

STANDARD BIDDING DOCUMENT
PROCUREMENT OF CIVIL WORKS
(S.B.D)



सत्यमेव जयते

GOVERNMENT OF GUJARAT
ROADS & BUILDING DEPARTMENT

NATIONAL HIGHWAY DIVISION,
GANDHIDHAM - KUTCH

PART –I : COMPLETE BIDDING DOCUMENT

**Emergency work for Supplying Of Sign Boards/ Road Furniture
on NH-41 bet. Km. 122/200 to 291/450 Section : Mundra –
Mandvi- Naliya- Narayan Sarovar Road.**

**Office of the Executive Engineer,
National Highway Division,
Plot No.1, Ward No. 3-B,
Tagore Road, Adipur – (Kutch) 370205.
Phone No. 02836-260304**

Note :

Documents required to be submitted for work mentioned by On-line Only.

1. Tender Fee non-refundable fee of **Rs. 5000/-** (Rs. Nine hundred only) towards cost of RFP at the time of the submission of the Bid proposal through **Bharatkosh Portal** in favour of **Regional Pay and Account Officer, Mumbai.** under PAO Mumbai-034650 and DDO-234653-SE
2. EMD/ FDR
3. Copy of latest Bank Solvency Certificate (20% of estimated cost)
4. Proof for Permanent account No (Income tax)
5. Copy of GST No./Sale Tax, VAT, Excise Registration
6. Copy of Partnership deed, Authority letter (if any)
7. Copy of Registration ***Class- E-1 & Above and Authorized converter of reputed.***

GENERAL CONDITIONS

GENERAL TERMS AND CONDITIONS :-

1. Supplier shall have to supply all materials as per standard specifications of MoRTH and as direct by Engineer-in-charge, otherwise the materials shall be rejected.
2. The Engineer in charge shall issue the written work order to supply the materials as and when it shall be required.
3. For each work a separate agreement shall be done at competent level.
4. As the work is of emergency nature supplier shall have to supply the materials at site of works as and when directed by Deputy Executive Engineer in writing, within given time limit from the date of written intimation at the place directed by Deputy Executive Engineer otherwise department shall be at liberty to get the materials from any other source at risk and cost of suppliers.
5. If the Contractor supply the material /work done without written work order from Deputy Executive Engineer, this office does not bear liability to pay him for such supply/ work , such work order for Deputy Executive Engineer should clearly mention that the work is of emergency nature.
6. While submitting bills to division office Deputy Executive Engineer will issue a certificate that all the testing required as per specification has been done & reports are satisfactory.
7. The rates offered shall be inclusive of Transport, Royalty ,overhead charges & all taxes i.e. Octroi, Sales Tax, Central Excise etc. complete. Supplier may have to produce rate analysis in support of his quoted rates if required by the department.
8. Revision of rates shall not be allowed under any circumstances during the currency of the contract.
9. This offer will remain open for **120** days from the stipulated date of receiving of tenders and during this period tendered will not be allowed to withdraw his offer, otherwise punitive measures including forfeiting of earnest money etc. will be taken.
10. The department does not undertake to accept the tender for all the items. The supplier shall have to be ready to supply the materials for any number of items, for which his rates are approved.
11. The materials shall be purchased as and when required by the department irrespective of quantity.
12. Before approval of rates the supplier will have to produce samples if required by department.
13. The rates are inclusive of all taxes, transportation, loading, unloading as directed and other overhead expenses.
14. Earnest money by way of FDR for **Rs. 50,000/-** should accompany the tender otherwise the tender shall be rejected outright.
15. The tenderer in whose favour the tender is accepted shall pay Initial Security Deposit of **Rs. 50,000/-** [EMD Shall be Converted into Initial Security Deposit] for materials to be supplied and additional 5% shall be deducted from every bill. This S.D. amount will be refunded to the contractor after completion of the contract.
16. TDS & All statutory deduction shall be done as per prevailing Norms.
17. The contractor will produce GST & Sales Tax registration No. & PAN Card, valid Solvency certificate, with tender.
18. The Contractor will have to submit bill in prescribed Performa through Deputy Executive Engineer, in absence of which bill will not be passed and paid.

19. Estimated quantity of materials is tentative and department do not guarantee to purchase the same. No compensation will be admissible if no material is purchased by Department.
20. The Contractor will have to submit bill in prescribed Performa through Deputy Executive Engineer, in absence of which bill will not be passed and paid.
21. The lowest & workable rates of individual items of supplier shall be considered for Panel approval at the discretion of the Department.
22. In case of urgency at the discretion of the department material can be procured from any other agency at approved rates. No claim of contractor whatsoever shall be entertained by the department.
23. If required materials are not supplied within 10 days department will be at liberty to purchase the same from open market and rate difference will be recovered from the original supplier and action as per clause-2 will be taken.
24. If it appears that the progress or quality of the work carried out by contractor is not satisfactory and as per requirement or the contractor is not able to execute this work in specific quantity in given period of time, the executive engineer has absolute power to execute the same work by other eligible contractor.
25. The contractor has to execute immediately the any one, more than one or all items as and where necessary in required quantity or as per decided by Engineer in charge.
26. The whole process of asking for rate of scheduled items is to know the prevailing market current market rates of these items so that scheduled work can be done during the year. There is no assurance that the works will be carried out according to one or all of the schedules items.
27. In case of necessity, according to financial availability and site situation, one or all items in the schedule will be undertaken, the quantity of which may be more or less or zero as required.
28. As per schedule, the works shall be carried out during the year, at any time, at any place on the road, in proportion to once or as often as required.
29. Required work shall be started immediately upon written notice of the work, and no consideration/objection shall be made to any such concession.
30. On Instruction work should be started immediately and completed within the stipulated time period as instructed.
31. The bill for the work done will be paid as per the available grant
32. All bidders are requested to -
 - (i) Read the description of items in schedule B and their detail specification **carefully**
 - (ii) Know about the road, Site condition and site situation of road,
 - (iii) Know about availability of necessary materials, Machineries and labors required for the work
 - (iv) Know about Current market rate of necessary materials, Machineries and labours

Executive Engineer
National Highway Division
Gandhidham

Index

<u>Sr No</u>	<u>Section</u>	<u>Description</u>	<u>Page No</u>
1		Invitation for Bid (IFB)	3
2	Section -1	Instructions to Bidders	6
3	Section -2	Qualification Information	27
4	Section -3	Conditions of Contract	35
5	Section -4	Contract Data	63
6	Section -5	Technical Specification	72
7	Section -6	Form of Bid	73
8	Section -7	Bill of Quantities	76
9	Section -8	Securities and Other Forms	79
10	Section -9	Drawings	91
11	Section -10	Documents to be furnished by Bidder	92

INVITATION FOR BID
(IFB)

NATIONAL COMPETITIVE BIDDING

1. The **Executive Engineer, N.H. Division, Gandhidham** invites bids for the construction of works detailed in the table. The bidders may submit bids for any or all of the following works.

TABLE

Package No.	Name of work	Approximate value of works (Rs. In Lakhs)	Bid security (Rs.)	Cost of document	Period of completion	#Class of Registration / Category of contractor if required
1	2	3	4	5	6	7
Single	Emergency work for Supplying Of Sign Boards/ Road Furniture on NH-41 bet. Km. 122/200 to 291/450 Section : Mundra -Mandvi- Naliya-Narayan Sarovar Road.	20.00 lakhs	50000	5000/-	12 (Twelve) Months.	Class- E-1 & Above and Authorized converter of reputed

2. Prospective / Interested bidder may download the Bid Documents from website <https://www.nprocure.com> free of cost till the Time and Date as mentioned on online NIT at website <https://www.nprocure.com>.
3. However, Bidder who is submitting the Bid Online will have to pay the Bid Document Fee / Tender Fee through submission of the Bid proposal through **Bharatkosh Portal in favour of The Regional Pay and Account Officer, Mumbai. under PAO Mumbai-034650 and DDO-234653-SE Tender Fee will not be refundable.**

Bids must be accompanied by security of the amount specified for the work in the column 4 of the above table drawn in the form of FDR/ B.G. as per SBD –I Clause -16 in favour of "Executive Engineer, National Highway Division, Gandhidham" from any Nationalized / Scheduled Bank except Co-operative Bank shall be valid up to 165 Days. FDR issued after the date of submission of bids. will not be considered as valid or accepted in any case. **EMD Exemption certificate can not be accepted.**

Penetrative action for not submitting Demand Draft / FDR / Bank Guarantee in original to Executive Engineer / Tender Inviting Authority by bidder shall be initiated.

4. Bids received online, will be opened on the time, date and place as specified in the online NIT at website <https://www.nprocure.com> in the presence of the bidders or their authorized representatives, who wish to remain present.
If the office happens to be closed on the day of opening of the bids as specified, the bids will be opened on the next working day at the same time and venue.

5. A pre bid meeting will be held onathrs. at the office of.....to clarify the issues and to answer questions on any matter that may be raised at that stage as stated in clause 9.2 of 'instructions to Bidders' of the bidding documents.
6. Bid Security (EMD) is equal to 1% of Estimated Amount put to bid / tender and should be rounded off to the next thousand rupees.
7. Other Information is as under:
 - A. Agencies can prepare and edit their offers a number of times before the end of the tender submission date and time. After the tender submission date and time, the bidder cannot modify / edit / withdraw their submitted offer in any case. No written or online request in this regard shall be granted.
 - B. Offers in physical form will not be accepted in any case.
 - C. Demand Draft purchased by other than the bidder or issued after the last date of submission of Bids, will not be considered or accepted.
 - D. The cost incurred by the contractor for this offer for clarification or attending discussion, conferences or site visits will not be reimbursed by the Employer or Engineer-in-Charge.
 - E. Conditional tender shall not be accepted.
 - F. Any changes, addition, alternation made in the prescribed form attached with tender are liable to be rejected.
 - G. Any change in format or conditional Bank Guarantee will not be accepted and the bid will be considered non-responsive.
 - H. All the bidders are instructed to fill in information strictly in accordance with the format given in the checklist /qualification document / tender document.
 - I. It is mandatory for the bidders to supply each and every information as asked strictly in electronic format at appropriate places only.
 - J. Blank / insufficient information shall be treated as nil information and shall result in disqualification.
 - K. Even if the bidder has been qualified in a similar or larger size of project in the past, it shall not be deemed to be a ground / reason for not giving required information for this work / bid.
 - L. Information supplied for earlier projects shall not be considered while evaluation of this bid. The Government will not ask for any other information, unless it is found absolutely necessary by the competent authority.
 - M. If found necessary, the contractor will be intimated for negotiation,

For the works costing up to 7.5 crore (ROAD), 7.0 crore (BUILDING & BRIDGE) kindly refer to SSR-10-2015-17-C dated 03-02-2017

For the works costing under 7.5 crore for Road Works and 7.0 crore for Building and Bridge Works following documents shall be submitted in electronic format only through online by scanning and the (i) Bid Document Fee / Tender Fee (ii) Bid Security / EMD should be sent in original to the Tender opening authority through RPAD, so as to reach the Executive Engineer within 7 days from last day of submission of Bid.

- (i) Bid Document Fee / Tender Fee
- (ii) Bid Security / EMD or Valid of Appropriate Class of Registration of Approved Contractors.
- (iii) Registration Certificate of Class- E-1 & Above and Authorized converter of reputed
- (iv) GST Number.
- (v) Valid Bank Solvency Certificate (Calendar Year-2026)
- (vi) Work Experience
- (vii) Other Documents, as required...

SECTION - 1
INSTRUCTIONS TO BIDDERS
(ITB)

Section 1: Instructions to Bidders

Table of Contents

		Page No.			Page No.
A. General			D. Submission of Bids		
1.	Scope of Bid	8	19.	Sealing & Marking of Bids	18
2.	Source of Funds	8	20.	Deadline for Submission of Bids	18
3.	Eligible Bidders	8	21.	Late Bids	18
4.	Qualification of the Bidder	8	22.	Modification and Withdrawal of Bids	18
5.	One Bid per Bidder	12	E. Bid Opening and Evaluation		
6.	Cost of Bidding	12	23.	Bid Opening	19
7.	Site Visit	12	24.	Process to be Confidential	20
B. Bidding Documents			25.	Clarification of Financial Bids	20
8.	Content of Bidding Documents	13	26.	Examination of Bids and Determination of Responsiveness	20
9.	Clarification of Bidding Documents	13	27.	Correction of Errors	20
10.	Amendment of Bidding Documents	14	28.	Deleted	21
C. Preparation of Bids			29.	Evaluation and Comparison of Financial Bids	21
11.	Language of Bid	15	30.	Deleted	21
12.	Documents Comprising the Bid	15	F. Award of Contract		
13.	Bid Prices	15	31.	Award Criteria	22
14.	Currencies of Bid and Payment	16	32.	Employer's Right to Accept any Bid and to Reject any or all Bids	22
15.	Bid Validity	16	33.	Notification of Award and Signing of Agreement	22
16.	Bid Security	16	34.	Performance Security	22
17.	Alternative Proposals By Bidders	17	35.	Advance Payment and Security	23
18.	Format and Signing of Bid	17	36.	Dispute Review Expert	23
			37.	Correct or Fraudulent Practices	23

A. GENERAL

1. Scope of Bid

- 1.1 The Employer (Named in Appendix to ITB) invites bids for the Construction of works (as defined in these documents and referred to as ‘the works’) detailed in the table given in IFB. The bidders may submit bids for any or all of the works detailed in the table given in IFB.
- 1.2 The successful bidder will be expected to complete the works by the intended completion date specified in the Contract data.
- 1.3 Throughout these bidding documents, the terms ‘bid’ and ‘tender’ and their derivatives (bidder/ tenderer, bid / tender, bidding/ tendering, etc.) are synonymous.

2. Source of Funds

- 2.1 The expenditure on this project will be met from the budget of Govt. of Gujarat / Govt. of India for centrally sponsored projects.

3. Eligible Bidders

- 3.1 This Invitation for Bids is open to all eligible bidders.
- 3.2 All bidders shall provide in Section 2, Forms of Bid and Qualification Information, a statement that the Bidder is neither associated, nor has been associated, directly or indirectly, with the consultant or any other entity that has prepared the design, specifications, and other documents for the Project or being proposed as Project Manager for the Contract. A firm that has been engaged by the Employer to provide consulting services for the preparation or supervision of the works, and any of its affiliates, shall not be eligible to bid.

4. Qualification of the Bidder

- 4.1 All bidders shall provide in Section 2, Forms of Bid and Qualification Information, a preliminary description of the proposed work method and schedule, including drawings and charts, as necessary. The proposed methodology should include a program of construction backed with equipment planning and deployment duly supported with broad calculations and quality assurance procedures proposed to be adopted justifying their capability of execution and completion of work as per technical specifications, within stipulated period of completion.
- 4.2 Deleted
- 4.3 Deleted
- 4.4 Deleted

#4.5 QUALIFICATION CRITERIA:

(Applicable for the works which require Post Qualification)

- 4.5.1 Qualification will be based on Applicant’s meeting all the following minimum pass/ fail criteria regarding the Applicant’s general and particular experience, personnel and equipment capabilities and financial positions, as demonstrated by the applicant’s responses in the forms attached to the letter of application (specified requirement for joint ventures are given under para 4.6 below) Subcontractors experience and resources shall not be taken in to account in determining the applicants compliance with the qualifying criteria

To qualify for more than one contract, the applicant must demonstrate having experience and resources sufficient to meet the aggregate of the qualification criteria for each contract given in paragraphs 4.5.4, 4.5.5 and 4.5.9 below

4.5.2 Base year and Escalation

The base year shall be taken as Current financial year

Following enhancement factors will be used for the costs of works executed and the financial figure to a common base value for works completed in India.

<u>Year</u>	<u>Financial Year</u>	<u>Multiplying factor</u>
Base year of inviting tender	2026-2027	1.00
-1	2025-2026	1.10
-2	2024-2025	1.21
-3	2023-2024	1.33
-4	2022-2023	1.46
-5	2021-2022	1.61

Applicant should indicate actual figures of costs and amount for the works executed by them without accounting for the above-mentioned factors.

In case the financial figures and value of completed works are in foreign currency the above enhanced multiplying factors will not be applied. Instead, the current market exchange rate (State Bank of India BC Selling rate as on the last date of submission of the bid) will be applied for the purpose of conversion of the amount in foreign currency into India rupees.

4.5.3. General Experience.

The Applicant shall meet with the following minimum criteria:

- (a) Achieved a minimum annual financial turnover (defined as billing for works in progress and completed in all classes of civil engineering construction works only) in any one year, over the last five years of the annual value of contract / contracts applied for.
- (b) Experience in successfully completing or substantially completing at least one contract of highway (road and / or bridge works) airport runway of at least 40 percent of the value of proposed contract within the last five years.

The works may have been executed by the applicant as prime contractor or as a member of a joint venture or as a nominated sub-contractor. As subcontractor, he should have acquired the experience of execution of all major items of works under the proposed contract. In case a project has been executed by a joint venture, weightage towards experience of the project would be given to each joint venture in proportion to their financial participation in the joint venture.

Substantially completed works means those works which are at least 90 % completed as on the date of submission (i.e. gross value of work done up to the last date of submission is 90 % or more of the original contract price) and continuing satisfactorily.

For these, a certificate from the employers shall be submitted along with the application incorporating clearly the name of the work, contract value, billing amount, date of commencement of works, satisfactory performance of the contractor and any other relevant information.

4.5.4. Personnel Capabilities.

Availability for his work of personnel with adequate experience as required; as per

Appendix.

4.5.5. Equipment Capabilities

Based on the studies carried out by the Engineer, the minimum suggested major equipment to attain the completion of works in accordance with the prescribed construction schedule are shown in the Appendix.

The bidders should, however, undertake their own studies and furnish with their bid, a detailed construction planning and methodology supported with layout and necessary drawings and calculations to allow the employer to review their proposals. The numbers, types and capacities of each plant/equipment shall be shown in the proposals along with the cycle time for each operation for the given production capacity to match the requirements.

4.5.6. Financial Position

The Applicant should give undertaking that he has access to, or has available, liquid assets (aggregate of working capital, cash in hand and uncommitted bank guarantees) and / or credit facilities up to 25 percent of the value of the contract / contracts applied.

- 4.5.7.** The audited balance sheets for the last five years should be submitted, which must demonstrate the soundness of the applicant's financial position, showing long – term profitability including an estimated financial projection for the next two years. If necessary, the employer will make inquiries with the applicant's bankers.

4.5.8. Litigation History

The Applicant should provide accurate information on any litigation or arbitration resulting from contracts completed or under execution by him over the last five years. A consistent history of awards against the Applicant or any partner of a joint venture may result in failure of the applicant.

4.5.9. Disqualification

Even though the applicants meet the above criteria, they are subject to be disqualified if they have:

Made misleading or false representation in the forms, statements submitted, and / or Record of poor performance such as abandoning the work, rescinding of contract for which the reasons are attributable to the non – performance of the contractor; consistent history of litigation awarded against the applicant or financial failure due to bankruptcy. The rescinding of contract of a joint venture on account of reasons other than non – performance, such as Most Experienced partner of joint venture pulling out, court directions leading to breaking up of a joint venture before the start of work, which are not attributable to the poor performance of the contractor will, however, not affect the qualification of the individual partners.

**#4.6 JOINT VENTURE: ~~(Maximum 3 Members i.e. 1 Lead & 2 Others)~~
(Applicable only for estimated project cost of 50 Crore and above)**

~~4.6.1. Joint ventures must comply with the following requirement:~~

~~(a) Following are the minimum qualification requirements:~~

~~(i) The lead partner shall meet not less than 50 percent of all criteria given in para 4.5.3 & 4.5.6 above. The joint venture must collectively satisfy the criteria of para 4.5.3 & 4.5.6 above. The experience of the other joint venture partners shall be considered if it is not less than 30 percent of the qualifying criteria in para 4.5.3 & 4.5.6 above.~~

~~(ii) Individually each member must satisfy the requirements of para 4.5.7 & 4.5.8 above.~~

~~(b) Bid shall be signed so as to legally bind all partners, jointly and severally, and shall be submitted with a copy of the joint venture agreement providing the joint and several liabilities with respect to the contract.~~

~~4.6.2. Qualification of a joint venture does not necessarily qualify any of its partners individually or as a partner in any other joint venture. In case dissolution of a joint venture, each one of the constituent firms may qualify if they meet all the qualification requirements, subject to the written approval of the Employer.~~

4.7. Bid Capacity.

Applicants who meet the minimum qualification criteria will be qualified only if their available bid capacity at the expected time of bidding is more than the total estimated cost of the works. The available bid capacity will be calculated as under:

Assessed Available Bid Capacity = $(A*N*2-B)$, where

A = Maximum value of work executed in any one year during the last five years (updated to the price level of the year indicated in appendix) taking into account the completed as well as works in Progress.

B = Value at current price level of the existing commitments and ongoing works to be completed during the next **3 Month** (period of completion of work for which bids are invited); and

N = Number of years prescribed for completion of the works for which the bids are invited.

Note :- In Case of joint venture, the available bid capacity will be applied for each partner to the extent of his proposed participation in the execution of the work.

4.8 Even though the bidders meet the above qualifying criteria, they are subject to be disqualified if they have:

- Made misleading or false representation in the forms, statements and Attachments the submitted in proof the qualification requirements; and / or
- Record of poor performance such as abandoning the works, not properly completing the contract, inordinate delay in completion, litigation history, or financial failures etc.; and/ or
- Participated in the previous bidding for the same work and had quoted unreasonably high bid prices and could not furnish rational justification to the employer.

5. One bid per bidder

5.1. Each bidder shall submit only one bid for one package. A bidder who submits or participates in more than one bid (other than as a subcontractor or in cases of alternatives that have been permitted or requested) will cause all the proposals with the bidder's participation to be disqualified.

6. Cost of Bidding

6.1. The bidder shall bear all costs associated with the preparation and submission of his Bid, and the Employer will in no case be responsible and liable for those costs.

7. Site Visit

7.1. The Bidder, at the Bidder's own responsibility and risk is encouraged to visit and examine the Site of work and its surrounding and obtain all information that may be necessary for preparing the Bid and entering into a contract for construction of the Works.

The costs of visiting the site shall be at the Bidder's own expense.

B. BIDDING DOCUMENTS

8. Content of Bidding Documents

- 8.1 The set of bidding documents comprises the documents listed below and addenda issued in accordance with Clause 10:

Section	Particulars	Volume No.
-	Invitation for Bids	I
1	Instructions to Bidders	
2	Qualification Information, and other forms	
3	Conditions of Contract	
4	Contract Data	
5	Technical Specifications	II
6	Form of Bid	III
7	Bill of Quantities	
8	Securities and other forms	
9	Drawings	IV
10	Documents to be furnished by bidder	V

- 8.2 Volumes I, II, III and IV are available online and documents to be furnished by the bidder in compliance to section 2 will be prepared by him and furnished as Volume- V in two parts (refer clause 12).
- 8.3 The bidder is expected to examine carefully all instructions, conditions of contract, contract data, forms, terms, and technical specifications, bill of quantities, forms, Annexures and drawings in the Bid Document. Failure to comply with the requirements of Bid Documents shall be at the bidder's own risk. **Pursuant to clause 26 hereof**, bids which are not substantially responsive to the requirements of the Bid Documents shall be rejected.

9. Clarification Bidding Documents

- 9.1 A prospective bidder requiring any clarification of the bidding documents may notify the Employer in writing or through E-mail at the Employer's address indicated in the invitation to bid. The Employer will respond to any request for clarification which he received earlier than 15 days prior to the deadline for submission of bids. Employer's response will be published on website including a description of the enquiry but without identifying its source.

9.2. Pre-bid meeting

- 9.2.1. The bidder or his official representative is invited to attend a pre-bid meeting which will take place at the address, venue, time and date as indicated in the appendix.
- 9.2.2. The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.
- 9.2.3. The bidder shall be required to submit any questions in writing or e-mail to reach the Employer not later than 03 days before the meeting.
- 9.2.4. Minutes of the meeting, including the question raised (Without identifying the source of enquiry) and the responses given will be published without delay on the tender website i.e. <http://eprocure.gov.in> Any modification of the bidding documents listed in sub-Clause 8.1 which may become necessary as a result of the pre-bid meeting shall be made by the Employer exclusively through the issue of an Addendum pursuant to Clause 10 and not through the minutes of the pre-bid meeting.
- 9.2.5. Non-attendance at the pre-bid meeting will not be a cause for disqualification of a bidder.

9.2 Amendment of Bidding Documents

- 9.3 Before the deadline for submission of bids, the Employer may modify the bidding documents by issuing addenda.
- 10.2. Any addendum thus issued shall be part of the bidding documents. The Employer will assume no responsibility for the same.
- 10.3. To give prospective bidders reasonable time in which to take an addendum into account in preparing their bids, the Employer may, at his discretion, extend as necessary the deadline for submission of bids, in accordance with Sub-Clause 20.2 below.

C. PREPARATION OF BIDS

10. Language of the Bid

- 10.1 All documents relating to the bid shall be in the English language.

11. Documents Comprising the Bid

- 12.1. The bid be submitted by the bidder as Volume V of the bid document (refer Clause 8.1) shall be in two separate parts:

Part I shall be named “Technical Bid” and shall comprise

- (i) Bid Security in the form specified in Section 8
- (ii) Qualification Information and supporting documents as specified in Section 2
- (iii) Certificates, undertakings, affidavits as specified in Section 2
- (iv) Any other information pursuant to Clause 4.5 of these instructions
- (v) Undertaking that the bid shall remain valid for the period specified in Clause 15.1

Part II shall be named “Financial Bid” and shall comprise

- (i) Form of Bid as specified in Section 6
 - (ii) Priced Bill of Quantities for items specified in Section 7
- 12.2. The Bidder shall submit the details / information pertaining to each part i.e. technical as well as financial and must be submitted online only.
- 12.3. Following documents will be deemed to be part of the bid.

Section	Particulars	Volume No
	Invitation for Bids (IFB)	
1	Instruction to Bidders	Volume I
3	Conditions of Contract	
4	Contract Data	
5	Specifications	Volume II
9	Drawings	Volume IV

13 Bid Prices

- 13.1. The Contract shall be for the whole works as described in Sub-Clause 1.1, based on the priced Bill of Quantities submitted by the Bidder.
- 13.2. The bidder shall fill in rates and prices and line item total (both in figures and words) for all items of the Works described in the Bill of Quantities along with total bid price (Both in figures and words). Items for which no rate or price is entered by the bidder will not be paid for by the Bill of Quantities.

13.3. All duties, taxes, and other levies except GST payable by the contractor under the contract, or for any other cause shall be included in the rates, prices and total Bid Price submitted by the Bidder. (GST will be paid extra)

13.4. Deleted

13.5. The rates and prices quoted by the bidder are subject to adjustment during the performance of the Contract in accordance with the provisions of Clause 47 of the Condition of Contract **(Irrespective of the time limit and Bid Amount)**

14 Currencies of Bid and Payment

14.1. The unit rates and the prices quoted by the bidder shall be entirely in Indian Rupees. All payments shall be made in Indian Rupees.

15 Bid Validity

15.1. Bids shall remain valid for a period of not less than **120 days** after the deadline date for bid submission specified in Clause 20.

15.2. In exceptional circumstances, prior to expiry of the original time limit, the Employer may request that the bidders extend the period of validity for a specified period. A bidder may refuse the request without forfeiting his bid security. A bidder agreeing to the request will not be required or permitted to modify his bid, but will be required to extend the validity of his security for a period of the extension, and in compliance with Clause 16 in all respects.

#16. Bid Security

16.1. The Bidder shall furnish, as part of his Bid, a Bid security in the amount as shown in column 4 of the table of IFB for this particular work. This Bid security shall be in favor of Employer as named in Appendix and may be in one of the following forms;

a. Bank Guarantee from any scheduled Indian bank, in the format given in Volume III. **(Bank Guarantee is applicable only for Bid Estimated Amount of 01 Crore and above) and Bank** Guarantee of Schedule and Private Banks shall be considered as per GoG Finance Department's Circular No. FD/MSM/e- file/4/2023/0057/D.M.O. Date 21/04/2023 or as per their latest amendment.

b. Fixed Deposit Receipt issued by any Scheduled Indian Bank or a foreign Bank approved by the Reserve Bank of India.

OR

~~# A Valid Bid Security / EMD Exemption Certificate issued by (1) Road & Building Department or (2) Narmada Water Resources, Water Supply and Kalpsar Department of Govt of Gujarat. Exemption Certificate is applicable only when Registration Certificate of Appropriate Class and Category of Approved Contractors is required as eligible criteria of bidder.~~

- 16.2. Bank guarantees (and other instruments having fixed validity) issued as surety for the bid shall be valid for 45 days beyond the validity of the bid i.e. total validity of 120+45 = 165 Days
- 16.3. Any bid not accompanied by an acceptable Bid Security and not secured as indicated in Sub-Clauses 16.1 and 16.2 above shall be rejected by the Employer as non-responsive.
- 16.4. The Bid Security of unsuccessful bidders will be returned within 28 days of the end of the bid validity period specified in Sub-Clause 15.1
- 16.5 The Bid Security of the successful bidder will be discharged when the bidder has signed the Agreement and furnished the required Performance Security.
- 16.6. The bid Security may be forfeited
- (a) If the Bidder withdraws the bid after Bid opening during the period of Bid validity.
 - (b) If the Bidder does not accept the correction of the Bid Price, if any or
 - (c) In the case of a successful Bidders, if the Bidder fails the specified time limit to
 - (i) Sign the Agreement; or
 - (ii) Furnish the requirement Performance Security.
 - (d) #If found necessary, the bidder will be intimated for negotiation, He will be intimated maximum three times within the validity period for negotiation, If contractor does not respond in time, his Bid Security (EMD) will be forfeited and his tender will be rejected. Punitive action will be taken on such contractors. (As per GoG R&B Dept's Gr. No. S/22/2017/6369/D, Dt.08/06/2018)

17. Alternative Proposals by Bidders.

- 17.1. Bidders shall submit offers that fully comply with the requirements of the bidding documents, including the conditions of contract (including mobilization advance or time for completion), basic technical design as indicated in the drawing and specifications. Conditional offers or alternative offers will not be considered further in the process of tender evaluation.

18. Format and Signing of Bid

- 18.1. The Bidder shall prepare documents comprising the bid as described in Clause 12 of these Instructions to bidder as the “Technical Bid “and “Financial Bid” in separate parts to be uploaded.

D. SUBMISSION OF BIDS

19. Deleted

20. Deadline for Submission of the Bids

- 20.1. Complete Bids must be received online by the Employer at the tender website specified above not later than the date indicated in appendix.
- 20.2. The Employer may extend the deadline for submission of bids by issuing an amendment in accordance with Clause 10, in which case all right and obligation of the Employer and the bidders previously subject to the original deadline will then be subject to the new deadline.

21. Deleted

22. Modification and Withdrawal of Bids

- 22.1. Bidders may modify or withdraw their bids online before the deadline prescribed in Clause 20 or pursuant to Clause 23.
- 22.2. Deleted
- 22.3. No bid shall be modified or withdrawn after the deadline for submission of Bid.
- 22.4. Withdrawal or modification of a bid between the deadline for submission of bids and the expiration of the original period of bid validity specified in Clause 15.1 above or as extended pursuant to Clause 15.2 may result in the forfeiture of the Bid security pursuant to Clause 16.

E. BID OPENING AND EVALUATION

23. Bid Opening

- 23.1 The Employer will open all the Bids received including modifications made pursuant to Clause 22, in the presence of the Bidders or their representatives who choose to attend at time, date and the place specified in Appendix in the manner specified in Clauses 20 and 23.3, In the event of the specified date of Bid opening being declared a holiday for the Employer, the Bids will be opened at the appointed time and location on the next working day.
- 23.2. Deleted.
- 23.3. The “Technical Bid” shall be opened. The amount, form and validity of the bid security furnished with each bid will be announced. If the bid security furnished does not conform to the amount and validity period as specified in the invitation for bid (ref. Column 4 and paragraph 3), and has not been furnished in the form specified in Clause 16, the technical bid will not be opened.
- 23.4. (i) Subject to confirmation of the bid security by the issuing Bank, the bids accompanied with valid bid security will be taken up for evaluation with respect to the Qualification information and other information furnished in part I of the bid pursuant to Clause 12.1.
- (ii) If required, the bidder will be asked in writing to clarify his Qualification Documents with respect to any required clarification.
- (iii) The bidders will respond in not more than 7 days of issue of the clarification letter.
- (iv) Immediately (usually within 3 or 4 days), on receipt of these clarification the Evaluation Committee will finalize the list of responsive bidders whose financial bids are eligible for consideration.
- 23.5. Deleted
- 23.6 At the time of opening of “Financial Bid”, the names of the bidders those who are found responsive in accordance with Clause 23.4(iv) will be announced. The bids of only these bidders will be opened. The responsive Bidders’ names, the Bid prices, the total amount of each bid, any discount and such other details as the Employer may consider appropriate, will be announced by the Employer at the opening.
- 23.7 At the time of opening of “Financial Bid”, the names of the bidders those who are found responsive in accordance with Clause 23.4(iv) will be announced. The bids of only these bidders will be opened those who are declared responsive. The responsive Bidders’ names, the Bid prices, the total amount of each bid, any discount, and such other details as the Employer may consider appropriate, will be announced by the Employer at the time of opening.
- 23.8 In case bids are invited for more than one package, the order for opening of the “Financial Bid” shall be in order of estimated amount of Bids from highest to lowest.
- 23.9 The Employer shall prepare minutes of the Bid opening, including the information disclosed to those present in accordance with Sub-Clause 23.6.

24 Process to be Confidential

- 24.1 Information relating to the examination, clarification, evaluation, and comparison of Bids and recommendations for the award of a contract shall not be disclosed to Bidders or any other persons not officially concerned with such process until the award to the successful Bidder has been announced. Any effort by Bidder to influence the Employer's processing of Bids or award decisions may result in the rejection of his Bid.

25. Clarification of Financial Bids

- 25.1. To assist in the examination, evaluation, and comparison of Bids, the Employer may, at his discretion, ask any Bidder for clarification of his Bid, including breakdowns of unit rates. The request for clarification and the response shall be in writing or by e-mail, but no change in the price or substances of the Bid shall be sought, offered, or permitted except as required to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the Bids.
- 25.2 Subject to sub-clause 25.1, no Bidder shall contact the Employer on any matter relating to his Bid opening to the contract is awarded. If the Bidder wishes to bring additional information to the notice of the Employer, it should do so in writing.
- 25.3. Any effort by the Bidder to influence the Employer in the Employer's bid evaluation, bid comparison or contract award decision may result in the rejection of the Bidders' bid.

26. Examinations of Bids and Determination of Responsiveness

- 26.1 During the detail evaluation of "Technical Bid", the Employer will determine whether each Bid (a) meets the eligibility criteria defined in Clause 3 and 4; (b) has been properly signed; (c) is accompanied by the required securities and; (d) is substantially responsive to the requirements of the Bidding document. During the detailed evaluation of the "Financial Bid", the responsiveness of the bids will be further determined with respect to the remaining bid conditions, i.e., priced bill of quantities, technical specifications, and drawings.
- 26.2 A substantially responsive "Financial Bid" is one which confirms all the terms, conditions and specifications of bidding documents, without material deviation or reservation. A material deviation or reservation is one (a) which affects in any substantial way the scope, quality, or performance of the Works; (b) which limits in any substantial way, inconsistent with the Bidding documents, the Employer's rights or the Bidder's obligations under the Contract; or (c) whose rectification would affect unfairly the competitive position of other Bidders presenting substantially responsive Bids.
- 26.3 If a "Financial Bid" is not substantially responsive, it will be rejected by the Employer, and may not subsequently be made responsive by correction or withdrawal of the non-conforming deviation or reservation.

27. Deleted

28. Deleted

29. Evaluation and Comparison of Financial Bids

29.1. The Employer will evaluate and compare only the Bids determined to be substantially responsive in accordance with Sub-Clause 26.2.

29.2. Deleted.

29.3. The Employer reserves the right to accept or reject any variation or deviation. Variation and deviations and other factors, which are in excess of the requirements of the Bidding documents or otherwise result in unsolicited benefits for the Employer, shall not be taken in to account in Bid evaluation.

29.4. The estimated effect of the price adjustment conditions under Clause 47 of the Conditions of Contract, during the period of implementation of the Contract, will not be taken in to account in Bid evaluation.

29.5. If the Bid of the successful Bidder is seriously unbalanced in relation to the Engineer's estimate of the cost of work to be performed under the contract the Employer may require the Bidder to produce detailed consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analyses, the Employer may require that the amount of the performance security set forth in Clause 34 be increased at the expense of the successful /bidder to a level sufficient to protect the Employer against financial loss in the event of default of the successful Bidder under the Contract.

29.6. A bid which contains several items in the bill of Quantities which are unrealistically priced low and which cannot be substantiated satisfactorily by the bidder may be rejected as non-responsive.

30. Deleted

F. AWARD OF CONTRACT

31. Award Criteria

31.1. Subject to Clause 32, the Employer will award the contract to the Bidder whose Bid has been determined.

- (i) to be substantially responsive to the Bidding documents and who has offered the lowest evaluated Bid Price; and
- (ii) to be within the available bid capacity adjusted to account for his bid price which is the lowest evaluation in any of the packages opened earlier than the one consideration.

In no case, the contract shall be awarded to any bidder whose available bid capacity is less than the evaluated bid price, even if the said bid is the lowest evaluated bid. The contract will in such cases be awarded to the next lowest bidder at his evaluation bid price.

32. Employer's Right to accept any Bid and to reject any or all Bids

32.1. Notwithstanding Clause 31, the Employer reserves the right to accept or reject any Bid, and to cancel the Bidding process and reject all Bids, at any time prior to the award of contract, without thereby incurring any liability to the affected bidder or Bidder or any obligation to inform the affected Bidder or Bidders of the grounds for the Employer's action.

33. Notification of Award and Signing of Agreement

33.1. The Bidder whose Bid has been accepted will be notified of the award by the Employer prior to expiration of the Bid validity period by cable, telex or facsimile confirmed by registered letter. This letter (hereinafter and in the condition of contract called the "Letter of Acceptance") will state the sum that the Employer will pay the Contractor in consideration of the execution, completion, and maintenance of the Works by the Contractor as prescribed by the Contract (hereinafter and in the Contract called the "Contract Price").

33.2 The notification of award will constitute the formation of the contract, subject only to the furnishing of a performance security in accordance with the provisions of Clause.

33.3. The Agreement will incorporate all agreements between the Employer and the successful Bidder. It will be signed by the Employer and to the successful Bidder, within 28 days following the notification of award along with the Letter of Acceptance. Within 21 days of receipt, the successful Bidder will sign the Agreement and deliver it to the Employer.

33.4. Upon the furnishing by the successful Bidder of the Performance Security, the Employer will promptly notify the other Bidders that their Bids have been unsuccessful.

34. Performance Security

34.1. (A) Within 10 (Ten) days of receipt of Letter of Acceptance, the successful Bidder shall furnish to the Employer an irrevocable and unconditional guarantee from a Bank in the form set forth in Section 8 (the “Performance Security”) for an amount equal to **5% (five percent)** of its Contract Price. In case of bids mentioned below, the successful Bidder, along with the Performance Security, shall also furnish to the Authority an irrevocable and unconditional guarantee from a Bank in the same form given at Section 8 towards an Additional Performance Security (The “Additional Performance Security”) for an amount calculated as under:

~~(a) If the Contract Price offered by the Selected Bidder is lower than 10% but upto 20% of the Estimated Project Cost, then the Additional Performance Security shall be calculated @ 20% of the difference in the (i) Estimated Project Cost (as mentioned in Bid Document) Minus 10% of the Estimated Project Cost and (ii) Contract Price offered by the selected Bidder.~~

~~(b) If the Contract Price offered by the Selected Bidder is lower than 20% of the Estimated Project Cost, then the Additional Performance Security shall be calculated @ 30% of the difference in the (i) Estimated Project Cost (as mentioned in Bid Document) Minus 10% of the Estimated Project Cost and (ii) Contract Price offered by the selected Bidder.~~

~~(c) This Additional Performance Security shall be treated as part of the Performance Security.~~

(B) The Performance Security shall be valid beyond 60(sixty) days of the Defects Liability Period and the Additional Performance Security shall be valid beyond 28 (twenty-eight) days of Project Completion Date.

34.2. If the performance security is provided by the successful Bidder in the form of a Bank Guarantee, it shall be issued either (a) at the Bidder’s option, by a Nationalized/Scheduled Indian bank or (b) by a foreign bank located in India and acceptable to the Employer. As per GoG Finance Department’s Circular No. FD/MSM/e-file/4/2023/0057/D.M.O. Date 21/04/2023 or as per their latest amendment.

34.3. Failure of the successful Bidder to comply with the requirement of Sub-Clause 34.1 shall constitute sufficient grounds for cancellation of the award and forfeiture of the Bid Security.

~~35 Advance Payment and Security~~

~~35.1 The Employer will provide an Advance payment on the Contract Price as stipulated in the Conditions of Contract, subject to maximum amount, as stated in the Contract Data.~~

36. Deleted

37. Corrupt or Fraudulent Practices

- 37.1 The Employer will reject a proposal if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices in completing for the contract in question and will declare the firm ineligible, either indefinitely or for a stated period of time, to be awarded a contract with National Highways Authority of India/ State PWD and any other agencies, if it at any time determines that the firm has engaged in corrupt or fraudulent practices in completing for the contractor, or in execution.
- 37.2 Furthermore, Bidders shall be aware of the provision stated in Sub- Clause 59.2 of the Conditions of Contract.

APPENDIX TO ITB
Clause Reference With
respect to Section –I

1. The Name of the Employer is **Executive Engineer, N.H. Division, Gandhidham** [Cl.1.1]
2. The last five years.
2025 – 2026
2024 – 2025
2023 – 2024
2022 – 2023
2021 – 2022
3. This Annual Financial Turnover Amount is **Rs. 0.00** [Cl.4.5.3 (a)]
4. Value of Work is **Rs. 20,00,000/-**
5. Deleted
6. The cost of electric work is **Rs. 0.00**
7. The cost of water supply / sanitary works is **Rs. 0.00**
8. Liquid assets and / or availability of credit facilities is **Rs.0.00** [Cl.4.5.6]
9. Price level of the financial year **2025 – 2026** [Cl. 4.5.2]
10. The pre-bid meeting will take place at - [Cl. 9.2.1]
11. The technical Bid will be opened at the office of the
Executive Engineer, N.H. Division, Gandhidham
on -----As per NIT-----
12. Address of the Employer: **Executive Engineer, N.H. Division, Gandhidham**
13. Deleted
14. The bid should be submitted latest by As stated on online NIT [Cl. 20.1 & 20.2]
15. The bid will be opened at As stated on online NIT [Cl. 23.1]
16. The Bank Draft in favor of **Executive Engineer, N.H. Division, Gandhidham**
17. Deleted
18. ~~Escalation factors (for the cost of works executed and financial figure to a common base value) for works completed~~ [Cl.4.5.2]

<u>Year</u>	<u>Financial Year</u>	<u>Multiplying factor</u>
Base year of inviting tender	2025-2026	1.00
-1	2024-2025	1.10
-2	2023-2024	1.21
-3	2022-2023	1.33
-4	2021-2022	1.46
-5	2020-2021	1.61

#LIST OF KEY PLANT & EQUIPMENT TO BE DEPLOYED ON CONTRACT WORK

[Reference CL. 4.5.5]

The contractors shall also give a list of machineries in his possession and which they propose to use on the work.

Sr. No.	Plant or Machinery	Location	Age of Machinery (maximum 15 years)	Make	Capacity	Approximate Value	Remark
1	2(a)	2(b)	3	4	5	6	7

List of Key Personnel to be deployed on Contract Work

(Reference Cl. 4.5.4)

Employment of a qualified site Engineer by the Contractor.

The Contractor shall employ full-time technically qualified staff during the execution of this work as under: -

1. Two graduate Civil Engineers and three diploma Civil Engineers when cost of the work to be executed is more than Rs.50 lakhs.
2. One graduate & two Diploma, Civil Engineers when the cost of the work to be executed is more than Rs.15 lakhs but less than Rs.50 lakhs.
3. Minimum one Diploma Civil Engineer when the cost of work is less than Rs.15 lakhs but more than Rs.5 lakhs.
4. Minimum two Diploma Civil Engineers for the work when the cost of work to be executed is less than Rs. 5 lakhs. The Engineer so employed for the Government work must have sufficient experience to handle the work independently. Such an Engineer shall have to stay at the site of work and he shall not be entrusted with other duty except this work.

In case the contractor or partner of the contractor firm is a Civil Graduate Engineer, Employment of a separate Engineer will not be necessary provided that the Engineer partner himself attends the execution of the work on the site.

Within 15 days of issue of work-order the Contractor will have to furnish to the Deputy Executive Engineer-in-charge of the work the Name, Qualifications, copy of mark sheet, Color Photograph and the appointment order issued such engineers engaged for this contract work. If 15 days after issue of work order such designated Site Engineers do not resume or do not remain present on site of work, the recovery at the rate of Rs.15,000-00 per month per Engineer will be made from the bills/deposit/dues of the contractor. Such recovery shall be non-refundable.

SECTION - 2

QUALIFICATION INFORMATION

QUALIFICATION INFORMATION

The information to be filled in by the Bidder in the following pages will be used for the purpose of post qualification as provided for in Clause 4 of the Instruction to Bidders. This information will not be incorporated in the Contract.

1. For Individual Bidders

1.1 Constitution or legal status of Bidder (Attach Copy)

Place of registration _____

Principal place of business _____

Power of attorney of signatory of Bid

(Attach)

1.2 Total value of Civil engineering construction 20__20
performed in the last five years 20__20
(in Rs. Lakhs) 20__20
20__20
20__20

1.3.1 Work performed as prime contractor, work performed in the past as a nominated sub-contractor will also be considered the sub-contract involved execution of all main items of work described in the bid documents, provided further that all other qualification criteria are satisfied (in the same name) on works of a similar nature over the last five years** and in current year before the submission of the bid.

Project Name	Name of the Employer	Description of work	Contract No.	Value of contract (Rs. Crore)	Date of issue of work order	Stipulated period of completion	Actual date of completion*	Remark explaining reasons for delay & work Completed

*Attach certificate(s) from the Engineer(s)in-charge

** Immediately preceding the financial year in which bids are received.

#1.3.2 Quantities of work executed as prime contractor, work performed, in the past as a nominated sub-contractor, will also be considered provided the sub-contract involved execution of all main items of work described in the bid document, provided, further that all other qualification criteria are called (in the same name and style) in the **last five years**** and in current year before the submission of the bid.

Year	Name of the work	Name of the Employer	Quantity of work performed (Cum/MT)				Remarks* (indicate contract Ref)
			Cement Concrete (Including RCC & PCC)	Masonry	Earth Works	Bituminous Work	
20_-20							
20_-20							
20_-20							
20_-20							
20_-20							

1.4 Information on Bid Capacity (works for which bids have been submitted and works which are yet to be completed) as on the date of this bid.

(A) Existing commitments and on-going works:

Description of works	Place & State	Contract No.	Name & Address of Employer	Value Contract (Rs. Cr)	Stipulated Period of Completion	Value of Works* remaining to be completed (Rs. Cr)	Anticipated of completion
1	2	3	4	5	6	7	8

*Attach certificate (s) from the Engineer(s) in-charge

** Immediately preceding the financial year in which bids are received.

1.5 Availability of key items of Contractors Equipment for carrying out the works (Ref. Clause 4.5.5). The Bidder should list all the information requested below.

Item of Equipment	Requirement		Availability Proposals			Remarks (from whom to be purchased)
	NO	Capacity	Owned/ Leased to be procured	Nos/. Capacity	Age/ Conditions	

- 1.6 Qualifications and experience of key personnel required for administration and execution of the contract. Attach biographical data. Refer also to Sub Clause 9.1 of the Conditions of Contract.

Position	Name	Qualification	Year of Experience (General)	Year of experience in the proposed position
Project Manager				
Etc.				

- 1.7 Proposed sub-contract and firms involved

Sections of the works	Value of Sub-Contractor	Sub-Contractor (Name & Address)	Experience in similar work

Attach copies of certificates on possession of valid license for executing water supply/ sanitary work/ building electrification works.

- 1.8 Financial reports for the last five years: balance sheets, profit and loss statements, auditors' reports (in case of companies/corporations), etc. List them below and attach copies.
- 1.9 Evidence of access to financial resources to meet the qualification requirements: cash in hand, lines of credit, etc. List them below and attach copied documents.
- 1.10 Name, address, and telephone, telex, and fax numbers of the Bidders bankers who may provide references if contacted by the Employer.
- 1.11 Information on Litigation history in which the Bidder is involved.

Other Party (ies)	Employer	Cause of Dispute	Amount Involved	Remarks showing Present Status

- 1.12. Statement of compliance under the requirements of Sub Clause 3.2 of the instruction to Bidders. (Name of Consultant engaged for project preparations is *)

- 1.13 Proposed work method and schedule. The Bidder should attach descriptions, drawings and charts as necessary to comply with the requirements of the Bidding documents. (Refer ITB Clause 4.1)
- 1.14 Programmed

2. Deleted

3. Additional Requirements

- 3.1 Bidders should provide any additional information required to fulfill the requirements of Clause 4 of the Instructions to the Bidders, if applicable.
- (i) Affidavit
- (ii) Undertaking

* Fill the name of Consultant

**SAMPLE FORMAT FOR EVIDENCE OF ACCESS
TO OR AVAILABILITY OF CREDIT FACILITIES**

(CLAUSE 4.5.6 OF

ITB) BANK

CERTIFICATE

This is to certify that M/s. _____ is a reputed company
with a good financial standing.

If the contract for the work, namely _____ is awarded to the
above firm, we shall be able to provide overdraft/credit facilities to the extent of
Rs. _____ to meet their working capital requirements for executing the above
during the contract period.

(Signature)

Name of Bank

Senior Bank Manager

Address of the Bank

AFFIDAVIT

1. I, the undersigned, do hereby certify that all the statements made in the required attachments are true and correct.
2. The undersigned also hereby certifies that neither our firm M/s. _____ have not abandoned any work of Government of Gujarat/Government of India/any Board or Corporation under Government of Gujarat/Government of India nor any contract awarded to us for such works have been rescinded, during last five years prior to the date of this bid.
3. The undersigned hereby authorize(s) and request (s) any bank, person, firm or corporation to furnish pertinent information deemed necessary and requested by the Department to verify this statement or regarding any (our) competence and general reputation.
4. The Undersigned understands and agrees that further qualifying information may be requested, and agrees to furnish any such information at the request of the Department/ Project implementing agency.

(Signed by an Authorized Officer of the Firm)

Title of Officer

Name of Firm

Date

UNDERTAKING

I, the undersigned do hereby undertake that our firm
M/s would invest a minimum cash
up to 25% of the value of the work during implementation of the contract.

(Signed by an Authorized officer of the firm)

Title of officer

Name of firm

DATE

SECTION - 3
CONDITIONS OF CONTRACT

Conditions of Contract

Table of Contents

A	General	Page No.	D.	Cost Control	
1	Definitions	37	37	Bill of Quantities	49
2	Interpretation	38	38	Changes in the Quantities	49
3	Language and Law	39	39	Variations	49
4	Engineer's Decisions	39	40	Payments for Variations	49
5	Delegations	39	41	Cash Flow Forecasts	50
6	Communications	39	42	Payment Certificates	51
7	Sub-Contractors	39	43	Payments	51
8	Other Contractors	39	44	Compensations Events	51
9	Personnel	40	45	Tax	52
10	Employer's & Contractor Risk	40	46	Currencies	52
11	Employers Risks	40	47	Price Adjustment	52
12	Contractor's Risk	40	48	Retention	52
13	Insurance	40	49	Liquidated damages	53
14	Site Investigations Reports	41	50	Bonus	54
15	Queries about the Contract	41	51	Advance Payment	54
16	Contractors to Construct the works	41	52	Securities	55
17	The Works to be Completed By the Intended Completion Date	41	53	Deleted	55
18	Approval by the Engineer	41	54	Cost of Repair	55
19	Safety	41			
20	Discoveries	42	E.	Finishing the Contract	
21	Possession of the Site	42	55	Completion	56
22	Access to the Site	42	56	Taking Over	56
23	Instructions	42	57	Final Account	56
24	Disputes	42	58	Operating and Maintenance manuals	56
25	Procedure for Disputes	43			
26	Deleted	43	59	Terminations	56
			60	Payment upon Terminations	57
B.	Time Control		61	Property	58
27	Programme	44	62	Release from Performance	58
28	Extensions of the Intended completion date	44			
29	Deleted	44	F.	Special Conditions of Contract	
30	Delays Ordered by The Engineer	44	63	Labour	59
31	Management Meetings	45	64	Compliance with labour regulations	59
32	Early Warning	45	65	Arbitration	62
C.	Quality Control				
33	Identifying Defects	46			
34	Tests	48			
35	Correction of Defects	48			
36	Uncorrected Defects	48			

CONDITIONS OF CONTRACT

A. GENERAL.

1. Definitions

- 1.1 Terms which are defined in the Contract Data are not also defined in the Conditions of Contract but keep their defined meaning.

Bill of Quantities means the priced and completed Bill of Quantities forming part of the Bid

Compensation Events are those defined in Clause 44 hereunder

The **Completion Date** is the date of completion of the Works as certified by the Engineer in accordance with Sub Clause 55.1

The Contract is the contract between the Employer and Contractor to execute, complete and maintain the Works **till the completion of Defects Liability Period**. It consists of the documents listed in Clause 2.3 below.

The **Contract data** defines the documents and other information which comprise the Contract.

The **Contractor** is a person or corporate body whose Bid to carry out the Work has been accepted by the Employer.

The **Contractor's Bid** is the completed Bidding document submitted by the Contractor to the Employer and includes Technical and Financial Bids.

The **Contract Price** is the price stated in the Letter of Acceptance and thereafter as adjusted in accordance with the provisions of the Contract.

Days are calendar days: **months** are calendar months.

The **Defects Liability Period** is the period named in the Contract Data and calculated from the Completion Date.

The **Employer** is the party who will employ the Contractor to carry out the Works.

The Engineer is the person named in the Contract Data (or any other competent person appointed and notified to the contractor to act in replacement of the Engineer) who is responsible for supervising the Contractor, administering the Contract, certifying payments due to the Contractor, issuing and valuing Variations to the Contract, awarding extensions of time, and valuing the Compensations Events.

Equipment is Contractor's machinery and vehicles brought temporarily to the site to construct the Works.

The **Initial Contract Price** is the Contract Price listed in the Employer's Letter of Acceptance.

The **Intended Completion Date** is the date on which it is intended that the Contractor shall complete the Works. The Intended Completion Date is specified in the Contract Data. The Intended Completion Date may be revised only by the Engineer by issuing an extension of time.

Materials are all supplies, including consumables, used by the contractor for incorporation in the works.

Plant is any integral part of the work which is to have mechanical, electrical, electronic or chemical or biological functions.

The **Site** is the area defined as such in the Contract Data.

Site Investigation Reports are those which were included in the Bidding documents and are factual interpretive reports about the surface and subsurface conditions at the site.

Specifications means the Specifications of the works included in the Contract and any modification or addition made or approved by the Engineer.

The **Start Date** is given in the Contract Data. It is the date when the Contractor shall commence execution of the works. It does not necessarily coincide with any of the Site Possession Dates.

A **Subcontractor** is a person or corporate body who has a Contract with the Contractor to carry out a part of the work in the Contract which includes work on the Site.

Temporary Works are works designed, constructed, installed, and removed by the Contractor which are needed for construction or installation of the Works.

A **Variation** is an instruction given by the Engineer, which varies the Works. The

Works are what the Contract requires the Contractor to construct, install, and turn over to the Employer, as defined in the Contract Data.

2. Interpretation

- 2.1 In interpreting these Conditions of Contract, singular also means plural, male also means female or neuter and the other way around. Heading have no significance. Words have their normal meaning under the language of the Contract unless specifically defined. The Engineer will provide instructions clarifying queries about Conditions of Contract.
- 2.2 If sectional completion is specified in the Contract Data, references in the Conditions of Contract to the Works, the Completion date, and Intended Completion Date apply to any Section of the Works (other than references to the Completion Date and Intended Completion date for the whole works)
- 2.3 The documents forming the Contract shall be interpreted in the following order of priority
 - (1) Agreement
 - (2) Letter of Acceptance, notice to proceed with works
 - (3) Contractor's Bid

- (4) Contract Data
- (5) Conditions of Contract including Conditions of Contract
- (6) Specifications
- (7) Drawings
- (8) Bills of quantities and
- (9) Any other document listed in the Contract Data as forming part of the Contract.

3. Language and Law

- 3.1 The language of the Contract and the law governing the Contract are stated in the Contract Data.

4. Engineers Decisions

- 4.1 Except where otherwise specifically stated, the Engineer will decide contractual matters between the Employer and the Contractor in the role representing the Employer.

5. Delegation

- 5.1 The Engineer may delegate any of his duties and responsibilities to other people after notifying the Contractor and may cancel any delegation after notifying the Contractor.

6. Communications

- 6.1 Communications between parties which are referred to in the conditions are effective only when in writing. A notice shall be effective only when it is delivered (in terms of Indian Contract Act).

7. Sub-Contracting

- 7.1 The Contractor may subcontract any portion of work, up to a limit specified in contract data, with the approval of the engineer but may not assign the Contract without the approval of the Employer in writing. Subcontracting shall not alter the Contractor's obligations. **Sub-contracting of supply or specific items of work is not allowed.**
- 7.2 The sub-contractor must be registered in appropriate class and category for the part of work to be subcontracted.

8. Other Contractors

- 8.1 The Contractor shall cooperate and share the Site with other contractors, public authorities, utilities and the Employer between the dates given in the Schedule of other Contractor. The Contractors shall as refer to in the Contract Data, also provide facilities and services for them as described in the Schedule. The employer may modify the schedule of other contractors and shall notify the contractor of any such modifications.

9. Personnel

- 9.1 The Contractor shall employ the key personnel named in the Schedule of Key Personnel as referred to in the Contract Data to carry out the functions stated in the Schedule or other personnel approved by the Engineer. The Engineer will approve any proposed replacement of key personnel only if their qualifications, abilities, and relevant experience are substantially equal to or better than those of the personnel listed in the Schedule.
- 9.2 If the engineer asks the Contractor to remove a person who is a member of the Contractor Staff or his work force stating the reasons the Contractor shall ensure that the person leaves the Site within seven days and has no further connection with the work in the Contract.

10. Employer's and Contractors Risks

- 10.1 The Employer carries the risk which these Contract states are Employer's risks, and the Contractor carries the risks which these Contracts states are Contractors risk.

11. Employer's Risks

- 11.1 The employer is responsible for the excepted risks which are (a) in so far as they directly affect the execution of the Works, the risks of war, hostilities, invasion, act of foreign enemies, rebellion, revolution, insurrection or military or usurped power, civil war, riot commotion or disorder (unless restricted to the Contractor's employees), and contamination from any nuclear fuel or nuclear waste or radioactive toxic explosive.

12. Contractor's Risks

- 12.1 All risks of loss of or damages to physical property and of personal injury and death which arise during and in consequence of the performance of the Contract other than the excepted risks are the responsibility of the Contractor.

13. Insurance

- 13.1 The Contractor shall provide, in the joint names of the Employer and the Contractor, insurance cover from the Start date to the end of the Defects Liability Period, in the amounts and deductibles stated in the Contract data for the following events which are due to the Contractor's risks:

(a) Loss of or damage to the works, Plant and materials,

(b) Loss of or damage to Equipment

(c) Loss of or damages of property (except the Works, Plant, Materials and Equipment) in connection with the Contract; and

(d) Personal injury or death.

- 132 Policies and certificates for insurance shall be delivered by the Contractor to the Engineer for the Engineer's approval before the Start Date. All such insurance shall provide for compensation to be payable in the types and proportions of currencies required to rectify the loss or damage incurred.
- 133 If the Contractor does not provide any of the policies and certificates required, the Employer may affect the insurance which the Contractor should have provided and recover the premiums the Employer has paid from payments otherwise due to the Contractor or, if no payment is due, the payment of the premiums shall be a debt due.
- 134 Alterations to the terms of an insurance shall not be made without the approval of the Engineer.
- 135 Both parties shall comply with any conditions of the insurance policies.

14. Site Investigation Report

- 14.1 The Contractor in preparing the Bid shall rely on any site Investigation reports referred to in the Contract Data, supplemented by any information available to the Bidder.

15. Queries about the Contract data

- 15.1 The engineer will clarify queries on the Contract Data

16. Contractor to Construct the Works

- 16.1 The Contractor shall construct and install the works in accordance with the specification and Drawings.

17. The Works to be completed by the Intended Completion Date

- 17.1 The Contractor may commence execution of the Works on the Start Date and shall carry out the Works in accordance with the programme submitted by the Contractor, as updated with the approval of the Engineer, and complete them by the Intended Completion date

18. Approval by the Engineer

- 18.1 The Contractor shall submit Specifications and Drawings showing the proposed Temporary works to the Engineer, who is to approve them if they comply with the Specifications and drawings.
- 18.2 The Contractor shall be responsible for design of temporary works.
- 18.3 The Engineer's approval shall not alter the contractor responsibility for design of the Temporary works.

- 18.4 The Contractor shall obtain approval of third parties to the design of the Temporary works where required.
- 18.5 All Drawings prepared by the Contractors for the execution of the temporary or permanent work are subject to prior approval by the Engineer before their use.

19. Safety

- 19.1 The Contractor shall be responsible for the safety of all activities on the Site.

20. Discoveries

- 20.1 Anything of historical or other interest or of significant value unexpectedly discovered on the site is the property of the Employer. The contractor is to notify the engineer of such discoveries and carry out the Engineer's instructions for dealing with them.

21. Possession of the Site

- 21.1 The Employer shall give possession of all parts of the site to the Contractor. If possession of a part is not given by the date stated in the Contract Data the Employer is deemed to have delayed the start of the relevant activities and this will be a Compensation Event.
- 21.2 If within 25% of the time limit of the project, 80% of possession of the site is not handed over to the Contractor, then contractor/ Employer may fore-close the contract. Contractor/Employer has to foreclose the work within 30 days after lapse of 25%-time limit and after 30 days foreclosure option will be closed.

22. Access to the Site

- 22.1 The Contractor shall allow the Engineer and any person authorized by the Engineer access to the Site, to any place where work in connection with the Contract is being carried out or is intended to be carried out and to any place where materials or plants are being manufactured/ fabricated/ assembled for the works.

23. Instructions

- 23.1 The Contractor shall carry out all instructions of the Engineer pertaining to works which comply with the applicable laws where the site is located.
- 23.2 The Contractor shall permit the Employer to inspect the Contractor's accounts and records relating to the performance of the Contractor and to have them audited by auditors appointed by the Employer, if so required by the Employer.

24. Disputes

- 24.1 If the Contractor is of the view that a decision taken by the Engineer was either outside the authority given to the Engineer by the Contract or that the decision was wrongly taken, the decision shall be referred to **Superintending Engineer, N.H. Circle, Gandhinagar**(Higher Authority) within 14 days of the notification of the Engineer's decision. If the issue is not resolved, any party can refer the matter for conciliation within 15 days from the decision given by the **Superintending Engineer, N.H. Circle, Gandhinagar**

24.2

- (a) For the work up to Rs.100 Cr., if any of the parties is not satisfied with the decision of the **Superintending Engineer, N.H. Circle, Gandhinagar** both the parties have to refer to the Chief Engineer concern for the conciliation process.
- (b) For the work more than Rs.100 Cr., if any of the parties is not satisfied with the decision of the **Superintending Engineer, N.H. Circle, Gandhinagar** both the parties have to refer to the **Secretary, Roads & Building Department, Government of Gujarat** for the conciliation process.

If the dispute is not resolved through the conciliation process, he may refer the dispute to Gujarat Public Works Contract Dispute Arbitration Tribunal. If the Contractor fails to refer a claim / dispute to the Higher Authority within 14 days of the notification of the Engineer's decision, the Contractor shall not be entitled to any additional payment/claim if he doesn't follow the above sequence in stipulated time and he should not stop the work.

25. Procedure for Disputers

- 25.1 The arbitration shall be conducted in accordance with the arbitration procedure stated in the Special Conditions of Contract.

26. Deleted

B. TIME CONTROL

27. Programme

- 27.1 Within the time stated in the Contract Data the Contractor shall submit to the Engineer for approval a Programme showing the general methods, arrangements orders, and timing for all the activities in the works along with monthly cash flow forecast.
- 27.2 An update of the Programme shall be a programme showing the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining work including any changes to the sequence of the activities.
- 27.3 The Contractor shall submit to the Engineer, for approval an updated programme at intervals no longer than the period stated in the Contract data. If the Contractor does not submit an updated programme within this period, the Engineer may withhold the amount stated in the Contract data from the next payment after the date on which the overdue programme has been submitted.
- 27.4 The Engineer's approval of the programme shall not alter the Contractor's obligations. The Contractor may revise the programme and submit it to the Engineer again at any time. A revised programme is to show the effect of Variations and Compensations events.

28. Extension of the Intended Completion Date

- 28.1 The Engineer shall extend the Intended Completion Date if a compensation Event occurs or a Variation is issued which makes it impossible for completion to be achieved by the Intended Completion Date without the Contractor taking steps to accelerate the remaining work and which would cause the Contractor to incur additional cost.
- 28.2 The Engineer shall decide whether and by how much to extend the Intended Completion Date within 35 days of the Contractor asking the Engineer for a decision upon the effect of a compensation event or Variation and submitting full supporting information. If the Contractor has failed to give early warning of a delay or has failed to cooperate in dealing with a delay, the delay by this failure shall not be considered in assessing the new Intended Completion Date.
- 28.3 The Engineer shall within 14 days of receiving full justification from the contractor for extension of Intended Completion Date refer to the Employer his decision. The employer shall in not more than 21 days communicate to the engineer the acceptance or otherwise of the Engineer's decision. If the employer fails to give his acceptance, the Engineer shall not grant the extension and the contractor may refer the matter under Clause 24.1

29. Deleted

30. Delays Ordered by the Engineer

- 30.1 The Engineer may instruct the Contractor to delay the start or progress of any activity within the works.

31. Management Meetings

- 31.1 Either the Engineer or the Contractor may require the other to attend a management meeting. The business of a management meeting shall be to review the plans for remaining work and to deal with matters raised in accordance with the early warning procedure.

- 31.2 The Engineer shall record the business of management meetings and is to provide copies of his record to those attending the meeting and to the Employer. The responsibility of the parties for actions to be taken is to be decided by the Engineer either at the management meeting or after the management meeting and stated in writing to all who attended the meeting.

32. Early Warning

- 32.1 The Contractor is to warn the Engineer at the earliest opportunity of specific likely future events or circumstances that may adversely affect the quality of the work, increase the Contract price or delay the execution of works. The Engineer may require the contractor to provide an estimate of the expected effect of the future event or circumstance on the contract price and completion date. The estimate is to be provided by the Contractor as soon as reasonably possible.

- 32.2 The Contractor shall cooperate with the Engineer in making and considering proposals for how the effect of such an event or circumstance can be avoided or reduced by anyone involved in the work and in carrying out any resulting instruction of the Engineer.

C. QUALITY CONTROL

33. ~~Identifying Defects/ Defect liability period (DELETED)~~

33.1 : ~~Defect liability period:~~ The contractor shall be responsible to make good and remedy at his own expense any defect which may develop or may be noticed before the period mentioned hereunder from the certified date of completion. The Engineer in charge shall give the contractor a notice in writing about the defects and the contractor shall make good the same within 15 days of receipt of the notice. In the case of failure on the part of the contractor, the Engineer in charge may rectify or remove or re-execute the work at the risk & cost of the contractor. The Engineer in charge shall be entitled to appropriate the whole or any part of the amount of security deposit towards the expenses, if any, incurred by him in rectification, removal or re-execution. The Defects Liability period shall be as under....

(a) For all works costing up to Rs. 50,000 (amount put to tender), the period shall be 3 Months from the certified date of completion.

(b) For all works costing more than Rs. 50,000 and up to Rs. 1 crore (amount put tender), the period shall be 12 (Twelve) months from the certified date of completion or one monsoon, whichever is later.

(c) For major projects costing more than Rs. 1 crore, the period shall be 36 Months from the certified date of completion which should include three monsoons.

(d) For original building works the defect liability period will be 4 years or elapse of 4 monsoon period following date of possession of building taken over by user agency following the certified date of completion, whichever is later.

For the purpose of deciding the monsoon period, the 30th September shall be treated as the last date.

Modified vide N.H. D Circular No. PAC-11-102008-2076-N dated 31/8/2009, PRCH/102013(2976) — 2759 N, Dated 27/05/2013 and Circular No.TNC/10/2016/Clause 17A (Correction/(1)C Dated 12/05/2016]

33.2 ~~Free maintenance guarantee period for works of Road/Bridge construction~~

(a) For resurfacing work of road free maintenance guarantee period one year from the date of completion.

(b) — In case of widening of the road/strengthening of the road/bridge, the contractor shall have to give One years free maintenance guarantee from the certified date of completion. During this period the contractor shall visit the site every six months along with the concerned Section Officer / Deputy Executive Engineer and will examine the work already carried out in this contract like road work, jungle cutting, side shoulders, side gutter, road furniture, patta etc. and will prepare Km. wise inspection report duly signed by all concerned and any defect observed shall be done within 15 days by the contractor at his risk and cost as per the direction of Engineer in charge. The contractor needs to do videography of these visits and require to submit at the time of release of FMG. If the B.T. surface during the maintenance period of 4 years is worn out then agency shall have to provide renewal coating as per tender item as directed by the Engineer in charge. The amount equivalent to 5% of each running bill shall be withheld and will be released after the free maintenance guarantee period (i.e. 4 years) is over.

~~However, this amount shall be released against fixed deposit or bank guarantee pledged in the name of Executive Engineer after completion certificate of work is issued.~~

(1) The flakiness and elongation index (combined) for coarse aggregates under no circumstances shall exceed the allowable limit set forth in the relevant clause for the material in question.

(2) 2% of the amount eligible for the payment of bituminous items shall be withheld till the miscellaneous items like earthwork in embankment / cutting for side shoulders, side gutters, kilometer / indicator / guard stones, sign boards etc. are completed in all respect by the contractor. After completion of the miscellaneous items, the above said 2% withheld amount shall be released.

(Govt. of Gujarat's G.R. No.: TNC-10-2013-3(Part-3)/C, Dtd. 13/12/2013).

(3) Videography for the surface under Maintenance Guarantee is to be done as per Govt. letter No.: SSR/10/2015-16/26/C, Dtd. 26/11/15 for the work costing more than Rs. 5.00 Crore.

(4) Setting up of adequate laboratory & deployment of quality engineers.

The contractor shall have to set up the laboratory with adequate equipment. Till the setting up of adequate laboratory is completed & reported of this to the engineer (subject to due verification by engineer's representative) by contractor in writing, Rs.2,00,000/- shall be withheld. The qualified quality Engineer shall be deployed exclusively for this contract by the contractors. If quality Engineer is not deployed by contractor within one month after the date of work order, the amount equivalent to Rs.20,000 per month shall be recovered till the actual deployment of quality engineer. The amount so recovered towards the deployment of quality engineers shall not be refunded.

(5) Asphalt work will have to be cross checked as per G.R. No.: RGN/60/2006/35/C, dtd.31/05/07 before final bill is paid.

(6) Maintenance during Construction Period

During the Construction Period, the Contractor shall maintain, at his own risk and cost, the existing lane(s) of the road so that the traffic worthiness and safety thereof are at no time materially inferior as compared to their condition 10 (ten) days prior to the date of the Agreement, and shall undertake the necessary repair and maintenance works for this purpose; provided that the Contractor may, at his cost, interrupt and divert the flow of traffic if such interruption and diversion is necessary for the efficient progress of works and conforms to Good Industry Practice; provided

further that such interruption and diversion shall be undertaken by the Contractor only with the prior written approval of the Executive Engineer which approval shall not be unreasonably withheld. For the avoidance of doubt, it is agreed that the Contractor shall at all times be responsible for ensuring safe operation of the road.

- 33.3 The Engineer shall check the Contractor's work and notify the Contractor of any defects that are found. Such checking shall not affect the Contractor's responsibilities the Engineer may instruct the Contractor to search for a Defect and to uncover and test any work that the Engineer considers may have a Defect.

34. Tests

- 34.1 If the engineer instructs the Contractor to carry out a test not specified in the Specification to check whether any work has a Defect and the test shows that it does, the Contractor shall pay for the test and any samples. If there is no defect the test shall be a Compensation Event.
- 34.2 1% of the amount of work done should be deducted from R.A. Bill of the contractor for testing the quality of material workmanship, irrespective of actual charges.
- 34.3 Agency has to establish testing laboratory on site for the various test to be carried out in the work for this purpose agency shall construct a pukka laboratory building with all facility on site at location specified by the engineer in charge.

35. Correction of defects

- 35.1 The engineer shall give notice to the Contractor of any defects before the end of the defects Liability Period, which begins at Completion and is defined in the contract data. The Defects Liability Period shall be extended for as long as Defects remain to be corrected.
- 35.2 Every time notice of a Defect is given, the Contractor shall correct the notified defect within the length of time specified by the Engineer's notice.

36. Uncorrected Defects

- 36.1 If the Contractor has not corrected a defect within the time specified in the Engineer's notice, the Engineer will assess the cost of having the Defect corrected, and the Contractor will pay this amount.

D. COST CONTROL

37. Bill of Quantities

- 37.1 The bill of Quantities shall contain items for the constructions, installation, testing and commissioning work to be done by the Contractor.
- 37.2 The bill of Quantities is used to calculate the Contract price. The Contractor is paid for the quantity of the work done at the rate in the Bill of Quantities for each item.

38. Change in the Quantities

- 38.1 The Engineer shall have power to make any alterations in or addition to the original specifications , drawings, designs and instructions that may appear to him to be necessary or advisable during the progress of the work and the contractor shall be bound to carry out the work in accordance with any instruction in this connection which may be given to him in writing signed by the Engineer and such alteration shall not invalidate the contract and any additional work which the contractor may be directed to do in the manner above specified as part of the work shall be carried out by the contractor on the same conditions in all respects on which he agreed to do the main work and at the same rate as are specified in the tender for the main work.

Except that when the quantity of any item exceeds the quantity as in the tender by more than 130%, the contractor will be paid for the quantity in excess of 130%, at the rate entered in the SOR of the year during which the excess in quantity is first executed.

39. Variations

- 39.1 All Variations shall be included in updated programmes produced by the Contractor.

40. Payments for Variations

- 40.1 If the additional or altered work includes any class of work for which no rate is specified in this contract, then such class of work shall be carried out as under.
 - (i) At the rate derived from the item within the contract which is comparable to the one involving additional or altered class of work; where there are more than one comparable items, the item of the contract which is nearest in comparison with regard to class or classes of the work involved shall be selected and the decision of the Superintending Engineer as to the nearest comparable item shall be final and binding on the contractor.
 - (ii) If the rate cannot be derived in accordance with (i) above, such class of works shall be carried out at the rate entered in the Schedule of Rates of the division

for the year in which the tender was received, increased or decreased by the percentage by which the tender amount is more or less as compared to the amount arrived at the rates in the “Schedule of Rates” of the Division in the year in which the tender was received. If the Schedule of rates of the Division does not contain all the items, the percentage increase or decrease of the tender shall be calculated considering such items which were included in the “Scheduled Rates” of the division for the year and for materials consumed on such item the rate to be charged would be the basic rate taken into account for fixing the rate in S.O.R. referred to above.

- (iii) If it is not possible to arrive at the rate from (i) and (ii) above, such class of work shall be carried out at the rate decided by the competent authorities on the basis of detailed rate analysis after hearing the contractor before a Committee of two Superintending Engineers stationed at the same place or the nearest place.

- 402 If the additional or altered work, for which no rate is entered in the “Schedule of Rates” of the Division is ordered to be carried out before the rate is agreed upon, then the contractor shall within seven days of the date of receipt by him of the order to carry out the work, inform the Engineer-in-charge of the rate, which it is his intention to charge for such class of work and if the Engineer in charge does not agree to this rates, he shall by notice in writing be at liberty to cancel his order to carry out such class of work and arrange to carry it out in such manner as he may consider it advisable, provided always that if the contractor shall commence work or incur any expenditure in regard thereof before the rates shall have been determined as lastly herein before mentioned, then in such cases he shall only be entitled to be paid in respect of the work carried out or expenditure incurred by him prior to the date of the determination of the rate as aforesaid according to such rate or rates as shall be fixed by the Engineer-in-charge. In the event of the dispute, the decision of the Superintending Engineer of the Circle shall be final.

Where, however, the work is to be executed according to the designs, drawings and specifications recommended by the contractor and accepted by the competent authority, the alternation above referred to shall be within the scope of such designs, drawings and specifications appended to the tenders.

The time limit for the completion of the work shall be extended in the proportion that the increase in the cost occasioned by alterations bears to the cost of the original work and the certificate of the Engineer-in-charge as to such proportion shall be final and conclusive.

41. Cash Flow Forecasts

- 41.1 When the programme is updated, the contractor is to provide the engineer with an updated cash flow forecast.

42. Payment certificates.

- 421 The Contractor shall submit to the Engineer monthly statements of the estimated value of the work completed less the cumulative amount certified previously.
- 422 The Engineer shall check the Contractor's monthly statement within 14 days and certify the amount to be paid to the Contractor after taking in to account any credit or debit for the month in question in respect of materials for the works in the relevant amounts and under conditions set forth in sub-clause 32.3 of the Contract Data (secured Advance).
- 423 The value of work executed shall be determined by the Engineer.
- 424 The value of work executed shall comprise the value of the quantities of the items in the Bill of Quantities completed.
- 425 The value of work executed shall include the valuation of variations and compensation events.
- 426 The Engineer may exclude any item certified in a previous certificate or reduce the proportion of any item previously certified in any certificate in the light of later information

43. Payments

- 431 Payments shall be adjusted for deductions for advance payments, retention, other recoveries in terms of the contract and taxes at source, as applicable under the law. The Employer shall pay the Contractor the amounts certified by the Engineer within 28 days of the date of each certificate.
- 432 Payment of GST (prevailing rates) on the amount payable under the contract to the Contractor will be made by the Employer. Hence, it is the responsibility of the contractor to pay the GST to the concerned Authority.
- 433 Items of the works for which no rate or price has been entered in will not be paid by the Employer and shall be deemed covered by other rates and prices in the Contract.

44. Compensation events

- 441 The following are compensation Events unless they are caused by the Contractor:
 - (a) The Employer does not give access to a part of the Site by the site Possession date stated in Contract data to the Contractor
- 442 In case of compensation event occurs and it prevents the work being completed beyond the Intended Completion Date then Authority will approve EOT with eligible contractual price escalation.

45. Tax

- 45.1 The rates quoted by the Contractor must be inclusive of all taxes prevailing on due date of bid submission except GST. However, any subsequent changes in the tax structure by Government after due date of bid submission will be compensated (+/-) on availability or submission of actual documentation. Contractor will have to intimate Engineer regarding changes occurred in the tax structure after bid submission. If the contractor fails to provide such information and if any financial obligation may arise due to change in tax structure, same will be recovered from the contractor.
- 45.2 GST will be paid separately on the bills. Hence, it is the responsibility of the contractor to pay the GST to the concerned Authority.

46. Currencies.

- 46.1 All payment shall be made in Indian Rupees.

47. Price Adjustment

- ~~47.1 Contract price shall be adjusted for increase or decrease in rates and price of labour, materials, fuels and lubricants in accordance with the following principles and procedures and as per formula given in the contract data:~~

~~(a) The price adjustment shall apply for the work done from the start date given in the contract data up to end of the initial intended completion date or extensions granted by the Engineer and shall not apply to the work carried out beyond the stipulated time for reasons attributable to the contractor.~~

~~(b) The price adjustment shall be determined during each month from the formula given in the contract data.~~

~~(c) Following expressions and meanings during the work done during each month~~

~~$R = \text{Total value of work done during the month. It would include the amount of secured advance granted, if any, during the month less the amount of secured advance recovered, if any during the month. It will exclude value for works executed under variations for which price adjustment will be worked separately based on the terms mutually agreed.}$~~

- ~~47.2 To the extent that full compensation for any rise or fall in costs to the contractor is not covered by the provisions of this or other clause in the contract, the unit rates and prices included in the contract shall be deemed to include amounts to cover the contingency of such other rise or fall in costs.~~

48. Retention

- 48.1 The Employer shall retain from each payment due to Contractor the proportion stated in the Contract Data until Completion of the whole of the Works.

- 482 On Completion of the whole of the Works half the total amount retained is repaid to the Contractor and half when the Defects Liability Period has passed and the Engineer has certified that all Defects notified by the Engineer to the Contractor before the end of this period have been corrected.
- 483 On completion of the whole works, the contractor may substitute retention money with an “on demand” Bank guarantee.

In case, Contractor requests for refund of the Retention Money deducted by the Employer under the provision of this clause, Employer shall consider the said request of the Contractor provided that the refund hereunder shall be made in tranches of not less than 1% (One Percent) of the Contract Price and Contractor furnishes an irrevocable and unconditional Bank guarantee for an equal amount substantially in the format of Bank Guarantee for Performance Guarantee enclosed with SBD and valid up to 60 day beyond the scheduled / extended Defects Liability Period. On completion of the whole works, the contractor has however an option to submit a fresh irrevocable and unconditional Bank Guarantee for an amount equal to 5% of the total value of work executed substantially in the format of Bank Guarantee for Performance Guarantee enclosed with SBD and valid up to 60 days beyond the Defect Liability Period and yet refund the Retention Money Bank Guarantee submitted for refund of Retention Money.

49. Liquidated Damages

- 49.1 The Contractor shall pay liquidated damages to the Employer at the rate per day stated in the Contract Data for each day that the Completion Date is later than the Intended Completion Date (for the whole works or the milestone as stated in the contract data). The total amount of liquidated damages shall not exceed the amount defined in the Contract Data. The Employer may deduct liquidated damages from payment due to the Contractor. Payment of liquidated damages does not affect the Contractor’s liabilities.
- 492 If the Intended Completion Date is extended after liquidated damages have been paid, the Engineer shall correct any overpayment of liquidated damages by the Contractor by adjusting the next payment certificate. The Contractor shall not be entitled for any interest on the over payment calculated from the date of payment to the date of repayment.
- 493 If the contractor fails to comply with the time for completion as stipulated in the tender, then the contractor shall pay to the employer the relevant sum stated in the Contract Data as Liquidated damages for such default and not as penalty for everyday or part of day which shall elapse between relevant time for completion and the date stated in the taking over certificate of the whole of the works on the relevant section, subject to the limit stated in the contract data.

The employer may, without prejudice to any other method of recovery deduct the amount of such damages from any monies due or to become due to the contractor. The payment or deduction of such damages shall not relieve the contractor from his obligation to complete the works on from any other of his obligations and liabilities under the contract.

- 494 If, before the Time for Completion of the whole of the Works or, if applicable any Section, a Taking Over Certificate has been issued for any part of the Works or of a Section, the liquidated damages for delay in completion of the remainder of the Works or of that Section shall, for any period of delay after the date stated in such Taking-Over-Certificate, and in the absence of alternative provisions in the Contract, be reduced in the proportion which the value of the part so certified bears to the value of the whole of the Works or Section, as applicable. The provisions of this Sub-clause shall only apply to the rate of liquidated damages and shall not affect the limit thereof.

~~50 Bonus~~

~~50.1 If the contractor achieves completion of the whole of the works prior to the intended Completion Date prescribed in Contract Data the Employer shall pay to the contractor a sum stated in Contract Data as bonus for every completed month but subjected to maximum amount as stated in Contract Data; which shall elapse between the date of completion of all items of works as stipulated in the contract, including variations ordered by the Engineer and the time prescribed in Clause 17.~~

~~50.2 Bonus shall be paid only to works amounting to above INR 5 crore with time limit of the works is equal or more than 6 months. The bonus would be paid as under~~

% of Time Saved	% of Initial Contract Price entitled for Bonus
50 %	5%
40 %	4%
30 %	3%
20 %	2%
10 %	1%
Less than 10%	0%

~~51. Advance Payment.~~

~~51.1 The Employer shall make advance payment (not to be paid less than two installments except in special circumstances for which the reason to be Recorded in writing) to the Contractor of the amounts stated in the Contract Date by the date stated in the Contract Date, against provision by the Contractor of an Unconditional Bank Guarantee in a form and by a bank acceptable to the Employer in amounts and currencies equal to be at least 110% of the advance payment. The guarantee shall remain effective until the advance payment has been repaid, but the amount~~

~~of the guarantee shall be progressively reduced by the amounts repaid by the Contractor. The Mobilization advance would be deemed as interest bearing advance at an interest rate of 10 % to be compounded, quarterly.~~

512 The Contractor is to use the advance payment only to pay for Equipment, plant and Mobilization expenses required specifically for execution of the Works. The Contractor shall demonstrate that advance payment has been used in this way by supplying copies of invoices or other documents to the engineer.

513 The advance payment shall be repaid by deduction proportionate amount from payments otherwise due to the Contractor, following the schedule of completed percentages of the Works on a payment basis. No account shall be taken of the advance payment or its repayment in assessing valuations of work done, variations, price adjustments, Compensation Events, or Liquidated damages.

514 Deleted

52. Securities

521 The performance Security (including additional security for unbalanced bids) shall be provided to the Employer no later than the date specified in the Letter of Acceptance and shall be issued in an amount and form and by a bank or surety acceptable to the Employer, and denominated in Indian Rupees. The performance Security shall be valid until a date 60 days from the date of expiry of Defects Liability Period and the additional security for unbalanced bids shall be valid until a date 28 days from the date of issue of the certificate of completion.

53. Deleted

54. Cost of Repairs.

541 Loss or damage to the Works or Materials to be incorporated in the Works between the Start date and the end of Defects Correction periods shall be remedied by the Contractor at the Contractor's cost if the loss or damages arises from the Contractor's acts or omissions.

E. FINISHING THE CONTRACT

55. Completion

- 55.1 The Contractor shall request the Engineer to issue a Certificate of Completion of the works and the Engineer will do so upon deciding that the work is completed.

56. Taking Over

- 56.1 The Employer shall take over the Site and the Works within seven days of the Engineer issuing a certificate of Completion.

57. Final Account

- 57.1 The Contractor shall supply to the Engineer a detailed final account of the total amount that the Contractor considers payable as full and final settlement of all claims under the Contract for items before the end of the Defects Liability Period. The Engineer shall issue a Defect Liability Certificate and certify any final payment that is due to the Contractor within 56 days of receiving the Contractor's account if it is correct and complete. If it is not, the Engineer shall issue within 56 days a schedule that states the scope of the corrections or additions that are necessary. If the Final Account is still unsatisfactory after it has been resubmitted, the Engineer shall decide on the amount payable to the Contractor and issue a payment certificate, within 56 days of receiving the Contractor's revised account.
- 57.2 If reversal in characteristic of tender (L1 becoming L2) on account of excesses and savings in final account is observed, the Engineer/Employer shall be at liberty to restrict the final payment of BOQ items to the lowest amount evaluated of the bids considering the final quantities and the rates quoted including the rebates if any. Payment of variation items shall however be made at the rates approved by the Employer, within 90 days from the physical completion of work.

58. Operating and Maintenance Manuals

- 58.1 If "as built" drawings and/or operating and maintenance manuals are required, the Contractor shall supply them by the dates stated in the Contract data.
- 58.2 If the Contractor does not supply the Drawings and/or manuals by the dates stated in the Contract data, or they do not receive the Engineer's approval, the Engineer shall withhold the amount stated in the Contract Data from payments due to the Contractor.

59. Termination

- 59.1 The Employer or the Contractor may terminate the Contract if the other party causes a fundamental breach of the Contract.

592 Fundamental breaches of Contract include, but shall not be limited to the following:

1. The contractor stops work for 28 days when no stoppage of work is shown on the current programme and the stoppage has not been authorized by the Engineer
2. The Engineer instructs the Contractor to delay the progress of the Works and the instructions is not withdrawn within 28 days;
3. The Employer or the Contractor is made bankrupt or goes into liquidation other than for a reconstructions or amalgamation
4. A payment certified by the Engineer is not paid by the Employer to the Contractor within 56 days of the date of the Engineer's certificate
5. The Engineer gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the Engineer;
6. The Contractor does not maintain a security which is required;
7. The Contractor has delayed the completion of works by the number of days for which the maximum amount of liquidated damages can be paid as defined in the Contract data; and
8. If the Contractor, in the judgment of the Employer has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.

For the purpose of this paragraph: "corrupt practice" means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution. "Fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the borrower, and includes collusive practice among Bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Borrower of the benefits of free and open competition.

593 When either party to the Contract gives notice of a breach of contract to the Engineer for a cause other than those listed under Sub Clause 59.2 above, the Engineer shall decide whether the breach is fundamental or not.

594 Notwithstanding the above, the employer may terminate the Contract for convenience.

60. Payment upon Termination

- 60.1 If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the Engineer shall issue a Certificate for the value of the work done less advance payments received up to the date of the issue of the Certificate, less other recoveries due in terms of the contract, less taxes due to deducted at source as per applicable law and less the percentage to apply to the work not completed as indicated in the Contract data. Additional Liquidated Damages shall not apply. If the total amount due to the Employer exceeds any payment due to the Contractor the difference shall be a debt payable to the Employer.
- 60.2 If the Contract is terminated at the Employer's convenience or because of a fundamental breach of Contract by the Employer, the Engineer shall issue a certificate for the value of the work done, the cost of balance material brought by the contractor and available at site, the reasonable cost of removal of equipment, repatriation of the Contractor's personnel employed solely on the works, and the Contractor's cost of protecting and securing the Works and less advance payment received up to the date of the certificate, less other recoveries due in terms of the contract and less taxes due to deducted at source as per applicable law.

61. Property

- 61.1 All materials on the Site, Plant Equipment's, Temporary Works and Works are deemed to be property of the Employer, if the Contract is terminated because of a Contractor's default.

62. Release from Performance

- 62.1 If the Contract is frustrated by the outbreak of war or by any other event entirely outside the control of either the Employer or the Contractor the Engineer shall certify that the Contract has been frustrated. The Contractor shall make the Site safe and stop work as quickly as possible after receiving this certificate and shall be paid for all work carried out before receiving it and for any work carried out afterwards to which commitment was made.

F. SPECIAL CONDITIONS OF CONTRACT

63. LABOUR

The Contractor shall, unless otherwise provided in the Contract, make his own arrangements for the engagement of all staff and labour, local or other, and for their payment of housing, feeding and transport.

The Contractor shall, if required by the Engineer, deliver to the Engineer a return in detail, in such form and at such intervals as the Engineer may prescribe, showing the staff and the numbers of the several classes of labour from time to time employed by the Contractor on the site and such other information as the Engineer may require.

64. COMPLIANCE WITH LABOUR REGULATIONS

During continuance of the contract, the Contractor and his sub- contractor shall abide at all times by all existing labour enactments and rules made thereunder, regulations, notification and bye laws of the State or central Government or local authority and any other labour law (including rules), regulations, bye laws that may be passed or notifications that may be issued under any labour law in future either by the State or the Central Government or the local authority. Salient features of some of the major labour laws that are applicable to the construction industry are given below. The Contractor shall keep the Employer indemnified in case any action is taken against the Employer by the competent authority on account of contravention of any of the provisions of any Act or rules made thereunder, regulations or notifications including amendments. If the Employer is caused to pay or reimburse, such amounts as may be necessary to cause or observe, or for observance of the provisions stipulated in the notifications/bye laws/Acts/Rules/regulations including amendments, if any, on the part of the Contractor, the Engineer/employer shall have the right to deduct any money due to the Contractor including his amount of performance security. The Employer/Engineer shall also have the right to recover from the Contractor any sum required or estimated to be required for making good the loss or damage suffered by the Employer.

The employees of the Contractor and the Sub-Contractor in no case shall be treated as the employees of the Employer at any point to time.

SALIENT FEATURES OF SOME MAJOR LABOUR AND OTHER LAWS APPLICABLE TO ESTABLISHMENTS ENGAGED IN BUILDING AND OTHER CONSTRUCTIONS WORK

- A) **Workmen Compensation Act 1923** :- The Act provides for compensation in case of injury by accident arising out of and during the course of employment.
- B) **Payment of Gratuity Act. 1972** :- Gratuity is payable to an employee under the Act on satisfaction of certain conditions on separation if an employee has completed 5 years service or more on death, the rate of 15 days wages for every completed year of service. The Act is applicable to all establishments employing 10 or more employees.
- C) **Employees P.F. and Miscellaneous Provision Act 1952:-** The Act Provides for monthly contributions by the employer plus workers @ 10% or 8.33% The benefits payable under the Act are :
1. Pension or family pension on retirement or death, as the case may be.
 2. Deposit linked insurance on the death in harness of the worker.
 3. Payment of P.F. accumulation on retirement/death etc.
- D) **Maternity Benefit Act 1951** :- The Act provides for leave and some other benefits to women employees in case of confinement or miscarriage etc.
- E) **Contract Labour (Regulation & Abolition) Act 1970** : The Act provides for certain welfare measures to be provided by the Contractor to contract labour and in case the Contractor fails to provide, the same are required to be provided, by the Principal Employer by Law. The principal Employer is required to take Certificate of Registration and the Contractor is required to take license from the designated Officer. The Act is applicable to the establishments or Contractor of Principal Employer, if they employ 20 or more contract labour.
- F) **Minimum Wages Act 1948** :- The Employer is supposed to pay not less than the Minimum Wages fixed by appropriate Government as per provisions of the Act, if the employment is a scheduled employment. Construction of Building, Roads, Runways are scheduled employment.
- G) **Payments of wages Act 1936:-** It lays down as to by what date the wages are to be paid, when it will be paid and what deductions can be made from the wages of the workers.
- H) **Equal remunerations Act 1979** :- The Act provides for payment of equal wages for work of equal nature to Male and Female workers and for not making discrimination against female employees in the matter of transfer, training and promotions etc.
- I) **Payments of Bonus Act 1965** :- The Act is applicable to all establishments employing 20 or more employees. The Act provides for payments of annual bonus subject to a minimum of 8.33% of wages and maximum of 20 % of wages to employees drawing Rs. 3500/- per month or less. The bonus to be paid to employees getting Rs. 2500/- per month or above Rs. 3500/- per month shall be worked out by taking wages as Rs. 2500/- per month only. The Act does not

apply to certain establishments. The newly set-up establishments are exempted for five years in certain circumstances. Some of the State Governments have reduced the employment size from 20 to 10 for the purpose of applicability of this Act.

- J) **Industrial Disputes Act 1947 :-** The Act lays down the machinery and procedure for resolutions of Industrial disputes, in what situations a strike or lock-out becomes illegal and what are the requirements for laying off or retrenching the employees or closing down the establishment.
- K) **Industrial employment (standing Orders) Act 1946 :-** It is applicable to all establishments employing 100 or more workmen (employment size reduced by some of the State and Central Government to 50). The Act provides for laying down rules governing the conditions of employment by the Employer on matters provided in the Act and get the same certified by the designated Authority.
- L) **Trade Unions Act 1926:-** The Act lays the procedure for registration of trade unions of workmen and employers. The Trade Unions registered under the Act have given certain immunities from civil and criminal liabilities.
- M) **Child Labour (Prohibition & Regulation Act 1986 :-** The Act prohibits employment of children below 14 years of age in certain occupations and process and provides for regulation of employment of children in all other occupations and processes. Employment of Child labour is prohibited in Building and Construction Industry.
- N) **Inter – State Migrant workmen’s (Regulation of Employment & Conditions of service) Act 1979:-** The Act is applicable to an establishment which employs 5 or more inter-state migrant workmen through an intermediary (who has recruited workmen in one state for employment in the establishment situated in another state). The inter-state migrant workmen, is an establishment to which this Act becomes applicable, are required to be provided certain facilities such as housing, medical aid, traveling expenses from home upto the establishment and back, etc.
- O) **The Building and Other Construction workers (Regulation of employment and Conditions of Service) Act 1996 and the Cess Act of 1996:-** All the establishments who carry on any building or other constructions work and employ 10 or more workers are covered under this Act.
All such establishments are required to pay cess at the rate not exceeding 2% of the cost of construction as may be modified by the government. The Employer of the establishment is required to provide safety measures at the Building or construction work and other welfare measures, such as canteens, First Aid facilities, Ambulance, Housing accommodations for workers near the workplace etc. The Employer to whom the Act applies has to obtain a registration certificate from the Registering Officers appointed by the Government.

- P) **Factories Act 1948 :-** The Act lays down the procedure for approval of plans before setting up a factory, health and safety provisions, welfare provisions, working hours, annual earned leave and rendering information regarding accidents or dangerous occurrences to designated authorities. It is applicable to premises employing 10 persons or more with aid of power or 20 or more persons without the aid of power engaged in the manufacturing process.
- Q) **Royalty charges-**The contractor shall pay the royalty to the competent authority as per rule. The **royalty** charges paid shall be borne by the contractor and shall not be reimbursed by the Employer.
- R) **Following Pollution control Acts and amendments made thereof from time to time shall be applicable.**
1. Water (Preservation and control of Pollution) Act, 1974
 2. Air (Prevention and Control of Pollution Act 1981
 3. Environmental (Protection) Act 1986

The contractor must commit to adopting Environmental management plan for best energy use, waste management, the reduction of pollution as in EMS (Environmental Management system)ISO-14001- 2015

65. ARBITRATION (GCC Clause 24)

The procedure for arbitration will be as follows: -

- 24.1 If the Contractor is of the view that a decision taken by the Engineer was either outside the authority given to the Engineer by the Contract or that the decision was wrongly taken, the decision shall be referred to **#Superintending Engineer** (Higher Authority) within 14 days of the notification of the Engineer's decision. If the issue is not resolved, any party can refer the matter for conciliation within 15 days from the decision given by the **#Superintending Engineer**.
- 24.2
- (a) For the work up to Rs.100 Cr., if any of the parties is not satisfied with the decision of the **#Superintending Engineer**, both the parties have to refer to the **#Chief Engineer** concerned for the conciliation process.
 - (b) For the work more than Rs.100 Cr., if any of the parties is not satisfied with the decision of the **Superintending Engineer**, both parties have to refer to the **#Secretary, Roads & Building Department, Government of Gujarat** for the conciliation process.

If the dispute is not resolved through the conciliation process, contractor may refer the dispute to Gujarat Public Works Contract Dispute Arbitration Tribunal. If the Contractor fails to refer a claim / dispute to the Higher Authority within 14 days of the notification of the Engineer's decision, the Contractor shall not be entitled to any additional payment/claim if he doesn't follow the above sequence in stipulated time. However, during such period, he would not stop the work in any case.

SECTION - 4
CONTRACT DATA

#CONTRACT DATA

Clause Reference With respect To section 3

Item marked “N/A” do not apply to this Contract.

1. The Employers is [CL.1.1]
Name: Chief Engineer, (N. H.) & A. S.
Address: Road & Building Department, 1st floor, Block No. 14, New Sachivalaya, Gandhinagar
Name of authorized Representative (will be intimated later)
2. The Engineer is **Executive Engineer, N.H. Division, Gandhidham**
Name of Authorized Representative: **E. E., N.H. Division, Gandhidham**
3. The Defects Liability Period is **01 years** from the date of completion. [CL.1.1&33]
4. The Start Date shall be **1st** days for the date of issue of the Notice to proceed with the work. [CL.1.1]
5. The Intended Completion Date for the whole of the works is **12 Months** after start of work with the following milestones: [CL.1.1,17&2]
Milestone dates: [CL.2.2& 49.1]
Physical works to be completed Period from the start date
~~Milestone 1 i.e. 25 % 19 days.~~
~~Milestone 2 i.e. 50 % 38 days.~~
~~Milestone 3 i.e. 75 % 56 days.~~
~~Milestone 4 i.e. 100 % 75 days.~~
6. The Site is located at **Gandhidham** [CL.1.1]
7. The name and identification number of the Contract is: [CL.1.1]
.....
8. The works consist of Supplying & Repairing Road /Bridge Work with items as per B.O.Q. The works shall, inter alia, include the following, as Specified or as directed: [CL.1.1]

(A) Road Works

Site clearance; setting – out and layout; widening of existing carriageway and strengthening including camber corrections; construction of new road/ Parallel service road; bituminous pavements remodeling/construction of Junctions, intersections, bus bays, lay-bays; supplying and placing of drainage Channels, flumes, guard posts and guard other related items; construction/extension of cross drainage works, bridge, approaches and other related stones; protective works for Repairing of roads/bridge; all aspects of quality assurance of various components of the works; rectification of The defects in the completed works during the Defects Liability Period; submission of “As- built” drawings and any other related documents; and other item of work as may be required to be carried out for completing the work in accordance with the drawings and the provisions of the contract and to ensure safety.

(B) Repairing of Bridge Works

Site clearance; setting out, provision of foundations, piers abutments and bearing; prestressed/reinforced cement concrete superstructure; wearing coat, hand railings, expansion joints, approach slabs, drainages spouts/ downtake pipes, arrangements for fixing light posts, water mains, utilities etc; provision of suitably designed protective works; providing wing/return walls; provision of road markings, road signs etc.; all aspects of quality assurance; clearing the site and handing over the works on completion; rectification of the defects during the Defects Liability Period and submission of “As-built” drawings and other related documents; and other items of work as may be required to be carried out for completing the works in accordance with the drawings and the provisions of the contract and to Insure safety

(C) Other Items

[CL.1.1]

Any Other Items as required to fulfill all contractual obligations as per the Bid documents.

10. The following documents also form part of the Contract: [CL.2.3(9)]
_____As per clause 2-3_____
11. The law which applies to the Contract is the law of Union of India [CL.3.1]
12. The language of the Contract documents is English [CL.3.1]
13. Limit of sub-contracting 25% of the Initial Contract Price [CL.7.1]
14. The Schedule of Other Contractors [CL.8]
15. The Schedule of Key Personnel As per Annex – II to Section I [CL.9]
16. The minimum insurance cover for physical property, injury and death is Rs. 5 lakhs per occurrence with the number of occurrences limited to four. After each occurrence, the contractor will pay an additional premium necessary to make insurance valid for four occurrences always. [CL.13]
17. Site Investigation report [CL.14]
18. The Site Possession dates shall be **from the issue of Letter of Work order.** [CL.21]
19. The period for submission of programme for approval of the engineer shall be -----from the issue of Letter of Acceptance. [CL. 27.1]
20. The period between program updates will be **days.** [CL.27.3]
21. The amount to be withheld for late submission of an updated programme shall be **Rs 1.00 lakh** [CL. 27.3]
22. The following events shall also be Compensation Events [CL. 44]
Substantially adverse ground conditions encountered during the course of execution of work not provided for in the bidding document.
 - (i) Removal of underground utilities detected subsequently
 - (ii) Significant changes in classification of soil requiring additional mobilization by the contractor, e.g. ordinary soil to rock excavation,
 - (iii) Removal of unsuitable material like marsh, debris dumps, etc. not caused by the contractor.

- (iv) Artesian conditions
 - (v) Seepage, erosion landslide
 - (vi) River training requiring protection of permanent work
 - (vii) Presence of historical, archeological or religious structures, monuments interfering with the works
 - (viii) Restriction of access to ground imposed by civil, judicial, or military authority
23. The currency of the Contract is Indian Rupees [CL. 46]
24. **The formula (e) for adjustment of prices are as under:** [CL.47]

- ~~If any of the commodities like Cement, Steel or Bitumen are not found applicable in a work, the weight component of that commodities (i.e. 'Cement' (Pc), 'Steel' (Ps) or 'Bitumen' (Pb) as indicated in SBD for the purpose of Price Adjustment) shall be clubbed with the weight component of 'Other Material' (Pm), such that the gross % weight of the components shall remain as 100%.~~

R = value of work as defined in Clause 47.1 of Conditions of Contract

Adjustment for labour component

- (i) ~~Price adjustment for increase or decrease in the cost due to labour shall be paid in accordance with the following formula:~~

$$V_L = \frac{0.85 \times (P_i/100) \times R \times (L_i - L_0)}{L_0}$$

~~V_L = Increase or decrease in the cost of work during the month under consideration due to changes in rates for local labour~~

~~L₀ = The consumer price index for industrial workers for the State on 28 days preceding the scheduled date of opening of technical Bids as published by Labour Bureau, Ministry of Labour, Government of India~~

~~L_i = The consumer price index for industrial workers for the State for the month under consideration as published by the Labour Bureau, Ministry of Labour, Government of India.~~

~~P_i = Percentage of labor component of the work.~~

Adjustment for cement component.

- (ii) ~~Prices adjustment for increase or decrease in the cost of cement procured by the contractor~~

$$V_c = \frac{0.85 \times (P_c/100) \times R \times (C_i - C_0)}{C_0}$$

~~V_c = Increase or decrease in the cost of work during the month under consideration due to changes in rates for cement.~~

~~C₀ = The all India wholesale price index for Ordinary Portland Cement on 28 days preceding the scheduled date of opening of technical bid as published by the Office of the Economic Adviser, Department for Promotion of Industry and Internal Trade, Ministry of Commerce & Industry.~~

~~C_i = The all India average wholesale price index for Ordinary Portland Cement for the month under consideration as published by Office of the Economic Adviser, Department for Promotion of Industry and Internal Trade, Ministry of Commerce & Industry.~~

~~P_c = Percentage of cement component of the work~~

Adjustment for steel component

- (iii) — Price adjustment for increase or decrease in the cost of steel procured by the contractor shall be paid in accordance with the following formula

$$V_s = 0.85 \times (P_s/100) \times R \times (S_i - S_0)/S_0$$

~~V_s = Increase or decrease in the cost of work during the month under consideration due to changes in the rates for steel~~

~~S₀ = The all India wholesale price index for steel (Mild Steel — Long Products Rebars) on 28 days preceding the date of opening of Technical Bid as published by the Office of the Economic Adviser, Department for Promotion of Industry and Internal Trade, Ministry of Commerce & Industry.~~

~~S_i = The all India average wholesale price index for steel (Mild Steel — Long Products Rebars) for the month under consideration as published by Office of the Economic Adviser, Department for Promotion of Industry and Internal Trade, Ministry of Commerce & Industry.~~

~~P_s = Percentage of steel component of the work~~

Note : For the application of this clause, the index of **Mild Steel — Long products Rebars** has been chosen to represent the steel group.

Adjustments of bitumen component

- (iv) — Price adjustment for increase in the cost of bitumen shall be paid in accordance with the following formula

$$V_b = 0.85 \times (P_b/100) \times R \times (B_i - B_0)/B_0$$

~~V_b = Increase or decrease in the cost of work during the month under consideration due to changes in rates for bitumen.~~

~~B₀ = The official retail price of bitumen at the IOC depot at the nearest centre on the day 28 days prior to the scheduled date of opening of technical bid.~~

~~B_i = The official retail price of bitumen of IOC depot at the nearest centre for the 15th day of the month under consideration.~~

~~P_b = Percentage of bitumen component of the work~~

Adjustment of POL (fuel and lubricant) component

- ~~(v) Price adjustment for increase or decrease in cost of POL (fuel and lubricant) shall be paid in accordance with the following formula~~

$$\Delta F = 0.85 \times (P_f/100) \times R \times (F_i - F_0)/F_0$$

~~ΔF = Increase or decrease in the cost of work during the month under consideration due to changes in rates for fuel and lubricants.~~

~~F_0 = The official retail price of High Speed Diesel (HSD) at the existing consumer pumps of IOC at the nearest centre on the day 28 Days prior to the date of opening of Technical Bid.~~

~~F_i = The official retail price of HSD at the existing consumer pumps of IOC at the nearest centre for the 15th day of the month of the under consideration.~~

~~P_f = Percentage of fuel and lubricants component of the work~~

~~Note: For the application of this clause, the price of High Speed diesel Oil has been chosen to represent the fuel and lubricants group.~~

Adjustment for Construction Machinery

- ~~(vi) Price adjustment for increase or decrease in the cost of plant and Machinery spare procured by the Contractor shall be paid in accordance with the following formula~~

$$\Delta P = 0.85 \times (P_p/100) \times R \times (P_i - P_0)/P_0$$

~~ΔP = Increase or decrease in the cost of work during the month under consideration due to changes in rates for plant and machinery spares~~

~~P_0 = The all India wholesale price index for **manufacturer of machinery for mining, quarrying and Construction** for 28 Days prior to the schedule date as published by the **Office of the Economic Adviser, Department for Promotion of Industry and Internal Trade, Ministry of Commerce & Industry.**~~

~~P_i = The all India average wholesale price index for **manufacturer of machinery for mining, quarrying and Construction** for the month under consideration as published **Office of the Economic Adviser, Department for Promotion of Industry and Internal Trade, Ministry of Commerce & Industry.**~~

P_p = Percentage of plant and machinery spares component of the work.

Note: For the application of this clause, index of Heavy Machinery and parts has been chosen to represent the Plant and Machinery Spares group

Adjustment of other materials Component

(vii) ~~Price adjustment for increase or decrease in cost of local materials other than cement, steel, bitumen and POL procured by the contractor shall be paid in accordance with the following formula~~

$$V_m = 0.85 \times (P_m/100) \times R \times (M_i - M_0)/M_0$$

V_m = ~~Increase or decrease in the cost of work during the month under consideration due to change in rates for local materials other than cement, steel, bitumen and POL.~~

M_0 = ~~The All India wholesale price index (all commodities) on 28 days preceding the scheduled date of opening of technical Bids, as published by the Office of the Economic Adviser, Department for Promotion of Industry and Internal Trade, Ministry of Commerce & Industry.~~

M_i = ~~The All India wholesale price index (all commodities) for the month under consideration as published by the Office of the Economic Adviser, Department for Promotion of Industry and Internal Trade, Ministry of Commerce & Industry.~~

P_m = ~~Percentage of local material components (other than cement, steel, bitumen and POL) of the work.~~

The following percentage will govern the price adjustment for the entire contract:

1. Labour — P_l	13.94 %
2. Cement — P_c	17.04 %
3. Steel — P_s	3.01 %
4. Bitumen — P_b	21.25 %
5. POL — P_f	11.88 %
6. Plant & Machinery Spares P_p	13.94 %
7. Other Materials — P_m	18.94 %
Total	100 %

25. The proportion of payments retained (retention money) shall be @5% {CL. 48} from each bill subject to a maximum of 5% of final contract price.
26. Amount of Liquidated damages for delay in completion of works For Whole of work {CL.49} (1/2000)th of the Initial contract price, rounded off to the nearest Thousand, per day. For sectional Completion (wherever specified In item 5 of Contract data) (1/2000)th of initial contract price for #5 km Section, rounded off to the nearest thousand per day.
27. Maximum limit of liquidated damages For delay in completion work 10 percent of the Initial {CL. 49} Contract Price rounded off to the nearest thousand
28. ~~Amount of Bonus for early completion~~ ~~Amount of bonus for early completion of work shall be given as per CL.50 of Section 3~~
29. ~~Maximum limit of bonus for early Completion of work~~ ~~5 percent~~ of the Contract {CL. 50} Price
30. ~~The amount of the advance payment are: {CL. 51 & 52}~~

#Nature of Advances ~~Amount (Rs.)~~ **Conditions to Be fulfilled**

- i ~~Mobilization~~ 10% of the contract Price ~~On submission of unconditional Bank Guarantee. (to be drawn before the end of 20% of the contract period). The contractor may furnish four bank guarantees of 2.5 % of each valid for the full period.~~
- i ~~Equipment~~ 90% for new and 50% of depreciated value for old equipment. Total amount will be subject to a maximum of 5% of the Contract Price ~~After equipment is brought to site (provided the Engineer is satisfied That the equipment is required for performance of the contract) and on submission of unconditional Bank Guarantee for amount of advance~~

- iii ~~Secured~~ **Deleted**
Advance for
Non-persish
able material
Brought to site

(The advance payment will be paid to the Contractor no later than 28 days after fulfillment of the above conditions).

31. ~~Repayment of advance payment for mobilization and equipment {CL. 51.3}~~

~~The advance loan shall be repaid with percentage deduction from the interim payments certified by the Engineer under the Contract. Deduction shall commence in the next Interim Payment Certificate following that in which the~~

~~total of all such payments to the Contractor has reached not less than 20 percent of the Contract Price or 6 (six) months from the date of payment of first installment of advance, whichever period concludes earlier, and shall be made at the rate of 20 percent (collectively for both Mobilization Advance and Equipment Advance) of the amounts of all Interim Payment Certificate until such time as the loan has been repaid, always provided that the loan shall be completely repaid prior to the expiry of the original time for completion pursuant to Clause 17 and 28.~~

32. Deleted

33. The securities shall be for the following minimum amounts equivalent {CL. 52} As a percentage of the Contract Price:

Performance Security for 5 percent of contract price plus Rs. (to be decided after evaluation of the bid) as additional security in terms of ITB Clause 29.5

The standard form of Performance security acceptable to the Employer shall be an unconditional Bank Guarantee of the type as presented in Section 8 of the Bidding Documents.

34. The Schedule of Operating and maintenance Manuals.....N/A. {CL. 58}

35. The date by which “as– built” drawings (in scale as directed) in 2 sets {CL. 58} are required within 28 days of the issue of certificate of completion of the whole or section of the work, as the case may be.

36. The amount to be withheld for failing to supply “as built” drawings {CL. 58} by the Date required is **Rs 0.10 lakhs Per Day**.

37. The following events shall also be fundamentals breach of contract: {CL.59.2} “The Contractor has contravened Sub- clause 7.1 and Clause 9 of GCC”

38. The percentage to apply the value of the work not completed representing {Cl 60} the Employer’s additional cost for completing the Works shall be 20 per cent.

SECTION - 5
TECHNICAL SPECIFICATION

SECTION - 6
FORM OF BID

FORM OF BID

Description of the Works:

BID

To :

Address :

1. We offer to execute the Works described above and remedy any defects therein in conformity with the conditions of Contract, specification, drawings, Bill of Quantities and Addenda for the sum (s) of

(-----)

2. We undertake, if our Bid is accepted, to commence the Works as soon as is reasonably possible after the receipt of the Engineer's notice to commence, and to complete the whole of the Works in the Contact within the time stated in the document.
3. We agree to abide by this Bid for the period of 120 Days from the date fixed for receiving the same, and it shall remain binding upon it and may be accepted at any time before the expiration of that period.
4. Unless and until a formal Agreement is prepared and executed this Bid, together with your written acceptance thereof, shall constitute a binding contract between us.
5. We understand that you are not bound to accept the lowest or any tender you may receive.

Dated this ----- day of -----20

Signature ----- in the capacity of -----

----- duly authorized to sign bids for and on behalf of -----

(in block capitals or typed)

Address

Witness

Address

Occupation

SECTION - 7
BILL OF QUANTITIES

BILL OF QUANTITIES

Preamble

1. The bill of Quantities shall be read in conjunction with the Instructions to Bidder, Conditions of Contract, Technical Specifications and Drawings.
2. The quantities given in the Bill of Quantities are estimated and provisional, and are given to provide a common basis for bidding. The basis of payment will be the actual quantities of work ordered and carried out, as measured by the Contractor and verified by the Engineer and valued at the rates and prices tendered in the priced Bill of Quantities, where applicable, and otherwise at such rates and prices as the Engineer may fix within the terms of the Contract.
3. The rates and prices tendered in the priced Bill of Quantities shall, except in so far as it is otherwise provided under the Contract, include all constructional plant, layout, supervision, materials, erection, maintenance, insurance, profit, taxes and duties, together with all general risks, liabilities and obligations set out or implied in the Contract.
4. The rates and prices shall be quoted entirely in Indian Currency.
5. A rate or prices shall be entered against each item in the Bill Quantities, whether quantities are stated or not. The cost of Items against which Contractor has failed to enter a rate or price shall be deemed to be covered by other rates and prices entered in the Bill of Quantities (in case of Item rate contract).
6. The whole cost of complying with the provisions of the Contract shall be included in the items provided in the priced Bill of Quantities, and where no Items are provided the cost shall be deemed to be distributed among the rates and prices entered for the related items of Work.
7. General direction and descriptions of work and materials are not necessarily repeated or summarized in the Bill of Quantities. References to the relevant sections of the contract documentation shall be made before entering rates or prices against each item in the Bill of Quantities.
8. The method of completed work of payment shall be in accordance with the specification for Road and Bridge works. For building works specifications for building are to be followed.
9. Errors will be corrected by the Employer for any arithmetic errors pursuant to **Clause 29** of the Instructions to Bidder.
10. Rock is defined as all materials which, in the opinion of the Engineer, required blasting, or the use of metal wedges and sledgehammers, or the use of compressed air drilling for its removal, and which cannot be extracted by ripping with a tractor of at least 150 kw with a single rear mounted heavy duty ripper.

BILL OF QUANTITIES

(A) Percentage Rate Tender (Up to INR 50 Cr.)

Item No	Description of Item (with brief specification and reference to book of specifications)	Quantity	Unit	Rate In figures	Amount
AS PER SEPARATE SHEET ATTACHED					

I/We am/are willing to carry out the work at...% above/below percent (Should be written in figures and words) of the estimated rate mentioned above. Amount of my /our tender works out as under.

Estimated amount put to tender

Estimated amount put to tender

Deduct.....% below

Add.....% Above

Net

Net

In words

In words

(B) For Item Rate Tender (For above INR 50 Cr.):

Item No	Description of Item (with brief specification and reference to book of specifications)	Quantity	Unit	Rate		Amount
				In figures	In Words	
NA						

(A) Total Tendered Amount

(B) Rebate on above tendered amount (if any) % (in figure)
(in words)

(C) Net Tendered Amount (A-B) (in figure)
(in words)

#

1	The Contractor shall exhibit a board with detailed specification and details of work as directed by the Engineer-In-Charge for which no extra payment shall be made.
2	The labour cess will be deducted as per prevailing rules i.e. 1% of the work done.
3	GST and Income tax TDS will be deducted at a source while making payments of bills
4	In all R.C.C. Items in Rate Analysis Standard Cement Consumption has been taken as per Govt. G.R.: PRC-10/2017 Cement Consumption/16/C Date:11/05/2017 as stated in S.O.R. therefore in R.C.C. items where there is a change as per actual mix design the cost of difference of cement consumption have been deducted from the rate of original item at the rate of input rate mentioned in all the tender.

SECTION - 8

SECURITIES AND OTHER FORMS

BID SECURITY (BANK GUARANTEE)

WHEREAS, ----- (name of Bidder) (hereinafter called the “The Bidder”) has submitted his bid Dated ----- (Date) for the construction of ----- (Name of Contractor hereinafter called “the Bid”)

KNOW ALL PEOPLE by these presents that We -----
(name of Bank) of ----- (name of country) having our
registered office at ----- (hereinafter called
“the bank”) are bound unto ----- (name of Employer)
(hereinafter called “The Employer”) in the sum of ----- *
for which payment well and truly to be made to the said Employer the Bank itself, his
successors and assigns by these presents.

SEALED with the Common Seal of the said Bank this ----- day of ----- 20

THE CONDITIONS of these obligations are:

(1) If after Bid opening the Bidder withdraws his bid during the period of Bid validity specified in the Form of Bid;

Or

(2) If the Bidder has been notified of the acceptance of his bid by the Employer during the period of Bid Validity:

A Fails or refuses to execute the Form of Agreement in accordance with the Instructions to Bidders, if required; or

B. Fails or refuse to furnish the Performance Security, in accordance with the Instructions to Bidders; or

C. does not accept the correction of the Bid Price pursuant to Clause 27 (Correction of Errors)

We undertake to pay to the Employer up to the above amount upon receipt of his first written demand, without the employer having to substantiate his demand, provided that in his demand the Employer will note that the amount claimed by him is due to him owing to the occurrence of one or any of the three conditions, specifying the occurred conditions or conditions.

This Guarantee will remain in force up to and including the date----- **
days after the deadline for submission of Bids as such the deadline is stated in the
Instructions to Bidders or as it may be extended by the Employer, notice of which
extension (s) to the Bank is hereby waived. Any demand in respect of this guarantee
should reach the Bank not later than the above date

DATE -----

SIGNATURE-----

WITNESS -----

SEAL -----

(Signature, name and address)

* The Bidder should insert the amount of the guarantee in words and figures
denominated in Indian Rupees. This figure should be the same as shown in Clause
16.1(Bid Security) of the Instructions to Bidders.

****45 days** after the **end of the validity period** of the Bid. Date should be inserted by
the Employer before the Bidding documents are issued.

PERFORMANCE SECURITY

TO,

----- (Name of Employer)
----- (Address of Employer)

WHEREAS ----- (name and address of contractor) (hereafter called “the Contractor”) has undertaken, in pursuance of Contracts No. ----- dates ----- to execute -----
----- (name of Contract and brief description of Works) (hereinafter called “The Contract”)

AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with his obligation in accordance with the Contract.

AND WHEREAS we have agreed to give the Contractors such a bank Guarantee:

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you on behalf of the Contractor, up to a total of -----

(amount of guarantee)* ----- (in words), such sum being payable in types and proportions of currencies in which the Contract prices is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of -----

(amount of guarantee) as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

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

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

This guarantee shall be valid until 60 days from the date of expiring of the Defect Liabilities period.

Signature and Seal of the guarantor -----

Name of Bank -----

Address -----

Date -----

*An amount shall be inserted by the Guarantor, representing the percentage the Contract price specified in the Contract denominated in Indian Rupees.

ADDITIONAL PERFORMANCE SECURITY

[Clause 34.1. (A)]

TO,

----- (Name of Employer)
----- (Address of Employer)

WHEREAS ----- (Name and address of contractor) (hereafter called "The Contractor") has undertaken, in pursuance of Contracts No. ----- dates ----- to execute ----- (Name of Contract and brief description of Works) (hereinafter called "The Contract")

AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with his obligation in accordance with the Contract.

AND WHEREAS we have agreed to give the Contractors such a bank Guarantee:

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you on behalf of the Contractor, up to a total of -----

(amount of guarantee) ----- (in words), such sum being payable in types and proportions of currencies in which the Contract prices is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of -----

(amount of guarantee) as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the contractor before presenting is with the demand

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

This guarantee shall be valid until **28 days** from the project completion date.

Signature and Seal of the guarantor -----

Name of Bank -----

Address -----

Date -----

BANK GUARANTEE FOR ADVANCE PAYMENT

TO,

----- (Name of Employer)

----- (Address of Employer)

----- (Name of Contractor)

Gentlemen:

In accordance with the provisions of the Conditions of Contract, sub-clause 51.1 ("Advance Payment") of the above mentioned Contract, -----
----- (name and address of Contractor) (hereinafter called "the Contractor") shall deposit with (name of
Employer) a bank guarantee his proper and faithful performance under the said Clause of the Contract in an amount of ----- (amount of Guarantee)* -
----- in words).

We, the ----- (bank of financial institution), as instructed
by the Contractor, agree unconditionally and irrevocably to guarantee as primary obligator and not as Surety merely, the payment to -----
(name of Employer) on his first demand without whatsoever right of obligation on our part and without his first claim to the Contractor, in the amount not exceeding ---
----- (amount of guarantee)* ----- (in words)

We further agree that no change or addition to or other modifications of the terms of the Contractor or Works to be performed thereunder or of any of the Contract documents which may be made between ----- (name of Employer) and the Contractor, shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modifications.

This guarantee shall remain valid and in full effect from the date of the advance payment under the Contract until ----- (name of employer) receives full repayment of the same amount from the contractor.

YOUR'S TRULY

Signature and Seal _____
Name of Bank/ Financial Institution _____
Address _____
Date _____

* An amount shall be inserted by that Bank or Financial Institution representing the amount of the Advance Payment, and denominated in Indian Rupees.

Letter of Acceptance

(Letter head paper of the Employer)

_____ (date)

To,

_____ (Name and address of the Contractor)

Dear Sirs,

This is to notify you that your Bid dated _____ for execution of the _____ (Name of the contract and identification number, as given in the Instructions to Bidders) for the Contract Price of Rupees _____ (_____) (amount in words and figures) as corrected and modified in accordance with the Instructions to Bidders* is hereby accepted by our agency.

You are requested to furnish performance security, in the form detailed in para 34.1 of ITB for an amount equivalent to Rs. _____ within **10 days** of the receipt of this letter of acceptance up to beyond **60 days** from the date of expiry of defects Liability period i.e. up to _____ and the Additional Performance Security for an amount equivalent to Rs. _____ shall be valid beyond 28 (twenty-eight) days of Project Completion Date i.e. up to _____ and sign the contract, failing which action as stated in Para 34.3 of ITB will be taken.

Yours Faithfully

Authorized Signature Name
and title of Signatory Name
of Employer

* Delete "Corrected and" or and modified if only one of these actions applies. Delete as corrected and modified in accordance with the Instructions to Bidders, if corrections or modifications have not been affected.

Issue of Notice to proceed with the work

(Letterhead of the Employer)

----- (date)

To,

_____ (Name and address of the Contractor)

Dear Sirs,

Pursuant to your furnishing the requisite security in ITB Clause 34.1 and signing of the Contract for the construction of _____

_____ at a bid Price of Rs.
_____.

You are hereby instructed to proceed with the execution of the said works in accordance with the contract documents.

Yours faithfully

(Signature, name and title of signatory authorized To
sign on behalf of Employer)

AGREEMENT FORM

This agreement, made on the _____ day of _____ between _____ (name and address of Employer) (Hereinafter called "the Employer) and _____ (name and address of contractor) hereinafter called "the Contractor" of the other part.

Whereas the Employer is desirous that the Contractor execute

Name and identification number of contract (hereinafter called "the works") and the employer has accepted the Bid by the Contractor for the execution and completion of such works and the remedying of any defects therein, at a cost of Rs.

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS

1. In this Agreement, words and expression shall have the same meanings as are respectively assigned to them in the conditions of contract hereinafter referred to and they shall be deemed to form and be read construed as part of this Agreement.
2. In Consideration of the payment to be made by the Employer to the contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to executive and complete the works and remedy any defects therein in conformity in all aspects with the provisions of the contracts.
3. The employer hereby covenants to pay the Contractor in consideration of the execution and completion of the works and the remedying the defects wherein contract price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the contract.
4. The Following documents shall be deemed to form and be ready and construed as part of this Agreement viz
 - i) letter of Acceptance
 - ii) Notice to proceed with the works:
 - iii) Contractor's Bid
 - iv) Conditions of contract: General and Special
 - v) Contract Data
 - vi) Additional conditions
 - vii) Drawings
 - viii) Bill of Quantities and
 - ix) Any other documents listed in the Contract data as forming part of the Contract.

In witness whereof the parties there to have caused this Agreement to be executed
the day and year first before written

The Common seal of _____
Was hereunto affixed in the presence of :

Signed, sealed and Delivered by the said _____

In the presence of

Binding signature of Employer _____

Binding Signature of Contractor _____

UNDERTAKING (For Investment)

I, the undersigned do hereby undertake that our firm M/s would invest a minimum cash up to **25%** of the value of the work during implementation of the contract.

(Signed by an Authorized officer of the firm)

Title of officer

Name of firm

DATE

UNDERTAKING
(For Validity)

I, the undersigned do hereby undertake that our firm M/s
..... agree to abide by this bid for a period.....days
for date fixed for receiving the same and it shall be binding on us and may be accepted at any
time before the expiration of that period.

(Signed by an Authorized officer of the firm)

Title of officer

Name of firm

DATE

SECTION - 9
DRAWINGS

SECTION - 10
DOCUMENTS TO BE FURNISHED BY BIDDER

Emergency work for Supplying Of Sign Boards/ Road Furniture on NHNH-41 bet. Km. 122/200 to 291/450 Section :
Mundra –Mandvi- Naliya- Narayan Sarovar Road.

Item	Description of Item	Unit	Rate
1	2	3	4
1	Cautionary Warning Sign:		
	Cautionary Warning Sign :-Providing and fixing sing boards made out of 2mm aluminium sheet; size 90 x 90 x 90 cms. equilateral triangle as per design of IRC-67-1977. Pre treated with phospheting process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint ;reflectorised with retro reflectivesheeting as per latest M.O.S.T.Specifications; 3.1m long stand postand frame fabricated from suitable sizeiron angle of 35 x 35 x 3mm, 75 x 75 x 6mm as required; painted with bestquality epoxy coatings in black andwhite bends. The details of symbol foreach board shall be as per theinstruction of engineer in charge. The fixing at site shall be in 1:2:4 CC blockof size 45 x 45 x 60 Cms. for each leg.including excavation, curing etc.complete under the supervision of engineer in charge.		
	(B) High Intensity Grade	Each	5027.00
2	Informatory sings:		
	Informatory Signs :-Providing and fixing sing boards made out of 2mm aluminium sheet; size 80 x 60cms. rectangle as per the design of IRC-67-1977 pre treated with phospheting process & acid teching; coated with one coat of epoxyprimer and two coats of best qualityepoxy paint; reflectorised with retro reflective sheeting as per latest M.O.S.T. Specifications; 3.1m long stand postand frame fabricated from suitable sizeiron angle of 35 x 35 x 3mm75x75x6mm as required; painted with best qualityepoxy coatings in black and whitebends. the details of symbol for eachboard shall details of symbol for eachboard shall be as per the instruction ofengineer in charge. The fixing at site shall be in 1:2:4 CC block of size 45 x45 x 60cms. for each leg. including excavation curing tec. complete under the supervision of engineer in charge		
	(B) High Intensity Grade	Each	6001.00
3	Regulatory / Mandatory Sings:		
	Regulatory/Mandatory signs :Providing and fixing sing boards made out of 2mm aluminium sheet; size 60cms. diameter circle as per the design of IRC-67-1977 pre treated with phospheting process & acid eteching; coated with one coat of epoxy primer and two coats of best quality epoxy paint; reflectorised with retro reflective sheeting as per latest M.O.S.T. Specifications; 3.1m long stand post and frame fabricated from suitable size iron angle of 35 x 35 x 3mm 75x75x6mm as required; painted with best quality epoxy coatings in black and white bends. the details of symbol for each board shall be as per the instruction of engineer in charge. The fixing at site shall be in 1:2:4 CC block of size 45 x 45 x 60cms. for each leg. including excavation curing etc. complete under the supervision of engineer in charge.		
	(B) High Intensity Grade	Each	4329.00

Item	Description of Item	Unit	Rate
1	2	3	4
4	Stop Sign:		
	STOP SIGN:-Providing and fixing sing boards made out of 2mm aluminium sheet; size 90 cms. octagon as per the design of IRC-67-1977 pre treated with phospheting process & acid teching; coated with one coat of epoxy primer and two coats of best quality epoxy paint; reflectorised with retro refiective sheeting as per latest M.O.S.T. Specifications; 3.1m long stand post and frame fabricated from suitable size iron angle of 35 x 35 x 3mm 75x75x6mm as required; painted with best quality epoxy coatings in black and white bends. the details of symbol for each board shall be as per the instruction of engineer in charge. The fixing at site shall be in 1:2:4 CC block of size 45 x 45 x 60cms. for each leg. including excavation curing tec. complete under the supervision of engineer in charge		
	(B) High Intencity Grade	Each	7621.00
5	Parking Sign:		
	Parking Signs :-Providing and fixing sing boards made out of 2mm aluminium sheet; size 60 x 60cms. sequare plus 60 x 20cms rectangular additional plate as as per the design of IRC-67-1977 pre treated with phospheting process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint; reflectorised with retro refiective sheeting as per latest M.O.S.T. Specifications; 3.1m long stand post and frame fabricated from suitable size iron angle of 35 x 35 x 3mm 75x75x6mm as required; painted with best quality epoxy coatings in black and white bends. the details of symbol for each board shall be as per the instruction of engineer in charge. The fixing at site shall be in 1:2:4 CC block of size 45 x 45 x 60cms. for each leg. including excavation curing etc. complete under the supervision of engineer in charge.		
	(B) High Intencity Grade	Each	4984.00
6	Give Way Sign:		
	Give Way Sign :-Providing and fixing sing boards made out of 2mm aluminium sheet; size 90 x 90 x 90cms. equiletral tringle (inverted) as as per the design of IRC-67-1977 pre treated with phospheting process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint; reflectorised with retro refiective sheeting as per latest M.O.S.T. Specifications; 3.1m long stand post and frame fabricated from suitable size iron angle of 35 x 35 x 3mm 75x75x6mm as required; painted with best quality epoxy coatings in black and white bends. The fixing at site shall be in 1:2:4 CC block of size 45 x 45 x 60cms. for each leg. including excavation curing etc. complete under the supervision of engineer in charge.		
	(B) High Intencity Grade	Each	4905.00
7	Direction Sign (Junction Board):		
	Direction (Junction) Sign :-Providing and fixing sign boards made out of 2mm aluminium sheet / 4mm ACP (Aluminum composite Panel); size 244x122 cms. rectangular as per design of IRC-67-2012. Pre treated with phospheting process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint ;reflectorised with Micro Prismatic Grade retro refiectivesheeting of Type-11 as per ASTM D-4956 and latest M.O.S.T.Specifications; 4.0mtr long (2 Nos.) stand post of 75 x 75 x 6mm / 65NB Circular MS Pipe as required and frame fabricated from suitable size iron angle of 50 x 50 x 5mm; painted with bestquality epoxy coatings in black and white bends. The details of symbol foreach board shall be as per theinstruction of engineer in charge. The fixing at site shall be in 1:2:4 CC blockofsize 45 x 45 x 60 Cms. for each leg.including excavation, curing etc.complete under the supervision of engineer in charge. A warranty for 10 years for the Retro reflective sheeting from original manufacturer & a certified copy of 3 year outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor. (A) Class-C Type-11 Retro Reflective sheeting		
	(B) High Intencity Grade	Each	26309.00

Item	Description of Item	Unit	Rate
1	2	3	4
8	<i>Distance informatory / Destination Sign:</i>		
	Distance Informatory / Destination Sign :-Providing and fixing sign boards made out of 2mm aluminium sheet / 4mm ACP (Aluminum composite Panel); size 180x120 cms. rectangular as per design of IRC-67-2012. Pre treated with phosphating process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint ;reflectorised with Micro Prismatic Grade retro reflectivesheeting of Type-11 as per ASTM D-4956 and latest M.O.S.T.Specifications; 4.0mtr long (2 Nos.) stand post of 75 x 75 x 6mm / 65NB Circular MS Pipe as required and frame fabricated from suitable size iron angle of 50 x 50 x 5mm; painted with bestquality epoxy coatings in black and white bends. The details of symbol foreach board shall be as per theinstruction of engineer in charge. The fixing at site shall be in 1:2:4 CC blockof size 45 x 45 x 60 Cms. for each leg.including excavation, curing etc.complete under the supervision of engineer in charge. A warranty for 10 years for the Retro reflective sheeting from original manufacturer & a certified copy of 3 year outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor. (A) Class-C Type-11 Retro Reflective sheeting		
	(B) High Intensity Grade	Each	20711.00
9	<i>Place ideatification Sign:</i>		
	Place Identification Sign :-Providing and fixing sign boards made out of 2mm aluminium sheet / 4mm ACP (Aluminum composite Panel); size 150x90 cms. rectangular as per design of IRC-67-2012. Pre treated with phosphating process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint ;reflectorised with Micro Prismatic Grade retro reflectivesheeting of Type-11 as per ASTM D-4956 and latest M.O.S.T.Specifications; 4.0mtr long (2 Nos.) stand post of 75 x 75 x 6mm / 65NB Circular MS Pipe as required and frame fabricated from suitable size iron angle of 35 x 35 x 3mm; painted with bestquality epoxy coatings in black and white bends. The details of symbol foreach board shall be as per theinstruction of engineer in charge. The fixing at site shall be in 1:2:4 CC blockof size 45 x 45 x 60 Cms. for each leg.including excavation, curing etc.complete under the supervision of engineer in charge. A warranty for 10 years for the Retro reflective sheeting from original manufacturer & a certified copy of 3 year outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor. (A) Class-C Type-11 Retro Reflective sheeting		
	(B) High Intensity Grade	Each	13946.00
10	<i>Village Name / Bump Ahead Sign:</i>		
	Village Name Sign :-Providing and fixing sign boards made out of 2mm aluminium sheet / 4mm ACP (Aluminum composite Panel); size 90x60 cms. rectangular as per design of IRC-67-2012. Pre treated with phosphating process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint ;reflectorised with Micro Prismatic Grade retro reflectivesheeting of Type-11 as per ASTM D-4956 and latest M.O.S.T.Specifications; 3.3mtr long stand post of 75 x 75 x 6mm / 65NB Circular MS Pipe as required and frame fabricated from suitable size iron angle of 35 x 35 x 3mm; painted with bestquality epoxy coatings in black and white bends. The details of symbol or inscription/letters / numerals for each board shall be as per the instruction of engineer in charge. The fixing at site shall be in 1:2:4 CC blockof size 45 x 45 x 60 Cms. for each leg.including excavation, curing etc.complete under the supervision of engineer in charge. A warranty for 10 years for the Retro reflective sheeting from original manufacturer & a certified copy of 3 year outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor. (A) Class-C Type-11 Retro Reflective sheeting		
	(B) High Intensity Grade	Each	6251.00

Item	Description of Item	Unit	Rate
1	2	3	4
11	Hazard Marker Sign:		
	Hazard Marker Sign :-Providing and fixing sign boards made out of 2.0 mm aluminium sheet / 4 mm ACP (Aluminum composite Panel); size 90x30 cms. rectangular as per design of IRC-67-2012. Pre treated with phosphating process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint ;reflectorised with Micro Prismatic Grade retro reflectivesheeting of Type-11 as per ASTM D-4956 and latest M.O.S.T.Specifications; 1.8mtr long stand post of 75 x 75 x 6mm / 65NB Circular MS Pipe as required and frame fabricated from suitable size iron angle of 35 x 35 x 3mm; painted with bestquality epoxy coatings in black and white bends. The details of symbol foreach board shall be as per theinstruction of engineer in charge. The fixing at site shall be in 1:2:4 CC blockof size 45 x 45 x 60 Cms. for each leg.including excavation, curing etc.complete under the supervision of engineer in charge. A warranty for 10 years for the Retro reflective sheeting from original manufacturer & a certified copy of 3 year outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor. (A) Class-C Type-11 Retro Reflective sheeting		
	(B) High Intensity Grade	Each	3630.00
12	Supply Traffic Cone: Made out of molded fiber reinforced plastic color yellow fitted with retro reflective sheeting as per the attached drawing size 60 Cm height x 32.5 Cm. base. In cone shape reflectorized with retro reflective sheeting as per MOST specification as required by engineer-in-charge.		
13	Man at Work (Heavy) Sign:		
	Men at work (Heavy) sign :-Providing and fixing sign boards made out of 2mm aluminium sheet / 4mm ACP (Aluminum composite Panel); size 120cm x90cm rectangular as per design of IRC-67-2012. Pre treated with phosphating process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint ;reflectorised with Micro Prismatic Grade retro reflectivesheeting of Type-11 as per ASTM D-4956 and latest M.O.S.T.Specifications; 3.6 mtr long stand post (2 Nos.) of 75 x 75 x 6mm / 65NB Circular MS Pipe as required and frame fabricated from suitable size iron angle of 50 x 50 x 5mm; painted with bestquality epoxy coatings in black and white bends. the details of symbol or inscription / numerals for each board shall be as per the instruction of engineer in charge.The fixing at site shall be in 1:2:4 CC blockof size 45 x 45 x 60 Cms. for each leg.including excavation, curing etc.complete under the supervision of engineer in charge. A warranty for 10 years for the Retro reflective sheeting from original manufacturer & a certified copy of 3 year outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor. (A) Class-C Type-11 Retro Reflective sheeting		
	(B) High Intensity Grade	Each	12091.00

Item	Description of Item	Unit	Rate
1	2	3	4
14	Man at Work (2' x 2') Sign:		
	Men at work (2' x 2') sign :-Providing and fixing sign boards made out of 2.0 mm aluminium sheet / 4 mm ACP(Aluminum composite Panel); size 60cm x 60cm square as per design of IRC-67-2012. Pre treated with phosphating process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint ;reflectorised with Micro Prismatic Grade retro reflectivesheeting of Type-11 as per ASTM D-4956 and latest M.O.S.T.Specifications; 3.3 mtr long stand post of 75 x 75 x 6mm / 65NB Circular MS Pipe as required and frame fabricated from suitable size iron angle of 50 x 50 x 5mm; painted with bestquality epoxy coatings in black and white bends. the details of symbol or inscription / numerals for each board shall be as per the instruction of engineer in charge.The fixing at site shall be in 1:2:4 CC blockof size 45 x 45 x 60 Cms. for each leg.including excavation, curing etc.complete under the supervision of engineer in charge. A warranty for 10 years for the Retro reflective sheeting from original manufacturer & a certified copy of 3		
	(B) High Intensity Grade	Each	4913.00
15	Man at Work (Folding) Sign:		
	Men at work (Folding) sign :-Providing and fixing sign boards made out of2.0 mm aluminium sheet / 4 mm ACP (Aluminum composite Panel); size 60x60 x 60cm equilateral triangular as per design of IRC-67-2012. Pre treated with phosphating process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint ;reflectorised with Micro Prismatic Grade retro reflectivesheeting of Type-11 as per ASTM D- 4956 and latest M.O.S.T.Specifications; 3.3 mtr long stand post of 75 x 75 x 6mm / 65NB Circular MS Pipe as required and frame fabricated from suitable size iron angle of 35 x 35 x 3mm; painted with bestquality epoxy coatings in black and white bends. the details of symbol or inscription / numerals for each board shall be as per the instruction of engineer in charge. A warranty for 10 years for the Retro reflective sheeting from original manufacturer & a certified copy of 3 year outdoor		
	(B) High Intensity Grade	Each	3473.00
16	Route Marker Sign:		
	Route Marker sign :-Providing and fixing sign boards made out of 2.0 mm aluminium sheet / 4 mm ACP (Aluminum composite Panel); size 60x45 cm rectangular plus 30x25cm additional plate as per design of IRC-67- 2012. Pre treated with phosphating process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint ;reflectorised with Micro Prismatic Grade retro reflectivesheeting of Type- 11 as per ASTM D-4956 and latest M.O.S.T.Specifications; 3.6 mtr long stand post of 75 x 75 x 6mm / 65NB Circular MS Pipe as required and frame fabricated from suitable size iron angle of 35x 35 x 3mm; painted with bestquality epoxy coatings in black and white bends. the details of symbol or inscription / numerals for each board shall be as per the instruction of engineer in charge.The fixing at site shall be in 1:2:4 CC blockof size 45 x 45 x 60 Cms. for each leg.including excavation, curing etc.complete under the supervision of engineer in charge. A warranty for 10 years for the Retro reflective sheeting from original manufacturer & a certified copy of 3 year outdoor exposure test report from third party test lab for the product offered shall besubmitted by contractor. (A) Class C Type 11 Retro		
	(B) High Intensity Grade	Each	5058.00

Item	Description of Item	Unit	Rate
1	2	3	4
17	<i>Diversion Sign Board:</i>		
	Diversion sing board :-Providing & Fixing sign boards made out of 2mm aluminium sheet, size 180 x 60 cms. rectangle as per the attached drawing pre treated with phospheting process & acid etching. coated with one coat of epoxy priemr and two coats of best quality epoxy paint reflectorised with retro reflective sheeting as per latest M.O.S.T. Specifications; Letters and numerals should be as per IRC-30-1968,3.1m long (2nos) stand post and frame fabricated from iron angle of 35x35x3mm, 50x50x5mm painted with best quality epoxy coatings in blak and white bends. The fixing at site shall be in 1:2:4 CC block of size 45 x 45x 60cms for each leg, including excavation curing etc. complete under the supervision of engineer in charge.		
	(B) High Intensity Grade	Each	10566.00
18	<i>Kerb Guard Sign Board (Small):</i>		
	Kerb guard sign board (small) :-Providing & Fixing sign boards made out of 2mm aluminium sheet, size 240 x 30 cms in U spape; as per the attached drawing pre treated with phospheting process & acid etching. coated with one coat of epoxy priemr and two coats of best quality epoxy paint reflectorised with Micro Prismatic Grade retro refiectivesheeting of Type-11 as per ASTM D-4956 and latest M.O.S.T.Specifications; stand post and frame fabricated from iron angle of 50x50x5mm, 10mm sq. bar as required, painted with best quality epoxy coating the fixing at site shall be in 1:2:4 CC block of size 45 x 45 x 60cms for each leg, including excavation curing etc. complete under the supervision of engineer in charge. A warranty for 10 years for the Retro reflective sheeting from original manufacturer & a certified copy of 3 year outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor. (A) Class-C Type-11 Retro Reflective sheeting		
	(B) High Intensity Grade	Each	7406.00
19	<i>Kerb Guard Sign Board (Big):</i>		
	Kerb guard sign board (Big) :-Providing & Fixing sign boards made out of 2mm aluminium sheet, size 732 x 30 cms in Uspape; as per the attached drawing pretreated with phospheting process & acid etching. coated with one coat of epoxy priemr and two coats of best quality epoxy paint reflectorised with Micro Prismatic Grade retro refiectivesheeting of Type-11 as per ASTM D-4956 and latest M.O.S.T.Specifications ; Stand post and frame fabricated from iron angle of 50 x50 x 5mm, 10mm sq. bar as required, painted with best quality epoxy coating the fixing at site shall be in 1:2:4 CC block of size 45 x 45x 60cms for each leg, including excavation curing etc. complete under the supervision of engineer in charge. A warranty for 10 years for the Retro reflective sheeting from original manufacturer & a certified copy of 3 year outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor. (A) Class-C Type-11 Retro Reflective sheeting		
	(B) High Intensity Grade	Each	18924.00

Item	Description of Item	Unit	Rate
1	2	3	4
20	<i>Around the Island / Road Direction Sign Board (Big):</i>		
	Around the Island / road Direction Sign board (Big) :- Providing and fixing sign boards made out of 2mm aluminium sheet / 4mm ACP (Aluminum composite Panel); size 180x60 cms. as per design of IRC-67-2012. Pre treated with phosphating process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint ;reflectorised with Micro Prismatic Grade retro reflectivesheeting of Type-11 as per ASTM D-4956 and latest M.O.S.T.Specifications; 3.3 mtr long stand post of 75 x 75 x 6mm / 65NB Circular MS Pipe as required and frame fabricated from suitable size iron angle of 35 x 35 x 3mm; painted with bestquality epoxy coatings in black and white bends. The details of symbol for each board shall be as per theinstruction of engineer in charge. The fixing at site shall be in 1:2:4 CC blockof size 45 x 45 x 60 Cms. for each leg.including excavation, curing etc.complete under the supervision of engineer in charge. A warranty for 10 years for the Retro reflective sheeting from original manufacturer & a certified copy of 3 year outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor. (A) Class-C Type-11 Retro Reflective sheeting		
	(B) High Intencity Grade	Each	8191.00
21	<i>Around the Island / Road Direction Sign Board (Small):</i>		
	Around the Island / road Direction Sign board (Small) :- Providing and fixing sign boards made out of 2.0 mm aluminium sheet / 4 mm ACP (Aluminum composite Panel); size 60x60 cms. as per design of IRC-67-2012. Pre treated with phosphating process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint ;reflectorised with Micro Prismatic Grade retro reflectivesheeting of Type-11 as per ASTM D-4956 and latest M.O.S.T.Specifications; 3.3 mtr long stand post of 75 x 75 x 6mm / 65NB Circular MS Pipe as required and frame fabricated from suitable size iron angle of 35 x 35 x 3mm; painted with bestquality epoxy coatings in black and white bends. The details of symbol foreach board shall be as per theinstruction of engineer in charge. The fixing at site shall be in 1:2:4 CC blockof size 45 x 45 x 60 Cms. for each leg.including excavation, curing etc.complete under the supervision of engineer in charge. A warranty for 10 years for the Retro reflective sheeting from original manufacturer & a certified copy of 3 year outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor. (A) Class-C Type-11 Retro Reflective sheeting		
	(B) High Intencity Grade	Each	5052.00
22	Road Delineators (Supplying and installation of delineators (road way indicators, hazard markers, object markers), 80-100 cm high above ground level, painted black and white in 15 cm wide stripes, fitted with 80 x 100 mm rectangular or 75 mm dia circular reflectorised panels at the top, buried or pressed into the ground and confirming toIRC-79 and the drawings).	Each	1037.00

Item	Description of Item	Unit	Rate
1	2	3	4
23	Supplying & fixing jumbo bollard sign L-type made out of 1.5 mm thick crc sheet height 155 cms. bottom diameter : 30 Cms. Top diameter 18 cms. With direction plate of 45 cms diameter, fabricated as per attached drawing pretreated with phospheting process. Painted with epoxy coating reflectorised with retro reflective sheetings specified by MOST' s latest specifications Powder coating work in white colour (B) High Intensity Grade.	Per No.	6950.00
24	Supplying & fixing jumbo bollard sign swiss style made out of 1.5 mm thick crc sheet height 188 cms. bottom diameter : 30 Cms. Top diameter 18 cms. With direction plate of 45 cms diameter, fabricated as per attached drawing pretreated with phospheting process. Painted with epoxy coating reflectorised with retro reflective sheetings specified by MOST' s latest specifications Powder coating work in white colour (B) High Intensity Grade.	Per No.	7200.00
25	Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign as per IRC:67 made of Class- C, type XI, Micro Prismatic retro reflective sheeting fixed over 2mm thick aluminium sheeting vide clause 801.3, /4mm thick Aluminum composite Panel material sheet depending on the size of the sign fixed over back support frame of min 25x25x3mm Angle mounted on a mild steel circular pipe 65 NB, 3.2 mm thicknness firmly fixed to the ground by means of properly designed foundation with M25 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing. The sign shall be maintained as section 12 of IRC 67.		
25.1	90 cm equilateral triangle	each	4942.00
25.2	60 cm equilateral triangle	each	3894.00
25.3	60 cm circular	each	4366.00
25.4	80 mm x 60 mm rectangular	each	6038.00
25.5	60 cm x 45 cm rectangular	each	4258.00
25.6	60 cm x 60 cm square	each	5021.00
25.7	90 cm high octagon	each	7658.00
26	Direction and Place Identification signs upto 0.9 sqm size board. (Providing and erecting direction and place identification retro-reflectorised sign asper IRC:67 made of encapsulated lens type reflective sheeting vide clause 801.3, fixed over aluminium sheeting, 2 mm thick with area not exceeding 0.9 sqm supported on a mild steel single angle iron post 75 x 75 x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 x 45 x 60 cm, 60 cm below ground level as per approved drawing).	sqm	10874.00

Item	Description of Item	Unit	Rate
1	2	3	4
27	Direction and Place Identification signs with more than 0.9 sqm size board. (Providing and erecting direction and place identification retro-reflectorised sign as per IRC:67 made of encapsulated lens type reflective sheeting vide clause 801.3, fixed over aluminium sheeting, 2 mm thick with area exceeding 0.9 sqm supported on a mild steel angle iron post 75 x 75 x 6 mm, 2 nos. firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 x 45 x 60 cm, 60 cm below ground level as per approved drawing)	sqm	11390.00
28	Type - A, "W" : Metal Beam Crash Barrier (Providing and erecting a "W" metal beam crash barrier comprising of 3 mm thick corrugated sheet metal beam rail, 70 cm above road/ground level, fixed on ISMC series channel vertical post, 150 x 75 x 5 mm spaced 2 m centre to centre, 1.8 m high, 1.1 m below ground/road level, all steel parts and fitments to be galvanised by hot dip process, all fittings to conform to IS:1367 and IS:1364, metal beam rail to be fixed on the vertical post with a spacer of channel section 150 x 75 x 5 mm, 330 mm long complete as per clause 810).	Metre	3474.00
29	Type - B, "THRIE" : Metal Beam Crash Barrier (Providing and erecting a "Thrie" metal beam crash barrier comprising of 3 mm thick corrugated sheet metal beam rail, 85 cm above road/ground level, fixed on ISMC series channel vertical post, 150 x 75 x 5 mm spaced 2 m centre to centre, 2 m high with 1.15 m below ground level, all steel parts and fitments to be galvanised by hot dip process, all fittings to conform to IS:1367 and IS:1364, metal beam rail to be fixed on the vertical post with a space of channel section 150 x 75 x 5 mm, 546 mm long complete as per clause 810).	Metre	4144.00
30	Cat Eye / Road Stud / RPM : Supplying of Molded Twin Shanks Raised Pavement Markers made of polycarbonate and ABS moulded body and reflective panels with Micro prismatic lens (No Glass bead lens) capable of providing total internal reflection of the light entering the lens face and shall support a load of 13635 kgs. tested in accordance to ASTM D 4280 Type H and complying to Specifications of Category A of MoRTH Circular No. RW/NH/33023-10-97-DO III Dt.11/06/1977. The height, width and length shall not exceed 20mm, 130mm and height not less than 30+/- 5 degree. The strength of detachment of the integrated cylindrical shanks, (of diameter not less than 19 +/-2 mm and height not less than 30+/- 2 mm) from the body is to be a minimum value of 500 kgf. Fixing will be by drilling holes on the road for the shanks to go inside, without nails and using epoxy resin based adhesive as per manufacture's recommendation and The color of the marker should be as per the IRC 35-2015 and as directed by Engineer-In-Charge.	Each	323.00

Item	Description of Item	Unit	Rate
1	2	3	4
31	Drum Delineator in Construction Zone :-Provision of metal drum/empty bitumen drum delineator, 300 mm in diameter, 800 mm high, filled with earth for stability, painted in circumferential strips of alternate black and white 100 mm wide fitted with reflectors 3 Nos of 7.5 cm dia, all as per IRC:SP:55-2001.	Each	559.00
32	Road Marking with Hot applied Thermoplastic Compound with reflectorising Glass beads on Bituminous Surface (Providing and laying of hot applied thermoplastic compound 2.5mm thick including reflecorising glass beads @ 250 gms per sqm area, thickness of 2.5mm is exclusive of surface applied glaass beads as per IRC:35. The finished surface to be level, uniform and free from streaks & holes).	Sqm	427.00

N.B. :-

- 1) Above items shall be carried out as per M.O.R.T. & H./R&B, Specification for road & Bridge works 5th Revision and as directed Engineer in Charge.
- 2) Warranty Certificate of 7 years for High Intensity Grade of Signs from Setting Manufacturers should be given at the time of supplying of the boards.
- 3) Warranty security deposit 5% shall be recovered from bill which will be released after expiring the waranty period.
- 4) 1% of estimate cost put to tender for the work shall be deducted from the bill for Testing Charges.
- 5) All other Govt. dues shall be recovered as per Govt. prevailing rules.

I/we am/are willing to carry out the work at% Above/Below (Should be written in figures and words) of the Estimated rates mentioned above, amount of my/our tender works out as under.

Estimated Amount Put to Tender Rs.....
Add% Above Rs.....
Total Rs.....
(In Words
(Please strike out whichever is not applicable)

Estimated Amount put to Tender Rs.....
Deduct.....% Below Rs.....
Total Rs.....
(In Words
(Please strike out whichever is not applicable)

ઉપરોક્ત તક્રમગી રી અમે દર્શાવેલ મ આવેલ ભ વે થી % નચિ /ઉચ (શબ્દમે ટક્ર નચિ / ઉચ થી લથ ધરી પુરુષ્કરવ અંગે આથી અમે સહમતી તથ બેંધરી આપી એ છી એ.

Contractor's Signature

**Deputy Executive Engineer
National Highway Sub Division
Mandvi**

NAME OF WORK: Emergency work for Supplying Of Sign Boards/ Road Furniture
on NH-41 bet. Km. 122/200 to 291/450 Section : Mundra –Mandvi- Naliya- Narayan
Sarovar Road.

[Providing & fixing Road Furniture]

DETAIL SPECIFICATIONS

Item No. 1

Cautionary Warning Sign: Providing and fixing sing boards made out of 2mm aluminum sheet; size 90 x 90 x 90 cms. equilateral triangle as per design of IRC-67-1977. Pretreated with phosphating process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint ;reflectorizedwith retro reflectivesheeting as per latest M.O.S.T.Specifications; 3.1m long stand postand frame fabricated from suitable sizeiron angle of 35 x 35 x 3mm, 75 x 75 x 6mm as required; painted with bestquality epoxy coatings in black andwhite bends. The details of symbol foreach board shall be as per theinstruction of engineer in charge. The fixing at site shall be in 1:2:4 CC blockof size 45 x 45 x 60 Cms. for each leg.including excavation, curing etc.complete under the supervision of engineer in charge.

Scope: The work shall consist of the fabrication, supply and installation of ground mounted traffic signs on roads. The details of the signs shall be as shown in the drawings and in conformity with the Code of Practice for Road Signs, IRC:67-2010.

Materials: The various materials and fabrication of the traffic signs shall conform to the following requirements:

(1) Concrete: Concrete for foundation shall be of M 15 Grade as per Section 1700 or the grade shown on the drawings or otherwise as directed by the Engineer.

(2) Reinforcing: Steel Reinforcing steel shall conform to the requirement of IS: 1786 unless otherwise shown on the drawing.

(3) Bolts, Nuts, Washers: High strength bolts shall conform to IS: 1367 whereas precision bolts, nuts, etc., shall conform to IS: 1364.

(4) Plates and Supports :Plates and support sections for the sign posts shall conform to IS: 226 and IS: 2062 or any other relevant ISSpecifications.

(5) Substrate: Sign panels shall be fabricated on aluminum sheet, aluminum composite panel, fiber glass sheeting, or sheet molding compound. Aluminum sheets used for sign boards shall be of smooth, hard and corrosion resistant aluminum alloy conforming to IS: 736-Material Designation 24345 or 1900.Aiuminium Composite Material (ACM) sheets shall be sandwiched construction with a thermoplastic core of Low Density Polyethylene (LOPE) between two thick skins/sheets of aluminum with overall thickness and 3 mm or 4 mm (as specified in the Contract), and aluminum skin of thickness 0.5 mm and 0.3 mm respectively on both sides.

The mechanical proportion of ACM and that of aluminum skin shall conform to the requirements given in Table 800-1, when tested in accordance with the test methods mentioned against each of them.

Table 800-1 :Specifications for Aluminum Composite Material (ACM)

Sr. No.	Description	Specification	
		Standard Test	Acceptable
a	Mechanical Properties of ACM		
1	Peeloffstrengthwithretroreflective sheeting (Drum Peel Test)	ASTM 0903	Min. 4 N/mm
2	Tensile strength	ASTM E8	Min. 40 N/mm ²
3	0.2% Proof Stress	ASTM E8	Min. 34 N/mm ²
4	Elongation	ASTM E8	Min.6%
5	Flexuralstrength	ASTM 393	Min. 130 N/mm ²
6	Flexural modulus	ASTM 393	Min. 44.00
7	Shear strength with Punch shear test	ASTM 732	Min. 30 N/mm ²
8	Properties of Aluminum Skin		
1)	Tensile strength (Rm)	ASTM E8	Min. 65 N/mm ²
2)	Modulus of elasticity	ASTM E8	Min. 70,000
3)	Elongation	ASTM E8	A50 Min. 2%

4)	0.2% Proof Stress	ASTM E8	Min. 10N/mm ²
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High Intensity Grade Sheeting

801.3.2.1 High Intensity Grade (Type III)

This high intensity retro reflective sheeting shall be of encapsulated lens type consisting of spherical glass lens, elements adhered to a synthetic resin and encapsulated by a flexible, transparent waterproof plastic having a smooth surface or as an unmetallised micro prismatic reflective material element. The retro-reflective surface after cleaning with soap and water and in dry condition shall have the minimum co-efficient of retro-reflection (determined in accordance with ASTM 0:4956-09) as indicated in **Table 800-2**.

Table 800-2 : Acceptable Minimum Co-efficient of Retro-Reflection for High Intensity Grade Sheeting (Type III) (Encapsulated Lens Type) (Candelas per Lux per Square Metre)

Observation Angle Degrees	Entrance Angle Degrees	White	Yellow	Orange	Green	Red	Blue	Brown
0.108	-40	300	200	120	54	54	24	14
0.108	+30°	180	120	72	32	32	14	10
0.2°	-40	250	170	100	45	45	20	12
0.2°	+30°	150	100	60	25	25	11	8.5
0.5°	-40	95	62	30	15	15	7.5	5.0
0.5°	+30°	65	45	25	10	10	5.0	3.5

- Minimum of Coefficient of Retro-reflection (RA) cd/fclft' (cd-lx-1m²).
- Values for 0.1° observation angles are supplementary requirements that shall apply only when specified by the purchaser in the Contract or order. When totally wet, the sheeting shall show not less than 90 percent, of the values of retro reflectance indicated in above Table. At the end of 7 years, the sheeting shall retain at least 80 percent of its original retro-reflectance.

High Intensity Micro-Prismatic Grade Sheeting (HIP) (Type IV)

This sheeting shall be of high intensity retro-reflective sheeting made of micro-prismatic retro-reflective element material coated with pressure sensitive adhesive. The retro-reflective surface after cleaning with soap and water and in dry condition shall have the minimum co- efficient of retro-reflection (determined in accordance with ASTM 0:4956-09) as indicated in **Table 800-3**.

Table 800-3: Acceptable Minimum Co-efficient of Retro-Reflection for High Intensity Micro-Prismatic Grade Sheeting (Type IV) (Candelas per Lux per Square Meter)

Observation	Entrance	White	Yellow	Orange	Green	Red	Blue	Brown
0.106	-40	500	380	200	70	90	42	25
0.106	+30°	240	175	94	32	42	20	12
0.2°	-40	360	270	145	50	65	30	18
0.2°	+30°	170	135	68	25	30	14	8.5
0.5°	-40	150	110	60	21	27	13	7.5
0.5°	+30°	72	54	28	10	13	6	3.5

- Minimum Coefficient of Retro reflection (RA) cd/fc/ft2 (cd-lx-1m²).
- Values for 0.1° observation angles are supplementary requirements that shall apply only when specified by the purchaser in the contract or order. When totally wet, the sheeting shall show not less than 90 percent of the values of retro reflection indicated in above Table . At the end of 7 years, the sheeting shall retain at least 80 percent of its original retro-reflectance.

Prismatic Grade Sheeting

Prismatic Grade Sheeting (Type VIII)

The reflective sheeting shall be retro reflective sheeting made of micro prismatic retro reflective material. The retro reflective surface, after cleaning with soap and water and in dry condition shall have the minimum co-efficient of retro reflection (determined in accordance with ASTM E 810) as indicated in Table 800-4.

Prismatic Grade Sheeting (Type IX)

The reflective sheeting shall be retro-reflective sheeting made of micro prismatic retro-reflective material. The retro-reflective surface, after cleaning with soap and water and in dry condition shall have the minimum co-efficient of retro-reflection (determined in accordance with ASTM E 810) as indicated in Table 800-5.

Table 800-4: Acceptable Minimum Co-efficient of Retro-Reflection for Prismatic Grade Sheeting (Type VIII) (Candelas Per Lux per Square Meter)

Observation Angle	Entrance Angle	White	Yellow	Orange	Green	Red	Blue	Brown	Fluorescent Yellow/Green	Fluorescent Yellow	Fluorescent Orange
0.1° ⁹	-4'	1000	750	375	100	150	45	30	800	600	300
0.1° ⁹	+30°	460	345	175	46	69	21	14	370	280	135
0.2°	-4'	700	525	265	70	105	32	21	560	420	210
0.2°	+30°	325	245	120	33	49	15	10	260	200	95
0.5°	-4'	250	190	94	25	38	11	7.5	200	150	75
0.5°	+30°	115	86	43	12	17	5	3.5	92	69	35

- A. Minimum Coefficient of Retro reflection (RA) cd/fc/ff (cd-lx-1m²).
- B. Values for 0.1' observation angles are supplementary requirements that shall apply only when specified by the purchaser in the contract or order. When totally wet, the sheeting shall show not less than 90 percent of the values of retro reflection indicated in above Table. At the end of 10 years, the sheeting shall retain at least 80 percent of its original retro-reflectance.

Table 800-5: Acceptable Minimum Co-efficient of Retro-Reflection for Prismatic Grade Sheeting (Type IX) (Candelas Per Lux per Square Meter)

Observation	Entrance	White	Yellow	Orange	Green	Red	Blue	Fluorescent Yellow/Green	Fluorescent Yellow	Fluorescent Orange
0.1° ⁹	-4'	600	500	250	66	130	130	530	400	200
0.1° ⁹	+30°	370	280	140	37	74	17	300	220	110
0.2°	-4'	380	285	145	38	76	17	300	230	115
0.2°	+30°	215	162	82	22	43	10	170	130	65
0.5°	-4'	240	180	90	24	48	11	190	145	72
0.5°	+30°	135	100	50	14	27	6.0	110	81	41
1.0°	-4'	80	60	30	8.0	16	3.6	64	48	24
1.0°	+30°	45	34	17	4.5	9.0	2.0	36	27	14

- A. Minimum Coefficient of Retro reflection (RA) cd/fc/ft² (cd-lx-1m²).
- B. Values for 0.1° observation angles are supplementary requirements that shall apply only when specified by the purchaser in the contract or order. When totally wet, the sheeting shall show not less than 90 percent of the values of retro reflection indicated in above Table. At the end of 10 years, the sheeting shall retain at least 80 percent of its original retro-reflectance.

801.3.4.3 Prismatic Grade Sheeting (Type XI)

A Retro-reflective sheeting typically manufactured as a cube corner. The reflective sheeting shall be retro-reflective sheeting made of micro prismatic retro-reflective material. The retro reflective surface,

after cleaning with soap and water and in dry condition shall have the minimum co-efficient of retro-reflection (determined in accordance with ASTM E 810) as indicated in **Table 800-6**.

Table 800-6: Acceptable Minimum Co-efficient of Retro-Reflection for Prismatic Grade Sheeting Type A (Type XI) (Candelas Per Lux per Square Meter)

Observation	Entrance Angle	White	Yellow	Orange	Green	Red	Blue	Brown	Fluorescent Yellow/Green	Fluorescent Yellow	Fluorescent Orange
0.1°B	-4'	830	620	290	83	125	37	25	660	500	250
0.1°B	+30°	325	245	115	33	50	15	10	260	200	100
0.2°	-4'	580	435	200	58	87	26	17	460	350	175
0.2°	+30°	220	165	77	22	33	10	7.0	180	130	66
0.5°	-4'	420	315	150	42	63	19	13	340	250	125
0.5°	+30°	150	110	53	15	23	7.0	5.0	120	90	45
1.0°	-4'	120	90	42	12	18	5.0	4.0	96	72	36
1.0°	+30°	45	34	16	5.0	7.0	2.0	1.0	36	27	14

- A. Minimum Coefficient of Retro-reflection (RA) cd/fc/ft² (cd-lx-1m²).
- B. Values for 0.1° observation angles are supplementary requirements that shall apply only when specified by the purchaser in the contract or order. When totally wet, the sheeting shall show not less than 90 percent of the values of retro reflection indicated in above Table. At the end of 10 years, the sheeting shall retain at least 80 percent of its original retro-reflectance.

801.3.5 Adhesives

The sheeting shall have a pressure-sensitive adhesive of the aggressive-tack type requiring no heat, solvent other preparation for adhesion to a smooth clean surface, in a manner recommended by the sheeting manufacturer. The adhesive shall be protected by an easily removable liner (removable by peeling without soaking in water or other solvent) and shall be suitable for the type of material of the base plate used for the sign. The adhesive shall form a durable bond to smooth, corrosion and weather resistant surface of the base plate such that it shall not be possible to remove the sheeting from the sign base in one piece by use of sharp instrument. The sheeting shall be applied in accordance with the manufacturer's specifications.

Fabrication

Surface to be reflectorized shall be effectively prepared to receive the retro-reflective sheeting. The aluminum sheeting shall be de-greased either by acid or hot alkaline etching and all

scale/dust removed to obtain a smooth plain surface before the application of retro-reflective sheeting. If the surface is rough, approved surface primer may be used. After cleaning, metal shall not be handled, except by suitable device or clean canvas gloves, between all cleaning and preparation operation and application of reflective sheeting/primer. There shall be no opportunity for metal to come in contact with grease, oil or other contaminants prior to the application of retro-reflective sheeting. Complete sheets of the material shall be used on the signs except where it is unavoidable. At splices, sheeting with pressure-sensitive adhesives shall be overlapped not less than 5 mm. Where screen printing with transparent colours is proposed, only butt joint shall be used. The material shall cover the sign surface evenly and shall be free from twists, cracks and folds. Cut-outs to produce legends and borders shall be bonded with the sheeting in the manner specified by the manufacturer.

Messages/Borders

The messages (legends, letters, numerals etc.) and borders shall either be screen-printed or of cut out from durable transparent overlay or cut out from the same type of reflective sheeting for the cautionary/mandatory sign boards. Screen printing shall be processed and finished with materials and in a manner specified by the sheeting manufacturer. For the informatory and other sign boards, the messages (legends, letters, numerals etc.) and borders shall be cut out from durable transparent overlay film or cut-out from the same reflective sheeting only. Cut-outs shall be from durable transparent overlay materials as specified by the sheeting manufacturer and shall be bonded with the sheeting in the manner specified by the manufacturer. For screen-printed transparent coloured areas on white sheeting, the co-efficient of retro-reflection shall not be less than 50 percent of the values of corresponding colour in Tables 800-2 to 800-8 as applicable. Cut-out messages and borders, wherever used, shall be either made out of retro-reflective sheeting or made out of durable transparent overlay except those in black which shall be of non-reflective sheeting or opaque in case of durable transparent overlay.

Colour for Signs

Signs shall be provided with retro-reflective sheeting and/or overlay film/ screening ink. The reverse side of all signs shall be painted grey. Except in the case of railway level crossing signs the sign posts shall be painted in 250 mm side bands, alternately black and white. The lowest band next to the ground shall be in black.

The colour of the material shall be located within the area defined by the chromaticity coordinates in Table 800-7 and comply with the luminance factor when measured as per ASTM D-4956.

Table 800-7: Colour Specified Limits (Daytime)

Colour	1		2		3		4		Daytime Luminance Factor	
	X	y	X	y	X	y	X	y	Min.	Max.
White	0.303	0.300	0.368	0.366	0.340	0.393	0.274	0.329	15	--
Yellow	0.498	0.412	0.557	0.442	0.479	0.520	0.438	0.472	24	45
Green	0.026	0.399	0.166	0.364	0.286	0.446	0.207	0.771	2.5	11
Red	0.648	0.351	0.735	0.265	0.629	0.281	0.565	0.346	2.5	11
Blue	0.140	0.035	0.244	0.210	0.190	0.255	0.065	0.216	1	10
Orange	0.558	0.352	0.636	0.364	0.570	0.429	0.506	0.404	12	30
Brown	0.430	0.340	0.610	0.390	0.550	0.450	0.430	0.390	1	6
Fluorescent Yellow-Green	0.387	0.610	0.369	0.546	0.428	0.496	0.460	0.540	60	--
Fluorescent Yellow	0.479	0.520	0.446	0.483	0.512	0.421	0.557	0.442	45	-
Fluorescent Orange	0.583	0.416	0.535	0.400	0.595	0.351	0.645	0.355	25	--

The colours shall be durable and uniform in acceptable hue when viewed in day light or under normal headlights at night.

The Regulatory/Prohibitory and warning signs shall be provided with white background and red border. The legend/ symbol for these signs shall be in black colour. The Mandatory sign shall be provided with Blue background and white Symbol/letter.

The colours chosen for informatory or guide signs shall be distinct for different classes of roads. For National Highways and State Highways, these signs shall be of green background and for Expressways these signs shall be of blue background with white border, legends and word messages.

801.3.9 Refurbishment

Where existing signs are specified for refurbishment, the sheeting shall have a semi-rigid aluminum backing or materials as per Clause 801.2.5, pre-coated with aggressive-tack type pressure sensitive adhesive. The adhesive shall be suitable for the type of material used for the sign and should thoroughly bond with that material.

Sizes of Letters: Letter size should be chosen with due regard to the speed, classification and location of the road, so that the sign is of adequate size for legibility but without being too large or obtrusive. The size of the letter, in terms of x-height, to be chosen as per the design speed is given in Table 800-8.

Table 800-8: Acceptable Limits for Sizes of Letters

Design Speed (Km./hr.)	Minimum 'x' Height of the Letters (mm)	Minimum Sight Distance/ Clear Visibility Distance (m)	Maximum Distance from Centre Line (m)
40	100	45	12
50	125	50	14

65	150	60	16
80	250	80	21
100	300	90	24
120	400	115	32

The thickness of the letters and their relation to the x-height, the width, the heights are indicated in Table IV (a) of the Annexure-4 of IRC:67 to facilitate the design of the informatory signs and definition plates.

For advance direction signs on non-urban roads, the letter size ('x' height) should be minimum of 150 mm for Expressway, National and State Highways and 100 mm for other roads. In case of overhead signs, the size ('X' height) of letters may be minimum 300 mm. Thickness of the letter could be varied from 1/6 to 1/5 of the letter 'x' size. The size of the initial uppercase letter shall be 1-1/3 times x-height. In urban areas, letter size shall be 100 mm on all directional signs. For easy and better comprehension, the word messages shall be written in upper case letters only.

Letter size on definition plates attached with normal sized signs should be 100 mm or 150 mm. In the case of small signs, it should be 100 mm. Where the message is long, as for instance in "NO PARKING" and "NO STOPPING" signs, the message may be broken into two lines and size of letters may be varied in the lines so that the definition plate is not too large. The lettering on definition plates will be all-in upper-case letters.

Warranty and Durability:

The Contractor shall obtain from the manufacturer a ten-year warranty for satisfactory field performance including stipulated retro-reflectance of the retro-reflective sheeting of micro-prismatic sheeting and a seven-year warranty for high intensity grade and submit the same to the Engineer. The warranty shall be inclusive of the screen printed or cut out letters/legends and their bonding to the retro-reflective sheeting. The Contractor/supplier shall also furnish the LOT numbers and certification that the signs and materials supplied against the assigned work meets all the stipulated requirements and carry the stipulated warranty and that the contractor/supplier is the authorized converter of the particular sheeting.

All signs shall be dated during fabrication with indelible markings to indicate the start of warranty. The warranty shall also cover the replacement obligation by the sheeting manufacturer as well as contractor for replacement repair/restoration of the retro-reflective efficiency.

A certificate in original shall be given by the sheeting manufacturer that its offered retro-reflective sheeting has been tested for various parameters such as co-efficient of retro-reflection, day/night time colour and luminance, shrinkage, flexibility, linear removal, adhesion, impact resistance, secular gloss and fungus resistance; the tests shall be carried out by a Government Laboratory in accordance with various ASTM procedures and the results must show that the sheeting has passed the requirements for all the above mentioned parameters. A copy of the test reports shall be attached with the certificate.

Installation

The traffic signs shall be mounted on support posts, which may be of GI pipes conforming to IS:1239, Rectangular Hollow Section conforming to IS:4923 or square Hollow Section conforming to IS:3589. Sign posts, their foundations and sign mountings shall be so constructed as to hold these in a proper and permanent position against the normal storm wind loads or displacement by vandalism. Normally, signs with an area up to 0.9 sq.m shall be mounted on a single post, and for greater area two or more supports shall be provided. Post-end(s) shall be firmly fixed to the ground by means of properly designed foundation. The work of foundation shall conform to relevant Specifications as specified.

All components of signs (including its back side) and supports, other than the reflective portion and G.I. posts shall be thoroughly de-scaled, cleaned, primed and painted with two coats of epoxy/ fibre glass/ powder coated paint. Any part of support post below ground shall be painted with protective paint.

The signs shall be fixed to the posts by welding in the case of steel posts and by bolts and washers of suitable size. After the nuts have been tightened, the tails of the bolts shall be furred over with a hammer to prevent removal.

Measurement for Payment:

The measurement of standard cautionary, mandatory and information signs shall be in numbers of different types of signs supplied and fixed, while for direction and place identification signs, these shall be measured by area in square meters.

Rate:

The Contract unit rate shall be payment in full for the cost of making the road sign, including all materials, installing it at the site furnishing of necessary test certificates, warranty and incidentals to complete the work in accordance with these Specifications.

Item No. -2

Informatory Signs :- Providing and fixing sing boards made out of 2mm aluminum sheet; size 80 x 60cms. rectangle as per the design of IRC-67-1977 pretreated with phosphating process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint; reflectorized with retro reflective sheeting as per latest M.O.S.T. Specifications; 3.1m long stand post and frame fabricated from suitable size iron angle of 35 x 35 x 3mm 75x75x6mm as required; painted with best quality epoxy coatings in black and white bends. the details of symbol for each board shall be as per the instruction of engineer in charge. The fixing at site shall be in 1:2:4 CC block of size 45 x 45 x 60cms. for each leg. including excavation curing etc. complete under the supervision of engineer in charge

All the relevant clause of specification of **Item No. 1** shall be applicable except the size, letter and symbol shall be as per detail description of this item and as per instruction of engineer in charge

Item No. 3

Regulatory/Mandatory signs: Providing and fixing sing boards made out of 2mm aluminum sheet; size 60cms. diameter circle as per the design of IRC-67-1977 pretreated with phosphating process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint; reflectorized with retro reflective sheeting as per latest M.O.S.T. Specifications; 3.1m long stand post and frame fabricated from suitable size iron angle of 35 x 35 x 3mm 75x75x6mm as required; painted with best quality epoxy coatings in black and white bends. the details of symbol for each board shall be as per the instruction of engineer in charge. The fixing at site shall be in 1:2:4 CC block of size 45 x 45 x 60cms. for each leg. including excavation curing etc. complete under the supervision of engineer in charge.

All the relevant clause of specification of **ITEM NO. 1** shall be applicable except the size, letter and symbol shall be as per detail description of this item and as per instruction of engineer in charge.

Item No. 4

STOP SIGN: Providing and fixing sing boards made out of 2mm aluminum sheet; size 90 cms. octagon as per the design of IRC-67-1977 pretreated with phosphating process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint; reflectorized with retro reflective sheeting as per latest M.O.S.T. Specifications; 3.1m long stand post and frame fabricated from suitable size iron angle of 35 x 35 x 3mm 75x75x6mm as required; painted with best quality epoxy coatings in black and white bends. the details of symbol for each board shall be as per the instruction of engineer in charge. The fixing at site shall be in 1:2:4 CC block of size 45 x 45 x 60cms. for each leg. including excavation curing etc. complete under the supervision of engineer in charge

All the relevant clause of specification of **ITEM NO. 1** shall be applicable except the size, letter and symbol shall be as per detail description of this item and as per instruction of engineer in charge.

Item No. 5

Parking Signs: Providing and fixing sing boards made out of 2mm aluminum sheet; size 60 x 60cms. square plus 60 x 20cms rectangular additional plate as as per the design of IRC-67-1977 pretreated with phosphating process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint; reflectorized with retro reflective sheeting as per latest M.O.S.T. Specifications; 3.1m long stand post and frame fabricated from suitable size iron angle of 35 x 35 x 3mm 75x75x6mm as required; painted with best quality epoxy coatings in black and white bends. the details of symbol for each board shall be as per the instruction of engineer in charge. The fixing at site shall be in 1:2:4 CC block of size 45 x 45 x 60cms. for each leg. including excavation curing etc. complete under the supervision of engineer in charge.

All the relevant clause of specification of **ITEM NO. 1** shall be applicable except the size, letter and symbol shall be as per detail description of this item and as per instruction of engineer in charge.

Item No. 6

Give Way Sign: Providing and fixing sing boards made out of 2mm aluminum sheet; size 90 x 90 x 90cms. equilateral triangle (inverted) as per the design of IRC-67-1977 pretreated with phosphating process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint; reflectorized with retro reflective sheeting as per latest M.O.S.T. Specifications; 3.1m long stand post and frame fabricated from suitable size iron angle of 35 x 35 x 3mm 75x75x6mm as required; painted with best quality epoxy coatings in black and white bends. The fixing at site shall be in 1:2:4 CC block of size 45 x 45 x 60cms. for each leg. including excavation curing etc. complete under the supervision of engineer in charge.

All the relevant clause of specification of **ITEM NO. 1** shall be applicable except the size, letter and symbol shall be as per detail description of this item and as per instruction of engineer in charge.

Item No. 7

Direction (Junction) Sign: Providing and fixing sign boards made out of 2mm aluminum sheet / 4mm ACP (Aluminum composite Panel); size 244x122 cms. rectangular as per design of IRC-67-2012. Pretreated with phosphating process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint ;reflectorizedwith Micro Prismatic Grade retro reflectivesheeting of Type-11 as per ASTM D-4956 and latest M.O.S.T.Specifications; 4.0mtr long (2 Nos.) stand post of 75 x 75 x 6mm / 65NB Circular MS Pipe as required and frame fabricated from suitable size iron angle of 50 x 50 x 5mm; painted with bestquality epoxy coatings in black and white bends. The details of symbol foreach board shall be as per theinstruction of engineer in charge. The fixing at site shall be in 1:2:4 CC blockofsize 45 x 45 x 60 Cms. for each leg.including excavation, curing etc.complete under the supervision of engineer in charge. A warranty for 10 years for the Retro reflective sheeting from original manufacturer & a certified copy of 3 year outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor. (A) Class-C Type-11 Retro Reflective sheeting

All the relevant clause of specification of **ITEM NO. 1** shall be applicable except the size, letter and symbol shall be as per detail description of this item and as per instruction of engineer in charge.

Item No. 8

Distance Informatory / Destination Sign :-Providing and fixing sign boards made out of 2mm aluminum sheet / 4mm ACP (Aluminum composite Panel); size 180x120 cms. rectangular as per design of IRC-67-2012. Pretreated with phosphating process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint ;reflectorizedwith Micro Prismatic Grade retro reflectivesheeting of Type-11 as per ASTM D-4956 and latest M.O.S.T.Specifications; 4.0mtr long (2 Nos.) stand post of 75 x 75 x 6mm / 65NB Circular MS Pipe as required and frame fabricated from suitable size iron angle of 50 x 50 x 5mm; painted with bestquality epoxy coatings in black and white bends. The details of symbol foreach board shall be as per theinstruction of engineer in charge. The fixing at site shall be in 1:2:4 CC blockof size 45 x 45 x 60 Cms. for each leg.including excavation, curing etc.complete under the supervision of engineer in charge. A warranty for 10 years for the Retro reflective sheeting from original manufacturer & a certified copy of 3 year outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor.

All the relevant clause of specification of **ITEM NO. 1** shall be applicable except the size, letter and symbol shall be as per detail description of this item and as per instruction of engineer in charge.

Item No. 9

Place Identification Sign: Providing and fixing sign boards made out of 2mm aluminum sheet / 4mm ACP (Aluminum composite Panel); size 150x90 cms. rectangular as per design of IRC-67-2012. Pretreated with phosphating process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint; reflectorized with Micro Prismatic Grade retro reflective sheeting of Type-11 as per ASTM D-4956 and latest M.O.S.T.Specifications; 4.0mtr long (2 Nos.) stand post of 75 x 75 x 6mm / 65NB Circular MS Pipe as required and frame fabricated from suitable size iron angle of 35 x 35 x 3mm; painted with best quality epoxy coatings in black and white bends. The details of symbol foreach board shall be as per the instruction of engineer in charge. The fixing at site shall be in 1:2:4 CC block of size 45 x 45 x 60 Cms. for each leg. Including excavation, curing etc. Complete under the supervision of engineer in charge. A warranty for 10 years for the Retro reflective sheeting from original manufacturer & a certified copy of 3-year outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor.

All the relevant clause of specification of **ITEM NO. 1** shall be applicable except the size, letter and symbol shall be as per detail description of this item and as per instruction of engineer in charge.

Item No. 10

Village Name Sign: Providing and fixing sign boards made out of 2mm aluminum sheet / 4mm ACP (Aluminum composite Panel); size 90x60 cms. rectangular as per design of IRC-67-2012. Pretreated with phosphating process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint; reflectorized with Micro Prismatic Grade retro reflective sheeting of Type-11 as per ASTM D-4956 and latest M.O.S.T. Specifications; 3.3mtr long stand post of 75 x 75 x 6mm / 65NB Circular MS Pipe as required and frame fabricated from suitable size iron angle of 35 x 35 x 3mm; painted with best quality epoxy coatings in black and white bends. The details of symbol or inscription/letters / numerals for each board shall be as per the instruction of engineer in charge. The fixing at site shall be in 1:2:4 CC blockof size 45 x 45 x 60 Cms. for each leg.including excavation, curing etc.complete under the supervision of engineer in charge. A warranty for 10 years for the Retro reflective sheeting from original manufacturer & a certified copy of 3-year outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor.

All the relevant clause of specification of **ITEM NO. 1** shall be applicable except the size, letter and symbol shall be as per detail description of this item and as per instruction of engineer in charge.

Item No. 11

Hazard Marker Sign: Providing and fixing sign boards made out of 2.0 mm aluminum sheet / 4 mm ACP (Aluminum composite Panel); size 90x30 cms. rectangular as per design of IRC-67-2012. Pretreated with phosphating process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint; reflectorized with Micro Prismatic Grade retro reflective sheeting of Type-11 as per ASTM D-4956 and latest M.O.S.T. Specifications; 1.8mtr long stand post of 75 x 75 x 6mm / 65NB Circular MS Pipe as required and frame fabricated from suitable size iron angle of 35 x 35 x 3mm; painted with best quality epoxy coatings in black and white bends. The details of symbol for each board shall be as per the instruction of engineer in charge. The fixing at site shall be in 1:2:4 CC block of size 45 x 45 x 60 Cms. for each leg. Including excavation, curing etc. complete under the supervision of engineer in charge. A warranty for 10 years for the Retro reflective sheeting from original manufacturer & a certified copy of 3-year outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor

All the relevant clause of specification of **ITEM NO. 1** shall be applicable except the size, letter and symbol shall be as per detail description of this item and as per instruction of engineer in charge

Item No. 12

Supply Traffic Cone: Made out of molded fiber reinforced plastic color yellow fitted with retro reflective sheeting as per the attached drawing size 60 Cm height x 32.5 Cm. base. In cone shape reflectorized with retro reflective sheeting as per MOST specification as required by engineer-in-charge.

All the relevant clause of specification of **ITEM NO. 1** shall be applicable except the size, letter and symbol shall be as per detail description of this item and as per instruction of engineer in charge

Item No. 13

Men at work (Heavy) sign: Providing and fixing sign boards made out of 2mm aluminum sheet / 4mm ACP (Aluminum composite Panel); size 120cm x90cm rectangular as per design of IRC-67-2012. Pretreated with phosphating process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint; reflectorized with Micro Prismatic Grade retro reflective sheeting of Type-11 as per ASTM D-4956 and latest M.O.S.T. Specifications; 3.6 mtr long stand post (2 Nos.) of 75 x 75 x 6mm / 65NB Circular MS Pipe as required and frame fabricated from suitable size iron angle of 50 x 50 x 5mm; painted with best quality epoxy coatings in black and white bends. the details of symbol or inscription / numerals for each board shall be as per the instruction of engineer in charge. The fixing at site shall be in 1:2:4 CC block of size 45 x 45 x 60 Cms. for each leg. Including excavation, curing etc. Complete under the supervision of engineer in charge. A warranty for 10 years for the Retro reflective sheeting from original manufacturer & a certified copy of 3-year outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor.

All the relevant clause of specification of **ITEM NO. 1** shall be applicable except the size, letter and symbol shall be as per detail description of this item and as per instruction of engineer in charge

Item No. 14

Men at work (2' x 2') sign: Providing and fixing sign boards made out of 2.0 mm aluminum sheet / 4 mm ACP(Aluminum composite Panel); size 60cm x 60cm square as per design of IRC-67-2012. Pretreated with phosphating process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint; reflectorized with Micro Prismatic Grade retroreflective sheeting of Type-11 as per ASTM D-4956 and latest M.O.S.T.Specifications; 3.3 mtr long stand post of 75 x 75 x 6mm / 65NB Circular MS Pipe as required and frame fabricated from suitable size iron angle of 50 x 50 x 5mm; painted with best quality epoxy coatings in black and white bends. the details of symbol or inscription / numerals for each board shall be as per the instruction of engineer in charge. The fixing at site shall be in 1:2:4 CC block of size 45 x 45 x 60 Cms. for each leg. Including excavation, curing etc. Complete under the supervision of engineer in charge. A warranty for 10 years for the Retro reflective sheeting from original manufacturer & a certified copy of 3-year outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor.

All the relevant clause of specification of **ITEM NO. 1** shall be applicable except the size, letter and symbol shall be as per detail description of this item and as per instruction of engineer in charge.

Item No. 15

Men at work (Folding) sign :-Providing and fixing sign boards made out of 2.0 mm aluminium sheet / 4 mm ACP (Aluminum composite Panel); size 60x60 x 60cm equilateral triangular as per design of IRC-67-2012.

Pre treated with phosphating process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint ;reflectorised with Micro Prismatic Grade retro reflectivesheeting of Type-11 as per ASTM D- 4956 and latest M.O.S.T.Specifications; 3.3 mtr long stand post of 75 x 75 x 6mm / 65NB Circular MS Pipe as required and frame fabricated from suitable size iron angle of 35 x 35 x 3mm; painted with bestquality epoxy coatings in black and white bends. the details of symbol or inscription / numerals for each board shall be as per the instruction of engineer in charge. A warranty for 10 years for the Retro reflective sheeting from original manufacturer & a certified copy of 3 year outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor. (A) **Class-C Type-11 Retro Reflective sheeting**

All the relevant clause of specification of **ITEM NO. 1** shall be applicable except the size, letter and symbol shall be as per detail description of this item and as per instruction of engineer in charge.

Item No. 16

Route Marker sign: Providing and fixing sign boards made out of 2.0 mm aluminum sheet / 4 mm ACP (Aluminum composite Panel); size 60x45 cm rectangular plus 30x25cm additional plate as per design of IRC-67-2012. Pretreated with phosphating process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint ;reflectorizedwith Micro Prismatic Grade retro reflectivesheeting of Type-11 as per ASTM D-4956 and latest M.O.S.T.Specifications; 3.6 mtr long stand post of 75 x 75 x 6mm / 65NB Circular MS Pipe as required and frame fabricated from suitable size iron angle of 35x 35 x 3mm; painted with bestquality epoxy coatings in black and white bends. the details of symbol or inscription / numerals for each board shall be as per the instruction of engineer in charge.The fixing at site shall be in 1:2:4 CC blockof size 45 x 45 x 60 Cms. for each leg.including excavation, curing etc.complete under the supervision of engineer in charge. A warranty for 10 years for the Retro reflective sheeting from original manufacturer & a certified copy of 3 year outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor.

All the relevant clause of specification of **ITEM NO. 1** shall be applicable except the size, letter and symbol shall be as per detail description of this item and as per instruction of engineer in charge.

Item No. 17

Diversion sing board: Providing & Fixing sign boards made out of 2mm aluminum sheet, size 180 x 60 cms. rectangle as per the attached drawing pretreated with phosphating process & acid etching. coated with one coat of epoxy priemr and two coats of best quality epoxy paint reflectorizedwith retro reflective sheeting as per latest M.O.S.T. Specifications; Letters and numerals should be as per IRC-30-1968,3.1m long (2nos) stand post and frame fabricated from iron angle of 35x35x3mm, 50x50x5mm painted with best quality epoxy coatings in blak and white bends. The fixing at site shall be in 1:2:4 CC block of size 45 x 45x 60cms for each leg, including excavation curing etc. complete under the supervision of engineer in charge.

All the relevant clause of specification of **ITEM NO. 1** shall be applicable except the size, letter and symbol shall be as per detail description of this item and as per instruction of engineer in charge.

Item No. 18

Kerb guard sign board (small) :-Providing & Fixing sign boards made out of 2mm aluminum sheet, size 240 x 30 cms in U spape; as per the attached drawing pretreated with phosphating process & acid etching. coated with one coat of epoxy priemr and two coats of best quality epoxy paint reflectorizedwith Micro Prismatic Grade retro reflectivesheeting of Type-11 as per ASTM D-4956 and latest M.O.S.T.Specifications; stand post and frame fabricated from iron angle of 50x50x5mm, 10mm sq. bar as required, painted with best quality epoxy coating the fixing at site shall be in 1:2:4 CC block of size 45 x 45 x 60cms for each leg, including excavation curing etc. complete under the supervision of engineer in charge. A warranty for 10 years for the Retro reflective sheeting from original manufacturer & a certified copy of 3 year outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor.

All the relevant clause of specification of **ITEM NO. 1** shall be applicable except the size, letter and symbol shall be as per detail description of this item and as per instruction of engineer in charge.

Item No. 19

Kerb guard sign board (Big): Providing & Fixing sign boards made out of 2mm aluminum sheet, size 732 x 30 cms in Uspape; as per the attached drawing pretreated with phosphating process & acid etching. coated with one coat of epoxy priemr and two coats of best quality epoxy paint reflectorizedwith Micro Prismatic Grade retro reflectivesheeting of Type-11 as per ASTM D-4956 and latest M.O.S.T.Specifications ; Stand post and frame fabricated from iron angle of 50 x50 x 5mm, 10mm sq. bar as required, painted with best quality epoxy coating the fixing at site shall be in 1:2:4 CC block of size 45 x 45x 60cms for each leg, including excavation curing etc. complete under the supervision of engineer in charge. A warranty for 10 years for the Retro reflective sheeting from original manufacturer & a certified copy of 3 year outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor.

All the relevant clause of specification of **ITEM NO. 1** shall be applicable except the size, letter and symbol shall be as per detail description of this item and as per instruction of engineer in charge.

Item No. 20

Around the Island / road Direction Sign board (Big) :- Providing and fixing sign boards made out of 2mm aluminum sheet / 4mm ACP (Aluminum composite Panel); size 180x60 cms. as per design of IRC-67-2012. Pretreated with phosphating process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint ;reflectorizedwith Micro Prismatic Grade retro reflectivesheeting of Type-11 as per ASTM D-4956 and latest M.O.S.T.Specifications; 3.3 mtr long stand post of 75 x 75 x 6mm / 65NB Circular MS Pipe as required and frame fabricated from suitable size iron angle of 35 x 35 x 3mm; painted with bestquality epoxy coatings in black and white bends. The details of symbol for each board shall be as per theinstruction of engineer in charge. The fixing at site shall be in 1:2:4 CC blockof size 45 x 45 x 60 Cms. for each leg.including excavation, curing etc.complete under the supervision of engineer in charge. A warranty for 10 years for the Retro reflective sheeting from original manufacturer & a certified copy of 3 year outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor.

All the relevant clause of specification of **ITEM NO. 1** shall be applicable except the size, letter and symbol shall be as per detail description of this item and as per instruction of engineer in charge.

Item No. 21

Around the Island / road Direction Sign board (Small) :- Providing and fixing sign boards made out of 2.0 mm aluminum sheet / 4 mm ACP (Aluminum composite Panel); size 60x60 cms. as per design of IRC-67-2012. Pretreated with phosphating process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint ;reflectorizedwith Micro Prismatic Grade retro reflectivesheeting of Type-11 as per ASTM D-4956 and latest M.O.S.T.Specifications; 3.3 mtr long stand post of 75 x 75 x 6mm / 65NB Circular MS Pipe as required and frame fabricated from suitable size iron angle of 35 x 35 x 3mm; painted with bestquality epoxy coatings in black and white bends. The details of symbol foreach board shall be as per theinstruction of engineer in charge. The fixing at site shall be in 1:2:4 CC blockof size 45 x 45 x 60 Cms. for each leg.including excavation, curing etc.complete under the supervision of engineer in charge. A warranty for 10 years for the Retro reflective sheeting from original manufacturer & a certified copy of 3 year outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor..

All the relevant clause of specification of **ITEM NO. 1** shall be applicable except the size, letter and symbol shall be as per detail description of this item and as per instruction of engineer in charge.

Item No. 22

Road Delineators (Supplying and installation of delineators (road way indicators, hazard markers, object markers), 80-100 cm high above ground level, painted black and white in 15 cm wide stripes, fitted with 80 x 100 mm rectangular or 75 mm dia circular reflectorizedpanels at the top, buried or pressed into the ground and confirming toIRC-79 and the drawings).

All the relevant clause of specification of MoRTH's standard specification 5th revision should be applicable.

Item No. 23

Supplying & fixing jumbo bollard sign L-type made out of 1.5 mm thick crc sheet height 155 cms. bottom diameter : 30 Cms. Top diameter 18 cms. With direction plate of 45 cms diameter, fabricated as per attached drawing pretreated with phosphating process. Painted with epoxy coating reflectorizedwith retro reflective sheetings specified by MOST' s latest specifications Powder coating work in white colour

All the relevant clause of specification of MoRTH's standard specification 5th revision should be applicable..

Item No. 24

Supplying & fixing jumbo bollard sign swiss style made out of 1.5 mm thick crc sheet height 188 cms. bottom diameter : 30 Cms. Top diameter 18 cms. With direction plate of 45 cms diameter, fabricated as per attached drawing pretreated with phosphating process. Painted with epoxy coating reflectorizedwith retro reflective sheetings specified by MOST' s latest specifications Powder coating work in white colour (B) High Intensity Grade.

All the relevant clause of specification of MoRTH's standard specification 5th revision should be applicable..

Item No. 25

Retro- reflectorizedTraffic signs (Providing and fixing of retro- reflectorizedcautionary, mandatory and informatory sign as per IRC :67 made of encapsulated lens type reflective sheeting vide clause 801.3, fixed

over aluminum sheeting, 1.5 mm thick supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing)-Hi intensity Grade.

All the relevant clause of specification of **ITEM NO. 1** shall be applicable except the size, letter and symbol shall be as per detail description of this item and as per instruction of engineer in charge.

Item No. 26

Direction and Place Identification signs upto 0.9 sqm size board. (Providing and erecting direction and place identification retro-reflectorized sign as per IRC:67 made of encapsulated lens type reflective sheeting vide clause 801.3, fixed over aluminum sheeting, 2 mm thick with area not exceeding 0.9 sqm supported on a mild steel single angle iron post 75 x 75 x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 x 45 x 60 cm, 60 cm below ground level as per approved drawing).

All the relevant clause of specification of **ITEM NO. 1** shall be applicable except the size, letter and symbol shall be as per detail description of this item and as per instruction of engineer in charge.

Item No. 27

Direction and Place Identification signs with more than 0.9 sqm size board. (Providing and erecting direction and place identification retro-reflectorized sign as per IRC:67 made of encapsulated lens type reflective sheeting vide clause 801.3, fixed over aluminum sheeting, 2 mm thick with area exceeding 0.9 sqm supported on a mild steel angle iron post 75 x 75 x 6 mm, 2 nos. firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 x 45 x 60 cm, 60 cm below ground level as per approved drawing).

All the relevant clause of specification of **ITEM NO. 1** shall be applicable except the size, letter and symbol shall be as per detail description of this item and as per instruction of engineer in charge.

Item No. 28

Type - A, "W" : Metal Beam Crash Barrier (Providing and erecting a "W" metal beam crash barrier comprising of 3 mm thick corrugated sheet metal beam rail, 70 cm above road/ground level, fixed on ISMC series channel vertical post, 150 x 75 x 5 mm spaced 2 m centre to centre, 1.8 m high, 1.1 m below ground/road level, all steel parts and fittings to be galvanised by hot dip process, all fittings to conform to IS:1367 and IS:1364, metal beam rail to be fixed on the vertical post with a spacer of channel section 150 x 75 x 5 mm, 330 mm long complete as per clause 810).

All the relevant clause of specification of MoRTH's standard specification 5th revision should be applicable..

Item No. 29

Type - B, "THRIE" : Metal Beam Crash Barrier (Providing and erecting a "Thrie" metal beam crash barrier comprising of 3 mm thick corrugated sheet metal beam rail, 85 cm above road/ground level, fixed on ISMC series channel vertical post, 150 x 75 x 5 mm spaced 2 m centre to centre, 2 m high with 1.15 m below ground level, all steel parts and fittings to be galvanised by hot dip process, all fittings to conform to IS:1367 and IS:1364, metal beam rail to be fixed on the vertical post with a space of channel section 150 x 75 x 5 mm, 546 mm long complete as per clause 810)..

All the relevant clause of specification of MoRTH's standard specification 5th revision should be applicable..

Item No. 30

Cat Eye / Road Stud / RPM : Supplying of Molded Twin Shanks Raised Pavement Markers made of polycarbonate and ABS moulded body and reflective panels with Micro prismatic lens (No Glass bead lens) capable of providing total internal reflection of the light entering the lens face and shall support a load of 13635 kgs. tested in accordance to ASTM D 4280 Type H and complying to Specifications of Category A of MoRTH Circular No. RW/NH/33023-10-97-DO III Dt.11/06/1977. The height, width and length shall not exceed 20mm, 130mm and height not less than 30+/- 5 degree. The strength of detachment of the integrated cylindrical shanks, (of diameter not less than 19 +/- 2 mm and height not less than 30+/- 2 mm) from the body is to be a minimum value of 500 kgf. Fixing will be by drilling holes on the road for the shanks to go inside, without nails and using epoxy resin based adhesive as per manufacturer's recommendation and The color of the marker should be as per the IRC 35-2015 and as directed by Engineer-In-Charge.

11.1. General

11.1.1 The work covers supplying and fixing cat eyes (MMC) as specified in the Contract drawings. In the absence of any details or for any missing details, the signs shall be provided as directed by the Engineer.

11.2.1 The design, materials to be used and the location of the cat eyes shall confirm to IRC recommendation or as directed by the Engineer.

11.2. Measurements for Payment

The measurement shall be in numbers of cat eyes supplied and fixed

11.3. Rate

The Contract unit rate for cat eyes shall be payment in full for furnishing all labour, materials, tools, equipment for preparing, supplying and fixing at site and incidentals to complete the work in accordance with the Specifications.

Item No. 31

Drum Delineator in Construction Zone: Provision of metal drum/empty bitumen drum delineator, 300 mm in diameter, 800 mm high, filled with earth for stability, painted in circumferential strips of alternate black and white 100 mm wide fitted with reflectors 3 Nos of 7.5 cm dia, all as per IRC:SP:55-2001.

All the relevant clause of specification of MoRTH's standard specification 5th revision should be applicable.

Item No. 32

Road Marking with Hot applied Thermoplastic Compound with reflectorising Glass beads on Bituminous Surface (Providing and laying of hot applied thermoplastic compound 2.5mm thick including reflectorising glass beads @ 250 gms per sqm area, thickness of 2.5mm is exclusive of surface applied glass beads as per IRC:35. The finished surface to be level, uniform and free from streaks & holes).

803. ROAD MARKINGS

803.1. General

The colour, width and layout of road marking shall be in accordance with the Code of Practice for Road Markings with paints, IRC : 35, and as specified in the drawings or as directed by the Engineer.

803.2. Materials

Road markings shall be of ordinary road marking paint, hot applied thermoplastic compound, or reflectorized paint as specified in the item and the material shall meet the requirements as specified below.

803.3. Ordinary Road Marking Paint

803.3.1. Ordinary paint used for road marking shall conform to Grade I as per IS : 164.

803.3.2. The road marking shall preferably be laid with appropriate road marking machinery.

803.3.3. Laying thickness of road marking paint shall be as specified by the Engineer.

803.4. Hot Applied Thermoplastic Road Marking

803.4.1. General:

- I. The work under this section consists of marking traffic stripes using a thermoplastic compound meeting the requirements specified herein.
- II. The thermoplastic compound shall be screeded/extruded on to the pavement surface in a molten state by suitable machine capable of controlled preparation and laying with surface application of glass beads at a specific rate. Upon cooling to ambient pavement temperature, it shall produce an adherent pavement marking of specified thickness and width and capable of resisting deformation by traffic.
- III. The colour of the compound shall be white or yellow (IS colour No. 356) as specified in the drawings or as directed by the Engineer.
- IV. Where the compound is to be applied to cement concrete pavement, a sealing primer as recommended by the manufacturer, shall be applied to the pavement in advance of placing of the stripes to ensure proper bonding of the compound. On new concrete surface any laitance and/or curing compound shall be removed before the markings are applied.

803.4.2. Thermoplastic Material

803.4.2.1. General: The thermoplastic material shall be homogeneously composed of aggregate, pigment, resins and glass reflectorizing beads.

803.4.2.2 Requirements:

- (i) **Composition:** The pigment, beads, and aggregates shall be uniformly dispersed in the resin. The material shall be free from all skins, dirt and foreign objects and shall comply with requirements indicated in Table 800-3.

TABLE 800-3. PROPORTIONS OF CONSTITUENTS OF MARKING MATERIAL (Percentage by weight)

Component	White	Yellow
Binder	18.0 min.	18.0 min.
Glass Beads	30-40	30-40
Titanium Dioxide	10.0 min.	-
Calcium Carbonate and Inert Fillers	2.0 max.	See
Yellow Pigments	-	Note

Note: Amount of yellow pigment, calcium carbonate and inert fillers shall be at the option of the manufacturer, provided all other requirements of this Specification are met.

(ii) **Properties:** The properties of thermoplastic material, when tested in accordance with ASTM D36/BS-3262- (Part I), shall be as below:

(a) **Luminance:**

White: Daylight luminance at 45 degrees – 65 per cent min. as per AASHTO M 249

Yellow: Daylight luminance at 45 degrees - 45 per cent min. as per AASHTO M 249

(b) **Drying time:** When applied at a temperature specified by the manufacturer and to the required thickness, the material shall set to bear traffic in not more than 15 minutes.

(c) **Skid resistance:** not less than 45 as per BS 6044.

(d) **Cracking resistance at low temperature:** The material shall show no cracks on application to concrete blocks.

(e) **Softening point:** 102.5 ± 9.5° C as per ASTM D 36.

(f) **Flow resistance:** Not more than 25 per cent as per AASHTO M 249.

(g) **Yellowness index (for white thermoplastic paint):** not more than 0.12 as per AASHTO M 249

iii) **Storage life:** The material shall meet the requirements of these Specifications for a period of one year. The thermoplastic material must also melt uniformly with no evidence of skins or unmelted particles for the one year storage period. Any material not meeting the above requirements shall be replaced by the manufacturer /supplier /Contractor.

iv) **Reflectorisation:** Shall be achieved by incorporation of beads, the grading and other properties of the beads shall be as specified in Clause 803.4.3.

v) **Marking:** Each container of the thermoplastic material shall be clearly and indelibly marked with the following information:

1. The name, trade mark or other means of identification of manufacturer
2. Batch number
3. Date of manufacture
4. Colour (white or yellow)
5. Maximum application temperature and maximum safe heating temperature.

iv) **Sampling and testing:** The thermoplastic material shall be sampled and tested in accordance with the appropriate ASTM /BS method. The Contractor shall furnish to the Employer a copy of certified test reports from the manufacturers of the thermoplastic material showing results of all tests specified herein and shall certify that the material meets all requirements of this Specification.

803.4.3. Reflectorising glass beads

803.4.3.1 General: This Specification covers two types of glass beads to be used for the production of reflectorized pavement markings.

Type 1 beads are those which are a constituent of the basic thermoplastic compound vide Table 800-3 and Type 2 beads are those which are to be sprayed on the surface vide clause 803.6.3.

803.4.3.2 The glass beads shall be transparent, colourless and free from milkiness, dark particles and excessive air inclusions. These shall conform to the requirements spelt out in clause 803.4.3.3.

803.4.3.3 Specific requirements

A. **Gradation:** The glass beads shall meet the graduation requirements for the two types as given in Table 800-4.

Table 800-4. GRADATION REQUIREMENTS FOR GLASS BEADS

Sieve Size	Per cent retained	
	Type 1	Type 2
1.18 mm	0 to 3	-

850 micron	5 to 20	0 to 5
600 -do-	-	5 to 20
425 -do-	65 to 95	-
300 -do-	-	30 to 75
180 -do-	0 to 10	10 to 30
Below 180 micron	-	0 to 15

- B. **Roundness:** The glass beads shall have a minimum of 70 per cent true spheres.
- C. **Refractive index:** The glass beads shall have a minimum refractive index of 1.50.
- D. **Free flowing properties:** The glass beads shall be free of hard lumps and clusters and shall dispense readily under any conditions suitable for paint striping. They shall pass the free flow-test.

803.4.3.4 Test methods: The specific requirements shall be tested with the following methods:

- Free-flow test: Spread 100 grams of beads evenly in a 100 mm diameter glass dish. Place the dish in a 250 mm inside diameter desiccator which is filled within 25 mm of the top of a desiccator plate with sulphuric acid water solution (specific gravity 1.10). Cover the desiccator and let it stand for 4 hours at 20-to-29-degree C. Remove sample from desiccator, transfer beads to a pan and inspect for lumps or clusters. Then pour beads in to a clean, dry glass funnel having a 100 mm stem and 6 mm orifice, If necessary, initiate flow by lightly tapping the funnel. The glass spheres shall be essentially free of lumps and clusters and shall flow freely through the funnel.
- The requirements of gradation, roundness and refractive index of glass beads and the amount of glass beads in the compound shall be tested as per BS 6088 and BS 3262 (Part I).
- The Contractor shall furnish to the Employer a copy of certified test reports from the manufacturer of glass beads obtained from a reputed laboratory showing results of all specified herein and shall certify that the material meets all requirements of this Specification. However, if so required, these tests may be carried out as directed by the Engineer.

803.4.4. Application properties of thermoplastic material

803.4.4.1. The thermoplastic material shall readily get screeded/extruded at temperatures specified by the manufacturers for respective method of application to produce a line of specified thickness which shall be continuous and uniform in shape having clear and sharp edges.

803.4.4.2. The material upon heating to application temperatures, shall not exude fumes, which are toxic, obnoxious or injurious to persons or property.

803.4.5. Preparation:

- The material shall be melted in accordance with the manufacturer's instructions in a heater fitted with a mechanical stirrer to give a smooth consistency to the thermoplastic material to avoid local overheating. The temperature of the mass shall be within the range specified by the manufacturer, and shall on no account be allowed to exceed the maximum temperature stated by the manufacturer. The molten material should be used as expeditiously as possible and for thermoplastic material which has natural binders or is otherwise sensitive to prolonged heating, the material shall not be maintained in a molten condition for more than 4 hours.
- After transfer to the laying equipment, the material shall be maintained within the temperature range specified by the manufacturer for achieving the desired consistency for laying.

803.4.6. Properties of finished road marking:

- The stripe shall not be slippery when wet.
- The marking shall not lift from the pavement in freezing weather.
- After application and proper drying, the stripe shall show no appreciable deformation or discolouration under traffic and under road temperatures up to 60°C.
- The marking shall not deteriorate by contact with sodium chloride, calcium chloride or oil drippings from traffic.
- The stripe or marking shall maintain its original dimensions and position. Cold ductility of the material shall be such as to permit normal movement with the road surface without chopping or cracking.
- The colour of yellow marking shall conform to IS Colour No. 356 as given in IS : 164.

803.5. ReflectorizedPaint

Reflectorizedpaint, if used, shall conform to the Specification by the manufacturers and approved by the Engineer. Reflectorising glass beads for reflectorising paints where used shall conform to the requirement of Clause 803.4.3.

803.6. Application

803.6.1. Marking shall be done by machine. For locations where painting cannot be done by machine, approved manual methods shall be used with prior approval of the Engineer. The Contractor shall

maintain control over traffic while painting operations are in progress so as to cause minimum inconvenience to traffic compatible with protecting the workmen.

803.6.2. The thermoplastic material shall be applied hot either by screeding or extrusion process. After transfer to the laying apparatus, the material shall be laid at a temperature within the range specified by the manufacturer for the particular method of laying being used. The paint shall be applied using a screed or extrusion machine.

803.6.3. The pavement temperature shall not be less than 10°C during application. All surfaces to be marked shall be thoroughly cleaned of all dust, dirt, grease, oil and all other foreign matter before application of the paint.

The material, when formed into traffic stripes, must be readily renewable by placing an overlay of new material directly over an old line of compatible material. Such new material shall so bond itself to the old line that no splitting or separation takes place.

Thermoplastic paint shall be applied in intermittent or continuous lines of uniform thickness of at least 2.5 mm unless specified otherwise. Where arrows or letters are to be provided, thermoplastic compound may be hand-sprayed. In addition to the beads included in the material, a further quantity of glass beads of Type 2, conforming to the above noted Specification shall be sprayed uniformly into a mono-layer on to the hot paint line in quick succession of the paint spraying operation. The glass beads shall be applied at the rate of 250 grams per square metre area.

803.6.4. The minimum thickness specified is exclusive of surface applied glass beads. The method of thickness measurement shall be in accordance with Appendices B and C of BS -3262 (Part 3).

803.6.5. The finished lines shall be free from ruggedness on sides and ends and be parallel to the general alignment of the carriageway. The upper surface of the lines shall be level, uniform and free from streaks.

803.7. Measurements for Payment

803.7.1. The painted markings shall be measured in sq. meters of actual area marked (excluding the gaps, if any).

803.7.2. In respect of markings like directional arrows and lettering, etc., the measurement shall be by numbers.

803.8. Rate

The Contract unit rate for road markings shall be payment in full compensation for furnishing all labour, materials, tools, equipment, including all incidental costs necessary for carrying out the work at the site conforming to these Specifications complete as per the approved drawing(s) or as directed by the Engineer and all other incidental costs ne

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