

J&K ECONOMIC RECONSTRUCTION AGENCY

**Multi -Sector Project for Infrastructure Rehabilitation in J&K
(ADB Loan No. 2151-IND)**

BIDDING DOCUMENT for

Procurement of

the work of

**Widening of Sakhi Maidan –Kalai Road
(Poonch District)**

Package No.: Transport Jammu/Poonch/Road/05

Volume 1-Technical proposal

Issued on: 22.07.2010

Invitation for Bids No.: Transport Jammu/NCB/03

Employer: J&K Economic Reconstruction Agency
38 A/B, Gandhi Nagar, Jammu (Jammu and Kashmir)
Tel: 0191-2434601 Fax: 0191-2434493

Country: India

Preface

This Bidding Document for the Procurement of Works has been prepared by J & K Economic Reconstruction Agency and is based on the Standard Bidding Document for the Procurement of Works (SBD Works) issued by the Asian Development Bank dated June, 2004

ADB's SBD Works has the structure and the provisions of the Master Procurement Document entitled "Bidding Documents for the Procurement of Works", prepared by multilateral development banks and other public international financial institutions except where ADB-specific considerations have required a change.

Table of Contents

PART I BIDDING PROCEDURES

Section 1 - Instructions to Bidders (ITB) -----	1-1
Section 2 - Bid Data Sheet (BDS) -----	2-1
Section 3 - Evaluation and Qualification Criteria (EQC) -----	3-1
Section 4 - Bidding Forms Technical (BDF) -----	4-1
Section 5 - Eligible Countries (ELC) -----	5-1

PART II REQUIREMENTS

Section 6 - Employer's Requirements (ERQ) -----	6-1
---	-----

PART III CONDITIONS OF CONTRACT AND CONTRACT FORMS

Section 7 - General Conditions of Contract (GCC) -----	7-1
Section 8 - Particular Conditions of Contract (PCC) -----	8-1
Section 9 - Contract Forms (COF) -----	9-1

PART I – Bidding Procedures

ADB Loan No. and Project Title: 2151-IND, Multi Sector Project for Infrastructure Rehabilitation in Jammu and Kashmir

Name of Package: - Widening of Sakhi Maidan -Kalai Road
(Poonch District)

Package No: - Transport Jammu/Poonch/Road/05

Document issue Details

S. No.....	Date.....
Issued To	M/S.....
DD No.....Date Amount Rs.....	
CR No.....Date.....	Amount Rs.....
Dispatched Through:	Hand Delivery /Speed Post/Courier
Signature of Cashier	

**Jammu and Kashmir Economic Re-construction Agency
38 A/B Gandhi Nagar Jammu.**

Corrigendum No. 1 to "Invitation for Bids: No. Transport/Jammu/LCB/03 Loan No. and Title: 2151-IND, Multi Sector Project for Infrastructure Rehabilitation in Jammu and Kashmir issued vide Notification no. PMT/ERA/J/18570-90 dated 22.07.2010,

Title: Widening of Sakhi –Maidan Kalai Road (District Poonch) Contract Package no. Transport Jammu/ Poonch/Road/05

1. Due to poor response to IFB for above mentioned contract the commencement date for the sale of the bid documents and submission of technical and financial bid is extended as under:

S. No	Description	Date	Time
1	Sale of Bid Documents	27.09.2010 to 26.10.2010	1100 hrs to 1600 hrs
2	Pre bid meeting	18.10.2010	1500 hrs
3	Bid submission	29.10.2010	1500 hrs
4	Technical Bid opening	29.10.2010	1530 hrs

2. The serial no. 6 of above cited IFB has been also amended as follows:

The above said road shall be widened to **MOSRT& H specification intermediate lane upto 4.5 km and single lane beyond 4.5 km**

The work include

- Widening of the road
- Construction of Earth Retaining structures
- Maintenance of road during construction.
- Construction of new cross drainage structures (Hume pipe/Slab culverts.)
- Extension/ construction of old cross drainage works.
- Laying of GSB in locations of Regrading.
- Construction of Earthen drain
- Confirmatory survey

All other terms and conditions will remain same

**Tele; 0191-2434601
Fax:- 0191-2434493**

**Project Manager (T)
ERA Jammu**

INVITATION FOR BID

Jammu and Kashmir Economic Re-construction Agency
38 A/B Gandhi Nagar Jammu.
Invitation for Bids- Transport-Jammu/NCB/03

Date:-22.07.2010

Loan No. and Title: 2151-IND, Multi Sector Project for Infrastructure Rehabilitation in Jammu and Kashmir

Deadline for Submitting Bids: 20.09.2010

1. This Invitation for Bids follows the General Procurement Notice for this project that appeared in the "ADB Business Opportunities", issue of August 2005.
2. India has received a loan from the Asian Development Bank (ADB) towards the cost of the Multi-Sector Project for Infrastructure Rehabilitation in the State of Jammu & Kashmir and it is intended that part of the proceeds of this loan will be applied to eligible payments under the contract indicated below. Bidding is open to bidders from eligible source countries of the ADB.
3. The J&K Economic Reconstruction Agency (J&K ERA) "the Employer" invites sealed bids from eligible Bidders for design, construction & completion of the contract for the work package detailed below.

S. No.	Contract Package No.	Name of work package	Bid security in million rupees	Qualification requirement	
				Experience of completion of one contract (million rupees)	Annual construction turnover in millions Rs.
1.	Transport Jammu/Poonch /Road /05	Widening of Sakhi Maidan-Kalai Road (Poonch District)	1.44	29	29

4. Bid may be submitted for the package by applicants as a single firm or as a joint venture entity. For qualifying for the package bidder should have (a) prior experience of executing at least one similar road works of value as indicated in the table above **(b)** annual construction turnover for any one year within last three years as indicated in the table above. However for all the correct and complete eligibility requirements, bidders may refer the bid document.
5. The existing road, of generally single lane/intermediate lane configuration, is the other district road (ODR) having bituminous surface with WBM/ gravel/ stone base, highly distressed due to raveling, loss of camber, edge fretting, and **depressions with inadequate formation width and poor drainage.**
6. The above said road shall be widened to **MOSRT& H intermediate lane upto 4.5 km and single specification beyond 4.5 km**

The works include:

- Surveys and detailed design for widening the road.
- Periodic maintenance of road during construction
- Construction of new Hume pipe/Slab culvert & earth retaining structures.
- Laying of GSB in locations of regrading.

- repair and widening of slab and pipe culverts.
- Construction of Earthen drain

The project is to be done on "Design as you build" concept prior to construction where detailed design for approval would be carried out by the bidder in a phased manner.

- Local Competitive Bidding will be conducted in accordance with ADB's **single stage: two-envelope bidding procedure**. Interested Bidders may, inspect the Bidding Document and obtain further information from the office of the **Project Manager PIU- Transport, 38 A/B Gandhi Nagar Jammu from 1100 hrs to 1600 hrs** on all working days from **16.08.2010** onward.
- The complete set of Bidding Document, in the English language, which may be purchased by interested Bidders on submission of a written application to the **Director, Economic Reconstruction Agency / Project Manager, PIU- Transport, 38 A/B, Gandhi Nagar, Jammu** upon payment of a nonrefundable fee of Indian Rupees 5000/- (Rs. Five thousand only) for the contract package or in equivalent US dollar currency starting from **16.08.2010 to 16.09.2010**. Those applicants, who desire to receive the document by courier shall have to pay Rs. 1000/- (Rupees One thousand only), or Rs.2,000/- (Rupees Two Thousand only) extra for delivery out side India. The method of payment will be through demand draft in favor of **Economic Reconstruction Agency, payable at Jammu**. No liability will be accepted for loss or late delivery.
- Bids must be delivered at the address below at or before **1500 hrs on 20.09.2010**. Technical bids must be accompanied by a Bid Security of amount indicated in the document. Late bids shall be rejected. Technical bids will be opened on the same day in the presence of the Bidders' representatives who chose to attend at the address below at **1530 hrs**. In the event of the specified date of bid submission/opening being declared a holiday for the Employer, the bids shall be received/ opened on the next working day at the same place and the same time.
- The Economic Reconstruction Agency will not be responsible for any costs or expenses incurred by Bidders in connection with the preparation or delivery of Bids.
- Pre-bid meeting with the bidders shall be held at address given below at **1500 hrs on 07.09.2010**. Work site visit may be conducted at the request of bidders. Bidders Interested in participating in the bids are advised to attend pre-bid meeting and visit site before submission of bid.

Project Manager (Transport), J&K Economic Reconstruction Agency
38 A/B, Gandhi Nagar Jammu (Jammu and Kashmir)
 Tel: 0191-2434601, Fax. No. 0191-2434493

No: PMT/ERA/JMU/NCB/IFB
 Dated: 22.07.2010

Project Manager (T)
 ERA Jammu

SECTION-1

Instructions to Bidders

Section 1 - Instructions to Bidders

This section specifies the procedures to be followed by Bidders in the preparation and submission of their Bids. Information is also provided on the submission, opening, and evaluation of bids and on the award of contract.

Table of Contents

A.	General	1-3
1.	Scope of Bid	1-3
2.	Source of Funds	1-3
3.	Corrupt Practices	1-3
4.	Eligible Bidders	1-4
5.	Eligible Materials, Equipment and Services.....	1-5
B.	Contents of Bidding Document	1-6
6.	Sections of Bidding Document.....	1-6
7.	Clarification of Bidding Document, Site Visit, Pre-Bid Meeting.....	1-6
8.	Amendment of Bidding Document	1-7
C.	Preparation of Bids	1-7
9.	Cost of Bidding	1-7
10.	Language of Bid	1-7
11.	Documents Comprising the Bid	1-7
12.	Proposal Submission Sheets, and Schedules	1-8
13.	Alternative Bids	1-8
14.	Bid Prices and Discounts	1-9
15.	Currencies of Bid and Payment	1-10
16.	Documents Comprising the Technical Proposal	1-10
17.	Documents Establishing the Qualifications of the Bidder	1-10
18.	Period of Validity of Bids	1-10
19.	Bid Security	1-10
20.	Format and Signing of Bid	1-11
D.	Submission and Opening of Bids	1-12
21.	Sealing and Marking of Bids	1-12
22.	Deadline for Submission of Bids	1-12
23.	Late Bids	1-12
24.	Withdrawal, Substitution, and Modification of Bids	1-12
25.	Bid Opening	1-13

E.	Evaluation and Comparison of Bids.....	1-14
26.	Confidentiality	1-14
27.	Clarification of Bids.....	1-15
28.	Deviations, Reservations, and Omissions.....	1-15
29.	Responsiveness of Technical Proposal	1-15
30.	Nonconformities, Errors, and Omissions.....	1-16
31.	Correction of Arithmetical Errors	1-16
32.	Conversion to Single Currency.....	1-16
33.	Evaluation of Bids.....	1-16
34.	Comparison of Bids	1-17
35.	Qualification of the Bidder	1-17
36.	Employer's Right to Accept Any Bid, and to Reject Any or All Bids.....	1-18
F.	Award of Contract	1-18
37.	Award Criteria.....	1-18
38.	Notification of Award.....	1-18
39.	Signing of Contract.....	1-18
40.	Performance Security	1-18

Section 1 - Instructions to Bidders

A. General

- 1. Scope of Bid**
 - 1.1 In connection with the Invitation for Bid indicated in the Bid Data Sheet (BDS), the Employer, as indicated in the BDS, issues this Bidding Document for the procurement of Works as specified in Section 6 (Employer's Requirements). The name, identification, and number of contracts of the National Competitive Bidding (NCB) are provided in the BDS.
 - 1.2 Throughout this Bidding Document:
 - (a) the term "in writing" means communicated in written form and delivered against receipt;
 - (b) except where the context requires otherwise, words indicating the singular also include the plural and words indicating the plural also include the singular; and
 - (c) "day" means calendar day.
- 2. Source of Funds**
 - 2.1 The Borrower or Recipient (hereinafter called "Borrower") indicated in the BDS has applied for or received financing (hereinafter called "funds") from the Asian Development Bank (hereinafter called "ADB") toward the cost of the project named in the BDS. The Borrower intends to apply a portion of the funds to eligible payment under the contract for which this Bidding Document is issued.
 - 2.2 Payments by the Bank will be made only at the request of the Borrower and upon approval by the Bank in accordance with the terms and conditions of the financing agreement between the Borrower and the ADB (hereinafter called the Loan Agreement), and will be subject in all respects to the terms and conditions of that Loan Agreement. No party other than the Borrower shall derive any rights from the Loan Agreement or have any claim to the funds.
- 3. Corrupt Practices**
 - 3.1 ADB's Anti-corruption Policy requires borrowers (including beneficiaries of ADB-financed activity), as well as bidders, suppliers, and contractors under ADB-financed contracts, observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, the ADB:
 - (a) defines, for the purposes of this provision, the terms set forth below as follows:
 - (i) "corrupt practice" means the offering, giving receiving, or soliciting, directly or indirectly, of any thing of value to influence the action of any party in the procurement process or the execution of a contract;
 - (ii) "fraudulent practice" means a misrepresentation or omission of facts in order to influence a procurement process or the

execution of a contract;

- (iii) "collusive practices" means a scheme or arrangement between two or more bidders, with or without the knowledge of the Borrower, designed to influence the action of any party in a procurement process or the execution of a contract;
 - (iv) "coercive practices" means harming or threatening to harm, directly or indirectly, persons, or their property to influence their participation in a procurement process, or affect the execution of a contract;
- (b) will reject a proposal for award if it determines that the bidder recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract; and
 - (c) will sanction a party or its successor, including declaring ineligible, either indefinitely or for a stated period of time, to participate in ADB-financed activities if it at any time determines that the firm has, directly or through an agent, engaged in corrupt, fraudulent, collusive, or coercive practices in competing for, or in executing, an ADB-financed contract.
- 3.2 Furthermore, Bidders shall be aware of the provision stated in Sub-Clause 1.15 and Sub-Clause 15.6 of the Particular Conditions of Contract.

4. Eligible Bidders

- 4.1 A Bidder may be a natural person, private entity, government-owned entity-subject to ITB 4.6—or any combination of them with a formal intent to enter into an agreement or under an existing agreement in the form of a Joint Venture (JV). In the case of a JV:
- (a) all partners shall be jointly and severally liable, and
 - (b) A JV shall nominate one of its constituent firms as a Lead Partner (herein after referred as "Lead Partner") who shall have the authority to conduct all business for and on behalf of any and all the partners of the JV during the bidding process, and in the event the JV is awarded the contract, during contract execution. The Lead partner is required to meet the qualification criteria specified in Section 3. The Lead Partner must have management control on the project and provide from his resources a majority of technical and financial inputs and deploy a majority of the key plants, equipments and key personnel (including the Project Manager / Team Leader) for the execution of the project.
- 4.2 A Bidder, and all parties constituting the Bidder, shall have the nationality of an eligible country, in accordance with Section 5 (Eligible Countries). A Bidder shall be deemed to have the nationality of a country if the Bidder is a citizen or is constituted, or incorporated, and operates in conformity with the provisions of the laws of that country. This criterion shall also apply to the determination of the nationality of proposed subcontractors or suppliers for any part of the Contract including related services.
- 4.3 A Bidder shall not have a conflict of interest. All Bidders found to have a conflict of interest shall be disqualified. A Bidder may be considered to

have a conflict of interest with one or more parties in this bidding process, if:

- (a) they have controlling shareholders in common; or
- (b) they receive or have received any direct or indirect subsidy from any of them; or
- (c) they have the same legal representative for purposes of this bid; or
- (d) they have a relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the Bid of another Bidder, or influence the decisions of the Employer regarding this bidding process; or
- (e) a Bidder participates in more than one bid in this bidding process. Participation by a Bidder in more than one Bid will result in the disqualification of all Bids in which the party is involved. However, this does not limit the inclusion of the same subcontractor in more than one bid; or
- (f) a Bidder participated as a consultant in the preparation of the design or technical specifications of the contract that is the subject of the Bid.

4.4 A firm that is under a declaration of ineligibility by the ADB in accordance with ITB 3, at the date of the deadline for bid submission or thereafter, shall be disqualified.

4.5 Government-owned enterprises in the Employer's country shall be eligible only if they can establish that they are legally and financially autonomous and operate under commercial law, and that they are not a dependent agency of the Employer.

4.6 Bidders shall provide such evidence of their continued eligibility satisfactory to the Employer, as the Employer shall reasonably request.

5. Eligible Materials, Equipment and Services

5.1 The materials, equipment and services to be supplied under the Contract shall have their origin in eligible source countries as defined in ITB 4.2 above and all expenditures under the Contract will be limited to such materials, equipment, and services. At the Employer's request, Bidders may be required to provide evidence of the origin of materials, equipment and services.

5.2 For purposes of ITB 5.1 above, "origin" means the place where the materials and equipment are mined, grown, produced or manufactured, and from which the services are provided. Materials and equipment are produced when, through manufacturing, processing, or substantial or major assembling of components, a commercially recognized product results that differs substantially in its basic characteristics or in purpose or utility from its components.

B. Contents of Bidding Document

6. Sections of Bidding Document

- 6.1 The Bidding Document consist of Parts I, II, and III, which include all the Sections indicated below, and should be read in conjunction with any Addenda issued in accordance with ITB 8.

PART I Bidding Procedures

Section 1 - Instructions to Bidders (ITB)
Section 2 - Bid Data Sheet (BDS)
Section 3 - Evaluation and Qualification Criteria (EQC)
Section 4 - Bidding Forms (BDF)
Section 5 - Eligible Countries (ELC)

PART II Requirements

Section 6 - Employer's Requirements (ERQ)

PART III Conditions of Contract and Contract Forms

Section 7 - General Conditions (GCC)
Section 8 - Particular Conditions (PCC)
Section 9 - Contract Forms (COF)

- 6.2 The Invitation for Bids issued by the Employer is not part of the Bidding Document.
- 6.3 The Employer is not responsible for the completeness of the Bidding Document and their Addenda, if they were not obtained directly from the source stated by the Employer in the Invitation for Bids.
- 6.4 The Bidder is expected to examine all instructions, forms, terms, and specifications in the Bidding Document. Failure to furnish all information or documentation required by the Bidding Document may result in the rejection of the bid.

7. Clarification of Bidding Document, Site Visit, Pre-Bid Meeting

- 7.1 A prospective Bidder requiring any clarification of the Bidding Document shall contact the Employer in writing at the Employer's address indicated in the BDS or raise his inquiries during the pre-bid meeting if provided for in accordance with ITB 7.4. The Employer will respond in writing to any request for clarification, provided that such request is received no later than twenty-one (21) days prior to the deadline for submission of bids. The Employer shall forward copies of its response to all Bidders who have acquired the Bidding Document in accordance with ITB 6.3, including a description of the inquiry but without identifying its source. Should the Employer deem it necessary to amend the Bidding Document as a result of a request for clarification, it shall do so following the procedure under ITB 8 and ITB 22.2.
- 7.2 The Bidder is advised to visit and examine the Site of Work and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the bid and entering into a contract for construction of the Work. The costs of visiting the Site shall be at the Bidder's own expense.
- 7.3 The Bidder and any of its personnel or agents will be granted permission by the Employer to enter upon its premises and lands for the

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

- 7.4 The Bidder's designated representative is invited to attend a pre-bid meeting, if provided for in the BDS. The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.
- 7.5 The Bidder is requested, as far as possible, to submit any questions in writing, to reach the Employer not later than 3(three) days before the pre-bid meeting.
- 7.6 Minutes of the pre-bid meeting, including the text of the questions raised, without identifying the source, and the responses given, together with any responses prepared after the meeting, will be transmitted promptly to all Bidders who have acquired the Bidding Document in accordance with ITB 6.3. Any modification to the Bidding Document that may become necessary as a result of the pre-bid meeting shall be made by the Employer exclusively through the issue of an addendum pursuant to ITB 8 and not through the minutes of the pre-bid meeting.
- 7.7 Non-attendance at the pre-bid meeting will not be a cause for disqualification of a Bidder.

8. Amendment of Bidding Document

- 8.1 At any time prior to the deadline for submission of bids, the Employer may amend the Bidding Document by issuing addenda.
- 8.2 Any addendum issued shall be part of the Bidding Document and shall be communicated in writing to all who have obtained the Bidding Document from the Employer in accordance with ITB 6.3.
- 8.3 To give prospective Bidders reasonable time in which to take an addendum into account in preparing their bids, the Employer may, at its discretion, extend the deadline for the submission of bids, pursuant to ITB 22.2.

C. Preparation of Bids

9. Cost of Bidding

- 9.1 The Bidder shall bear all costs associated with the preparation and submission of its Bid, and the Employer shall not be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

10. Language of Bid

- 10.1 The Bid, as well as all correspondence and documents relating to the bid exchanged by the Bidder and the Employer, shall be written in the language specified in the BDS. Supporting documents and printed literature that are part of the Bid may be in another language provided they are accompanied by an accurate translation of the relevant passages in the language specified in the BDS, in which case, for purposes of interpretation of the Bid, such translation shall govern.

11. Documents

- 11.1 The Bid shall comprise two envelopes submitted simultaneously, one

Comprising the Bid

containing the Technical Proposal and the other the Price Proposal, enclosed together in an outer single envelope.

11.2 Initially, only the Technical Proposals are opened at the address, date and time specified in BDS. The Price Proposals remain sealed and are held in custody of the Employer. The Technical Proposals are evaluated by the Employer. No amendments or changes to the Technical Proposals are permitted. The objective is to allow Employer to evaluate the technical proposals without referring the price. Bids with Technical Proposals which do not conform to the specified requirements will be rejected, with ADB's approval, as deficient Bids.

11.3 Following ADB's approval of the technical evaluation, the Price Proposals of technically responsive Bids are opened in public at a date and time advised by the Employer. The Price Proposals of the technically responsive bidders are evaluated, and following approval by ADB, the Contract is awarded to the Bidder whose Bid has been determined to be the lowest evaluated substantially responsive Bid.

11.4 The Technical Proposal shall contain the following:

- (a) Technical Proposal Submission Sheet;
- (b) Completed schedules as required, in accordance with ITB clause 12;
- (c) Bid Security, in accordance with ITB clause 19;
- (d) Written confirmation authorizing the signatory of the Bid to commit the Bidder, in accordance with ITB clause 20.2;
- (e) Declaration from the bidder to conform to clause 4 establishing the bidder's eligibility to bid;
- (f) Documentary evidence in accordance with ITB clause 5 that the materials, equipment and services to be provided by the bidder are of eligible origin;
- (g) Documentary evidence in accordance with ITB clause 17 establishing the Bidder's qualifications to perform the contract;
- (h) Technical Proposal in accordance with ITB 16;
- (i) Any other document required in the BDS.

11.5 The Price Proposal shall contain the following:

- (a) Price Proposal Submission Sheet;
- (b) Completed priced Bill of Quantities, in accordance with ITB 14;
- (c) Written confirmation authorizing the signatory of the Bid to commit the Bidder, in accordance with ITB 20.2;
- (d) Any other document required in the BDS.

12. Proposal Submission Sheets, and Schedules

12.1 The Technical Proposal Submission Sheet and Price Proposal Submission Sheet and Schedules, including the Bill of Quantities, shall be prepared using the relevant forms furnished in Section 4 (Bidding Forms). The forms must be completed without any alterations to the text, and no substitutes shall be accepted. All blank spaces shall be filled in with the information requested.

13. Alternative Bids

13.1 Unless otherwise indicated in the BDS, alternative bids shall not be considered.

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

13.3 Except as provided under ITB 13.4 below, Bidders wishing to offer technical alternatives to the requirements of the Bidding Document must first price the Employer's design as described in the Bidding Document and shall further provide all information necessary for a complete evaluation of the alternative by the Employer, including drawings, design calculations, technical specifications, breakdown of prices, and proposed construction methodology and other relevant details. Only the technical alternatives, if any, of the lowest evaluated Bidder conforming to the basic technical requirements shall be considered by the Employer.

13.4 When specified in the BDS, Bidders are permitted to submit alternative technical solutions for specified parts of the Works. Such parts will be identified in the BDS and described in Section 6 (Employer's Requirements). The method for their evaluation will be stipulated in Section 3 (Evaluation and Qualification Criteria).

14. Bid Prices and Discounts

14.1 The prices and discounts quoted by the Bidder in the Price Proposal Submission Sheet and in the Bill of Quantities shall conform to the requirements specified below.

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

14.3 The price to be quoted in the Price Proposal Submission Sheet, in accordance with ITB 12.1, shall be the total price of the Bid, excluding any discounts offered.

14.4 The Bidder shall quote any discounts and the methodology for their application in the Price Proposal Submission Sheet, in accordance with ITB 12.1.

14.5 If so indicated in ITB 1.1, bids are being invited for individual contracts or for any combination of contracts (packages). Bidders wishing to offer any price reduction for the award of more than one Contract shall specify in their bid the price reductions applicable to each package, or alternatively, to individual Contracts within the package. Price reductions or discounts shall be submitted in accordance with ITB 14.4, provided the bids for all contracts are submitted and opened at the

same time.

- 14.6 All duties, taxes, and other levies payable by the Contractor under the Contract, or for any other cause, as of the date 28 days prior to the deadline for submission of bids, shall be included in the rates and prices and the total Bid Price submitted by the Bidder.

15. Currencies of Bid and Payment

- 15.1 The currency(ies) of the bid shall be as specified in the BDS.
- 15.2 Bidders may be required by the Employer to justify, to the Employer's satisfaction, their local and foreign currency requirements, and to substantiate the amounts included in the unit rates and prices and shown in the Summary of Payment Currency Schedule, in which case a detailed breakdown of the foreign currency requirements shall be provided by Bidders.

16. Documents Comprising the Technical Proposal

- 16.1 The Bidder shall furnish a Technical Proposal including a statement of work methods, equipment, personnel, schedule and any other information as stipulated in Section 4 (Bidding Forms), in sufficient detail to demonstrate the adequacy of the Bidders' proposal to meet the work requirements and the completion time.

17. Documents Establishing the Qualifications of the Bidder

- 17.1 To establish its qualifications to perform the Contract in accordance with Section 3 (Evaluation and Qualification Criteria) the Bidder shall provide the information requested in the corresponding information sheets included in Section 4 (Bidding Forms).

18. Period of Validity of Bids

- 18.1 Bids shall remain valid for the period specified in the BDS after the bid submission deadline date prescribed by the Employer. A bid, valid for a shorter period, shall be rejected by the Employer as non-responsive.
- 18.2 In exceptional circumstances, prior to the expiration of the bid validity period, the Employer may request Bidders to extend the period of validity of their bids. The request and the responses shall be made in writing. If a bid security is requested in accordance with ITB 19, it shall also be extended for a corresponding period. A Bidder may refuse the request without forfeiting its bid security. A Bidder granting the request shall not be required or permitted to modify its bid.

19. Bid Security

- 19.1 Unless otherwise specified in the BDS, the Bidder shall furnish as part of its Technical Proposal, a bid security in original form and in the amount and currency specified in the BDS.
- 19.2 The bid security shall be, at the Bidder's option, in any of the following forms:
- (a) an unconditional bank guarantee;
 - (b) an irrevocable letter of credit; or
 - (c) a cashier's or certified check;

from a reputable bank from an eligible country. In the case of a bank guarantee, the bid security shall be submitted either using the Bid Security Form included in Section 4 (Bidding Forms) or in another substantially similar format approved by the Employer prior to bid

submission. In either case, the form must include the complete name of the Bidder. The bid security shall be valid for twenty-eight days (28) beyond the original validity period of the bid, or beyond any period of extension if requested under ITB 18.2.

19.3 Any bid not accompanied by an enforceable and compliant bid security, if one is required in accordance with ITB 19.1, shall be rejected by the Employer as non-responsive.

19.4 The bid security of unsuccessful Bidders shall be returned as promptly as possible upon the successful Bidder's furnishing of the performance security pursuant to ITB 40.

19.5 The bid security of the successful Bidder shall be returned as promptly as possible once the successful Bidder has signed the Contract and furnished the required performance security.

19.6 The bid security may be forfeited:

- (a) if a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Technical Proposal Submission Sheet, except as provided in ITB 18.2 or
- (b) if the successful Bidder fails to:
 - (i) sign the Contract in accordance with ITB 39;
 - (ii) furnish a performance security in accordance with ITB 40; or
 - (iii) accept the correction of its Bid Price pursuant to ITB 31.2.

19.7 The Bid Security of a JV shall be in the name of the JV that submits the bid. If the JV has not been legally constituted at the time of bidding, the Bid Security shall be in the names of all future partners as named in the letter of intent mentioned in ITB 4.1.

20. Format and Signing of Bid

20.1 The Bidder shall prepare one original of the Technical Proposal and one original of the Price Proposal as described in ITB Clause 11 and clearly mark each "**ORIGINAL - TECHNICAL PROPOSAL**" and "**ORIGINAL - FINANCIAL PROPOSAL**". In addition, the Bidder shall submit one copy each of the Technical Proposal and the Price Proposal clearly mark on them "**COPY-TECHNICAL PROPOSAL**" and "**COPY- FINANCIAL PROPOSAL**". In the event of any discrepancy between the original and the copies, the original shall prevail.

20.2 The original and all copies of the bid shall be typed or written in indelible ink and shall be signed by a person duly authorized to sign on behalf of the Bidder. This authorization shall consist of a written confirmation as specified in the BDS and shall be attached to the bid. The name and position held by each person signing the authorization must be typed or printed below the signature. All pages of the bid, except for un-amended printed literature, shall be signed or initialed by the person signing the bid.

20.3 Any interlineations, erasures, or overwriting shall be valid only if they are signed or initialed by the person signing the bid.

D. Submission and Opening of Bids

- 21. Sealing and Marking of Bids**
- 21.1 The Bidder shall enclose the original of the Technical Bid, the original of the Price Bid, in separate sealed envelopes, duly marking the envelopes as "ORIGINAL – TECHNICAL BID", "ORIGINAL – PRICE BID" and "COPY – TECHNICAL BID" and "COPY – PRICE BID", as appropriate. These envelopes containing the original and the copies shall then be enclosed in one single envelope.
- 21.2 The inner and outer envelopes shall:
- (a) bear the name and address of the Bidder;
 - (b) be addressed to the Employer in accordance with BDS 22.1;
 - (c) bear the specific identification of this bidding process indicated in the BDS 1.1; and
 - (d) Bear a warning not to open before the time and date for bid opening.
- 21.3 If all envelopes are not sealed and marked as required, the Employer will assume no responsibility for the misplacement or premature opening of the bid.
- 22. Deadline for Submission of Bids**
- 22.1 Bids must be received by the Employer at the address and no later than the date and time indicated in the BDS.
- 22.2 The Employer may, at its discretion, extend the deadline for the submission of bids by amending the Bidding Document in accordance with ITB 8, in which case all rights and obligations of the Employer and Bidders previously subject to the deadline shall thereafter be subject to the deadline as extended.
- 23. Late Bids**
- 23.1 The Employer shall not consider any bid that arrives after the deadline for submission of bids, in accordance with ITB 22. Any bid received by the Employer after the deadline for submission of bids shall be declared late, rejected, and returned unopened to the Bidder.
- 24. Withdrawal, Substitution, and Modification of Bids**
- 24.1 A Bidder may withdraw, substitute, or modify its bid after it has been submitted by sending a written notice, duly signed by an authorized representative, and shall include a copy of the authorization in accordance with ITB 20.2, (except that withdrawal notices do not require copies). The corresponding substitution or modification of the bid must accompany the respective written notice. All notices must be:
- (a) prepared and submitted in accordance with ITB 20 and ITB 21 (except that withdrawal notices do not require copies), and in addition, the respective envelopes shall be clearly marked "WITHDRAWAL," "SUBSTITUTION," "MODIFICATION;" and
 - (b) received by the Employer prior to the deadline prescribed for submission of bids, in accordance with ITB 22.
- 24.2 Bids requested to be withdrawn in accordance with ITB 24.1 shall be returned unopened to the Bidders.

24.3 No bid may be withdrawn, substituted, or modified in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the Bidder on the Technical Proposal Submission Sheet or any extension thereof.

24.4 Withdrawal of bid during the interval between the deadline for submission of bids and the expiration of the period of bid validity specified in the form of bid may result in forfeiture of bid security pursuant to clause 19.

25. Bid Opening

25.1 The Employer shall conduct the bid opening in the presence of Bidders' designated representatives who choose to attend, and at the address, date and time specified in the BDS.

25.2 The Price Proposals will remain unopened and will be held in custody of the Employer until the time of opening of the Price Proposals. The date, time, and location of the opening of Price Proposals will be advised in writing by the Employer.

25.3 First, envelopes marked "WITHDRAWAL" shall be opened and read out and the envelope with the corresponding bid shall not be opened, but returned to the Bidder. No bid withdrawal shall be permitted unless the corresponding withdrawal notice contains a valid authorization to request the withdrawal and is read out at bid opening.

25.4 Next, outer envelopes marked "SUBSTITUTION" shall be opened. The inner envelopes containing the Substitution Technical Proposal and/or Substitution Price Proposal shall be exchanged for the corresponding envelopes being substituted, which are to be returned to the Bidder unopened. Only the Substitution Technical Proposal, if any, shall be opened, read out, and recorded. Substitution Price Proposals will remain unopened in accordance with ITB Sub-Clause 25.2. No envelope shall be substituted unless the corresponding Substitution Notice contains a valid authorization to request the substitution and is read out and recorded at bid opening.

25.5 Next, outer envelopes marked "MODIFICATION" shall be opened. No Technical Proposal and/or Price Proposal shall be modified unless the corresponding Modification Notice contains a valid authorization to request the modification and is read out and recorded at the opening of Technical Proposals. Only the Technical Proposals, both Original as well as Modification, are to be opened, read out, and recorded at the opening. Price Proposals, both Original as well as Modification, will remain unopened in accordance with ITB Sub-Clause 25.2.

25.6 All other envelopes holding the Technical Proposals shall be opened one at a time, and the following read out and recorded:

- (a) the name of the Bidder;
- (b) whether there is a modification or substitution;
- (c) the presence of a Bid Security, and
- (d) any other details as the Employer may consider appropriate.

Only Technical Proposals read out and recorded at bid opening shall be considered for evaluation. No Bid shall be rejected at the opening of Technical Proposals except for late bids, in accordance with ITB Sub-

Clause 23.1.

25.7 The Employer shall prepare a record of the opening of Technical Proposals that shall include, as a minimum: the name of the Bidder and whether there is a withdrawal, substitution, modification, and the presence or absence of a Bid Security. The Bidders' representatives who are present shall be requested to sign the record. The omission of a Bidder's signature on the record shall not invalidate the contents and effect of the record. A copy of the record shall be distributed to all Bidders.

25.8 At the end of the evaluation of the Technical Proposals, the Employer will invite bidders who have submitted substantially responsive Technical Proposals and who have been determined as being qualified for award to attend the opening of the Price Proposals. The date, time, and location of the opening of Price Proposals will be advised in writing by the Employer. Bidders shall be given reasonable notice of the opening of Price Proposals.

25.9 The Employer will notify Bidders in writing who have been rejected on the grounds of being substantially non-responsive to the requirements of the Bidding Document and return their Price Proposals unopened.

25.10 The Employer shall conduct the opening of Price Proposals of all Bidders who submitted substantially responsive Technical Proposals, in the presence of Bidders' representatives who choose to attend at the address, date and time specified by the Employer. The Bidder's representatives who are present shall be requested to sign a register evidencing their attendance.

25.11 All envelopes containing Price Proposals shall be opened one at a time and the following read out and recorded:

- (a) the name of the Bidder
- (b) whether there is a modification or substitution;
- (c) the Bid Prices, including any discounts, and
- (d) any other details as the Employer may consider appropriate.

Only Price Proposals and discounts read out and recorded during the opening of Price Proposals shall be considered for evaluation. No Bid shall be rejected at the opening of Price Proposals.

25.12 The Employer shall prepare a record of the opening of Price Proposals that shall include, as a minimum: the name of the Bidder, the Bid Price, any discounts offered. The Bidders' representatives who are present shall be requested to sign the record. The omission of a Bidder's signature on the record shall not invalidate the contents and effect of the record. A copy of the record shall be distributed to all Bidders.

E. Evaluation and Comparison of Bids

26. Confidentiality

26.1 Information relating to the examination, evaluation, comparison, and post-qualification of bids and recommendation of contract award, shall not be disclosed to Bidders or any other persons not officially concerned with such process until information on Contract award is communicated to all Bidders.

- 26.2 Any attempt by a Bidder to influence the Employer in the evaluation of the bids or Contract award decisions may result in the rejection of its bid.
- 26.3 Notwithstanding ITB 26.2, from the time of bid opening to the time of Contract award, if any Bidder wishes to contact the Employer on any matter related to the bidding process, it may do so in writing.
- 27. Clarification of Bids**
- 27.1 To assist in the examination, evaluation, and comparison of the bids, and qualification of the Bidders, the Employer may, at its discretion, ask any Bidder for a clarification of its bid. Any clarification submitted by a Bidder that is not in response to a request by the Employer shall not be considered. The Employer's request for clarification and the response shall be in writing. No change in the prices or substance of the bid shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the bids, in accordance with ITB 31.
- 27.2 If a Bidder does not provide clarifications of its bid by the date and time set in the Employer's request for clarification, its bid may be rejected.
- 28. Deviations, Reservations, and Omissions**
- 28.1 During the evaluation of bids, the following definitions apply:
- (a) "Deviation" is a departure from the requirements specified in the Bidding Document;
 - (b) "Reservation" is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the Bidding Document; and
 - (c) "Omission" is the failure to submit part or all of the information or documentation required in the Bidding Document.
- 29. Responsiveness of Technical Proposal**
- 29.1 The Employer's determination of the responsiveness of a Technical Proposal is to be based on the contents of the Technical Proposal itself, as defined in ITB11.
- 29.2 A substantially responsive Technical Proposal is one that meets the requirements of the Bidding Document without material deviation, reservation, or omission. A material deviation, reservation, or omission is one that,
- (a) if accepted, would:
 - (i) affect in any substantial way the scope, quality, or performance of the Works specified in the Contract; or
 - (ii) limit in any substantial way, inconsistent with the Bidding Document, the Employer's rights or the Bidder's obligations under the proposed Contract; or
 - (b) if rectified, would unfairly affect the competitive position of other Bidders presenting substantially responsive bids.
- 29.3 The Employer shall examine the technical aspects of the bid submitted in accordance with ITB 16, Technical Proposal, in particular, to confirm that all requirements of Section 6 (Employer's Requirements) have been met without any material deviation or reservation.

- 29.4 If a Technical Proposal is not substantially responsive to the requirements of the Bidding Document, it shall be rejected by the Employer and may not subsequently be made responsive by correction of the material deviation, reservation, or omission.
- 30. Nonconformities, Errors, and Omissions**
- 30.1 Provided that a Technical Proposal is substantially responsive, the Employer may waive any non-conformity in the bid that do not constitute a material deviation, reservation or omission.
- 30.2 Provided that a Technical Proposal is substantially responsive, the Employer may request that the Bidder submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities in the bid related to documentation requirements. Requesting information or documentation on such nonconformities shall not be related to any aspect of the price of the bid. Failure of the Bidder to comply with the request may result in the rejection of its bid.
- 30.3 Provided that a Technical Proposal is substantially responsive, the Employer shall rectify nonmaterial nonconformities related to the Bid Price. To this effect, the Bid Price shall be adjusted during evaluation of Price Proposals, for comparison purposes only, to reflect the price of a missing or non-conforming item or component. The adjustment shall be made using the method indicated in Section 3 (Evaluation and Qualification Criteria).
- 31. Correction of Arithmetical Errors**
- 31.1 Provided that the technical proposal is substantially responsive, the Employer shall correct arithmetical errors on the following basis:
- (a) if there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected, unless in the opinion of the Employer there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price shall be corrected;
 - (b) if there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and
 - (c) if there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (a) and (b) above.
- 31.2 If the Bidder that submitted the lowest evaluated bid does not accept the correction of errors, its bid shall be disqualified and its bid security may be forfeited.
- 32. Conversion to Single Currency**
- 32.1 For evaluation and comparison purposes, the currency (ies) of the bid shall be converted into a single currency as specified in the BDS.
- 33. Evaluation of Bids**
- 33.1 The Employer shall evaluate Price Proposals of each Bid for which the Technical Proposal has been determined to be substantially responsive.
- 33.2 The Employer shall use the criteria and methodologies listed in this Clause. No other evaluation criteria or methodologies shall be

permitted.

33.3 To evaluate a Price Proposal, the Employer shall consider the following:

- (a) the bid price, excluding Provisional Sums and the provision, if any, for contingencies in the Summary Bill of Quantities, but including Day work items, where priced competitively;
- (b) price adjustment for correction of arithmetic errors in accordance with ITB 31.1;
- (c) price adjustment due to discounts offered in accordance with ITB 14.4;
- (d) converting the amount resulting from applying (a) to (c) above, if relevant, to a single currency in accordance with ITB 32;
- (e) adjustment for nonconformities in accordance with ITB 30.3;
- (f) application of all the evaluation factors indicated in Section 3 (Evaluation and Qualification Criteria);

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

33.5 If this Bidding Document allows Bidders to quote separate prices for different contracts, and the award to a single Bidder of multiple contracts, the methodology to determine the lowest evaluated price of the contract combinations, including any discounts offered in the Bid Submission Sheet, is specified in Section 3 (Evaluation and Qualification Criteria).

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

34. Comparison of Bids

34.1 The Employer shall compare all substantially responsive bids to determine the lowest evaluated bid, in accordance with ITB 33.2.

35. Qualification of the Bidder

35.1 The Employer shall determine to its satisfaction whether the Bidder that is selected as having submitted the lowest evaluated and substantially responsive bid meets the qualifying criteria specified in Section 3 (Evaluation and Qualification Criteria).

35.2 The determination shall be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, pursuant to ITB 17.1.

35.3 An affirmative determination shall be a prerequisite for award of the Contract to the Bidder. A negative determination shall result in disqualification of the bid, in which event the Employer shall proceed to the next lowest evaluated bid to make a similar determination of that Bidder's qualifications to perform satisfactorily.

36. Employer's Right to Accept Any Bid, and to Reject Any or All Bids

36.1 The Employer reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids at any time prior to contract award, without thereby incurring any liability to Bidders. In case of annulment, all bids submitted and specifically, bid securities, shall be promptly returned to the Bidders.

F. Award of Contract

37. Award Criteria

37.1 The Employer shall award the Contract to the Bidder whose offer has been determined to be the lowest evaluated bid and is substantially responsive to the Bidding Document, provided further that the Bidder is determined to be qualified to perform the Contract satisfactorily.

38. Notification of Award

38.1 Prior to the expiration of the period of bid validity, the Employer shall notify the successful Bidder, in writing, that its bid has been accepted. At the same time, the Employer shall also notify all other Bidders of the results of the bidding.

38.2 Until a formal contract is prepared and executed, the notification of award shall constitute a binding Contract.

39. Signing of Contract

39.1 Promptly after notification, the Employer shall send the successful Bidder the Contract Agreement.

39.2 Within twenty-eight (28) days of receipt of the Contract Agreement, the successful Bidder shall sign, date, and return it to the Employer.

40. Performance Security

40.1 Within twenty-eight (28) days of the receipt of notification of award from the Employer, the successful Bidder shall furnish the performance security in accordance with the conditions of contract, subject to ITB 34.5, using for that purpose the Performance Security Form included in Section 9 (Contract Forms), or another form acceptable to the Employer.

40.2 Failure of the successful Bidder to submit the above-mentioned Performance Security or to sign the Contract Agreement shall constitute sufficient grounds for the annulment of the award and forfeiture of the bid security. In that event the Employer may award the Contract to the next lowest evaluated Bidder whose offer is substantially responsive and is determined by the Employer to be qualified to perform the Contract satisfactorily.

SECTION-2

Bid Data Sheet

Section 2 - Bid Data Sheet

This section consists of provisions that are specific for each procurement and supplement the information or requirements included in Section 1 Instructions to Bidders.

A. Introduction

ITB 1.1	The number of the Invitation for Bids is: Transport Jammu/NCB/03
ITB 1.1	The Employer is: J&K Economic Reconstruction Agency represented by Chief Executive officer.
ITB 1.1	The name of the package is: Widening of Sakhi Maidan –Kalai Road (Poonch District) The identification number of the package is: Transport Jammu/Poonch/Road/05 The number and identification of lots comprising this NCB is: Single lot
ITB 2.1	The Borrower is: India
ITB 2.1	The name of the Project is: Loan No. 2151-IND, Multi-Sector Project for Infrastructure Rehabilitation in Jammu and Kashmir

B. Bidding Documents

ITB 7.1	For <u>clarification purposes</u> only, the Employer's address is: Project Manager, Project Implementation Unit (PIU), Transport Economic Reconstruction Agency (ERA) 38 A/B, Gandhi Nagar, Jammu Jammu & Kashmir, INDIA Telephone: 0191- 2434601, Fax:- 2434493
ITB 7.4	A Pre-Bid meeting will take place at the following date, time and place: Date: 18.10.2010 Time: 15.00 Hours Place: ERA office, 38 A/B , Gandhi Nagar, Jammu A site visit may be conducted by the Employer, organized after discussion with the bidders during pre bid meeting.

C. Preparation of Bids

ITB 10.1	The language of the bid is: English
ITB 11.1	The Bidder shall return in original, all the Amendments, letter and advice, etc. issued by the Employer, with the bid. The Bidder shall submit with its bid the following additional documents : 1. Latest available income tax clearance certificate, certified by the tax authority 2. Audited and certified balance sheets of bidder for the latest three financial years. 3. A legally notarized or attested by appropriate authority in the bidders home country and valid joint venture consortium agreement if applicable, specifying the financial stakes of each of the joint venture partner.
ITB 13.1	Alternative bids are Not permitted.
ITB 13.2	Alternative time for completion is Not permitted.
ITB 13.4	Alternative technical solutions shall be permitted for the following parts of the Works: None
ITB 15.1	The currency of the bid shall be Indian Rupees
ITB 18.1	The bid validity period shall be 120 (one hundred and twenty) days.
ITB 19.1	A bid security is required. The amount and currency of the bid security shall be: Indian Rupees 1.44 million or equivalent amount in US \$.
ITB 19.2	Bid security will be in the following forms: 1. An unconditional irrevocable bank guarantee from a reputable bank 2. Demand draft or bankers cheque 3. Fixed deposit receipt pledged in favor of J&K Economic reconstruction agency.
ITB 20.1	In addition to the original of the bid, the number of copies is: One
ITB 20.2	The written confirmation of authorization to sign on behalf of the Bidder shall consist of: a letter of Authority showing the typed or printed name, position held and signature of each person giving the authority, and the name, position and signature of the person authorized to submit the bid.

D. Submission and Opening of Bids

ITB 22.1	For bid submission purposes, the Employer's address is: Project Manager, Project Implementation Unit (PIU), Transport Economic Reconstruction Agency (ERA) 38 A/B, Gandhi Nagar, Jammu Jammu & Kashmir, INDIA The deadline for bid submission is: Date:-29.10.2010 Time: 15:00 Hours
ITB 25.1	The bid opening shall take place at: Conference Hall ERA office Project Implementation Unit (PIU) Transport Economic Reconstruction Agency (ERA) 38 A/B, Gandhi Nagar, Jammu Jammu & Kashmir, INDIA Date: 29.10.2010 Time: 15:30 Hours

E. Evaluation and Comparison of Bids

ITB 32.1	The currency that shall be used for bid evaluation and comparison purposes to convert all bid prices expressed in various currencies into a single currency is: Not applicable The source of exchange rate shall be: Not applicable The date for the exchange rate shall be: Not applicable
ITB 33	ERA will issue certificate under GOI notification No. 108/95 and 84/97 which will assist the Contractor to obtain any lawful exemptions from payment of Excise Duty or Import Duty on Plant and Materials, which are to be incorporated as a part of the Permanent Works. The Certificate will be issued in the format indicated in Section IX, which certifies the estimated quantities of materials that are to be incorporated into the permanent works. The responsibility for obtaining any such exemptions from Competent Authority will remain with the supplier/ Contractor and the ERA shall not in any way be responsible for admissibility of the claims or eligibility of the Supplier/ Contractor.

SECTION-3

Evaluation and Qualification Criteria

Section 3

Evaluation and Qualification Criteria

This Section contains all the criteria that the Employer shall use to evaluate bids and qualify Bidders. In accordance with ITB 33 and ITB 35, no other methods, criteria and factors shall be used. The Bidder shall provide all the information requested in the forms included in Section 4 (Bidding Forms).

Table of Criteria

1. Evaluation	2
1.1 Adequacy of Technical Proposal	2
1.2 Completion Time	2
2. Qualification	3
2.1 Eligibility	3
2.1.1 Nationality	3
2.1.2 Conflict of Interest	3
2.1.3 ADB Eligibility	3
2.1.4 Government-owned Entity	3
2.2 Pending Litigation	4
2.2.1 Pending Litigation	4
2.3 Financial Situation	5
2.3.1 Historical Financial Performance	5
2.3.2 Annual Construction Turnover	5
2.3.3 Financial Resources	5
2.4 Experience	6
2.4.1 General Construction Experience	6
2.4.2 Specific Construction Experience	6
2.5 Personnel	6
2.6 Equipment	7

1. Evaluation

In addition to the criteria listed in ITB 33.3 (a) – (e) the following criteria shall apply:

1.1 Adequacy of Technical Proposal

Evaluation of the Bidder's Technical Proposal will include an assessment of the Bidder's technical capacity to mobilize key equipment and personnel for the contract consistent with its proposal regarding work methods, scheduling, and material sourcing in sufficient detail and fully in accordance with the requirements stipulated in Section 6 (Employer's Requirements).

1.2 Completion Time

The work under the Contract must be completed within 12 (Twelve) months. An alternative completion time is not permitted.

2. Qualification

2.1 Eligibility

Criteria	Compliance Requirements				Documents
Requirement	Single Entity	Joint Venture			Submission Requirements
		All Partners Combined	One Partner	Each Partner	

2.1.1 Nationality

Nationality in accordance with ITB Sub-Clause 4.2.	Must meet requirement	existing or intended JV must meet requirement	must meet requirement	must meet requirement	Forms ELI - 1; ELI - 2 with attachments
--	-----------------------	---	-----------------------	-----------------------	---

2.1.2 Conflict of Interest

No conflicts of interest in accordance with ITB Sub-Clause 4.3.	Must meet requirement	existing or intended JV must meet requirement	must meet requirement	must meet requirement	Application Submission Sheet
---	-----------------------	---	-----------------------	-----------------------	------------------------------------

2.1.3 ADB Eligibility

Not having been declared ineligible by ADB, as described in ITB Sub-Clause 4.4.	must meet requirement	existing or intended JV must meet requirement	must meet requirement	must meet requirement	Application Submission Sheet
---	-----------------------	---	-----------------------	-----------------------	------------------------------------

2.1.4 Government-owned Entity

Bidder required to meet conditions of ITB Sub-Clause 4.5.	must meet requirement	must meet requirement	must meet requirement	must meet requirement	Forms ELI - 1; ELI - 2 with attachments
---	-----------------------	-----------------------	-----------------------	-----------------------	---

2.2 Pending Litigation

Criteria	Compliance Requirements			Documents
Requirement	Single Entity	Joint Venture		Submission Requirements
		All Partners Combined	One Partner	Each Partner

2.2.1 Pending Litigation

All pending litigation shall be treated as resolved against the Bidder and so shall in total not represent more than 50 (fifty) percent of the Bidder's net worth.	must meet requirement by itself or as partner to past or existing JV	not applicable	must meet requirement by itself or as partner to past or existing JV	must meet requirement by itself or as partner to past or existing JV	Form LIT-1
---	--	----------------	--	--	------------

2.3 Financial Situation

Criteria	Compliance Requirements			Documents
Requirement	Single Entity	Joint Venture		
		All Partners Combined	One Partner	Each Partner
				Submission Requirements

2.3.1 Historical Financial performance

Submission of audited balance sheets or if required by the law of the bidder's country, other financial statements acceptable to the Employer for the last three years or from the year of the establishment of the firm (in case of less than three years) to demonstrate the current soundness of the bidders financial position and prospective long term profitability.	must meet requirement	Not applicable	must meet requirement	must meet requirement	Form FIN – 1 with attachments
--	-----------------------	----------------	-----------------------	-----------------------	-------------------------------

2.3.2 Annual Construction Turnover

Minimum annual construction turnover of INR 29 million in any one year within last three financial years (maximum of last three years shall be considered based on the audited financial statement).	Must meet requirement	must meet requirement	must meet 40% of the requirement	must meet 25% of the requirement	Form FIN - 2
--	-----------------------	-----------------------	----------------------------------	----------------------------------	--------------

2.3.3 Financial Resources:

Using Forms FIN – 3 in Section 4 (Bidding Forms) the Bidder must demonstrate access to, or availability of, financial resources such as liquid assets, unencumbered real assets, lines of credit, and other financial means, other than any contractual advance payments to meet: (1) the cash-flow requirement equal to 18 million (2) Net worth should be positive for the latest year. (3) Bidder should have resources to cover requirements of this package and current work commitments, in terms of his latest year's working capital and lines of credit from reputed Banks and should be adequate. Available financial resources will be evaluated based on the formula given as under: $(7 \times (\text{working capital}) + \text{lines of credit}) - 0.4 \times (\text{cumulative current contract commitments.})$ It should be equal or more than 72 million rupees.	Must meet requirement	must meet requirement	must meet 40% of the requirement	must meet 25% of the requirement	Form FIN - 3
---	-----------------------	-----------------------	----------------------------------	----------------------------------	--------------

Section 3 – Evaluation and Qualification Criteria

2.4 Experience

Criteria	Compliance Requirements			Documents
Requirement	Single Entity	Joint Venture		
		All Partners Combined	One Partner	Each Partner
				Submission Requirements

2.4.1 General Construction Experience

Experience under construction contracts in the role of contractor, subcontractor, or management contractor for at least the last One (1) year prior to the application submission deadline.	must meet requirement	not applicable	must meet requirement	must meet requirement	Form EXP - 1
--	-----------------------	----------------	-----------------------	-----------------------	--------------

2.4.2 Specific Construction Experience

Participation as contractor, management contractor, or subcontractor, in at least one (1) contract for road project within the last Five (5) years, reckon as on the last date of submission of bid, with a minimum value of Rs. 29 million that have been successfully or are substantially completed and that are similar to the proposed works.	must meet requirement	must meet requirement	must meet 25% of requirement	must meet 25% of the requirement	Form EXP - 2
---	-----------------------	-----------------------	------------------------------	----------------------------------	--------------

A certificate of completion/ substantial completion must be enclosed for each of the contracts indicated for experience. The experience certificate must be either be notarized or attested to by the appropriate authority in the bidders' home country and also signed by the authorized representative of the bidder.

2.5 Personnel

The Bidder must demonstrate that it has the personnel for the key positions that meet the following requirements:

No.	Position	Qualification	Total Work Experience [years]	Experience In Similar Work [years]
1	Project Manager cum Highway Engineer-1	BE (Civil)	8	3
2	Survey Engineer-1	Diploma in (Civil)/ ITI Surveying	5/10	2
3	Quantity Surveyor-1	Diploma in (Civil)	2	2
4	Material Tech.	Diploma in (Civil)	3	2

The Bidder shall provide details of the proposed personnel and their experience records in the relevant Information Forms included in Section 4 (Bidding Forms).

2.6 Equipment

The Contractor is responsible to deploy sufficient construction plant and equipment to ensure compliance with his obligations under the Contract. This list constitutes the Employer's estimate of the minimum essential basic holding of construction plant and equipment. The Bidder must demonstrate that it has the key equipment listed hereafter:

Sl. No.	Type of Equipment	Rating/Capacity	Number of Equipment
1	Excavators	1.25 Cum	2
2	Dozer D-50		2
3	Excavator cum Loader	0.3 Cum	1
4	Vibratory Roller	80-200 KN	1
5	Vibratory Roller (1 ton) for compaction of edges /compactor	1Ton	1
6	Total Station survey equipment		1
7	Auto Level		1
8	Tippers	8-10 Ton capacity	10

The Bidder shall provide further details of proposed items of equipment using the relevant Form in Section 4 (Bidding Forms)

SECTION-4

Bidding Forms

Section 4 - Bidding Forms

This Section contains the forms which are to be completed by the Bidder and submitted as part of his Bid.

Technical Proposal Submission Sheet	2
Bid Security.....	5
Technical Proposal.....	6
Personnel	7
Form PER – 1: Proposed Personnel.....	7
Form PER – 2: Resume of Proposed Personnel.....	8
Equipment.....	9
Site Organization.....	10
Method Statement	11
Mobilization Schedule.....	12
Construction Schedule	13
Bidders Qualification.....	14
Form ELI - 1: Bidder's Information Sheet.....	15
Form ELI - 2: JV Information Sheet	16
Form LIT - Pending Litigation	17
Form FIN - 1: Financial Situation	18
Form FIN - 2: Annual Construction Turnover.....	19
Form FIN – 3: Financial Resources.....	20
Form FIN- 4: Current Contract Commitments / Works in Progress	21
Form EXP – 1: General Construction Experience.....	22
Form EXP – 2: Specific Construction Experience.....	23

Technical Proposal Submission Sheet

Date:.....

Package No: Transport Jammu/Poonch/Road/05

Invitation for Bid No: Transport Jammu/NCB/03

To

Chief Executive officer
Economic Reconstruction Agency (ERA)
13 C/C, Gandhi Nagar, Jammu
Jammu & Kashmir, INDIA

Sir,

1. Being duly authorized to represent and act on behalf of (_____ name of the Bidder), hereinafter “the Bidder” and having reviewed and fully understand all the bidding information provided, the undersigned hereby applies to be qualified by yourselves as a bidder for the contract **Widening of Sakhi Maidan - Kalai Road (Poonch District) under package Transport Jammu/Poonch/Road/05**
2. The Bid is made in the full understanding of the following and declares:
 - a) We have examined and have no reservations to the Bidding Document, including Addenda No.(s)..... issued in accordance with ITB Clause 8.
 - b) We, including all subcontractors or suppliers for any part of the contract resulting from this bidding process, if any, have nationalities of eligible countries, in accordance with ITB Sub-Clause 4.2
 - c) We, including any subcontractors or suppliers for any part of the contract resulting from this Bidding, have not been declared ineligible by the ADB.
 - d) We, including any subcontractors or suppliers for any part of the contract, do not have any conflict of interest in accordance with ITB Sub-Clause 4.3.
 - e) We are a not government-owned entity. [We are a government-owned entity but meet the requirements of ITB Sub-Clause 4.5
 - f) We, in accordance with GCC Sub-Clause 4.4 & Appendix to Bid, plan to subcontract the following key activities or parts of the works to the following sub contractors.

Name of Sub Contractor	Address	Key activity	Tentative Amount of the sub activity

(if no part to be sub contracted, indicate “none”)

- g) We understand that you may accept/ reject any Bidding cancel the Bidding process at any time and reject all the Bids and that you are not bound either to accept any Bids that you may received without incurring any liability to the Bidders, in accordance with ITB Clause 36.
- h) We understand that your Agency will not be liable for any such actions and will be under no obligation to inform the Bidder of the grounds from them.

3. Attached to this letter are copies of original documents defining²:
- i) the Bidder's legal status;
 - ii) the principal place of business;
 - iii) the place of incorporation (for Bidders that are corporations) or the place of registration and the nationality of the owner(s) for Bidders that are partnerships or individually owned firms).
4. J&K Economic Reconstruction Agency (ERA) and its authorized representatives are hereby authorized to conduct any inquiries or investigations to verify the statements, documents and information submitted in connection with this bid, and to seek clarification from our bankers and clients regarding any financial and technical aspects. This Technical Proposal Submission Sheet will also serve as authorization to any individual or authorized representative or any institute referred to in the supporting information to provide such information deemed necessary and requested by Government of Jammu & Kashmir to verify statements and information provided in this Bids, or with regard to the resources, experience and competence of the Bidder.
5. J&K Economic Reconstruction Agency (ERA) and its authorized representatives may contact the following persons for further information³

Name, Telephone and Fax No. of person

General and Management Information	
Personnel	
Technical Enquiries	
Financial Enquiries	

6. Appended to this Bids, we give details of the participation of each party, including capital contribution and profit/loss agreements, to the joint Venture or associations⁴. We also specify the financial commitment in terms of the percentage of the value of the/each contract, and the responsibilities for execution of the/each contract.
7. We confirm that in the event that we submit bid, that as well as any resulting contract will be:
- i) Signed so as to legally bind all partners jointly and severally; and
 - ii) Submitted with a Joint Venture agreement providing the joint and several liabilities of all partners in the event the contract is awarded to us.

² *The Bids by Joint Ventures, all the information requested in the documents to be provided for the Joint Venture, if it already exists, and for each party to the Joint Venture separately. The lead partner shall be clearly identified.*

³ *Bids by Joint Ventures shall provide on separate sheet equivalent information for each part to the Bids.*

8. The undersigned declare that the statement made and the information proved in the duly completed Bids are complete, true, and correct in every detail.

Name:.....
In the Capacity of
Signed
Duly authorized to sign the Bids for and on behalf of
Date

/ Bidders that are not Joint Ventures shall delete Para 6 & 7

Bid Security

Draft Format of Bank Guarantee

.....*Bank's Name and Address of Issuing Branch or Office*.....

Beneficiary: J&K Economic Reconstruction Agency, Jammu

Bid Security No.:

We have been informed that *name of the Bidder*. (hereinafter called "the Bidder") has submitted to you its bid dated (hereinafter called "the Bid") for the execution of *name of contract* under Invitation for Bids No Transport Jammu/NCB/03 ("the IFB").

Furthermore, we understand that, according to your conditions, bids must be supported by a bid guarantee.

At the request of the Bidder, we *name of Bank*. hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of *amount in figures* (. *amount in words*) upon receipt by us of your first demand in writing accompanied by a written statement stating that the Bidder is in breach of its obligation(s) under the bid conditions, because the Bidder:

- (a) has withdrawn its Bid during the period of bid validity specified by the Bidder in the Form of Bid; or
- (b) does not accept the correction of errors in accordance with the Instructions to Bidders (hereinafter "the ITB") of the IFB; or
- (c) having been notified of the acceptance of its Bid by the Employer during the period of bid validity, (i) fails or refuses to execute the Contract Agreement, or (ii) fails or refuses to furnish the Performance Security, in accordance with the ITB.

This guarantee will expire: (a) if the Bidder is the successful Bidder, upon our receipt of copies of the Contract Agreement signed by the Bidder and the performance security issued to you upon the instruction of the Bidder; and (b) if the Bidder is not the successful Bidder, upon the earlier of (i) our receipt of a copy your notification to the Bidder of the name of the successful Bidder; or (ii) twenty-eight days after the expiration of the Bidder's bid.

Consequently, any demand for payment under this guarantee must be received by us at the office on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 458.

.....*Bank's seal and authorized signature(s)*.....

Note: All italicized text is for use in preparing this form and shall be deleted from the final document

Technical Proposal

Personnel

Equipment

Site Organization

Method Statement

Mobilization Schedule

Construction Schedule

Others

Personnel

Bidders should provide the names of suitably qualified personnel to meet the requirements specified in Section 3 (Evaluation and Qualification Criteria). The data on their experience should be supplied using the Form below for each candidate.

Form PER – 1: Proposed Personnel

1.	Title of position*
	Name
2.	Title of position*
	Name
3.	Title of position*
	Name
4.	Title of position*
	Name
5.	Title of position*
	Name

*As listed in Section 3 (Evaluation and Qualification Criteria).

Form PER – 2: Resume of Proposed Personnel

Position		
Personnel information	Name	Date of birth
	Professional qualifications	
Present employment	Name of employer	
	Address of employer	
	Telephone	Contact (manager / personnel officer)
	Fax	E-mail
	Job title	Years with present employer

Summarize professional experience in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

[illegible]

Equipment

The Bidder shall provide adequate information to demonstrate clearly that it has the capability to meet the requirements for the key equipment listed in Section 3 (Evaluation and Qualification Criteria). A separate Form shall be prepared for each item of equipment listed, or for alternative equipment proposed by the Bidder.

Item of Equipment		
Equipment Information	Name of manufacturer	Model and power rating
	Capacity	Year of manufacture
Current Status	Current location	
	Details of current commitments	
Source	Indicate source of the equipment ☐ Owned ☐ Rented ☐ Leased ☐ Specially manufactured	

Omit the following information for equipment owned by the Bidder.

Owner	Name of owner	
	Address of owner	
	Telephone	Contact name and title
	Fax	Telex
Agreements	Details of rental / lease / manufacture agreements specific to the project	

Site Organization

Method Statement

Mobilization Schedule

Construction Schedule

Bidders Qualification

To establish its qualifications to perform the contract in accordance with Section 3 (Evaluation and Qualification Criteria) the Bidder shall provide the information requested in the corresponding Information Sheets included hereunder.

Form ELI - 1: Bidder's Information Sheet

Bidder's Information	
Bidder's legal name	
In case of JV, legal name of each partner	
Bidder's country of constitution	
Bidder's year of constitution	
Bidder's legal address in country of constitution	
Bidder's authorized representative (name, address, telephone numbers, fax numbers, e-mail address)	
Attached are copies of the following original documents. ☐ 1. In case of single entity, articles of incorporation or constitution of the legal entity named above, in accordance with ITB 4.1 and 4.2. ☐ 2. Authorization to represent the firm or JV named in above, in accordance with ITB 20.2. ☐ 3. In case of JV, letter of intent to form JV or JV agreement, in accordance with ITB 4.1. ☐ 4. In case of a government-owned entity, any additional documents not covered under 1 above required to comply with ITB 4.5.	

Form ELI - 2: JV Information Sheet

Each member of a JV must fill in this form

JV / Specialist Subcontractor Information	
Bidder's legal name	
JV Partner's or Subcontractor's legal name	
JV Partner's or Subcontractor's country of constitution	
JV Partner's or Subcontractor's year of constitution	
JV Partner's or Subcontractor's legal address in country of constitution	
JV Partner's or Subcontractor's authorized representative information (name, address, telephone numbers, fax numbers, e-mail address)	
Attached are copies of the following original documents. ☐ 1. Articles of incorporation or constitution of the legal entity named above, in accordance with ITB 4.1 and 4.2. ☐ 2. Authorization to represent the firm named above, in accordance with ITB 20.2. ☐ 3. In the case of government-owned entity, documents establishing legal and financial autonomy and compliance with commercial law, in accordance with ITB 4.5.	

Form LIT - Pending Litigation

Each Bidder or member of a JV must fill in this form

Pending Litigation			
☐ No pending litigation in accordance with Criteria 2.2 of Section 3 (Evaluation and Qualification Criteria)			
☐ Pending litigation in accordance with Criteria 2.2 of Section 3 (Evaluation and Qualification Criteria)			
Year	Matter in Dispute	Value of Pending Claim	Value of Pending Claim as a Percentage of Net Worth

Form FIN - 1: Financial Situation

Each Bidder or member of a JV must fill in this form

	Financial Data for Previous 3 Years in Indian Rupees		
	Year 1:	Year 2:	Year 3:
1. Total Assets			
2. Current Assets			
3. Total Liabilities			
4. Current Liabilities			
5. Profits Before Taxes			
6. Profits After Taxes			
7. Net Worth [= 1 – 3]			
8. Working Capital [= 2 - 4]			
9. Return on Equity [= 5 / 7 of prior year]			
☐ Attached are copies of the audited balance sheets, including all related notes, and income statements for the last three years, as indicated above, complying with the following conditions. • All such documents reflect the financial situation of the Bidder or partner to a JV, and not sister or parent companies. • Historic financial statements must be audited by a certified accountant. • Historic financial statements must be complete, including all notes to the financial statements. • Historic financial statements must correspond to accounting periods already completed and audited (no statements for partial periods shall be requested or accepted).			

Form FIN - 2: Annual Construction Turnover

Each Bidder or member of a JV must fill in this form

Annual Turnover Data for the Last 3 Years (Construction only)			
Financial Year	Amount and Currency	Exchange Rate	Amount in Indian Rupees

The information supplied should be the Annual Turnover of the Bidder or each member of a JV in terms of the amounts billed to clients for each year for work in progress or completed, converted to Indian Rupees at the rate of exchange at the end of the period reported.

Form FIN – 3: Financial Resources

Specify proposed sources of financing, such as liquid assets, unencumbered real assets, lines of credit, and other financial means, net of current commitments, available to meet the total construction cash flow demands of the subject contract or contracts as indicated in Section 3 (Evaluation and Qualification Criteria)

Financial Resources		
No.	Source of financing	Amount in Indian Rupees
1		
2		
3		

Form FIN- 4: Current Contract Commitments / Works in Progress

Bidders and each partner to a JV should provide information on their current commitments on all contracts that have been awarded, or for which a letter of intent or acceptance has been received, or for contracts approaching completion, but for which an unqualified, full completion certificate has yet to be issued.

Current Contract Commitments in Indian Rupees					
No	Name of Contract	Employer's Contact Address, Tel, Fax	Value of Outstanding Work in Rupees	Estimated Completion Date	Average Monthly Invoicing Over Last Six Months
1					
2					
3					
4					
5					

Form EXP – 1: General Construction Experience

Each Bidder or member of a JV must fill in this form

General Construction Experience				
Starting Month Year	Ending Month Year	Years	Contract Identification and Name Name and Address of Employer Brief Description of the Works Executed by the Bidder	Role of Bidder

Form EXP – 2: Specific Construction Experience

Fill up one (1) form per contract.

Contract of Similar Nature		
Contract No of	Contract Identification	
Award Date		Completion Date
Role in Contract	☐ Contractor ☐ Management Contractor ☐ Subcontractor	
Total Contract Amount		
If partner in a JV or subcontractor, specify participation of total contract amount	Percent of Total	Amount
Employer's Name Address Telephone/Fax Number E-mail		
Description of the similarity in accordance with Criteria 2.4.2 of Section 3		

Note:-

"A certificate of completion /Substantial completion and copy of work order must be enclosed for each of the contracts indicated for experience. The experience certificate must be signed by the authorized representative of department concerned."

SECTION-5

ELIGIBLE COUNTRIES

SECTION V. ELIGIBLE COUNTRIES

LIST OF ELIGIBLE MEMBER COUNTRIES OF THE ASIAN DEVELOPMENT BANK

- | | |
|--------------------------------------|---|
| 1. Afghanistan | 35. Micronesia, Federal States of |
| 2. Armenia | 36. Mongolia |
| 3. Australia | 37. Myanmar |
| 4. Austria | 38. Nauru, Republic of |
| 5. Azerbaijan | 39. Nepal |
| 6. Bangladesh | 40. Netherlands |
| 7. Belgium | 41. New Zealand |
| 8. Bhutan | 42. Norway |
| 9. Brunai Darussalam | 43. Pakistan |
| 10. Cambodia | 44. Palau |
| 11. Canada | 45. Papua New Guinea |
| 12. China, People's Republic of | 46. Philippines |
| 13. Cook Islands | 47. Portugal |
| 14. Denmark | 48. Samoa |
| 15. Fiji Islands, Republic of | 49. Singapore |
| 16. Finland | 50. Solomon Islands |
| 17. France | 51. Spain |
| 18. Georgia | 52. Sri Lanka |
| 19. Germany | 53. Sweden |
| 20. Hong Kong, China | 54. Switzerland |
| 21. India | 55. Tajikistan |
| 22. Indonesia | 56. Taipei, China |
| 23. Italy | 57. Thailand |
| 24. Ireland, Republic of | 58. Timor-Leste, Democratic Republic of |
| 25. Japan | 59. Tonga |
| 26. Kazakhstan | 60. Turkey |
| 27. Kiribati | 61. Turkmenistan |
| 28. Korea | 62. Tuvalu |
| 29. Kyrgyz | 63. United Kingdom |
| 30. Lao People's Democratic Republic | 64. United States of America |
| 31. Luxembourg | 65. Uzbekistan |
| 32. Malaysia | 66. Vanuatu |
| 33. Maldives | 67. Viet Nam |
| 34. Marshall Islands | |

SECTION-6

Employer's Requirements

Employer's Requirements

This Section contains the Specifications of work, supplementary information and Drawings, that describe the Works to be procured.

SPECIFICATIONS OF WORK

Technical Specifications

1.0 General

The Contractor shall carry out the Works based on the Technical Specifications included in this section.

The section comprises the following two parts:

- i) General Specifications
- ii) Particular Specifications

2.0 General Specifications

The General Technical Specifications for the Roads and Bridge Works shall be the "SPECIFICATIONS FOR ROAD AND BRIDGE WORKS (FOURTH REVISION - 2001)", as corrected in the original issued by the Ministry of shipping Transport and Highways, Government of India and published by the Indian Roads Congress (IRC), hereinafter referred to as MOSRT&H Specifications, with a cross reference to relevant Bureau of Indian Standards (BIS) for materials and other aspects not covered by the IRC.

The Technical Specifications covering the materials and the workmanship aspects as well as method of measurements and payments are included in this section. These specifications cover the items of roads and bridge works coming under scope of this document. All work shall be carried out in conformity with the same. These specifications are not intended to cover the minute details. The works shall be executed in accordance with good practices followed for achieving high standards of workmanship, thus ensuring safety and durability of the construction. All codes and standards referred to in these specifications shall be the latest thereof, unless otherwise stated.

3.0 Particular Specifications

Particular Specifications consist of the following sub-sections:

- Sub-section 1: Project Information
- Sub-section 2: Amendments/modifications/additions to the existing provisions of General Specifications
- Sub-section 3: Additional Specifications

4.0 Sub-section 1: Project Information

4.1 General

Sakhi Maidan to Kalai Road is located in Poonch District of Jammu and Kashmir State having length of 21.70 km. The district headquarters of Rajouri and Poonch are connected to Jammu by Jammu Rajouri Poonch State Highway No. 1 constructed and maintained by Border Roads Organisation. The road beyond Rajouri passes over Bhimber Gali popularly known as BG and turns North and proceeds towards Poonch via Surankot. From BG, another road proceeds towards Mendhar, which is a Tehsil headquarter further on to Balnoi, Jhangar and then towards the Line of Control with Pakistan Occupied Kashmir.

Sakhi Maidan Kalai is an important link road connecting a number of villages and this road will connect towns of Mendhar and Poonch with a large number of villages in the belt between Rajouri Mendhar Road and Rajouri Poonch Road.

The Road Sakhi Maidan to Kalai takes off approximately 3 kms away from Tehsil HQ of Mendhar on Balnoi road. The length of the road from Bhimber Gali to the starting point of Sakhi Maidan to Kalai road is about 23 km.

Kalai village is located on BG Surankot Poonch Road. The project road meets State Highway at Sindarah slightly short of Kalai. This road has been constructed and is being maintained by PWD Department (R&B) Division Poonch (J&K State). The construction of Road Sakhi Maidan Kalai was started from both ends and it has been completed up to Pathan Tir from Mendhar side. Therefore, 21.70 kms of the road is proposed to be upgraded to partially to intermediate and partially to single lane.

This road beyond this point up to 29th km has been taken in hand by the Mendhar Sub-Division under Poonch Division. The road will meet near village Sindarah on Rajouri - Poonch highway. The total length of road between Sakhi and Sindarah will be approx. 47 kms. The road from Sindarah side has also been taken in hand and as intimated by local PWD authorities and about 12 kms of road has been completed.

4.2 Terrain

The length of the road is 21.70 Kms is passing mostly in hilly terrain throughout. The project road starts at Km 3.00 on Mendhar - Poonch road with zero chainage at starting point on the right side of Mendhar - Poonch road. The sub-project road passes through various villages viz. Bharida, Tolal Satari, Kalaban, Gali Kalaban, Chack Monalla, Bhattidhar, Chitral, Pathantir, Jugal, Chhunga and Narol, before reaching village Shindarh.

4.2.1 Seismic Zone

The road generally lies in Seismic Zone IV.

4.2.5 PRESENT ROAD DESCRIPTION

4.2.5.1 Existing road Geometrics

The present road is single lane, partly laid with locally available hill cut material of coarse grain size, partly B.T. and lacks proper width, geometrics and last portion of the road has been partly completed up to GSB layer only.

The length of the road is 21.70 Kms and has a black top carriageway of 3.50 m, but in some stretches the surface of the black top is damaged particularly from km 14-600 to km 17. The condition of the pavement is rated from poor to fair particularly, the section from km 14-600 to 17 km is generally bad with cracks, potholes and pavement is in distress. It is proposed to widen the road and improve radii of curves. So it is proposed to improve it for the increased volume of traffic by widening, up-gradation including improvement of drainage because drainage in most of the road stretches is very poor. The traffic on the road is quite substantial and likely to increase further after completion and improvement of works.

4.2.5.2 Junctions

A number of link roads take off from the sub-project road and it is proposed to improve these junctions as per MORTH guidelines at Present it will be improved with earth work to meet up the requirements of the MORTH specifications. These junctions will make the settlements and are likely to be benefited are Bhatridar, Narol, Naketar, Chakbanola (Naketar), Chhunga, Kaliban, Pathan Tir, Jugal, Chitral etc.

4.2.5.3 Road Pavement

The road passes through hilly terrain and experiences extreme climatic conditions varying from moderate summer temperatures to sub-zero temperatures and snowfall in winter.

Sakhi Maidan-Kalai road takes off from Rajouri-Bhimber Gali-Mendher road at a distance of about 27 kms from Bhimber Gali, near village Sakhi Maidan. After passing villages Chaprail, Pathan Tir and crossing Kalaban ranges, the road finally reaches village Sindhra which is about 03 kms from village Kalai. The total length of road from Sakhi Maidan to Sindhra is about 47.0 kms. The length of road from Sakhi Maidan to the pass on Kalaban range is about 29.0 kumis.

During reconnaissance in June 2006, it was seen that a single lane road exists from Km 0.00 (Sakhi Maidan) upto only Km 21.70 (Pathan Tir). Beyond this point, the hill cutting for road formation has not been yet fully done.

From Km 0.00 to Km 17.00, it is a bituminous surfaced road. From Km 17.00 to Km 20.00, a 150-200 mm thick layer of coarse grained material, excavated from the hill side, has been laid as a leveling cum sub-base course. The remaining length, i.e. from Km 20.00 to Km 21.70, is earthen.

The condition of the road is generally bad. Cracks, potholes and other forms of pavement distress are seen at many places of the paved section.

The carriageway width of the road varies from 3 to 3.5 m.

At present, the volume of traffic on this road is low - about 200 CVPD as per reports of traffic surveys done in October/ November 2005. No addition of traffic lanes for capacity augmentation in the foreseeable future is therefore warranted.

Under this project, it is proposed to improve the 21.70 km length of road from Sakhi Maidan (Km 0.00) to Pathan Tir (Km 21.70). The sub project proposal envisages intermediate lane from Km 0 to Km 4.50 and from Km 4.50 to Km 21.70 a standard single lane carriageway of 3.75 m width road side drains, improved geometrics including softening of gradient, passing zones and a structurally adequate pavement for safe and efficient movement of traffic.

4.2.5.4 Right of way (ROW)

The road all along passes within ROW and therefore there is no acquisition of land in this sub project. At certain stretches the ROW varies from 4 to 8 meters.

4.2.5.5 Bridges & Culverts

There are no minor or major bridges in this sub project road. However there 3 no. existing causeways 10 HP culverts and 29 Slab culverts.

4.2.5.6 Soil Characteristics

Generally the land abutting the project road is agricultural and forest land. The topography of the area makes it suitable for hill agriculture. The climate of the area is more suitable for growing agricultural as well as horticultural crops. Step cultivation is usually prevalent along the hilly topographies. Maize is the important crop grown in the area. Besides vegetables are also grown. Agriculture is mainly rain fed. Dairy farming and sheep rearing are other important activities carried in the area.

4.2.6 Climate

The climate of the area is sub temperate to temperate.

Temperature

Temperature during the months of June to September is usually hot and humid. December onwards through February, temperature falls considerably. These are the coldest months. Night temperature is usually low, even during hot summer.

Humidity

The humidity levels in the area are observed as maximum up to 85% in the months of August-September and minimum humidity levels of 35-40% during May.

Rainfall

The precipitation is received in the form of southwest monsoon. July, August, and February are the rainiest months. Large variations in the rainfall pattern of the whole district has been observed. As per the records (J&K Digest of Statistics) annual rainfall of 1265mm, 1058mm, and 721mm, has been recorded for the years 2000, 2001 and 2003 respectively. Snowfall is received from December through February at higher stretches (elevations) along the road, at Kalaban, Pathan Tir.

Ambient Air Quality

As existing road is in bad condition, dust due to blowing of wind and movement of vehicle on damaged/unpaved portion is observed along the road. However, such dust particles get settled within short distances from the road.

Noise Levels

In the area along the project road, noise levels are generally low. However, at the inception point of road, which is the junction point with the main Mendhar-Poonch highway road, noise levels are comparably high due to the increased movement of vehicles. However, no large/small industrial activity has been observed along the project road.

Ecological Resources

The vegetation along the road and surrounding areas is represented by trees of *Pinus roxburghii*, *Alnus nitida*, *Robinia psuedocassia*, *Toona ciliata*, *Quercus sp.*, *Populus deltoides* and fruit trees of Pomegranate (Local sp.), Pear, Banana, along different stretches of road. For up-gradation of the project road about 280 trees may need to be cut.

Wildlife

No impact is anticipated in terms of the wildlife habitat alteration or its destruction. In short there is no protected area network along the project road.

Fisheries

Restricted fishing activity is observed in the drains of subproject area.

4.2.6.1 Scope of work

The scope of work include confirmatory surveys, widening and re-grading of Sakhi –Maidan – Kalai Road to intermediate lane from km 0 to km 4.5 and single lane carriageway of 3.75 m width from km 4.50 to km 21.70 and to execute to the project as per detailed designs of Employer satisfying the requirements set out in contract and technical specifications.

General Description of Contractor's Scope of Work

The Contractor's scope of work will include confirmatory surveys, planning, construction and maintenance of the Works. The descriptions given in this Section are outline description only such descriptions do not include or give full descriptions of all materials or other things to be

supplied or all the works and services to be executed by the Contractor in order to fulfill his obligations under the contract.

The principle elements of the Contractor's work are described in this section as follows: -

- Widening of the road
- Construction of Earth Retaining structures
- Maintenance of road during construction.
- Construction of new cross drainage structures (Hume pipe/Slab culverts.)
- Extension/ construction of old cross drainage works.
- Laying of GSB in locations of Regrading.
- Construction of Earthen drain
- Confirmatory survey

Planning of the Works

The Contractor is responsible for the planning of the Works as per Employers Design works and shall comply with the relevant paragraphs of the Technical Specifications of MOSRT&H, the latest guidelines/ circulars of MOSRT&H, and relevant publications of the Indian Roads Congress (IRC) and Bureau of Indian Standards (BIS), and other international standards specified in the contract.

4.2.6.2 The work shall be carried out through but not limited to the following activities:

- i) It is also made clear that intending bidder should visit the sites of Work and physically assess the activities those are involved for completing the Work, including the quantum of Work besides the information supplied in the bid document.
- ii) Preliminary Works like setting and maintenance of permanent benchmarks reference points central line of the carriageway etc shall also be made. It shall also include making adjustment in the layout if required as per site conditions and as directed by the Engineer or Employers representative. The layout shall be got approved from the Engineer or Employers representative before starting actual Work. Existing levels of the areas under the scope of Work shall also be recorded. Use of total station in survey Work shall be ensured.
- iii) Clearing of site for construction of the Work and all activities connected therewith before commencement of Work to the satisfaction of the Engineer or Employers representative.
- iv) Quality Assurance and Quality control based on the MOSRT&H and IRC publications manuals.
- v) Identification of services like, water supply lines, electric and telephone cables etc. well in advance of actual execution and shifting and I or protecting of same as & when necessary and as directed by the Engineer or Employers representative.
- vi) Dismantling of existing old Work such as bituminous Work, kerb stone, RCC slabs, footpath, old SW/RCC pipes, CC drains etc including disposal of malba complete. The dismantled materials are the property of the Line Agencies.
- vii) Provision for all safety measures for traffic, pedestrian, Workmen, machinery etc
- viii) Construction of temporary diversion as considered necessary by the Engineer or Employers representative
- ix) Providing adequate arrangement for barricading as per typical design and as directed by the Engineer or Employers representative at all required locations to cover the entire construction site including all T & P & materials. This shall include reflective signs, markings, flags, flashing lights; steel posts with GI cover sheets and flagman as directed by the Engineer or Employers representative.
- x) All associated Works for road drainage, road signs and junction improvements.

-
- xi) Maintenance and rehabilitation Works to all existing cross drainage in accordance with IRC MOSRT&H guidelines / Specifications.
 - xii) Maintenance, rehabilitation and widening Works to all existing culverts to match the widened road width. Replacement of severely damaged culverts by new ones.
 - xiii) Widening of existing road embankment.
 - xiv) All ancillary and incidental facilities required for execution of the Work e.g. labour camps, stores, offices for Contractors, Workshop facilities, watch and ward, temporary structure for plants and machinery, water storage structure, testing laboratory tube wells electric/ telephone installation and charges, liaison Work, protection Work during execution and not included in the main items, any other item/ activity contained elsewhere in the bid documents which is necessary for execution of Work in the opinion of the Engineer or Employers representative shall be the sole responsibility of the Contractor and accordingly the cost of same shall be borne by the Contractor.
 - xv) Repair/re-construction/making good damaged roads service lines storm water drains, water supply lines, electric cables, telephone cables etc and other structures/properly affected by any action/ inaction and activities of the bidder in the opinion of the Engineer.
 - xvi) Employers representative which shall be final and binding such repair/re-construction jobs shall be done as per direction of the Engineer or Employers representative.
 - xvii) Maintenance of the Project road in good condition by way of carrying out Patch Works, filling of ruts, depressions, pot holes and treating of bad stretches as and when required, right from the day the Contract is awarded till such time the Works are completed. The cost on account of these Works shall be deemed to be included in the Contract amount. Unless and other wise mentioned in BOQ.
 - xviii) Any other item relevant I necessary, in the opinion of the Engineer or Employers representative, required for completing the Work in all respect with all operations and Works mentioned in the bid document including all testing etc. complete as specified and as per approved drawings is required to be done by the Contractor as per direction of the Engineer or Employers representative.
 - xix) In case of defective construction by the Contractor or on account of any other reason attributable to the Contractor, if the Engineer or Employers representative. appointed by the department submit additional claims for re-designing on account of additional input by them, due to such reasons, the same shall also be borne by the Contractor. The opinion of the Engineer or Employers representative in these matters shall be final and binding
 - xx) Clearing of site to the satisfaction of the Engineer / Employers representative of the completion of entire Works handing over the same to the Employer.

4.2.6.3 The Contractor shall prepare a methodology and construction programme for each activity and submit to **Engineer or Employer** for approval. The methodology proposed by Contractor shall take into account traffic management, safety, environment issues etc.

4.2.6.4 Except as expressly stated in the Employer's Scope of Work, the Contractor shall obtain all permits, licenses and any other permission necessary for the execution and completion of the Works and pay all associated fees. He shall also give to the Engineer a copy of all relevant correspondence, minutes of meetings and other documents relating to the Contractor's permits and licenses.

4.2.6.5 Quality System

The Contractor shall establish and operate a Quality System and submit Quality System documentation and Quality Records in accordance with the Contract Documents. The Contractor shall monitor Quality and confirm compliance with the Contract.

4.2.6.6 Completion Activities

As part of his completion activities, the Contractor shall

- Provide as built documentation, such as drawings, calculations, etc of the Permanent Works (at least four printed and one electronic copy).
- Undertake commissioning tests as required by the Contract.

5.0 Sub-Section 2: Amendments/modifications/additions to the existing provisions of General Specifications(Technical)

This sub-section of Technical Specifications contains the amendments/ modifications/ additions to the clauses of MOSRT&H Specifications.

The clauses and sub clauses of the following sections in the "SPECIFICATIONS FOR ROAD AND BRIDGE WORKS (FOURTH REVISION – 2001)" have been amended / modified / added upon:

102,103,105,106,107,108,110,111,112,115,120,121,122,123,124,125,200,202,300,400,803, 806,807,808,1009,1400,1500,1600,1700,2706

All such amendment / modifications shall supersede the original Clause and or sub-Clause and whenever such amendment / modification / added Clause & Sub-Clause is referred to it will be considered to refer to the original Clause and or Sub-Clause.

In the absence of any definite provisions on any particular issue in the aforesaid Specifications, reference maybe made to the latest codes and specifications of IRC, BIS, BS, ASTM or AASHTO in that order. Where ever these are silent, the construction and completion of the works shall conform to sound engineering practice as approved by the Engineer and in case of any dispute arising out of the interpretation of the above, the decision of the Engineer shall be final and binding on the Contractor.

Clause 102 Definitions

The following abbreviations shall be added at the end of Clause 102.

"MOSRT&H"	-	Ministry of Shipping Road Transport & Highway, Govt. of India.
BIS	-	Bureau of Indian standards
CPCB	-	Central pollution control board
QA	-	Quality Assurance
BOQ	-	Bill of quantities
CECRI	-	Central Electro Chemical research Institute.

Clause 103 Materials & Test Standard

Add the following at the end of Clause 103

The latest addition of these standards till thirty days before the final date of submission shall be adopted.

Clause 105 Scope of work

Sub Clause 105.3 Substitute the following

"The Contractor shall institute and operate a quality management system complying with SP-47 (Quality systems for road bridges) and SP-57 (Quality system for roads). The quality management system shall be described in a Quality

Assurance Plan that shall be submitted to the Engineer for acceptance not later than 28 days after the Letter of Acceptance. The costs associated with preparing, implementing and monitoring the quality management system shall be deemed to be covered in the scope of the Work. The Quality Assurance Plan shall cover the following items:

- i. The Contractor's organization and management including:
 - The definition of the Contract and its documentation;

- The organization of the Contract, including the line of command and communication links between parties involved in the Contract;
 - Names, roles, responsibilities and authority of principles and key personnel;
 - Control of liaison and meetings with third parties;
 - Identification of the Contractor's staff responsible for overseeing each major activity;
 - Contractor's control of sub-Contracts;
 - Document control;
 - Program for submission of method statements;
 - Procedures for the preparation, review and adjustment of programmes for the effective progression of the Works;
 - Procedures for the regular review and recording by the Contractor of the quality of the Works;
 - Control of personal selection based on skill and experience;
 - Management review and audit to monitor and exercise adequate control over the implementation of the quality plan.
- ii. The Contractor's detailed method statements and construction procedures for each major activity whether directly controlled or subcontracted including:
- Plant and materials to be used, safety measures, the requirement for skilled labour and/or special supervision and Working space;
 - Delivering, handling and storage of materials;
 - Environmental control in respect of pollution, noise, dust, temperature, Working hours, traffic control etc;
 - Hold points i.e. the stages at which checks are necessary before continuing;
 - Work instructions, quality control procedures, compliance testing, inspection procedures and Work acceptance procedures.
- iii. The Contractor's construction quality control including;
- A statement of the Contractor's organization for quality control;
 - Control of test laboratories;
 - Control of test, measuring and inspection equipment;
 - Document control;
 - Procedure for monitoring and recording the inspection, test and approval status of the Works;

- Procedures for the collation of quality records and provision of copies to the Engineer;
- Procedures for the receipt, examination and verification of certificates of conformity and test results for purchased products."

Clause 106 Construction Equipment

Add the following after Sub Clause 106 (f)

- g) Adequate stand by equipment including spare parts shall be available as decided in consultation with the Engineer.
- h) All measuring devices and gauges shall be in good working conditions. Measuring devices that can affect quality shall be calibrated prior to use and at prescribed intervals against certified equipment Calibration procedures shall be established, maintained documented and corrective actions taken when results are unsatisfactory. Accuracy fitness of measuring devices shall be ensured by proper maintenance.

Clause 107 Contract Drawings

Replace the Clause with the following

The Contractor shall prepare all supplementary and working drawings with necessary field/construction information and the like for adequacy of construction methods and procedures etc and shall submit the same to the Engineer for approval prior to construction (progressively according to the work programme accepted by the Engineer shall be given not less than 7 days for review of these supplementary/working drawings and directed, the Contractor shall modify the drawings incorporating the comments and requirement of the Engineer.

Clause 108 Site Information

Delete Sub-Clause 108.4 and replace with the followings

The Contractor shall identify quarries; borrow areas and other sources of materials required for work. He shall satisfy himself that the required materials are available in adequate quantities, and complying with the requirements of specifications. No claims shall be entertained on account non-availability of materials and increase in leads.

"It is the sole responsibility of the Contractor to arrange the quarries, borrow areas, etc., license / lease basis or otherwise, and study in detail before bidding, the scope of taking the quarries on lease. Advance information must be collected by the Contractor regarding the procedure laying down and the consequent delay in arranging the quarries on lease and must make alternative arrangement to procure the quarry products from lease holders No separate payment will made for arranging such quarries, borrow areas.

Clause 110 Public Utilities

Delete Sub Clause 110.7 and replace with the following

- a. The Contractor shall carry out the shifting of the following utility by line deptt/or trough his own resources, like service lines:
 - Overhead and underground (if any), electricity /telephone /OFC lines.
 - Water supply mains and distributaries.
- b. All utility shifting and protective work shall be carried out only with the approval of the Engineer as per specifications and under the strict supervision of the concerned Department/ agency. For this purpose, the Contractor shall keep constant touch with the agencies.
- c. The shifting of all the amenities if done by line deptt. Will be treated as deposit work. The Contractor shall pay to the agency an amount equivalent to the estimated cost of shifting assessed by the Telecom Department. On production of receipt from the

Telecom Department, the same will be reimbursed to the Contractor by the Employer with 10% as processing charges to take care of contractor's overhead expenses and other deductions like taxes, extra.

- d. The work ordered by the Engineer to be done through contractors resources, the payment for such items shall be made as per conditions of contract.
- e. The serviceable materials, as ascertained by the Engineer shall be deposited at designated store yards or as directed by the Engineer. No payment shall be made to the Contractor in this regard.
- f. The Contractor shall carry out the protective work for underground telephone cables as per these Specifications and Drawings. The work shall be taken up with the expressed approval of the Engineer and under the strict supervision of the Telecom Department.
- g. The Contractor is advised to ascertain the extent and the nature of the shifting work involved before commencement of work.

Clause 111 Precautions for safeguarding

Sub-Clause 111 Precautions for safeguarding the Environment.

Sub-Clause 111.1 General

Delete the text of Clause 111.1 in its entirety and substitute the following:

"The Contractor shall take all necessary measures and precautions and otherwise ensure that the execution of the Works and all associated operations on site or off-site are carried out in conformity with statutory and regulatory requirements including those prescribed elsewhere in this document. The provisions specified in the Environment Implementation Plan given in Section second of these Specifications shall be followed as guidelines. Report shall be followed as guidelines.

The Contractor shall take all measures and precautions to avoid any nuisance or disturbance arising for the execution of the Works. This shall wherever possible be achieved by suppression of the nuisance at source rather than abatement of the nuisance once generated. All vehicles deployed for material haulage shall be spillage proof.

Haul roads shall be inspected at least once daily to clear any accidental spillage. In the event of any spoil, debris, wastes or any deleterious substance from the Site being deposited on any adjacent land, the Contractor shall immediately remove all such material at no cost to the Contract and restore the affected area to its original state to the satisfaction of the Engineer."

Sub-Clause 111.2 Borrow Pits for Embankment Construction

Delete the text of Clause 111.2 and substitute the following:

"Prior approval shall be sought from the concerned State Authorities, and the Contractor shall comply with all local environmental regulations. For all borrow areas, the actual extent of area/zones to be excavated shall be demarcated with the signboards and the operational areas shall be access controlled.

In the case of borrow from the dry highlands, all borrow areas shall be reinstated by the formation gentle side slopes, re-vegetated and connected to the nearest drainage channel to avoid the formation of pools during/after the rainy seasons.

Plant and machinery used in the borrow areas shall conform to State noise emission regulations. All operation areas shall be water sprinkled to contain dust levels to the National Ambient Air Quality Standards."

Sub-Clause 111.3

Quarry Operations

Delete the text of Clause 111.3 and substitute the following:

"Aggregates shall be sourced from approved sites that comply with the local/state environmental and other applicable regulations. Occupational safety procedures/practices for the Work force in all quarries shall be in accordance with applicable laws. Quarry and crushing units shall have adequate dust suppression measures, such as sprinklers, in Work areas and along all approach roads to the quarry sites in case Contractor install his own query and crusher units."

Sub-Clause 111.8

Add the following text at the end of Clause 111.8:

Water tankers with suitable sprinkling system shall be deployed along the haulage roads and in the Work sites. Water shall be sprinkled regularly all along the routes to suppress airborne dusts from truck/dumper movements particularly on unpaved roads. Actual frequency will be agreed with the Engineer to suit site conditions."

After Clause 111.12

add the following new Clauses 111.13 to 111.23

Sub-Clause 111.13

Haulage Roads

Existing roads used for hauling shall be strengthened and/ or widened by the Contractor in accordance with the requirements for normal and construction traffic. Where such roads are not existing, the Contactor shall construct project specific single lane unpaved roads in settlement areas and gravel roads in open areas conforming to the Ministry of Shipping Road Transport and Highways (MOSRTH) Specifications.

The alignment of the haulage roads shall be fixed to avoid agricultural land to the extent possible. In unavoidable circumstances, suitable compensation shall be paid to the people whose land will be temporarily acquired for the duration of the operations. The compensation shall cover for loss of income for the duration of temporary acquisition and land restoration

Material dumping sites shall be access controlled to prevent the unauthorized entry of the people, grazing cattle and stray animals.

Haulage roads shall be reinstated upon completion of hauling for the use of local communities."

Sub-Clause 111.14

Water Sources and Water Quality

The Contractor shall provide independent sources of water supply, such as bore wells, local water resources at Nallah and rivers as the case may be for use in the Works and for associated storage, Workshop and Work force compounds. Prior approval shall be obtained from the relevant State Authorities and all installations shall be in compliance with local regulations. Bore wells installed and used for the project shall be left in good operating condition for the use of Employer and local communities. The Contractor shall prevent any interference with the supply to or abstraction from, and prevent any pollution of water resources (including underground percolating water) as a result of the execution of the Works.

Areas where water is regularly or repetitively used for dust suppression purposes shall be laid to fall to specially constructed settlement tanks to permit sedimentation of particulate matter. After settlement, the water may be re-used for dust suppression and rinsing. The Contractor shall protect all watercourses, waterways, ditches, canals, drains, lakes and the likes from pollution as a result of the execution of the Works. All water and other liquid waste products arising on the Site shall be collected and disposed of at a location on or off the Site and in a manner that shall not cause either nuisance or pollution.

The Contractor shall at all times ensure that all existing stream courses and drains within, and adjacent to, the Site are kept safe and free from any debris and any materials arising from the Works. The Contractor shall not discharge or deposit any matter arising from the execution of the Works into any water except with the permission of the Engineer and the regulatory authority concerned.

Work force camps shall have septic tank and soak away pits. Operational areas like POL storage areas/hot mix plant areas shall comply with local/state environmental regulations and safety procedures. Storage and handling areas shall be impervious and surrounded by an impervious lined drain to catch any accidental spills. Storm water shall be stored in lined holding tanks with oil, grease-tapping facility prior to disposal in to nearby watercourses. The trappings and sludge of holding tanks shall be disposed off in accordance with the procedures approved by the local regulatory authority.

Sub-Clause 111.15 Equipment and Vehicles used for the Works

Equipments and vehicles deployed for the construction activities shall be in good condition. Equipments used for road and bridge Works shall be based on new technology and shall generate noise and pollutants not exceeding the limits specified by the relevant State Authorities. Vehicles and machineries used for road and bridge Works are to be regularly maintained to conform to the National Air Quality Standards.

Sub-Clause 111.16 Air Quality

The Contractor shall device and implements methods of working to minimize dust, gaseous and other air-borne emissions and carry out the Works in such a manner as to minimize adverse impacts on the air quality

The Contractor shall utilize effective water sprays during delivery, manufacture, processing and handling of materials when dust is likely to be created, and to dampen stored materials during dry and windy weather. Stockpiles of friable materials shall be covered with clean tarpaulins, with applications of sprayed water during dry and windy weather. Stockpiles of materials or debris shall be dampened prior to their movement, except where this is contrary to the Specification.

Any vehicle with an open load-carrying area used for transporting potentially dust-producing material shall have properly fitting side and tail boards. Materials having the potential to produce dust shall not be loaded to a level higher than the side and tail boards and shall be covered with clean tarpaulins in good condition. The tarpaulin shall be properly secured and extend at least 300mm over the edges of the side of the side and tail boards.

The Contractor shall monitor air-quality as per Contract condition. Air quality parameters will include SPM, RPM, SO₂, NO_x, HC and CO. Operational areas shall be as per specified environmental monitoring plan.

Sub-Clause 111.17 Noise Control

The Contractor shall consider noise as an environmental constrain in the planning and execution of the Works.

The Contractor shall take all necessary measures so that the operation of all mechanical equipment and construction processes on and off the site shall not cause any unnecessary or excessive noise, taking in to account applicable environmental requirements. The Contractor shall use all necessary measures and shall maintains all plant and silencing equipment in good conditions so as to minimize the noise emission during construction Works.

Any member of the Work force likely to be exposed to beyond their threshold noise levels shall be provided with protective equipment, such as earplugs etc.

In the settlement areas the construction operations should be limited to daytime hours only.

Sub-Clause 111.18 Vibration Control

The Contractor shall take measures during construction activities to control the movement of the Work force and construction machinery/equipment, and to avoid/ minimize activities, which produce vibrations.

Sub-Clause 111.19 Construction Camps

The construction camps shall conform to the State and National building regulations as applicable. The area for the storage of polluted materials shall be stored on impervious floors and shall be surrounded by impervious ditches in order to avoid spilling of polluted material to surrounding areas.

Construction camps shall be properly arranged to avoid noise, water and air pollution to avoid contamination of river and canals from wastewater drainage and to nearby habitants a sanitation system and pollution control should be planned and got approved from Engineer. Sanitation system should be properly laid out to ensure cleaning of sites.

Sub-Clause 111.20 Control and Disposal of Wastes

The Contractor shall control the disposal of all forms of waste generated by the construction operations and in all associated activities. No uncontrolled deposition or dumping shall be permitted. Wastes to be so controlled shall include, but shall not be limited to, all forms of fuels and engine oils, all types of bitumen, cement, and surplus aggregates, gravels, bituminous mixtures etc. The Contractor shall make specific provision for the proper disposal of these and any other waste products, conforming to local regulations and acceptable to the Engineer.

Spilling of oil and bituminous products during construction and transport shall be avoided to reduce the chances of contamination of surface as well as ground water.

Degraded materials shall be disposed of in a manner as approved by the Engineer. The Contractor shall make arrangements to cleanup spoil as soon as the Work finishes in a stretch. If such sites are located outside the ROW, restoration of the site to a level acceptable to the land owner(s) will be carried out within a time period agreed between landowner(s) and the Contractor. Separators shall be used to separate POL materials from wastewater prior to discharging to the watercourses or as approved by the Engineer in conformance with directives and guidelines.

Disposal of solid waste materials (if required) shall be outlined in a plan for which environmental clearances shall be obtained from State environmental regulatory authorities. Potential locations for solid waste disposal are the natural depressions and borrow areas.

Sub-Clause 111.21 Transport of Hazardous Materials

Transport of al hazardous materials, in bulk or in sealed containers, shall meet the requirements of the State regulations. Prior to ordering transport of hazardous material in bulk, the Contractor must obtain the approval of the relevant authority as well as of the Engineer. Precautionary measures and conformity with regulations shall be stated in a Method Statement for the approval of the Engineer. Sealed containers of hazardous materials shall be stored in a well-ventilated room, well guarded and secured.

Sub-Clause 111.22 Emergency Response

The Contractor shall plan and provide remedial measures to be implemented in the event of occurrence of emergencies such as spillages of oil or bitumen or chemicals. The Contractor shall provide the Engineer with a statement of the measures he intends to implement in the event of such an emergency, which shall include a statement of how he intends to provide personnel adequately trained to implement such measures.

Sub-Clause 111.23 Measurement

"For compliance of all provisions made in this Clause 111, it shall be deemed to be incidental to the Work and no separate payment shall be made. The Contractor shall be deemed to have made allowance for such compliance with these provisions in the preparations of his prices for items of Work included in the Bills of Quantities and full compensation for such compliance shall be deemed to be covered by them", No extra claim is payable on account on above such activities.

CLAUSE 112 ARRANGEMENTS FOR TRAFFIC DURING CONSTRUCTION

Sub-Clause 112.1 General

Delete the last sentence and add the following:

"Two weeks before undertaking Work which would involve any obstruction whatsoever to traffic the Contractor shall submit for the Engineer's approval, the traffic control plan, and the plan shall include:

I) Typical drawings for temporary diversions in accordance with Sub-Clause 112.3

ii) Typical details of arrangements for construction under traffic including details of traffic arrangements proposed to be in place after the cessation of Work each day.

Special consideration shall be given in the preparation of the Traffic Control Plan for the safety of pedestrians and Workers and delineation of the roadway at night.

Temporary diversions will be constructed only with the approval of the Engineer and will generally only be constructed at bridge/cross drainage structure sites where new bridges/cross drainage structures are to be located on the existing road alignment." All this activity shall be incidental to Work and shall be deemed to have been included in the Contract price.

Clause 112.2

This clause shall read as under.

"For widening and strengthening of the existing carriageway where part width of the existing carriageway is proposed to be used for passage of traffic, unpaved shoulder shall be provided on one side of the existing road with the following minimum requirement to be provided by the Contractor:

i) Sufficient width for movement of vehicular traffic to remain open all the time as directed by Engineer in charge.

Sub clause 112.3

This Clause is deleted and substitutes as under.

Contractor will ensure smooth traffic during road construction from available ROW to ensure smooth traffic.

Sub- Clause 112.4 Traffic Safety and Control

Add the following para in the end of Clause 112.4

The Contractor shall submit to the Engineer detailed proposal covering safety measures proposed to be adopted at site.

Persistent breaches of the safety provisions by the Contractor and his employees shall constitute a sufficient cause for action.

The Contractor shall also observe the following additional safety provisions. Before taking up any construction an agreed phased programme for providing barricading or other suitable system of the approved design as per drawing and other safety measures shall be drawn in consultation with the engineer.

- The barricading or alternative system shall be erected / imposed on either side of the carriageway portion/portion of the carriageway where any construction activity is taken up on or along side of the existing carriageway, if required.
- Contractor shall provide required flagmen to marshal the traffic on diversion wherever diversion of traffic is resorted if required as per directions of Engineer.
- Construction shall provide required proper sized signages for the information of the road user.
- A safety officer shall be nominated to prepare safety programme and oversee the safety arrangements at site

Clause 112.6 All these items are incidental to Work.

Clause 115 Methodology and Sequence of Work

Add sub clause 115.1 after clause 115 as under:-

Sub Clause 115.1 Approval of proprietary product / process / system

Only proprietary items proven by International / National usage in comparable projects shall be permitted to be used. Fully authenticated details of licensing and collaboration arrangement shall be submitted by the manufacturer, where relevant

Within 90 days of award of Work the Contractor shall submit the following Information for all proprietary products for approval by the Engineer:

1. Name of manufacturer, name of product / process / system:

Complete details of the manufacturer of the product/ process/system shall be furnished. Details of projects where similar product/process/system has been successfully used shall be furnished. Authenticated copies of license / collaboration agreement shall be furnished.

2. General features of the product/process/system:

Detailed write up with methods statements shall be furnished for each product / process / system. This shall include complete working drawings & installation drawings, technical specifications covering fabrication, materials, system of corrosion protection, etc.

3. Details of product development and development testing:

4. Acceptance test and criteria:

Manufacturer shall submit a quality assurance system document. Details of acceptance test and criteria of acceptance shall be furnished in this document.

-
5. Installation procedure;
 6. Maintenance procedure and schedule; and
 7. Warranty proposal

The Engineer may order any additional tests for accepting the product. The manufacturer shall make the facility for such additional tests available. The charges of these additional tests shall be borne by the Employer.

Clause 120 Clause is deleted and substituted as under :

Contractor shall set up 100 Square meters of site office for Engineer. work includes electricity supply, all electrical items, providing water supply in office with furniture like 2 number office table, 4 no chairs, Steel Almirah, air cooler, for which land will be provides by Employer or in case the land is not available rented office accommodation may be provided with approximate floor area of 50 sq meters.

The cost & hire charges and maintenance of said office is incidental to works and will not be paid extra.

Clause 121 Field Laboratory

The equipped field laboratory shall be provided as per MOSRT&H Clause 121.1 to 121.3 and Clause 121.5.

Clause 121.4

This Clause is not applicable

Clause 121.7

This Clause shall be read as under

The cost of provision of field laboratory including supply of laboratory equipment and also provide adequate number of qualified personnel, erection, maintenance and running of laboratory include all consumable like chemicals and reagents shall be deemed to have been included in the contract price and no payment in this regard will be made and is incidental to work.

Clause 122 Site residential accommodation for Engineer and other Staff.

Sub Clause 122.2 Delete the words and add replace the second sentence

"In case land is not available, the contractor will arrange hired accommodation with minimum 2 set of rooms including WC Bathroom and Kitchen with floor area with 50 Sq meter with furniture and well furnished for which the contract unit rate may be given on floor area basis. The electric fittings, water points and its accessories line fittings etc. the billing charges of electricity, water fee, maintenance of rooms are incidental to work and no extra payment will be made in this regard and is incidental to work.

Clause 123 Providing and Maintaining wireless communication system

The heading of this clause shall be read as
Providing and Maintaining Mobile Phones for the employer/ engineer

Sub –Clause 123.1 The existing clause shall be replaced as under:

The work covers the provision and maintenance of mobile phones of approved make and quality including sim-cards. The rate includes the monthly billing charges /rental charges shall be paid regularly by the contractor till finalization of work.

Sub –Clause 123.2	Add these words after the sub clause “The rates for mobile phones shall cover the cost, repair and payment of monthly bills till completion of work”.
Clause 124	Providing and Maintaining Vehicles for the Engineer. The title of the clause should be replaced as providing and maintaining vehicle for the Engineer /Employer.
Sub Clause 124.2	Replace the second paragraph and read as under: The Diesel driven fresh model with 5 seater capacity in good running condition and for a run of not more than 2000 km approx. per month for which the item rate should be provided vehicle per day.
Sub Clause 124.6	Rate This clause should be read as under: This includes drivers Salary, Maintenances of vehicle, insurance cover valid licence including all taxes and fuel. All these items should be deemed incidental to the work.
Clause 125	Supply of colour records photographs and Albums.
Sub Clause 125.01	Scope Read this clause as under: The colour photographs should be of post card size mounted in albums contains two copies each. The work includes interesting and novel features of the work as desired by the Engineer. The cost of professionally Photographer, cost of materials developing and printing and the negative of each photograph, transport charges of photographer shall be deemed to be part of work and no extra is payable.
SECTION 200	SITE CLEARANCES
Clause 201	CLEARING AND GRUBBING
Clause 201.1	Scope Replace with following Para: This Work shall consist of cutting, excavating, removing, and disposing of all materials such as trees, bushes, shrubs, stumps, roots, grass weeds, rubbish etc. and top soil up to 150 mm, which in the opinion of Engineer is unsuitable for incorporation in the Work including draining out stagnant water if any from the area of road land, drain, cross drainage structure and other area as specified in the drawing or instructed by Engineer. It shall include necessary excavation by harrow discs or any other suitable equipment, back filling of the pits by suitable soil, resulting from uprooting of trees & stumps and making the surface in proper grade by suitable equipment and compacted by power roller to required compaction as per Clause 305.3.4. The Work also includes handling, salvaging and disposal of cleared material. Clearing and grubbing shall be performed less than one month in advance of earthwork operation and in accordance with, requirement of these Specifications. Diversion and filling of existing Water courses along the road alignment shall be as per Additional Specification A-1.
CLAUSE 202	DISMANTLING CULVERTS, BRIDGES AND OTHER STRUCTURES/ PAVEMENTS
Sub-Clause 202.5	Disposal of Materials The first paragraph of the sub clause shall read as below

	All materials obtained on dismantling shall be the property of Employer. The Contractor may give / quote rebate for such dismantled material in his bid proposals. After the rebate the Contractor is permitted to dispose off the materials with all lifts and leads. The Contractor may use suitable materials satisfying the required standards in the Works with approval of the Engineer
Clause 300	EARTHWORK, EROSION CONTROL AND DRAINAGE
Clause 301	EXCAVATION FOR ROADWAY AND DRAINS
Sub-Clause 301.1	Scope Add the following as second paragraph under this clause: "The Work shall also include excavation for channel training at culverts/bridges, excavation of existing shoulders and medians for purposes of widening the pavement and excavation of existing embankment for reconstruction to specification."
Sub-Clause 301.2.1	Classification Add at the end of para (a): "Conglomerates and boulders not requiring blasting having maximum dimension in any direction upto 300mm shall also be covered under this category" Delete "and conglomerates" from first line of para b (i) Delete the words beginning "gravel and cobble" upto "75 and 300mm" in Para b (ii) Delete para b (iv) "Hard Rock (controlled blasting) Hard rock requiring blasting as described under (c) but where full scale blasting is prohibited for any reason and excavation has to be carried out by less quantity of explosive placed at pre-determined critical locations so that maximum returns can be had".
Sub-Clause 301.3.5	Rock Excavation The first sentence of first para shall read "Rock, when encountered in road excavation shall be removed upto base of WMM".
Clause 301.3.11	Disposal of excavated materials Delete this sub-clause and replace with: "All the excavated materials shall be the property of the Employer. Suitable material obtained from the excavation of the roadway, shoulders, verges, drain, cross drainage Works, etc. shall be used for: i) Filling for roadway embankments ii) Filling existing pits in the right of way as directed by the Engineer, including levelling and spreading. iii) For landscaping of the road as directed by the Engineer, including levelling and spreading, with all lifts and leads. Excavated rock shall also be available for converting into aggregates and other item of Works and (other than embankment construction) after taking prior approval of the Engineer and affording due credit in his bid proposal. The Contractor shall remove unsuitable and surplus material, which, in the opinion of the Engineer cannot be used in the Works, from site and disposed off at the approved location in accordance with all statutory requirements as approved by the Engineer with all lifts and leads.

Clause 301.9.1	Delete sub Para (ii) and read as under: "The transporting the excavated material & depositing the same at appropriate locations/site of embankments & filling including all leads & lifts shall be carried out by the Contractor. No claim in this regard is payable"
Clause 401	GRANULAR SUB BASE
Sub-Clause 401.1	Scope Add the following at the end of this Clause: "A site trial shall be performed in accordance with Clause 901.16."
Sub-Clause 401.2	Materials
Sub-Clause 401.2.1	Para 1 of this Clause shall be read as under: "The material shall be free from organic or other deleterious constituents and conform to the Grading II given in Table 402 Delete Para 2 of Clause 401.2.1.
Sub-Clause 401.2.2	Physical Requirements Add at the end of this clause as under: The Contractor shall, at least 21 Working days before the commencement of the construction of the sub-base course, submit to the Engineer, the results for approval of the laboratory testing on the physical properties defined above. The construction of the sub-base course having PI value not more than 6 shall be taken up only upon the Engineer's approval of the material.
Sub-Clause 401.3	The clause shall read as follows: It shall be ensured prior to actual execution that the material to be used in the sub-base as per table 400-2 grade –II, MOSRT&H. When directed by the Engineer, this shall be verified either by performing CBR tests in the laboratory or by conducting DCP test. The CBR tests shall be conducted on specimen soaked for 4 days and compacted to 98% of the maximum dry density as per IS: 2720 (Part 5). When decided by the Engineer – Dynamic Cone Penetration (DCP) tests shall be performed in-situ as per TRRL (UK) Road Note No. 31 and in situ CBR calculated by co-relation given by TRRL.
CLAUSE 803	ROAD MARKINGS
Sub-Clause 803.2	Materials This clause shall read as under: "Road markings shall be hot applied thermoplastic compound and the materials shall meet the requirements as specified in Clause 803.4. The road markings shall be laid in one layer with appropriate road marking machine approved by the Engineer. Before the road-marking machine is used on the permanent Works, the satisfactory Working of the machine shall be demonstrated on a suitable site, which is not part of the permanent Works. The rate of application shall be checked and adjusted as necessary before application on a large scale is commenced, and thereafter daily."
Sub-Clause 803.3	Ordinary Road Marking Paint This Clause shall be deleted.
Sub-Clause 803.5	Reflectorised Paint This Clause shall be deleted.

Sub-Clause 803.6 Application

Add the following Sub-Clause at the end of this Clause:

Sub-Clause 803.6.6 Tolerances

i) General

Road traffic markings shall be constructed to accuracy within the tolerances given below:

- The width of lines and other markings shall not deviate from the specified width by more than 5%.
- The position of lines, letters, figures, arrows and other markings shall not deviate from the true position specified by more than 20 mm.
- The alignment of any edge of a longitudinal line shall not deviate from the true alignment by more than 10 mm in 15 m.
- The length of segments of broken longitudinal lines shall not deviate from the specified length by more than 150 mm.

In broken lines, the length of segments and the gap between segments shall be as indicated on the Drawings. If these lengths are altered by the Engineer, the ratio of the lengths of the painted Sections shall remain the same.

Line and curves, whether broken or unbroken, shall not consist of chords but shall follow the correct radius.

ii) Faulty Workmanship or Materials

If any materials not complying with the requirements is delivered at the Site or used in the Works, or if any sub-standard Work is carried out, such material or Work shall be removed, replaced or repaired as required by the Engineer, at the Contractor's own cost. Rejected traffic markings and paint that has been splashed or has dripped onto the surfacing, kerbs, structures or other such surfaces shall be removed by the Contractor at his own cost, in such a way that the markings of split paint will not show up again later."

CLAUSE 806 BOUNDARY STONES

Sub-Clause 806.1 General

Add at the end of Para 1, "The boundary stones shall be of concrete as shown in drawing." The words 'Employer' should be engraved on each stones appropriately.

CLAUSE 807 FENCING

Sub-Clause 807.1 General

This clause shall be read as follow:

"The Work comprises of fixing GI chain link fencing system Mesh size 75 mm x 75 mm height of fence 1.0 m with posts, supports, allied wires & accessories as per drawings and Specifications and subject to approval of the Engineer.

Sub-Clause 807.2 This Clause shall be read as follows:

-
- a) Chain link Mesh: 3.00 mm Dia. Galvanised Chain link fencing, mesh 75 x 75 mm. Height: 1.8 m.
 - b) Posts (Stiffner/Corne & End): Made out of ISMC 75 & flat 75X6 placed at every 2.0 m centers.
 - c) Additional angle iron supports with ISA 40X40X6 shall be provided at Stiffener post & corner post/ End post
 - d) Finishing: All posts, supports & Accessories shall be Hot Dip Galvanized (zinc coated, 0.22 kg per sqm; minimum single spot confirming to relevant IS Specifications)

Sub-Clause 807.3 Deleted.

Sub-Clause 807.4 This Clause shall be read as follows:

Entry gate should be made of similar material of fence.

Sub-Clause 807.6 **Rate**

This Clause shall be read as follows:

“The Contract unit rate for fencing shall be payment in full compensation for furnishing all labour, materials, tools, equipment, excavation, concreting assembly/fabrication and installation at site and all other incidental costs

Clause 1009 Steel

Clause 1009.3 Reinforcement / untensioned steel

Add the following note under table 1000-3

Thermo Mechanically Treated Bars (TMT bars) Conforming to IS: 1786 may also be used.

Clause 1400 Stone Masonry

Clause 1404 Type of Masonry

Replace the first paragraph of this Sub-clause with.

The type of masonry used for structures, drains, manholes, etc shall be random rubble (RR) masonry. For bridgework, culverts, generally coursed random rubble masonry shall be used.

Clause 1502 Materials

This clause shall read as under

“All materials shall comply with the requirement of IRC 87 (Latest Version).

Materials and components used for formwork shall be examined for damage or excessive deterioration before use or reuse and shall be used if found suitable after necessary repairs. The steel used for forms shall be of such thickness that the forms remain true to shape. All bolts should be countersunk. The use of approved internal steel ties or plastic spacers shall be permitted. Structural steel tube used as support for forms shall have a minimum wall thickness of 4 mm.

Clause 1605 Placing of Reinforcement

Paragraph (c) (I) of clause 1605 shall read as follows

Cover blocks shall be made of concrete with the same durability properties as the surrounding concrete and with the same type of constituents. In visible surfaces, the cover

blocks shall be of the same colour and texture as the surrounding concrete. The Contractor's proposal for cover blocks shall be submitted to the Engineer for acceptance.

Add the following as Clause 1605 (f)

Tolerances

1. Tolerance of cover Deviation shall not exceed + 10 mm No negative tolerance is allowed
2. Tolerance in position: Tolerance for deviation from the positions shown in the drawings shall not exceed the following:

<u>Structural depth d (mm)</u>	<u>Tolerance (mm)</u>
d < 1000	< 10
1000 < d < 2000	< 0.01d
2000 < d	< 20

Clause 1707 Equipment

Para a) (i) & (ii) of this clause shall read as under

- a) For production of concrete
 - i) Batching and mixing of the concrete shall be done using the plants approved by the Engineer.
 - ii) In special cases, for culverts, the Engineer may allow mixing of concrete by a diesel or electrically operated mechanical mixer with integrated weigh batching facility having a capacity of 500 liters and automatic water measuring system.

Clause 812 Covered Drain

Covered drain wherever provided, shall be constructed with R.R. Masonry and the inner surface finished with 20 mm cement plaster (CM 1:4). The drain cover shall be RCC M-20 slab as shown in the Drawings and as per relevant clauses of these Specifications. The dimensions level and line of the drain shall be as directed by the Engineer.

Clause 2706 WEEP HOLE

This clause shall read as under:

"Weep holes shall be provided in solid plain concrete/reinforced concrete brick or stone abutments, wing walls, return walls as shown in the drawing or as directed by the Engineer to drive moisture from the back filling. Weep holes shall be provided with the pipes indicated in the bill of quantity and shall extend through the full width of concrete with slope of about 1 vertical:20 horizontal towards the draining face.

The spacing of weep holes shall generally be 1m in either direction or as shown in the drawing with the lowest at about 150 mm above the low water level

Section 3000 Maintenance of Road

Clause 3001 General

Add after the Paragraph the maintenance of road is incidental to work unless and otherwise specified in BOQ.

Supplementary Information

1. Jammu and Kashmir State

- 1.1 The state of Jammu & Kashmir situated in the north of India shares the international boundary with Pakistan and China. The state has three main natural regions, namely Jammu, Kashmir and Ladakh. However, for administrative purposes, the state is divided into two main divisions, Kashmir with eight districts (including two districts of Ladakh region) and Jammu with six districts.
- 1.2 The population of Jammu and Kashmir as per 2001 Census is 10,069,917 sharing 0.98 percent of India's population. The population growth rate in the state has been consistently high and during 1981-2001 it was more than 2 percent. Its geographical area is 222,236 sq. km with a share of 6.76 percent of the country's size. About 54 percent of the population in the state is literate, as against the national literacy rate of 65.38 percent.
- 1.3 Agriculture, the predominant sector of the economy of Jammu and Kashmir, supports about 80 percent of its population. Rice is the chief crop of Kashmir zone, followed by maize, barley and wheat. Jammu region dominates both in maize and wheat production. In the Ladakh region, barley is the major cereal crop followed by wheat. The production of three important food crops, namely, rice, maize and wheat, contributes a major portion of the food grain in the state and accounts for 84 percent of the total cropped area; the balance 16 percent is shared by inferior cereals and pulses. Nearly 75 percent of the country's temperate fruits, mainly apples, are grown in the state.
- 1.4 Jammu and Kashmir is an industrially backward state without a strong industrial base. However, many small and medium-scale industries have come up both in the traditional and new areas in the state. The handloom and handicraft industry, the state's oldest traditional cottage industry, has special socio-economic significance due to its vast potential for economic activities like the generation of employment and revenue.
- 1.5 Tourism has emerged as an important and one of the major contributors to the state's economy. There are various places of tourist attraction in the state being visited by both the foreign and domestic tourists.

2. Proposed Road Sub-Project:

- 2.1 Sakhi Maidan Road takes off approximately 3 km away from Tehsil HQ of Mendhar –Baloni Road. The road from km 0 to 21.70 proposed in this scheme will be improved from sakhi Maidan to Pathan Tir (Km21.70). The 17 km long will be widened/re grading for intermediate lane0 to 4.5km and single lane standard for Km 4.50 to km 21.70 in Lot-I by way of earthwork.
- 2.2 The road is of great importance from strategic and tourism point of view.
- 2.3 The proposed road project falls in Poonch district of Jammu & Kashmir state, India.

Figure 1 presents **Index Map** showing the project location.

3. Proposed Sub Project

- 3.1 The proposed package of Sakhi Maidan up to village Pathan Tir is 21.70 km and falls in Poonch district of J&K state India. The package includes construction of additional 4 no. causeways 25 no. Hume pipe culverts 5 no. RCC culverts of 3 m span and minor repair of 29 slab and hume pipe culverts which are otherwise in good condition. Additionally slab culverts are to be provided where proper cross drainage is missing. The location of all culverts and Hume pipes are given in section 6, employer's requirement of this bidding document for guidance of tenders.

4. Brief description of the road condition:-

- 4.1. The section of 21.70 km from Sakhi Maidan to Pathan Tir of Sakhi Maidan road is well connected with other district roads.
- 4.2. The road project passes through hilly terrain and required formation width and road geometrics are not available and needs improvement.
- 4.3. As many as 4 causeways need rebuilding. Additionally new 25 number Hume-pipe culverts and 5 no slab culvert are required to be provided where proper drainage is missing.
- 4.4. Traffic on this road is of medium intensity.
- 4.5. The road commences from 3 km away from Tehsil Head quarters of Mendhar –Baloni road

5. Design Consideration

5.1 Project

Under this project, it is proposed to improve the 21.70 km length of road from Sakhi -Maidan (Km 0.00) to Pathan Tir (Km 21.70). Amongst other improvements, the proposal envisages intermediate lane from Km 0 to Km 4.50 and from Km 4.50 to Km 21.70 a standard single lane carriageway of 3.75 m width improved geometrics.

5.2 Proposal

- Widening of the road
- Construction of Earth Retaining structures
- Local repairs /Maintenance of road during construction.
- Construction of new Hume pipe/Slab culverts.
- Laying of GSB in locations of Regrading.
- Construction of Earthen drain
- Provision of temporary work facilities
- Environmental Monitoring
- Soil investigation work.

CBR of Subgrade: 07 %

The road formation obtained by hill cut provides good quality of subgrade material. The CBR of this material is expected to be not less than 07 %.

Design Method

IRC: 37-2001 Guidelines

Pavement Composition

Flexible pavement for new construction

GSB - *during Regrading*

6 Culverts

6.1 There are 4 causeways which will be reconstruction as vented causeway. Additional 25 Nos. H.P culverts and 5 Nos. Slab culverts are required to be provided at places where proper cross drainage is missing.

7. Soil Erosion:

7.1 Soil Erosion is to be repaired and made good during construction and operation phase on slopes and embankments after precipitation.

8. Environmental Implementation Plan

TABLE 1: ENVIRONMENTAL MONITORING PLAN FOR UPGRADATION OF SUB PROJECT ROAD.

Environmental Component	Project Stage	Parameter	Standards	Location	Frequency	Implementation	Supervision
Air	Construction Phase	SPM, RSPM, SO ₂ , NO ₂	National Ambient Air Quality Standards	Sakhi Maidan, Chunga, KalaBan	Three times in a year. (Total samples = 9)	Environmental Monitoring Laboratory, ERA	PMC, PMU
	Operation Phase(Defect Liability Period)	SPM, RSPM, SO ₂ , NO ₂	National Ambient Air Quality Standards	Sakhi Maidan, Chunga, KalaBan	Once during operation phase after 6 months of construction of road (Total samples = 3)	Environmental Monitoring Laboratory, ERA	PMC, PMU
Noise and Vibration	Construction Phase	Noise Level in dB (A)	As per National Noise Standards	Sakhi Maidan, Chunga, KalaBan	Three times in a year. (Total samples = 9)	Environmental Monitoring Laboratory, ERA	PMC, PMU
	Operation Phase(Defect Liability Period)	Noise Level in dB (A)	As per National Noise Standards	Sakhi Maidan, Chunga, KalaBan	Once during operation phase after 6 months of construction of road (Total samples = 3)	Environmental Monitoring Laboratory, ERA	PMC, PMU
Water	Construction Phase	pH, TDS, TSS, DO	As per Water Quality Standards	Chunga Nallah	Three times in a year (Total samples = 3)	Environmental Monitoring Laboratory, ERA	PMC, PMU
	Operation Phase(Defect Liability Period)	pH, TDS, TSS, DO	As per Water Quality Standards	Chunga Nallah	Once during operation phase after 6 months of construction of road (Total samples = 1)	Environmental Monitoring Laboratory, ERA	PMC, PMU

TABLE 2: ENVIRONMENTAL MANAGEMENT PLAN FOR UPGRADEATION OF PROJECT ROAD

Project stage - anticipated Environmental issues and impacts	Proposed Mitigation Measures	Parameter to be monitored ¹	Measurement frequency	Institutional Responsibility		Cost ²
A. Design and Pre-Construction Stage						
1. Involuntary resettlement or land acquisition (if required) causing loss of household, residence, business premises or livelihood (orchards, agricultural land) and clearance of encroachment /squatters.	- The acquisition of land and private properties will be carried out in accordance with the resettlement plan (RP) and entitlement framework of the project. - The RP shall be developed by R&R Team in consultation with the affected parties and in accordance with state / national regulations and ADB policies and the minutes of consultation shall be prepared and kept as record. - The compensation shall be paid for temporary /partial /permanent loss of productive land, properties, trees and vegetation, etc. prior to commencement of physical works, a time frame will be agreed to for its implementation in consultation with ADB, and periodic reviews would be carried out with ADB. - The IA shall ensure that the process for acquisition of land in the post design phase will be integrated into the R&R Plan and relevant contract provisions.	Adequacy of consultation process carried out. Execution of RP by RR Team.	Once - prior to commencement of physical works by R&R Team	DSC, PIU, Revenue Dept., Collaborating agency	PMC, PMU	Included in Rehabilitation and Resettlement cost
2. Encroachment in to religious, cultural heritage and other protected structures of archaeological importance adjacent to the road.	- Layout shall be finalized in such a way that the impact on existing cultural and heritage buildings and sites of archaeological significance are either avoided or minimized. The relevant approvals would be obtained from the authorities as per existing statutory regulations. - The existing access will not be disturbed for any construction activity without providing adequate provisions - If there is any unavoidable relocation of the religious structures then new location for it will be identified in accordance with the choice of the	Reduction in number of structures affected. Ease of access Adequacy of public	Once - prior to commencement of physical works by R&R Team	DSC, PIU, ASI/ Concerned dept.	PMC, PMU	

¹ The parameters as specified in the respective Indian Standards or other specifications for the applicable line items shall be monitored as required by the national /state /local regulations.

² Cost to be indicated separately as a part of environmental management plan cost. In case the particular line item is included under other project cost items, it would be mentioned accordingly by providing a cross reference of the relevant clause(s).

Project stage - anticipated Environmental issues and impacts	Proposed Mitigation Measures	Parameter to be monitored ¹	Measurement frequency	Institutional Responsibility		Cost ²
				Impl.	Sup.	
	community. Engineer/PIU in consultation with the affected communities will finalize the sites. The relocation will be completed before the construction start in these sites.	consultation and identification of relocation site by R&R Team.				
3. Impairment of access to the properties along the road right of way.	The alignment of the sub-project to be finalized in such a manner so as not to prohibit access to the properties along the right of way. In case unavoidable impairment to access, an alternate arrangement would be provided as agreed to during public consultation with the affected parties.	Provision of acceptable alternate access arrangement	Once – prior to finalization of alignment	DSC, PIU	PMC, PMU	
4. Relocation of community utilities and common property resources	All community utilities and properties such as open wells, hand pumps, water supply lines, telephone and power supply cables, sewer lines, buildings, health centers, ponds, etc. will be relocated (if unavoidable) prior to commencement of construction in consultation with the affected communities.	Adequacy of public consultation and ease of access	Once – prior to finalization of relocation	Contractor, DSC, PIU	PMU, PMC	Included in Utility Shifting Cost
5. Relocation of affected cultural and religious properties	- The layout of sub-project shall be finalized in a way to avoid relocation of religious property resources such as shrines, temples and mosques within the project - If there is any unavoidable relocation of the religious structures then new location for it will be identified in accordance with the choice of the community. Engineer/PIU in consultation with the affected communities will finalize the sites. - The relocation will be completed before the construction start in these sites.	Adequacy of public consultation and acceptance of community to revised location.	Once – prior to finalization of relocation by R & R Team.	Contractor, DSC, PIU	PMU, PMC	
6. Cutting of trees and damage to vegetation.	- Alignment to be finalized in a manner so as to avoid or minimize the cutting of trees. - If cutting of trees is unavoidable, then appropriate regulatory approvals from all concerned agencies shall be obtained, and compensatory afforestation shall be carried out as directed by the authorities. - As a matter of policy compensatory plantation shall be carried out in the ratio of 1:2 in consonance with the National /State policy. - The stacking, transportation and storage of the wood will be carried out as per the relevant specifications /norms of State Forest Corporation.	Number of trees to be cut Survival rate of planted saplings	Once -prior to commencement of physical works. Quarterly for the first year of planting, then semiannually for the next two years	PIU, Line department, State Forest Department Agency	DSC, PMC, PMU	Compensatory Plantation Cost
7. Preservation of trees	No tree will be cut beyond the proposed right of way. If hill slopes are being cut for construction work than slope stabilization measures shall	Number of trees saved	Once - prior to finalization	DSC, PIU	PMC, PMU,	

Project stage - anticipated Environmental issues and impacts	Proposed Mitigation Measures	Parameter to be monitored ¹	Measurement frequency	Institutional Responsibility		Cost ²
				Impl.	Sup.	
	be included in the design to protect the trees standing on the hill slope from falling down. - All efforts will be made to preserve trees including evaluation of minor design alternatives to save trees. - Specific attention will be given for protecting locally important/scheduled trees. Any specific species declared as "protected" by the state will be felled only after due clearance from the concerned agency is obtained. - Provision for tree guards and reflective markings of scheduled trees under law will be kept.	Number of trees marked	of designs.		Forest Dept	
8. Encroachment into precious ecological, environmentally sensitive areas causing loss of precious ecological values /resources, biodiversity, and damage to precious species, deforestation, etc.	- Avoid encroachment by careful selection of location and alignment. - If encroachment can not be avoided, design to include all precautionary and preventive measures in consultation with and as approved by the relevant regulatory agencies in accordance with the regulations.	Avoidance of environmentally , ecologically sensitive locations.	Once – prior to construction in consultation with regulatory authorities	DSC, PIU	PMC, PMU	
9. Environmental aesthetics affected by obstruction to land profile and cutting /removal of trees and vegetation.	The design shall include appropriate measures so as to restore the environmental aesthetics of the area to its original or better status.	Inclusion of appropriate measures for Restoration of aesthetics.	Once - prior to finalization of designs.	DSC, PIU	PMC, PMU	
10. Impedance to existing drainage , irrigation canals or water courses causing flooding / water logging of adjacent areas, loss of agricultural production, etc.	- Alignment/layout to be finalized incorporating appropriate measures such as construction of culverts, side-drains to avoid blockage/impediment to natural drainages, irrigation canals, and water courses (if any). - Existing drainage irrigation facilities will be restored to original or better condition.	Inclusion of appropriate measures. Restoration of existing facility.	Once - prior to finalization of designs. Once after completion of related construction work.	DSC, PIU	PMC ,PMU,	
11. Control of soil erosion/ Slope destabilization	Protection measures like provision of retaining walls, breast wall will be included in the design as required.	Inclusion of appropriate measures at the	Once - prior to finalization of designs	DSC, PIU	PMC, PMU	

Project stage - anticipated Environmental issues and impacts	Proposed Mitigation Measures	Parameter to be monitored ¹	Measurement frequency	Institutional Responsibility		Cost ²
				Impl.	Sup.	
		design stage.	and completion of related construction activity.			
12. Arrangement for temporary land requirement	The Contractor as per prevalent rules will carry out negotiations with the landowners for obtaining their consent for temporary use of lands for construction camp /construction/ borrow areas etc.	MOU/ copy of agreement	Once prior to start any activity on temporary land	Contractor, DSC & PIU	PMC, PMU	
13. Construction Camp Locations – Selection, Design and Lay-out	The site for construction camps will be selected in consultation with Engineer to avoid conflicts and stress over the infrastructure facilities with the local community and contractor will start construction of camp only after getting the Layout approved from Engineer.	Inclusion of appropriate measures at the design stage	Once - prior to finalization of designs.	Contractor, DSC & PIU	PMC, PMU	
14. Noise environment causing nuisance to the residents in the neighboring areas.	Noise monitoring shall be carried out through a reliable monitoring agency to establish the baseline. Appropriate noise control measures shall be designed and incorporated in the respective tender/ contracts documents, of the project binding the respective vendors, contractors and suppliers executing the project.	Inclusion of measures in respective documents.	Once – prior to release of documents for bidding of works.	DSC, PMC	PIU, PMU	
15. Air & Water quality monitoring	Air & Water quality monitoring shall be carried out through a reliable monitoring agency to establish the baseline and to design and incorporated appropriate mitigation measures in the respective tender/ contracts documents, of the project.	Inclusion of measures in respective documents.	Once – prior to release of documents for bidding of works.	DSC, PMC	PIU, PMU	
16. Statutory environmental and other regulatory approvals and clearances	All applicable statutory environmental clearances /approvals at the national, state, regional, local levels and from other relevant authorities must be obtained prior to commencement of physical works.	Copies of approval letters	Once - prior to commencement of physical works.	Contractor DSC/PIU, Line Dept.,	PMU, Statutory authority	
17. Orientation of the officials from the IA, and contractors and vendors.	The orientation sessions and regular training sessions during all stages of the project shall be conducted. This shall include on-site training (general as well as in the specific context of a sub-project). These sessions shall involve all staff of client, consultant and contractor involved in the implementation of EMP.	Number and type of training programs carried out	Periodic during all stages of works.	Contractor, DSC, PIU, PMC	PMU	
B. Construction Stage						

Project stage - anticipated Environmental issues and impacts	Proposed Mitigation Measures	Parameter to be monitored ¹	Measurement frequency	Institutional Responsibility		Cost ²
				Impl.	Sup.	
(a) Earthwork and Soil Conservation						
1. Clearing and Grubbing	• If required, vegetation will be removed from the construction zone before commencement of construction. All works will be carried out in such a way that the damage or disruption to flora other than those identified for cutting is minimized • Only ground cover/shrubs that impinge directly on the permanent works or necessary temporary works will be removed with prior approval from the Engineer. • Trees identified under the project will be cut after getting approval from Forest Deptt or other relevant authority. • Debris generated due to the activity shall be stacked sufficiently away from tree line keeping adequate clearance around existing trees to prevent any damage to them during debris collection and disposal.	Execution of conservation /mitigation measures.	Periodic reviews during construction works	Contractor, DSC & PIU	PMC, PMU	Included in Site Clearance cost
2. Protection of ground cover and vegetation	• Construction vehicles, machinery and equipment shall be used and stationed only in the areas of work and in any other designated areas as directed by the Engineer. • Contractor shall instruct drivers and operators not to destroy ground vegetation cover unnecessarily.	Execution of conservation /mitigation measures.	Periodic reviews during construction works	Contractor DSC & PIU	PMC, PMU	NA
3. Conservation and reuse of top soil	• Topsoil of the agricultural areas/valley/hills and any other productive areas where it has to be removed for the purpose of this sub-project shall be stripped to a specified depth of 150 mm and stored in stockpiles of height not exceeding 2 m as designated by engineer. A portion of the temporarily acquired area and/or Right of Way will be earmarked in consultation with Engineer for storing topsoil. Such stockpiled topsoil must be used to cover all disturbed areas including borrow areas, filling up of tree pits, on acquired temporarily land ,Agricultural fields of farmers cut/fill slopes (as a supplement for the bio-engineering techniques) etc. from where the topsoil has been removed due to sub-project activities. • Residual topsoil must be distributed on adjoining /proximate barren areas as identified by the Engineer in a layer of thickness of 75mm – 150mm. Stockpiles should be placed outside flood affected areas. • Topsoil thus stockpiled for reuse shall not be surcharged or overburdened. As far as possible multiple handling of topsoil stockpiles should be kept to a minimum.	Execution of conservation /mitigation measures.	Periodic reviews during construction works	Contractor, DSC & PIU	PMC PMU	NA

Project stage - anticipated Environmental issues and impacts	Proposed Mitigation Measures	Parameter to be monitored ¹	Measurement frequency	Institutional Responsibility		Cost ²
				Impl.	Sup.	
4. Disposal of Debris and Spoil	- If dismantling of existing road is involved, the debris generated thereby shall be reused for construction to the possible extent, subject to the suitability of the materials and approval of the Engineer to minimize waste. - The contractor will suitably dispose off unutilized debris materials, any spoils or material unsuitable for reuse either through filling up of borrow areas located in wasteland or at pre-designated disposal locations identified subject to the approval of the Engineer - The contractor shall identify dumping sites and these locations will be checked on site and accordingly approved by Engineer prior to any disposal of waste materials. - The contractor shall obtain the approval (if any) from the relevant authorities for disposal of debris and spoil at the identified locations. - At locations identified for disposal of residual bituminous wastes, the disposal will be carried out over a 60 mm thick layer of rammed clay so as to eliminate the possibility of leaching of wastes into the ground water. The contractor will ensure that the surface area of such disposal pits is covered with a layer of soil. All arrangements for transportation during construction including provision, maintenance, dismantling and clearing debris, will be considered incidental to the work and will be planned and implemented by the contractor as directed by the Engineer - Contractor will ensure that any spoils or material unsuitable for embankment fill will not be disposed off near any water course, agricultural land, and natural habitat like grass lands or pastures. Such spoils from excavation can be used to reclaim borrow pits and low-lying areas located in barren lands along the project corridors (if so desired by the owner/community). - All waste materials will be completely disposed and the site will be fully cleaned and certified by Engineer before handing over. - The contractor at his cost shall resolve any claim, arising out of waste disposal or any non-compliance that may arise on account of lack of action on his part.	Disposal of debris and spoil in accordance with statutory provisions and in environmentally responsible manner.	Periodic reviews during construction works	Contractor, DSC & PIU	PMC, PMU	
5. Disposal of construction waste including hazardous wastes	- Contractor prior to the commencement of work shall provide a list of hazardous chemicals/ material that will be used in the work to the Engineer. - Disposal of construction waste shall be done to the sites in accordance	Execution of conservation /mitigation measures.	Once after completion of work.	Contractor, DSC & PIU	PMC, PMU	

Project stage - anticipated Environmental issues and impacts	Proposed Mitigation Measures	Parameter to be monitored ¹	Measurement frequency	Institutional Responsibility		Cost ²
				Impl.	Sup.	
	with the statutory requirements and as directed by the designated authorities - Contractor shall also provide the list of places where such hazardous chemicals / materials or their containers or other harmful materials are to be disposed during construction period or at the end of the project. - The contractor shall clean up any area including water-bodies affected /contaminated (if any) as directed by the engineer.					Incidental to work
6. Contamination by lubricants and fuel	- Oil and fuel spills from construction equipment will be minimized by good O&M practices. - Vehicles /machinery and equipment serving and maintenance work shall be carried out only in designated locations /service stations approved by the Engineer. The sensitive locations such as close to streams/rivers; just upstream of wells and springs used by community and areas of flooding shall be avoided. - Waste oil, other petroleum products and untreated wastewater shall not be discharged on ground so that it causes soil pollution. Adequate measures such as impervious platforms for storage areas of oil, lubricants, etc. shall be taken against pollution of soil by spillage of petroleum / oil products from storage tanks and containers. All soils contaminated by such spills /waste petroleum products shall be disposed of as per the statutory requirements in consultation with Engineer. - Sites used for vehicles, plant services and maintenance shall be cleaned and properly restored.	Execution of conservation /mitigation measures.	Periodic reviews during construction works	Contractor, DSC & PIU	PMC, PMU	Incidental to work
7. Borrowing of earth	- Borrowing within the right of way shall be avoided. The earth available from excavation for side drains as per design may be used as embankment material, subject to approval by the Engineer. - Borrow areas shall not be opened without permission of the Engineer. The location, shape and size of the designated borrow areas will be in accordance to the MOSRT&H clauses and IRC recommended practice for borrow pits for road embankments (IRC 10: 1961) and as approved by the Engineer. - Contractor shall comply with the statutory environmental requirements in respect of locating borrow areas and with regard to all operations related with excavation and transportation of earth from such sites.	Site restoration. Execution of conservation /mitigation measures.	Once after completion of works Periodic reviews during construction works	Contractor, DSC & PIU	PMC, PMU	

Project stage - anticipated Environmental issues and impacts	Proposed Mitigation Measures	Parameter to be monitored ¹	Measurement frequency	Institutional Responsibility		Cost ²
				Impl.	Sup.	
	- Establishment of borrow pits/areas and its operational activities shall not endanger adjacent properties. Also it shall not be a danger or health hazard to the people - The unpaved surfaces used for the haulage of borrow materials, if passing through the settlement areas or habitations; will be maintained dust free by the contractor. - Contractor will rehabilitate the borrow areas as soon as borrowing is over in accordance with the condition of rehabilitation stated in written agreement with land owners and shall submit a letter of satisfaction to Engineer when redevelopment activity is over. Redevelopment of Borrow areas on Government land shall be carried out as suggested by Engineer.					Incidental to work
8. Quarry / sand mining operations	- Aggregate required for road construction shall be procured from quarries approved by Engineer and should have valid licenses and approvals for carrying out activities as per law. - Safety precautions will be ensured by contractor during transportation of quarry material from quarries to the construction sites - Stockpiling of material will be properly planned so as to ensure smooth traffic flow on the road. - The maintenance and rehabilitation of the quarry access roads in the event of damage by the contractor's operations shall be a responsibility of the contractor.	Approved quarries and sand mines	Periodic reviews during construction works	Contractor, DSC & PIU	PMC, PMU	Contractor's responsibility
9. Slope Protection and Control of Soil erosion	- Clearing and grubbing operation shall be carried out in such a fashion so that it is not left uncovered for long time particularly during rainy spells to minimize soil erosion. - Cut or fill slope shall be as per design or at natural angle of repose so that it is stable and not susceptible to erosion. - Embankment slopes, slopes of cuts, etc. shall not be unduly exposed to erosive forces and engineering /bioengineering measures provided in BOQ shall be implemented as early as possible. Good engineering practices in line with IRC specifications shall be followed. - Work that leads to heavy erosion shall be avoided during the rains. If such activities need to be continued during rainy season prior approval must be obtained from the engineer by submitting a proposal on actions that will be undertaken by the contractor to prevent erosion. - Spoils/debris shall not be tipped down the valley side in order to avoid	Execution of conservation /mitigation measures.	Periodic reviews during construction works	Contractor, DSC & PIU	PMC, PMU	

Project stage - anticipated Environmental issues and impacts	Proposed Mitigation Measures	Parameter to be monitored ¹	Measurement frequency	Institutional Responsibility		Cost ²
				Impl.	Sup.	
	erosion on the unprotected debris face, increased down stream siltation and mass failure. - All temporary sedimentation, pollution control works and maintenance thereof will be deemed as incidental to the earth work or other items of work and as such no separate payment will be made for them. - After construction of road embankment, the side slopes will be covered with grass and shrub as per design specifications (if required by engineer). - Turfing works (if required by engineer) will be taken up as soon as possible provided the season is favourable for the establishment of grass. - In borrow pits, the depth shall be so regulated that the sides of the excavation will have a slope not steeper than 1 vertical to 2 horizontal, from the edge of the final section of the bank. - Along sections abutting water bodies, protection work as per design specification will be carried out to protect slopes - All work, permanent or temporary, shall consist measures to control soil erosion/ sedimentation in design or same be directed by the Engineer.					
10. Safety against soil failures	- Contractor shall take all steps necessary to ensure the stability of slopes prior to deep excavations for foundations /sub structures including those related to temporary works and borrow pits. - If the area is classified as an area prone to soil failures / land slides, the contractor shall prepare an excavation plan which will include method of excavation, safety arrangements and instructions for staff engaged in excavation work. Work shall commence only after approval of this plan by Engineer.	Execution of conservation /mitigation measures.	Periodic reviews during construction works	Contractor, DSC & PIU	PMC, PMU	Engineering Cost
(b) Protection of water sources and quality						
1. Loss of water sources and disruption to water users	- The contractor will make arrangements for water required for construction in such a way that the water availability and supply to nearby communities remain unaffected - Contractor shall not close or block existing canals, streams waterways and drainage paths for the execution of work or by disposing debris and spoil into it. In case the closure of such sources is required on permanent or temporary basis, the alternative arrangement should be planned and executed through contractor by Engineer/ PIU after	Execution of conservation /mitigation measures.	Periodic reviews during construction works	Contractor, DSC & PIU	PMC, PMU	

Project stage - anticipated Environmental issues and impacts	Proposed Mitigation Measures	Parameter to be monitored ¹	Measurement frequency	Institutional Responsibility		Cost ²
				Impl.	Sup.	
	adequate consultations with the affected community. - If diversion or closure or blocking of canals and streams is required for the execution of work, the contractor must first obtain the IA's approval. Contractor shall also obtain the approval from the other regulatory /relevant authorities as applicable. - Contractor shall restore the drainage path back to its original status once the need for such diversion or closure or blockage ceases to exist. If construction work is expected to disrupt users of community water bodies, notice shall be served well in advance to the affected community. - During the affected period contractor shall supply water to the affected community. - Construction over the irrigation canals will be undertaken only after necessary permission from the irrigation department, if disruption to the flow, quality of water and impact on the irrigation structure is envisaged, - Contractor shall take measures necessary to prevent siltation of water bodies as a result of his work. - Contractor shall raise temporary /permanent devices to prevent water pollution due to siltation and increased turbidity. These shall include the measures against erosion. - If need for Water quality monitoring arises due to poor working of contractor or in case of any complaint, in addition to those specified in BOQ, the same will be carried out by contractor at his own cost to track changes in water quality during construction if asked by Engineer to do so. - Construction materials containing small/fine particles shall be stored in places not subjected to flooding and in such a manner that neither these materials get washed away by runoff or sediment-laden water will drain into nearby watercourse. In addition, stock piling of material should be done in a manner that excessive amounts are not unnecessarily stored on-site. - Contractor shall try to finish construction works, particularly foundation excavation and sub structure, close to the drainage paths in dry season; this will help in preventing/ reducing soil erosion. - If diversion or closure or blocking is required for execution of work, contractor must first obtain the Engineer's approval. Contractor shall					Incidental to work
2. Siltation of water bodies		Execution of conservation /mitigation measures. Temperature, Turbidity, TDS, pH & DO, Oil and Grease, Total Coliform	Periodic reviews during construction works	Contractor, DSC & PIU	PMC, PMU	Incidental to work
3. Alteration of watercourses		Execution of conservation /mitigation	Periodic reviews during	Contractor, DSC & PIU	PMC, PMU	NA

Project stage - anticipated Environmental issues and impacts	Proposed Mitigation Measures	Parameter to be monitored ¹	Measurement frequency	Institutional Responsibility		Cost ²
				Impl.	Sup.	
	also obtain the approval from the relevant agencies prior to taking such action. - Contractors shall restore the drainage path back to its original status as soon as such diversion or closure or blockage is no longer required. - The contractor will make arrangements for water required for construction in such a way that the water availability and supply to nearby communities remain unaffected - The contractor will take all precautions to minimize the wastage of water in the construction process/ operation.	measures.	construction works			
4. Extraction of Water	- The contractor will make arrangements for water required for construction in such a way that the water availability and supply to nearby communities remain unaffected - The contractor will take all precautions to minimize the wastage of water in the construction process/ operation.	Execution of conservation /mitigation measures.	Periodic reviews during construction works	Contractor, DSC & PIU	PMC, PMU	NA
5. Contamination of Water from Construction Wastes	- The work shall be carried out in such a manner that pollution of natural watercourses, ponds, tanks and reservoirs is avoided. Measures shall be taken to prevent the wastewater produced in construction from entering directly into streams, water bodies or the irrigation systems. - Bentonite slurry or similar debris generated from pile driving or other construction activities shall be disposed off in a manner so that it does not get entry into surface water bodies or form mud puddles in the area. - All wastes arising from the sub-project is to be disposed in a manner as per the statutory requirements.	Execution of conservation /mitigation measures.	Periodic reviews during construction works	Contractor, DSC & PIU	PMC, PMU	Incidental to work
6. Escape of polluting chemicals, materials, containers into water courses, irrigation canals, wells, etc.	The storage sites of such polluting chemicals, materials, containers, etc. shall be identified above the high flood levels, and as much away as possible from the water bodies. The sites will be identified by contractor at the site and shall be finalized by the Engineer.	Identification of locations.	Once – prior to commencement of physical work	Contractor, DSC & PIU	PMC, PMU	NA
7. Contamination from Fuel and Lubricants	- All vehicles and plant maintenance sites shall be located and operated in accordance with the statutory requirements and as directed by the Engineer. - Contractor will ensure that all vehicle/machinery and equipment operation, maintenance and refueling will be carried out at the designated locations and in such a fashion that spillage of fuels and lubricants does not contaminate the water. - Contractor will arrange for collection, storing and disposal of oily waste to the pre-identified disposal sites (list to be submitted to Engineer/PIU). All spills and collected petroleum waste will be disposed off in accordance with rules, regulations and guidelines.	Execution of conservation /mitigation measures.	Periodic reviews during construction works	Contractor, DSC & PIU	PMC, PMU	NA
8. Water conservation and waste minimization	The contractor will take all precautions to minimize the wastage of water in the construction process/ operation.	Execution of conservation	Periodic reviews	Contractor, DSC & PIU	PMC, PMU	NA

Project stage - anticipated Environmental issues and impacts	Proposed Mitigation Measures	Parameter to be monitored ¹	Measurement frequency	Institutional Responsibility		Cost ²
				Impl.	Sup.	
	- The contractor shall educate and make employees and labor aware on water conservation, waste minimization and safe disposal of waste. - Extraction of water from groundwater or from surface water-bodies by the Contractor for the project purposes shall comply with all statutory provisions. - The Contractor may use the natural sources of water if approved by the Engineer subject to the provision that any claim arising out of conflicts with other users of the said natural sources of water shall be resolved by the contractor. - Existing water courses/drainage facilities disturbed during execution of project will be restored to the original or better condition.	/mitigation measures.	during construction works			
10. Restoration of water bodies		Restoration of existing facilities	Once – after completion of related construction section	Contractor, DSC & PIU	PMC, PMU	Incidental to work
(c) Flood Prevention						
1. Work in flood prone areas	- Contractor will take all necessary measures to prevent the blockage of water flow. In addition to the design requirements, the contractor will take all required measures as directed by the Engineer to prevent temporary or permanent flooding of the site or any adjacent area. - When working close to the drains, the contractor shall take adequate precautions for storing materials, and chemicals. - Contractor's activities shall not lead to flooding conditions as a result of blocked drainage paths and drains. The contractor shall take all measures necessary to keep all drainage paths and drains clear of blockage at all times.	Execution of conservation /mitigation measures.	Periodic reviews during construction works	Contractor, DSC & PIU	PMC, PMU	NA
2. Blockage of drainage paths and drains		Execution of conservation /mitigation measures.	Periodic reviews during construction works	Contractor, DSC & PIU	PMC, PMU	NA
(d) Air quality management						
1. Dust generation	- The contractor shall effectively manage the dust generating activities during periods of high winds or with winds directed towards adjacent residences and other facilities. - All stockpiles shall be located sufficiently away from environmentally sensitive receptors and regular wetting of stockpiles of aggregates will be carried out. - Vehicles delivering loose and fine materials like sand and fine aggregates will be fitted with tailboard to reduce spills on existing roads and haul roads.	Execution of conservation /mitigation measures.	Periodic reviews during construction works	Contractor, DSC & PIU	PMC, PMU	Incidental to work

Project stage - anticipated Environmental issues and impacts	Proposed Mitigation Measures	Parameter to be monitored ¹	Measurement frequency	Institutional Responsibility		Cost ²
				Impl.	Sup.	
	- The contractor shall employ a water spraying arrangement for dust suppression on areas used by contractor for execution of work in consultation with the Engineer. - Appropriate screening arrangements are to be made at sensitive locations. - All earthworks shall be protected in a manner acceptable to minimize generation of dust. - All existing highways and roads used by vehicles of the contractor, or any of his sub-contractor or suppliers of materials or plant and similarly roads which are part of the works shall be kept clean and clear of all dust/mud or other extraneous materials dropped due to movement of such vehicles. Clearance shall be affected immediately as directed by the Engineer, - The contractor will provide necessary certificates to confirm that all crushers used in construction conform to relevant dust emission control norms. - Plants, machinery and equipment shall be handled in a manner which minimizes generation of dust.					Included in BOQ as Dust Suppression cost Engineering cost
2. Emission from Hot-Mix Plants and Batching Plants	- The hot mix plant (if installed) shall be located and operated in accordance with statutory requirements. It is recommended that hot mix plants and batching plants are to be located sufficiently away about 2km from environmentally sensitive receptors such as forest, water bodies,, religious, cultural and archaeological sites, residential areas, schools, health care units and industrial areas in the downwind direction. - The contractor will take every precaution to reduce the level of dust from hot mix plant, batching plants by fitting them with dust extraction units, sprinkling of water, encapsulation of dust source and by erection of screen/barriers. - All operations at plants shall be undertaken in accordance with all current rules and regulations protecting the environment as well as the conditions given in the approvals issued by the relevant authorities.	Execution of conservation /mitigation measures.	Periodic reviews during construction works	Contractor, DSC & PIU	PMC, PMU	Incidental to work
3. Odor and offensive smells	- Contractor shall take all precautions to prevent odor and offensive smell emanating from chemicals and processes applied in construction works or from labor camps. In a situation when /where odor or offensive smell does occur contractor shall take immediate action to rectify the situation. - The waste disposal for the labor camps (If any) shall be properly	Execution of conservation /mitigation measures.	Periodic reviews during construction works	Contractor, DSC & PIU	PMC, PMU	

Project stage - anticipated Environmental issues and impacts	Proposed Mitigation Measures	Parameter to be monitored ¹	Measurement frequency	Institutional Responsibility		Cost ²
				Impl.	Sup.	
	designed, built and operated so that no odor is generated. Compliance with the regulations on health and safety shall be strictly adhered to.					Incidental to work
4. Emission from Construction Vehicles, Equipment and machinery	- The statutory emission standards shall be strictly adhered to. All vehicles, plants and equipment used in construction will conform to the MOEF/SPCB air quality standards - All vehicles, equipment and machinery used for construction will be regularly serviced and maintained to ensure that emission levels comply with the relevant statutory standards. - The Contractor will submit PUC certificates for all vehicles/equipment/machinery used for the project.	Execution of conservation /mitigation measures.	Biannual reviews of necessary documents during construction works	Contractor, DSC & PIU	PMC, PMU	NA
5. Air pollution from crushers	- All crushers used in construction shall confirm to relevant statutory dust emissions levels. Only the quarries approved by the relevant authorities and having valid permits shall be used. - Crushing plants shall be sited sufficiently away from environmentally sensitive receptors as per SPCB approval. - Sprinkler system for dust suppression shall be installed, if the crusher is to be set up by contractor. - Metalled road network shall be provided within the plant premises and regular sprinkling of water over haul roads and stockyards shall be ensured to suppress dust. - Sprinkling on the sites and haul roads shall be carried out regularly to control dust as per requirement and/or as instructed by the engineer.	Execution of conservation /mitigation measures.	Periodic reviews during construction works	Contractor, DSC & PIU	PMC, PMU	Incidental to work Included in Dust suppression cost in Environmental management cost
6. Air quality monitoring	Regular monitoring of air pollutant parameters during the construction period as envisaged in the Environmental Monitoring Plan.	RSPM, SPM, SO ₂ , NO ₂ etc.	As per Env. Monitoring Plan	Contractor, DSC, PIU & PMC	PMU	Included in Environmental Monitoring Cost
(e) Noise pollution						
1. Noise from Vehicles,	All machinery and equipment such as compactors, rollers, front loaders,	Execution of	Periodic	Contractor,	PMC,	Incidental to

Project stage - anticipated Environmental issues and impacts	Proposed Mitigation Measures	Parameter to be monitored ¹	Measurement frequency	Institutional Responsibility		Cost ²
				Impl.	Sup.	
Plants and Equipment	concrete mixers, moveable cranes, vibrators and saws should be well maintained and fitted with noise reduction devices (if any) to ensure noise levels within the limits. - At construction sites, especially close to the environmentally sensitive receptors, noisy construction work such as piling, crushing, concrete mixing and batching, mechanical compaction, etc., will be scheduled to coincide with period when people would least likely be affected. by Operation of construction machines - To protect construction workers from severe noise impacts, workers exposed to excessive noise will be given ear plugs, helmets, etc. or their working hours at noisy location shall be reduced.	conservation /mitigation measures.	reviews during construction works	DSC & PIU	PMU	work
2. Noise from Blasting or Pre splitting Operations.	- Blasting if applicable shall be carried out only after obtaining all relevant permissions and clearances. All the statutory laws, regulations, rules, etc. pertaining to acquisition, transport, storage, handling and use of explosives shall be strictly followed. Storage of explosives shall not be closer than 300m from the road or from any building or camping area or place of human occupancy. - The blasting operation shall remain in the charge of competent and experienced supervisor and workmen who are thoroughly acquainted with the details of handling explosives and blasting operations. - Blasting shall be carried out during fixed hours of the day (preferably during mid-day), in consultation with the Engineer. The timing should be made known to all the people in the vicinity or within a specified distance from the blasting site in all directions. - Red danger flags shall be displayed prominently in all directions during the blasting operations. The flags shall be planted 200 m from the blasting site in all directions. - People, except those who actually light the fuse, shall be prohibited from entering the blasting area, and all persons including workmen shall be excluded from the flagged area. At least 10 minutes before the firing, a warning siren should be sounded for the purpose.	Execution of conservation /mitigation measures.	Periodic reviews during blasting operations	Contractor, DSC & PIU	PMC, PMU	
3. Noise level monitoring	Noise monitoring will be carried out as per the monitoring plan	Noise level in dB(A) L _{eq}	As per Environmental Monitoring Plan	Contractor, DSC & PIU	PMC, PMU	Included in Environmental Monitoring Cost
(f) Impact on Flora						

Project stage - anticipated Environmental issues and impacts	Proposed Mitigation Measures	Parameter to be monitored ¹	Measurement frequency	Institutional Responsibility		Cost ²
				Impl.	Sup.	
1. Loss or Damage to Trees and Vegetation	- All works shall be carried out within the right of way and in such a manner that the destruction to the flora and their habitats other than those identified for cutting is minimized. - Only Trees/ground cover/shrubs that impinge directly on the permanent works or necessary temporary works will be removed in accordance with the existing national /state/local regulations after getting approval from the Concerned/relevant authorities or Engineer. - The riparian areas adjacent to areas of construction activity shall not be disturbed, degraded, or destabilized by the said activities. - The labour camps, site office, material stockpiles and containers will be located without damaging any natural resources. - The contractor will take reasonable precaution to prevent his workmen or any other persons from removing and damaging any flora (plant/vegetation). If tree felling is inevitable, as a matter of policy Compensatory Plantation shall be carried out in the ratio of 1:2.	Execution of conservation /mitigation measures.	Periodic reviews during construction works	Contractor, DSC & PIU	PMC, PMU	Included as Compensatory Plantation Cost in Environmental Management Cost
(g) Impact on Fauna						
1. Loss, Damage or Disruption to Fauna	- All works shall be carried out within the right of way and in such a manner that the destruction or disruption to the fauna and their habitats is minimal. The contractor will take reasonable precaution to prevent his workmen or any other persons from hunting or damaging fauna (animal) including fishing in any water body. - Construction workers shall be instructed to protect fauna including wild animals and aquatic life as well as their habitats. - Construction workers shall not be allowed to trespass into demarcated forest if the sub-project is traversing through such areas. - During construction, if any wild animal is found, near the construction site or workers camp the contractor will immediately upon discovery thereof acquaint the Engineer and carry out the instructions for dealing with the same. . All activities that could destroy such fauna and/or its habitat shall be stopped with immediate effect. Such activities shall be started only after obtaining the Engineer's approval. Contractor shall carry out all activities and plans to conserve such fauna and/or its habitat. - The Engineer will report to the nearby forest office (range office or	Execution of conservation /mitigation measures.	Periodic reviews during construction works	Contractor, DSC & PIU	PMC, PMU	NA

Project stage - anticipated Environmental issues and impacts	Proposed Mitigation Measures	Parameter to be monitored ¹	Measurement frequency	Institutional Responsibility		Cost ²
				Impl.	Sup.	
(h) Labour Camp Management						
1. Engagement of Construction Labor	The contractor shall give preference to the engagement of local laborers; migratory labor shall be engaged in unavoidable circumstances only.	Employment status of labour	Monthly	Contractor, DSC & PIU	PMC, PMU	NA
2. Labour camp (if required)	- Camp shall be established away from ecologically sensitive areas, protected areas or near to sites of religious, cultural or archaeological importance. - Siting of labour camps shall be as per engineer's approval and comply with all relevant statutory requirements. The location, layout and basic facility provision of each labour camp will be submitted to Engineer/PIU prior to their construction. - The Contractor will maintain necessary living accommodation and ancillary facilities in functional and hygienic manner and as approved by the Engineer.	Execution of conservation /mitigation measures.	Periodic reviews during construction works.	Contractor, DSC & PIU	PMC, PMU	Incidental to work
3. Potable water	The contractor will make available supply of sufficient quantity of uncontaminated/potable water in every workplace/labour camp site at suitable and easily accessible places and regular maintenance of such facilities is to be ensured.	Testing of water quality as per IS 10500-1991	As and when required	Contractor, DSC & PIU	PMC, PMU	Incidental to work
4. Sanitation and sewage system	- Labor camps shall be provided with adequate and appropriate facilities for water supply, sanitation, disposal of sewage and solid waste. - The sewerage systems shall be properly designed, built and operated so that no pollution to ground or adjacent water bodies/watercourses takes place.	Execution of conservation /mitigation measures.	Periodic reviews during construction works	Contractor in consultation with local sanitary authority, DSC & PIU	PMC, PMU	Incidental to work
5. Hygiene	- The contractor shall provide and maintain necessary (temporary) living accommodation and ancillary facilities for labor to standards as approved by the IA. - The construction camps shall have a clean hygienic environment and adequate health care for the work force. Necessary measures shall be taken to prevent breeding of vectors. - Garbage bins shall be provided in the quarters and regularly emptied. Garbage should be disposed off in a hygienic manner, in accordance with the statutory norms.	Execution of conservation /mitigation measures.	Periodic reviews during construction works	Contractor, DSC & PIU	PMC, PMU	Incidental to work

Project stage - anticipated Environmental issues and impacts	Proposed Mitigation Measures	Parameter to be monitored ¹	Measurement frequency	Institutional Responsibility		Cost ²
				Impl.	Sup.	
	- Unless otherwise arranged by local sanitary authority, arrangements for disposal of night soils (human excreta) will have to be provided by the contractor. - Contractor will maintain the sewage system for the camp area in such a fashion that no health hazard occurs. - Separate toilets/bathrooms, wherever required, screened from those for men (marked in vernacular) are to be provided for women. - Adequate water supply is to be provided in all toilets and urinals. - Contractor shall report any outbreak of infectious disease of importance in a labor camp to the Engineer/PIU and other authorities as applicable immediately. Contractor shall carry out all instructions issued by the authorities, if any. - All relevant statutory provisions and regulations aimed at safety and health of the workers shall be strictly adhered to.					
6. Restoration of labour camp site	- Labour camp, constructed on private/public land, site shall be handed over to the owner as per their mutual agreement. - The debris generated as a result of dismantling of structures provided at site if required shall be disposed of suitably at disposal site as per the directions of the engineer.	Restoration of the land	Before demobilization of contractor	Contractor, DSC & PIU	PMC, PMU	Incidental to work
(i) Disruption to Users						
1. Loss of Access	- The construction related activities shall be preferably restricted within the right of way for the roads. The Contractor shall provide safe and convenient passage for vehicles, pedestrians and livestock to and from roadsides and property accesses connecting the project road, providing temporary connecting road. The contractor will not disturb the existing access for any construction activity without providing adequate provisions approved in advance by the Engineer. - The adequate signage and barricades shall be raised at the expected bottlenecks for safe movement of people. The contractor shall provide early information to the affected people. - On completion of the works, all temporary obstructions to access shall be cleared away, all rubbish and piles of debris that obstruct access be cleared.	Execution of conservation /mitigation measures	As and when required	Contractor, DSC & PIU	PMC, PMU	
2. Planning for Traffic Diversions to prevent Traffic Jams and	Temporary traffic diversion plan, where required, will be prepared by contractor in consultation with Engineer. Commencement of works shall take place only after approval of these plans by Engineer.	Traffic management	As and when required	Contractor with approval from Traffic	PMC, PMU	Traffic Management & Ancillary

Project stage - anticipated Environmental issues and impacts	Proposed Mitigation Measures	Parameter to be monitored ¹	Measurement frequency	Institutional Responsibility		Cost ²
				Impl.	Sup.	
Congestion	- The plans shall provide details of temporary diversions, traffic safety arrangements for construction under traffic, details of traffic arrangement after cessation of work each day and arrangement of the flagmen. Special consideration shall be given in the preparation of the traffic management plan to the safety of pedestrians and workers at night. - Permissions, if required, shall be obtained from the traffic police authorities for diversion of traffic in urban area. - The contractor will also inform local community of changes to traffic routes, conditions and pedestrian access arrangements with assistance from PIU. - Personnel used for traffic management by the contractor shall be properly trained, provided with proper gear including communication equipment, luminous jackets for night use. All signs, barricades, pavement markings used for traffic management should be in accordance with the existing regulations. - The Contractor will ensure that the diversion/detour is always maintained in running condition, particularly during the monsoon/rainy season to avoid disruption to traffic flow. The temporary traffic detours will be kept free of dust by sprinkling of water as required under specific conditions (depending on weather conditions, construction in the settlement areas and volume of traffic).			Police Department, DSC & PIU		Measures Cost
3. Traffic Control and Safety	The Contractor shall take all necessary measures for the safety of traffic during construction and provide, erect and maintain such barricades, including signs, markings, flags, lights and flagmen as may be required for the information and protection of traffic approaching or passing through the section of the roads under construction. The information hoardings and safety signs will be written in English and local language.	Execution of conservation /mitigation measures.	Periodic reviews during construction works	Contractor, DSC & PIU	PMC, PMU	Traffic Management & Ancillary Measures Cost
4. Flooding of project area	The contractor shall make alternate arrangements (If required) for drainage and storm water flow during construction so as to provide an alternate access to the public.	Execution of conservation /mitigation measures.	Periodic reviews during construction works	Contractor, DSC & PIU	PMC, PMU	Incidental to work
(j) Accidents and Risks						
1. Public and Worker safety	All reasonable precautions will be taken to prevent danger of the workers and the public from accidents such as fire, explosions, falling	Execution of conservation /mitigation	Periodic reviews during	Contractor, DSC & PIU	PMC, PMU	

Project stage - anticipated Environmental issues and impacts	Proposed Mitigation Measures	Parameter to be monitored ¹	Measurement frequency	Institutional Responsibility		Cost ²
				Impl.	Sup.	
2. Prevention of Risks from electrical equipment.	rocks, falling to excavated pits, chemical sprays, unsafe power supply lines etc. - The Contractor shall comply with requirements for the safety of the workmen as per the existing national /state /local regulations. The contractor shall supply all necessary safety appliances such as safety goggles, helmets, masks, boots, etc., to the workers and staff and ensure that the same are used during the construction by all the workers. - The contractor will comply with all regulations regarding safe scaffolding, ladders, working platforms, gangway, stairwells, excavations, trenches and safe means of entry and egress. - All electrical wiring and supply related work should confirm to relevant Indian Standards (IS) codes /existing national regulations. Adequate precautions will be taken to prevent danger of electrocuting from electrical equipment and power supply lines including distribution boards, transformers, etc. Measures such as danger signboards, danger /red lights, fencing and lights will be provided to protect the public and workers. All electric power driven machines to be used in the construction shall be free from defect, be properly maintained and kept in good working order, be regularly inspected and as per existing regulations. The contractor will ensure that: ➤ No material will be so stacked or placed as to cause danger or inconvenience to any person or the public. ➤ All necessary fencing and lights will be provided to prevent entry of public in construction zones. ➤ Bare wires should not pass on the ground ➤ Loose joints should not allow on the ground ➤ All the switch boxes and joints should be placed in weather protected box.	measures.	construction works			Engineering Cost
		Execution of conservation /mitigation measures.	Periodic reviews during construction works	Contractor, DSC & PIU	PMC, PMU	Engineering cost
3. Risk at Hazardous Activity	- All workers employed in hazardous activities shall be provided with necessary protective gear. These activities include mixing asphalt material, cement, concrete etc., welding work, work at crushing plants, blasting work, operation of machinery and equipment. - The use of any toxic chemical shall be strictly in accordance with the manufacturer's instructions. A register of all toxic chemicals delivered to the site shall be kept and maintained up to date by the Contractor. The register shall include the trade name, physical properties and	Execution of conservation /mitigation measures.	Periodic reviews during construction works	Contractor, DSC & PIU	PMC, PMU	Engineering cost

Project stage - anticipated Environmental issues and impacts	Proposed Mitigation Measures	Parameter to be monitored ¹	Measurement frequency	Institutional Responsibility		Cost ²
				Impl.	Sup.	
	characteristics, chemical ingredients, health and safety hazard information, safe handling and storage procedures, and emergency and first aid procedures for the product.					
4. Lead Pollution	No paint containing lead or lead products will be used except in the form of paste or readymade paint. Protective gear shall be supplied to workers who are working in spray painting or scraping lead paints.	Execution of conservation /mitigation measures.	Periodic reviews during construction works	Contractor, DSC & PIU	PMC, PMU	Engineering cost
5. Handling of Explosives	The Contractor shall at all times take every possible precaution and shall comply with relevant laws and regulations relating to the importation, handling, transportation, storage and use of explosives. Contractor shall obtain all statutory approvals for procuring and handling explosives and keep the local authorities informed of the same as applicable.	Execution of conservation /mitigation measures.	Periodic reviews during construction works	Contractor, DSC & PIU	PMC, PMU	
6. Risk from blasting activity	- Contractor shall take precaution to prevent injury to people and damage the structures/houses and vehicles in the vicinity of blasting work. Blasting shall be carried out in a controlled way and any method of blasting which leads to overshooting shall be avoided. The public in the area should be informed well in advance about the blasting operation and timing. The vehicles and road users should be stopped at a reasonable distance from the site and flagmen, siren, etc. shall be used to warn the public prior to blasting. Any debris on the road should be removed promptly before clearing the road for users. - All the statutory laws, regulations, rules, as per IRC codes shall be adhered to.	Execution of conservation /mitigation measures.	Periodic reviews during construction works	Contractor, DSC & PIU	PMC, PMU	
7. Health and hygiene	- Contractor shall take necessary actions to prevent breeding of mosquitoes at places of work, office and store buildings. Stagnation of water in all areas including gutters, used and empty cans, containers, tyres, etc shall be prevented. Approved chemicals to destroy mosquitoes and larvae should be regularly applied. - The contractor shall maintain proper sanitation and hygienic conditions at all sites (Labour camp, plant site, offices and other allied sites) - The contractor shall ensure proper drinking water facilities for their	Execution of conservation /mitigation measures.	Periodic reviews during construction works	Contractor, DSC & PIU	PMC, PMU	Incidental to work

Project stage - anticipated Environmental issues and impacts	Proposed Mitigation Measures	Parameter to be monitored ¹	Measurement frequency	Institutional Responsibility		Cost ²
				Impl.	Sup.	
	workers at all sites. • Proper drainage system, collection and disposal system of solid waste, separate toilets for female and male workers, etc will be provide by the contractor at camp sites. • At every workplace, first aid kit shall be readily available including an adequate supply of sterilized dressing materials, medicines and appliances in accordance with the regulations.					
8. First Aid	• The contractor will provide, erect and maintain informatory/safety signs, hoardings written in English and local languages, wherever required or as suggested by the Engineer in accordance with IRC and MoRSTH specifications.	Execution of conservation /mitigation measures.	Periodic reviews during construction works	Contractor, DSC & PIU	PMC, PMU	Incidental to work
9. Informatory signs and hoardings		Execution of conservation /mitigation measures.	Periodic reviews during construction works	Contractor, DSC & PIU	PMC, PMU	Included in Road sign marking and appurtenance s cost
(k) Protection of Archaeological, Cultural and Religious Places and Properties						
1. Prevention of damage to Archaeological, Cultural and Religious Places and Properties	• All necessary and adequate care shall be taken to prevent impact on archaeological and cultural properties (if any) which includes cultural sites and remains, places of worship including temples, mosques, churches and shrines, etc., graveyards, monuments and any other important structures during construction. Work shall not encroach in to such properties, premises and precincts under any circumstances. • Conservation and protection measures shall be taken up as per design and as per the instructions issued by the relevant authorities when working close to or within such sites. Contractor shall seek advice from the Engineer if such instructions are not available. Access to such properties from the road shall be maintained clear and clean. • Blasting work shall not be allowed near or within archaeological and historical sites without prior approval of the relevant authorities. • All fossils, coins, articles of value of antiquity and structures and other remains or things of geological or archaeological interest etc. discovered on the site and/or during construction work shall be the property of the Government of India, and shall be dealt with as per provisions of the relevant legislation. • The contractor shall take reasonable precaution to prevent his workmen or any other persons from removing and damaging any such article or thing and shall, immediately upon discovery thereof and before removal	Execution of conservation /mitigation measures.	Periodic reviews during construction works	Contractor, DSC & PIU	PMC, PMU	NA

Project stage - anticipated Environmental issues and impacts	Proposed Mitigation Measures	Parameter to be monitored ¹	Measurement frequency	Institutional Responsibility		Cost ²
				Impl.	Sup.	
	inform the Engineer of such discovery and all work shall be stopped within 100m in all directions from the site of discovery till further instructions from the Engineer.					
(I) Environmental Enhancement						
1. Enhancement measures	Contractor will carry out enhancement of religious / community properties if provided in BOQ and will carry out work to the satisfaction of Engineer.	Execution of conservation /mitigation measures.	Periodic reviews during construction works	Contractor, DSC & PIU	PMC, PMU	
2. Continuous Community Participation	The Engineer or his representative will have continuous interactions with local people around the project area to ensure that the construction activities are not causing undue inconvenience to the locals residing in the vicinity of project site under construction due to noise, dust or disposal of debris etc.	Execution of conservation /mitigation measures.	Periodic reviews during construction works	Contractor, DSC & PIU	PMC, PMU	NA
3. Clean-up Operations, Restoration and Rehabilitation	- The contractor will prepare site restoration plans, which will be approved by the Engineer. The clean-up and restoration operations are to be implemented by the contractor prior to demobilization. On completion of the works, contractor will clear all temporary structures; dispose all garbage, night soils and POL waste in accordance with the regulations. The contractor also shall remove all debris, piles of unwanted earth, spoil material, etc away from the roadsides and from other work places and disposed at designated locations. - All waste materials will be completely disposed and the site will be fully cleaned and certified by Engineer before handing over.	Execution of conservation /mitigation measures	Once after completion of the physical work during defect liability period	Contractor, DSC & PIU	PMC, PMU	Engineering Cost
4. Utilities and roadside amenities	- Contractor shall take care not to damage/destroy or affect the functional purposes of utilities such as water, electricity, telephone poles. Prior to commencement of work the contractor shall consult those service providers and agree on a plan for shifting or relocating these utilities temporarily or permanently as required. Contractor shall assist the service providers in whatever possible manner to minimize disruption to such services. The arrangements the contractor makes with those service providers shall be brought in the notice of Engineer. - In case of an inadvertent damage caused to a utility, the contractor shall immediately inform the service provider and help to restore the service	Execution of conservation /mitigation measures.	Periodic reviews during construction works	Contractor, DSC, PIU & Line department(s)	PMC, PMU	Included in cost for Utility Shifting

Project stage - anticipated Environmental issues and impacts	Proposed Mitigation Measures	Parameter to be monitored ¹	Measurement frequency	Institutional Responsibility		Cost ²
				Impl.	Sup.	
	without delay.					Incidental to work
5. Road components	Road components including footpaths, railings, storm water drains, crash barrier, traffic signs, speed zone signs, pavement markers and any other such items will be provided as per BOQ.	Execution of conservation /mitigation measures.	Periodic reviews during construction works	Contractor, DSC & PIU	PMC, PMU	Included in Road sign marking and appurtenances cost
6. Plantation	The compensatory plantation @ 1:2 in close vicinity will be carried out by the PIU through an appropriate agency.	Execution of conservation /mitigation measures	Periodic reviews during construction works	PIU in consultation with State forest department agency	PMC, PMU	Compensatory plantation cost in Environmental Management cost
(m) Handling Environmental Issues during Construction						
1. Handling Environmental Issues during Construction	- The Contractor will appoint a suitably qualified Environmental & Safety Officer. - The Environmental & Safety Officer will be the primary point of contact for assistance with all environmental issues during the pre-construction and construction phases. He/She shall be responsible for ensuring the implementation of EMP and community liaisoning. - The Contractor's Environmental & Safety Officer shall handle public complaints regarding environmental /social related matters. All public complaints will be entered into the Complaints Register. The Environmental & Safety Officer will promptly investigate and review environmental complaints and implement the appropriate corrective actions to arrest or mitigate the cause of the complaints. A register of all complaints is to be passed to the Engineer within 48 hrs they are received, with the action taken by the Environmental Officer on complaints thereof. - Contractor shall develop suitable method to receive complaints. The complaint register shall be placed at a convenient place, easily accessible by the public. - The Engineer or his representative will have a continuous interaction	Appointment of Environment Officer by the contractor. Establishing complaints redressal system. Continuous community participation	Once – prior to commencement of physical works Periodic monitoring of complaints redressed. Periodic monitoring by IA/PMU	Contractor, DSC & PIU	PMC, PMU	Labour costs/ Engineering costs

Project stage - anticipated Environmental issues and impacts	Proposed Mitigation Measures	Parameter to be monitored ¹	Measurement frequency	Institutional Responsibility		Cost ²
				Impl.	Sup.	
	with local people around the project area to ensure that the construction activities are not causing undue inconvenience to the local residents due to noise, dust, debris disposal, etc. The contractor shall report implementation of the EMP to the Engineer in a "reporting format" agreed by Engineer/PIU either monthly or periodically, as agreed. The report should carry observations/instructions given by Client, Consultant etc. and compliance status of the same.					
C. Operation Phase (up to Defect Liability period)						
1. Operation performance monitoring	The DSC/PIU will monitor the effectiveness and performance of various environmental mitigation measures carried out as part of the project such as survival rate of trees planted, environmental enhancement provisions made under the project, borrow areas rehabilitation status etc.	Environment quality	Periodic as per need basis	Contractor DSC,PIU	PMC, PMU	NA
2. Maintenance of drainage systems	The contractor will ensure that all drainage systems are periodically cleaned to facilitate passage of rainwater to avoid flooding.	Cleaning of drains	Periodic as per need basis	Contractor, DSC & PIU	PMC, PMU	
3. Pollution monitoring	- The IA will monitor the environmental quality in terms of ambient air, noise level, etc. at selected locations in accordance with the environmental monitoring plan to monitor the effectiveness and performance of various environmental mitigation measures carried out. - Adequate site supervision shall be carried out that every practical mean is utilized to keep the pollution levels low.	Environment parameters	Once in three months	Contractor DSC,PIU	PMC, PMU	Environmental Monitoring cost
4. Soil erosion and monitoring of borrow areas	Visual monitoring and inspection of soil erosion at borrow areas, quarries (if closed and rehabilitated), embankments and other locations which are likely to be affected, will be carried out.	Soil erosion	Once in three months	Contractor DSC,PIU	PMC, PMU	
5. Safety measures	Performance of safety measures provided during construction phase will be reviewed and if required additional signboards and other traffic safety measures shall be displayed.	Requirement of additional safety measures and their execution	After execution of work	Contractor DSC,PIU	PMC, PMU	Cost of Road Sign, Marking and Appurtenances

Project stage - anticipated Environmental issues and impacts	Proposed Mitigation Measures	Parameter to be monitored ¹	Measurement frequency	Institutional Responsibility		Cost ²
				Impl.	Sup.	
6. Site Clearance and restoration.	• All sites (plant sites, camp site, office complexes, stock yards, temporary diversions etc shall be dismantled and restored to acceptable position and all the debris material shall be disposed off to approved disposal sites by Engineer. • Disposal sites shall be properly graded to surrounding levels and shall be covered with topsoil.	Restoration of the sites.	Once after completion of the works.	Contractor DSC,PIU	PMC, PMU	Engineering Cost

SURVEY DATA

Location of Turns.

District : Poonch
Section : Sakhi –Maidan – Kalai Road

Location/ Chainage (Km)	Turns
0+510	Right ; in adequate sight distance
0+900	Right ; in adequate sight distance
1+150	Left ;90 degree in adequate sight Distance
1+850	Right ; in adequate sight distance
2+900	Right; 90 degree in adequate sight distance
3+260	Left ; in adequate sight distance
3+720	Left; 90 degree in adequate sight distance
3+850	Right ; inadequate sight distance
4+360	Right ; inadequate sight distance
5+080	Left ; inadequate sight distance
6+020	Left; 90 degree in adequate sight distance
6+140	Left ; inadequate sight distance
6+950	Left ; inadequate sight distance
7+650	Left; 90 degree in adequate sight distance
8+940	Left; inadequate sight distance
9+050	Left; inadequate sight distance
9+350	Left; 90 degree inadequate sight distance
9+380	Left; inadequate sight distance
9+600	Left; inadequate sight distance
9+700	Left; inadequate sight distance
9+760	Right ; inadequate sight distance
9+870	Right; 90 degree inadequate sight distance
10+170	Left; 90degree inadequate sight distance
10+450	Left; inadequate sight distance
10+770	Left; inadequate sight distance
10+970	Left; inadequate sight distance
11+120	Left; 90 degree inadequate sight distance

11+300	Left; in adequate sight distance
11+580	Right ; in adequate sight distance
11+730	Left; in adequate sight distance
12+030	Right ; in adequate sight distance
12+330	Left; in adequate sight distance
12+400	Right ; in adequate sight distance
12+500	Left; in adequate sight distance
12+670	Left; 90 degree inadequate sight distance
12+800	Left; 90 degree inadequate sight distance
13+020	Left; in adequate sight distance
13+320	Left; in adequate sight distance
13+540	Right ; in adequate sight distance
13+940	Left; 90 degree in adequate sight distance
15+250	Left; U-Turn in adequate sight distance
15+550	Left; in adequate sight distance
15+850	Left; in adequate sight distance
17+420	Right ; in adequate sight distance
17+720	Right ; in adequate sight distance
18+280	Left; in adequate sight distance
18+830	Left; in adequate sight distance
19+340	Left; 90 degree in adequate sight distance
19+630	Left; in adequate sight distance
19+970	Left; U-Turn in adequate sight distance
20+300	Right ; inadequate sight distance
20+420	Left; in adequate sight distance
20+640	Left; U-Turn in adequate sight distance
20+770	Right ; inadequate sight distance
21+060	Left; U-Turn in adequate sight distance
21+160	Left; in adequate sight distance
21+480	Right ; inadequate sight distance

Inventory Condition survey and treatment for Bridges.

District : Poonch

Section : Sakhi –Maidan - Kalai Road

Chainage (Km)	Type	Span arrangement	Existing condition	Proposed treatment
-	-	-	-	-

Inventory Condition Survey and Treatment for Culverts.

District : Poonch
Section : Sakhi –Maidan - Kalai Road

Chainage (Km)	Type of culvert deck	Dimension (m)	Existing condition	Proposed treatment
0+600	R.C.C deck slab on stone masonry abutments	Span = 2.80m c/w = 6.60m	Satisfactory	Abutment repairs and railing to be provided.
0+745	R.C.C deck slab on stone masonry abutments	Span = 2.00m c/w = 5.50m	Satisfactory	Abutment repairs and railing to be provided.
1+165	R.C.C deck slab on stone masonry abutments	Span = 2.00m c/w = 6.60m	Satisfactory	Abutment repairs and railing to be provided.
3+455	R.C.C deck slab on stone masonry abutments	Span = 1.60m c/w = 8.00m	Satisfactory	Abutment repairs and railing to be provided.
3+560	R.C.C deck slab on stone masonry abutments	Span = 3.50m c/w = 6.60m	Satisfactory	Abutment repairs and railing to be provided.
4+185	R.C.C deck slab on stone masonry abutments	Span = 2.40m c/w = 7.00m	Satisfactory	Abutment repairs and railing to be provided.
4+335	R.C.C deck slab on stone masonry abutments	Span = 2.70m c/w = 8.00m	Satisfactory	Abutment repairs and railing to be provided.
4+385	R.C.C deck slab on stone masonry abutments	Span = 1.70m c/w = 8.00m	Satisfactory	Abutment repairs and railing to be provided.
4+930	R.C.C deck slab on stone masonry abutments	Span = 1.00m c/w = 7.00m	Satisfactory	Abutment repairs and railing to be provided.
5+320	R.C.C deck slab on stone masonry abutments	Span = 1.70m c/w = 7.00m	Satisfactory	Abutment repairs and railing to be provided.
5+845	R.C.C deck slab on stone masonry abutments	Span = 2.30m c/w = 8.00m	Satisfactory	Abutment repairs and railing to be provided.
6+095	R.C.C deck slab on stone masonry abutments	Span = 2.00m c/w = 9.00m	Satisfactory	Abutment repairs and railing to be provided.
6+590	R.C.C deck slab on stone masonry abutments	Span = 2.70m c/w = 8.00m	Satisfactory	Abutment repairs and railing to be provided.
8+180	R.C.C deck slab on stone masonry abutments	Span = 1.00m c/w = 7.00m	Satisfactory	Abutment repairs and railing to be provided.

8+240	R.C.C deck slab on stone masonry abutments	Span = 3.00m c/w = 8.00m	Satisfactory	Abutment repairs and railing to be provided.
8+285	R.C.C deck slab on stone masonry abutments	Span = 3.00m c/w = 8.00m	Satisfactory	Abutment repairs and railing to be provided.
9+540	R.C.C deck slab on stone masonry abutments	Span = 2.20m c/w = 9.00m	Satisfactory	Abutment repairs and railing to be provided.
9+670	R.C.C deck slab on stone masonry abutments	Span = 1.00m c/w = 4.00m	Satisfactory	Abutment repairs and railing to be provided.
11+640	R.C.C deck slab on stone masonry abutments	Span = 5.00m c/w = 5.50m	Satisfactory	Abutment repairs and railing to be provided.
13+185	R.C.C deck slab on stone masonry abutments	Span = 2.40m c/w = 7.00m	Satisfactory	Abutment repairs and railing to be provided.
14+040	R.C.C deck slab on stone masonry abutments	Span = 0.50m c/w = 7.00m	Satisfactory	Abutment repairs and railing to be provided.
14+770	R.C.C deck slab on stone masonry abutments	Span = 1.00m c/w = 7.00m	Satisfactory	Abutment repairs and railing to be provided.
15+805	R.C.C deck slab on stone masonry abutments	Span = 1.00m c/w = 6.00m	Satisfactory	Abutment repairs and railing to be provided.
16+150	R.C.C deck slab on stone masonry abutments	Span = 2.00m c/w = 7.00m	Satisfactory	Abutment repairs and railing to be provided.
16+320	R.C.C deck slab on stone masonry abutments	Span = 0.50m c/w = 7.00m	Satisfactory	Abutment repairs and railing to be provided.
17+820	R.C.C deck slab on stone masonry abutments	Span = 0.50m c/w = 5.3m	Satisfactory	Abutment repairs and railing to be provided.
19+080	R.C.C deck slab on stone masonry abutments	Span = 3.20m c/w = 6.6m	Satisfactory	Abutment repairs and railing to be provided.
19+475	R.C.C deck slab on stone masonry abutments	Span = 2.70m c/w = 8.00m	Satisfactory	Abutment repairs and railing to be provided.
20+605	R.C.C deck slab on stone masonry abutments	Span = 2.50m c/w = 8.00m	Satisfactory	Abutment repairs and railing to be provided.

**Inventory Condition survey and treatment for Hume
Pipes/Deep drains.**

District : Poonch
Section : Sakhi –Maidan -Kalai Road

Chainage (Km)	Type of pipe/Drain	Dimension (m)	Existing condition	Proposed treatment
1+825	U/G Hume pipe	0.25	Satisfactory	-
4+250	U/G Hume pipe	0.60	Satisfactory	-
7+060	U/G Hume pipe	0.60	Satisfactory	-
10+315	U/G Drain	1.00	Satisfactory	-
12+055	U/G Drain	1.00	Satisfactory	-
12+435	U/G Drain	1.00	Satisfactory	-
15+430	U/G Hume pipe	0.45	Satisfactory	-
16+085	U/G Hume pipe	0.60	Satisfactory	-
16+875	U/G Hume pipe (2 nos)	0.90	Satisfactory	-
18+540	U/G Hume pipe	0.90	Satisfactory	-
19+650	U/G Hume pipe	0.60	Satisfactory	-
20+180	U/G Hume pipe	0.60	Satisfactory	-
20+460	U/G Hume pipe	0.60	Satisfactory	-

Location of Steep Gradient

District : Poonch

Section : Sakhi –Maidan – Kalai Road

Location/ Chainage (Km)	Remarks Approx.
0+550	5%
1+200	5%
2+225	5%
2+850	5%
3+055	5%
3+730	6%
3+925	5%
4+325	5%
5+275	5%
6+070	5%
6+425	5%
7+425	6%
8+925	6%
9+825	5%
10+425	5%
11+625	9%
12+050	6%
12+370	6%
12+550	7%
12+870	5%
15+870	55%
16+600	5%
17+370	6%
17+650	5%
18+325	5%

18+870	5%
19+370	5%
20+300	7%
20+700	5%
20+770	5%
21+170	9%

Inventory of Existing Road Width

District : Poonch

Section : Sakhi –Maidan – Kalai Road

Chainage (km)	Existing Road Width (M)
0+000	6.13
0+300	5.75
0+500	6.48
0+800	5.58
1+000	5.90
1+200	5.44
1+500	5.50
2+000	5.50
2+500	5.50
3+000	5.50
3+100	6.85
3+400	7.70
3+500	7.42
3+800	6.00
4+000	5.50
4+100	6.31
4+200	7.08
4+500	7.79
4+800	7.42
5+000	5.50
5+100	5.97
5+300	6.91
5+500	6.61
5+800	6.67
6+000	5.50
6+100	8.99
6+200	8.80
6+500	8.22

6+700	7.57
6+800	6.88
6+900	6.19
7+000	5.50
7+500	5.50
8+000	5.50
8+100	6.33
8+200	7.82
8+300	7.96
8+400	7.61
8+500	7.26
8+600	6.90
8+900	5.85
9+000	5.50
9+500	6.15
9+200	6.80
9+300	7.44
9+400	8.09
9+500	8.74
9+600	6.72
9+700	4.14
9+800	4.39
10+000	5.50
10+500	5.50
11+000	5.50
11+500	5.50
12+000	5.50
12+500	5.50
13+000	5.50
13+100	6.31
13+200	6.94
13+300	6.97

13+400	6.61
13+500	6.42
13+600	6.42
13+700	6.05
13+800	5.87
13+900	5.68
14+000	5.50
14+100	7.00
14+500	7.00
14+800	6.80
14+900	6.15
15+000	5.50
15+200	5.62
15+500	5.81
15+800	5.99
15+900	5.76
16+000	5.50
16+100	6.50
16+400	6.88
16+500	6.57
16+600	6.33
16+700	6.10
16+800	5.86
16+900	5.62
17+000	5.50
17+100	5.41
17+200	5.33
17+500	5.07
17+600	4.99
17+800	5.23
17+900	5.12
18+000	4.90

18+100	4.96
18+300	4.98
18+500	4.96
19+000	4.90
19+100	6.59
19+200	7.02
19+300	7.37
19+400	7.73
19+500	7.78
19+600	7.27
19+700	6.68
19+800	6.90
19+900	5.49
20+000	4.90
20+100	5.41
20+200	5.92
20+300	6.44
20+400	6.95
20+500	7.46
20+600	7.96
20+700	7.07
20+800	6.48
20+900	5.69
21+000	5.90
21+100	5.30
21+200	5.70
21+300	6.10
21+400	6.50
21+500	6.90

SECTION-7
General Conditions of Contract

Section 7 - General Conditions of Contract

The General Conditions are the Conditions of Contract for Construction for Building and Engineering Works designed by the Employer (red book), First Edition, 1999 prepared by the Federation International des Ingenieurs-Conseils (FIDIC). These Conditions are subject to the variations and additions set out in Section 8 (Particular Conditions of Contract).

Acknowledgement: The General Conditions of Contract being used under Section 7, of the document, is that of the “FIDIC conditions of contract for Civil Engineering Construction”.

SECTION-8

**Particular Conditions of
Contract**

Section 8 - Particular Conditions of Contract

The following Particular Conditions of Contract (PCC) shall supplement the General Conditions of Contract (GCC). Whenever there is a conflict, the provisions herein shall prevail over those in the GCC.

Table of Contents

1. General Provisions.....	8-3
1.1 Definitions.....	8-3
1.5 Priority of Documents	8-3
1.6 Contract Agreement	8-3
1.15 Inspections and Audit by the Bank	8-3
3. The Engineer	8-3
3.1 Engineer's Duties and Authority	8-3
3.2 Delegation by the Engineer	8-4
4. The Contractor.....	8-4
4.1 Contractor's General Obligations	8-4
4.2 Performance Security.....	8-Error! Bookmark not defined.
4.4 Sub-contractors	8-4
4.10 Site Data	8-4
4.18 Protection of the Environment	8-5
6. Staff and Labour.....	8-5
6.12 Arms and Ammunition	8-5
6.13 Festivals and Religious Customs	8-5
8. Commencement, Delays and Suspension.....	8-5
8.1 Commencement of Work.....	8-5
8.10 Payment for Plant and Materials in Event of Suspension	8-5
12. Measurement and Evaluation.....	8-5
12.3 Evaluation.....	8-5
13. Variations and Adjustments.....	8-6
13.1 Right of vary.....	8-6
13.7 Adjustments for Changes in Legislation	8-6
13.8 Adjustment for changes in cost.....	8-6
14. Contract Price and Payment	8-6
14.1 The Contract Price.....	8-6
14.2 Advance Payment	8-7
14.6 Issue of Interim Payment Certificates.....	8-7
14.7 Payment	8-7
14.8 Delayed Payment	8-7
14.9 Payment of Retention Money	8-7
14.15 Currencies of Payment.....	8-7

SECTION 8 - PARTICULAR CONDITIONS OF CONTRACT

15. Termination by Employer.....	8-8
15.6 Corrupt or Fraudulent Practices.....	8-8
16. Suspension and Termination by the Contractor	8-8
16.1 Contractor's Entitlement to Suspend Work.....	8-8
16.2 Suspension of Bank Loan or Credit	8-8
16.4 Payment on Termination.....	8-9
18. Insurance	8-9
18.1 General Requirements for Insurances.....	8-9
20. Claim, Disputes and Arbitration	8-9
20.6 Arbitration.....	8-9

1. General Provisions

1.1 Definitions

Insert following subparagraph 1.1.1.8 of Sub-Clause 1.1:

The word 'Tender' is synonymous with 'Bid', and the words 'Appendix to Tender' with 'Appendix to Bid', and words 'tender documents' with 'bidding documents'.

Insert following subparagraph 1.1.2.10 of Sub-Clause 1.1:

1.1.2.11 "Bank" means the Asian Development Bank

1.1.2.12 "Borrower" means the person or entity named as the borrower in the Bid Data Sheet.

1.5 Priority of Documents

Replace the list of documents with the list as given below:

- (a) the Contract Agreement,
- (b) the letter of acceptance (Notification of award)
- (c) Bidder's price proposal
- (d) the Addendums
- (e) the Particular Conditions,
- (f) the General Conditions,
- (g) the Specifications,
- (h) the drawings,
- (i) other documents forming part of contract agreement.

1.6 Contract Agreement

Replace the line "The Contract Agreement shall be based upon annexed to the Particular Conditions." By the following

"The Contract Agreement shall be based upon the form as given in Section 9 Contract Forms"

1.15 Inspections and Audit by the Bank

Insert this Sub-Clause at the end of Clause 1:

The Contractor shall permit the Bank to inspect the Contractor's accounts and records relating to the performance of the Contract and to have them audited by auditors appointed by the Bank, if so required by the Bank.

3. The Engineer

3.1 Engineer's Duties and Authority

In Clause 3.1, Para 3, Delete the line ". If the Engineer is required to obtain the approval of the Employer before exercising a specified authority, the requirements shall be as stated in the Particular Conditions." and add the following line:

The Engineer will seek prior approval; of the "Employer" in respect of the following:

- (i) issuing the order to commence the works;
- (ii) issuing variation orders involving financial implications;
- (iii) sanction of additional items, sums or costs and variation of rates and prices including fixation of new rates;
- (iv) approving subletting of any part of the works;
- (v) approving any extension of contractual time limits; and
- (vi) stopping and/or termination of the contract.

- 3.2 Delegation by the Engineer** Add at the beginning of Clause 3.2 the following:
“The Team Leader of the Design and Supervision Consultants or his authorized representative would be named as the Engineer’s representative at the work site, who will issue routine and daily instructions to the Contractor.”

4. The Contractor

- 4.1 Contractor’s General Obligations** Insert following in the second paragraph of Sub-Clause 4.1:
All equipment, material, and services to be incorporated in or required for the Works shall have their origin in any eligible source country.
- 4.2 Performance Security** In second paragraph line 4 replace “...annexed to the Particular Conditions” with “.... annexed to Section 9: Contract Forms”

Add following at the end at the second paragraph: “The Performance security shall be from a reputable bank.”

Delete third paragraph of Sub-clause 4.2 and substitute:
The Performance Security shall be valid until a date 28 days from the date of completion of defect liability period.

Insert following the third paragraph of Sub-Clause 4.2:
Without limitation to the provisions of the rest of this Sub-Clause, whenever the Engineer determines an addition to the Contract Price as a result of a change in cost and/or legislation or as a result of a Variation amounting to more than 25 percent of the portion of the Contract Price payable in a specific currency, the Contractor, at the Engineer’s request, shall promptly increase the value of the Performance Security in that currency by an equal percentage.

Performance security shall not be released in parts in case of part taking over.
- 4.4 Sub-contractors** Delete first paragraph of Sub-clause 4.4 and substitute:

The contractor shall not subcontract more than 50% of the Works.
- 4.8** Insert following after clause 4.8 item (e)

“All the obligations on the part of contractor concerned under clause 4.8 are deemed to be incidental to the works and no extra claim on this account is payable to the contractor”.
- 4.10 Site Data** Insert following the first paragraph of Sub-Clause 4.10:

Data made available by the Employer in accordance with the preceding paragraph shall be deemed to include data listed elsewhere in the contract as open for inspection at the address stipulated in the Contract.

4.18 Protection of the Environment

Replace second paragraph with the following:

"The Contractor shall follow the guidelines as mentioned in MORT&H under the following Clauses

- a) Cl. 111: Precaution for Safeguarding the Environment
- b) Cl. 306: Soil Erosion and Sedimentation Control
- c) Annexure "A" to Cl.501: Protection of Environment

The necessary content as defined and ordered by the Engineer shall be executed utilizing the provisional sum. On occurrence of any such item, the Contractor shall immediately inform the Engineer along with the item and prices of the same required as mitigation measure."

6. Staff and Labour

Insert the following Clauses after Clause 6.11:

6.12 Arms and Ammunition

The contractor shall not give, barter or otherwise dispose of to any person, any arms or ammunition of any kind, or allow Contractor's person to do so.

6.13 Festivals and Religious Customs

The Contractor shall respect the Country's recognized festivals, days of rest and religious or other customs.

8. Commencement, Delays and Suspension

8.1 Commencement of Work

Amend Second sentence Clause 8.1, Para 1 to read as:

"the Commencement Date shall be within 28 days of date of issue of Letter of Commencement."

Replace second paragraph of Clause 8.1, to read as:

"The Contractor shall commence the execution of works not later than the Commencement Date, and shall proceed with the works with due expedition and without delay."

8.10 Payment for Plant and Materials in Event of Suspension

The contractor shall be entitled to payment of the value (as at the date of suspension) of plant and /or material which have not been delivered to site if

- a) the work on plant or delivery of plant and/ or materials has been suspended for more than 28 days and
- b) the contractor has marked the plant and or materials as the Employer's property in accordance with the Engineers instructions

10.2 Taking over of parts of the works

Add the following at end of clause 10.2

"The part taking over of the work may be allowed for continuous stretch of not less than 5 kms at the discretion of the Employer"

12. Measurement and Evaluation

12.3 Evaluation

. In second paragraph, delete from "However, a new rate or price..." to the end of the paragraph and substitute:

Replace the text of paragraph second as:

“However a new rate or price may be appropriate for an item of work if actual quantity of such item accounts for more than 2% of the accepted contract price, and the quantity of work executed under the item exceeds the quantity set out in the bill of quantities by more than 25%. New rate shall be applicable for the quantity exceeding more than 25% of original BOQ”.

Insert at the end of Sub-Clause 12.3:

Any item of work included in the Bill of Quantities for which no rate or price has been entered shall be considered as included in other rates and prices in the Bill of Quantities and will not be paid for separately.

13. Variations and Adjustments

13.7 Adjustments for Changes in Legislation

Insert at the end of Sub-Clause 13.7:

Notwithstanding the foregoing, such extension of time shall not be separately determined if the same shall already have been taken into account in determining an extension and such cost shall not be separately paid if the same shall already have been taken into account in the indexing of any inputs to the table of adjustment data in accordance with the provisions of Sub-Clause 13.8.

13.8 Adjustment for changes in Cost

This clause is deleted.

14. Contract Price and Payment

14.1 The Contract Price

Renumber subparagraphs (c) and (d) as (f) and (g).

Insert following subparagraph (b):

- (c) the Contract Price shall include all taxes, duties and other charges imposed outside the Country on the production, manufacture, sale and transport of the Contractor's Equipment, Plant, Materials and supplies to be used on or furnished under the Contract, and on the services to be performed under the Contract.
- (d) the Contractor's staff and labor will be liable to pay personal income taxes in the Country in respect of such of their salaries and wages as are chargeable under the Laws for the time being in force, and the Contractor shall perform such duties in regard to such deductions thereof as may be imposed on him by such Laws.
- (e) notwithstanding the provisions of subparagraph (b), contractor's Equipment, including essential spare parts therefore, imported by the contractor for the sole purpose of executing the contract shall be temporarily exempt from the payment of import duties and taxes upon initial importation, provided the contractor shall post with the customs authorities at the port of entry an approved export bond or bank guarantee, valid until the time for completion plus six months, in an amount equal to the full assessed imported value of such contractor's Equipment and spare parts, and callable in the event the contractors Equipment is not exported from the country on completion of the contract. A copy of the bond or bank guarantee endorsed by the customs authorities shall be provided by the contractor to the Employer upon the importation of individual items of contractor: Equipment and spare parts. Upon export of individual items of contractors Equipment or spare parts, or upon the completion of the contract, the contractor shall prepare, for approval by the customs authorities, an assessment of the residual value of the contractors Equipment and spare parts to be exported, based on the depreciation scale(s) and other criteria used by the customs authorities for such

SECTION 8 - PARTICULAR CONDITIONS OF CONTRACT

purpose under the provisions of the applicable laws. Import duties and taxes shall be due and payable to the customs authorities by the contractor on (a) the difference between the initial imported value and the residual value of the contractors Equipment and spare parts to exported: and (b) on the initial imported value that contractors Equipment and spare parts remaining in the country after completion of the contract. Upon payment of such dues within 28 days of being invoiced, the bond or bank guarantee shall be reduced or released accordingly; otherwise the security shall be called in the full amount remaining.

14.2 Advance Payment

In first paragraph line 2 insert "from reputable bank" after "..... submits a guarantee."

Insert at the end of Para 1 of Clause 14.2

"Advance will be paid for mobilization only. There is no provision of equipment advance or progress related advance."

In third paragraph line 7 replace "...annexed to the Particular Conditions" with ".... annexed to Section 9: Contract Forms"

14.6 Issue of Interim Payment Certificates

Delete the first sentence of the last paragraph and substitute:

The Engineer may, in any Interim Payment Certificate, make any correction or modification that should properly be made to any previous Interim Payment Certificate. The Engineer may similarly correct or modify in the Final Payment Certificate.

14.7 Payment

Insert following subparagraph (b):

at a time when the Bank's loan or credit (from which part of the payments to the Contractor is being made) is suspended, the amount shown on any statement submitted by the Contractor, within 14 days after such statement is submitted. Any discrepancy shall be rectified in the next payment to the Contractor.

Insert following subparagraph (c):

or, if the Bank's loan or credit (from which part of the payments to the Contractor is being made) is suspended, the undisputed amount shown in the Final Statement, within 56 days after the date of notification of the suspension in accordance with Sub-Clause 16.2.

14.8 Delayed Payment

Delete Para 2 of Clause 14.8 and insert following paragraph:

Interest is calculated from the date by which the payment should have been made at the rate of interest for commercial borrowing of the currencies in which payments are made.

Insert following subparagraph (c):

or, if the Bank's loan or credit (from which part of the payments to the Contractor is being made) is suspended, the undisputed amount shown in the Final Statement, within 56 days after the date of notification of the suspension in accordance with Sub-Clause 16.2.

14.9 Payment of Retention Money

Replace Sub-Clause 14.9:

"On completion of the whole of the works and issuance of Taking Over Certificate, 50% of the Retention Money shall be released to the Contractor on certification by the Engineer.

For the balance 50% of the Retention Money the Contractor shall have the option to submit a Bank Guarantee valid upto the end of the Defect Notification Period.

The Employer shall return the guarantee to the Contractor within 21

days after receiving a copy of the Performance Certificate.”

14.15 Currencies of Payment

Insert at the end of Sub-Clause 14.15:

Where any substantial changes in the expected foreign and local currency requirements of the Contractor occur during the execution of the Works, the foreign and local currency proportions of the balance of the Contract Price shall be amended by agreement between the Employer and the Contractor to reflect such substantial change, provided that

- (a) the Contractor shall inform the Employer and the Engineer whenever such substantial change shall occur; or
- (b) the Engineer may recommend a review of such expected requirements if in his judgment there is evidence of a change in the country of origin of Materials, Plant, or Services to be provided under the Contract which will result in any substantial change of such expected requirements.

15. Termination by Employer

15.6 Corrupt or Fraudulent Practices

Insert the following Sub-Clause:

If in the opinion of the Employer the Contractor has engaged in corrupt, fraudulent collusive or coercive practices, in competing for or in executing the Contract, then the Employer may, after giving 14 days notice to the Contractor, terminate the Contractor's employment under the Contract and expel him from the Site, and the provisions of Clause 15 shall apply as if such expulsion had been made under Sub-Clause 15.2.

For the purposes of this Sub-Clause:

- (a) “corrupt practice” means the offering, giving receiving, or soliciting, directly or indirectly, of any thing of value to influence the action of any party in the procurement process or the execution of a contract;
- (b) “fraudulent practice” means a misrepresentation or omission of facts in order to influence a procurement process or the execution of a contract;
- (c) “collusive practices” means a scheme or arrangement between two or more bidders, with or without the knowledge of the Borrower, designed to influence the action of any party in a procurement process or the execution of a contract;
- (d) “coercive practices” means harming or threatening to harm, directly or indirectly, persons, or their property to influence their participation in a procurement process, or affect the execution of a contract.

16. Suspension and Termination by the Contractor

16.1 Contractor's Entitlement to Suspend Work

Insert at the end of Sub-Clause 16.1:

Without prejudice to the Contractor's entitlement to financing charges under Sub-Clause 14.7 and to terminate under Sub-Clause 16.2, the Contractor may suspend work or reduce the rate of work within 56 days after notification by the Bank to the Borrower, that the Bank has suspended disbursements under its loan, which finances in whole or in part the execution of the Works. The Employer shall notify the Contractor, with a copy to the Engineer, of such suspension within 7 days of the Borrower having received the suspension notification from the Bank.

16.2 Suspension of Bank

Insert at the end of Sub-Clause 16.2:

Loan or Credit

In the event the Bank suspends the loan or credit for which part of the payments to the Contractor are being made:

- (a) The Employer shall notify the Contractor, with copy to the Engineer, of such suspension within 7 days of the Borrower having received the suspension notice from the Bank, provided (i) that the Employer shall state in such notification whether sufficient fund in appropriate currencies are expected to be available to the Employer to continue making payments to the Contractor beyond a date 60 days after the date of Bank notification of the suspension, and (ii) that, if such funds are not expected to be available, the Employer shall immediately instruct the Engineer to instruct the Contractor to suspend the progress of the Works pursuant to Sub-Clause 8.8.
- (b) If the Contractor has not received the sums due to him upon expiration of the 14 days referred to in Sub-Clause 14.7 for payments under Interim Payment certificates, the Contractor may, without prejudice to the Contractor's entitlement to financing charges under Sub-Clause 14.8, immediately take one or both of the following actions, namely (i) suspend work or reduce the rate of work, and (ii) terminate his employment under the Contract by giving notice to the Employer, with a copy to the Engineer, such termination to take effect 14 days after the giving of the notice.

16.4 Payment on Termination

Delete subparagraph (c)

18. Insurance

18.1 General Requirements for Insurances

Insert at the end of Sub-Clause 18.1:

The Contractor shall be entitled to place all insurance relating to the Contract (including, but not limited to the insurance referred to Clause 18) with insurers from any eligible source country.

20. Claim, Disputes and Arbitration

20.6 Arbitration

Delete paras (a) and (b), renumber para (c) to become para (a), and add the following paras:

(b) Contracts with foreign contractors

United Nations Commission on International Trade Law (UNCITRAL) Arbitration Rules:

Any dispute, controversy, or claim arising out of or relating to this Contract, or breach, termination, or invalidity thereof, shall be settled by arbitration in accordance with the UNCITRAL Arbitration Rules as at present in force.

(c) Contracts with domestic contractors:

Any dispute between the Employer and a domestic Contractor arising in connection with the present Contract shall be referred to adjudication or arbitration in accordance with the laws of the Employer's country.

SECTION-9

Contract Forms

Section 9 - Contract Forms

This Section contains forms which, once completed, will form part of the Contract. The forms for Performance Security, Advance Payment Security when required, shall only be completed by the successful Bidder after contract award.

Table of Forms

Notification of Award	9-2
Contract Agreement.....	9-3
Performance Security	9-4
Advance Payment Security	9-5
Draft format for Excise/Custom duty exemption	9-6

Notification of Award

[on letterhead paper of the Employer]

..... *date*

To: *name and address of the Contractor*

Subject: *Notification of Award Contract No.*

This is to notify you that your Bid dated *date* for execution of the *name of the contract and identification number, as given in the Contract Data* for the Accepted Contract Amount of. *amount in numbers and words and name of currency*,as corrected and modified in accordance with the Instructions to Bidders is hereby accepted by our Agency.

You are requested to furnish the Performance Security within 28 days in accordance with the Conditions of Contract, using Performance Security Form included in Section 9 (Contract Forms) of the Bidding Document.

Authorized Signature:

Name and Title of Signatory:

Name of Agency:

Attachment: Contract Agreement

Contract Agreement

THIS AGREEMENT made the day of, ..., between *name of the Employer*. (hereinafter “the Employer”), of the one part, and *name of the Contractor*. (hereinafter “the Contractor”), of the other part:

WHEREAS the *Employer* desires that the Works known as *name of the Contract*. should be executed by the Contractor, and has accepted a Bid by the Contractor for the execution and completion of these Works and the remedying of any defects therein,

The Employer and the Contractor agree as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract documents referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement. This Agreement shall prevail over all other Contract documents.
 - the Letter of Acceptance
 - the Price proposal including appendix to bid
 - the Addenda Numbers *insert addenda numbers if any*.
 - the Particular Conditions
 - the General Conditions;
 - the Specification
 - the Drawings; and
 - the other Schedules,
3. In consideration of the payments to be made by the Employer to the Contractor as indicated in this Agreement, the Contractor hereby covenants with the Employer to execute the Works and to remedy defects therein in conformity in all respects with the provisions of the Contract.
4. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects therein, the 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.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with the laws of **Jammu and Kashmir** on the day, month and year indicated above.

Signed by

Signed by

for and on behalf of the Employer
in the presence of

for and on behalf the Contractor
in the presence of

Witness, Name, Signature, Address, Date

Witness, Name, Signature, Address, Date

Performance Security

..... *Bank's Name and Address of Issuing Branch or Office*.....

Beneficiary: J&K Economic Reconstruction Agency

Date:

Performance Guarantee No.:

We have been informed that (hereinafter called "the Contractor") has entered into Contract No. dated with you, for the execution of *name of contract and brief description of Works* (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

At the request of the Contractor, we *name of the Bank* hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of *name of the currency and amount in figures** (*amount in words*) such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation(s) under the Contract, without your needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire, no later than the Day of, ... and any demand for payment under it must be received by us at this office on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 458, except that subparagraph (ii) of Sub-article 20(a) is hereby excluded.

.....
Seal of Bank and Signature(s)

Note: *All italicized text is for guidance on how to prepare this demand guarantee and shall be deleted from the final document.*

*** The Guarantor shall insert an amount representing the percentage of the Contract Price specified in the Contract and denominated either in the currency (ies) of the Contract or a freely convertible currency acceptable to the Employer.**

Advance Payment Security

..... *Bank's Name, and Address of Issuing Branch or Office*

Beneficiary: J&K Economic Reconstruction Agency

Date:

Advance Payment Guarantee No.:

We have been informed that *name of the Contractor* (hereinafter called "the Contractor") has entered into Contract No. *reference number of the Contract* dated with you, for the execution of *name of contract and brief description of Works* (hereinafter called "the Contract").

Furthermore, we understand that, according to the Conditions of the Contract, an advance payment in the sum *name of the currency and amount in figures** (..... *amount in words*) is to be made against an advance payment guarantee.

At the request of the Contractor, we *name of the Bank* hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of *name of the currency and amount in figures** (..... *amount in words*) upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation under the Contract because the Contractor used the advance payment for purposes other than the costs of mobilization in respect of the Works.

It is a condition for any claim and payment under this guarantee to be made that the advance payment referred to above must have been received by the Contractor on its account number *Contractor's account number* at *name and address of the Bank*

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Contractor as indicated in copies of interim statements or payment certificates which shall be presented to us. This guarantee shall expire, at the latest, upon our receipt of a copy of the interim payment certificate indicating that Ninety (90) percent of the Contract Price has been certified for payment, or on the ... day of, ... whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 458.

.....

Seal of Bank and Signature(s)

Note: All italicized text is for guidance on how to prepare this demand guarantee and shall be deleted from the final document.

*** The Guarantor shall insert an amount representing the amount of the advance payment denominated either in the currency(ies) of the advance payment as specified in the Contract, or in a freely convertible currency acceptable to the Employer.**

Draft format for Excise/Custom duty exemption

TO WHOMSOEVER IT MAY CONCERN

ESSENTIALITY CERTIFICATE

This is to certify that the work for _____ (Package No. & Name of work) _____ has been awarded to M/s _____ (Name of Contractor) _____ amounting to Rs. _____ (Amount of Contract Agreement) _____ only by the Economic Re-Construction Agency (ERA) and that this project has duly been approved by Government of India. The Project is funded by Asian Development Bank under loan agreement No.2151-IND between Government of India and Asian Development and being implemented by the J&K Economic Re-Construction Agency Government of Jammu and Kashmir.

It is certified that M/S _____ (Name of Contractor) _____ for the above project requires to purchase _____ (Quantity of Material and name of material) _____ under work _____ (Package No. & Name of work) _____.

It is further certified that the aforesaid material is required for the execution of the said project.

The validity of this certificate is from _____ to _____.

Director Finance
ERA

Chief Executive Officer, ERA

Countersigned

Secretary, Finance
Government of Jammu and Kashmir

J&K ECONOMIC RECONSTRUCTION AGENCY

**Multi-Sector Project for Infrastructure Rehabilitation in J&K
(ADB Loan No. 2151-IND)**

BIDDING DOCUMENT for

Procurement of

the work of

Widening of Sakhi Maidan - Kalai Road (Poonch District)

Package No.: Transport Jammu/Poonch/Road/05

Volume 2 – Price Proposal

Issued on: 22.07.2010

Invitation for Bids No.: Transport Jammu/NCB/03

Employer: J&K Economic Reconstruction Agency
38 A/B, Gandhi Nagar Jammu (Jammu and Kashmir)
Tel: 0191-2434601, Fax: 0191-2434493

Country: India

PREAMBLE TO BILL OF QUANTITIES

1. The bid is Employer's design which will be handed over to successful in order before commencement of work.
2. The Contractor shall be deemed to have read and examined various sections of Bid Document before completing the Bill of Quantities (BOQ). The Drawings, Specifications, Schedules etc. are to be considered as explanatory of each other and no advantage shall be taken of any omission in bid documents.
3. The Contractor shall be deemed to be fully conversant with and to have made full allowance in his Bid for the site conditions, the nature and complexity of the work to be undertaken, the other extensive development and construction work currently being or which may be executed on arid around the Site and all changes in the nature and condition of the Site from that existing at the time of Bid.
4. General directions and descriptions of work and materials given in the Technical Specifications (Section 6) or shown on the Drawings are not necessarily repeated in the Bill of Quantities and reference is to be made to the Technical Specifications and the Drawings for this information. Notwithstanding what appears in the description of the item in the Bill of Quantities, provisions and stipulations of the relevant clauses of the Technical Specifications shall govern.
5. The Earthwork in Bill of Quantities is indicative which may change and is an estimate of the quantity of work involved and is to be used as a basis for pricing of the Bid and for evaluation of the work executed, in conjunction with instructions to Bidders, terms and Conditions of Contract, the Technical Specifications and Drawings.
6. The rates quoted in the schedule shall be the all-inclusive value for the work described and be deemed to cover all the Contractor's liabilities and obligations and all risks set forth or implied in the document and all matters and things necessary for the proper construction of the Works including surveying, setting out, plant, labour, supervisor, materials, erection, maintenance, insurance, profit, taxes and duties together with all general risks, liabilities and obligations set out or implied in the Contract. The Charge for any obligation of the Contractor for which apparently no corresponding item is given in the Bills of Quantities shall be deemed to be included in the Contract Rates and Prices entered against the billed items.
7. All defective works are liable to be demolished, rebuilt and defective materials replaced by the Contractor at his own cost and time.
8. Extra items of work shall not vitiate the Contract. The Contractor shall be bound to execute extra items of work as directed by the Engineer. The rates for extra items will be as per rates decided under Contract Conditions.
9. It is to be expressly understood that the measured work is to be taken net (notwithstanding any system or practice to the contrary) according to the actual quantities wherein finished according to the approved Drawings or as may be ordered from time to time by the Engineer and the cost calculated at the respective prices,

without any additional charges for any necessary or contingent works connected therewith, The rates quoted are for works in situ and complete in every respect unless the Bill of Quantities specially indicates to the contrary. The constructional plants and equipment and temporary works will not be measured.

10. Unless otherwise stated, all items are measured net and no allowance will be made for wastage, working space, bulking or shrinkage, overlaps and the like
11. All works shall be carried out strictly as per Section 6: Employer's Requirement, Technical Specifications and Drawings included in the bid documents; and, if not specified, the works shall be carried out as per the direction of the Engineer.
12. The method of measurement of completed works for payment shall generally be in accordance with the relevant clauses of the Technical Specifications. The measurement of the work shall be computed net from the dimensions stated in the Contract unless stated otherwise in the Method of Measurement.
13. In the Bill of Quantities 'Specifications', 'Clause' and 'Table' refer to the Technical Specifications. These specifications shall be treated as integral part of the Bill of Quantities. 'Drawings' refer to the Contract Drawings as described in the Conditions of Contract and elsewhere in the Bid Documents.
14. Rates for all items of works shall be inclusive of all lead and lifts unless otherwise specified.
15. Should there be any detail of construction or materials which has not been referred to in the Specification or in the Bill of Quantities and Drawings but the necessity for which may be implied or inferred there from, or which is usual or essential to the completion of the work in the trades, the same shall be deemed to be included in the rates and prices entered by the contractor in the Bill of Quantities.
16. a) The Contractor has to set up a field laboratory for quality control of his works for the Engineer as per relevant clauses of MOSRT&H. The cost of setting up and maintenance of field laboratory shall be incidental to the works and will not be paid extra. After completion of contract it will be the property of contractor.
16. b) The contractor has to set up site office for Engineer, as per details provided in section 6 – Employers Requirements.
17. The Contractor is not required to quote his price for the 'Provisional Sums' .It will be operated as and when deemed necessary by the Engineer. Provisional Sums shall not be included in the evaluation.
18. The Contractor is advised to ascertain the extent and the nature of the shifting work involved before quoting of bid price.
19. The Contractor is advised to take care of smooth plying of traffic erosion material Management by way of sprinkling water during execution or excavation from Borrow pits. All these items are incidental to work & no extra payment are made in such cases whenever these clauses have relevance with MOSRTH Specifications.

- 20 The maintenance of road is incidental to work unless and otherwise specified in BOQ and is the discretion of the Engineer after its approval from Employer.

21. Shifting of utilities and use of provisional Sum

Layout shall be given to the contractor for construction/widening of road works, on the basis of information regarding existing services like water lines, telephone and electric lines/ cables etc. The contractor shall take all due care to avoid damage to any such services and in case of any damage, the contractor shall pay at his own risk & cost. In the event of some services/utilities coming in the alignment of widening of road, the same shall be shifted in consultation with the line deptt of his own. The Engineer will decide the components etc. telecommunication department, BSNL, Airtel, PDD, PHE department etc. The client may make the payment for such works directly to the line departments or ask the contractor to pay to the line department in case of emergent conditions for which 10% of extra will be paid as processing charges.

Price Proposal Submission Sheet

Date:.....

Package No: Transport Jammu/Poonch/Road/05
Invitation for Bid No: **Transport Jammu/NCB/03**

Name of Work Package: Widening of Road Sakhi – Maidan to Kalai Road (Poonch District)

To:

Chief Executive officer

Economic Reconstruction Agency (ERA)
13 C/C, Gandhi Nagar, Jammu,
Jammu & Kashmir State, India

We, the undersigned, declare that:

- (a) We have examined and have no reservations to the Bidding Documents, including Addenda issued in accordance with Instructions to Bidders (ITB) 8;
- (b) **We offer to execute in conformity with the Bidding Documents for the Works of** Widening of Sakhi – Maidan to Kalai Road (Poonch District)
- (c) The total price of our Bid, excluding any discounts offered in item (d) below is Indian Rupees-.....
- (d) The discounts offered and the methodology for our Bids are:% of total bid price which amounts to.....
- (e) Our bid shall be valid for a period of 120 days from the date fixed for the bid submission deadline in accordance with the Bidding Documents, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
- (f) If our bid is accepted, we commit to submit a performance security in accordance with the Bidding Documents;
- (g) Our firm, including any subcontractors or suppliers for any part of the Contract, have nationalities from eligible countries [insert the nationality of the Bidder, including that of all parties that comprise the Bidder if the Bidder is a consortium or association, and the nationality of each Subcontractor and Supplier];
- (h) We, including any subcontractors or suppliers for any part of the contract, do not have any conflict of interest in accordance with ITB 4.3;
- (i) We are not participating, as a Bidder or as a subcontractor, in more than one bid in this bidding process in accordance with ITB 4.3, other than alternative offers submitted in accordance with ITB 13;
- (j) Our firm, its affiliates or subsidiaries, including any Subcontractors or Suppliers for any part of the contract, has not been declared ineligible by ADB, under the Employer's country laws or official regulations or by an act of compliance with a decision of the United Nations Security Council;
- (k) We are not a government owned entity / We are a government owned entity but meet the requirements of ITB4.5; *

Price Proposal

- (l) We have paid, or will pay the following commissions, gratuities, or fees with respect to the bidding process or execution of the Contract: **

Name of Recipient	Address	Reason	Amount
.....			
.....			

- (m) We understand that this bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal contract is prepared and executed; and
- (n) We understand that you are not bound to accept the lowest evaluated bid or any other bid that 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:

Name:-.....

Father's Name:-.....

R/o :.....

Mobile no.....

Landline Number:-.....

Appendix to Price Bid

Bidders shall fill in all the appropriate blank spaces. Bidders shall sign each page of the Appendix to Bid.

Conditions	Ref. GCC	Data
Employer's name and address	1.1.2.2 & 1.3	J&K Economic Reconstruction Agency Represented by Chief Executive Officer.
Contractor's name and address	1.1.2.3 & 1.3	M/s _____
Engineer's name and address	1.1.2.4 & 1.3	Team Leader DSC-III , 73 B/D Gandhi Nagar Jammu.
Time for Completion	1.1.3.3	12 months from the date of issue of notice to commencement of work.
Defects Notification Period	1.1.3.7	365 days
Electronic transmission systems	1.3	Facsimile
Governing Law	1.4	India and State of Jammu and Kashmir
Ruling language	1.4	English
Language for communications	1.4	English
Time for access to the Site	2.1	Immediately after issue of notice to commence for 70% of total length and within 3 months for remaining 30% of total length.
Performance Security	4.2	The performance security will be in the form of an unconditional bank guarantee of the amount of 4% of Contract Price.
Subcontractors	4.4	Subcontracting is acceptable for not more than 50% of the accepted contract amount less provisional sums.
Normal working hours	6.5	Daylight hours. Working at night hours may be allowed by the Engineer if found appropriate by him.
Commencement of works	8.1	Within 28 days from the date after the contractor receives letter of acceptance or date of signing of agreement which ever is earlier.
Delay damages for the Works	8.7 & 14.1(b)	0.05 % of the final Contract Price per day, in the proportion of currencies in which the contract price is payable for every day or part of day which shall elapse between the relevant Time for Completion and the date stated in the Taking-Over Certificate
Maximum amount of delay damages	8.7	10% of the final Contract Price.
Percentage for adjustment of provisional sums	13.5 (b)	10%

Price Proposal

Total advance payment	14.2	20% of the Accepted Contract Amount to be paid only for mobilization against Bank Guarantee of equal amount. There is no provision of equipment advance or progress related advance”
Start repayment of advance payment	14.2(a)	When payments are 20% of the Accepted Contract Amount less Provisional Sums or immediately after 3 months from date of agreement which ever is earlier.
Repayment amortization of advance payment	14.2(b)	30% of interim payment certificate
Percentage of Retention	14.3	10% of interim payment certificate
Limit of Retention Money	14.3	5% of the Accepted Contract Amount
Minimum Amount of Interim Payment Certificates	14.6	2 % of the Accepted Contract Amount.
Delayed Payment	14.8	Interest at the rate of 10% per annum
Currency/currencies of payment	14.15	Indian Rupees
Periods for submission of insurance: a. Evidence of insurance. b. Relevant policies	18.1	a. On the day of signing the Agreement. b. Within 30 days of contract signing.
Maximum amount of deductibles for insurance of the Employer's risks	18.2(d)	Nil
Minimum amount of third party Insurance	18.3	Indian Rupees 500,000 with number of occurrence unlimited
Date by which the DAB shall be appointed	20.2	28 days after the Commencement of dispute
The DAB shall be	20.2	A DAB of three Members
Appointment (if not agreed) to be made by	20.3	Chairman of the J&K Chapter of the Institution of Engineers

Summary of Bill of Quantities

S. No	Bill No.	DESCRIPTION	TOTAL AMOUNT
			(Rs. in Figures)
1	1	Site Clearance/ Dismantling	
2	2	Earthwork	
3	3	Pavement works	
4	4	Drainage and protective works	
5	5	Cross Drainage structures	
6	6	Earth Retaining Structure (Breastwall,Retaining wall,etc)	
7	7	Miscellaneous Items	
8	8	Provisional items	
9	9	Day works	
10	-	Total (Item No. 1 to 9)	
11	-	Provisional Sum (LS)	100000
12	-	Total	

BILL NO. 1: SITE CLEARANCE AND DISMANTLING

Item No.	Description	Unit	Quantity	Rate	Amount
1.01	Clearing and grubbing road land including uprooting all vegetation, grass, bushes, shrubs, saplings and trees of girth up to 300 mm, removal of stumps of trees of girth of all sizes including removing stumps of trees cut earlier and disposal of unserviceable materials and stacking of serviceable materials as directed by Engineer with all lifts and leads upto 1000 m etc. complete. (MOSRT&H specification: Clause 201)	Hect.	6.50		
1.02	Dismantling the existing structures including T&P and scaffolding wherever necessary, disposal of unserviceable material complete as per MOSRT&H Specifications: Clauses 202, 112				
a)	PCC works	cum	60.00		
b)	RCC Works.	cum	15.00		
c)	Brick Masonry	cum	75.00		
d)	RR.Masonry	cum	75.00		
e)	5th stones, Km stones	Nos	4.00		

Item No.	Description	Unit	Quantity	Rate	Amount
1.03	Cutting of trees, including cutting of trunks, uprooting of stumps, branches, stacking of servicable material with all lifts upto a lead of 1000 m and earth filling in the depressions/pits (MOSRT&H Specification: Clause 201)				
	a) Girth 300 mm to 600 mm	Number	135.00		
	b) Girth above 600 to 900mm	Number	80.00		
	c) Girth above 900 to 1800 mm	Number	30.00		
	d) Girth above 1800 mm	Number	10.00		

BILL NO. 2: EARTHWORK

Item No	Description	Unit	Quantity	Rate	Amount
2.01	Earth work in excavation for roadway in all types of strata including dressing, making section to the required grade, camber and side slopes and carriage and/or disposing off the excavated material with mechanical means, spreading or disposing as directed by the Engineer, with all leads and lifts etc. complete. (MOSRT&H specification: Clause 112 and 301)				
	a) All kinds of Soil	Cum	76377		
	b) Ordinary Rock	Cum	25459.00		
	c) Hard Rock (requiring blasting)	Cum	19094		
	d) Hard Rock (not requiring blasting).	Cum	6365		

BILL NO. 2: EARTHWORK

Item No	Description	Unit	Quantity	Rate	Amount
2.02	Construction of embankment including it is maintainance with approved material obtained from borrow area with all lifts and leads,transporting to site, spreading, watering, grading to required slope and compacting to specified density 95% of the maximum dry density (proctor density) with all leads and lifts etc. complete. (MOSRT & H Specification: Clause 112 & 305)	Cum	4200		
Total for Bill No. 2 (Carried over to Summary)					

BILL NO.3: PAVEMENTS WORKS

Item No	Description	Unit	Quantity	Rate	Amount
3.01	Providing and laying granular or profile correction including filling in port holes wherever required material having P.I. not more than 6, including spreading in layers not exceeding 150 mm compacted thickness and compaction with approved equipment at OMC to achieve at least 98% of maximum dry density as per IS: 2720 (Part-5) to required camber & grade (MOSRT&H Specification: 401) with CBR value not less than 25 of grade-II, table 400-2	cum	1,000.00		
Total for Bill No 3 (carried over to summary)					

BILL NO.4: DRAINAGE AND PROTECTIVE WORKS

Item No	Description	Unit	Quantity	Rate	Amount
4.01	Earthwork in excavation in all types of strata for drains and channels etc., including dressing of bottom and sides of trenches, stacking the excavated soil, clear from the edge of excavation including disposal of surplus soil as directed by the Engineer,complete. (MOSRT&H specifications section No 301,309)				
	a) All kinds of Soil	cum	5,659.00		
	b) Ordinary Rock	cum	1,886.00		
	c) Hard Rock (requiring blasting)	cum	929.00		
	e) Hard rock (not requiring blasting)	cum	307.00		
Total for Bill No 4 (carried over to summary)					

BILL NO.5: CROSS DRAINAGE STRUCTURE

Item No	Description	Unit	Quantity	Rate	Amount
5.01	Earthwork in excavation in foundation trenches , in drains and channels etc, not exceeding 2 meters depth including dressing of bottom & sides of trenches, stacking the excavated soil clear from the edge of the excavation including disposal of surplus soil, as directed by Engineer with all lifts and leads (MOSRT&H Specification: Clause 301,309)				
	i) All types of soil	cum	783.00		
	ii) Ordinary rock	cum	326.00		
	iii) Hard rock (requiring blasting)	cum	196.00		
5.02	Back filling with surplus soil excavated from foundation, compacted in layers, including ramming, watering and consolidation, with all leads and lifts (MOSRT&H Clause 305 and 304.3.7; IRC78- Appendix-6				
		cum	561.00		
5.03	Filter media behind abutments, wing walls & return walls, including all material, labour, equipment, carriage etc. all complete as per drawing and Technical Specifications Clause 305, 309 & 2504.2.2; IRC 78 Appendix-6				
		cum	130.00		

BILL NO.5: CROSS DRAINAGE STRUCTURE

Item No	Description	Unit	Quantity	Rate	Amount
5.04	Providing & laying plain cement M-10 in foundation for abutment, piers & wing walls etc. in bed of culvert using stone aggregates of 20 mm maximum nominal size including cost of centering & shuttering mixing mechanically, vibrating with needle vibrator, including hire charges of machinery, Including all leads, loading, unloading, curing, finishing the exposed faces, etc. complete, upto a depth of 1.50 m below ground and 1.50 m above ground/bed level. (MOSRT&H Specification: section no.1000 and 2100.	cum	240.00		
5.05	Providing, placing, compacting and curing plain cement concrete M-15 grade in head walls, coping beams & parapet walls of pipe culverts etc., using stone aggregates of 20 mm nominal size including the cost of centering & shuttering mixing mechanically, vibrating with needle vibrator, including hire charges of machinery, with all lifts and leads complete as per drawing and as per MOSRT&H Technical Specification Sections 1500 ,1700 & 2100 including all shuttering but excluding cost of reinforcement	cum	153.00		

BILL NO.5: CROSS DRAINAGE STRUCTURE

Item No	Description	Unit	Quantity	Rate	Amount
5.06	Providing and laying plain cement concrete M-20 mix for abutment, piers & wing walls and at the bed of culvert using stone aggregates of 20 mm nominal size including the cost of centering & shuttering mixing mechanically, vibrating with needle vibrator, including hire charges of machinery, including all leads, loading, unloading, curing, finishing the exposed faces, etc. complete, up to a depth of 1.50 m below ground and 1.50 m above ground/bed level. (MOSRT&H Specification: section no. 1000, 1700,2100 and 2200	cum	522.00		
5.07	Providing cement concrete for reinforced concrete M 25 for superstructure using clean graded sieved 20 mm maximum and down size hard stone and approved sand, including mixing, laying, vibrating, curing, formwork and staging with cost of all materials, labour, loading, unloading, hire charges of machinery, with all leads, etc. complete as per Drawing & Technical Specifications, but excluding cost of reinforcement. Design mix concrete M25 grade (MOSRT&H Specifications: Section No. 1000,1500 & 1700 & 2300)	cum	48.00		

BILL NO.5: CROSS DRAINAGE STRUCTURE

Item No	Description	Unit	Quantity	Rate	Amount
5.08	Providing & laying TMT steel reinforcement in superstructure including straightening of bars, cutting, bending, placing in position, binding with approved quality binding wires, including wires, including cost and conveyance of all materials, labour, cover blocks, etc. complete as per Drawing & Technical Specifications. (MOSRT&H Specification: Section no. 1000& 1600)	Tonne	9.00		
5.09	Providing laying and jointing NP-4 pressure Hume Pipe for culverts including granular bedding, complete as per Drawing and Technical Specifications MOSRT&H Section 2900				
	a) 1000 mm dia	RM	250.00		
	b) 900 mm dia	RM	20.00		
	c) 600 mm dia	RM	20.00		

BILL NO.5: CROSS DRAINAGE STRUCTURE

Item No	Description	Unit	Quantity	Rate	Amount
5.10	Providing & laying Tar paper on abutments/ piers as bearing for receiving RCC work in superstructure as per drawing and Technical Specifications				
5.11	Cement concrete flooring with M 15 grade concrete with maximum aggregate size of 20 mm as per drawings and Technical Specification Clause 1500,1700 and 2100	Sqm	21.00		
5.12	Stone boulder apron complete as per Technical Specifications Clause 2507	cum	40.75		
5.13	Providing and laying filter material underneath stone boulder pitching on slopes complete as per drawing and Technical Specification clause 2504.2.2.	cum	188.00		
5.14	Providing and laying dry stone boulder pitching on slopes complete as per drawing and Technical Specification Clause 2504.2.1	cum	49.00		
5.15	Chipping loose and cracked concrete to required depth, clearing the exposed surface of steel and concrete with wire brush and sand blasting, clearing, getting it dried with compressed air including all scaffolding, depth 25mm to 50 mm as per MOSRT&H Specifications Section no. 2800)	cum	100.00		
5..16	Cement plaster 12 mm thick in CM 1:3 including cost of all materials, labour with all leads, loading, unloading, curing, etc. complete as per drawing and specifications. (MOSRT&H specification clause 1000 & 1312)	Sq.m	100.00		
		Sq.m	200.00		

BILL NO.5: CROSS DRAINAGE STRUCTURE

Item No	Description	Unit	Quantity	Rate	Amount
5.17	Stone Masonry work in cement Mortar 1:3 mix complete as per Drawing and MOSRT&H Specifications including bond stones M15 / natural bond stone Section 1400 & 2200.	cum	712.00		
5.18	Providing weep holes in plain concrete/reinforced concrete abutments, wing walls/return walls, etc. as per drawing and technical specifications including cost and conveyance of all materials, labour, etc. as per direction of Engineer as per MOSRT&H Clause 2706& 2200	Number	150.00		
5.19	Rubble stone filling in the bed of culverts and apron as per MOSRT&H Specifications No. 2500 & 2504, as per drawing and direction of the Engineer.	cum	23.00		
Total for Bill No. 5 (Carried over to Summary)					

BILL NO. 6 : EARTH RETAINING STRUCTURE (RETAINING WALL, BREAST WALL & TOE WALL)

Item No	Description	Unit	Quantity	Rate	Amount
6.01	Earthwork in excavation in foundation trenches or drains including dressing of sides and ramming of bottoms, lift upto 1.50 m including taking out the excavated soil, depositing and refilling of Jhiri with watering and ramming and disposal of surplus excavated as directed with all leads MORST&H specifications 301 and 309				
	a) In Ordinary Soil	Cum	2,250.00		
	b) In Ordinary rock	Cum	750.00		
	c) In Hard rock (requiring blasting)	Cum	562.00		
	d) In hard rock (not requiring blasting)	Cum	187.00		
6.02	Backfilling with surplus soil excavated from foundation, compacted in layers, including ramming, watering and consolidation, with all leads and lifts [MOSRT&H Specification : Section 300 and appendix 6 of IRC78				
	a) Ordinary Soil	Cum	1,530.00		
	b) Hard Soil (selected granular material)	Cum	480.00		

BILL NO. 6 : EARTH RETAINING STRUCTURE (RETAINING WALL, BREAST WALL & TOE WALL)

Item No	Description	Unit	Quantity	Rate	Amount
6.03	Providing and laying plain cement concrete M 10 mix in foundation using stone aggregates of 20 mm nominal size with mixing mechanically, vibrating with needle vibrator, hire charges of machinery, loading, unloading, curing, finishing the exposed faces, etc.complete with all lead and lift (MOSRT&H Specification Section No 1000, 1700)	cum	588.00		
6.04 (a)	Random rubble stone masonry for breast wall and toe wall in cement sand mortar (1cement : 3 sand) as shown in drawing as per MOSRT&H Specification including Bond stones of PCC M15/ natural Section 1400, 2200. (Including supply of stones)	Cum	3,850.00		
b)	Random rubble stone masonry to edge wall and toe wall in cement mortar (1 cement: 3 sand) as shown in drawing as per MOSRT&H Specification including bond stones of PCC M15/ natural section 1400,2200. (including supply of stones).	Cum	1,800.00		

BILL NO. 6 : EARTH RETAINING STRUCTURE (RETAINING WALL, BREAST WALL & TOE WALL)

Item No	Description	Unit	Quantity	Rate	Amount
c)	Random rubble stone masonry for retaining wall in cement sand mortar (1cement : 6 sand) as shown in drawing as per MOSRT&H Specification including Bond stones of PCC M15/ natural Section 1400, 2200. (Including supply of stones)	Cum	3,750.00		
6.05	Providing and laying 78 mm stone filling behind retaining walls/breast walls as per approved drawings (MOSRT&H Section No 2500 Clause 2506) (Excluding cost of stones)	Cum	1,400.00		
6.06	Providing & laying PCC M15 grade as per MOSRT&H technical specifications Section 1500,1700,2100 including form work.	Cum	96.00		
Total for Bill No. 6 (Carried over to Summary)					

BILL NO. 7: MISCELLANEOUS ITEMS

Item No	Description	Unit	Quantity	Rate	Amount
7.01	Supply of coloured photographs of progress of work as per Clause 125 of MOSRT&H	Number	120		
7.02	Clearance of landslides in soil and ordinary rock and disposal of the same on the valley side.	Cum	3,819		
Total for Bill No. 8 (Carried over to Summary)					

BILL NO. 08: PROVISIONAL ITEMS

Item No	Description	Unit	Quantity	Rate	Amount
8.01	Providing and maintaining mobile phone for employer and engineer(one for employer & one for engineer as per clause 123.1.2.3 of MOSRT&H specification.	Number	2.00		
8.02	Monthly rental charges of mobile (maximum upto Rs. 1000/- per month for each set) as per clause 123 of MOSRT&H specification.	Month	12.00		
8.03	Rented Site Residential accomodation building for Employer, Engineer & other supervision staff (hard finished), minimum 50 sqm	Month	12.00		
8.04	Providing and maintaining Vehicle for the employer's staff as per MOSRT&H clause no. 124	Vehicle Day	360.00		
Total for Bill No. 9 (Carried over to Summary)					

BILL NO. 9: DAYWORKS

Item No	Description	Unit	Quantity	Rate	Amount
9.01	SCHEDULE (A) -LABOUR				
	a) Operators	Day	15.00		
	b) Blacksmith	Day	15.00		
	c) Carpenter	Day	10.00		
	d) Fabricator /Fitter /Welder	Day	10.00		
	e) Laborer	Day	250.00		
	f) Mason	Day	20.00		
	g) Chowkidar for watch &ward	Day	365.00		
	SCHEDULE (B) –CONTRACTOR’S EQUIPMENT				
9.02	(With Operator, POL, etc)				
	a) Mobile concrete mixer of 0.30 cum capacity	Eqpt Hrs.	10.00		
	b) Pumping set (5 hp)	Eqpt Hrs.	10.00		
	c) Roller Static (8-10 tone)	Eqpt Hrs.	5.00		
	d) Crane –5 tonne	Eqpt Hrs.	5.00		
	e) Roller Vibratory (8-10 tone static)	Eqpt Hrs.	10.00		
	f) Truck /Tipper (10/12 tonne)	Per day	5.00		
	g) Truck mounted water tanker (10 tonne)	Per day	15.00		
	h) Wheel Loader (1.5 cum) capacity	Per Day	5.00		
	SCHEDULE (C) –MATERIAL				
	a)Ordinary Portland cement conforming to IS:8112 (43 Grade)	Tonne	10.00		
	b) Sand	Cum	300.00		
	c) Steel	Tonne	2.00		
	d) Crushed aggregates of various sizes.	Cum	200.00		
	Page Total				
	Total for Bill No. 10 (Carried over to Summary)				

GOVERNMENT OF JAMMU & KASHMIR

MULTI SECTOR REHABILITATION PROJECT IN JAMMU & KASHMIR

**ADB LOAN No. 2151 - IND
CONTRACT PACKAGE NO. Transport Jammu/Poonch/Road/05**

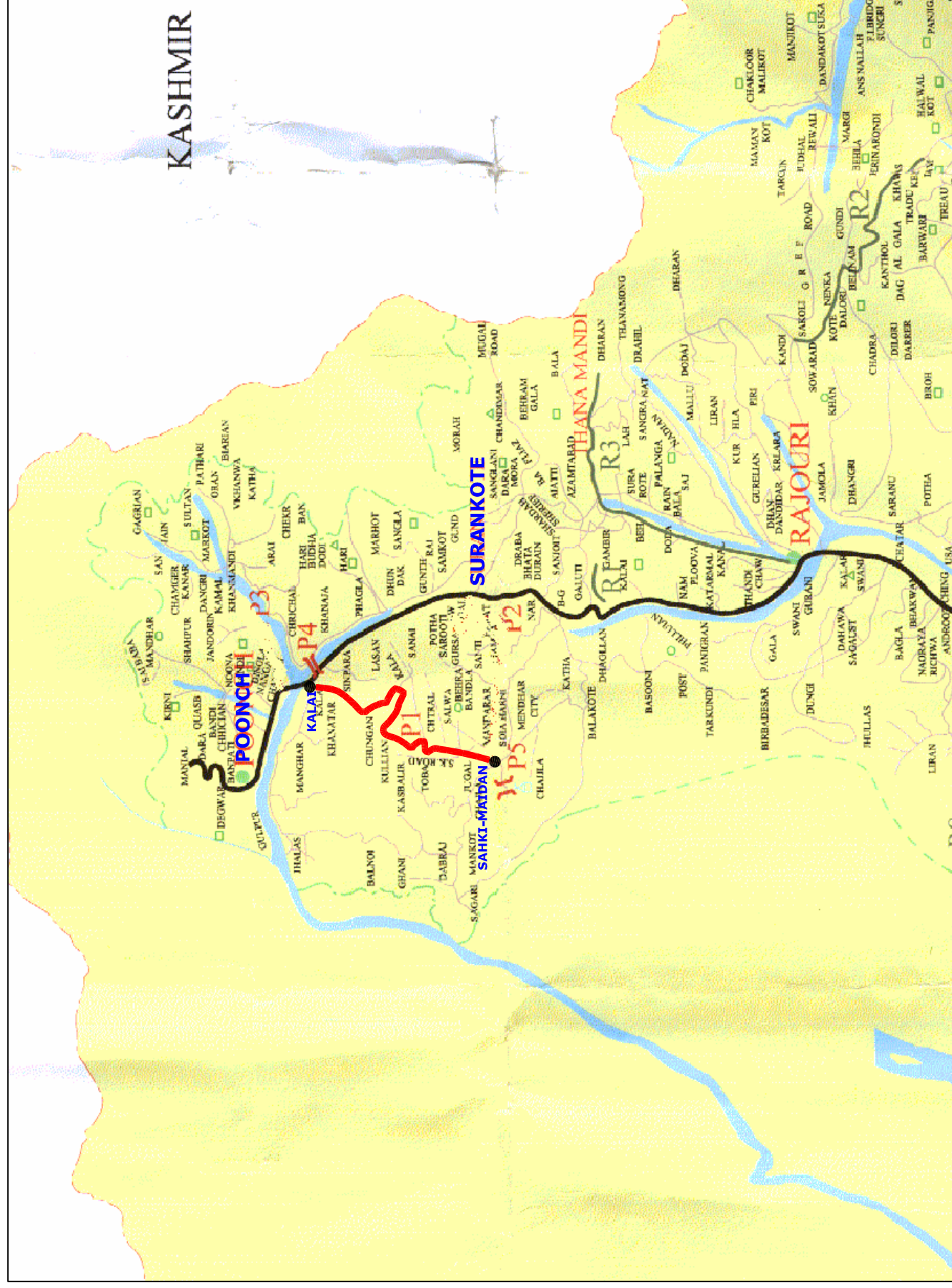
SAKHI-MAIDAN-KALAI ROAD (POONCH DISTT.)

BID DOCUMENTS (VOLUME III)

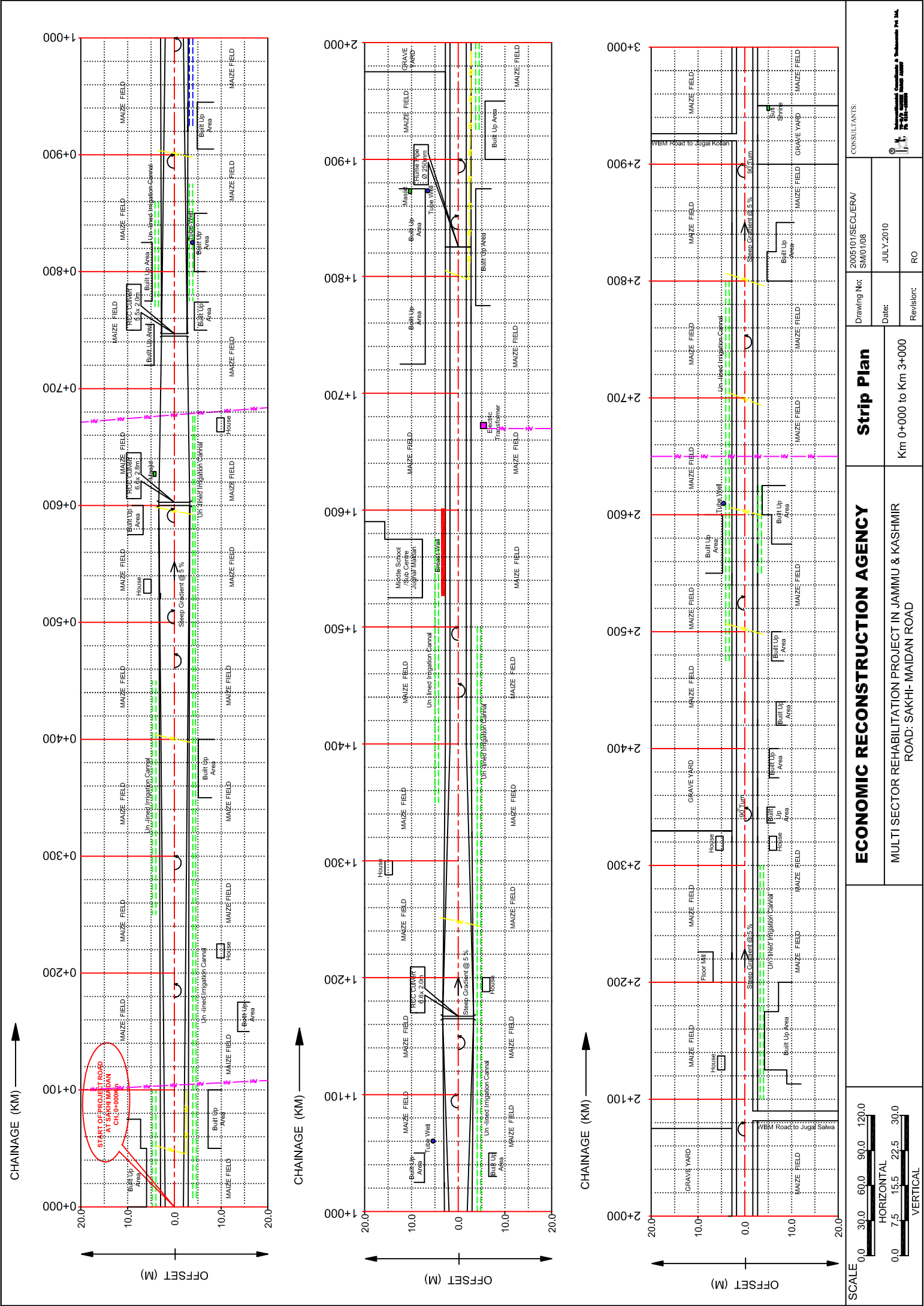
DRAWINGS

JULY 2010

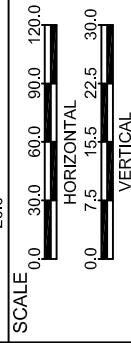
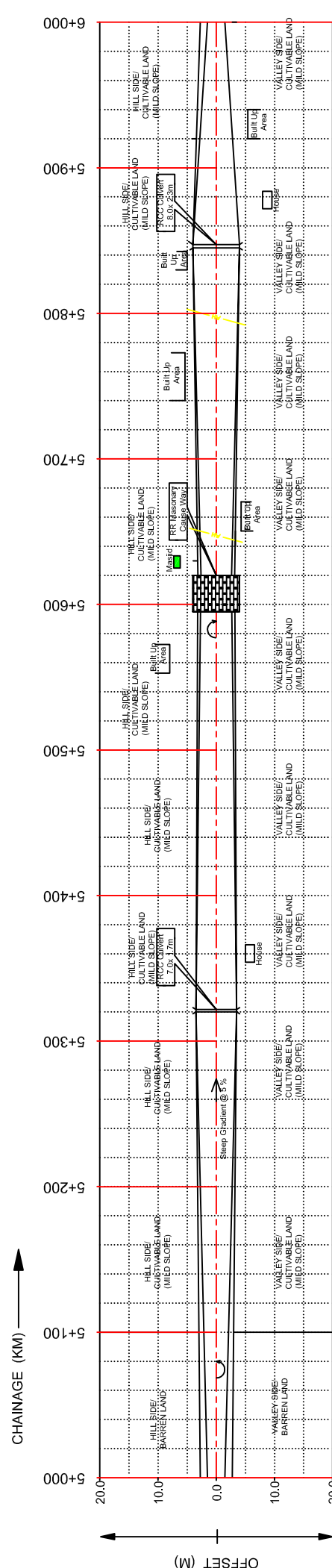
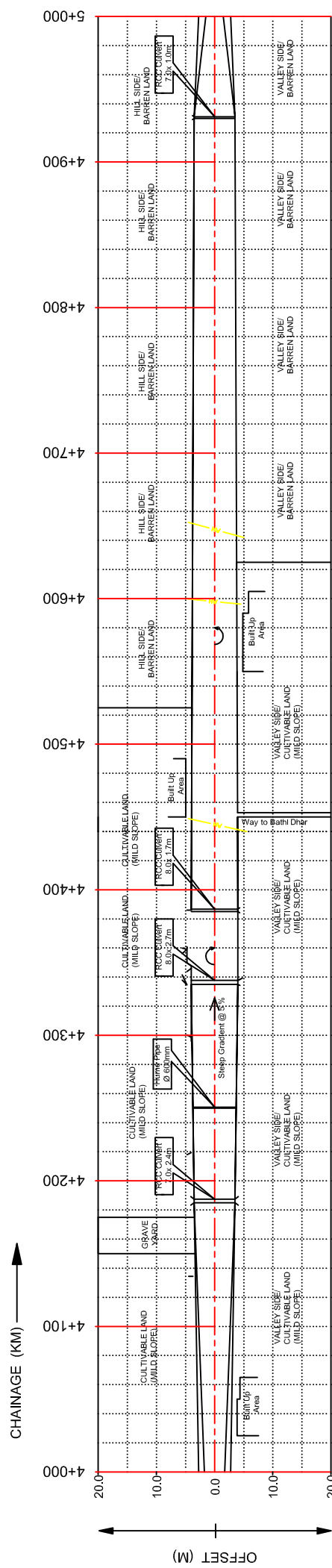
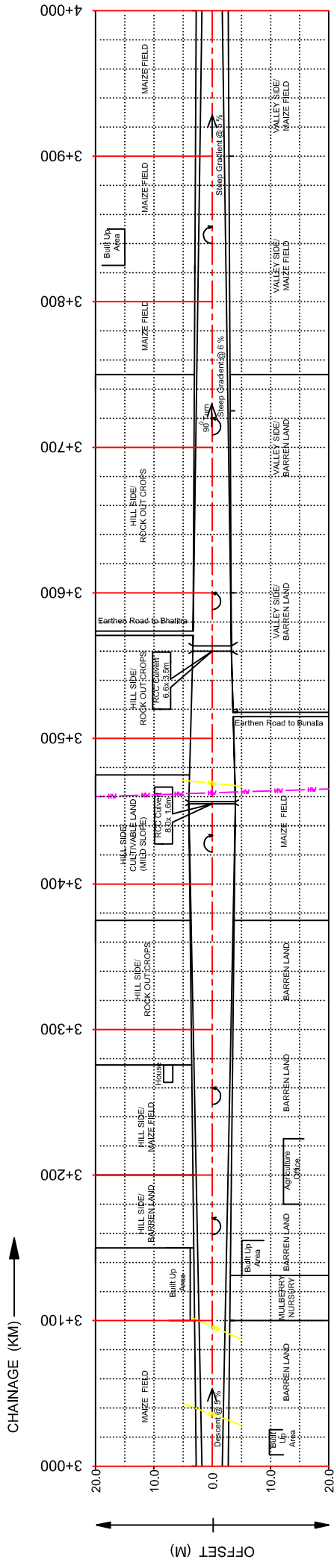
INDEX PLAN



STRIP PLAN



SCALE 0.0 30.0 60.0 90.0 120.0 HORIZONTAL 0.0 7.5 15.5 22.5 30.0 VERTICAL		ECONOMIC RECONSTRUCTION AGENCY		Strip Plan		200510/ISECLERA/ SMD1008		CONSULTANTS:	
		MULTI SECTOR REHABILITATION PROJECT IN JAMMU & KASHMIR ROAD: SAKHI-MAIDAN ROAD		Km 0+000 to Km 3+000		Date: JULY.2010		Jammu & Kashmir Economic Reconstruction Agency 2nd Floor, 2nd Main Road, Srinagar Ph: 019-2234444	
				Revision: RO					



ECONOMIC RECONSTRUCTION AGENCY

Strip Plan

MULTI SECTOR REHABILITATION PROJECT IN JAMMU & KASHMIR
ROAD: SAKHI- MAIDAN ROAD

Km 3+000 to Km 6+000

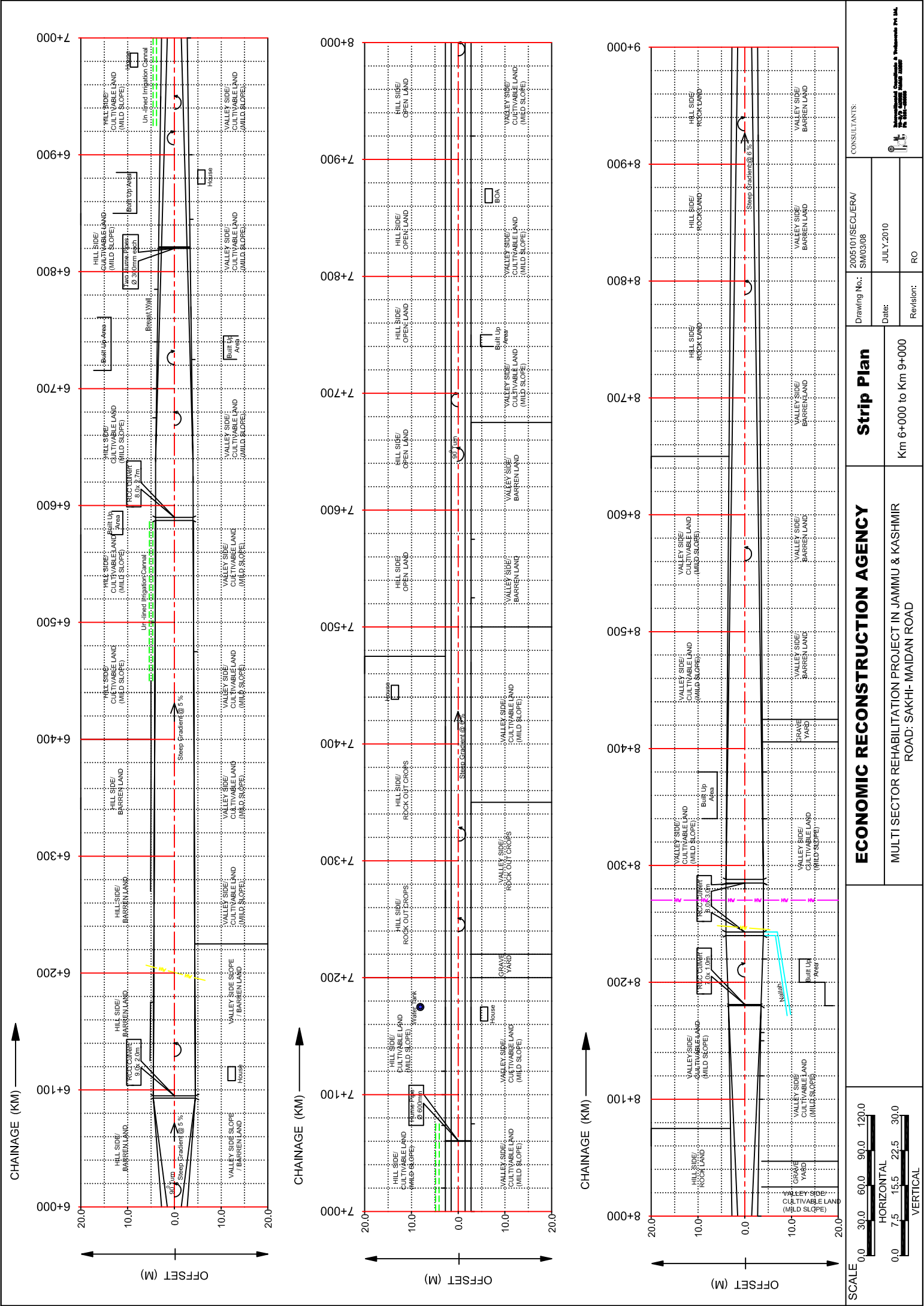
CONSULTANTS:

Drawing No.:	2005101/SECL/ERA/ SM/02/08
--------------	-------------------------------

ate: JULY 2010

Revision:

**Microchemical Consultants & Technicians Pvt Ltd,
7B-2/3 GATEWAY ROAD, MUMBAI 400007**



0.0

30.0

60.0

90.0

120.0

HORIZONTAL

0.0

7.5

15.5

22.5

30.0

VERTICAL

ECONOMIC RECONSTRUCTION AGENCY

MULTI SECTOR REHABILITATION PROJECT IN JAMMU & KASHMIR

ROAD: SAKHI-MAIDAN ROAD

Strip Plan

Km 6+000 to Km 9+000

CONSULTANTS:

200510/ISECLERA/

SM03/08

Drawing No.:

200510/ISECLERA/

SM03/08

Date:

JULY 2010

Revision:

RO

0.0

30.0

60.0

90.0

120.0

HORIZONTAL

0.0

7.5

15.5

22.5

30.0

VERTICAL

CONSULTANTS:

200510/ISECLERA/

SM03/08

Drawing No.:

200510/ISECLERA/

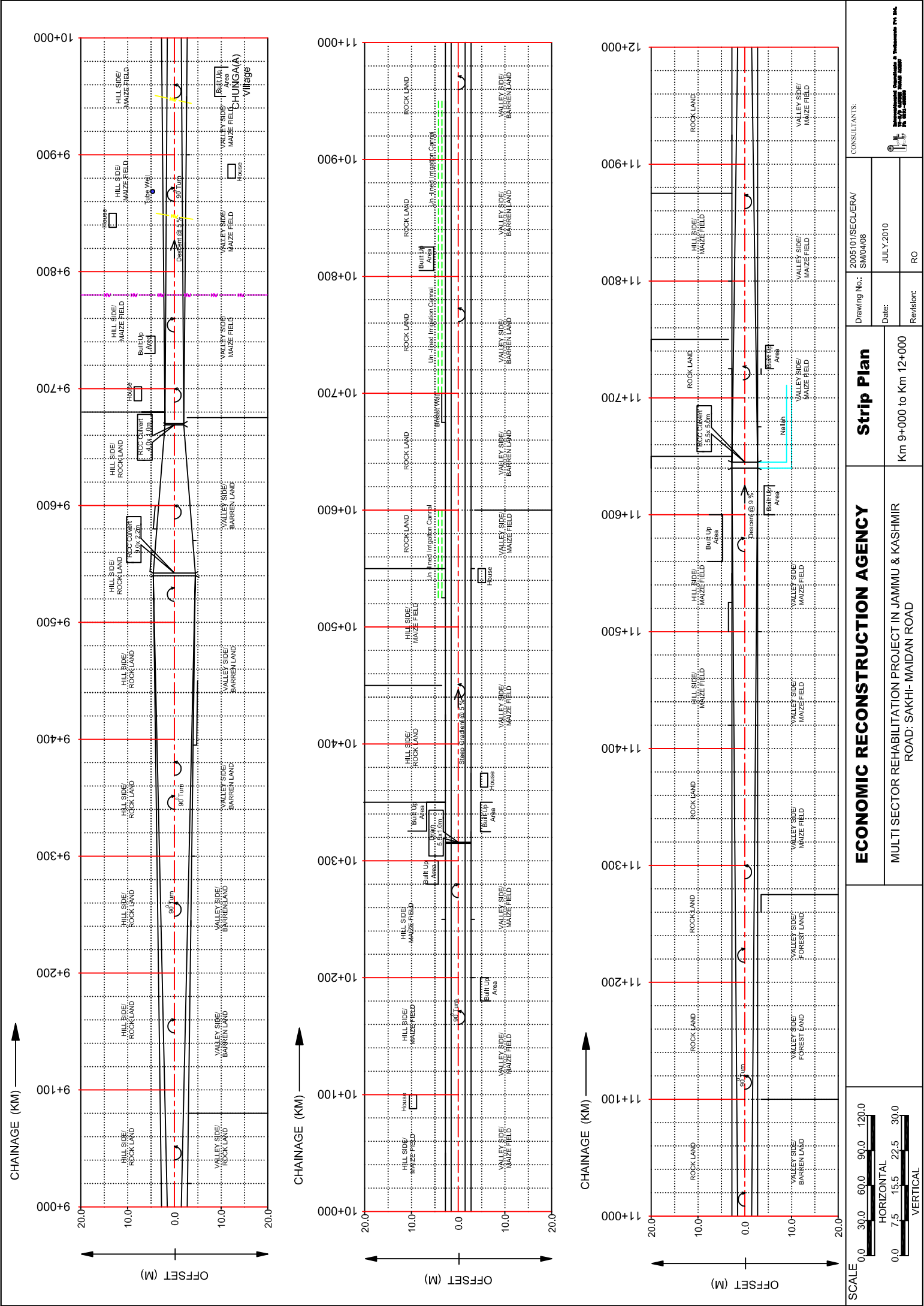
SM03/08

Date:

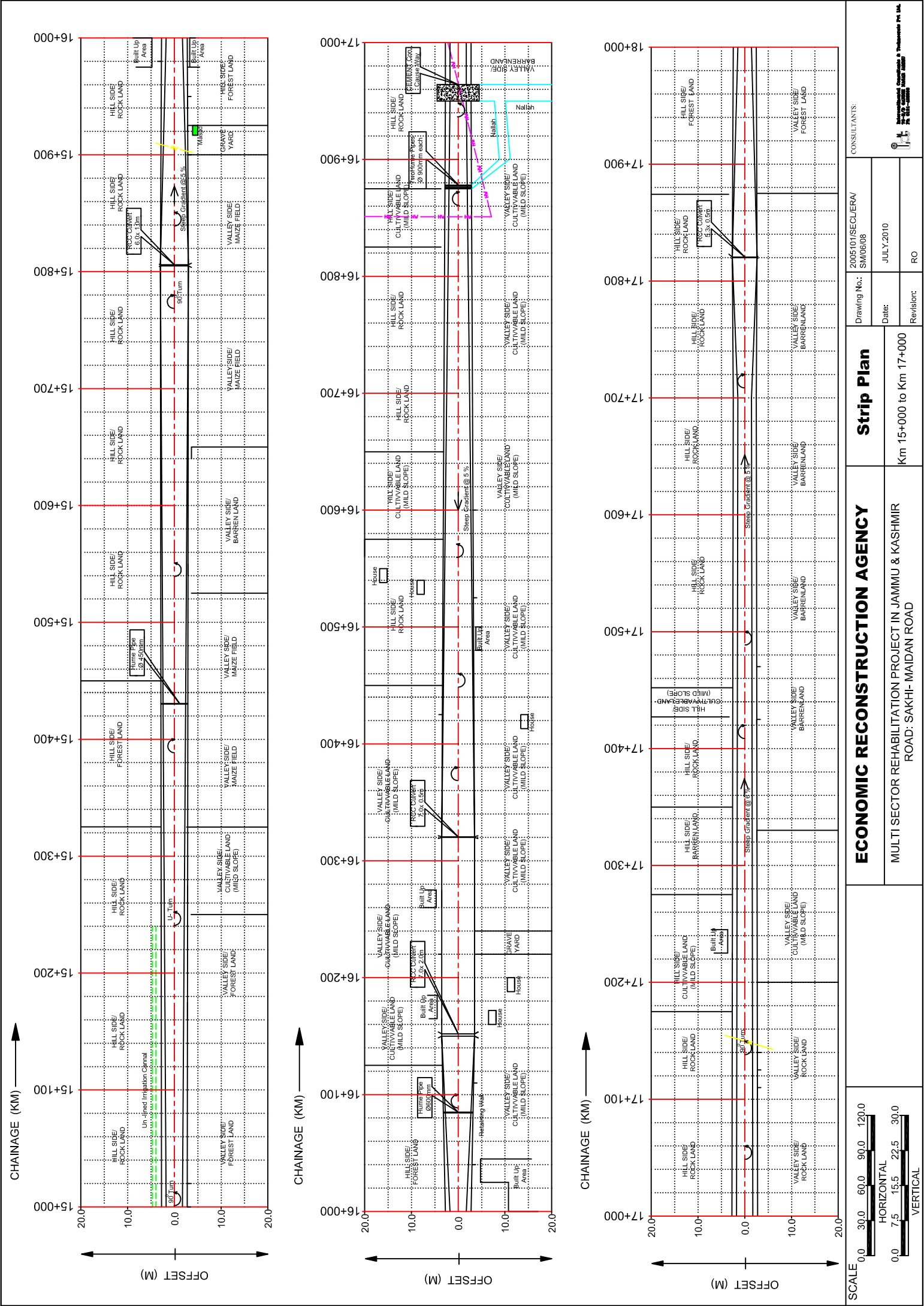
JULY 2010

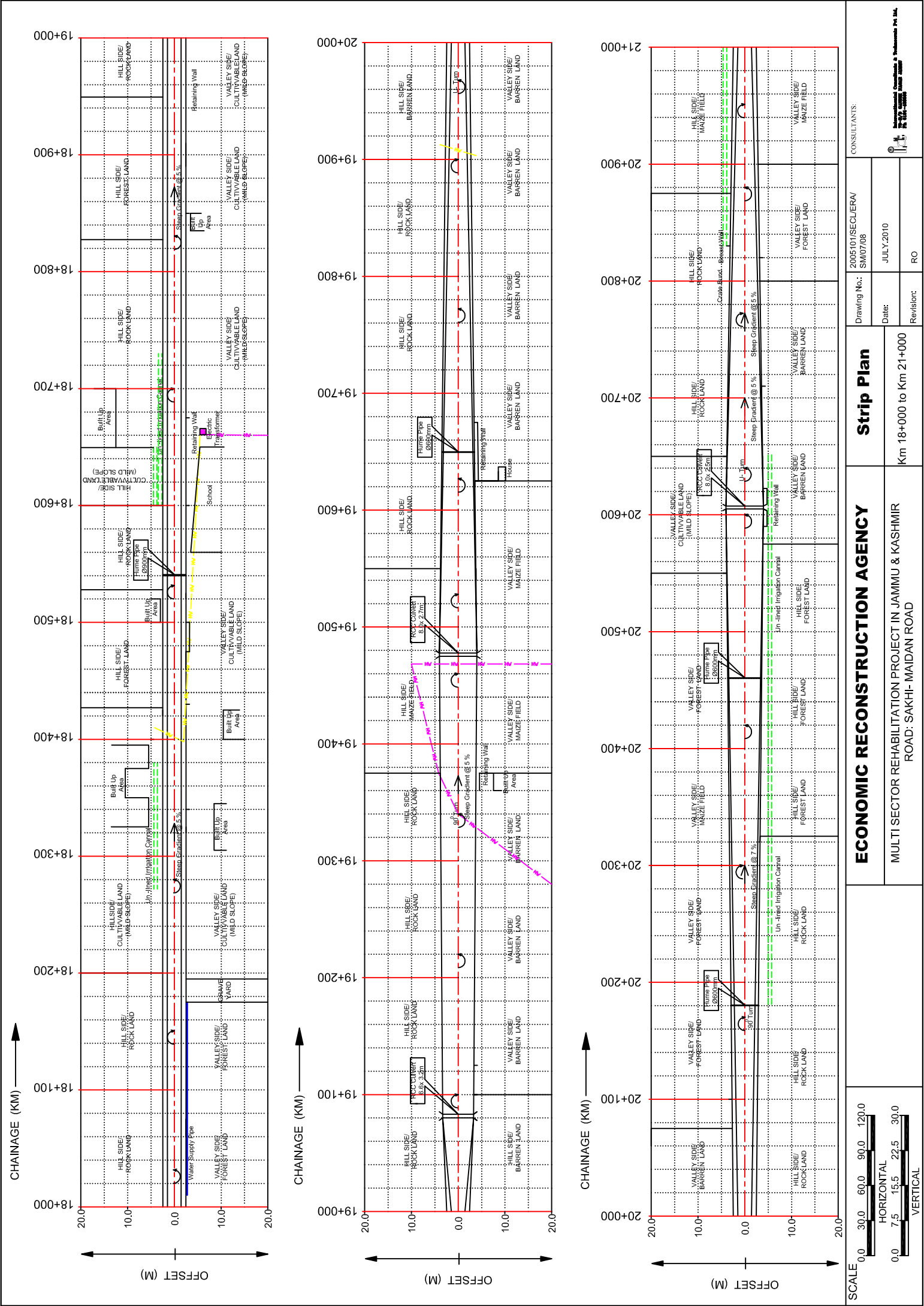
Revision:

RO



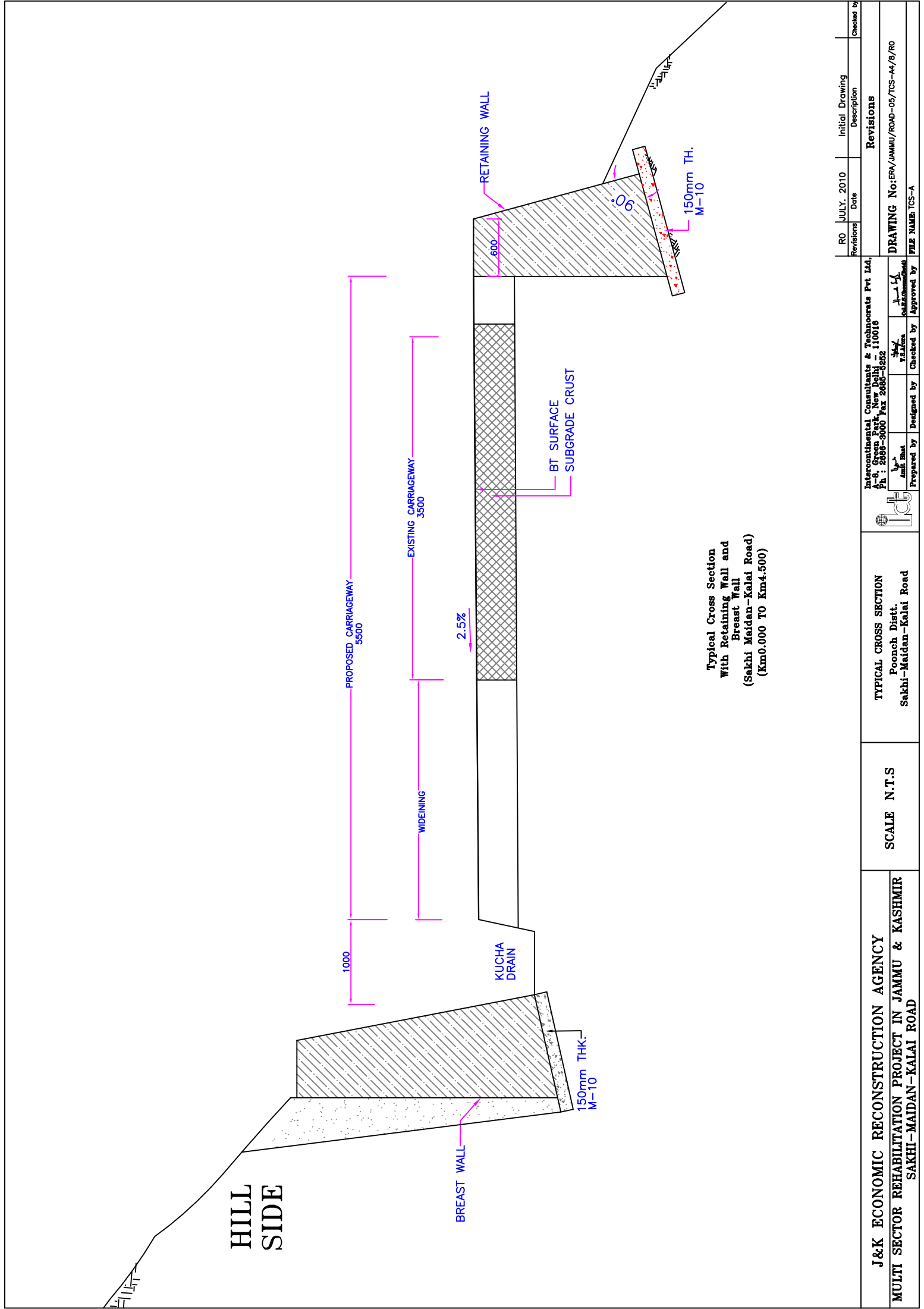
SCALE 0.0 30.0 60.0 90.0 120.0 HORIZONTAL 0.0 7.5 15.5 22.5 30.0 VERTICAL																																																				
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

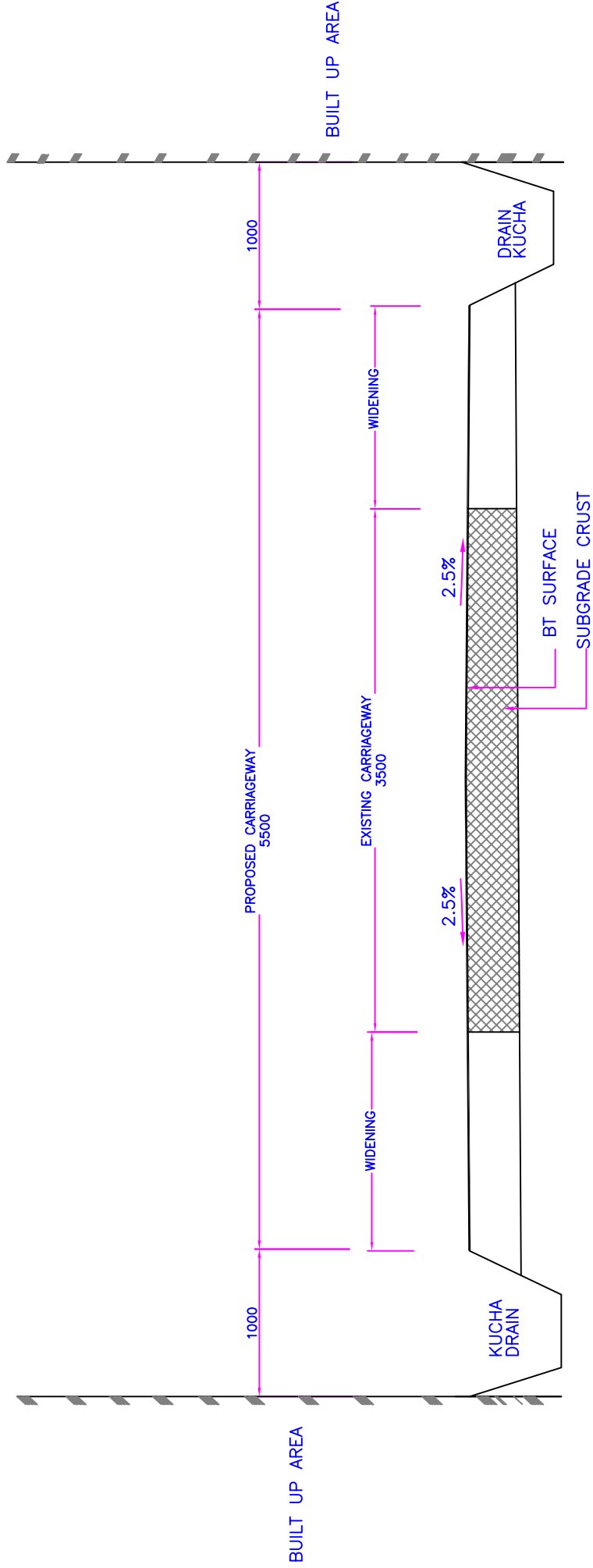




ECONOMIC RECONSTRUCTION AGENCY		Strip Plan		CONSULTANTS:	
SCALE 0.0 30.0 60.0 90.0 120.0 HORIZONTAL 0.0 7.5 15.5 22.5 30.0 VERTICAL		Drawing No.: 200510/ISECLERA/ SMD0708		Date: JULY.2010	
		Km 18+000 to Km 21+000		Revisor: RO	
		MULTI SECTOR REHABILITATION PROJECT IN JAMMU & KASHMIR ROAD: SAKHI-MAIDAN ROAD		Project No.: 200510/ISECLERA/ SMD0708	

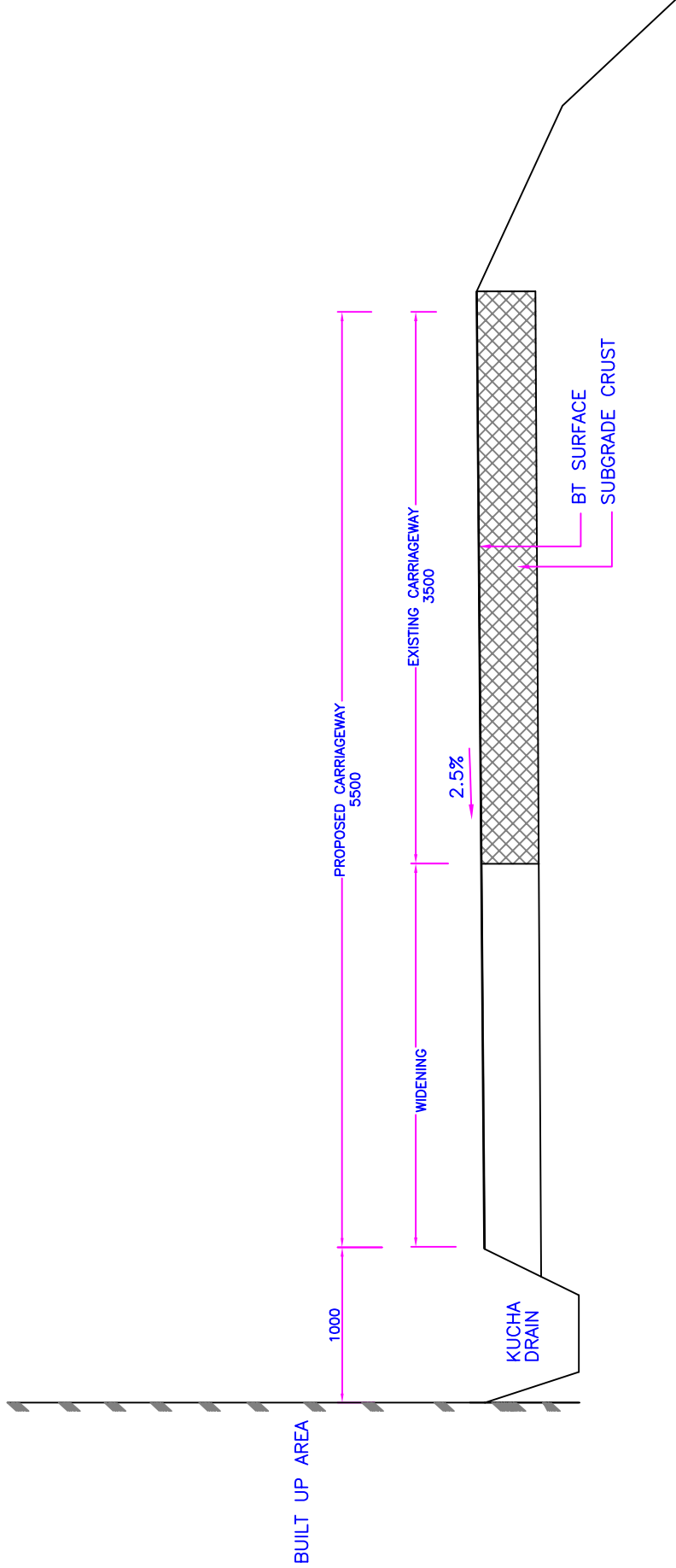
DRAWINGS





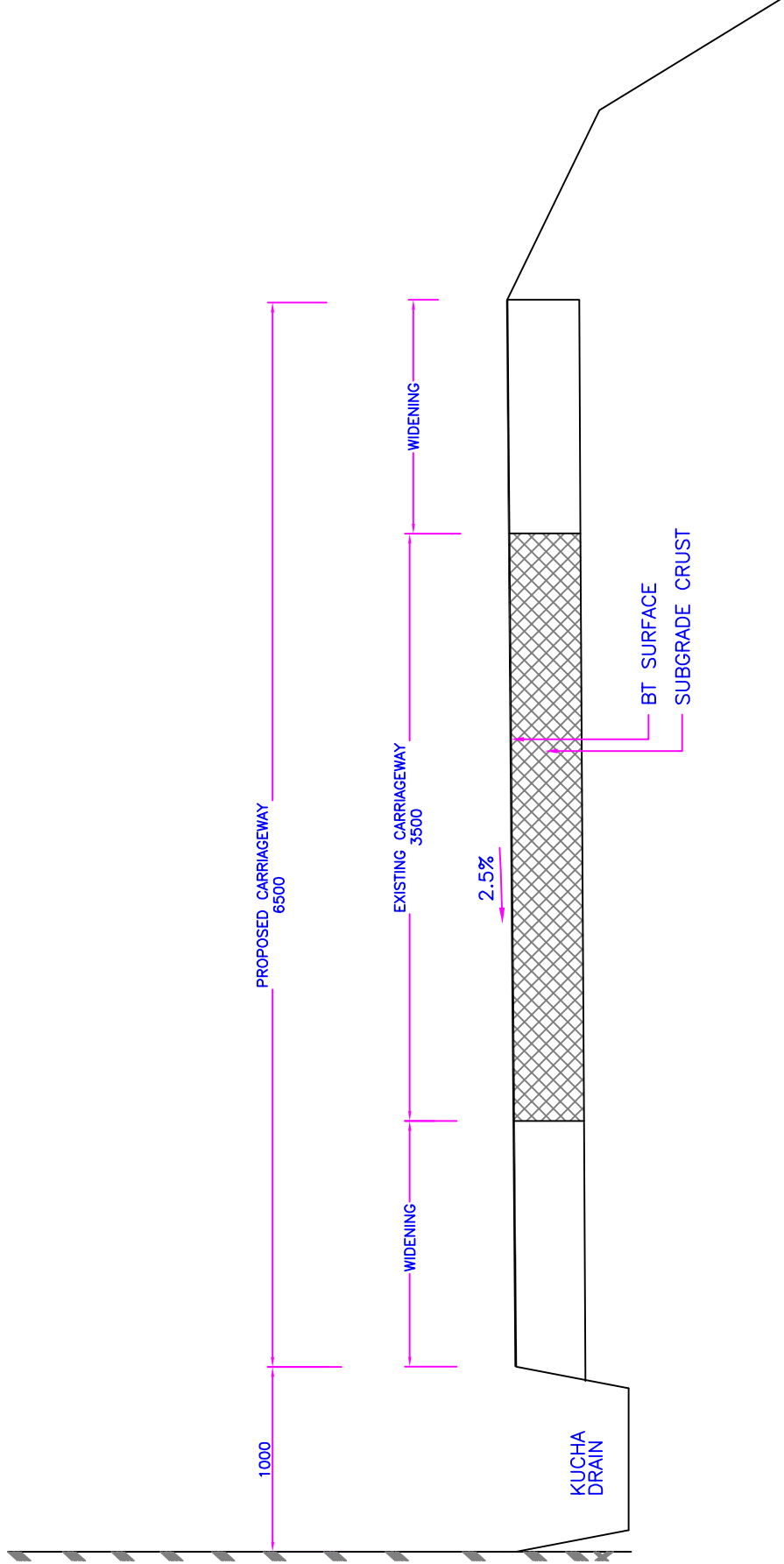
Typical Cross Section Two Side Open Drain
(Sakhi Maidan-Kalai Road)
(Km0.000 TO Km4.500)

J&K ECONOMIC RECONSTRUCTION AGENCY		SCALE N.T.S		TYPICAL CROSS SECTION Poonch Distt. Sakhi-Maidan-Kalai Road		Intercontinental Consultants & Technocrats Pvt Ltd, A-6/1 Green Park, New Delhi - 110016 Ph : 2686-8000 Fax 2686-8252		RO	JULY. 2010	Initial Drawing	Checked by
MULTI SECTOR REHABILITATION PROJECT IN JAMMU & KASHMIR								Revisions	Date	Description	Checked by
								Revisions			
								DRAWING No:ERA/JAMMU/ROAD-05/TCS-A1/8/RO			
								FILE NAME: TCS-A			



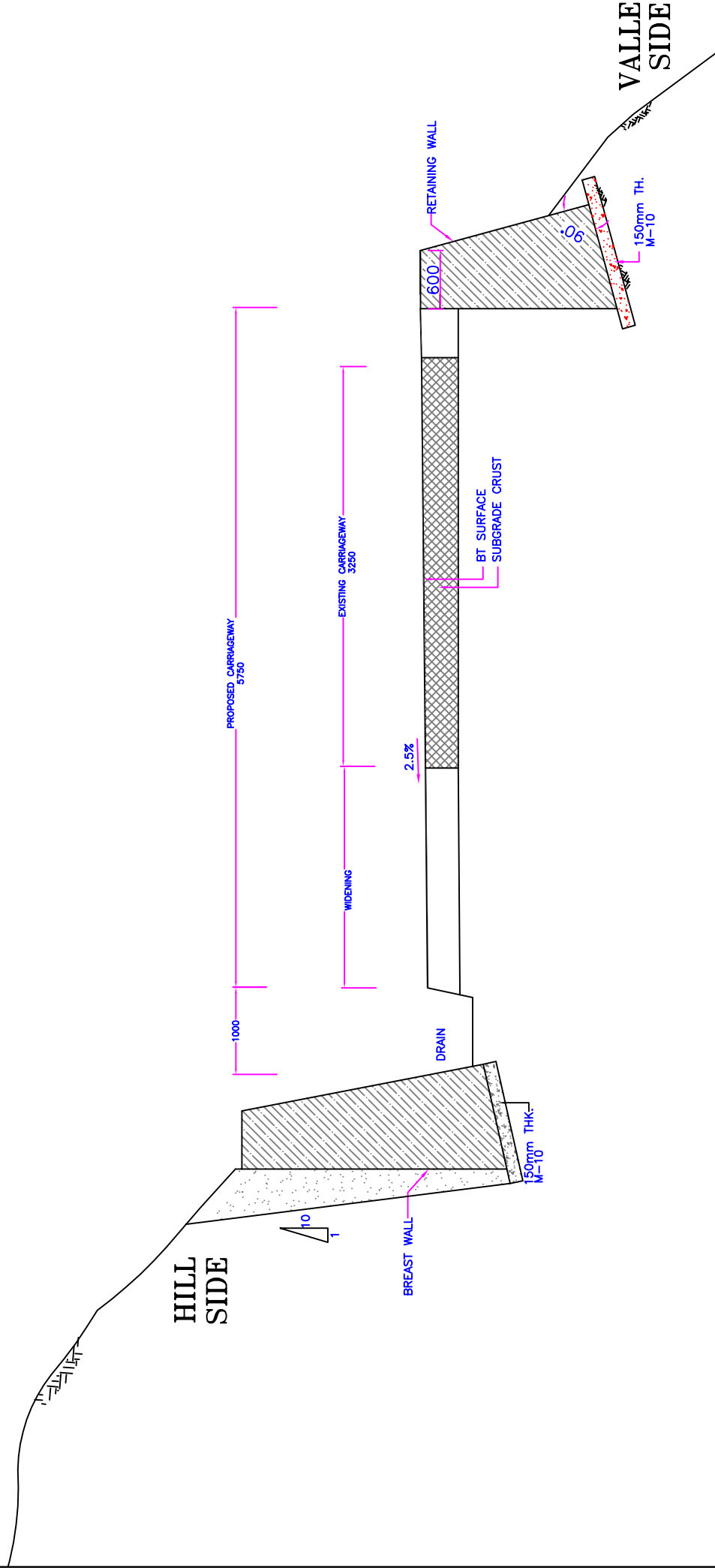
Typical Cross Section
With One Side Drain
(Sakhi Maidan-Kalai Road)
(Km0.000 TO Km4.500)

J&K ECONOMIC RECONSTRUCTION AGENCY		SCALE N.T.S		TYPICAL CROSS SECTION		Intercontinental Consultants & Technocrats Pvt Ltd, A-6, Green Park, New Delhi - 110016 Ph. : 2686-3000 Fax 2686-8282		Revisions	
MULTI SECTOR REHABILITATION PROJECT IN JAMMU & KASHMIR				Poonch Distt. Sakhi-Maidan-Kalai Road					
SAKHI-MAIDAN-KALAI ROAD								DRAWING No:ERA/JAMMU/ROAD-05/TCS-A2/8/RO	
								FILE NAME: TCS-A	



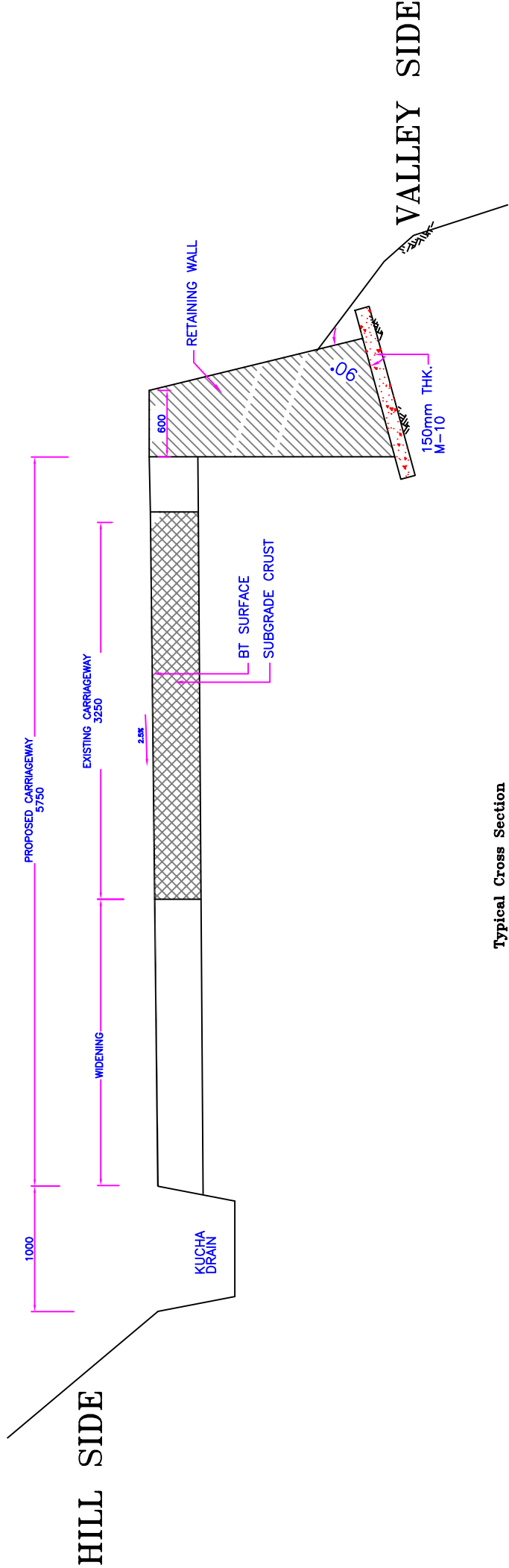
Typical Cross Section One Side Drain
(Sakhi Maidan-Kalai Road)
(Km3.150 TO Km 4.500)

J&K ECONOMIC RECONSTRUCTION AGENCY		SCALE N.T.S		TYPICAL CROSS SECTION Poonch Distt. Sakhi-Maidan-Kalai Road		Intercontinental Consultants & Technocrats Pvt Ltd, A-8, Green Park, New Delhi - 110016 Ph : 2686-8000 Fax 2686-8252		RO	JULY, 2010	Initial Drawing	Checked by
MULTI SECTOR REHABILITATION PROJECT IN JAMMU & KASHMIR						Prepared by Amit Malik		Revisions	Date	Description	Checked by
SAKHI-MAIDAN-KALAI ROAD						Designed by T.S. Khera		Approved by H.S. Khera		Revisions	
										DRAWING No:ERA/JAMMU/ROAD-06/TCS-A3/8/RO	
										FILE NAME: TCS-A	



Typical Cross Section
With Retaining Wall
& Breast Wall
(Sakhi Maidan-Kalai Road)
Km 4.500 To Km 17.000

J&K ECONOMIC RECONSTRUCTION AGENCY		SCALE N.T.S		TYPICAL CROSS SECTION Poonch Distt. Sakhi-Maidan-Kalai Road		Intercontinental Consultants & Technocrats Pvt Ltd, A-8, Green Park, New Delhi - 110016 Ph : 2686-3000 Fax 2685-5282		RO	JULY, 2010	Initial Drawing	Checked by
MULTI SECTOR REHABILITATION PROJECT IN JAMMU & KASHMIR						Prepared by		Revisions	Date	Description	Checked by
SAKHI-MAIDAN-KALAI ROAD						7.2.2.2mm		Revisions			
						7.2.2.2mm		DRAWING No: ERA/JAMMU/ROAD-05/TCS-A5/8/RO			
						7.2.2.2mm		FILE NAME: TCS-A			



Typical Cross Section
Retaining Wall With Drain
(Sakhi Maidan-Kalai Road)
Km 4.500 To Km17.000

J&K ECONOMIC RECONSTRUCTION AGENCY		RO	JULY. 2010	Initial Drawing	Checked by
MULTI SECTOR REHABILITATION PROJECT IN JAMMU & KASHMIR		Revisions	Date	Description	Checked by
SAKHI-MAIDAN-KALAI ROAD		Revisions			
DRAFTING No:ERA/JAMMU/ROAD-05/TCS-AG/8/RO		DRAFTING No:ERA/JAMMU/ROAD-05/TCS-AG/8/RO			
FILE NAME: TCS-A		FILE NAME: TCS-A			

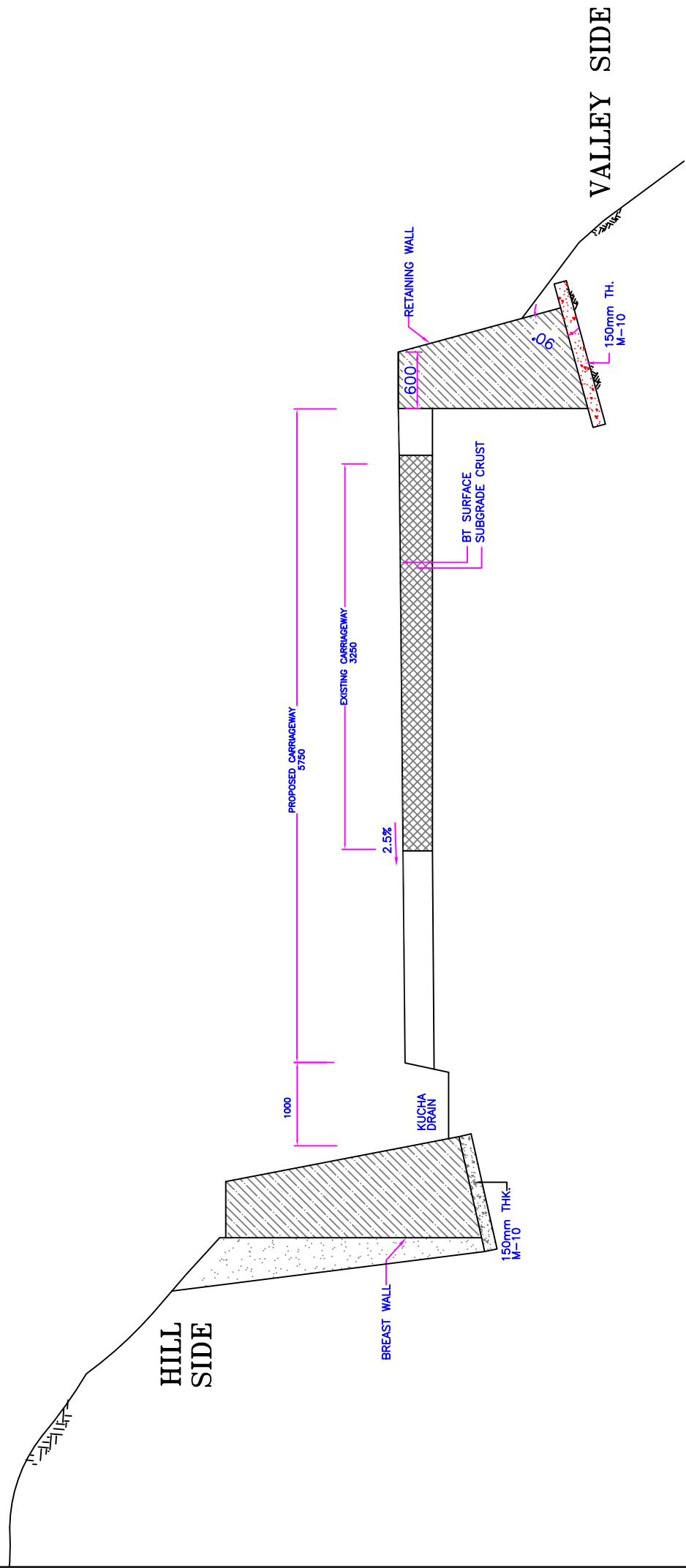
Intercontinental Consultants & Technocrats Pvt Ltd,
A-6, Green Park, New Delhi - 110016
Ph : 2686-8000 Fax 2682-8252



TYPICAL CROSS SECTION
Poonch Distt.
Sakhi-Maidan-Kalai Road

SCALE N.T.S

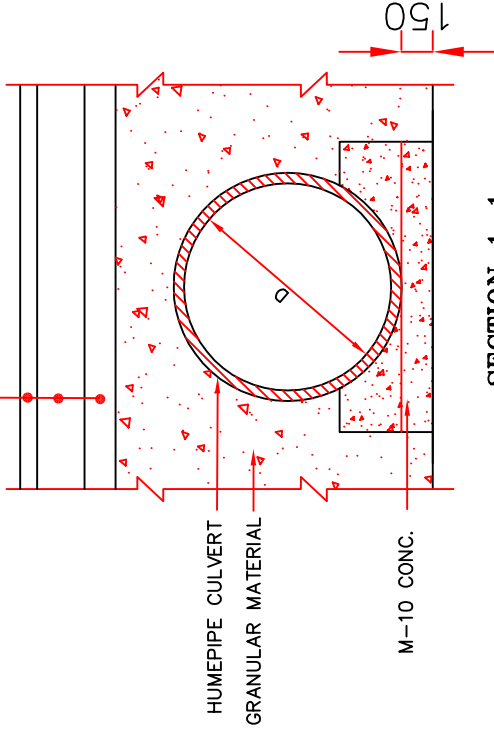
J&K ECONOMIC RECONSTRUCTION AGENCY
MULTI SECTOR REHABILITATION PROJECT IN JAMMU & KASHMIR
SAKHI-MAIDAN-KALAI ROAD



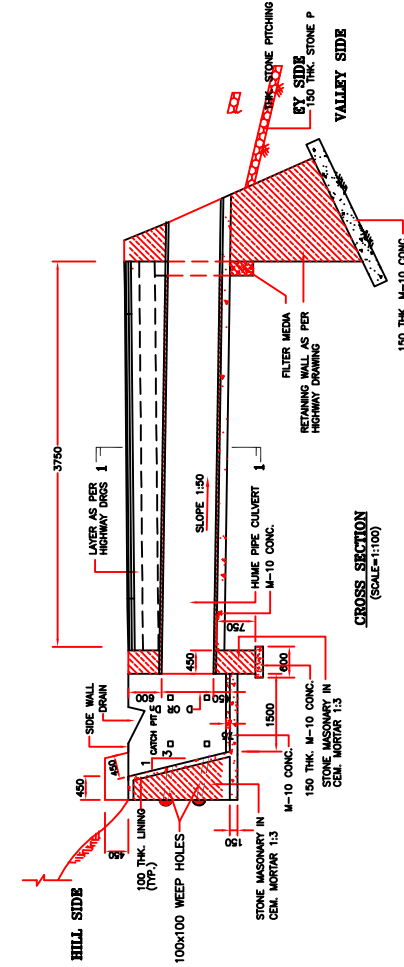
Typical Cross Section
With Retaining Wall
& Breast Wall
(Sakhi Maidan-Kalai Road)
Km 17.000 To Km 20.000

J&K ECONOMIC RECONSTRUCTION AGENCY		SCALE N.T.S	TYPICAL CROSS SECTION		Intercontinental Consultants & Technocrats Pvt. Ltd. A-8, Green Park, New Delhi - 110016 Ph : 2886-3000 Fax 2886-5282						Revisions	
MULTI SECTOR REHABILITATION PROJECT IN JAMMU & KASHMIR					Poonch Distt. Sakhi-Maidan-Kalai Road						DRAWING No:ERA/JAMMU/ROAD-05/TCS-A7/18/RO	
SAKHI-MAIDAN-KALAI ROAD				Prepared by Asstt. Engr		Designed by T.S. Arora		Checked by Sd/-		FILE NAME: TCS-A		

LAYERS AS PER DESIGN



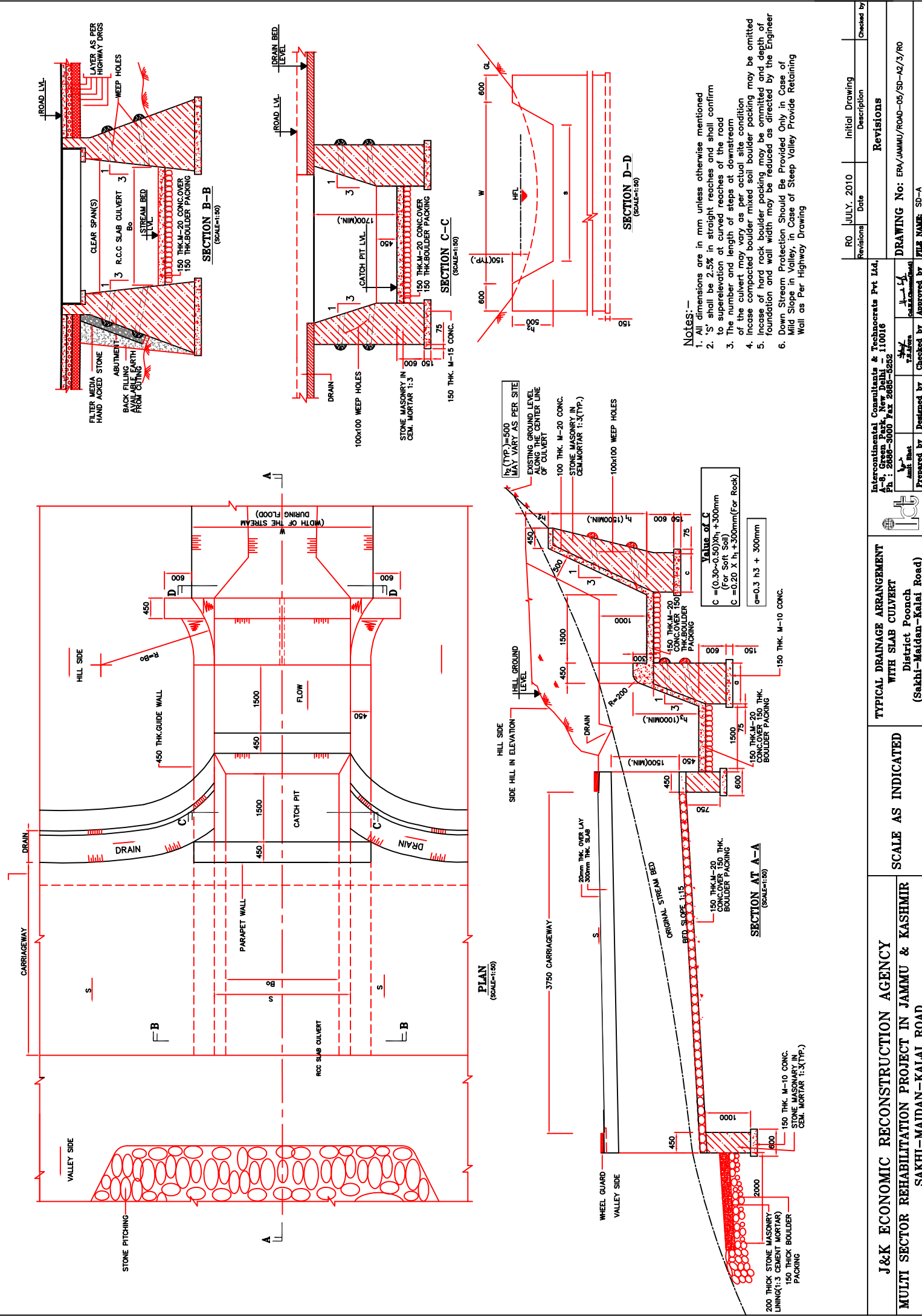
SECTION 1-1
(SCALE=1:25)



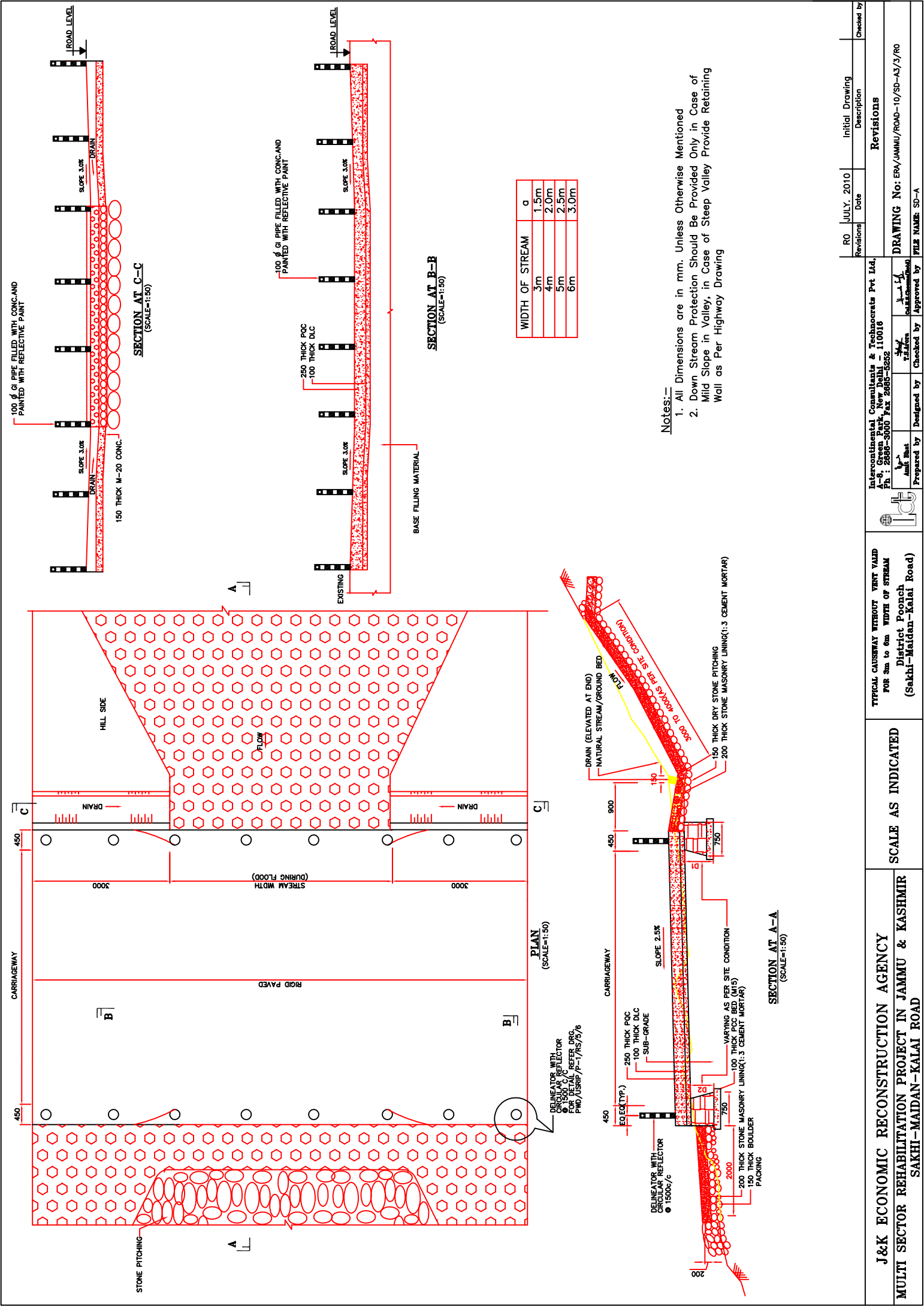
CROSS SECTION
(SCALE=1:100)

NOTES:-

1. ALL DIMENSIONS ARE IN mm, UNLESS OTHERWISE MENTIONED
2. PS STANDS FOR PAVED SHOULDER.
3. FOR GENERAL CROSS SECTION, RETAINING WALLS & HUMEPipe DETAILS REFER HIGHWAY DRAWING
4. CATCHPIT TO BE PROVIDED TOWARDS HILL SIDE AS PER SITE CONDITION
5. D IS THE DIAMETER OF HUMEPipe CULVERT
6. D_n IS THE CENTRE TO CENTRE DISTANCE OF TWO HUMEPipe CULVERT AND D_n=1.5XD
7. STONE PITCHING ON VALLEY SIDE AT PER SITE CONDITION
8. WHERE THERE IS NO BREAST WALL THE DRAIN SECTION WILL BE RECTANGULAR HAVING BED WIDTH (B_o) OF 600.



J&K ECONOMIC RECONSTRUCTION AGENCY MULTI SECTOR REHABILITATION PROJECT IN JAMMU & KASHMIR SAKHI -MAIDAN-KALAI ROAD	SCALE AS INDICATED	TYPICAL DRAINAGE ARRANGEMENT WITH SLAB CULVERT District Poonch (Sakhi-Maidan-Kalai Road)			Intercontinental Consultants & Technocrats Pvt Ltd. A-6, Green Park, New Delhi - 110016 Ph : 2886-3000 Fax 2886-5252		Revisions			
							DRAWING No: ERA/JAMMU/ROAD-05/SD-A2/3/RO		FILE NAME: SD-A	
			Prepared by	Designed by	Checked by	Approved by				



J&K ECONOMIC RECONSTRUCTION AGENCY

MULTI SECTOR REHABILITATION PROJECT IN JAMMU & KASHMIR

SAKHI-MAIDAN-KALAI ROAD

SCALE AS INDICATED

TYPICAL CAUSEWAY WITHOUT VENT YARD
FOR 3m to 6m WIDTH OF STREAM
District Poonch
(Sakhi-Maidan-Kalai Road)

Intersubmittal Consultants & Technocrats Pvt Ltd.
P.O. : GATEWAY, P.O. : JAMMU
Ph : 2458-3000 Fax 2458-5252

Prepared by

Checked by

Designed by

Approved by

1:1

1:1

1:1

1:1

RO

JULY, 2010

Date

Initial Drawing

Description

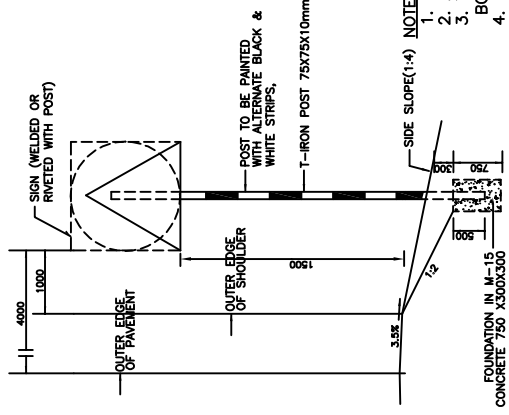
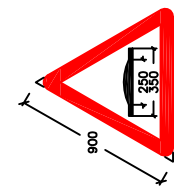
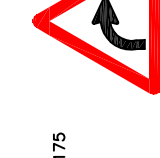
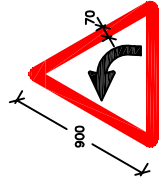
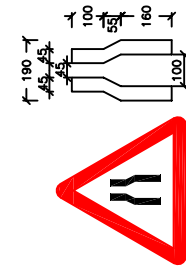
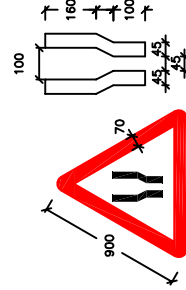
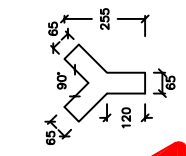
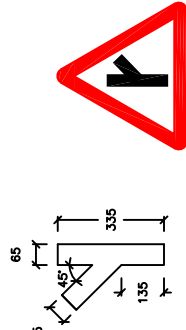
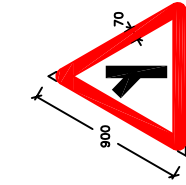
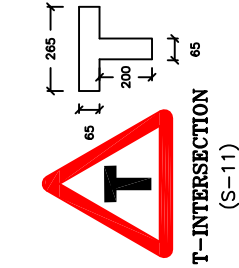
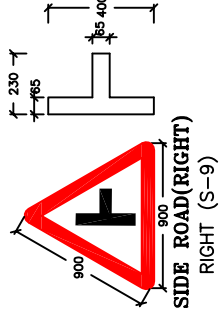
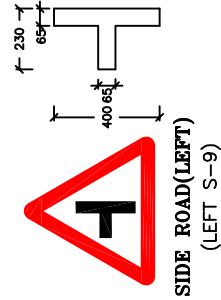
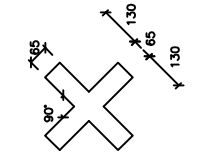
Revisions

Checked by

Revisions

DRAWING No: ERA/JAMMU/ROAD-10/SD-A3/3/RO

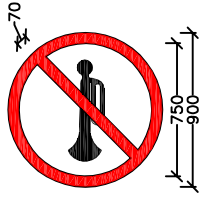
FILE NAME: SD-A



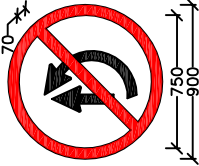
NOTES:-

1. DRAWING IS NOT TO SCALE
2. ALL DIMENSIONS ARE IN mm
3. THE SIZE OF TRIANGLE SHALL BE 900mm AND WIDTH OF BORDER SHALL BE 70mm FOR CAUTIONARY/WARNING SIGNS.
4. FOR FURTHER DETAILS OF ROAD SIGNS REFER IRC CODE: 67-2001 AND TYPE DESIGNS FOR INTERSECTIONS ON NATIONAL HIGHWAYS ISSUED BY MORTH&I.
5. DIMENSIONS SHOWN ARE FOR NORMAL SIZED SIGNS.

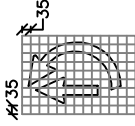
J&K ECONOMIC RECONSTRUCTION AGENCY MULTI SECTOR REHABILITATION PROJECT IN JAMMU & KASHMIR SAKHI - MAIDAN - KALAI ROAD	SCALE N.T.S.	TYPICAL DETAILS OF CAUTIONARY /WARNING TYPE ROAD SIGNS District Poonch SAKHI - MAIDAN - KALAI ROAD	 Intercontinental Consultants & Technocrats Pvt. Ltd. Plot No. 100, Sector 10, Gurgaon - 122016 Ph : 2938-3000 Fax 2935-5252 Website: www.icct.co.uk	Revisions		Initial Drawing	Checked by	
				RO	JULY, 2010			Date
				DRAWING NO: ERA/JAMMU/ROAD-05/RS-A1/4/RO				FILE NAME: RS-A
				Prepared by Amir Bhat	Designed by	Checked by	Approved by	



HORN PROHIBITED

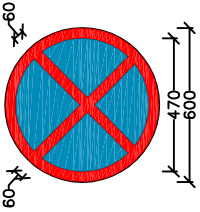


OVERTAKING PROHIBITED

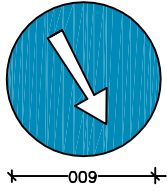


**STOP SIGN
(S-1)**

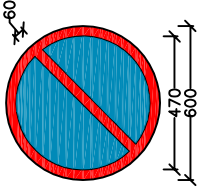
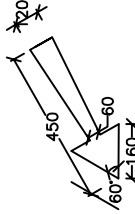
(TILL THE ROAD USERS ARE FAMILIAR A DEFINITION PLATE SHOULD BE ATTACHED WITH THE SIGN CARRYING THE WORD 'STOP' IN ENGLISH AND OTHER LANGUAGES AS NECESSARY)



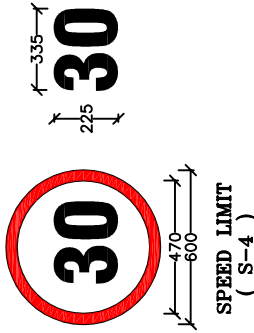
**NO STOPPING
OR STANDING**



**COMPULSORY
KEEP LEFT
(S-2)**

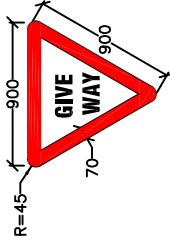


NO PARKING

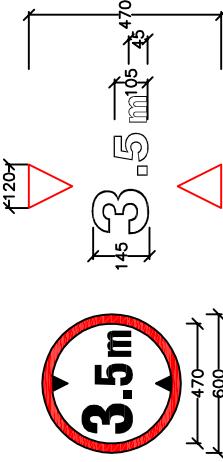


**SPEED LIMIT
(S-4)**

**GIVE WAY
(S-3)**



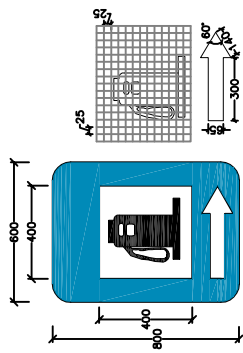
(IN THE BEGINNING, A DEFINITION PLATE SHOULD BE USED WITH THE SIGN CARRYING THE MESSAGE 'GIVE WAY' IN ENGLISH AND OTHER LANGUAGES AS NECESSARY)



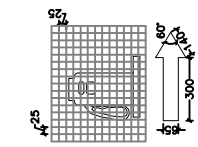
HEIGHT LIMIT

NOTES:-

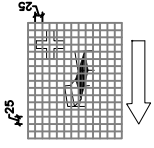
1. DRAWING IS NOT TO SCALE
2. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED.
3. FOR FURTHER DETAILS OF ROAD SIGNS REFER IRC CODE-67-2001 AND TYPE DESIGNS FOR INTERSECTIONS ON NATIONAL HIGHWAYS ISSUED BY MORTH.
4. SIGN NO (S) INDICATED ARE AS PER TYPE DESIGNS FOR INTERSECTIONS ON NATIONAL HIGHWAYS ISSUED BY MORTH.
5. DEFINITION PLATE MAY BE ATTACHED WITH THE SIGN CARRYING THE MESSAGE IN ENGLISH AND OTHER LANGUAGES AS NECESSARY, AND ALSO ANY ADDITIONAL INFORMATION SUCH AS THE PERIOD DURING WHICH THE RESTRICTIONS WILL BE IN FORCE OR THE PARTICULAR VEHICLES TO WHICH IT APPLIES.
6. DIMENSIONS SHOWN ARE FOR NORMAL SIZED SIGNS.
7. SPEED LIMITS FOR DIFFERENT CLASSES OF VEHICLES MAY BE INDICATED IN A SEPARATE DEFINITION PLATE ATTACHED TO THE SPEED LIMIT SIGN.



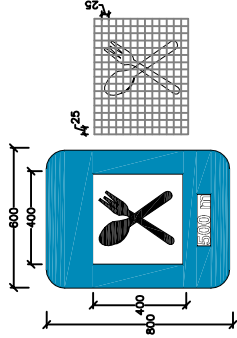
PETROL PUMP



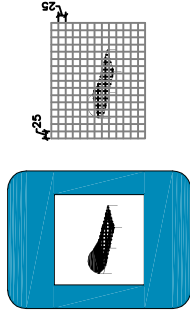
HOSPITAL



EATING PLACE



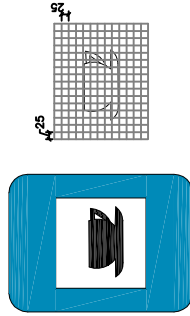
POLICE STATION



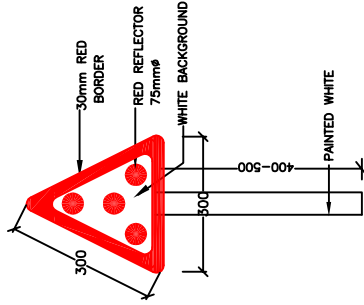
PUBLIC TELEPHONE



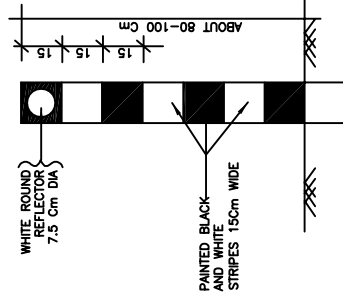
RESTING PLACE



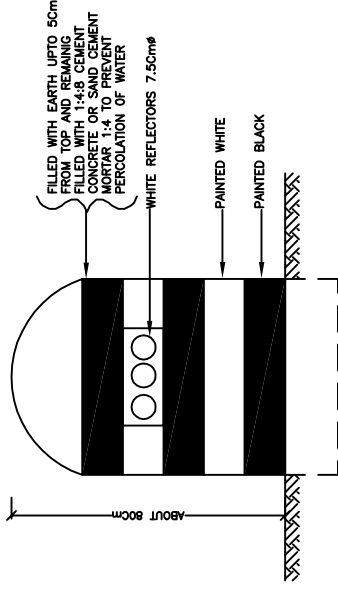
LIGHT REFRESHMENT



CLUSTER OF
RED REFLECTOR
TA-1



DELINEATOR WITH
CIRCULAR REFLECTOR

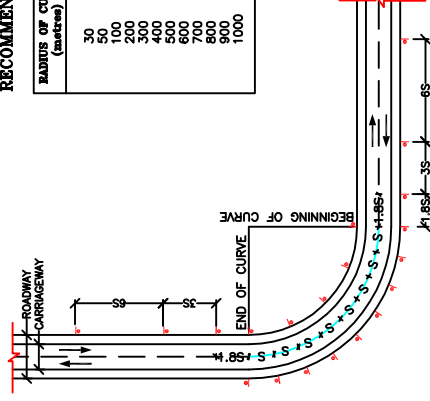


DRUM DELINEATOR

TABLE-1
RECOMMENDED SPACING FOR ROADWAY INDICATORS ON
HORIZONTAL CURVE

RADIUS OF CURVE (meters)	SPACING ON CURVE, S (meters)
30	6
50	8
100	12
200	20
300	25
400	30
500	35
600	38
700	42
800	45
900	48
1000	50

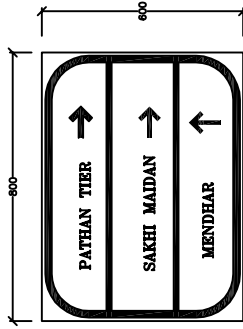
1. ADJUST DISTANCE 'X' SUITABLY SO THAT THE LAST ROADWAY DELINEATOR IS AT THE END OF THE CURVE.
2. INSTALL ALL DELINEATORS AT EDGE OF THE ROADWAY PERPENDICULAR TO THE ONCOMING TRAFFIC.
3. SEE TABLE 1 FOR VALUE OF 'S', i.e. SPACING OF DELINEATORS ON THE CURVE.



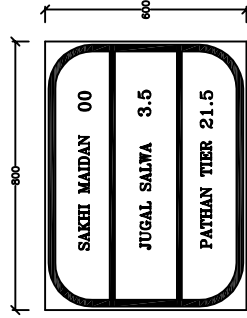
ROADWAY DELINEATOR SPACING ON CURVES

NOTE:-

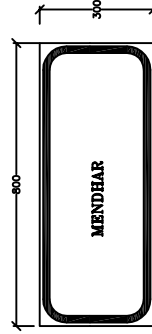
1. DRAWING IS NOT TO SCALE.
2. ALL DIMENSIONS ARE IN mm.
3. FOR FURTHER DETAILS OF ROAD SIGNS REFER IRC CODE-67-2001 AND TYPE DESIGNS FOR INTERSECTIONS ON NATIONAL HIGHWAYS ISSUED BY MORT&H.
4. THE SIZE OF SIGN BOARD SHALL DEPEND ON THE MESSAGE & SIZE OF LETTERS.



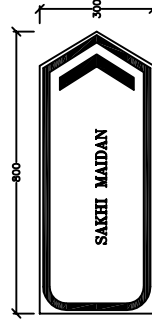
(ADVANCE DIRECTION / DESTINATION SIGN)



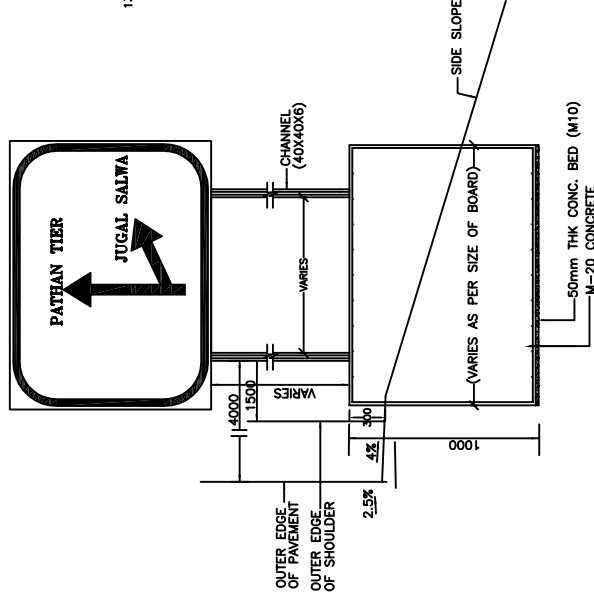
REASSURANCE SIGN



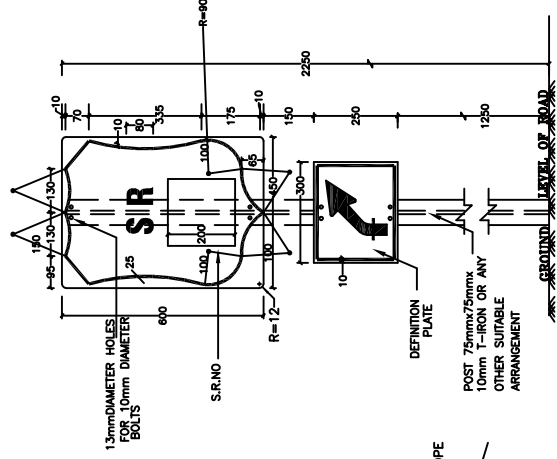
PLACE IDENTIFICATION SIGN



DIRECTION SIGN
S-21



DETAILS FOR BIGGER SIGN

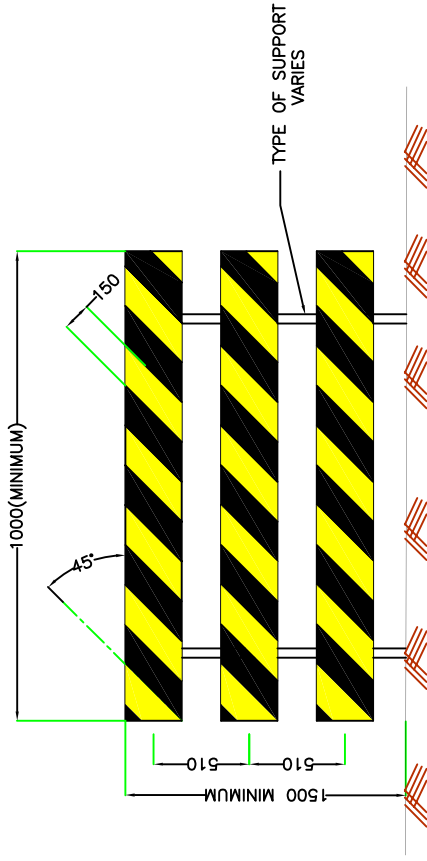


ROUTE MARKER SIGN
(S-17)(S-24)

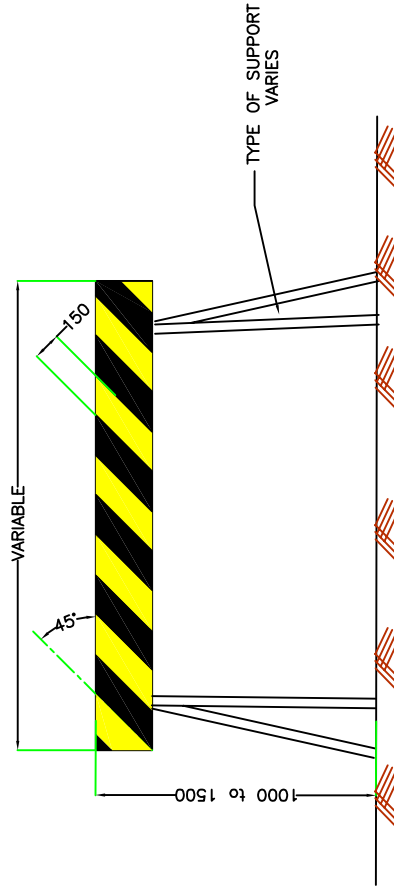
NOTE:-

1. DRAWING IS NOT TO SCALE.
2. ALL DIMENSIONS ARE IN mm.
3. FOR FURTHER DETAILS OF ROAD SIGNS REFER IRC CODE:67-2001 AND TYPE DESIGNS FOR INTERSECTIONS ON NATIONAL HIGHWAYS ISSUED BY MORTH.
4. THE SIZE OF SIGN BOARD SHALL DEPEND ON THE MESSAGE & SIZE OF LETTERS.

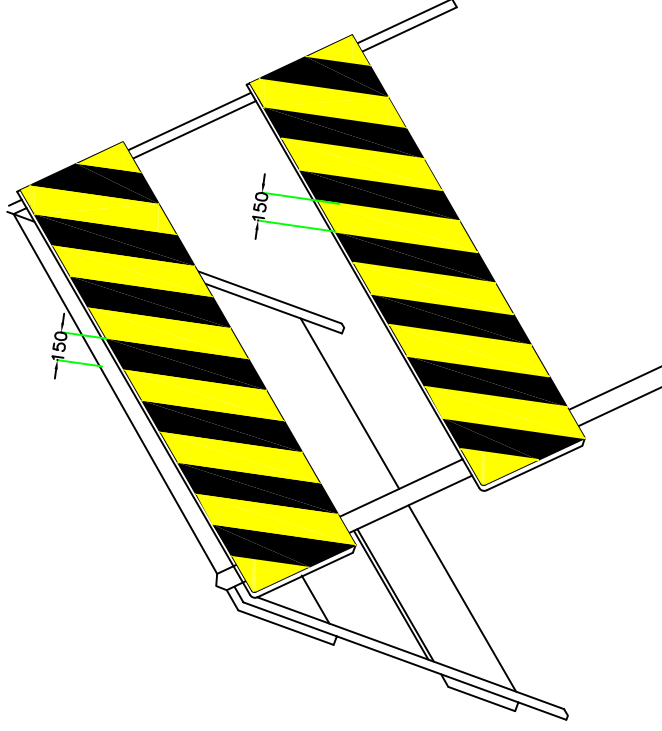
J&K ECONOMIC RECONSTRUCTION AGENCY		SCALE N.T.S.	TYPICAL DETAILS OF INFORMATION TYPE ROAD SIGNS (SHEET-2) District Poonch SAKHI-MADAN-KALAI ROAD		Intercontinental Consultants & Technocrats Pvt Ltd, A-8, Ganga Park, New Delhi - 110016 Ph : 2686-3000 Fax 2686-5252	Revisions			
MULTI SECTOR REHABILITATION PROJECT IN JAMMU & KASHMIR SAKHI-MADAN-KALAI ROAD									
DRAWING No: ERA/JAMMU/ROAD-05/RS-AA/4/RO						FILE NAME: RS-A			



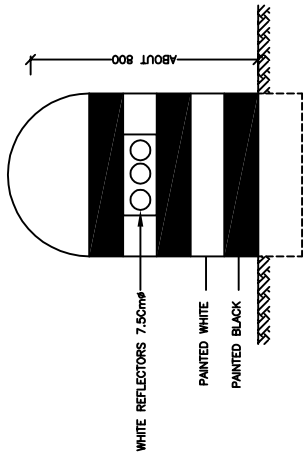
TYPE II BARRICADE



TYPE I BARRICADE

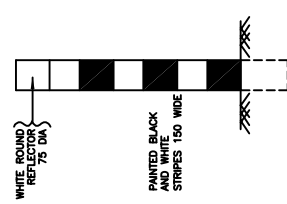
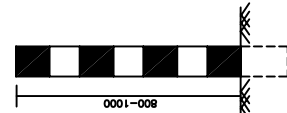
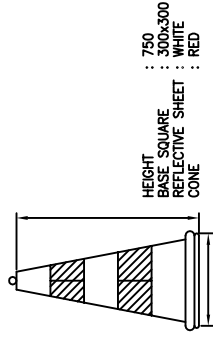


TYPE III BARRICADE

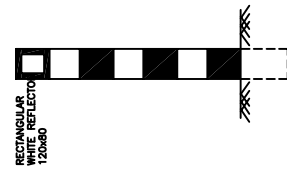


c) DRUM DELINEATOR

Fig.-6 Typical dimensions for delineators cylinders and drums

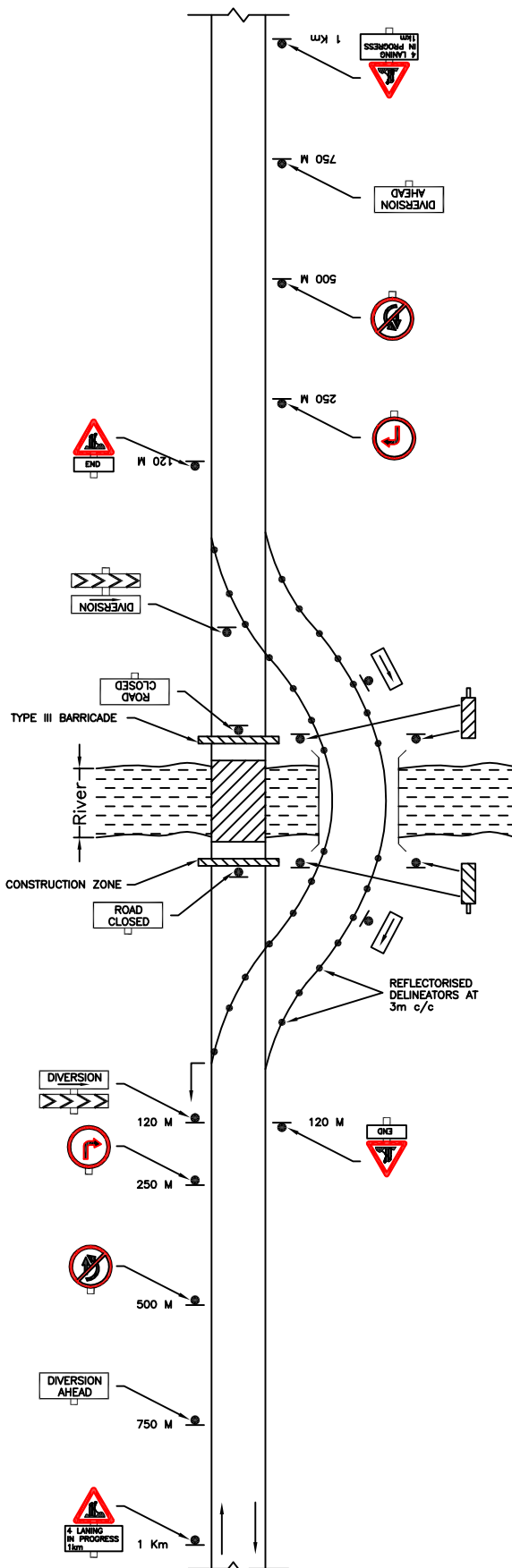


b) CYLINDERS
CIRCULAR REFLECTOR

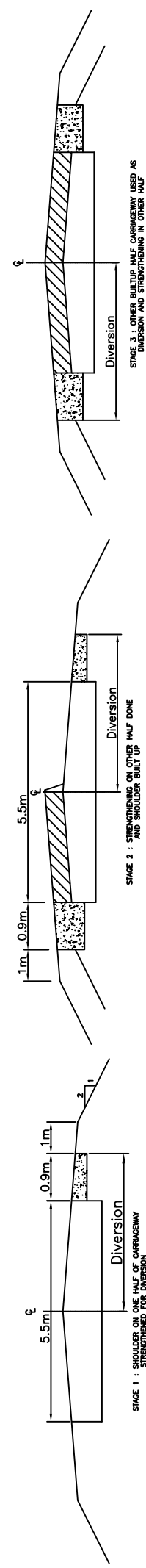
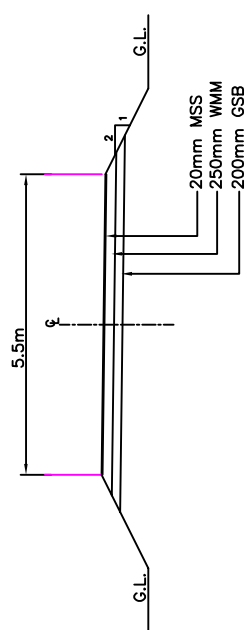


WITH
RECTANGULAR
REFLECTOR

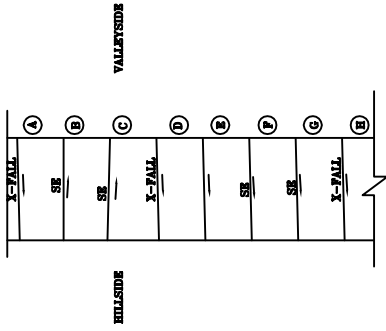
J&K ECONOMIC RECONSTRUCTION AGENCY MULTI SECTOR REHABILITATION PROJECT IN JAMMU & KASHMIR SAKHI-M AIDAN-KALAI ROAD	NOT FOR SCALE	DELINEATORS District Poonch SAKHI-M AIDAN-KALAI ROAD		International Consultants & Technocrats Pvt. Ltd. A-8, Green Park, New Delhi - 110016 Ph : 2886-3000 Fax 2885-5252				Revisions
				Prepared by:  Anil Mehta Checked by:  T. S. Arora Designed by:  T. S. Arora Approved by:  T. S. Arora				DRAWING No: ERA/JAMMU/ROAD-05/DELINEATORS-1/1/RO
				FILE NAME: DELINEATORS-1				



TRAFFIC DIVERSION PLAN FOR CD WORKS



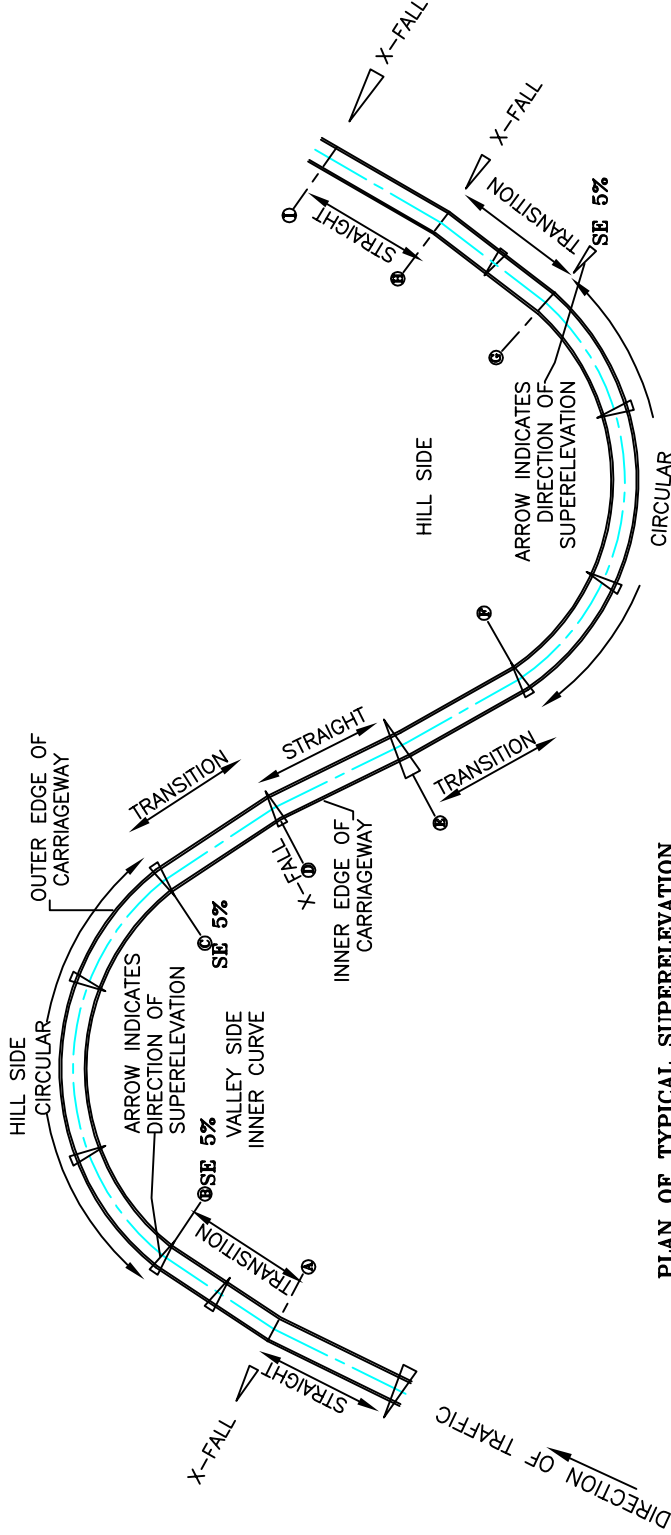
J&K ECONOMIC RECONSTRUCTION AGENCY	NOT TO SCALE	LAYOUT OF SIGNS AND CONTROL POINTS FOR DIVERSION WITH COMPOSITION DETAILS	 Intersubcontinental Consultants & Technocrats Pvt Ltd. Plot No. 10, Sector 10, Phase 1, Gurgaon, Haryana Ph : 2958-3000 Fax 2958-5252 Email: info@iscnt.com	Prepared by Checked by Approved by 10/10/2010 10/10/2010 10/10/2010	RO JULY, 2010 Initial Drawing	Revisions Date Description	Checked by
MULTI SECTOR REHABILITATION PROJECT IN JAMMU & KASHMIR SAKHI-MAIDAN-KALAI ROAD	DISTRICT POONCH SAKHI-MAIDAN-KALAI ROAD	DIVISION NO: EPA/JAMMU/ROAD-05/MISC-A1/3/RO FILE NAME: MISC-A	Revisions	Revisions	Revisions	Revisions	Revisions



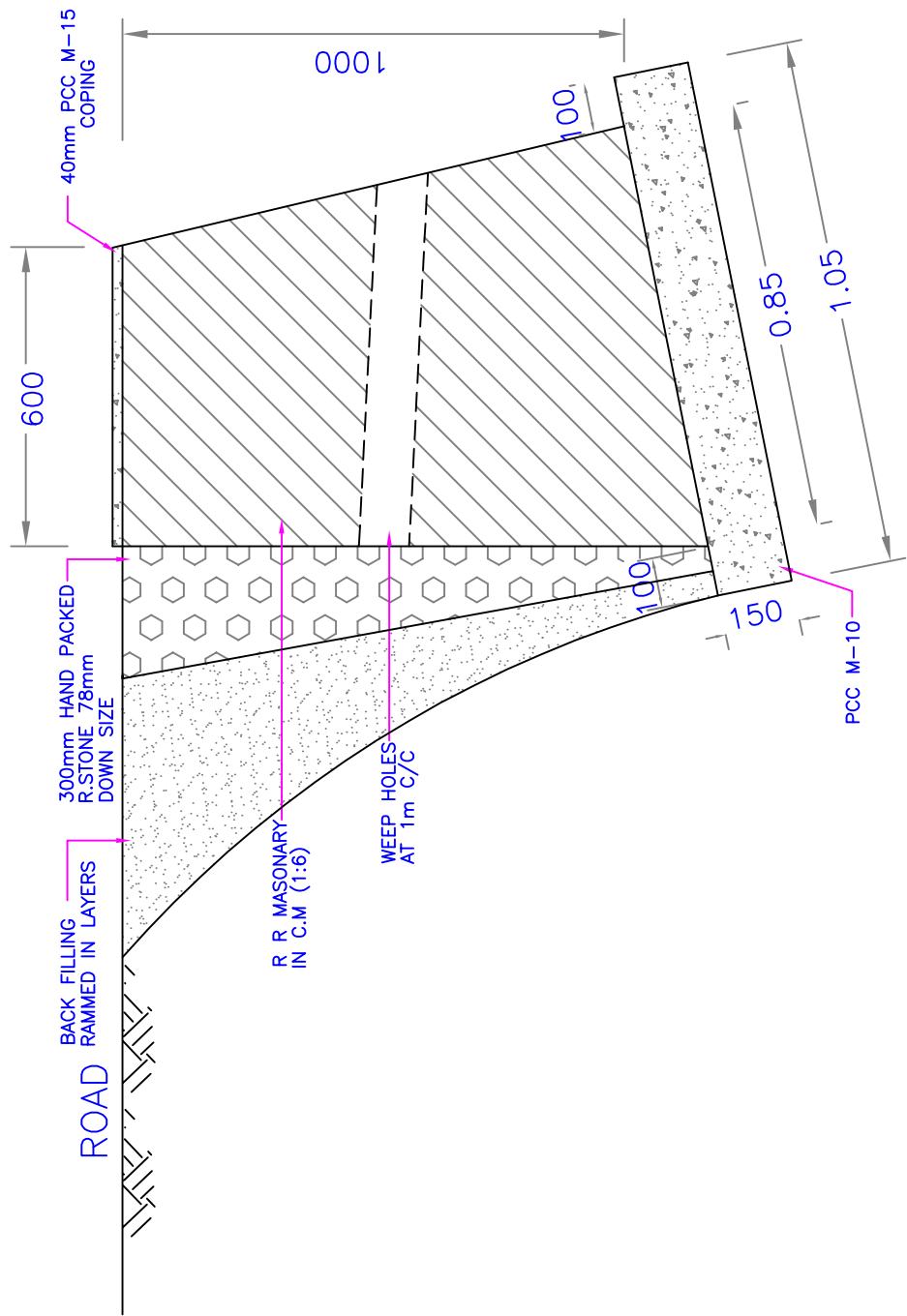
NOTES:-

1. THE METHOD OF PROFILE DESIGN IN ATTAINING SUPERELEVATION IS FOLLOWED AS REVOLVING THE PAVEMENT ABOUT THE CENTRE LINE PROFILE.
2. ALL SUPERELEVATION RATES ARE EXPRESSED IN UNITS PER HUNDRED(%)
3. IN THE DIAGRAMMATIC PROFILE OF TYPICAL SUPERELEVATION THE TANGENT PROFILE CONTROL LINES RESULT IN ANGULAR BREAKS AT 'A','B','C'&'E' FOR GENERAL APPEARANCE AND SAFETY, THESE BREAKS ARE TO BE ROUNDED BY INSERTION OF 20m MIN. VERTICAL CURVE.
4. THE RATE OF CROSS SLOPE AT ANY INTERMEDIATE POINT CROSS SECTION 'D' IS PROPORTIONAL TO THE DISTANCE BETWEEN 'B'&'E'
5. ALL DIMENSIONS ARE IN METRE UNLESS OTHERWISE MENTIONED.

SECTIONS OF TYPICAL DISTRIBUTION OF SUPERELEVATION

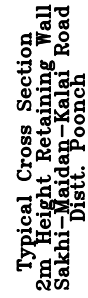


PLAN OF TYPICAL SUPERELEVATION

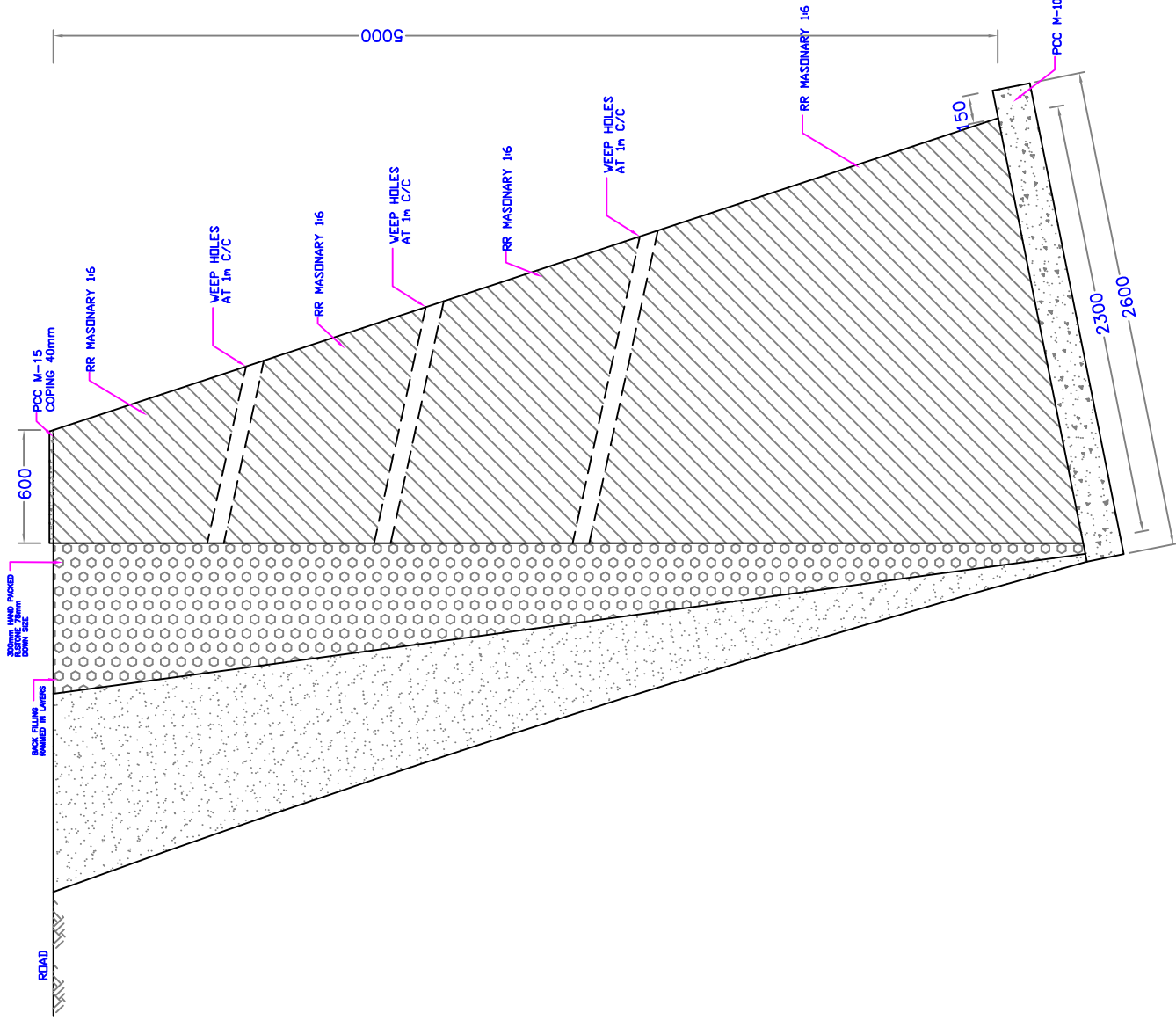


Typical Cross Section
1m Height Retaining Wall
Sakhi-Maidan-Kalai Road
Distt. Jammu

ECONOMIC RECONSTRUCTION AGENCY MULTI SECTOR REHABILITATION PROJECT IN JAMMU & KASHMIR	SCALE N.T.S.	TYPICAL CROSS SECTION 1m Height Retaining Wall Sakhi-Maidan-Kalai Road DISTT. JAMMU	 Intercontinental Consultants & Technocrats Pvt Ltd. P.O. Box 240143 Jammu-180002	RO	JULY, 2010	Initial Drawing	Checked by
				Revisions	Date	Description	Revisions
				Prepared by	Designed by	Checked by	Approved by
				DRAWING No: ERA/JAMMU/ROAD-05/RW-A1/680 FILE NAME: RW-A			



ECONOMIC RECONSTRUCTION AGENCY MULTI SECTOR REHABILITATION PROJECT IN JAMMU & KASHMIR	SCALE N.T.S.	TYPICAL CROSS SECTION 2 m Height Retaining Wall Sakthi-Maidan-Kaleli Road DIST:POONCH	Intercontinental Consultants & Technocrats Pvt Ltd, 73 B/D Nagardas Nager, Jammu-180002 U.P. 0191-2631930		RO	JULY, 2010	Initial Drawing	Checked by
			Revisions		DRAWING NO: EPA/JAMMU/ROAD-05/RW-A2/6/RO			
			Prepared by	Designed by	Checked by	Approved by	FILE NAME: RW-A	



Typical Cross Section
5m Height Retaining Wall
Sakshi-Maidan-Kalai Road
DISTT.POONCH

ECONOMIC RECONSTRUCTION AGENCY
MULTI SECTOR REHABILITATION PROJECT IN JAMMU & KASHMIR

SCALE N.T.S.

TYPICAL CROSS SECTION
5m Height Retaining Wall
Sakshi-Maidan-Kalai Road
DISTT.POONCH

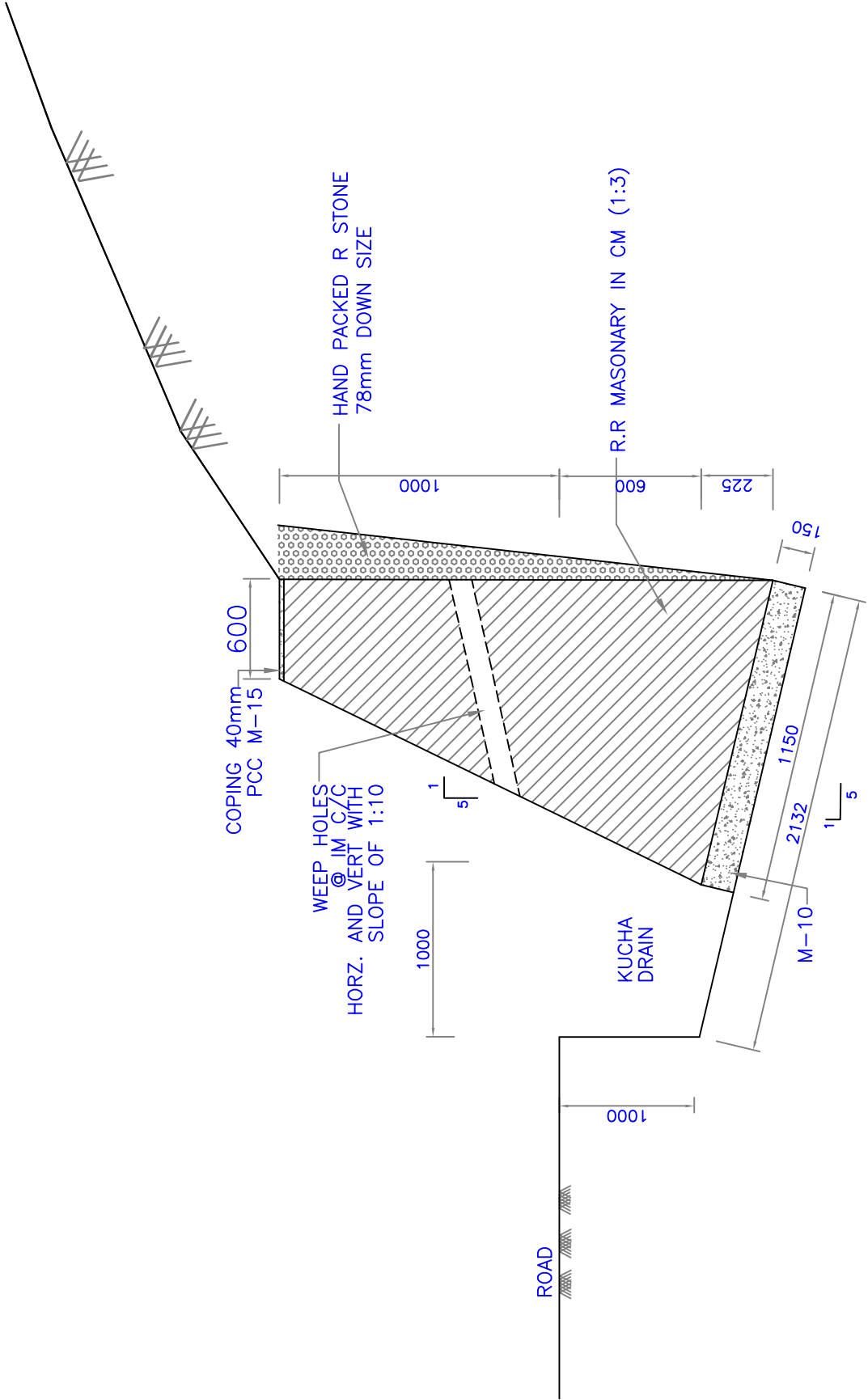
Intercontinental Consultants & Technocrats Pvt. Ltd.
P.O. Box 100, Jammu-180002
Ph: 019-2531648
Fax: 019-2531648
E-mail: icct@icct.co.uk
Website: www.icct.co.uk
Prepared by: [Signature]
Checked by: [Signature]
Designed by: [Signature]
Approved by: [Signature]

Revisions

DRAWING NO: ERA/JAMMU/ROAD-05/RW-AS/6/RO

FILE NAME: RW-A

Revision	Date	Description	Checked by
RO	JULY, 2010	Initial Drawing	



TYPICAL CROSS SECTION
1m BREAST WALL HEIGHT
Sakhi-Maidan-Kalai Road
Distt. Poonch

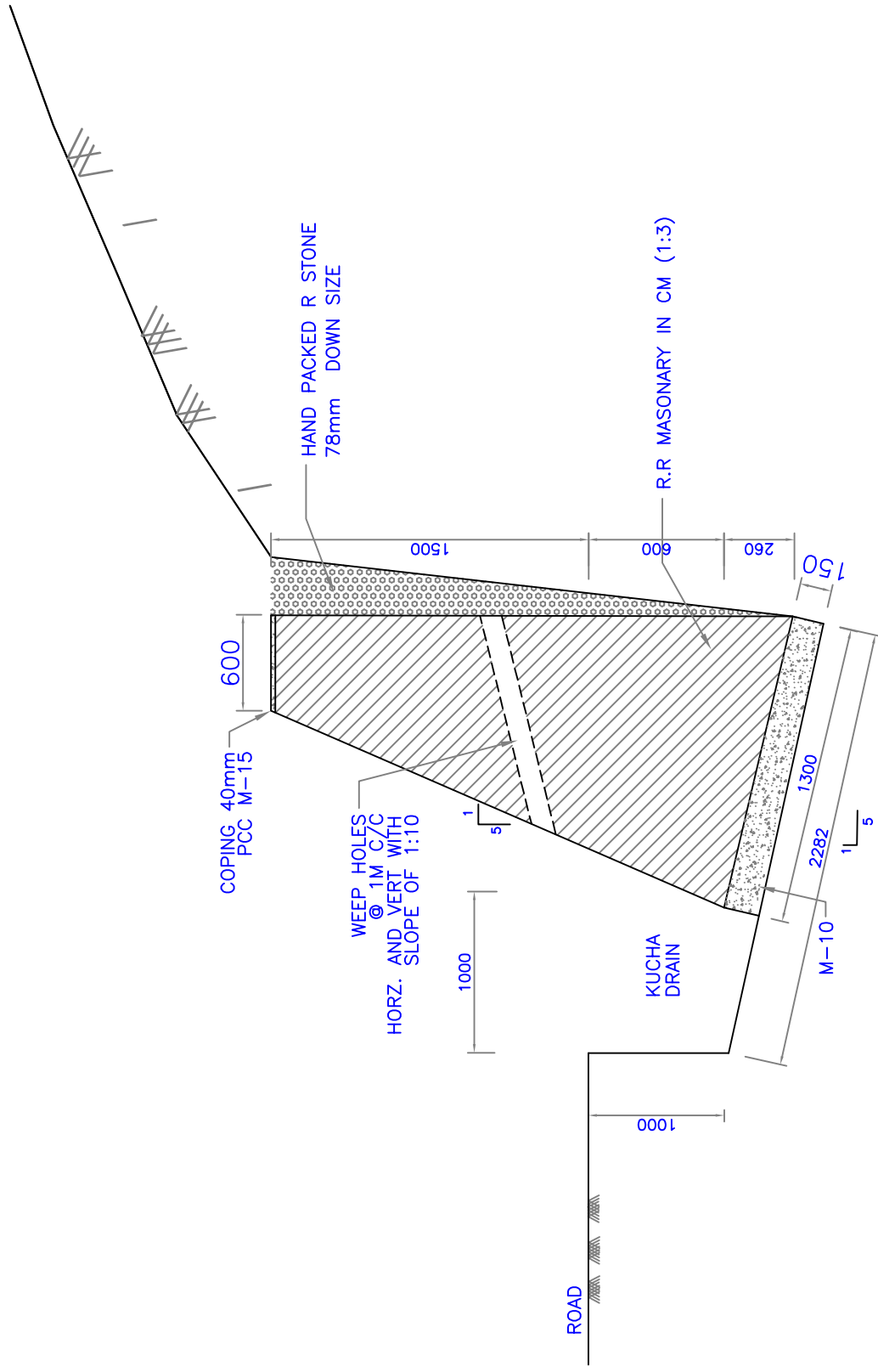
ECONOMIC RECONSTRUCTION AGENCY
MULTI SECTOR REHABILITATION PROJECT IN JAMMU & KASHMIR

SCALE N.T.S.

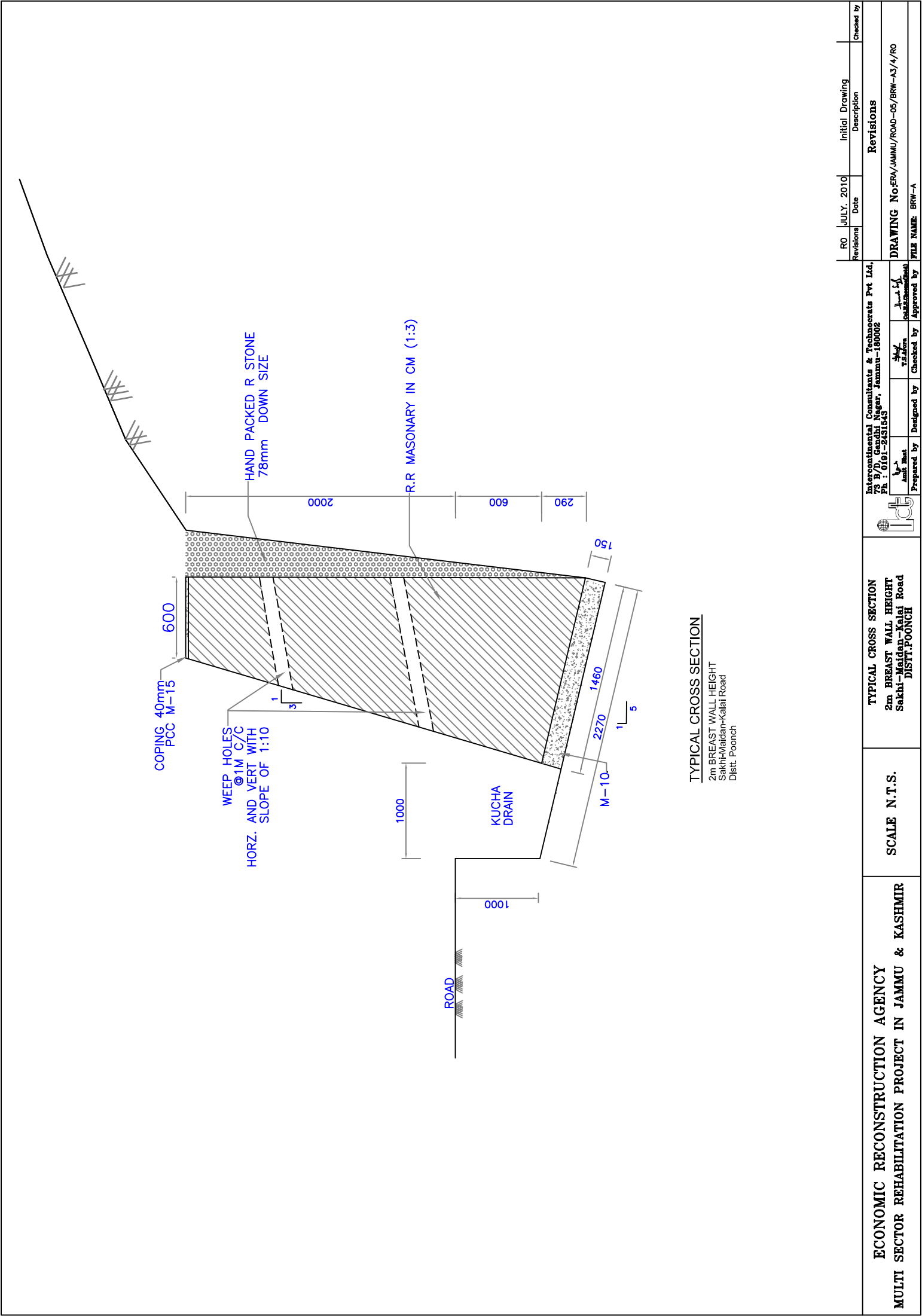
TYPICAL CROSS SECTION
1m BREAST WALL HEIGHT
Sakhi-Maidan-Kalai Road
DISTT. POONCH

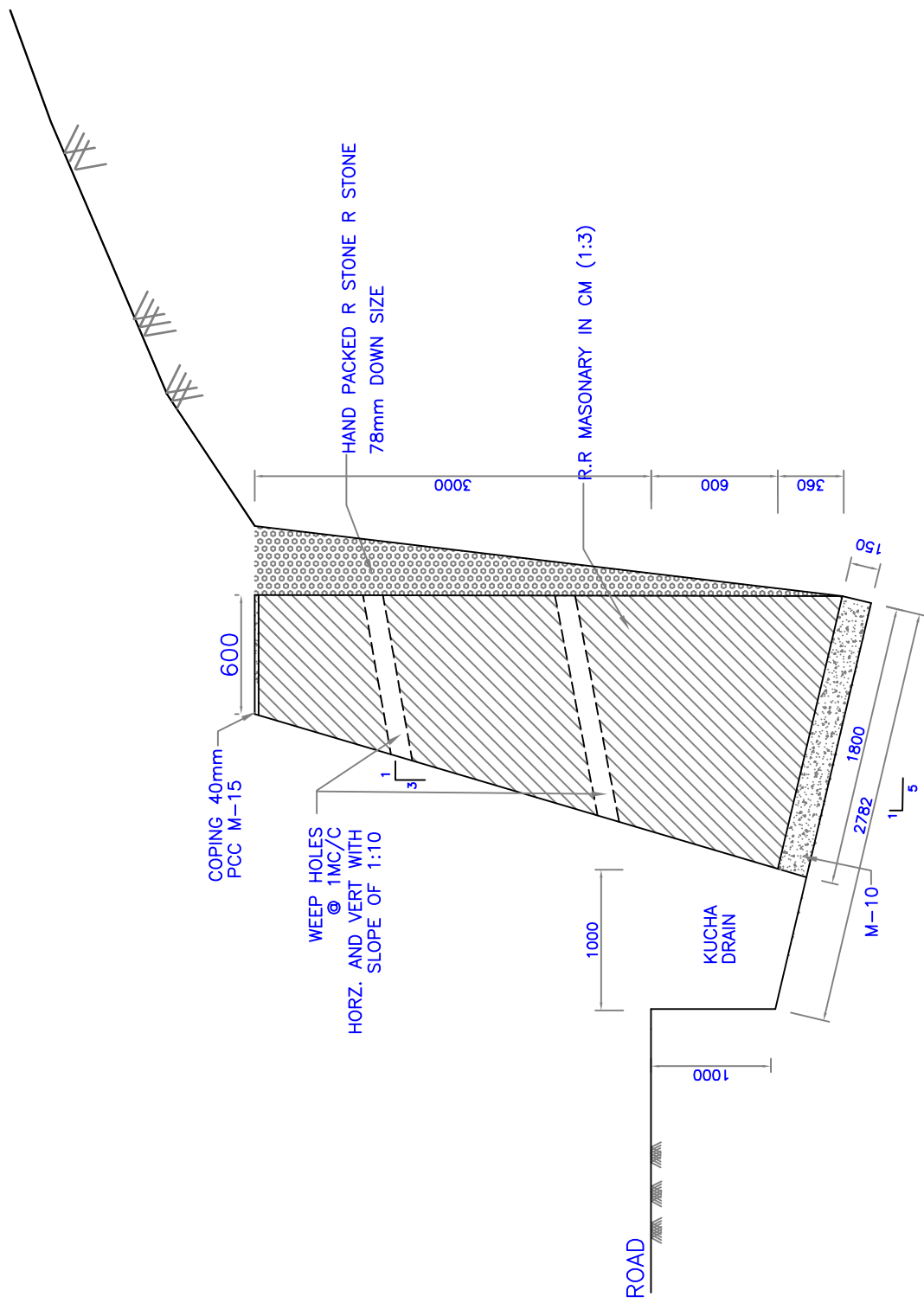
Intercontinental Consultants & Technocrats Pvt Ltd,
7th Floor, G-Block, Nager, Jammu-180002
Ph : 0191-2431543
Prepared by: [Signature] Checked by: [Signature] Approved by: [Signature]
Jammu & Kashmir
Jammu & Kashmir
Jammu & Kashmir

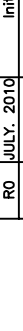
RO	JULY. 2010	Initial Drawing	Checked by
Revisions	Date	Description	Checked by
Revisions			
DRAWING No: ERA/JAMMU/ROAD-05/BRW-A1/4/RO			
FILE NAME: BRW-A			

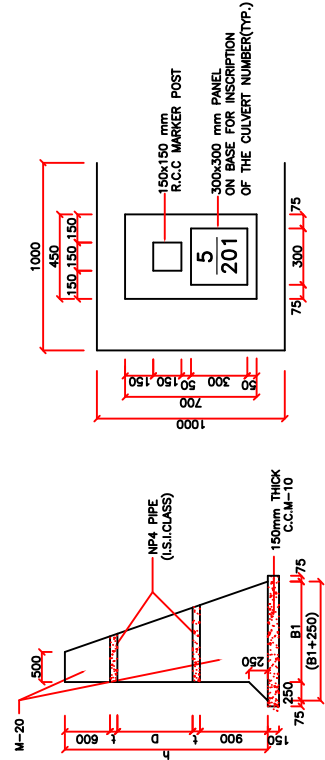
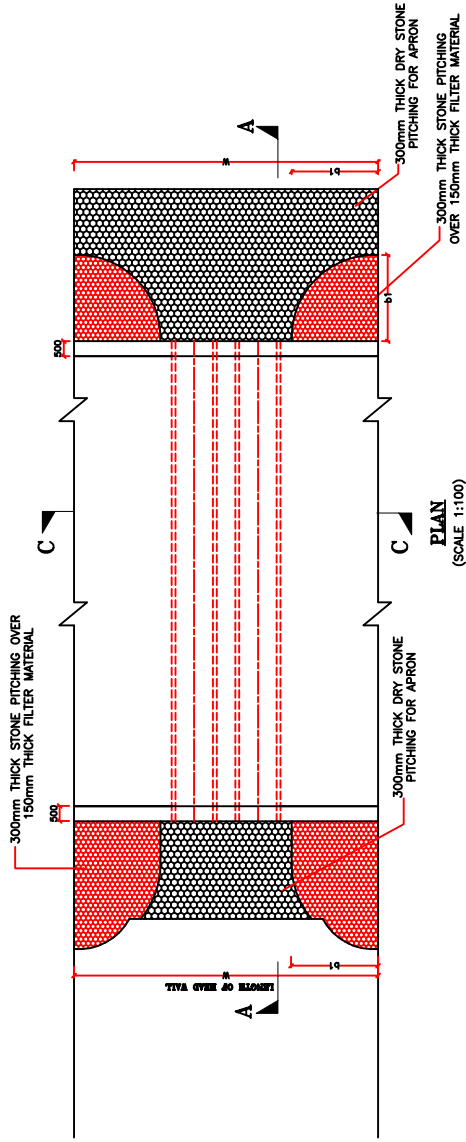
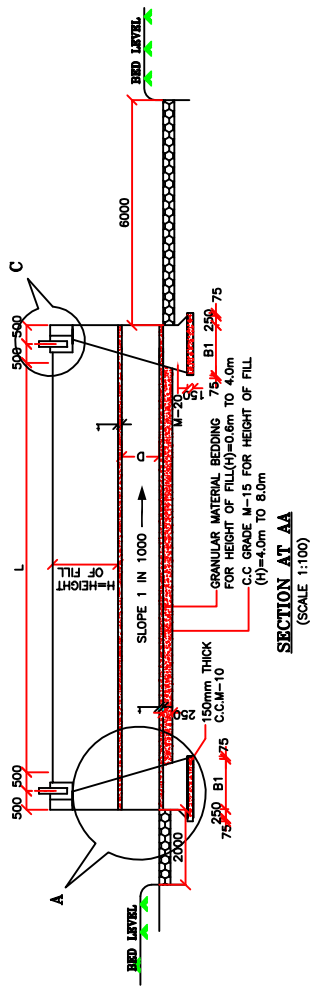


ECONOMIC RECONSTRUCTION AGENCY MULTI SECTOR REHABILITATION PROJECT IN JAMMU & KASHMIR	SCALE N.T.S.	TYPICAL CROSS SECTION 1.5m BREST WALL HEIGHT Sakhi-Maiden-Kelal Road DISTT.POONCH		Intercontinental Consultants & Technocrats Pvt Ltd, B-10, Ganga Nagar, Jammu-180002 Ph. 0191-2331545	RO	JULY, 2010	Initial Drawing	Checked by
					Revisions	Date	Description	Checked by
Revisions								
DRAWING No:ERA/JAMMU/ROAD-05/BRW-A2/4/RO								
FILE NAME: BRW-A								

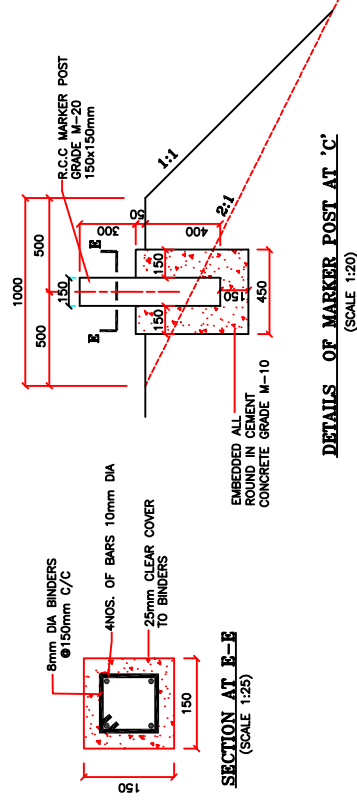




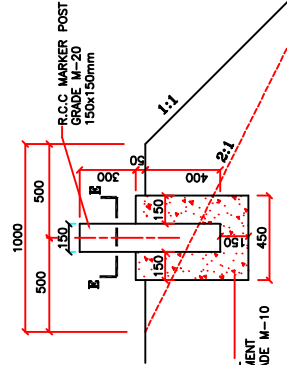
ECONOMIC RECONSTRUCTION AGENCY MULTI SECTOR REHABILITATION PROJECT IN JAMMU & KASHMIR	SCALE N.T.S.	TYPICAL CROSS SECTION 3m BREST WALL HEIGHT Sakhi-Maidan-Kalai Road DISTI.POONCH		Intercontinental Consultants & Technocrats Pvt Ltd, 73 B/D Gandhi Nagar, Jammu-180002 PA 0191-2431043	RO	JULY, 2010	Initial Drawing	Checked by
					Revisions	Date	Description	Checked by
Revisions								
DRAWING NO: ERA/JAMMU/ROAD-05/BRW-AA/4/RO								
FILE NAME: BRW-A								



DETAILS AT THE END OF PARAPET WALL FOR NUMBERING OF CULVERT
(SCALE 1:20)



DETAILS OF MARKER POST AT 'C'
(SCALE 1:20)



DETAILS AT THE END OF PARAPET WALL FOR NUMBERING OF CULVERT
(SCALE 1:20)

DETAIL OF HEAD WALL AT 'A'
(SCALE 1:50)

TABLE A- DIMENSIONAL DETAILS OF CULVERT WITH DIFFERENT DIAMETER PIPES

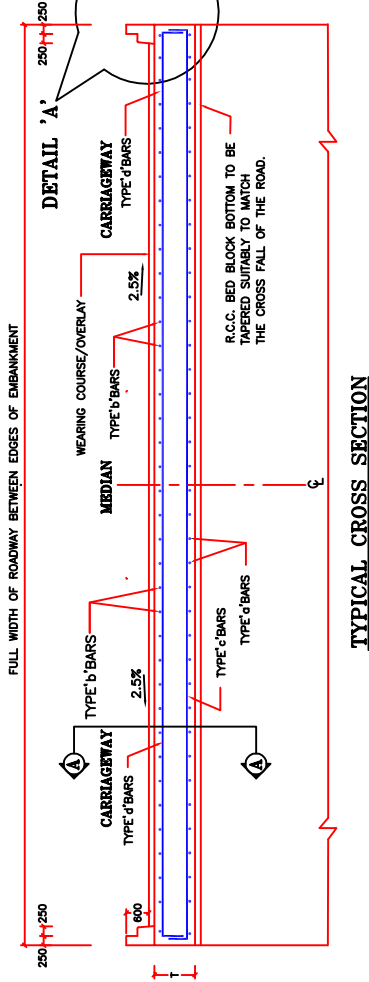
NP-4 PIPE	D (mm)	t (mm)	d (mm)	B (mm)	B1 (mm)	b1 (mm)	b (mm)	h (mm)	W (mm)
	600	85	535	2440	1160	1370	1070	2270	5380
	700	85	535	2640	1180	1570	1270	2370	5980
	900	100	550	3100	1270	2000	1700	2800	7300
	1000	115	565	3360	1310	2230	1930	2730	8020
	1200	120	570	3780	1360	2640	2340	2940	9260

TABLE B-TYPICAL ROAD WIDTH (L)

LANE	CARRIAGEWAY (m)	SEALWAY (m)	MEDIAN (m)	L (m)
1 LANE	3.750	2X0.5	-	5.5

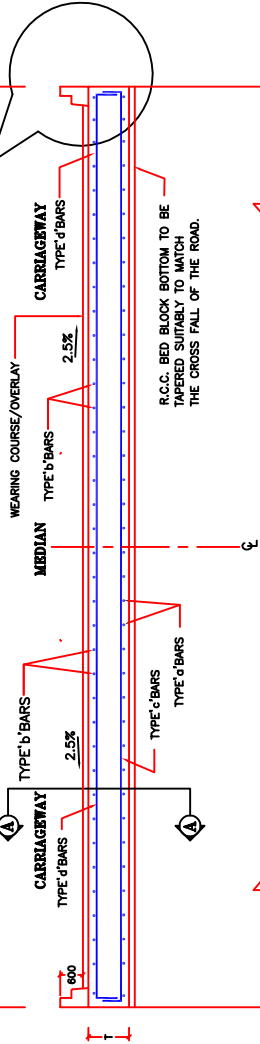
NOTES:-

1. ALL THE NEW CULVERTS WILL BE 2 LANE CULVERTS.
2. LONGITUDINAL SLOPE OF PIPE SHOULD BE MINIMUM OF 1 IN 1000.
3. ALL DIMENSIONS ARE IN mm, EXCEPT WHERE OTHERWISE MENTIONED.
4. NO DIMENSION SHALL BE SOLE, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
5. PITCHING AND RETEMENT SHALL BE DONE ONLY IF BED SOIL IS ERODABLE.
6. THE FOUNDATION FOR HEAD WALL IS SAFE FOR ALLOWABLE BEARING CAPACITY OF SOIL=15 T/SQM
7. HUME PIPE (NP4 TYPE) SHALL CONFORM TO IS : 458-1998.
8. COMPACTED GRANULAR BED SHALL CONFORM TO M.O.S.T. SPECIFICATION CLAUSE NO.2904.
9. WIDTH OF ROADWAY 'L' SHALL VARY AS PER PROJECT REQUIREMENTS (AS PER DETAILS GIVEN IN TABLE 'B')
10. MINIMUM DIAMETER FOR HUME PIPE CULVERT SHOULD PREFERABLY BE 900mm.



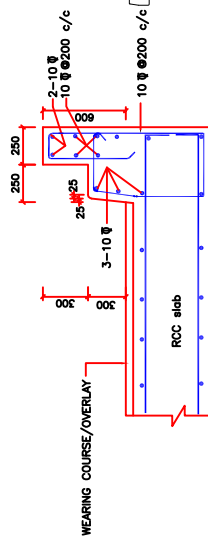
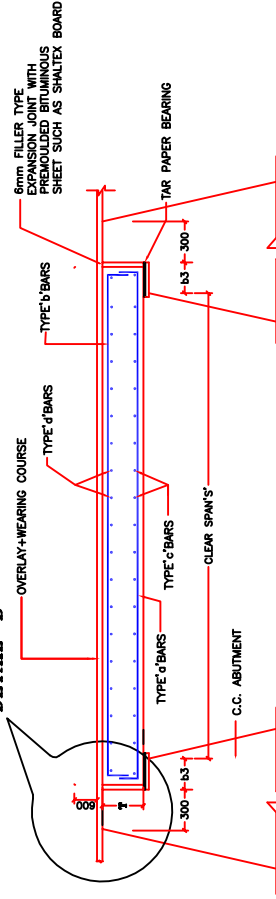
TYPICAL CROSS SECTION

DETAIL 'A'



TYPICAL LONGITUDINAL SECTION AT A-A

DETAIL 'B'

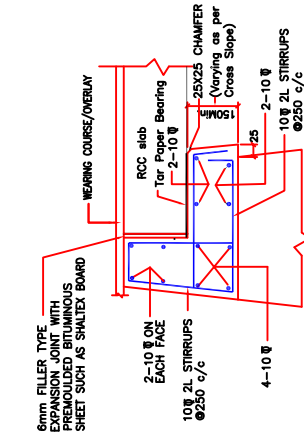


DETAIL AT 'A'

TABLE FOR STEEL REINFORCEMENT AND SLAB THICKNESS

FOR WEARING COURSE/OVERLAY UPTO 200mm (FLEXIBLE PAVEMENT)				STEEL IN TRANSVERSE DIRECTION					
CLEAR SPAN OF SLAB (S) (m)	BEARING LENGTH AT EACH END (b3) (m)	OVER ALL LENGTH OF SLAB (m)	OVER ALL SLAB THICKNESS (T) (mm)	STEEL IN LONGITUDINAL DIRECTION			STEEL IN TRANSVERSE DIRECTION		
				TYPE 'a' BARS		TYPE 'b' BARS	TYPE 'c' BARS		TYPE 'd' BARS
				DIA mm	SPACING mm	DIA mm	DIA mm	SPACING mm	DIA mm
1.0	0.3	1.6	200	12	130	10	300	10	300
1.5	0.3	2.1	220	12	110	10	300	10	300
2.0	0.3	2.6	250	12	90	10	300	10	300
3.0	0.3	3.6	310	16	130	10	300	12	270
4.0	0.3	4.6	370	16	110	10	300	12	230
5.0	0.4	5.8	430	20	140	10	300	12	200
6.0	0.4	6.8	480	20	110	10	300	12	160

DETAIL AT 'B'

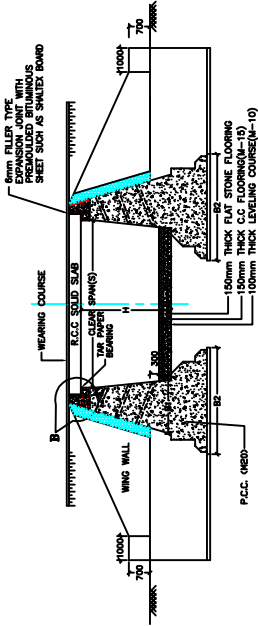


DETAIL OF BED BLOCK AT 'B'

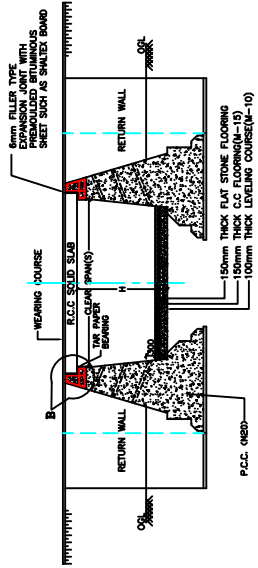
TYPES OF BARS	
a	
b	
c	
d	

GENERAL NOTES

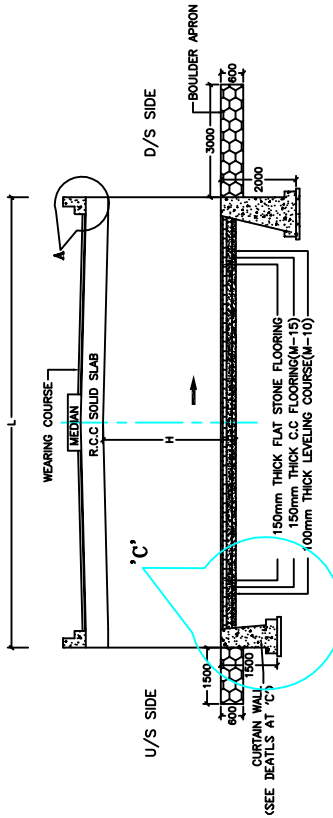
- ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE MENTIONED
- EACH TWO LANE CARRIAGEWAY IS SAFE FOR ONE LANE OF CLASS TO R (TRACKED OR WHEELED VEHICLE) OR TWO LANES OF CLASS A LOADING WHICHEVER IS SEVERE.
- GRADE OF CONCRETE : M-25 FOR SUPERSTRUCTURE : M-20 FOR LEVELLING COURSE : M-10 FOR BED BLOCK : M-25
- REINFORCEMENT: HIGH YIELD STRENGTH DEFORMED BARS CONFORMING TO 1786 : Fe-415 GRADE
- COVER: MINIMUM CLEAR COVER TO ANY REINFORCEMENT SHALL BE 25mm FOR ALL REINFORCEMENT
- BEARING: THE TOP SURFACE OF ABUTMENT CAPS SHALL BE GIVEN A SMOOTH FINISH BY CARBORANDUM STONE FOR EVEN SEATING OF DECK SLAB AND THEREAFTER TAR PAPER SHALL BE LAID AS BEARING
- WEARING COURSE:- 65mm THICK ASPHALTIC CONCRETE WEARING COURSE TO BE PROVIDED OVER R.C.C. DECK SLAB SHALL COMPRISE OF 12mm THICK MASTIC COATING AND 50mm THICK ASPHALTIC CONCRETE. HOWEVER, SLAB IS SAFE FOR LOAD OF 12000 KGS/M² IN CASE OF FLEXIBLE PAVEMENTS AND UPTO 500mm OVERLAY IN THE CASE OF RIGID PAVEMENTS.
- JOINTS OR LAPPING IN BARS SHALL BE SUITABLY STAGGERED AS PER CLAUSE 306.6.2 OF IRC 21-2000.
- RCC SLAB SHALL BE CAST WITH REQUIRED CROSS CAMBER, IT WILL HAVE CONSTANT THICKNESS IN FULL WIDTH.



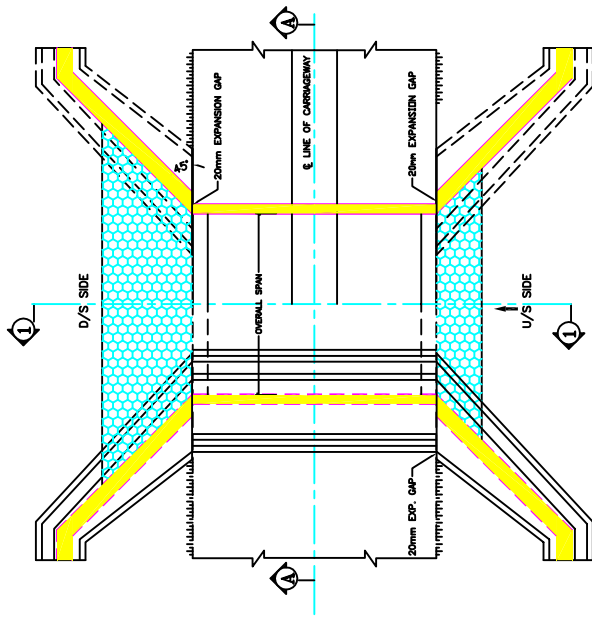
SECTION A-A



SECTION B-B

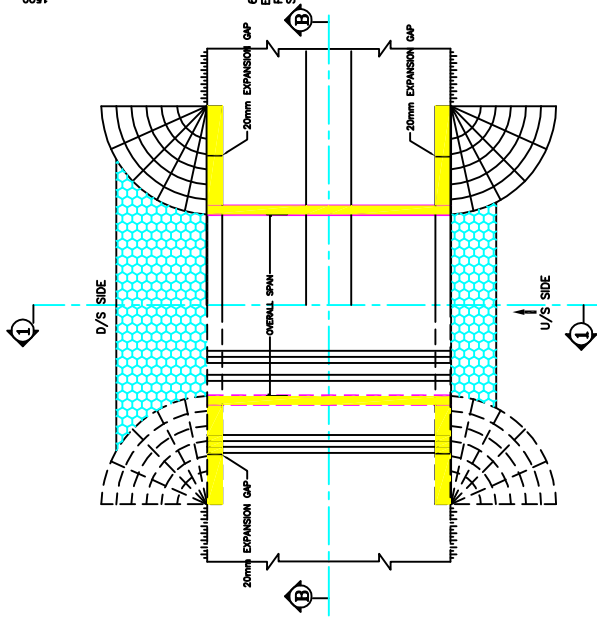


SECTION 1-1
(WING WALLS NOT SHOWN)



HALF BOTTOM PLAN HALF TOP PLAN

ALTERNATIVE-1
(WITH SPLOYED WINGS)

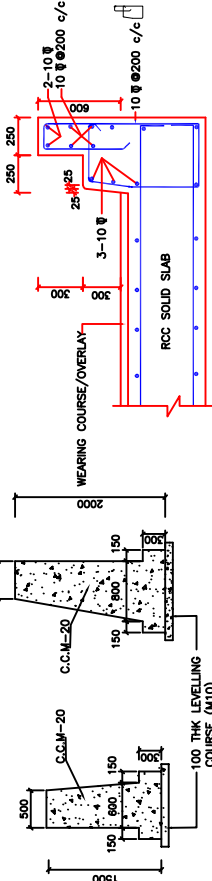


HALF BOTTOM PLAN HALF TOP PLAN

ALTERNATIVE-2
(WITH RETURN WINGS)

LANE	CARRIAGEWAY (m)	SHOULDER (m)	MEDIAN (m)	1 (m)
2 LANE	3.750	2 x 0.50	-	5.50

DETAIL AT 'A'



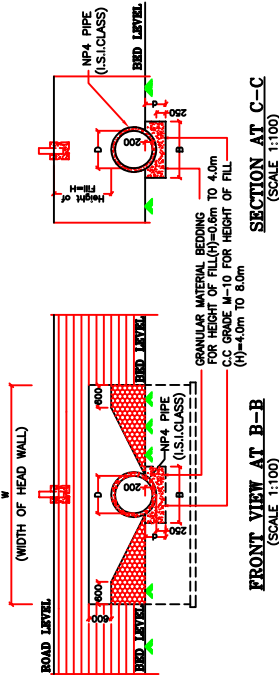
DETAILS OF CURTAIN WALL AT 'C'

DETAILS OF CURTAIN WALL AT 'C'

DETAIL AT 'A'

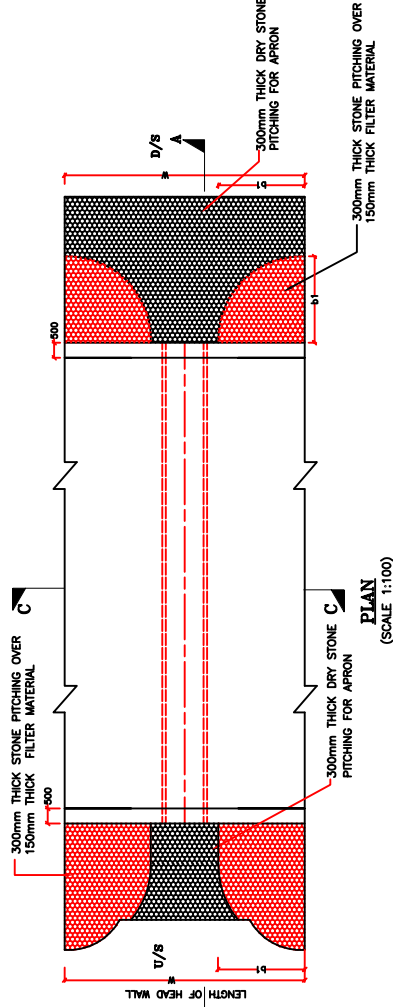
GENERAL NOTES

- ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE MENTIONED
- GRADE OF CONCRETE : M-25
- FOR SUPERSTRUCTURE : M-20
- FOR LEVELLING COURSE : M-10
- FOR BED BLOCK : M-25
- EACH TWO LANE CARRIAGEWAY IS SAFE FOR ONE LANE OF CLASS 70 R (TRACKED OR WHEELED VEHICLE) OR TWO LANES OF CLASS A LOADING WHICHEVER IS SEVERE.
- BACK FILLING BEHIND ABUTMENT AND RETAINING WALLS SHALL BE PROVIDED WITH SELECTED EARTH CONFORMING TO APPENDIX : 6 OF IRC 78-2000 HAVING PROPERTIES #30.0-0.
- 1000 WEEP HOLES AT 1000mm c/c (WITH SLOPE OF 1 IN 20) BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN THE ABUTMENTS AND WALLS WITHIN THE HEIGHT OF 150mm FROM THE TOP OF LEVELLING COURSE.
- WEARING COURSE SHALL BE 25mm THICK CONCRETE OF TWO LAYERS OF ASPHALT CONCRETE OF 25mm EACH LAID OVER A 15mm THICK OF MASTIC WITH PRIME COAT.
- PROTECTION WORKS SHALL BE PROVIDED ONLY WHERE THE BED IS CONSIDERED TO BE SCOURABLE.
- WIDTH OF ROADWAY 'L' SHALL VARY AS PER PROJECT REQUIREMENTS AS PER DETAILS IN TABLE.



FRONT VIEW AT B-B
(SCALE 1:100)

SECTION AT C-C
(SCALE 1:100)



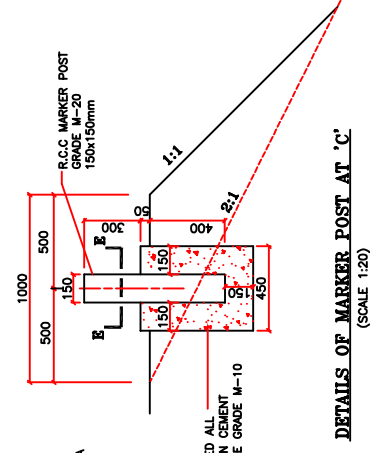
PLAN
(SCALE 1:100)

TABLE B-TYPICAL ROAD WIDTH (L)

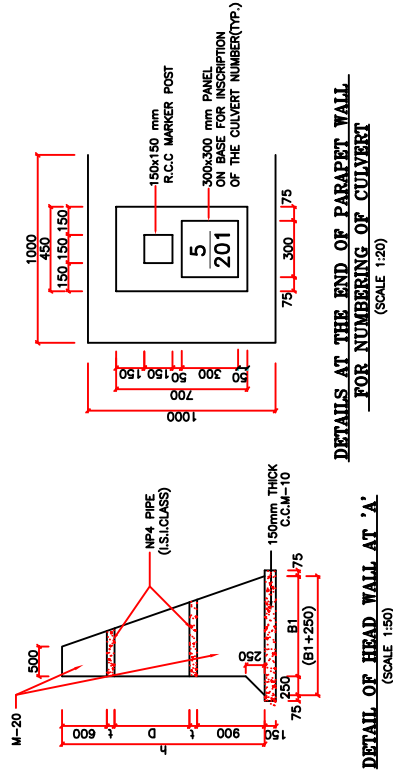
LANE	CARRIAGEWAY (m)	SHOULDER (m)	MEDIAN (m)	L (m)
1 LANE	3.750	2x0.5	-	5.5

NOTES:-

1. ALL THE NEW CULVERTS WILL BE 2 LANE CULVERTS.
2. LONGITUDINAL SLOPE OF PIPE SHOULD BE MINIMUM OF 1 IN 1000.
3. ALL DIMENSIONS ARE IN mm, EXCEPT WHERE OTHERWISE MENTIONED.
4. NO DIMENSION SHALL BE SCALED ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
5. PITCHING AND RETENTION SHALL BE DONE ONLY IF BED SOIL IS ERODABLE.
6. THE FOUNDATION FOR HEAD WALL IS SAFE FOR ALLOWABLE BEARING CAPACITY OF
SOIL=15 T/50CM
7. HUME PIPE (N4A TYPE), SHALL CONFORM TO IS : 458-1998.
8. COMPACTED GRANULAR BED SHALL CONFORM TO M.O.S.T. SPECIFICATION CLAUSE NO.2904.
9. WIDTH OF ROADWAY 'L' SHALL VARY AS PER PROJECT REQUIREMENTS
(AS PER DETAILS GIVEN IN TABLE 'B')
10. MINIMUM DIAMETER FOR HUME PIPE CULVERT SHOULD PREFERABLY BE 900mm.



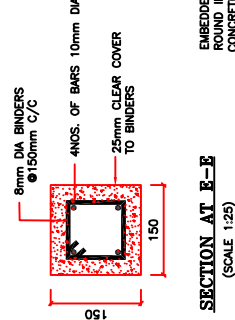
DETAILS OF MARKER POST AT 'C'
(SCALE 1:20)



DETAIL OF HEAD WALL AT 'A'
(SCALE 1:50)

**DETAILS AT THE END OF PARAPET WALL
FOR NUMBERING OF CULVERT**

SECTION AT E-E
(SCALE 1:25)



KALAI

