportation to the site.

10.3 He has foreseen the climate, the precipitations and the geographical situation of the site. In his calculation, he has taken into consideration the expenses incurred in connection with observance of the labor and the social insurance laws as well as the regulation governing payment of taxes and other Government charges.

Article 11 Capability of Employees

11.1 The Contractor undertakes to perform at his own cost the whole works under the Contract according to the specifications and drawing, employing the best technical methods and using materials as defined in the specifications and the Bill of Quantities, through sufficiently trained and experienced labors.

11.2 Iranian staff and labor employed at the site should be in possession of identity cards and expatriate staff and workers

should be in possession of their residence permits and work permits.

11.3 The Contractor shall undertake regular payment of labor wages according to the requirements of the labor law. The Contractor shall try to employ as far as possible the number of workers he requires from the inhabitants of the areas around the Project site, should such individuals be found capable of executing the works subject to the Contract.

Article 12 Proper Execution of Works

12.1 The Contractor shall have full responsibility for good performance of the whole works under the Contract on the basis of the specifications, the drawings and the written instructions of the Employer and/or the supervisor.

12.2 The Contractor shall undertake to submit to the supervisor at 10th of each month a report of his progress work for previous month, giving the number of the various classes of workers, the list of labor, operating equipment and machinery available at the site as well as particular events and/or activities.

The said report should be attached to three copies of photographs and diagrams showing the progress achieved in the three building works and two glass houses works.

12.3 To supervise the execution of the works, the supervisor shall take measures for the testing of the materials or of the completed works. In case where the results of the tests do not correspond with the standards stipulated in the specifications, the Contractor shall undertake to change at his

own cost such materials or works according to the instructions of the supervisor. The cost of the above tests shall be borne by the Contractor.

12.4 If during execution of the works any defects or imperfections are noticed resulting from any inaccuracies in the drawings and technical calculations. The cost of removal of the defects and imperfection shall be entirely borne by the Contractor.

Article 13 Setting out and Temporary Work

13.1 The Contractor undertakes to set out all plans, alignments and axes under the direction and guidance of the supervisor. All the relevant process-verbals shall be signed by the Contractor and the Supervisor.

13.2 The Contractor undertakes to preserve bench marks, starting points and relevant signs in a proper manner at his own expense. The levels of building foundations and substructures which are to be covered up and remain unexposed shall be recorded according to the shop drawings.

These records shall form the basis of the measurements requires in the preparation of the statement of works.

13.3 For the erection of temporary installations required for the execution of the Contracted Works, the Contractor shall obtain prior authorization from the supervisor.

Article 14 Provision of Equipment and Materials

14.1 The Procurement of materials, equipment, machinery, means of transportation, water supply, fuel, and in general all the necessities required for the execution of the contracted work shall be

the responsibility of the Contractor.

14.2 The Contractor undertakes to provide the materials, according to the specifications, from the sources available at the site and/or local markets to the job site which shall be taken care of the Contractor's responsibility and his own expenditure for all requirement to providing materials.

14.3 The Contractor is not authorized to remove the machinery and equipment from the site unless otherwise approved by the supervisor. As for the machinery and equipment required at the site, the Contractor shall submit his proposal which a plan of mobilization and /or demobilization in relation with the progress of the execution works.

Article 15 : Upkeep of Site

15.1 From the date of hand-over of the lands and establishment of the site up to the date of provisional take-over of contracted works, the Contractor shall be responsible for the upkeep and maintenance of the machinery, the installations, the materials, the buildings under his supervision and care, according to the requirement of the Contract and he shall take the necessary measures for the protection and safe keeping of all materials and installations.

15.2 The Contractor shall arrange for the installation of the safety fences and shall appoint sufficient number of guard-men where required. The cost of such works shall be borne by the Contractor.

Article 16 : Labor Laws, Social Insurances

The Contractor affirms that he is fully aware of all the rules and regulations pertaining to the labor laws, social insurances, technical safety as well as the rules and regulations governing taxes and other Government charges, and he shall undertake to observe the said rules and regulations. In any case the Employer shall have no responsibility for the non-observance of such rules and regulations.

Article 17 : Transfer to Third Party and Payment of Subcontractor

17.1 The Contractor shall not transfer the Contract to another party with the exception of particular work with written consent of the supervisor.

17.2 To expedite and facilitate the execution of part in the contracted works, the Contractor may conclude letter of approval with a sub-contractor, provided that he prevents such individuals from further subletting works.

17.3 If any delays occur in the payment of subcontractor's dues, with regard to the terms of their individual contracts, the Employer may, at the request of the sub-contractor, investigate the case in the presence of the site Manager. As a result of the above investigation, if it is found that the sub-contractor has fulfilled his obligations in accordance with the terms of his contract and the supervisor has approved their completed works, the Employer shall accept their work. Consequently, the Employer shall have the right to make payment to the sub-contractor out of the Contractor's claims or guarantees.

Article 18 : Execution of Contract Works at Night

In general, it is prohibited to carry out the contracted works at night, except in cases envisaged in the detail work schedule. If due to the occurrence of delays the execution of the works is found to be impossible during the Contract period, as determined by the Contractor, he may carry out part of the works at night with the prior approval by the supervisor without any additional cost to the Employer.

Article-19 : Legal Domicile of Contractor

The Contractor's official address is that stipulated in the preamble to this Contract. If any changes are made in the above address, the Contractor shall immediately notify the Employer of his new address in writing.

CHAPTER 3 THE RIGHTS & OBLIGATIONS OF THE EMPLOYER

Article 20 : Hand-over of Site

20.1 The Employer undertakes hand-over to the Contractor, according to the process-verbals to be drawn up for the purpose, all the land required for the establishment of the Site and the execution of the contracted works, free of charge and at the date envisaged in the Work schedule attached to the Contract Documents.

20.2 The extent and location of the lands in which the facilities are to be constructed as well as bench-marks with their relevant particulars, axes of the operations and sources of materials shall be defined in the said process-Verbals.

20.3 The delivered lands shall be limited to boundaries indicated in the drawing and schedule and shall be to the extent and with the particularity that may enable the Contractor to carry out the contracted works in practice and without cease, according to the work schedule. The hand-over of the site in this first process-Verbal shall be made within one(1) week after the signing the Contract and signatures by the supervisor of Employer and Site Manager of Contractor.

Article 21 : Variation in Volume of Works

The volume of the work is subject to no variation under the following conditions.

If modification of the construction work or other works is directed by the supervisor, the Contractor shall perform the work

on the basis of the specifications and Contract Drawings.
Any increase or decrease in the price of any items of the works is not allowed. Additional works in excess of the Contract Drawings only be executed with the authorization of the Employer.

Article 22 : Variation in Contract period

No variation in the Contract period shall be taken unless otherwise directed by the Employer on the condition that should the volume of increasing work be entrusted to the Contractor and of force-majeure events.

Article 23 : Inspection of Contractor's Operations

The Employer shall have the right to inspect during the execution of the Contractor's operations through the supervisor.

The Contractor shall undertake to put at the disposal of the supervisor all the necessary data and documents and provide the required facilities for the performance of such inspections. The Contractor shall also provide the necessary facilities for take-over work at the time of provisional and final take-over of the works.

Article 24 : Limits of supervisor's Authority

24.1 The supervisor shall have the right, as the representative of the Employer, to supervise closely the Contractor's operations, with regard to the purpose of the Contract and to examine the materials employed and the works carried out according to the specifications and drawings. He also instruct the Contractor to remove any defects or imperfection that he may find in the works.

24.2 The Contractor shall undertake to replace the defective materials and works at his own expense. In any case, the direct supervision of the supervisor shall neither diminish the Contractor's responsibility nor divert the Employer of his rights in this respect.

CHAPTER 4 PAYMENT SCHEDULE AND TAKE-OVER

Article 25 : First Payment

To give financial strength and to help the replenishment of equipment and materials, the Employer agrees to pay the Contractor forty (40) percent of the Contract Amount, on the basis of the statement which proves the preparation and/or the mobilization of the equipment to the site and any materials brought into the site as well as the written orders for them to the local markets and/or manufacturers and their copies shall be submitted to the Supervisor's approval. The retention money of ten(10) percent shall be deducted from the first payable amount.

The statement shall be prepared by the Contractor within three (3) weeks after the date of site hand-over to the Contractor.

Article 26 : Interim Payment

The Employer agrees to pay the Contractor fifty five(55) percent of the Contract Amount on the basis of the statement when the Contractor has completed the work minimum ninety seven(97) percent of the Contract Amount and attached the Process-Verbal of the Provisional take-over. The retention money of ten(10) percent shall be deducted from the interim payable amount.

Article 27 : Final Payment

The Employer agrees to pay the Contractor remaining Contract Amount on the basis of the statement which the Contractor has executed the entire work according to the specifications and drawings as well as the completion of repair work and/or recon-

struction works noticed by the Process-Verbal at the provisional take-over. All retention money deducted ten(10) percent from the payable amounts of first and interim payments shall be released. The preparation of final statement and Process-Verbal for the final take-over shall be completed within two(2) weeks after the date of the provisional take-over.

Article 28 : Letter of Guarantee for Good Performance

28.1 At the time of signing the Contract, the Contractor shall submit to the Employer a letter of guarantee issued by a bank acceptable to the Employer, according to the form ,attached thereafter amounting to five(5)percent of the Contract Amount as a guarantee for the good performance of the undertakings arising therefrom. The said guarantee shall remain valid up to the date of approval of the process-verbal for provisional take-over.

28.2 Until the provisional take-over takes place, the Contractor is bound to extend the above guarantee according to the instruction of the Employer. Should the Contractor fail to take action for the extension of the letter of guarantee at the latest 15 days before expiration date, according to the instructions, the Employer shall have the right to receive from the sponsoring bank and retain as security the founds involved, until such time as the process-verbal for provisional take-over is approved.

Article 29 : Guarantee Retention and their Reimbursement

Ten(10)percent of the gross sum of the Contractor's statements of works shall be deducted as a guarantee for the good performance

of the works and retained by the Employer in a separate account. The above sum shall be released to the Contractor by the Employer immediately after approval of the final statement and the final take-over of the entire work.

Article 30 : Provisional Take-over

30.1 After the Contractor has carried out a minimum of 97 percent of the contracted works in accordance with the specifications, drawings and other documents forming part of the Contract, he may request provisional take-over through the provisional take-over committee comprised of members appointed by the Employer. The committee shall investigate and confirm the completed work proposed by the Contractor's statement according to the specifications and drawings as well as other relative contract documents. The above committee shall consist of the following members:

- Representing the Employer : One Member
- Representing the Haraz River Basin Agricultural Development Project : One Member
- Representing the supervisor:One Member
- Representing the Contractor :One Member

30.2 After inspection on the completed works, the committee shall submit to the Employer a report written about the checking and confirmation for their executed works according to the specifications, drawings and the results of the test records. If the committee find any defects and imperfections of the works, the committee shall indicate a time-limit to the Contractor to remove

the defects and imperfections and to complete works in the process-verbal.

30.3 After the final take-over, the Contractor shall remove from the site all equipment and materials that belong to him within a reasonable period as acceptable to the supervisor. In addition, the Contractor shall, according to the approval of the supervisor, pull down the temporary works which he has erected in the site, remove any surplus materials at his own expenses.

Article 31 Final Take-Over

At the end of the works of the Contract the Employer shall appoint the members of the final take-over committee and indicate the date of the committee formed and notify, to the Contractor, all in same manner as is provided the provisional take-over in Article 30. If no defects and imperfections is found in the inspection of the works, the committee shall prepare the relevant process-verbal and submit it to the Employer. The approval of the work shall then be notified to the Contractor by the Employer.

Article 32 Cost of Maintenance Period

The operating and maintaining cost of the contracted works is the responsibility of the Ministry of Agriculture, but expenses arising from the defects in the Contractor's operations shall be responsibility of the Contractor and subject to the requirements of Article 6 of the Form of Contract. The Contractor shall submit to the Ministry of Agriculture a letter of guarantee issued by a bank acceptable to the Ministry of Agriculture, amounting to

five(5) percent of the Contract Amount as a guarantee for the maintenance work. The guarantee shall remain until the end of maintenance period in the Article 6 of the Form of Contract.

Article 33 Force Majeure and Unforeseen Events

War, whether declared or undeclared, civil commotions and general strikes, the prevalence of contagious diseases, earth quakes, floods and fire not caused by the negligence of the Contractor shall be counted as force majeure.

Should the damage caused of force majeure mentioned above arise and fall under the insurance mentioned in Article 10 and 16, the requirements of the said Article shall be followed for indemnification of the losses.

Article 34 Penalties for Delay

Should the Contract with due observance of Article 22 and 31 be delayed at the time of the termination of the Contract Period, the Contractor shall be liable to payment of certain forfeitures as specified below:

34.1 If the total delays do not exceed one tenth of the Contract period, for every day of delay one percent of the remaining part of the works.

34.2 If the total delays exceed one tenth of the Contract period, for every day twice as much indicated in paragraph 34.1 above.

34.3 If the total delays exceed one fourth of the Contract period, the Employer may, with calculation of the forfeitures stipulated on paragraph 34.2 above, rescind the Contract and act according to Article 35.

Article 35 Cases for Rescission of the Contract

In the following cases, the Contract may be rescinded by the Employer.

35.1 If any of the following delays have been caused by the Contractor.

1. Delay in commencement of the works more than two weeks behind the time stipulated in Article 5 in the Form of Contract.

2. Delay in completion of the works in excess of one fourth of the Contract Period in Article 5 in the Form of Contract.

35.2 Leaving the site suspended without permission of the supervisor for a period exceeding two weeks.

35.3 Transfer of the Contract to a third party without permission of the Employer.

35.4 Non-observance of the instruction issued from the supervisor.

35.5 Lack of financial and/or technical competence on the part of the Contractor for the execution of the works.

35.6 Occurrence of force majeure stipulated in Article 33 in the Conditions of Contract.

35.7 Should the Employer rescind the Contract for any of the reasons detailed under the paragraph above, he shall communicate the matter to the Contractor in writing, and without the need for going through any administrative or judicial formalities, shall collect and confiscate retention money stipulated in Article 4 in the Form of Contract and Guarantee stipulated in Article 28 in the Conditions of Contract.

Also he immediately take under his control the site as well as all the installations, materials, equipment and means and shall take the necessary action for the preservation of the site. Then, without further delay, he shall start the preparation of a final statement of the works performed. The value of the works calculated in the statement shall be credited to the account of the Contractor.

PART 5 TECHNICAL SPECIFICATIONS

PART 5 TECHNICAL SPECIFICATIONS

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SECTION 1 GENERAL DESCRIPTION

101 General

This Technical Specifications compile an entire works, including Contractor's temporary work, mobilization and/or demobilization while the building works which will be erected a post-harvest building, hangar building, farming building and two glass houses as well as plumbing and electrical facilities including fresh water supply/sewage/lighting system and telephone line in the buildings. The land preparation and leveling in the proposed buildings and houses shall be carried out by the Ministry of Agriculture on the elevation bottom of concrete slab in each building.

The Contractor shall comply with all the provisions contained in the Contract Documents and directed by the Supervisor as representative of the Employer.

102 Location of Works

The Works'site is located at Kolodeh-Yashbandan Lands(after 10 km from Amol to Mahmudabad) in Mazandaran Province.

103 Contract Drawings

A list of Contract Drawings is indicated in Appendix-A in this Technical Specifications.

104 Shop Drawings

The Contractor shall prepare the shop drawings for execution of the Work based on the Contract Drawings and/or instructions directed by the Supervisor during the execution period and, the shop drawings shall be submitted to the Supervisor's approval.

105 As-Built Drawings

The Contractor shall prepare As-Built drawings which shown the final dimensions based on the shop drawings and/or instructions directed by the Supervisor and submitted to the Supervisor's approval. Each As-Built drawing shall contain one(1) original and two(2) blue prints.

106 Levels and Dimensions

The Levels and Dimensions shown on the drawings are given in centimeters. The indicated levels shown on the drawings are based on the Temporary Bench Mark to be directed by the Supervisor at the Site when the site hand-over to the Contractor.

107 Setting out

Prior to commence the Site Work, the Contractor shall setting out a base line of center, bench mark and sub-points on the site according to the approved shop drawings and his execution plan.

108 Boundary of Work Site

The Contractor shall not exceed the limit of work Site as constructed by the existing fence and directed by the Supervisor except the Contractor's temporary own rental land by his expense of compensation to the land owner. The Contractor shall responsible obtaining the consent of land owner, tenant and private land to use in temporary work.

109 Work Schedule

A detailed construction schedule in any part of the execution work shall be submitted to the Supervisor's approval prior to the

commencement to take action of the Work, within the approved entire work schedule enclosed in the Contract Documents and, the contractor shall not alter the time schedule unless otherwise directed or approved by the Supervisor.

110 Mobilization

The Contractor shall take responsibility for staffs and construction equipment mobilization to the Site and/or demobilization by his own expenditures according to the progress work under the Supervisor's approval. The Contractor shall obey the Supervisor's direction of additional construction equipment and staffs in case of, if delaying progress Work.

111 Temporary Works

The Contractor shall submit to the Supervisor for his approval in writing the Contractor's execution plan of the temporary work as soon as possible after the Site hand-over to the Contractor in the first requirement of plan of the temporary work including, but not limited to the followings:

- (1) Contractor's office, store and accommodation required to the Contractor's employees at the site shall be established by the Contractor's expenses.
- (2) Plan of scale for work shop and warehouses shall be determined by the Contractor taking into consideration availability in Amol and other town near by the work site.
- (3) The Contractor shall take care of responsible for watching own property at the site and protect by a fence and lighting equipment for 24 hours.
- (4) Contractor's Yard

The Contractor shall use a yard belonging to the Ministry of Agriculture land in the CAPIC Project Area free of charge during the Contract period, however, after demobilization in the site, the Contractor shall clean up and hand-over to the Ministry of Agriculture.

112 Standards

Any materials and workmanship shall comply with the latest prevailing Iranian standards approved by the Supervisor, unless otherwise described in this specifications. A catalog, data and information of any materials and equipment shall be submitted to the Supervisor's reference as may be required to supporting documents.

113 Quality Control

The Contractor shall take the full responsibility for his own quality control at the site work and/or any materials and equipment from the manufactures. A certificate for materials's quality as well as instrument and equipment to use the erection work shall be submitted to the Supervisor's approval in relation to the technical specifications and shop drawings.

114 Rejecting Materials

Non approved any material and equipment brought into the site and used for a part shall be rejected by the Supervisor in case of any supporting evidence submitted to the Supervisor after the executed work.

115 Control of Progress Work

The Contractor shall take the full responsibility to control the progress work at the site under the Supervisor's direction within the period of Work schedule enclosed in the Contract Documents. The sub-progress Work in any part shall be advanced in cooperation with the other parts under the entire progress Works.

116 Reports

The Contractor shall prepare and submit to the Supervisor regarding the monthly progress report on 10th of each month for the previous month progress work in which comprise the staff worked numbers, equipment numbers and constructed work, materials brought into the site, preparation and/or approved shop drawings and other his activities while problems, countermeasures and proposed work schedule for next month.

SECTION 2 EARTH AND GRAVEL WORKS

201 Scope of Work

After the setting out of bench mark, center line and marks for each building area, the scope of Work in this section shall consist of excavation in the post and floor foundation work and gravel work under the proposed concrete work according to the shop drawings approved by the Supervisor.

202 Excavation and Compaction

The excavation and compaction works required to the building foundation shall be carried out to the lines and levels shown on the drawings. The excavation for a part of post and wall foundations shall be carried out by manpower and shall not be over excavated, while the excavation in the ground floor shall be carried out by an equipment and compacted on the surface elevation in bottom of gravel work according to the lines and elevations shown on the drawings. The finishing bottoms in the post and floor foundation shall be conducted to take records measuring elevation and photographs at the Site after Supervisor's approval.

203 Disposal of Excavated Materials

All excavated materials from the foundation work as excess materials shall be placed on the area between the proposed main road and proposed building lots by the Contractor's own cost unless otherwise directed by the Supervisor.

204 Gravel Work

The Work on gravel shall consist of collection of materials, transportation from quarry site to the Work site, spreading and compaction at the foundation of concrete Work. The materials shall be formed natural river cobbles about 10cm normal size and hard quality and, the gravel materials shall be also river materials under 5cm size for using joint filler in the cobbles.

The construction work shall be conducted in the first place, the cobbles installed then, spreading gravel materials as one layer 10cm compacted by equipment. In case of the more than 10cm gravel foundation work shall be carried out by way of 10cm each compaction according to the approved shop drawing of gravel foundation work.

SECTION 3 CONCRETE WORK

301 Scope of Work

This item covers all materials as cement, aggregates, water, admixtures and proportion, mixing, transportation, placing, finishing, curing and other necessary concrete works. All the applicable standards shall be conducted based on the American Standard for Testing Materials (ASTM) unless otherwise noticed herein.

302 Concrete Composition

Concrete shall be composed of portland cement, fine and coarse aggregates, water, and if necessary, admixtures or agents approved by the Supervisor. The design of concrete mixtures and consistency shall be as specified in this item.

303 Cement

The Cement shall conform to the requirements of standard specifications for Portland cement (ASTM:C-150 type 1). Particular cement may be used subject to the approval of the Supervisor. The Contractor shall immediately upon delivery of cement to the Work site storage in dry condition, weather tight and properly ventilated structure with adequate provisions for the prevention of absorption of moisture.

304 Admixtures

If the Contractor use of admixtures, the Contractor shall submit admixtures to the Supervisor's approval, taking into consideration for reduction of the cement content and/or the amount of mixing water, and to improve the concrete workability under the ASTM :c-494 and c-260.

305 Water

The water used in concrete and mortar shall be free from objectionable quantities of silt, organic matter, alkali, salts and other impurities. The Contractor shall submit to the Supervisor's approval of water quality analysis record in concrete use.

306 Fine Aggregate

Fine aggregate shall be either natural river sand. It shall consist of clean, hard, dense, free from injurious amount of dust, silt, stone powder, pieces of thin stone, alkali, organic matter and other impurities. The Contractor shall perform the tests, and shall submit to the Supervisor's approval.

(1) Material passing NO.200 sieve, tested as delivered to the mixer in accordance with ASTM C117, shall not exceed 5.0% by weight.

(2) Injurious organic compounds in natural sand shall be tested in accordance with ASTM C 40.

(3) Fine aggregate as batched shall be well graded and when tested shall conform to the following limits:

| sieve size | percentage passing by weight |
|-------------------|------------------------------|
| 9.51mm(3/8 inch) | 100 |
| 4.75mm(NO.40) | 95 to 100 |
| 2.38mm(NO.8) | 80 to 100 |
| 1.19mm(NO.16) | 50 to 85 |
| 595micron(NO.30) | 25 to 60 |
| 297micron(NO.50) | 10 to 30 |
| 149micron(NO.100) | 2 to 10 |

307 Coarse Aggregate

Coarse aggregate shall be either natural river gravel or manufactured coarse aggregate. The coarse aggregate shall consist of well-shaped, clean, hard, dense and shall not contain wood chips or other impurities. The percentage of deleterious substances in any site of coarse aggregate, as delivered to the mixer, shall not exceed the following values:

| sieve size | percentage by weight |
|---|----------------------|
| material passing No.200 sieve | 1.0 |
| clay lumps determined in accordance with designation 13 of the U.S Bureau of Reclamation, Concrete Manual | 0.25 |

The coarse aggregate shall be separated into two classifications.

| Designation of size | Nominal Size Range | Sieve Opening Range |
|---------------------|--------------------|---------------------|
| 40mm | 49 to 20mm | 38.1 to 19.0mm |
| 20mm | 20 to 5mm | 19.0 to 4.76mm |

308 Classification and Proportioning of Concrete Mixtures .

The mixtures for all classes of concrete shall be designed by the

Contractor and approved by the Supervisor to obtain the compressive strength at the age of twenty eight(28)days as specified below:

| Class | Max Aggregate Size (mm) | Min Strength @28days (kg/sq.cm) | Applicable to |
|-------|-------------------------|---------------------------------|------------------------------------|
| AA | 20 | 240 | slab of roof |
| A | 20 | 210 | all reinforced concrete structures |
| B | 37.5 | 180 | plain concrete |
| C | 20 | 90 | leveling concrete |

The amount of water to be used in the concrete shall be regulated as required to secure concrete of the proper consistency and to adjust for any variation in the moisture content or grading of the aggregates as they enter the mixer. Addition of water to compensate for stiffening of the concrete before placing will not be permitted. Uniformity in concrete consistency from batch to batch will be required.

309 Mixing Concrete

Concrete shall be made by a mixing plant. Hand mixing shall not be permitted, however only emergency case approved by the Supervisor and unless otherwise directed by the Supervisor during the construction period.

When mixing at site, the concrete materials shall be thoroughly mixed in a batch mixer or an approved capacity and type which will ensure a uniform and homogeneous mixing of the concrete materials.

The minimum mixing time for each batch after all materials and water into a mixer shall be maintained at 1-1/2 minutes under the capacity of mixer less than 1.0cu.m/one batch.

310 Sampling and Testing

The Contractor shall make all necessary tests for determining the mixing proportions of each type of concrete, in order to produce the concrete specified in this item. The Contractor shall perform the field tests as specified below:

| Test | No. of Tests | Sample Site | Method of Test |
|---|--|-------------------------------------|--------------------|
| (1) Test of compressive strength at 28 days | Three (3) pieces at reinforcing concrete for each building | Placing site directed by supervisor | ASTM C 172 C 31 |
| (2) Slump test | One time per day | placing site directed by supervisor | ASTM 143 |
| (3) Measurement of temperature | One time per day | placing site directed by supervisor | - |

311 Transportation and placing of Concrete

(1) Inspection by the Supervisor

Prior to placing concrete, the Contractor shall submit to the supervisor for his approval the concrete placing method and schedule, providing construction equipment and manpower supply plan and No concrete placing shall be commenced until all formwork, treatment of surface on the joint part, reinforcement arrangement and part of embedded shall be completed and supervisor's approval at the site.

The Concrete placing shall not be permitted under the following

conditions, unless otherwise directed by the supervisor. a) when it rains, b) when illumination is inadequate for night work, C) whenever ordered to stop by the Supervisor.

(2) Site preparation of Concrete Work

All surfaces of foundation work upon which concrete to be place shall be cleaned and moistened thoroughly before the concrete placing at any site. The construction joint shall be cleaned, moistened and removed of all laitance, defective, loose aggregates and/or concrete. Those Works shall be inspected and the Supervisor's approval.

(3) Handling of concrete placing

The Contractor shall submit to the Supervisor for approval the details transportation plan, providing equipment and manpower supply as well as method from the concrete mixing plant to the Work Site. The Concrete placing method at the site shall be adapted by manpower for finishing and consolidation works by vibratory equipment through manual transportation car after receiving materials. The concrete shall not be placed more than 1.5 meter vertical drop, if transferal of agitator car to manual car and/or final location to prevent segregation of mixed concrete materials, accordingly an concrete chute shall be employed or suitable concrete bucket under the supervisor's approval.

Immediately after placing concrete, the concrete materials shall be consolidated to the maximum practicable density in order to obtain maximum bond upon all surface of reinforcing bars and embedded fixtures in the forms. The concrete consolidation Work shall be executed by a vibratory equipment as internal type approved by the Supervisor.

(4) Curing

The Contractor shall maintain concrete curing on the proper surface with water supply sprinkler or wet rice straw sheets after placed concrete until date approved by the Supervisor and, the curing method and schedule shall be submitted to the Supervisor's approval. The Contractor shall protect the placed concrete body from injurious actions, rapid change of temperature, drying, loads, shock and vibration.

312 Joints

(1) Construction Joint

The Contractor shall show on the shop drawings where located construction joint if necessary in floor concrete placing schedule according to his concrete placing schedule, taking into consideration for the concrete mixing plant's capacity and unit hour operation ability. The horizontal and vertical joints surfaces shall be cleaned removal of all laitance, loose concrete and aggregates with water supply within a few days after placed concrete. After approved by the Supervisor on surface of the construction joint cleaning, the Contractor shall place concrete mortar prior to placing concrete.

(2) Contraction and Expansion Joints

The Contractor shall show on the shop drawing where located contraction joint and expansion joint in floor area of the buildings. The Contraction joint shall be executed to paint of oil paint the surface of first concrete placed and after dry up of the oil paint, second concrete shall be placed according to the shop drawings approved by the Supervisor. While the expansion

joint in the building's floor shall be embedded asphalt material of 5 cm for each 1.5m*1.5m.

The asphalt material and location of the expansion joint shall be approved by the Supervisor on the shop drawing.

313 Form Work

(1) Materials

Forms required to placing concrete work shall have sufficient strength to withstand the pressure resulting from placing and vibration of the concrete, and shall be maintained rightly in position. The Contractor shall be permitted to employ wood, plywood and metal forms the details form work plan shall be submitted to the Supervisor's approval in relation with the concrete placing schedule.

(2) Form Ties

If in case of the steel bars embedded in concrete for holding forms shall be systematically installed as the Supervisor's approved type of tie bolt equipped with two corns. The holes caused by the removal corns shall be filled with mortar. Another type of the form ties shall be approved by the Supervisor.

(3) Maintenance of Form

Prior to assembling forms, the form surfaces shall be cleaned and painted by a mineral oil or other kind of oil approved by the Supervisor. The oiling on the wood and/or metal forms shall as a rule be accomplished before erection work for the form.

(4) Removal of Forms

The Contractor shall not remove without approval of the Supervisor in any structure of foundation and other Works, as a rule, the

form shall be kept in place at least for the periods indicated below after concrete has been placed.

Beam, girder and slabs. :6 days

Column and wall :3 days

SECTION 4 STEEL WORK AND ROOFING

401 Reinforcing steel Bars

(1) Materials

All steel reinforcing bars required at floor work and other structures shall be furnished by the Contractor, transport to site, store, cut, bend and properly place. All steel reinforcing bars shall conform to requirements of ASTM A-615 or equivalent and the Supervisor's approval. All bars shall be of the deformed type as grade SD30 or equivalent other type approved by the Supervisor in cooperation with submitting required the certificate documents.

(2) Cutting and bending of reinforcing bars may be done in a shop or at the job site. All bending works shall be in accordance with latest standard practice and by approved machine methods.

Reinforcement bars shall be laid, anchored and embedded in the concrete as shown on the shop drawings or as directed by the Supervisor. Unless otherwise directed the spacing of Bars on the shop drawings shall be measured along the center to center in the bars.

(3) Inspection of Reinforcing Bars

The Supervisor shall inspect the reinforcement bars at it has been placed on the sites. Wherever any imperfection is found, the Contractor shall correct the same. Commencement of the concrete placing shall not be permitted until the workmanship of installation work approved by the Supervisor.

402 Steel Sharps

(1) Materials

The Work under this section shall consist of furnishing transporting to the building work site, assembly, welding, installation and painting of the building's main structure, door and miscellaneous work. The materials shall consist of various steel sharps, plate and bars shown on the drawings in accordance with the manufacture's specifications or approved by the Supervisor. The Contractor shall prepare a shop drawings in showing details steel work at manufacture or site. The Contractor shall submit to the Supervisor's approval including each type of steel sharp (I, H, L, L and bars), quality and its mill sheets as certificate of the materials in cooperation with the shop drawings.

(2) Fabrication

The assemble and fabrication of the steel work shall be carried out at a manufacture through mechanical plant, slots, cut, bending and welding as much as possible taking into make it with great accuracy and easy transportation.

The Contractor shall not permitted to make slot holes by burning unless otherwise directed by the Supervisor.

Welding work shall be performed by the shielded arc method except where manner particularly permitted by the Supervisor.

Welding rods shall be furnished by the Contractor and be of heavily coated type. The type and manufacture of roads shall be submitted to the Supervisor's approval in relation to the Welding mark to be shown on the shop drawings.

(3) Erection

The Contractor shall erect all frame works in the buildings composed with the steel works which have assembled in post and

main structure of grid steel in the building roof and glass houses according to the shop drawings.

The Contractor shall submit his plan of erection work in the buildings and glass houses required temporary work,crean and welding machines,members of erection party as well as time schedule. These plan of works shall be approved by the Supervisor.

403 Asbestos Roofing

The roof materials shall be corrugated asbestos sheets on the main structure of grid steel. The summit of roof shall be constructed by overlapping asbestos roofing according to the shop drawing approved be the supervisor. While a gutter fabricated by galvanized sheet of 1.5 mm shall be erected at end of roof and to connect a vertical drain pipe according to the Supervisor's approved shop drawings.

SECTION 5 BRICK WORK AND MISCELLANEOUS

501 Brick Work

(1) Material

Brick material used in non-load bearing wall of three buildings shall be as shown on the shop drawings. All brick shall be good, hard and uniformly burned in local manufacture according to the Supervisor's checking and approved materials at the project site. While bonding materials of mortar shall conform to portland cement (ASTM C150) and sand limitation (ASTM C 144) or the Supervisor's approved proportion.

(2) Construction of brick

The Contractor shall submit the Supervisor's approval, plan of brick work including brick manufacture, production ability, testing and curing as well as the construction method and schedule according to the shop drawings.

The construction of building's wall with brick shall be commenced after completion of the main structures of steel work unless otherwise directed by the Supervisor.

502 Miscellaneous

(1) Plaster

After brick wall completed or the building work, the wall of inside and/or outside surfaces shall be coated with plaster of mortar according to the shop drawings and, the subject of plaster colors shall be directed by the Supervisor prior to execution of the work or instructed to the Contractor at the shop drawings completion and approval.

(2) Isolation

Isolation material shall consist of hemp sheet dipped in bitumen according to the Supervisor's approval.

The installation place in the brick wall and in the mortar plaster as well as on the brick foundation shall be shown on the shop drawings according to the details approved by the Supervisor.

(3) Ceramic Tile, Stone floor base and Mosaic

Material of ceramic tile samples on the floor and wall in washing, shower and toilet rooms shall be submitted to the Supervisor's approval through a few different colors and/or design and, one of selected material shall be approved by the Supervisor in local production.

While material of stone floor base and mosaic shall be hard and uniform color. These materials shall be stuck on the mortar plaster with bonding material.

SECTION 6 PLUMBING WORK

601 Scope

The Scope of Work shall be permitted the plumbing work within indoor of three building works and two glass houses however, the indoor pipe lines of fresh water supply and sewerage shall be extended in five(5) meters to out door of the building approved by the Supervisor. The main pipe line and distribution work for each building shall not be scope of work according to the shop drawing approved by the Supervisor.

602 Materials

(1) Galvanized Steel Pipe

Galvanized steel pipes of the water supply with all accessories shall be furnished and installation work in accordance with the dimensions and design shown on the shop drawings unless otherwise directed by the Supervisor. All materials shall be new, free from defects and shall be the best available for the purpose, considering strength, ductility and suitability for the intended services and best engineering.

The materials shall conform to ASTM A153 or equivalent approved by the Supervisor.

(2) PVC Pipe

Polyvinyl Chloride Pipes (PVC Pipes) in sewerage system shall be furnished and installation work in accordance with the dimensions and design shown on the shop drawings unless otherwise directed by the Supervisor. The PVC pipes shall be provided at one taper socket at the end of pipes in compliance with manufacturers' standard. The connection's pipes and fittings shall be used suit-

able bonding agent which shall be approved by the Supervisor.

All materials shall conform to JIS K671 or equivalent and approved by the Supervisor.

603 Installation of pipes

The installation of pipe and fitting shall be strictly in accordance with the manufacture's specifications. In making connections, clean, moisture and oil from pipe and fittings. In case that the foundation is composed of hard soil layer or gravel materials, those materials shall be replaced by suitable soil or fine sand in thickness 10 cm and compacted under direction of the Supervisor. The Contractor shall not permitted back-fill work unless otherwise approved by the Supervisor. The back-fill work shall be carefully executed under the direction of the Supervisor.

SECTION 7 ELECTRICAL WORK

701 Scope and Code

The Scope of Work shall be permitted the electrical wiring within indoor of three buildings and two glass houses. A switch box shall be provided in each buildings and houses to connect the power receiving. The location of switch box shall be directed by the Supervisor's approval a plan of electrical facility, including power supply and telephone lines system sequence, wiring, lighting, switch and insulator systems as well as materials in all requirement in accordance with the application standard and code of the power supply and communication authorities in Mazandaran Province.

702 Interior Lighting

(1) Scope

The interior lighting and power shall consist of fluorescent and incandescent lamps, power supply wiring and switches as shown on the shop drawings and directed by the Supervisor. The power supply shall be insulated wire in conduit concealed in the ceilings or walls and embedded in the floor slab. The switches shall be fitted appropriate height along the wall.

The Contractor shall submit to the Supervisor's approval lighting fixtures, type of the lamps/site, type of the switches/site and all apparatus requirement for the work in the manufactures' specifications in which instructed to the installation work and maintenance services required as well as technical notes. These shall be acceptable and approved by the Supervisor.

703 Fixtures and Lens

Metal parts of lighting fixtures shall be of corrosion-resistant metal. Lens frames shall be supported so as to avoid sagging, and shall be readily removable or suitably hinged and latched. Removable frames shall have adequate retention for use when servicing. Plastic lenses shall be heat-resistant. Lighting fixture shall be complete with all necessary accessories.

Suspended fixtures shall be provided with swivel hangers in order to ensure a plumb installation. Pendants 1.20 m or longer shall be braced to limit swinging. Single-Unit suspended fluorescent fixtures shall have twin-stem hangers.

704 Lamps

Fluorescent lamps shall be rapid start, cool white type unless otherwise directed by the Supervisor. The lamps shall be suitable for operation with the ballasts to which they are connected and, lighting fixtures shall be commercial type unless indicated otherwise. The single lamps shall be connected so that adjacent lamps are on alternative phases.

705 Spotlights

Spotlights shall be of the open or enclosed type, incandescent or electric discharge type and suitable for operation outdoors. Supports shall be adjustable with provision for locking in the required position. Ferrous parts shall be zinc-coated and, aluminum parts shall be anodized except for weather proof enclosed reflectors.

706 Switches

Toggle switches shall be totally enclosed with bodies of molded compound and a mounting strap. Handles shall be brown or ivory. Wring terminals shall be of the screw type. Voltage and capacity shall be as indicated. All switches, where fixed, shall be indicated on the shop drawings in each building and glass houses approved by the Supervisor. The telephone socket locations shall be directed by the Supervisor. The Contractor shall not permitted to supply the same type for power and telephone sockets.

707 Manufacturer All lighting fixtures, lamps and ballasts shall be locally available products, taking into consideration in the prevailing local manufacture. The Contractor shall submit to the Supervisor's approval their production manufacture.

SECTION 8 WINDOW AND DOOR

801 Scope

The scope of work in this section shall be supplied, fabrication, erection of window and door in the buildings and glass houses and shall covers the materials, workmanship and erection work.

802 Window

The aluminum framing and accessories shall be as manufactured by the local manufacturer and approved by the Supervisor. Glass shall be seated in chemical materials as indicated on the shop drawings. Glazing members for windows shall be made design that they are snapped in eliminating the use of exposed screws. All exposed surface of aluminum windows including sash, framing and partition framing shall be finished to like a mirror surface, free from defects or other blemish surface. After anodizing the surface shall be coated with a lacquer, or oil protection.

803 Doors

Type of doors in the buildings and glass houses shall consist of wood door and curtain door in three buildings and glass door in the glass houses as shown on the shop drawings approved by the Supervisor.

Materials in each door shall be manufactured and supplied in local Province.

(1) Wood door

In compliance with the details wood door shop drawings, the door shall consist of wood frame, wood grid stiffener and plywood fixed

on the grid stiffener. The material shall be of sound stock delivered dry and shall be fully protected at all times from injury and dampness, broken insect-bored, or otherwise damaged pieces shall not be allowed in the work.

After fabrication and before installation wood door shall be given a coating of an approved synthetic resin and protected from damage until installation work. All wood frames of door shall be fitted in the wall, nails, caulking, wood shims and appurtenances as indicated on the shop drawings.

(2) Curtain Door

Curtain door in the proposed buildings shall have a curtain of interlocking single face slats formed of rolled zinc galvanized steel. The door shall be of the dimensions and standard indicated on the shop drawings and shall be as supplied by the local manufacturer. Slats and slat lugs at guides shall be of sufficient section to give a curtain strength adequate to safely resist at 100 kg/sq.m wind load.

Operation of the door shall be by a hand crank, shafting and reduction gearing, or the Supervisor's approved operation method. The curtain door shall be installed and adjusted in the manufacturer's specifications.

(3) Glass Door

Steel framing in the proposed glass houses' door shall be manufactured by steel work as dimensions and material of steel shall be indicated on the shop drawings approved by the Supervisor. The frame work of glass door shall be made at manufacture in the same work shop to provide the wall and roofs steel work of the glass houses.

SECTION 9 PAINING

901 Scope

The Scope of Work shall be carried out the painting work of all exposed woods, pipes, frames and walls of buildings as well as submerged metal and other surface obviously required to be painted unless otherwise specified. The omission of minor items in the painting schedule shall not relieve the Contractor of his obligation.

902 Materials

Painting material will be manufactured in Iran or manufactured in other countries approved by the Supervisor. All these materials shall be obtained from one manufacturer taking into consideration for maintenance management as unified type color and characteristic under the Supervisor's approved manufacturer.

903 Preparation of Surfaces

(1) Metal Surfaces

Metal surfaces shall be clean and free from flaking, bubbling, rust, loose scale and welding splatter. Sharp edges shall be dulled by grinding. Oil and grease shall be thoroughly removed by mineral spirits solvents. Priming shall be done immediately after cleaning to prevent new rusting.

(2) Wood Surface

Wood surface shall be sanded to a smooth surface. The prime coat shall be applied after which, when dry, nail and knot holes shall be filled with putty, allowed to dry, and sand papered.

(3) Plaster and Concrete Surfaces

Plaster and concrete surfaces shall be left at least one month before the commencement of painting. All surface shall be cleaned of all dust, oil, curing compounds and other foreign matter. However, plastered surface shall not be painted prior to two months.

904 Application of Paint

The Contractor shall apply each coating in quantities and thickness as indicated on the shop drawings approved by the Supervisor. Drying time shall be allowed for longer drying time necessary.

The primary movement of the brush shall describe a series of small circles to thoroughly fill all irregularities in the surface after which the coating shall be smoothed by a series of parallel strokes.

Spray painting shall only be permitted in areas approved by the Supervisor. Any equipment located in such areas shall be completely enclosed in a manner satisfactory to the Supervisor. Spray equipment shall be of ample capacity for the work and shall at all times be kept clean and in good working order. Spray guns shall be suited to the type of paint specified, and shall be operated with orifices, nozzles and air pressure adjusted to consistency.

905 Shop Painting

Except for galvanized metal surface and other specified coatings, all steel surface shall be painted at the manufacture or fabrication places. The Contractor shall be responsible for checking of the shop paints with the field applied touchup and

final paints. All structural steel shall be shop primed before delivery to the site. The prime coat shall be applied after fabrication and before exposure to the weather.

906 Field Painting

All painting at the site shall be designated field painting and shall consist of field priming and final coating. The Supervisor shall advise all painting work in advance so that surface preparation shall be inspected and approved prior to application. Painting shall be continuous and shall be accomplished in an orderly manner so as to facilitate inspection. Surface of exposed members that 10 : 11 be inaccessible after erection shall be cleaned and painted before erection. Any defective paint changes in color or incompatible paint with undercoat shall be scrapped off and repainted.

907 Color

Color of final coats for the steel work, plastered surface and others shall be indicated in the color schedule in the building works and glass houses. The Contractor shall submit such color schedule and approved by the Supervisor.

908 Inspection

All phases of the painting work shall be subject to inspection by the Supervisor to assure proper performance of the specifications. Prime coats and each execution coat shall be inspected and approved. The Contractor shall submit to the Supervisor any execution records and photograph during the painting work.

PART 6 TENDER DRAWINGS AND OTHERS

PART 6 TENDER DRAWINGS AND OTHERS

| <u>Descriptions</u> | <u>Marks</u> |
|---|--------------|
| 6.1 General Plan of Buildings----- | A-1 |
| 6.2 Post Harvest Building (1/2)----- | A-2 |
| 6.3 Post Harvest Building (2/2)----- | A-3 |
| 6.4 Hangar Building (1/2)----- | A-4 |
| 6.5 Hangar Building (2/2)----- | A-5 |
| 6.6 Farming Building (1/2)----- | A-6 |
| 6.7 Farming Building (2/2)----- | A-7 |
| 6.8 Glass Houses----- | A-8 |
| 6.9 Water Pipe Lines and Lighting,Telephone----- (Post Harvest Building) | M-1 |
| 6.10 Water Pipe Lines and Lighting,Telephone----- (Hangar Building) | M-2 |
| 6.11 Water Pipe Lines and Lighting,Telephone----- (Farming Building) | M-3 |
| 6.12 Data and Information for Setting out and Bench marks ----- | D-1 |
| 6.13 Rainfall and other Information----- | I-1 |

6. 12 DATA AND INFORMATION FOR SETTING

OUT AND BENCH MARK

▲ MK : CFRI-FR2

NOTES :

▲ BM2 : 99. 050

(1) BENCH MARKS : ★

▲ BM1 : 99. 868

▲ BM2 : 99. 050

▲ BM3 : 99. 388

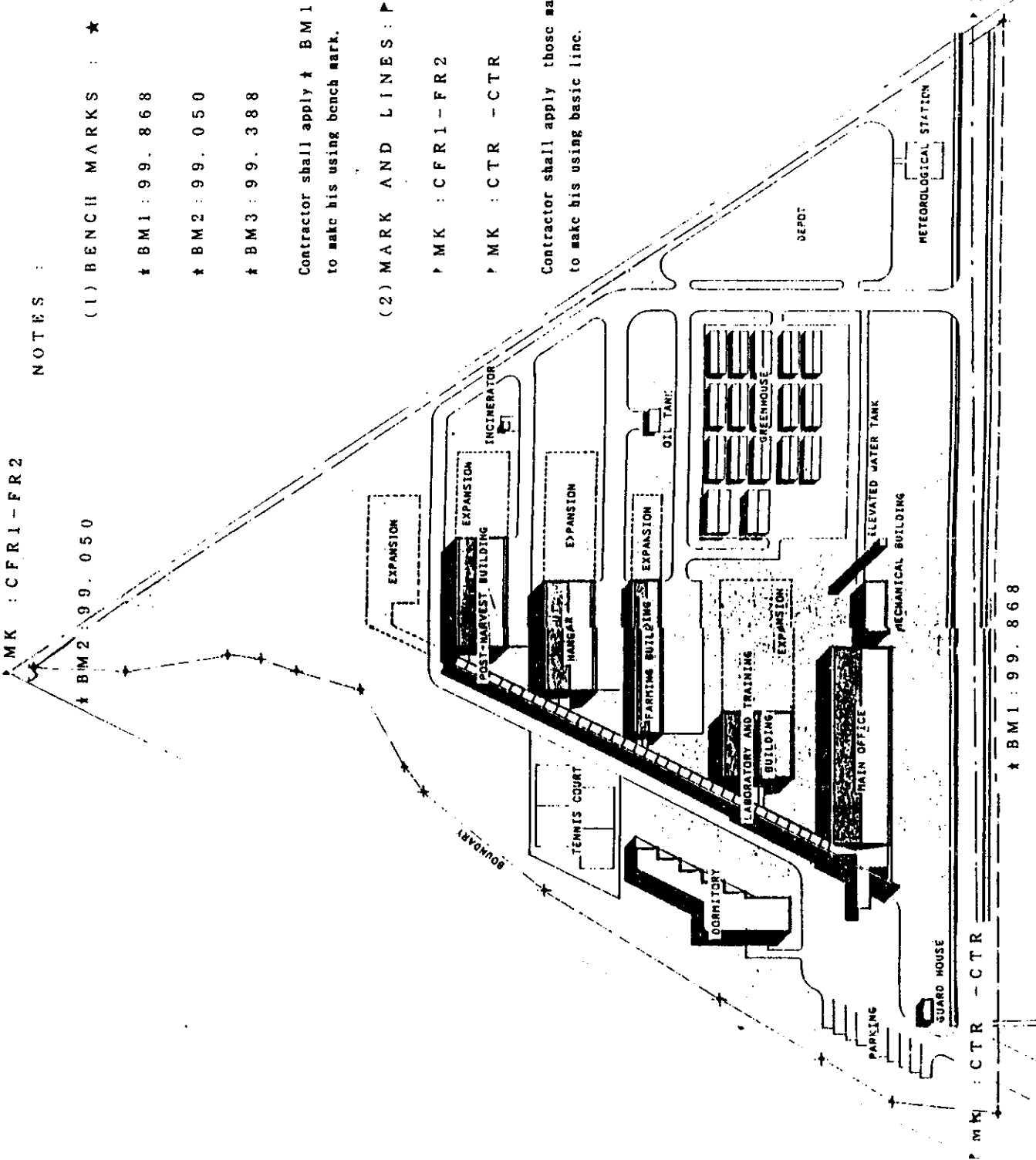
Contractor shall apply ▲ BM 1, 99. 868 meters to make his using bench mark.

(2) MARK AND LINES : ▲

▲ MK : CFRI-FR2

▲ MK : CTR -CTR

Contractor shall apply those mark and lines to make his using basic line.



▲ MK : CTR -CTR

▲ BM1 : 99. 868

▲ MK : CTR -CTR

▲ MK : CFRI-

6. 13 RAINFALL AND OTHER INFORMATION

