

Clause 14.8 of the Conditions of Contract.

If the Member does not receive payment of the amount due within 70 days after submitting a valid invoice, the Member may (i) suspend his/her services (without notice) until the payment is received, and/or (ii) resign his/her appointment by giving notice under Clause 7.

## 7. Termination

At any time: (i) the Employer and the Contractor may jointly terminate the Dispute Board Agreement by giving 42 days' notice to the Member; or (ii) the Member may resign as provided for in Clause 2.

If the Member fails to comply with the Dispute Board Agreement, the Employer and the Contractor may, without prejudice to their other rights, terminate it by notice to the Member. The notice shall take effect when received by the Member.

If the Employer or the Contractor fails to comply with the Dispute Board Agreement, the Member may, without prejudice to his other rights, terminate it by notice to the Employer and the Contractor. The notice shall take effect when received by them both.

Any such notice, resignation and termination shall be final and binding on the Employer, the Contractor and the Member. However, a notice by the Employer or the Contractor, but not by both, shall be of no effect.

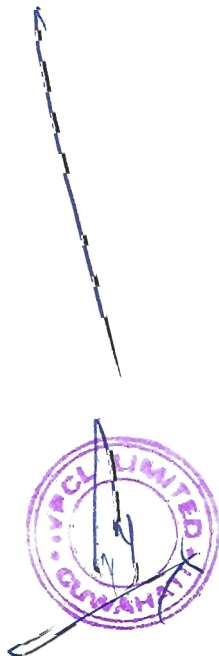
## 8. Default of the Member

If the Member fails to comply with any of his obligations under Clause 4 (a) - (d) above, he shall not be entitled to any fees or expenses hereunder and shall, without prejudice to their other rights, reimburse each of the Employer and the Contractor for any fees and expenses received by the Member and the Other Members (if any), for proceedings or decisions (if any) of the DB which are rendered void or ineffective by the said failure to comply.

If the Member fails to comply with any of his obligations under Clause 4 (e) - (k) above, he shall not be entitled to any fees or expenses hereunder from the date and to the extent of the non-compliance and shall, without prejudice to their other rights, reimburse each of the Employer and the Contractor for any fees and expenses already received by the Member, for proceedings or decisions (if any) of the DB which are rendered void or ineffective by the said failure to comply.

## 9. Disputes

Any dispute or claim arising out of or in connection with this Dispute Board Agreement, or the breach, termination or invalidity thereof, shall be finally settled by institutional arbitration. If no other arbitration institute is agreed, the arbitration shall be conducted under the Rules of Arbitration of the International Chamber of Commerce by one arbitrator appointed in accordance with these Rules of Arbitration.



*Chief Executive Officer  
Guwahati Metropolitan Dev. Authority*

### Annex: Procedural Rules

Unless otherwise agreed by the Employer and the Contractor, the DB shall visit the site at intervals of not more than 140 days, including times of critical construction events, at the request of either the Employer or the Contractor. Unless otherwise agreed by the Employer, the Contractor and the DB, the period between consecutive visits shall not be less than 70 days, except as required to convene a hearing as described below.

The timing of and agenda for each site visit shall be as agreed jointly by the DB, the Employer and the Contractor, or in the absence of agreement, shall be decided by the DB. The purpose of site visits is to enable the DB to become and remain acquainted with the progress of the Works and of any actual or potential problems or claims, and, as far as reasonable, to endeavour to prevent potential problems or claims from becoming disputes.

Site visits shall be attended by the Employer, the Contractor and the Engineer and shall be co-ordinated by the Employer in co-operation with the Contractor. The Employer shall ensure the provision of appropriate conference facilities and secretarial and copying services. At the conclusion of each site visit and before leaving the site, the DB shall prepare a report on its activities during the visit and shall send copies to the Employer and the Contractor.

The Employer and the Contractor shall furnish to the DB one copy of all documents which the DB may request, including Contract documents, progress reports, variation instructions, certificates and other documents pertinent to the performance of the Contract. All communications between the DB and the Employer or the Contractor shall be copied to the other Party. If the DB comprises three persons, the Employer and the Contractor shall send copies of these requested documents and these communications to each of these persons.

If any dispute is referred to the DB in accordance with Sub-Clause 20.4 of the Conditions of Contract, the DB shall proceed in accordance with Sub-Clause 20.4 and these Rules. Subject to the time allowed to give notice of a decision and other relevant factors, the DB shall:

- (a) act fairly and impartially as between the Employer and the Contractor, giving each of them a reasonable opportunity of putting his case and responding to the other's case, and
- (b) adopt procedures suitable to the dispute, avoiding unnecessary delay or expense.

The DB may conduct a hearing on the dispute, in which event it will decide on the date and place for the hearing and may request that written documentation and arguments from the Employer and the Contractor be presented to it prior to or at the hearing.

Except as otherwise agreed in writing by the Employer and the Contractor, the DB shall have power to adopt an inquisitorial procedure, to refuse admission to hearings or audience at hearings to any persons other than representatives of the Employer, the Contractor and the Engineer, and to proceed in the absence of any party who the DB is satisfied received notice of the hearing; but shall have discretion to decide whether and to what extent this power may be exercised.

The Employer and the Contractor empower the DB, among other things, to:

- (a) establish the procedure to be applied in deciding a dispute,
- (b) decide upon the DB's own jurisdiction, and as to the scope of any dispute referred to it,
- (c) conduct any hearing as it thinks fit, not being bound by any rules or procedures other than those contained in the Contract and these Rules,
- (d) take the initiative in ascertaining the facts and matters required for a decision,
- (e) make use of its own specialist knowledge, if any,
- (f) decide upon the payment of financing charges in accordance with the Contract,
- (g) decide upon any provisional relief such as interim or conservatory measures, and
- (h) open up, review and revise any certificate, decision, determination, instruction, opinion or valuation of the Engineer, relevant to the dispute.

The DB shall not express any opinions during any hearing concerning the merits of any arguments advanced by the Parties. Thereafter, the DB shall make and give its decision in accordance with Sub-Clause 20.4, or as otherwise agreed by the Employer and the Contractor in writing. If the DB comprises three persons:

- (a) it shall convene in private after a hearing, in order to have discussions and prepare its decision;
- (b) it shall endeavour to reach a unanimous decision: if this proves impossible the applicable decision shall be made by a majority of the Members, who may require the minority Member to prepare a written report for submission to the Employer and the Contractor; and



- (c) if a Member fails to attend a meeting or hearing, or to fulfil any required function, the other two Members may nevertheless proceed to make a decision, unless:
  - (i) either the Employer or the Contractor does not agree that they do so, or
  - (ii) the absent Member is the chairman and he/she instructs the other Members not to make a decision.

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*[Handwritten signature]*  
**Chief Executive Officer**  
**Guwahati Metropolitan Dev. Authority**

Form FIN – 5: Acknowledgment of Compliance with Guidelines for  
Procurement under Japanese ODA Loans

- (A) I, **Sri Dilip Chandra Gogoi, GM-(Project)** (name and position of authorized signatory) duly authorize by the **Company Secretary of M/S IVRCL, Infrastructures & Projects Ltd, Hyderabad**, (name of Bidder/partner of joint venture or association (JVA) (“Bidder”)) hereby certify on behalf of the Bidder and myself that information provided in the Bid submitted by the Bidder for (Loan No. ID-P 201, Guwahati Water Supply Project) is true, correct and accurate to the best of my knowledge and belief. I further certify that on behalf of the Bidder that;
- (i) The Bid has been prepared and submitted in compliance with the terms and conditions set forth in Guidelines for Procurement under Japanese ODA Loans (“Guidelines”); and
- (ii) The Bidder has not taken any action which is or constitutes a corrupt, fraudulent, collusive or coercive practice and not subject to any conflict of interest as stipulated in the relevant section of the Guidelines.
- (B) I certify that neither the Bidder nor any subcontractor, or expert nominated by the Bidder in the Bid has been sanctioned by any development assistance organization.
- (C) I further certify on behalf of the Bidder that, if selected to undertake services in connection with the Project, we shall carry out such services in continuing compliance with the terms and conditions of the Guidelines.



Authorized SIGNATORY

For and on behalf of the Bidder

Date: 19/4/2011

  
Chief Executive Officer  
Guwahati Metropolitan Dev. Authority

# Performance Security

## Bank Guarantee

*[insert Bank's Name, and Address of Issuing Branch or Office]*

**Beneficiary:** The Chief Executive Officer (CEO),  
JICA ODA Loan Project,  
Guwahati Metropolitan Development Authority,  
3<sup>rd</sup> Floor, STATFED Building,  
G.M.C.H Road, Bhangagarh,  
Guwahati-781005, Assam, India.  
Tel.: +91 361 2529650, Fax: +91 361 2529991

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

**PERFORMANCE GUARANTEE No.:** \_\_\_\_\_

We have been informed that *[insert name of Contractor]* (hereinafter called "the Contractor") has entered into Contract No. *[insert reference number of the contract]* dated *[insert date of the contract]* with you, for the execution of *[insert 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 *[insert name of Bank]* hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of *[insert amount in figures]* (*[amount in words]*),<sup>1</sup> such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by our office/branch *[Name of Issuing Bank of Guwahati, Assam, India where this guarantee is encashable/payable, 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 ....., 2...<sup>2</sup>, 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.

\_\_\_\_\_  
*[signature(s)]*

[Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.]



**Chief Executive Officer**  
**Guwahati Metropolitan Dev. Authority**

<sup>1</sup> The Guarantor shall insert an amount representing the percentage of the Contract Price specified in the Contract and denominated either in the currency(cies) of the Contract or a freely convertible currency acceptable to the Employer.

<sup>2</sup> Insert the date twenty-eight days after the expected date of receiving Performance Certificate. The Employer should note that in the event of an extension of the Time for Completion and/or Defects Notification Period, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months][one year], in response to the Employer's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."

# Advance Payment Security

## Demand Guarantee

[insert Bank's Name, and Address of Issuing Branch or Office]

**Beneficiary:** The Chief Executive Officer (CEO),  
JICA ODA Loan Project,  
Guwahati Metropolitan Development Authority,  
3<sup>rd</sup> Floor, STAFED Building,  
G.M.C.H Road, Bhangagarh,  
Guwahati-781005, Assam, India.  
Tel.: +91 361 2529650, Fax: +91 361 2529991

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

**ADVANCE PAYMENT GUARANTEE No.:** \_\_\_\_\_

We have been informed that [insert name of Contractor] (hereinafter called "the Contractor") has entered into Contract No. [insert reference number of the contract] dated [insert date of the contract] with you, for the execution of [insert 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 [insert amount in figures] ([amount in words]) is to be made against an advance payment guarantee.

At the request of the Contractor, we [insert name of Bank] hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of [insert amount in figures] ([amount in words])<sup>1</sup> upon receipt **by** our office/branch [Name of Issuing Bank of Guwahati, Assam, India where this guarantee is encashable/payable, of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation under the Contract.

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 [insert account number] at [insert name and address of 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 \_\_\_\_\_, 2\_\_\_,<sup>2</sup>

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.

\_\_\_\_\_  
[signature(s)]

[Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product



**Chief Executive Officer**  
**Guwahati Metropolitan Dev. Authority**

<sup>1</sup> The Guarantor shall insert an amount representing the amount of the advance payment and 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.

<sup>2</sup> Insert the expected expiration date of the Time for Completion. The Employer should note that in the event of an extension of the Time for Completion, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months][one year], in response to the Employer's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."

# Retention Money Security

## Demand Guarantee

*[insert Bank's Name, and Address of Issuing Branch or Office]*

**Beneficiary:** The Chief Executive Officer (CEO),  
JICA ODA Loan Project,  
Guwahati Metropolitan Development Authority,  
3<sup>rd</sup> Floor, STAFED Building,  
G.M.C.H Road, Bhangagarh,  
Guwahati-781005, Assam, India.  
Tel.: +91 361 2529650, Fax: +91 361 2529991

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

**RETENTION MONEY GUARANTEE No.:** \_\_\_\_\_

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

Furthermore, we understand that, according to the conditions of the Contract, when the Taking-Over Certificate has been issued for the Works and the first half of the Retention Money has been certified for payment, payment of *[insert the second half of the Retention Money or if the amount guaranteed under the Performance Guarantee when the Taking-Over Certificate is issued is less than half of the Retention Money, the difference between half of the Retention Money and the amount guaranteed under the Performance Security]* is to be made against a Retention Money guarantee.

At the request of the Contractor, we *[insert name of Bank]* hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of *[insert amount in figures] ([amount in words])*<sup>1</sup> upon receipt by our office/branch [Name of Issuing Bank of Guwahati, Assam, India where this guarantee is encashable/payable, of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation under the Contract.

It is a condition for any claim and payment under this guarantee to be made that the payment of the second half of the Retention Money referred to above must have been received by the Contractor on its account number *[insert account number]* at *[insert name and address of Bank]*.

This guarantee shall expire, at the latest, 21 days after the date when the Employer has received a copy of the Performance Certificate issued by the Engineer. 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.

\_\_\_\_\_  
*[signature(s)]*

[Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.]



*[Signature]*  
**Chief Executive Officer**  
Guwahati Metropolitan Dev. Authority

<sup>1</sup> The Guarantor shall insert an amount representing the amount of the second half of the Retention Money or if the amount guaranteed under the Performance Guarantee when the Taking-Over Certificate is issued is less than half of the Retention Money, the difference between half of the Retention Money and the amount guaranteed under the Performance Security and denominated either in the currency(ies) of the second half of the Retention Money as specified in the Contract, or in a freely convertible currency acceptable to the Employer.

Sl. No.	Volume / Section / Sub-section	Clause No. / Page No.	As per Original Bidding Document	Revised Version (to be read as)
1	Part – 2 Section VIA – Technical Specification Subsection 1	Clause 1.7.2 Pg 4 of 16	First paragraph : “The Employer has collected the details and data listed below and has used these in the formulation of the bid elements. They are listed below and are enclosed in the relevant subsections of these specifications.”	First paragraph : “The Employer has collected the details and data listed below and has used these in the formulation of the bid elements. <b>These data will be made available to the successful bidder.</b> ”
2	Section VIA Subsection 1	Clause 1.8.3 Pg 5 of 16	<p><b>Chapter title :</b> “<b>Confirmatory and Additional survey Documents</b>”</p> <p>First Line : “Confirmatory and additional survey work of any specific part within the project site is to be carried out.....”</p> <p>Last Paragraph : “Scale of the drawing will be as per instruction of Engineer in Charge. A blank space 75 mm x 50 mm shall be provided immediately above the signature block for the approval stamp. The Contractor shall be responsible for preparation of the submittal data and drawings, as specified in the Contract.”</p>	<p><b>Chapter title :</b> “<b>Survey Documents</b>”</p> <p>First Line : “Topographical Survey work of any specific portion within the project site is to be carried out.....”</p> <p>Last Paragraph : Scale of the drawing shall be 1:1000 or as per instruction of Engineer in Charge. A blank space 75 mm x 50 mm shall be provided immediately above the signature block for the approval stamp. The Contractor shall be responsible for preparation of the submittal data and drawings, as specified in the Contract. Contractor shall also provide soft copies of the same. The drawing shall contain the following features : Road edge, property line, drain, culvert/bridge, electric posts, underground utilities, big trees, land mark, etc.”</p>



Sl. No.	Volume / Section / Sub-section	Clause No. / Page No.	As per Original Bidding Document	Revised Version (to be read as)
3	Section VIA Subsection 1	Pg 6 of 16	-	<p>Additional clause 1.8.6:  <b>“1.8.6 Working Drawings</b>  The contractor shall perform the following activities for preparation of Working drawings.</p> <ul style="list-style-type: none"> <li>• Inspection of routes based on the network drawings which will be given to the successful contractor</li> <li>• Find out the existing underground and aboveground utilities</li> <li>• Perform necessary survey and investigation, required for successful completion of this drawing</li> <li>• Preparation of alignment map and L-section showing all existing underground and aboveground features and all proposed details as discussed in Subsection 6.</li> <li>• Submission of one set draft hard copy (A1) and soft drawing (scale as per instruction of Engineer in Charge).</li> <li>• Incorporation of comments of Employer’s Representative</li> <li>• Submission of two sets of final hard copy drawings (A1) and one set of soft copy drawings. Name plate will be provided to the contractor.</li> </ul> <p>The payment for this item shall be as per BOQ.”</p>
4	Section VIA Subsection 1	Pg 6 of 16		<p>Additional clause 1.8.7:  <b>“1.8.7 Work Program, Schedule and Work Sequence-</b>  Work Program, Schedule and Work sequence shall be submitted by successful Contractor before commencement of work. The work schedule shall include :</p> <ul style="list-style-type: none"> <li>• Preparation of Construction schedule (Gantt Chart)</li> </ul>

Sl. No.	Volume / Section / Sub-section	Clause No. / Page No.	As per Original Bidding Document	Revised Version (to be read as)
				<ul style="list-style-type: none"> <li>• Mobilisation of <ul style="list-style-type: none"> <li>➤ Set-up zoning</li> <li>➤ Work Team and equipment</li> <li>➤ Survey Team</li> <li>➤ Storage yard</li> </ul> </li> <li>• Topographic survey by Total Station of a part of the project area</li> <li>• Inspection of pipe line route <ul style="list-style-type: none"> <li>➤ Reconnaissance</li> <li>➤ Approximate physical measurement of pipe line route of diameter 300mm and above</li> <li>➤ Encroachment, if any, and noting to Employer's representative</li> <li>➤ Railway and river crossings</li> <li>➤ Piping storage yard</li> <li>➤ Other issues</li> </ul> </li> <li>• Survey and investigation <ul style="list-style-type: none"> <li>➤ for underground and overground utilities and features</li> <li>➤ for Working drawing</li> </ul> </li> <li>• Preparation of Working drawing in zones <ul style="list-style-type: none"> <li>➤ Submission of draft drawing</li> <li>➤ Submission and approval of final drawing</li> <li>➤ 90 days margin between approval of final drawing and site execution.</li> </ul> </li> <li>• Procurement of pipe materials <ul style="list-style-type: none"> <li>➤ Estimate pipe/valves/fittings</li> <li>➤ Additional/adjusted procurement</li> </ul> </li> <li>• Commencement of Pipe laying work <ul style="list-style-type: none"> <li>➤ Trench work</li> <li>➤ Pipe installation</li> <li>➤ Auxiliary construction</li> <li>➤ Restoration works</li> <li>➤ Sectional Testing</li> </ul> </li> <li>• Testing and Commissioning</li> </ul>

Sl. No.	Volume / Section / Sub-section	Clause No. / Page No.	As per Original Bidding Document	Revised Version (to be read as)
5	Section VIA Subsection 1	Clause 1.10 Pg 7 of 16	-	Add to last paragraph : "Payment - No additional payment will be made for these safety measures as such work will be considered incidental."
6	Section VIA Subsection 1	Clause 1.11 Pg 7 of 16	-	Add after last paragraph : The contractor shall be responsible at his own cost for rectifying any damages done by the contractor to the existing utilities that might occur due to the activities for pipeline works.
7	Section VIA Subsection 1	Clause 1.13 Pg 10 of 16		Add to last line : "No additional payment will be made for training and manual preparation. It shall be included in the Contractors Contract Price."
8	Section VIA Subsection 1	Clause 1.18.1 Pg 12 of 16		Add to last line : "This cost shall be included in the Contractors Contract Price."
9	Section VIA Subsection 1	Clause 1.18.2 Pg 12 of 16		
10	Subsection 1	Clause 1.18.5 Pg 13 of 16		
11	Section VIA Subsection 1	Clause 1.18.6 Pg 13 of 16	-	Add to last line : "The item to be read and executed in accordance with the chapter 'Survey Documents' of Subsection – General Requirements."
12	Section VIA Subsection 1	Clause 1.18.7 Pg 13 of 16	-	Add to last line : "This cost shall be included in the Contractors Contract Price."
13	Section VIA Subsection 2	Clause 2.3.1 Pg 2 of 3	-	Additional points to be added: Topography survey of a part of project area (only after instruction of Engineer) Preparation, submission and approval of Working drawing

Sl. No.	Volume / Section / Sub-section	Clause No. / Page No.	As per Original Bidding Document	Revised Version (to be read as)
14	Section VIA Subsection 2	Clause 2.3.2 Pg 2 of 3	-	Additional points to be added: Topography survey of a part of project area (only after instruction of Engineer) Preparation Working drawing
15	Section VIA Subsection 3	Pg 1 of 8	Header : "Subsection 4 : Pipes and Specials"	Header : "Subsection 3 : Civil and General Works"
16	Section VIA Subsection 3	Clause 3.4 Pg 4 of 8	Point 9(iii) : "The minimum grade of concrete for water retaining structures shall be <b>M25</b> having a minimum cement content of <b>300 kg/m3</b> with...."	Point 9(iii) : "The minimum grade of concrete for water retaining structures shall be <b>M30</b> having a minimum cement content of <b>325 kg/m3</b> with...."
17	Section VIA Subsection 3	Clause 3.5.2 Pg 5 of 8		Add to last line : "Cost of concrete work, shuttering, steel work, brickwork, plaster works, precast slab/SFRC covers, lugs, RCC drain pipe of required size of minimum 5m length (wherever applicable) shall be included under respective chamber cost."
18	Section VIA Subsection 3	Page 8 of 8		Additional clause " <b>3.14 Disposal of Surplus Material</b> Disposal of all surplus material shall be within a lead of 10km."
19	Section VIA Subsection 3	Clause 3.12 Pg 8 of 8	Last paragraph : " <b>Contract</b> shall arrange for the above ....."	Last paragraph : " <b>Contractor</b> shall arrange for the above ....."
20	Section VIA Subsection 4	Clause 4.3.3 Pg 6 of 25	Point c : Cement - The cement used shall be <b>Sulphate Resisting Portland Cement</b> conforming to IS 12330.	Point c : Cement - The cement used shall be <b>PSC / PPC Cement</b> conforming to IS 455/IS 1489 and other relevant IS Codes.
21	Section VIA Subsection 4	Clause 4.3.9.1 Pg 10 of 25	Item xii - <b>External</b> coating	Item xii – <b>Lining and</b> coating
22	Section VIA Subsection 5	Clause 5.5.9 Pg 5 of 8	Last sentence : "75% payment shall be allowed on supply with required test certificates from the manufacturer and balance 25% after installation and testing during operation."	Last sentence : " <b>Payment will be as per payment schedule.</b> "

Sl. No.	Volume / Section / Sub-section	Clause No. / Page No.	As per Original Bidding Document	Revised Version (to be read as)
23	Section VIA Subsection 5	Clause 5.8 Pg 6 of 8	Second paragraph : Dismantling joints shall be <b>fusion bonded epoxy (FBE)</b> coated in the factory prior to shipment to the Project Site.	Second paragraph : Dismantling joints shall be <b>epoxy</b> coated in the factory prior to shipment to the Project Site.
24	Section VIA Subsection 6	Clause 6. 2 Pg 1 of 19	Third line : “.....is to be laid. He should make all efforts.....”	Third line : “.....is to be laid. The cost of this activity is deemed to be included in the relevant activity of Working drawing preparation. He should make all efforts.....”
25	Section VIA Subsection 6	Clause 6. 2 Pg 1 of 19	Last three lines : “..... Representative. The Contractor will than prepare an L-Section along this alignment showing the location of proposed pipeline. The L-section shall receive approval from the site Employer’s Representative. The L-section shall receive approval from the site Employer’s Representative. The position of fittings, valves, should be shown on the plan.”	Last three lines : “..... Representative. The Contractor will then prepare <b>Working Drawing showing pipeline alignment plan of proposed pipeline with all physical features (underground and above ground) and L-Section with ground levels at 20m interval, pipeline grade, invert levels and other relevant details. The position of fittings, valves, should be shown on the plan and L-section. The final Working Drawings shall be submitted to the Employer’s Representative for approval at least 90 days before the schedule of executing the specific stretch/zone. The payment for preparation of approved Working drawing shall be as discussed in Subsection- General Requirements.</b> ”
26	Section VIA Subsection 6	Clause 6. 7.4.1 Pg 6 of 19	Second sentence and onward: “The bottom of the trench ..... actual laying of pipes.”	Second sentence and onward: “The pipe shall <b>rest on well compacted trench bottom.</b> ”
27	Section VIA Subsection 6	Clause 6. 7.4.2 Pg 6 of 19	Forth line : “.....for bedding in the opinion of the Employer’s Representative, <b>sand</b> bedding shall be provided. The <b>sand</b> .....” Last paragraph : “ ..... 150mm of <b>sand</b> .....”	Forth line : “.....for bedding in the opinion of the Employer’s Representative, <b>sand or gravel</b> bedding shall be provided as per instruction of Employer’s Representative. The <b>sand or gravel</b> .....” Last paragraph : “ ..... 150mm of <b>sand or gravel</b> .....”

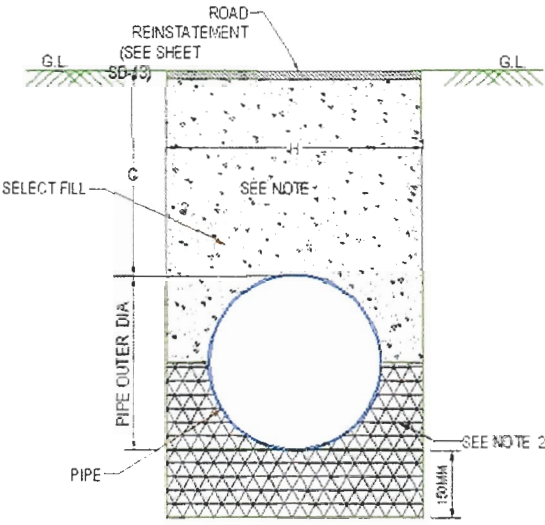
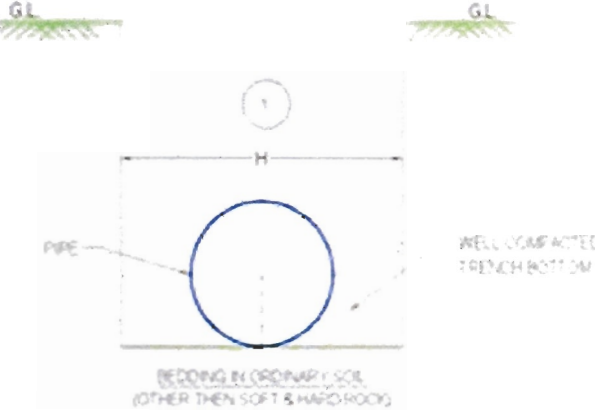
Sl. No.	Volume / Section / Sub-section	Clause No. / Page No.	As per Original Bidding Document	Revised Version (to be read as)
28	Section VIA Subsection 6	Clause 6.9.2 Pg 10 of 19	-	Add to last line : "The net length of pipes as laid or fixed shall be measured in running meters correct to a cm including the length of specials, but excluding lengths for valves, fire hydrants etc. Payment for supply, laying and jointing shall be on length basis as measured above, and as stated in relevant chapter."
29	Section VIA Subsection 6	Clause 6.9.3.7 Pg 12 of 19	"The net length of pipes as laid or fixed shall be measured in running meters correct to a cm including the length of specials. The portion of the pipe at the joints (inside the joints) shall not be included in the length of pipe work. Payment for supply and laying, jointing shall be on length basis as measured above, and as stated below	"The net length of pipes as laid or fixed shall be measured in running meters correct to a cm including the length of specials, <b>but exclude lengths for valves, fire hydrants etc.</b> The portion of the pipe at the joints (inside the joints) shall not be included in the length of pipe work. Payment for laying, jointing shall be on length basis as measured above, and as stated below."
30	Section VIA Subsection 6	Clause 6.9.6 Pg 14 of 19	First line : RCC Chambers and/or <b>Road Box</b> Chambers ...."	First line : RCC Chambers and/or <b>Brick Masonry</b> Chambers ...."
31	Section VIA Subsection 6	Clause 6.9.7 Pg 14 of 19	First paragraph- Third and fourth sentence: "The laying and jointing of the pipeline, construction of concrete blocks etc. shall be paid under respective items under BOQ. Structural steel work such as girders along with walk way including all the miscellaneous items to complete the river crossing shall be payable on running meter basis under separate item for such crossings."	First paragraph- Third and fourth sentence : "The supply and installation of structural steel work, supply and laying, jointing of double flanged pipes, RCC works and other relevant items of these works shall be payable under respective items under BOQ."
32	Section VIA Subsection 6	Pg 19 of 19	-	<b>Additional Clause 6.13 :</b> "6.13 Pipe Laying by Trenchless Technology" Refer to the 2 page Attachment at the end of this Addendum.

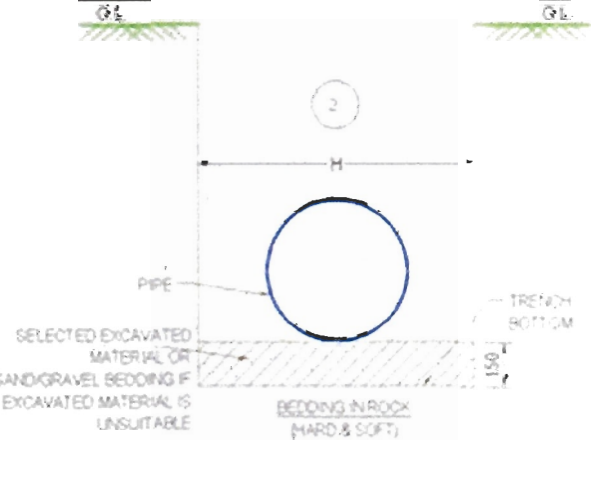
Sl. No.	Volume / Section / Sub-section	Clause No. / Page No.	As per Original Bidding Document	Revised Version (to be read as)
33	Section VIA Subsection 9	Clause 9. 1 Pg 1 of 3	-	Add sub-clause <b>"9.1.1 Contractor's Licensing</b> The contractor shall obtain necessary License/Authorisation from Licensing Board of the locality and/or State Govt. for performing the construction work. The persons working for the contractor shall also hold valid permits issued or recognized by the Licensing Board of the locality and/or State in which the work is to be done."
34	Section IV B– Bidding Form	Preamble of BOQ	Point 1, Last sentence : "The <b>rates and unit prices</b> shall be rounded to the <b>nearest whole unit.</b> "	Point 1, Last sentence : "The <b>unit rates and amounts</b> shall be quoted in <b>two decimal.</b> "
35		Preamble of BOQ	Point 20, (ii), (d), Category 4, Third line: "..... off except, in the case of general earthworks. In each work items, the work item shall be ....."	Point 20, (ii), (d), Category 4, Third line: "..... off except, in the case of general earthworks. In each work <b>earthwork</b> items, the work item shall be ....."
36		Preamble of BOQ	-	Add point No. 21 "The price bid shall be submitted computer typed and hand written is not acceptable."
37		Preamble of BOQ	-	Add point No. 22 "Payment for the item of works as described in the BOQ shall be made as per BOQ item rates of successful bidder. No payment shall be done for the activities which are not in the BOQ, and required for successful completion of the contract as per specification. These items are deemed to be incidental to work and shall be considered as included in contractor's contract price."

Sl. No.	Volume / Section / Sub-section	Clause No. / Page No.	As per Original Bidding Document	Revised Version (to be read as)
38		BOQ Page 1 of 18	-	Additional item of work: Item No. - 1.2 Description – Preparation of Working drawing including carrying out necessary survey and investigation as per specification and directed by Employer’s Representative. Unit – km Quantity - 260
39		BOQ Item 3.1 Page 4 of 18	-	Additional item : (e) 400 mm ID 20mm thick (for trenchless pipe laying) – 200M (f) 500 mm ID 20mm thick (for trenchless pipe laying) – 100m
40		BOQ Item 3.5 Page 6 of 18	“xxx mm ID DI – K9 pipe”	“xxx mm DN DI – K9 pipe”
41		BOQ Item 3.6 Page 6 of 18	(a) 125 mm OD HDPE PE80 – <b>1278m</b> (d) 200 mm OD HDPE PE80 – <b>639m</b>	(a) 125 mm OD HDPE PE80 – <b>(1278+2100)m</b> (d) 200 mm OD HDPE PE80 – <b>(639+300)m</b>  Additional item : (e)250 mm OD HDPE PE80 – 300m (f) 315 mm OD HDPE PE80 – 200m (g) 355 mm OD HDPE PE80 – 200m
42		BOQ Item 4 Page 7 of 18	<b>Item No - Nil</b> “Pipe Jack for Railway crossing ..... pipe”	<b>Item No – 4.1</b> “Pipe Jack for Railway crossing ..... pipe”
43		BOQ Item 4 Page 7 of 18	-	Additional item of work: <b>Item No. – 4.2</b> Description – Laying of pipe and jointing by trenchless technology including construction of pit with required accessories, all civil and mechanical works, disposal of excess earth, etc. all complete as per specification and instruction of Employer’s representative.



Sl. No.	Volume / Section / Sub-section	Clause No. / Page No.	As per Original Bidding Document	Revised Version (to be read as)
				(a) 125 OD HDPE PE80 PN10 – 2100m (b) 200 OD HDPE PE80 PN10 – 300m (c) 250 OD HDPE PE80 PN10 – 300m (d) 315 OD HDPE PE80 PN10 – 200m (e) 355 OD HDPE PE80 PN10 – 200m (f) 400 OD MS pipe – 200m (g) 500 OD MS pipe – 100m
44		BOQ Item 6.1(n) Page 12 of 18	“Chamber for Pressure reducing valve and flow meter <b>TYPE P1</b> ”	“Chamber for Pressure reducing valve and flow meter <b>TYPE P4</b> ”
45		BOQ Item 6.1(o) Page 12 of 18	“Chamber for Pressure reducing valve and flow meter <b>TYPE P2</b> ”	“Chamber for Pressure reducing valve and flow meter <b>TYPE P5</b> ”
		BOQ Item Daywork		The values specified under column “Unit” shall be under column “Quantity” and the values specified under column “Quantity” shall be under column “Unit”.
46		Part-1 Section VIII PCC	Annexure 1 Terms of Payment Point - 5 : <b>Pipe Jacking</b>	Annexure 1 Terms of Payment Point - 5a : <b>Pipe Jacking for Railway crossing</b>
47		Part-1 Section VIII PCC	-	Annexure 1 Terms of Payment Additional Point – “5b : Pipe Laying by Trenchless technology One hundred percent (100%) payment of the total accepted price of the item upon successful completion of the relevant item and commissioning.”
48		Part-2 Section VI B Drawing Section	Drawing No: GWSP/C-05/SD-01 Title : Standard Drawing- Sluice Valve Chamber (Type - S) Table- Chamber Dimension, Sl. No. – 2 Sluice Valve Dia – <b>d-300</b>	Drawing No: GWSP/C-05/SD-01 Title : Standard Drawing- Sluice Valve Chamber (Type - S) Table- Chamber Dimension, Sl. No. – 2 Sluice Valve Dia – <b>d- 250 to 300</b>

Sl. No.	Volume / Section / Sub-section	Clause No. / Page No.	As per Original Bidding Document	Revised Version (to be read as)
49		Part-2 Section VI B Drawing Section	Drawing No: GWSP/C-05/SD-014 Title : Standard Drawing – Miscellaneous Detail-I Standard Drawing for Trench  <p>The original drawing shows a cross-section of a trench. At the top, it is labeled 'ROAD REINSTATEMENT (SEE SHEET SD-13)'. Below this is a layer of 'SELECT FILL'. A circular 'PIPE' is shown with its 'PIPE OUTER DIA.' indicated. The pipe is supported by a 'BEDDING IN COMPACT SOIL (OTHER THAN SOFT &amp; HARD ROCK)'. A dimension of '100MM' is shown for the bedding layer. The trench walls are also shown. The drawing is captioned 'STANDARD DRAWING FOR TRENCH'.</p>	Drawing No: GWSP/C-05/SD-014 Title : Standard Drawing – Miscellaneous Detail-I Standard Drawing for Trench  <p>The revised drawing shows a cross-section of a trench. It features a circular 'PIPE' within a 'WELL COMPACTED TRENCH BOTTOM'. The pipe is supported by a 'BEDDING IN COMPACT SOIL (OTHER THAN SOFT &amp; HARD ROCK)'. The drawing is captioned 'STANDARD DRAWING FOR TRENCH'.</p>

Sl. No.	Volume / Section / Sub-section	Clause No. / Page No.	As per Original Bidding Document	Revised Version (to be read as)
49 cont.				
50		Part-2 Section VI B Drawing Section	Drawing No: GWSP/C-05/SD-15 Title : Standard Drawing – River Crossing <b>Table</b> – Table showing River Crossing Detail A – Ramsahill zone – NIL B – Amiyanagar zone - NIL	Drawing No: GWSP/C-05/SD-15 Title : Standard Drawing – River Crossing <b>Table</b> – Table showing River Crossing Detail A – Ramsahill zone – <ol style="list-style-type: none"> <li>1. From Node – R983 To Node – R993 Dia of Pipe – 100mm Crossing length L - 26m</li> <li>2. From Node – R807 To Node – R831 Dia of Pipe – 200mm Crossing length L - 26m</li> <li>3. From Node – R756 To Node – R780 Dia of Pipe – 250mm Crossing length L - 26m</li> <li>4. From Node – R756 To Node – R779 Dia of Pipe – 100mm Crossing length L - 26m</li> </ol>

Sl. No.	Volume / Section / Sub-section	Clause No. / Page No.	As per Original Bidding Document	Revised Version (to be read as)
				B – Amiyanagar zone - <ol style="list-style-type: none"> <li>1. From Node – A857 To Node – A906 Dia of Pipe – 100mm Crossing length L - 26m</li> <li>2. From Node – A771 To Node – A809 Dia of Pipe – 200mm Crossing length L - 26m</li> <li>3. From Node – A740 To Node – A770 Dia of Pipe – 150mm Crossing length L - 26m</li> <li>4. From Node – A862 To Node – A904 Dia of Pipe – 100mm Crossing length L - 26m</li> </ol>
51		Part-2 Section VI B Drawing Section	Drawing No: GWSP/C-05/SD-16 Title : VALVE CHAMBER WITH PRESSURE REDUCING VALVE, FLOW METER & SLUICE VALVE <b>(TYPE - P1)</b>	Drawing No: GWSP/C-05/SD-16 Title : VALVE CHAMBER WITH PRESSURE REDUCING VALVE, FLOW METER & SLUICE VALVE <b>(TYPE – P4)</b>
52		Part-2 Section VI B Drawing Section	Drawing No: GWSP/C-05/SD-17 Title : VALVE CHAMBER WITH PRESSURE REDUCING VALVE, FLOW METER & SLUICE VALVE <b>(TYPE – P2)</b>	Drawing No: GWSP/C-05/SD-17 Title : VALVE CHAMBER WITH PRESSURE REDUCING VALVE, FLOW METER & SLUICE VALVE <b>(TYPE – P5)</b>
53		Part-2 Section VI B Drawing Section	Drawing No: GWSP/C-05/SD-18 Title : VALVE CHAMBER WITH PRESSURE REDUCING VALVE, FLOW METER & SLUICE VALVE <b>(TYPE – P3)</b>	Drawing No: GWSP/C-05/SD-18 Title : VALVE CHAMBER WITH PRESSURE REDUCING VALVE, FLOW METER & SLUICE VALVE <b>(TYPE – P6)</b>

### **6.13 Pipe Laying by Trenchless Technology**

#### **6.13.1 Scope:**

The scope under this item has been prepared for laying of underground pipe by trenchless technology and as per specification and/or drawing. All codes and standards referred to in these Specifications shall be the latest revision thereof and codes which are not mentioned herewith but relevant to work shall be applicable.

- a. This work consists of enlargement, laying, jointing, testing and commissioning of various diameter (ranging from 110 mm OD to 355 mm OD) HDPE pipes PN10 by Horizontal Directional Drilling (HDD). For pipe of diameters 400 mm – 500 mm ID MS pipe installed by the jack push method may be used. The work is to be executed by the method of trenchless technology.
- b. The work also consists of interconnection with other laid pipes as required or as directed by the Employer's Representative.
- c. This package covers piping work in different parts of the project area consisting of congested areas.
- d. Bill of Quantities provided with the Bid Document is indicative and the quantity, diameter, or pipe material may vary as per the site condition and as per direction of the Employer's Representative. The Contractor should satisfy himself about this aspect before quoting.

#### **6.13.2 Brief Description of the Work:**

- a. The work in brief is the laying of HDPE pipe by the trenchless method using a HDD machine of suitable capacity to lay 110 mm OD to 355 mm OD HDPE PN10 pipe.
- b. The work in brief is the laying of 400 mm ID to 500 mm ID MS pipes of 20mm thick with jack push equipment.
- c. The work includes submission of a detailed methodology report of the work plan and procedures which is to be submitted before execution of the work.
- d. Tolerances will be allowed as per the I.S.T.I. guideline.
- e. For using the trenchless technology method, the Contractor shall provide a substantial quantity of water, bentonite and polymer based materials for drilling and the mixed bentonite/cutting emulsion. The effluent shall be disposed of in a manner to avoid environmental pollution after the completion of the pipe laying work.
- f. Any other activity required for completion of the work as per the Tender Document.

#### **6.13.3 Specification for Pipe Installation by HDD**

- A. Horizontal Directional Drilling:
  - a. The HDD machine shall be capable of horizontal directional drilling involving a steerable tunneling system for all pipe sizes. It shall be a two-stage process. The first stage shall consist of drilling a small diameter pilot hole along the desired centre line of a proposed alignment. The second stage shall consist of enlarging the pilot hole to the desired diameter to accommodate the utility line and pulling the same through the enlarged hole. The drilling head may be by mechanical cutting or by fluid cutting with high-pressure jets.
  - b. The machine may be pit launched or surface launched. The drilling machine, especially a surface launched type machine, may incorporate an automatic drill pipe loading system with fluid assisted lubricating and bore stabilizing.
  - c. The mid range guided boring machine shall have a thrust and pull back capability of between 8 to 20 tonnes and be capable to install up to 500 mm diameter pipe over a distance of 100 to 350 meters. Boring shall be fluid assisted.
  - d. The drill head shall be angled so that constant rotation of the drill string produces a straight bore.
  - e. A sonde or beacon shall be built into the head or fixed close to it and signets emitted by this are to be picked up and traced by a receiver located on the ground surface, allowing the direction, depth, and other parameters to be monitored.

- f. Bentonite mix water and/or polymeric mixture shall be used as the drilling fluid or 'mud'.
- g. The HDPE pipe shall be drawn in behind the reamer as the original bore is enlarged.

**B. Site Investigation:**

Site investigations for the HDD operation shall mainly consist of the following:

- i. Surface investigation: The surface investigations shall address topographical information for horizontal and vertical control including over burden profiles (existing utilities) along the pipe route.
- ii. Sub-surface investigation: The subsurface investigations shall consist of reviewing available geological information and correlating the information with site specific information to obtain a subsurface profile and the presence of underground utility structures. The investigation shall include:
  - a. Standard classification of soils.
  - b. Ground water location, type and behavior.
  - c. Determination of electrical resistivity and mineralogical constituents.
- iii. Boring path determination:
  - a. Pipe length.
  - b. Pipe diameter.
  - c. Pipe thickness.
  - d. Entry and exit locations.
  - e. Required depth below or above existing obstacles.
  - f. Subsurface conditions.

**C. Tracking & Guidance System:**

The guided boring technique shall rely on an accurate base location and guidance system. The capability of tracking devices shall be of advance electronic technology, and of a high degree of accuracy. The sonde / probe / transmitter shall be provided inside of the drilling head, which shall be used to locate and determine the depth, pitch and position of the head, and to be received by locators above the ground.

**D. Ancillary equipment:**

There are numerous accessories and ancillaries, which play an important part in the success of a guided boring / directional drilling project. Those are e.g. the swivel, duct pullers, pipe size range, etc. to accompany the HDD equipment.

**E. Skilled Operator:**

The directional drilling method is a system, which requires skilled operators. The operator must be knowledgeable concerning down hole drilling, the impacts of drilling in various geological formations, sensing and recording instrumentation, interpreting computer data etc.

**6.13.4 Specification for Pipe Installation by the Jacking Method**

The specification for the jacking of pipe is given elsewhere in Subsection 6. It shall be read in conjunction with this Subsection.

**6.13.5 Payment**

The payment shall be by the unit length basis. All activities, except surface investigation, testing and commissioning, shall be deemed to be included under the quoted rates. The surface investigations shall be paid under scope in the item of 'Working Drawings'. Testing and commissioning shall be paid separately as per the relevant BOQ items.

Bill of Quantities (Addendum No. 2)								
Item No.	Description	Unit	Quantity	Unit Rate <sup>(a)</sup>		Amount <sup>(a)</sup>		
				Basic Rate (CIP)	Applicable Taxes, Duties, etc.	Basic Rate (CIP)	Applicable Taxes, Duties, etc.	Total
			(1)	(2)	(3)	(4) = (1) x (2)	(5) = (1) x (3)	(6) = (4) + (5)
<b>1</b>	<b>SURVEY WORK</b>							
1.1	Topographical survey work using Total Station as directed by the Employer's Representative, including preparation and finalization of survey drawings and CADD files .	km	40					
1.2	Preparation of Working drawing including carrying out necessary survey and investigation as per specification and directed by Employer's Representative	km	260					
<b>Subtotal Item No. 1</b>								
<b>2</b>	<b>EARTHWORK</b>							
2.1	Earth work for <b>excavation</b> of foundations, pipe trenches, valve chambers, thrust blocks, etc. in all kinds of <b>ordinary soils</b> such as murum, sand, sandy silt, clay, kankar etc. or in combination. Excavation shall include the removal of WBM roadway surfaces, brick surfacing, including dressing, compaction of the bottoms of the excavation, shoring and strutting wherever required, dewatering whenever required, removal of the excavated soil, stockpiling and disposal of surplus excavated soil off-site as directed by the Employer's Representative.							
	Excavation will be paid for in the following segments:							
(a)	0 to 1.5 m from GL	m <sup>3</sup>	291000					
(b)	above 1.5 m to 3.0 m depth from GL	m <sup>3</sup>	15500					
(c)	above 3.0 m to 4.5 m depth from GL	m <sup>3</sup>	50					

Bill of Quantities (Addendum No. 2)								
Item No.	Description	Unit	Quantity	Unit Rate <sup>(a)</sup>		Amount <sup>(a)</sup>		
				Basic Rate (CIP)	Applicable Taxes, Duties, etc.	Basic Rate (CIP)	Applicable Taxes, Duties, etc.	Total
			(1)	(2)	(3)	(4) = (1) x (2)	(5) = (1) x (3)	(6) = (4) + (5)
2.2	Earth work for excavation of foundations, pipe trenches, valve chambers, thrust blocks, etc. in all kinds of <b>ordinary rock</b> , Excavation shall include the removal of asphalt and concrete road surfacing, including dressing, compaction of the bottoms, shoring and strutting wherever required, dewatering whenever required, removal of the excavated rock, stockpiling and disposal of surplus excavated rock off-site as directed by the Employer's Representative.							
	Excavation will be paid for in the following segments:							
(a)	0 to 1.5 m from GL	m <sup>3</sup>	54500					
(b)	above 1.5m to 3.0 m depth from GL	m <sup>3</sup>	3000					
(c)	above 3.0 m to 4.5 m depth from GL	m <sup>3</sup>	10					
2.3	Earth work for excavation of foundations, pipe trenches, valve chambers, thrust blocks, etc. in all kinds of <b>hard rock requiring blasting</b> , Excavation shall include dressing, compaction of the bottoms, shoring and strutting wherever required, dewatering whenever required, removal of the excavated rock, stockpiling and disposal of surplus excavated rock off-site as directed by the Employer's Representative.							
	Excavation will be paid for in the following segments:							
(a)	0 to 1.5 m from GL	m <sup>3</sup>	20000					
(b)	above 1.5m to 3.0 m depth from GL	m <sup>3</sup>	1000					
2.4	Earth work for excavation of foundations, pipe trenches, valve chambers, thrust blocks, etc. in all kinds of <b>hard rock (blasting prohibited)</b> , Excavation shall include dressing, compaction of the bottoms, shoring and strutting wherever required, dewatering whenever required, removal of the excavated rock, stockpiling and disposal of surplus excavated rock off-site as directed by the Employer's Representative.							
	Excavation will be paid for in the following segments:							



Bill of Quantities (Addendum No. 2)								
Item No.	Description	Unit	Quantity	Unit Rate <sup>(a)</sup>		Amount <sup>(a)</sup>		
				Basic Rate (CIP)	Applicable Taxes, Duties, etc.	Basic Rate (CIP)	Applicable Taxes, Duties, etc.	Total
			(1)	(2)	(3)	(4) = (1) x (2)	(5) = (1) x (3)	(6) = (4) + (5)
(a)	0 to 1.5 m from GL	m <sup>3</sup>	10					
(b)	above 1.5m to 3.0 m depth from GL	m <sup>3</sup>	10					
2.5	Backfilling of pipe trenches, foundations, etc. with approved graded <b>excavated soil</b> (select granular material), excluding rock, including placing in layers not exceeding 20 cm in depth each, and compacting each layer, complete as per the specification and as directed by the Employer's Representative.	m <sup>3</sup>	263000					
2.6	Backfilling of pipe trenches, foundations, etc. with approved graded <b>sand</b> , including placing in layers not exceeding 20 cm in depth each, and compacting each layer, complete as per the specification and as directed by the Employer's Representative.	m <sup>3</sup>	75000					
2.7	Backfilling of pipe trenches, foundations, etc. with approved graded <b>gravel</b> , including placing in layers not exceeding 20 cm in depth each, and compacting each layer, complete as per the specification and standard drawings and as directed by the Employer's Representative.	m <sup>3</sup>	30000					
<b>Subtotal Item No. 2</b>								
<b>3</b>	<b>PIPELINES, SPECIALS AND APPURTENANCES</b>							
3.1	<b>Supplying</b> spirally welded <b>MS pipe</b> with internal lining and external coating as per the specification of the following internal diameters and wall thicknesses. The rate shall include third party inspection, transportation, freight charges, loading, unloading and stacking at the project site, with the cost of all labor, material, taxes and duties.							
(a)	400 mm ID 6 mm thick (at railway crossing)	m	50					
(b)	700 mm ID 6 mm thick	m	409					
(c)	750 mm ID 6 mm thick	m	2007					
(d)	800 mm ID 6 mm thick	m	2570					

Bill of Quantities (Addendum No. 2)								
Item No.	Description	Unit	Quantity	Unit Rate <sup>(a)</sup>		Amount <sup>(a)</sup>		
				Basic Rate (CIP)	Applicable Taxes, Duties, etc.	Basic Rate (CIP)	Applicable Taxes, Duties, etc.	Total
			(1)	(2)	(3)	(4) = (1) x (2)	(5) = (1) x (3)	(6) = (4) + (5)
(e)	900 mm ID 20 mm thick (at railway crossing)	m	40					
(f)	400 mm ID 20 mm thick (for trenchless pipe laying)	m	200					
(g)	500 mm ID 20 mm thick (for trenchless pipe laying)	m	100					
3.2	<b>Supplying</b> all types of <b>MS Specials</b> plain ended, socket ended and flanged as required with internal lining and external coating as per the specification, such as bends, tees, tapers, spool pieces, blind flanges, pieces for pipe connection, valve connections, dismantling joints, anchor bolts, straps, air vent pipe, etc. of different diameters, manufactured from Fe 410 grade steel. This item includes loading, transportation to the project site, unloading and stacking, etc. complete with cost of third party inspection, material, labor, taxes and duties.	MT	18					
3.3	Handling, aligning, <b>laying and jointing MS pipes and specials</b> to correct line and level in trenches. The item includes transportation of pipes and specials from the storeyard to the project site, stacking of pipe as per BIS requirements, loading, unloading, hoisting, lowering, marginal cutting and grinding wherever necessary, assembling, jointing, providing temporary supports, lining and coating at joints etc. for pipe of the following diameters and thicknesses. The rate also shall include radiography of field joints, field testing, etc. as specified and shown on the drawings and specification.							
(a)	400 mm ID 6 mm thick (at railway crossing)	m	50					
(b)	700 mm ID 6 mm thick	m	409					
(c)	750 mm ID 6 mm thick	m	2007					
(d)	800 mm ID 6 mm thick	m	2570					

Bill of Quantities (Addendum No. 2)								
Item No.	Description	Unit	Quantity	Unit Rate <sup>(a)</sup>		Amount <sup>(a)</sup>		
				Basic Rate (CIP)	Applicable Taxes, Duties, etc.	Basic Rate (CIP)	Applicable Taxes, Duties, etc.	Total
			(1)	(2)	(3)	(4) = (1) x (2)	(5) = (1) x (3)	(6) = (4) + (5)
3.4	<b>Supplying DI Specials</b> and fittings with plain, double socket, socket & flanged and double flanged end connections as required, with lining and coating as per the specification, and IS 9523 with EPDM rubber gaskets as per IS 5382 as required for successful completion of the work. This item includes third party inspection, transportation, freight, loading and unloading, stacking etc. all complete for various sizes of DI specials and fittings as noted with the following end connections.							
(a)	Tee's, Socket, collar, tail pieces, flanged tapers, socketed tapers, flanged spigot short pipes, flanged socket short piece, all bends, end caps, barrel piece, dismantling joints etc. required for suitable completion of the works.	MT	156					
(b)	Double flanged pipe pieces, required for suitable completion of works.	MT	27					
3.5	Handling, aligning, <b>laying and jointing</b> of Employer furnished <b>K-9 DI pipe</b> to other pipe and to <b>Contractor furnished fittings and specials</b> , with EPDM rubber O-rings (as per IS 5382) and flange gaskets (as per IS 12288) and the specifications. This item includes transportation of pipes, specials and fittings from the storeyard to the project site, stacking of pipe and fittings as per BIS requirements, loading, unloading, hoisting, lowering, marginal cutting and grinding wherever necessary, assembling, jointing, providing temporary supports etc., all complete with approved equipment, for pipe of the following diameters.							
(a)	100 mm <b>DN</b> DI - K9 pipe	m	197442					
(b)	150 mm <b>DN</b> DI - K9 pipe	m	12440					
(c)	200 mm <b>DN</b> DI - K9 pipe	m	8543					
(d)	250 mm <b>DN</b> DI - K9 pipe	m	4497					
(e)	300 mm <b>DN</b> DI - K9 pipe	m	6169					
(f)	400 mm <b>DN</b> DI - K9 pipe	m	5714					
(g)	500 mm <b>DN</b> DI - K9 pipe	m	449					
(h)	600 mm <b>DN</b> DI - K9 pipe	m	4350					

Bill of Quantities (Addendum No. 2)								
Item No.	Description	Unit	Quantity	Unit Rate <sup>(a)</sup>		Amount <sup>(a)</sup>		
				Basic Rate (CIP)	Applicable Taxes, Duties, etc.	Basic Rate (CIP)	Applicable Taxes, Duties, etc.	Total
			(1)	(2)	(3)	(4) = (1) x (2)	(5) = (1) x (3)	(6) = (4) + (5)
3.6	Supplying of PN10 HDPE (PE80) pipe including all specials confirming to IS 4984 and the specifications, including third party inspection, all taxes and duties, transportation, freight charges, loading and unloading, conveyance to the project site and stacking with cost of all labor and material for following pipe diameters.							
(a)	110 mm OD HDPE PE-80	m	1278					
(b)	125 mm OD HDPE PE-80	m	12783					
(c)	160 mm OD HDPE PE-80	m	639					
(d)	200 mm OD HDPE PE-80	m	639					
(e)	250 mm OD HDPE PE-80	m	300					
(f)	315 mm OD HDPE PE-80	m	200					
(g)	355 mm OD HDPE PE-80	m	200					
3.7	Handling, aligning, laying and jointing of PN10 HDPE (PE80) pipes with specials by butt welding / spigot joints confirming to IS and specifications. The item includes transportation of pipes and specials from store yard to site, stacking of pipe as per BIS, loading, unloading, hoisting, lowering, cutting and grinding wherever necessary, assembling, jointing, providing temporary supports etc., all complete with approved equipment, for pipes of following diameters.							
(a)	110 mm OD HDPE PE-80	m	1278					
(b)	125 mm OD HDPE PE-80	m	12783					
(c)	160 mm OD HDPE PE-80	m	639					
(d)	200 mm OD HDPE PE-80	m	639					
<b>Subtotal Item No. 3</b>								
<b>4</b>	<b>PIPE JACKING</b>							

Bill of Quantities (Addendum No. 2)								
Item No.	Description	Unit	Quantity	Unit Rate <sup>(a)</sup>		Amount <sup>(a)</sup>		
				Basic Rate (CIP)	Applicable Taxes, Duties, etc.	Basic Rate (CIP)	Applicable Taxes, Duties, etc.	Total
			(1)	(2)	(3)	(4) = (1) x (2)	(5) = (1) x (3)	(6) = (4) + (5)
4.1	Pipe jack for Railway crossing with Jacking and Pushing method. The item include pushing jointing following diameter MS pipe of required length, construction of Receiving and Jacking pit with suitable shoring and strutting (if required), including installation of jacking platform, thrust resistant arrangement of required capacity including , hydraulic jacking with required accessories, required excavation inside the jacking pipe and disposal the same, etc. all complete as per drawing, specification and as directed.							
(a)	Jacking and pushing of 900 mm ID 20 mm thick MS pipe	m	40					
4.2	Laying of pipe and jointing by trenchless technology including construction of pit with required accessories, all civil and mechanical works, disposal of excess earth, etc. all complete as per specification and instruction of Employer's representative.							
(a)	125 OD HDPE PE80 PN10	m	2100					
(b)	200 OD HDPE PE80 PN 10	m	300					
(d)	250 OD HDPE PE80 PN 10	m	300					
(d)	315 OD HDPE PE80 PN 10	m	200					
(e)	355 OD HDPE PE80 PN 10	m	200					
(f)	400 ID MS Pipe	m	200					
(g)	500 ID MS Pipe	m	100					
<b>Subtotal Item No. 4</b>								
<b>5</b>	<b>VALVES AND APPURTENANCES</b>							

Bill of Quantities (Addendum No. 2)								
Item No.	Description	Unit	Quantity	Unit Rate <sup>(a)</sup>		Amount <sup>(a)</sup>		
				Basic Rate (CIP)	Applicable Taxes, Duties, etc.	Basic Rate (CIP)	Applicable Taxes, Duties, etc.	Total
			(1)	(2)	(3)	(4) = (1) x (2)	(5) = (1) x (3)	(6) = (4) + (5)
5.1	Providing and <b>supplying</b> of following diameters <b>Cast iron double flanged ends Sluice valve PN 1.6</b> as per IS 14864 with end cap and all accessories required for fixing and jointing, and shall include anti-corrosive painting etc. all complete. The rate shall include all local and central taxes, third party inspection, transportation, freight charges, loading and unloading, conveyance to storeyard and stacking the same, with cost of all labour and material. The item shall be as per specification, drawing and as directed.							
(a)	80 mm dia (for Fire hydrant)	Nos.	21					
(b)	100 mm dia	Nos.	1030					
(c)	150 mm dia	Nos.	45					
(d)	200 mm dia	Nos.	17					
(e)	250 mm dia	Nos.	7					
(f)	300 mm dia	Nos.	20					
5.2	Handling, <b>aligning and installing</b> in true to line and level <b>cast iron PN 1.6 rated double flanged Sluice Valves</b> (IS 14864) of the following diameters. This item includes transportation of valves and accessories from the storeyard to the project site, loading, unloading, hoisting, lowering, assembling and jointing including the cost of all jointing materials such as rubber gaskets, nuts, bolts, etc., and providing temporary supports, as per the specifications and drawings.							
(a)	80 mm dia (for Fire hydrant)	Nos.	21					
(b)	100 mm dia	Nos.	1030					
(c)	150 mm dia	Nos.	45					
(d)	200 mm dia	Nos.	17					
(e)	250 mm dia	Nos.	7					
(f)	300 mm dia	Nos.	20					

Bill of Quantities (Addendum No. 2)								
Item No.	Description	Unit	Quantity	Unit Rate <sup>(a)</sup>		Amount <sup>(a)</sup>		
				Basic Rate (CIP)	Applicable Taxes, Duties, etc.	Basic Rate (CIP)	Applicable Taxes, Duties, etc.	Total
			(1)	(2)	(3)	(4) = (1) x (2)	(5) = (1) x (3)	(6) = (4) + (5)
5.3	Providing and <b>supplying</b> of following diameters double flanged <b>Butterfly valves</b> PN 1.6 (manually operated) as per IS 13095 with all accessories, including approved anti-corrosive painting. The rate shall include all local and central taxes, third party inspection, transportation, freight charges, loading, unloading, conveyance to storeyard and stacking the same, with cost of all labour, and material. The item shall be as per specification, drawing and as directed.							
(a)	400 mm diameter	Nos.	6					
(b)	500 mm diameter	Nos.	1					
(c)	600 mm diameter	Nos.	3					
5.4	Handling, aligning, and <b>fixing</b> in true to line and level following diameters and rating double flanged <b>Butterfly valves</b> PN 1.6 (manually operated as per IS 13095) including cost of required jointing material such as rubber packing, nuts bolts etc. The item includes transportation of valves and accessories from store yard to site, loading, unloading, hoisting, lowering, grinding wherever necessary, assembling and jointing, providing temporary supports etc., all complete with approved equipment, for valves of following diameters, for all lead and lift. The item shall be as per specification, drawing and as directed.							
(a)	400 mm diameter	Nos.	6					
(b)	500 mm diameter	Nos.	1					
(c)	600 mm diameter	Nos.	3					

Bill of Quantities (Addendum No. 2)								
Item No.	Description	Unit	Quantity	Unit Rate <sup>(a)</sup>		Amount <sup>(a)</sup>		
				Basic Rate (CIP)	Applicable Taxes, Duties, etc.	Basic Rate (CIP)	Applicable Taxes, Duties, etc.	Total
			(1)	(2)	(3)	(4) = (1) x (2)	(5) = (1) x (3)	(6) = (4) + (5)
5.5	Providing and <b>supplying</b> of following diameters of <b>Double chamber Air valves with in built sluice valve</b> PN 1.6 rating with flanged ends as per IS 14845, with all accessories required, including anti-corrosive painting etc. all complete. The rate shall include all local and central taxes, third party inspection, transportation, freight charges, loading and unloading, conveyance to store yard and stacking the same, with cost of all labour, and material. The item shall be as per specification, drawing and as directed.							
(a)	80 mm dia	Nos.	47					
(b)	100 mm dia	Nos.	1					
(c)	150 mm dia	Nos.	4					
5.6	Handling, <b>aligning, and installing</b> in true to line and level following diameters of PN 1.6 rated <b>Double chamber Air valves with in built sluice valve</b> with all accessories and as per specifications and drawings. This item includes transportation of valves and accessories from the storeyard to the project site, loading, unloading, hoisting, assembling and jointing, including the cost of jointing materials such as rubber packing, nuts, bolts, etc., as per the specifications and drawings.							
(a)	80 mm diameter	Nos.	47					
(b)	100 mm diameter	Nos.	1					
(c)	150 mm diameter	Nos.	4					
5.7	Providing and <b>supplying</b> of following diameters <b>Pressure Reducing valve</b> with double flanged ends and shall including anti-corrosive painting etc. all complete. The rate shall include all local and central taxes, third party inspection, transportation, freight charges, loading and unloading, conveyance to storeyard and stacking the same, with cost of all labour, and material. The item shall be as per specification, drawing and as directed.							
	100mm dia	Nos.	2					



Bill of Quantities (Addendum No. 2)								
Item No.	Description	Unit	Quantity	Unit Rate <sup>(a)</sup>		Amount <sup>(a)</sup>		
				Basic Rate (CIP)	Applicable Taxes, Duties, etc.	Basic Rate (CIP)	Applicable Taxes, Duties, etc.	Total
			(1)	(2)	(3)	(4) = (1) x (2)	(5) = (1) x (3)	(6) = (4) + (5)
	150mm dia	Nos.	3					
	200mm dia	Nos.	3					
	250mm dia	Nos.	1					
	300mm dia	Nos.	7					
5.8	Handling, aligning, and <b>fixing</b> in true to line and level following diameters <b>Pressure Reducing valve</b> double flanged ends. The item includes transportation of valves and accessories from store yard to site, loading, unloading, hoisting, lowering, grinding wherever necessary, assembling and jointing, including cost of jointing materials such as rubber packing, nuts bolts etc., providing temporary supports, all complete with approved equipment, for all leads and lifts. The item shall be as per specification, drawing and as directed.							
	100mm dia	Nos.	2					
	150mm dia	Nos.	3					
	200mm dia	Nos.	3					
	250mm dia	Nos.	1					
	300mm dia	Nos.	7					
5.7	Providing and <b>supplying Fire hydrants</b> of 80mm diameter as per IS 909, consisting single flanged outlet oblique type hydrant valve, and shall include cost of anti-corrosive painting etc. all complete. The rate shall include all local and central taxes, third party inspection, transportation, freight charges, loading and unloading, conveyance to site and stacking the same, with cost of all labour, and material. The item shall be as per specification, drawing and as directed.	Nos.	21					

Bill of Quantities (Addendum No. 2)								
Item No.	Description	Unit	Quantity	Unit Rate <sup>(a)</sup>		Amount <sup>(a)</sup>		
				Basic Rate (CIP)	Applicable Taxes, Duties, etc.	Basic Rate (CIP)	Applicable Taxes, Duties, etc.	Total
			(1)	(2)	(3)	(4) = (1) x (2)	(5) = (1) x (3)	(6) = (4) + (5)
5.8	Handling, aligning, and <b>fixing Fire hydrants</b> true to line and level. The item includes transportation of valves and accessories from store yard to site, loading, unloading, hoisting, lowering, grinding wherever necessary, assembling and jointing with cost of jointing material such as rubber packing, nuts bolts, providing temporary supports etc., all complete with approved equipment, for all leads and lifts. The item shall be as per specification, drawing and as directed.	Nos.	21					
<b>Subtotal Item No. 5</b>								
<b>6</b>	<b>VALVE CHAMBERS</b>							
6.1	Construction of RCC and Brick masonry chambers for valves, hydrants, flow meters etc. including cost of PCC and RCC work, cost of supply and bending and binding of steel with required shuttering, cost of brick work with plaster from inside and outside, precast slabs and supply and installation of SFRC frame and covers wherever required, including all the miscellaneous items of work, but excluding the supply and installation of pipes and specials, valves etc. The item shall be as per specification, drawing and as directed.							
(a)	Chamber for <b>Sluice valve TYPE S1</b>	Nos.	737					
(b)	Chamber for <b>Sluice valve TYPE S2</b>	Nos.	10					
(c)	Chamber for <b>Wash out valve TYPE W1</b>	Nos.	186					
(d)	Chamber for <b>Wash out valve TYPE W2</b>	Nos.	151					
(e)	Chamber for <b>Butterfly valve TYPE B1</b>	Nos.	6					

Bill of Quantities (Addendum No. 2)								
Item No.	Description	Unit	Quantity	Unit Rate <sup>(a)</sup>		Amount <sup>(a)</sup>		
				Basic Rate (CIP)	Applicable Taxes, Duties, etc.	Basic Rate (CIP)	Applicable Taxes, Duties, etc.	Total
			(1)	(2)	(3)	(4) = (1) x (2)	(5) = (1) x (3)	(6) = (4) + (5)
(f)	Chamber for <b>Butterfly valve</b> TYPE B2	Nos.	4					
(g)	Chamber for <b>Air valve</b> TYPE A1	Nos.	47					
(h)	Chamber for <b>Air valve</b> TYPE A2	Nos.	1					
(i)	Chamber for <b>Air valve</b> TYPE A3	Nos.	4					
(j)	Chamber for <b>Fire hydrant</b> TYPE F1	Nos.	21					
(k)	Chamber for <b>Pressure reducing valve/ Flowmeter</b> TYPE P1	Nos.	33					
(l)	Chamber for <b>Pressure reducing valve/ Flowmeter</b> TYPE P2	Nos.	5					
(m)	Chamber for <b>Pressure reducing valve/ Flowmeter</b> TYPE P3	Nos.	1					
(n)	Chamber for Pressure reducing valve and flow meter <b>TYPE P4</b>	Nos.	8					
(o)	Chamber for Pressure reducing valve and flow meter <b>TYPE P5</b>	Nos.	8					
<b>Subtotal Item No. 6</b>								
<b>7</b>	<b>MISCELLENEOUS CIVIL WORK</b>							
7.1	<b>Plain Cement Concrete Work</b>							
	Providing and placing plain cement concrete (PCC) of one of the following grades for thrust blocks, anchor blocks, floatation blocks, etc. with 20-40mm stone aggregate (crusher broken) including finishing the surface, shuttering and staging, curing etc. as per the specifications and drawings and as directed by the Employer's Representative. This is Work not included in Item 6.							
(a)	Grade M15 concrete	m <sup>3</sup>	1750					
(b)	Grade M20 concrete	m <sup>3</sup>	20					
7.2	<b>Reinforced Cement Concrete Work</b>							
	Providing and placing reinforced cement concrete (RCC) of one of the following grades with 10-20 mm stone aggregate (crusher broken) including shuttering and staging, curing etc. as per the specifications and drawings and as directed by the Employer's Representative. This is Work not included in Item 6.							
(a)	Grade M20 concrete	m <sup>3</sup>	20					

Bill of Quantities (Addendum No. 2)								
Item No.	Description	Unit	Quantity	Unit Rate <sup>(a)</sup>		Amount <sup>(a)</sup>		
				Basic Rate (CIP)	Applicable Taxes, Duties, etc.	Basic Rate (CIP)	Applicable Taxes, Duties, etc.	Total
			(1)	(2)	(3)	(4) = (1) x (2)	(5) = (1) x (3)	(6) = (4) + (5)
(b)	Grade M25 concrete	m <sup>3</sup>	24					
7.3	<b>Concrete Reinforcement</b>							
	Providing and fabricating steel reinforcement with Fe 415 grade steel for RCC work including straightening, cutting, bending, placing in position and tying (including cost of tie wire) ,taxes and duties, transportation etc. all complete, as per specifications and drawings and as directed by the Employer's Representative. This is Work not included in Item 6.	kg	4000					
7.4	<b>Brick Masonry Work</b>							
	Construction of Brick Masonry for sub/superstructure of 230/350 mm thick walls using cement mortar with a cement to sand ratio of 1:6. This item includes the cost of transportation of all materials, labor, scaffolding, curing etc. as per specifications and drawings and as directed by the Employer's Representative. This is Work not included in Item 6.	m <sup>3</sup>	50					
7.5	<b>Plastering Work</b>							
(a)	Providing and applying cement sand plaster 12 mm thick in a single coat using cement mortar with a cement to sand ratio of 1:4 without neeru finish to concrete or brick surfaces including scaffolding and curing as directed by the Employer's Representative. This is Work not included in Item 6.	m <sup>2</sup>	50					
(b)	Providing and applying cement sand plaster 20 mm thick in a single coat using cement mortar with a cement to sand ratio of 1:4 without neeru finish to concrete or brick surfaces including scaffolding and curing as directed by the Employer's Representative. This is Work not included in Item 6.	m <sup>2</sup>	50					

Bill of Quantities (Addendum No. 2)								
Item No.	Description	Unit	Quantity	Unit Rate <sup>(a)</sup>		Amount <sup>(a)</sup>		
				Basic Rate (CIP)	Applicable Taxes, Duties, etc.	Basic Rate (CIP)	Applicable Taxes, Duties, etc.	Total
			(1)	(2)	(3)	(4) = (1) x (2)	(5) = (1) x (3)	(6) = (4) + (5)
7.6	Providing and laying boulder soling with boulders 100-200mm size in foundation, packing with locally available mooram and sand, including watering, dressing and leveling, all complete as per drawing and specification and as directed.	m <sup>3</sup>	20					
7.7	Providing and laying 100 mm thick brick soling for foundations and under flooring with best quality jhama brick, sand packed and laid to level after preparing the subgrade including all labor and materials and dewatering if necessary, complete and as per the specifications and drawings and as directed by the Employer's Representative. This is Work not included in Item 6.	m <sup>2</sup>	100					
7.8	<b>Structural Steel Work</b>							
	Providing and fabricating structural steel work in rolled sections including joists, channels, angles, beams, etc. including cutting, fabricating, grinding, hoisting, erecting, fixing in position making bolted/welded connections, applying coatings etc., as per the specifications and drawings and as directed by the Employer's Representative.	Kg	42000					
<b>Subtotal Item No. 7</b>								
<b>8</b>	<b>ROAD RESTORATION</b>							
8.1	<b>Reconstruction of Bituminous Asphalt Roads</b>							
a)	Providing and laying of Granular sub base (GSB), as per specification drawing and as directed	m <sup>3</sup>	65000					
b)	Providing and laying of Prime Coat, as per specification drawing and as directed	m <sup>2</sup>	320000					
c)	Providing and laying of Wet mix macadam (WMM) , as per specification drawing and as directed	m <sup>3</sup>	80000					
d)	Providing and laying of Dense graded bituminous macadam (DBM), as per specification drawing and as directed	m <sup>3</sup>	1200					

Bill of Quantities (Addendum No. 2)								
Item No.	Description	Unit	Quantity	Unit Rate <sup>(a)</sup>		Amount <sup>(a)</sup>		
				Basic Rate (CIP)	Applicable Taxes, Duties, etc.	Basic Rate (CIP)	Applicable Taxes, Duties, etc.	Total
			(1)	(2)	(3)	(4) = (1) x (2)	(5) = (1) x (3)	(6) = (4) + (5)
e)	Providing and laying of Semi dense bituminous concrete (SDBC), as per specification drawing and as directed	m <sup>3</sup>	600					
f)	Providing and laying of Tack coat (TC), as per specification drawing and as directed	m <sup>2</sup>	46000					
g)	Providing and laying of Bituminous macadam (BM), as per specification drawing and as directed	m <sup>3</sup>	2300					
h)	Providing and laying of Premix carpet (PC), as per specification drawing and as directed	m <sup>2</sup>	295000					
<b>8.2</b>	<b>Reconstruction of WBM Roads</b>							
a)	Providing , laying ,spreading and compacting stone aggregates of specific sizes as per specification and drawing to water bound macadam including spreading in uniform thickness, hand packing, rolling with vibratory roller 8-10 tonnes in stages to proper grade and camber, applying and brooming requisite type of stone screenings & binding material, and completer as per specification drawing and as directed	m <sup>3</sup>	20000					
<b>8.3</b>	<b>Reconstruction of Concrete Roads</b>							
	Providing, placing and finishing Cement Concrete roads to match the existing roadway which was removed, if directed by the Employer's Representative . Grade M20 concrete shall be used and placed to the same depth as the existing roadway surface. A screeded finish shall be applied.	m <sup>3</sup>	1600					
<b>8.4</b>	<b>Reconstruction of Brick Roads</b>							
	Providing and laying of bricks on edge for road restoration on earth subgrade. The bricks shall be on edge, diagonally placed, and gap filled up with sand, all complete, as per specification and drawings.	m <sup>2</sup>	7500					
<b>Subtotal Item No. 8</b>								

Bill of Quantities (Addendum No. 2)								
Item No.	Description	Unit	Quantity	Unit Rate <sup>(a)</sup>		Amount <sup>(a)</sup>		
				Basic Rate (CIP)	Applicable Taxes, Duties, etc.	Basic Rate (CIP)	Applicable Taxes, Duties, etc.	Total
			(1)	(2)	(3)	(4) = (1) x (2)	(5) = (1) x (3)	(6) = (4) + (5)
<b>9</b>	<b>TESTING, TRIAL RUNS AND COMMISSIONING</b>							
9.1	Hydraulic testing of the distribution system piping of the following diameters in segments at the required test pressures. This item includes the costs of water, labor, pumping, etc. all complete, as per the specifications and as directed by the Employer's Representative.							
(a)	100 mm - 200mm diameter	km	234					
(b)	Above 200 mm - 300 mm diameter	km	11					
(c)	Above 300 mm - 500 mm diameter	km	6					
(d)	Above 500 mm - 800 mm diameter	km	9					
9.2	Trial Runs and Commissioning including the cost of labor, electricity, etc., all complete as per specification and as directed by the Employer's Representative.	km	260					
<b>Subtotal Item No. 9</b>								
<b>GRAND TOTAL (Items 1-9)</b>								

Notes:

(a) Currencies shall be in Indian Rupees (INR)

Abbreviations:

INR: Indian Rupees  
 CIP: Cost, Insurance, Freight (Term of sale signifying that the price invoiced or quoted by a seller includes insurance and all other charges including delivery to the Project Site).

APFC: Automatic Power Factor Correction  
 BIS: Bureau of Indian Standards  
 CBS: Chlorine Booster Station  
 CI: Cast Iron  
 CPVC: Chlorinated Polyvinyl Chloride  
 CWP: Cold Working Pressure  
 DI: Ductile Iron  
 DC: Direct Current  
 FBE: Fusion Bonded Epoxy  
 FRP: Fiberglass Reinforced Plastic  
 GI: Galvanized Iron  
 GL: Ground Level / Grade  
 HDPE: High Density Polyethylene

LS: Lump Sum  
 m: Meter(s)  
 m<sup>2</sup>: Square Meter(s)  
 m<sup>3</sup>: Cubic Meter(s)  
 mm: millimeter(s)  
 MS: Mild Steel  
 MT: Metric Ton(s)  
 No.: Number  
 OD: Outside Diameter  
 PCC: Plain Cement Concrete  
 PE: Polyethylene  
 PLC: Programmable Logic Controller  
 PN: Pressure Number

Bill of Quantities (Addendum No. 2)								
Item No.	Description	Unit	Quantity	Unit Rate <sup>(a)</sup>		Amount <sup>(a)</sup>		
				Basic Rate (CIP)	Applicable Taxes, Duties, etc.	Basic Rate (CIP)	Applicable Taxes, Duties, etc.	Total
			(1)	(2)	(3)	(4) = (1) x (2)	(5) = (1) x (3)	(6) = (4) + (5)

ID: Inside Diameter  
 IS: Indian Standard  
 kg: Kilograms  
 kg/cm<sup>2</sup>: Kilograms per Square Centimeter  
 km: Kilometers  
 lb: pound

PVC: Polyvinyl Chloride  
 RCC: Reinforced Cement Concrete  
 SWG: Standard Wire Gauge  
 UPS: Uninterruptible Power Supply  
 WBM: Water Bound Macadam  
 XLPE: Cross Linked Polyethylene

Signature of Bidder and Date

\_\_\_\_\_

Name and Designation

\_\_\_\_\_

Company

\_\_\_\_\_



Bill of Quantities - Daywork					
Item No	Description	Quantity	Unit	Unit Rate <sup>(1)</sup>	Amount <sup>(1)</sup>
				Local	Local
	The following provisional items and quantities are to be priced by the Bidder. The resultant rates shall be used for any Dayworks required as instructed under Clause 13.6 of Section VII of Part 3 of the Contract. Refer to the Notes following the schedule.				
10	<b>Daywork - Labor</b>				
10.01	Skilled Labor	50	man days		
10.02	Unskilled Labor	50	man days		
10.03	Carpenter	20	man days		
10.04	Blacksmith	20	man days		
10.05	Mason	20	man days		
10.06	Pipelayer / Fitter	50	man days		
10.07	Welder	20	man days		
<b>Subtotal Item No. 10</b>					
11	<b>Daywork - Material</b>				
11.01	Cement - ordinary portland type (43 Grade) in 50 kg bags	50	bags		

Bill of Quantities - Daywork					
Item No	Description	Quantity	Unit	Unit Rate <sup>(1)</sup>	Amount <sup>(1)</sup>
				Local	Local
11.02	Provide Fe 415 steel reinforcing bars up to 20 mm diameter as per the specification	2,000	kg		
11.03	Fine aggregate for concrete as per the specification	20	m <sup>3</sup>		
11.04	Coarse aggregate for concrete as per the specification	20	m <sup>3</sup>		
11.05	First class bricks as per the specification	250	No.		
11.06	Primer paint as per the specification	10	liters		
11.07	Epoxy paint as per the specification	10	liters		
11.08	Welding rods in 5 kg packs	10	packs		
<b>Subtotal Item No. 11</b>					
12	<b>Daywork - Equipment</b>				
12.01	Dump Truck (min capacity 4 m <sup>3</sup> )	20	days		
12.02	Water tank truck ( min capacity 11,000 liters)	20	days		
12.03	Mobile crane ( up to 10 ton capacity)	10	days		
12.04	Wheeled bucket excavator (min capacity 0.45 m <sup>3</sup> )	20	days		

Bill of Quantities - Daywork					
Item No	Description	Quantity	Unit	Unit Rate <sup>(1)</sup>	Amount <sup>(1)</sup>
				Local	Local
12.05	Wheeled front-end loader (min capacity 0.75 m <sup>3</sup> )	10	days		
12.06	Compressor (at least 3.2 m <sup>3</sup> /minute capacity)	10	days		
12.07	Generator (at least 15 kw capacity)	20	days		
12.08	Dewatering Pump (at least 60 m <sup>3</sup> /hour capacity and 100 mm diameter discharge) with piping and valving	10	days		
12.09	Concrete Mixer (at least 0.25 m <sup>3</sup> capacity )	20	days		
12.10	Portable vibratory plate or ramming compactor	10	days		
<b>Subtotal Item No. 12</b>					
<b>GRAND TOTAL (Items 10-12)</b>					
<b>Notes :</b>					
1	Currencies shall be in Indian Rupees (INR)				
2	Per day rates will be calculated considering 8 hours of work per day.				
3	Payment for Daywork will only be paid based upon the time the personal or equipment is present at the Project Site. No additional payment will be made for time in transit.				
4	Partial payment is applicable for working less than 8 hours in a day and will be prorated on a percentage basis.				
5	Equipment shall be provided with a driver and fuel.				
6	Items under Daywork will be executed as directed by the Employer's Representative for unforeseen work including removal of encumbrances and relocation of utilities.				

Bill of Quantities - Daywork					
Item No	Description	Quantity	Unit	Unit Rate <sup>(1)</sup>	Amount <sup>(1)</sup>
				Local	Local
	<b>Signature of Bidder and Date</b>				
	<b>Name and Designation</b>				
	<b>Company</b>				

**JICA funded Guwahati Water Supply Project****Contract C#05****Addendum No. 03****15 March 2011**

Sl. No.	Volume / Section / Sub-section	Clause No. / Page No.	As per Bidding Document	Revised Version (to be read as)
1	Part-2	BOQ Item 9.1 Page 17 of 18	(a) 100 mm - 200mm diameter (b) Above 200 mm - 300 mm diameter (c) Above 300 mm - 500 mm diameter (d) Above 500 mm - 800 mm diameter	(a) 80 mm - 200mm internal diameter (b) Above 200 mm - 300 mm internal diameter (c) Above 300 mm - 500 mm internal diameter (d) Above 500 mm - 800 mm internal diameter
2	Part-2	BoQ Item 3.6 page 6 of 18 and Addendum 1 Point No. 41 Item (a)	(a) 125 mm OD HDPE PE80 – (1278+2100)m (b) 125mm OD HDPE PE80 – 12783	(a) 110 mm OD HDPE PE80 – 1278m (b) 125 mm OD HDPE PE80 – (12783+2100)m
3	Part-1	Invitation for Bids	IFB No.: GWSP/JICA/C-05/10-11 Date:20/11/2011	IFB No.: GWSP/JICA/C-05/10-11 Date:20/01/2011

Sl. No.	Part / Section / Sub-section	Clause No. / Page No.	As per Original Bidding Document				
			Position	Professional Qualification	Total Experience (years)	In Similar Works (years)	Experience of Similar Works in the Present Position (years)
1	Part 1 Section III Evaluation and Qualification Criteria	2. Qualification 2.1 Personal		Minimum	Minimum	Minimum	Minimum
			Project Manager	BE in Civil, Public Health	10 years	5 years	3 years
			Deputy Project Manager	BE in Civil, Public Health	10 years	5 years	3 years
			Resident Engineer (Civil Engineer)	BE in Civil Engineering	5 years	3 years	3 years
			Mechanical Engineer	BE in Mechanical Engineering	5 years	3 years	3 years

Sl. No.	Part / Section / Sub-section	Clause No. / Page No.	Revised Version (to be read as)					
			Position	No.	Professional Qualification	Total Experience (years)	In Similar Works (years)	Experience of Similar Works in the Present Position (years)
1	Part 1 Section III Evaluation and Qualification Criteria	2. Qualification 2.1 Personal			Minimum	Minimum	Minimum	Minimum
			Project Manager	1	BE in Civil, Public Health	10 years	5 years	3 years
			Deputy Project Manager	1	BE in Civil, Public Health	10 years	5 years	3 years
			Resident Engineer (Civil Engineer)	2	BE in Civil Engineering	5 years	3 years	3 years
			Mechanical Engineer	2	BE in Mechanical Engineering	5 years	3 years	3 years
			Accident Prevention Officer	1	Bachelor's Degree	5 years	3 years	3 years

Addendum #4 to Bid Document

1) Price Adjustment

Clauses	Original	Addendum
Section VIII PC Annexure 2 Price Adjustment Sample Price Adjustment Formula	Price .....following formula PI = In which: <b>P<sub>1</sub> = adjustment amount payable to the Contractor</b>	Price .....following formula PI = In which” <b>P<sub>1</sub> = adjustment amount made every six (6) months, or part thereof, payable to the Contractor</b>
Section VIII PC Annexure 2 Price Adjustment Schedule of Adjustment Data	For costs incurred in India and/or paid in Indian Rupees: • Cost Index for Materials, other than steel M/A: The average wholesale price index <b>for all commodities</b> for the month in which the adjustment data falls, as published by the Reserve Bank of India for India (Base year: 1993-94 = 100)	For costs incurred in India and/or paid in Indian Rupees: • Cost Index for Materials, other than steel M/A: The average wholesale price indexes <b>for the following major materials</b> for the month in which the adjustment data falls, as published by the Reserve Bank of India for India (Base year: 1993-94 = 100): <b>Concrete Work: Cement, Stone Aggregate</b> <b>Road Work: Stone Aggregate, Bitumen</b> <b>Masonry work: Brick</b> <b>Plastic Pipes: HDPE</b>

2) Schedule of Adjustment Data

Replace Schedule of Data form (Table A. Local Currency) of Section IVB: Bidding Forms with the attached form.

**Contract PackageNo.-5 : Procurement of Works (Item rate) for Supply, Installation and Commissioning of M.S. Pipes and HDPE Pipes & Installation and Commissioning of D.I. Pipes for Distribution Network in Ramsa Hill & Amiya Nagar of South Central Zone**  
**Schedule of Adjustment Data**

Supply and Delivery of Materials to be incorporated into permanent works							
Item No.	Description	Basic Amount (INR)	Non-adjustable	Labour portion (L)	Steel (MS)	Other Materials (MA)	Equipment operation (E)
			a	b	c1	c2	d
<b>3.0</b>	<b>PIPELINES, SPECIALS AND APPURTENANCES</b>						
3.1	Supplying spirally welded MS pipe with internal lining and external coating as per the specification of the following internal diameters and wall thicknesses. The rate shall include third party inspection, transportation, freight charges, loading, unloading and stacking at the project site, with the cost of all labor, material, taxes and duties.						
(a)	400 mm ID 6 mm thick (at railway crossing)		25%	3.75%	63.75%	0%	7.5%
(b)	700 mm ID 6 mm thick		25%	3.75%	63.75%	0%	7.5%
(c)	750 mm ID 6 mm thick		25%	3.75%	63.75%	0%	7.5%
(d)	800 mm ID 6 mm thick		25%	3.75%	63.75%	0%	7.5%
(e)	900 mm ID 20 mm thick (at railway crossing)		25%	3.75%	63.75%	0%	7.5%
(f)	400 mm ID 20 mm thick (for trenchless pipe laying)		25%	3.75%	63.75%	0%	7.5%
(g)	500 mm ID 20 mm thick (for trenchless pipe laying)		25%	3.75%	63.75%	0%	7.5%
3.2	Supplying all types of MS Specials plain ended, socket ended and flanged as required with internal lining and external coating as per the specification, such as bends, tees, tapers, spool pieces, blind flanges, pieces for pipe connection, valve connections, dismantling joints, anchor bolts, straps, air vent pipe, etc. of different diameters, manufactured from Fe 410 grade steel. This item includes loading, transportation to the project site, unloading and stacking, etc. complete with cost of third party inspection, material, labor, taxes and duties.		25%	3.75%	63.75%	0%	7.5%

Weight of non-adjustable portion (a) is fixed by the Employer. Weight of other adjustment factors are shown as example and purely indicative, which are to be set by the bidder



Supply and Delivery of Materials to be incorporated into permanent works							
Item No.	Description	Basic Amount (INR)	Non-adjustable	Labour portion (L)	Steel (MS)	Other Materials (MA)	Equipment operation (E)
3.4	Supplying DI Specials and fittings with plain, double socket, socket & flanged and double flanged end connections as required, with lining and coating as per the specification, and IS 9523 with EPDM rubber gaskets as per IS 5382 as required for successful completion of the work. This item includes third party inspection, transportation, freight, loading and unloading, stacking etc. all complete for various sizes of DI specials and fittings as noted with the following end connections.						
(a)	Tee's, Socket, collar, tail pieces, flanged tapers, socketed tapers, flanged spigot short pipes, flanged socket short piece, all bends, end caps, barrel piece, dismantling joints etc. required for suitable completion of the works.		25%	3.75%	63.75%	0%	7.5%
(b)	Double flanged pipe pieces, required for suitable completion of works.		25%	3.75%	63.75%	0%	7.5%
3.6	Supplying of PN10 HDPE (PE80) pipe including all specials confirming to IS 4984 and the specifications, including third party inspection, all taxes and duties, transportation, freight charges, loading and unloading, conveyance to the project site and stacking with cost of all labor and material for following pipe diameters.						
(a)	110 mm OD HDPE PE-80		25%	3.75%	0%	63.75%	7.5%
(b)	125 mm OD HDPE PE-80		25%	3.75%	0%	63.75%	7.5%
(c)	160 mm OD HDPE PE-80		25%	3.75%	0%	63.75%	7.5%
(d)	200 mm OD HDPE PE-80		25%	3.75%	0%	63.75%	7.5%
(e)	250 mm OD HDPE PE-80		25%	3.75%	0%	63.75%	7.5%
(f)	315 mm OD HDPE PE-80		25%	3.75%	0%	63.75%	7.5%
(g)	355 mm OD HDPE PE-80		25%	3.75%	0%	63.75%	7.5%
<b>Subtotal</b>							
<b>4.0</b>	<b>PIPE JACKING</b>						

Weight of non-adjustable portion (a) is fixed by the Employer. Weight of other adjustment factors are shown as example and purely indicative, which are to be set by the bidder

Supply and Delivery of Materials to be incorporated into permanent works							
Item No.	Description	Basic Amount (INR)	Non-adjustable	Labour portion (L)	Steel (MS)	Other Materials (MA)	Equipment operation (E)
	Pipe jack for Railway crossing with <b>Jacking and Pushing method</b> . The item include pushing jointing following diameter MS pipe of required length, construction of Receiving and Jacking pit with suitable shoring and strutting (if required), including installation of jacking platform, thrust resistant arrangement of required capacity including , hydraulic jacking with required accessories, required excavation inside the jacking pipe and disposal the same, etc. all complete as per drawing, specification and as directed.						
4.1	Jacking and pushing of 900 mm ID 20 mm thick MS pipe		25%	3%	64.00%	0%	8.0%
	<b>Subtotal</b>						
<b>5.0</b>	<b>VALVES AND APPURTENANCES</b>						
5.1	Providing and supplying of following diameters Cast iron double flanged ends Sluice valve <b>PN 1.6</b> as per IS 14864 with end cap and all accessories required for fixing and jointing, and shall include anti-corrosive painting etc. all complete. The rate shall include all local and central taxes, third party inspection, transportation, freight charges, loading and unloading, conveyance to storeyard and stacking the same, with cost of all labour and material. The item shall be as per specification, drawing and as directed.						
(a)	80 mm dia (for Fire hydrant)		25%	3.75%	63.75%	0%	7.5%
(b)	100 mm dia		25%	3.75%	63.75%	0%	7.5%
(c)	150 mm dia		25%	3.75%	63.75%	0%	7.5%
(d)	200 mm dia		25%	3.75%	63.75%	0%	7.5%
(e)	250 mm dia		25%	3.75%	63.75%	0%	7.5%
(f)	300 mm dia		25%	3.75%	63.75%	0%	7.5%

Weight of non-adjustable portion (a) is fixed by the Employer. Weight of other adjustment factors are shown as example and purely indicative, which are to be set by the bidder

Supply and Delivery of Materials to be incorporated into permanent works							
Item No.	Description	Basic Amount (INR)	Non-adjustable	Labour portion (L)	Steel (MS)	Other Materials (MA)	Equipment operation (E)
5.3	Providing and supplying of following diameters double flanged Butterfly valves <b>PN 1.6</b> (manually operated) as per IS 13095 with all accessories, including approved anti-corrosive painting. The rate shall include all local and central taxes, third party inspection, transportation, freight charges, loading, unloading, conveyance to storeyard and stacking the same, with cost of all labour, and material. The item shall be as per specification, drawing and as directed.						
(a)	400 mm dia		25%	3.75%	63.75%	0%	7.5%
(b)	500 mm dia		25%	3.75%	63.75%	0%	7.5%
(c)	600 mm dia		25%	3.75%	63.75%	0%	7.5%
5.5	Providing and supplying of following diameters of Double chamber Air valves with in built sluice valve PN 1.6 rating with flanged ends as per IS 14845, with all accessories required, including anti-corrosive painting etc. all complete. The rate shall include all local and central taxes, third party inspection, transportation, freight charges, loading and unloading, conveyance to store yard and stacking the same, with cost of all labour, and material. The item shall be as per specification, drawing and as directed.						
(a)	80 mm dia		25%	3.75%	63.75%	0%	7.5%
(b)	100 mm dia		25%	3.75%	63.75%	0%	7.5%
(c)	150 mm dia		25%	3.75%	63.75%	0%	7.5%
5.7	Providing and supplying of following diameters <b>Pressure Reducing valve with double flanged ends</b> and shall including anti-corrosive painting etc. all complete. The rate shall include all local and central taxes, third party inspection, transportation, freight charges, loading and unloading, conveyance to storeyard and stacking the same, with cost of all labour, and material. The item shall be as per specification, drawing and as directed.						
	100mm dia		25%	3.75%	63.75%	0%	7.5%
	150mm dia		25%	3.75%	63.75%	0%	7.5%
	200mm dia		25%	3.75%	63.75%	0%	7.5%

Weight of non-adjustable portion (a) is fixed by the Employer. Weight of other adjustment factors are shown as example and purely indicative, which are to be set by the bidder

Supply and Delivery of Materials to be incorporated into permanent works							
Item No.	Description	Basic Amount (INR)	Non-adjustable	Labour portion (L)	Steel (MS)	Other Materials (MA)	Equipment operation (E)
	250mm dia		25%	3.75%	63.75%	0%	7.5%
	300mm dia		25%	3.75%	63.75%	0%	7.5%
5.7	Providing and supplying <b>Fire hydrants</b> of 80mm diameter as per IS 909, consisting single flanged outlet oblique type hydrant valve, and shall include cost of anti-corrosive painting etc. all complete. The rate shall include all local and central taxes, third party inspection, transportation, freight charges, loading and unloading, conveyance to site and stacking the same, with cost of all labour, and material. The item shall be as per specification, drawing and as directed.		25%	3.75%	63.75%	0%	7.5%
	<b>Subtotal</b>						
	<b>TOTAL</b>						

Weight of non-adjustable portion (a) is fixed by the Employer. Weight of other adjustment factors are shown as example and purely indicative, which are to be set by the bidder

**Contract C#05 : Procurement of Works (Item rate) for Supply, Installation and Commissioning of M.S. Pipes and HDPE Pipes & Installation and Commissioning of D.I. Pipes for Distribution Network in Ramsa Hill & Amiya Nagar of South Central Zone**  
**Schedule of Adjustment Data**

Civil Work							
Item No.	Description	Basic Amount in INR	Non-adjustable	Labour portion (L)	Steel (MS)	Other Materials (MA)	Equipment operation (E)
			a	b	c1	c2	d
<b>2.0</b>	<b>EARTHWORK</b>						
2.1	Earth work for excavation of foundations, pipe trenches, valve chambers, thrust blocks, etc. in all kinds of ordinary soils such as murum, sand, sandy silt, clay, kankar etc. or in combination. Excavation shall include the removal of WBM roadway surfaces, brick surfacing, including dressing, compaction of the bottoms of the excavation, shoring and strutting wherever required, dewatering whenever required, removal of the excavated soil, stockpiling and disposal of surplus excavated soil off-site as directed by the Employer's Representative.						
	Excavation will be paid for in the following segments:						
(a)	0 to 1.5 m from GL		25%	20%		40%	15%
(b)	above 1.5 m to 3.0 m depth from GL		25%	20%		40%	15%
(c)	above 3.0 m to 4.5 m depth from GL		25%	20%		40%	15%
2.2	Earth work for excavation of foundations, pipe trenches, valve chambers, thrust blocks, etc. in all kinds of ordinary rock, Excavation shall include the removal of asphalt and concrete road surfacing, including dressing, compaction of the bottoms, shoring and strutting wherever required, dewatering whenever required, removal of the excavated rock, stockpiling and disposal of surplus excavated rock off-site as directed by the Employer's Representative.						
	Excavation will be paid for in the following segments:						
(a)	0 to 1.5 m from GL		25%	20%		40%	15%
(b)	above 1.5m to 3.0 m depth from GL		25%	20%		40%	15%
(c)	above 3.0 m to 4.5 m depth from GL		25%	20%		40%	15%

Weight of non-adjustable portion (a) is fixed by the Employer. Weight of other adjustment factors are shown as example and purely indicative, which are to be set by the bidder

Civil Work							
Item No.	Description	Basic Amount in INR	Non-adjustable	Labour portion (L)	Steel (MS)	Other Materials (MA)	Equipment operation (E)
2.3	Earth work for excavation of foundations, pipe trenches, valve chambers, thrust blocks, etc. in all kinds of hard rock requiring blasting, Excavation shall include dressing, compaction of the bottoms, shoring and strutting wherever required, dewatering whenever required, removal of the excavated rock, stockpiling and disposal of surplus excavated rock off-site as directed by the Employer's Representative.						
	Excavation will be paid for in the following segments:						
(a)	0 to 1.5 m from GL		25%	20%		40%	15%
(b)	above 1.5m to 3.0 m depth from GL		25%	20%		40%	15%
2.4	Earth work for excavation of foundations, pipe trenches, valve chambers, thrust blocks, etc. in all kinds of hard rock (blasting prohibited), Excavation shall include dressing, compaction of the bottoms, shoring and strutting wherever required, dewatering whenever required, removal of the excavated rock, stockpiling and disposal of surplus excavated rock off-site as directed by the Employer's Representative.						
	Excavation will be paid for in the following segments:						
(a)	0 to 1.5 m from GL		25%	20%		40%	15%
(b)	above 1.5m to 3.0 m depth from GL		25%	20%		40%	15%
2.5	Backfilling of pipe trenches, foundations, etc. with approved graded excavated soil (select granular material), excluding rock, including placing in layers not exceeding 20 cm in depth each, and compacting each layer, complete as per the specification and as directed by the Employer's Representative.		25%	20%		40%	15%
2.6	Backfilling of pipe trenches, foundations, etc. with approved graded sand, including placing in layers not exceeding 20 cm in depth each, and compacting each layer, complete as per the specification and as directed by the Employer's Representative.		25%	20%		40%	15%

Weight of non-adjustable portion (a) is fixed by the Employer. Weight of other adjustment factors are shown as example and purely indicative, which are to be set by the bidder

Civil Work							
Item No.	Description	Basic Amount in INR	Non-adjustable	Labour portion (L)	Steel (MS)	Other Materials (MA)	Equipment operation (E)
2.7	Backfilling of pipe trenches, foundations, etc. with approved graded gravel, including placing in layers not exceeding 20 cm in depth each, and compacting each layer, complete as per the specification and standard drawings and as directed by the Employer's Representative.		25%	20%		40%	15%
<b>Subtotal</b>							
<b>3.0</b>	<b>PIPELINES, SPECIALS AND APPURTENANCES</b>						
3.3	Handling, aligning, laying and jointing MS pipes and specials to correct line and level in trenches. The item includes transportation of pipes and specials from the storeyard to the project site, stacking of pipe as per BIS requirements, loading, unloading, hoisting, lowering, marginal cutting and grinding wherever necessary, assembling, jointing, providing temporary supports, lining and coating at joints etc. for pipe of the following diameters and thicknesses. The rate also shall include radiography of field joints, field testing, etc. as specified and shown on the drawings and specification.						
(a)	400 mm ID 6 mm thick (at railway crossing)		25%	20%		40%	15%
(b)	700 mm ID 6 mm thick		25%	20%		40%	15%
(c)	750 mm ID 6 mm thick		25%	20%		40%	15%
(d)	800 mm ID 6 mm thick		25%	20%		40%	15%
3.5	Handling, aligning, laying and jointing of Employer furnished K-9 DI pipe to other pipe and to Contractor furnished fittings and specials, with EPDM rubber O-rings (as per IS 5382) and flange gaskets (as per IS 12288) and the specifications. This item includes transportation of pipes, specials and fittings from the storeyard to the project site, stacking of pipe and fittings as per BIS requirements, loading, unloading, hoisting, lowering, marginal cutting and grinding wherever necessary, assembling, jointing, providing temporary supports etc., all complete with approved equipment, for pipe of the following diameters.						
(a)	100 mm DN DI - K9 pipe		25%	20%		40%	15%
(b)	150 mm DN DI - K9 pipe		25%	20%		40%	15%
(c)	200 mm DN DI - K9 pipe		25%	20%		40%	15%

Weight of non-adjustable portion (a) is fixed by the Employer. Weight of other adjustment factors are shown as example and purely indicative, which are to be set by the bidder

Civil Work							
Item No.	Description	Basic Amount in INR	Non-adjustable	Labour portion (L)	Steel (MS)	Other Materials (MA)	Equipment operation (E)
(d)	250 mm DN DI - K9 pipe		25%	20%		40%	15%
(e)	300 mm DN DI - K9 pipe		25%	20%		40%	15%
(f)	400 mm DN DI - K9 pipe		25%	20%		40%	15%
(g)	500 mm DN DI - K9 pipe		25%	20%		40%	15%
(h)	600 mm DN DI - K9 pipe		25%	20%		40%	15%
3.7	Handling, aligning, laying and jointing of PN10 HDPE (PE80) pipes with specials by butt welding / spigot joints confirming to IS and specifications. The item includes transportation of pipes and specials from store yard to site, stacking of pipe as per BIS, loading, unloading, hoisting, lowering, cutting and grinding wherever necessary, assembling, jointing, providing temporary supports etc., all complete with approved equipment, for pipes of following diameters.						
(a)	110 mm OD HDPE PE-80		25%	20%		40%	15%
(b)	125 mm OD HDPE PE-80		25%	20%		40%	15%
(c)	160 mm OD HDPE PE-80		25%	20%		40%	15%
(d)	200 mm OD HDPE PE-80		25%	20%		40%	15%
<b>Subtotal</b>							
<b>4.0</b>	<b>PIPE JACKING</b>						
4.2	Laying of pipe and jointing by <b>trenchless technology</b> including construction of pit with required accessories, all civil and mechanical works, disposal of excess earth, etc. all complete as per specification and instruction of Employer's representative.						
(a)	125 OD HDPE PE80 PN10		25%	20.00%		40%	15.0%
(b)	200 OD HDPE PE80 PN 10		25%	20.00%		40%	15.0%
(d)	250 OD HDPE PE80 PN 10		25%	20.00%		40%	15.0%
(d)	315 OD HDPE PE80 PN 10		25%	20.00%		40%	15.0%
(e)	355 OD HDPE PE80 PN 10		25%	20.00%		40%	15.0%
(f)	400 ID MS Pipe		25%	20.00%		40%	15.0%
(g)	500 ID MS Pipe		25%	20.00%		40%	15.0%
<b>Subtotal</b>							

Weight of non-adjustable portion (a) is fixed by the Employer. Weight of other adjustment factors are shown as example and purely indicative, which are to be set by the bidder



Civil Work							
Item No.	Description	Basic Amount in INR	Non-adjustable	Labour portion (L)	Steel (MS)	Other Materials (MA)	Equipment operation (E)
<b>5.0</b>	<b>VALVES AND APPURTENANCES</b>						
5.2	Handling, aligning and installing in true to line and level cast iron <b>PN 1.6</b> rated double flanged Sluice Valves (IS 14864) of the following diameters. This item includes transportation of valves and accessories from the storeyard to the project site, loading, unloading, hoisting, lowering, assembling and jointing including the cost of all jointing materials such as rubber gaskets, nuts, bolts, etc., and providing temporary supports, as per the specifications and drawings.						
(a)	80 mm dia (for Fire hydrant)		25%	20%		40%	15%
(b)	100 mm dia		25%	20%		40%	15%
(c)	150 mm dia		25%	20%		40%	15%
(d)	200 mm dia		25%	20%		40%	15%
(e)	250 mm dia		25%	20%		40%	15%
(f)	300 mm dia		25%	20%		40%	15%
5.4	Handling, aligning, and fixing in true to line and level following diameters and rating double flanged Butterfly valves <b>PN 1.6</b> (manually operated as per IS 13095) including cost of required jointing material such as rubber packing, nuts bolts etc. The item includes transportation of valves and accessories from store yard to site, loading, unloading, hoisting, lowering, grinding wherever necessary, assembling and jointing, providing temporary supports etc., all complete with approved equipment, for valves of following diameters, for all lead and lift. The item shall be as per specification, drawing and as directed.						
(a)	400 mm diameter		25%	20%		40%	15%
(b)	500 mm diameter		25%	20%		40%	15%
(c)	600 mm diameter		25%	20%		40%	15%

Weight of non-adjustable portion (a) is fixed by the Employer. Weight of other adjustment factors are shown as example and purely indicative, which are to be set by the bidder

Civil Work							
Item No.	Description	Basic Amount in INR	Non-adjustable	Labour portion (L)	Steel (MS)	Other Materials (MA)	Equipment operation (E)
5.6	Handling, <b>aligning, and installing</b> in true to line and level following diameters of PN 1.6 rated <b>Double chamber Air valves with in built sluice valve</b> with all accessories and as per specifications and drawings. This item includes transportation of valves and accessories from the storeyard to the project site, loading, unloading, hoisting, assembling and jointing, including the cost of jointing materials such as rubber packing, nuts, bolts, etc., as per the specifications and drawings.						
(a)	80 mm diameter		25%	20%		40%	15%
(b)	100 mm diameter		25%	20%		40%	15%
(c)	150 mm diameter		25%	20%		40%	15%
5.8	Handling, aligning, and fixing in true to line and level following diameters <b>Pressure Reducing valve double flanged ends</b> . The item includes transportation of valves and accessories from store yard to site, loading, unloading, hoisting, lowering, grinding wherever necessary, assembling and jointing, including cost of jointing materials such as rubber packing, nuts bolts etc., providing temporary supports, all complete with approved equipment, for all leads and lifts. The item shall be as per specification, drawing and as directed.						
	100mm dia		25%	20%		40%	15%
	150mm dia		25%	20%		40%	15%
	200mm dia		25%	20%		40%	15%
	250mm dia		25%	20%		40%	15%
	300mm dia		25%	20%		40%	15%
5.9	Handling, aligning, and fixing <b>Fire hydrants</b> true to line and level. The item includes transportation of valves and accessories from store yard to site, loading, unloading, hoisting, lowering, grinding wherever necessary, assembling and jointing with cost of jointing material such as rubber packing, nuts bolts, providing temporary supports etc., all complete with approved equipment, for all leads and lifts. The item shall be as per specification, drawing and as directed.		25%	20%		40%	15%
<b>Subtotal</b>							

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Civil Work							
Item No.	Description	Basic Amount in INR	Non-adjustable	Labour portion (L)	Steel (MS)	Other Materials (MA)	Equipment operation (E)
<b>6.0</b>	<b>VALVE CHAMBERS</b>						
6.1	Construction of RCC and Brick masonry chambers for valves, hydrants, flow meters etc. including cost of PCC and RCC work, cost of supply and bending and binding of steel with required shuttering, cost of brick work with plaster from inside and outside, precast slabs and supply and installation of SFRC frame and covers wherever required, including all the miscellaneous items of work, but excluding the supply and installation of pipes and specials, valves etc. The item shall be as per specification, drawing and as directed.						
(a)	Chamber for <b>Sluice valve TYPE S1</b>		25%	20%	20%	20%	15%
(b)	Chamber for <b>Sluice valve TYPE S2</b>		25%	20%	20%	20%	15%
(c)	Chamber for <b>Wash out valve TYPE W1</b>		25%	20%	20%	20%	15%
(d)	Chamber for <b>Wash out valve TYPE W2</b>		25%	20%	20%	20%	15%
(e)	Chamber for <b>Butterfly valve TYPE B1</b>		25%	20%	20%	20%	15%
(f)	Chamber for <b>Butterfly valve TYPE B2</b>		25%	20%	20%	20%	15%
(g)	Chamber for <b>Air valve TYPE A1</b>		25%	20%	20%	20%	15%
(h)	Chamber for <b>Air valve TYPE A2</b>		25%	20%	20%	20%	15%
(i)	Chamber for <b>Air valve TYPE A3</b>		25%	20%	20%	20%	15%
(j)	Chamber for <b>Fire hydrant TYPE F1</b>		25%	20%	20%	20%	15%
(k)	Chamber for <b>Pressure reducing valve/ Flowmeter TYPE P1</b>		25%	20%	20%	20%	15%
(l)	Chamber for <b>Pressure reducing valve/ Flowmeter TYPE P2</b>		25%	20%	20%	20%	15%
(m)	Chamber for <b>Pressure reducing valve/ Flowmeter TYPE P3</b>		25%	20%	20%	20%	15%
(n)	Chamber for Pressure reducing valve and flow meter TYPE <b>P4</b>		25%	20%	20%	20%	15%
(o)	Chamber for Pressure reducing valve and flow meter TYPE <b>P5</b>		25%	20%	20%	20%	15%
	<b>Subtotal</b>						
<b>7.0</b>	<b>MISCELLANEOUS CIVIL WORK</b>						
7.1	<b>Plain Cement Concrete Work</b>						
	Providing and placing plain cement concrete (PCC) of one of the following grades for thrust blocks, anchor blocks, floatation blocks, etc. with 20-40mm stone aggregate (crusher broken) including finishing the surface, shuttering and staging, curing etc. as per the specifications and drawings and as directed by the Employer's Representative. This is Work not included in Item 6.						

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Civil Work							
Item No.	Description	Basic Amount in INR	Non-adjustable	Labour portion (L)	Steel (MS)	Other Materials (MA)	Equipment operation (E)
(a)	Grade M15 concrete		25%	20%	0%	40%	15%
(b)	Grade M20 concrete		25%	20%	0%	40%	15%
<b>7.2 Reinforced Cement Concrete Work</b>							
	Providing and placing reinforced cement concrete (RCC) of one of the following grades with 10-20 mm stone aggregate (crusher broken) including shuttering and staging, curing etc. as per the specifications and drawings and as directed by the Employer's Representative. This is Work not included in Item 6.						
(a)	Grade M20 concrete		25%	20%	0%	40%	15%
(b)	Grade M25 concrete		25%	20%	0%	40%	15%
<b>7.3 Concrete Reinforcement</b>							
	Providing and fabricating steel reinforcement with Fe 415 grade steel for RCC work including straightening, cutting, bending, placing in position and tying (including cost of tie wire) ,taxes and duties, transportation etc. all complete, as per specifications and drawings and as directed by the Employer's Representative. This is Work not included in Item 6.		25%	20%	40%	0%	15%
<b>7.4 Brick Masonry Work</b>							
	Construction of Brick Masonry for sub/superstructure of 230/350 mm thick walls using cement mortar with a cement to sand ratio of 1:6. This item includes the cost of transportation of all materials, labor, scaffolding, curing etc. as per specifications and drawings and as directed by the Employer's Representative. This is Work not included in Item 6.		25%	20%	0%	40%	15%
<b>7.5 Plastering Work</b>							
(a)	Providing and applying cement sand plaster 12 mm thick in a single coat using cement mortar with a cement to sand ratio of 1:4 without neeru finish to concrete or brick surfaces including scaffolding and curing as directed by the Employer's Representative. This is Work not included in Item 6.		25%	20%	0%	40%	15%

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Civil Work							
Item No.	Description	Basic Amount in INR	Non-adjustable	Labour portion (L)	Steel (MS)	Other Materials (MA)	Equipment operation (E)
(b)	Providing and applying cement sand plaster 20 mm thick in a single coat using cement mortar with a cement to sand ratio of 1:4 without neeru finish to concrete or brick surfaces including scaffolding and curing as directed by the Employer's Representative. This is Work not included in Item 6.		25%	20%	0%	40%	15%
7.6	Providing and laying boulder soling with boulders 100-200mm size in foundation, packing with locally available mooram and sand, including watering, dressing and leveling, all complete as per drawing and specification and as directed.		25%	20%	0%	40%	15%
7.7	Providing and laying 100 mm thick brick soling for foundations and under flooring with best quality jhama brick, sand packed and laid to level after preparing the subgrade including all labor and materials and dewatering if necessary, complete and as per the specifications and drawings and as directed by the Employer's Representative. This is Work not included in Item 6.		25%	20%	0%	40%	15%
7.8	<b>Structural Steel Work</b>						
	Providing and fabricating structural steel work in rolled sections including joists, channels, angles, beams, etc. including cutting, fabricating, grinding, hoisting, erecting, fixing in position making bolted/welded connections, applying coatings etc., as per the specifications and drawings and as directed by the Employer's Representative.		25%	20%	40%	0%	15%
<b>Subtotal</b>							
<b>8.0</b>	<b>ROAD RESTORATION</b>						
8.1	<b>Reconstruction of Bituminous Asphalt Roads</b>						
a)	Providing and laying of Granular sub base (GSB), as per specification drawing and as directed		25%	20%	0%	40%	15%
b)	Providing and laying of Prime coat, as per specification drawing and as directed		25%	20%	0%	40%	15%
c)	Providing and laying of Wet mix macadam (WMM) , as per specification drawing and as directed		25%	20%	0%	40%	15%
d)	Providing and laying of Dense graded bituminous macadam (DBM), as per specification drawing and as directed		25%	20%	0%	40%	15%

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Civil Work							
Item No.	Description	Basic Amount in INR	Non-adjustable	Labour portion (L)	Steel (MS)	Other Materials (MA)	Equipment operation (E)
e)	Providing and laying of Semi dense bituminous concrete (SDBC), as per specification drawing and as directed		25%	20%	0%	40%	15%
f)	Providing and laying of Tack coat (TC), as per specification drawing and as directed		25%	20%	0%	40%	15%
g)	Providing and laying of Bituminous macadam (BM), as per specification drawing and as directed		25%	20%	0%	40%	15%
h)	Providing and laying of Premix carpet (PC), as per specification drawing and as directed		25%	20%	0%	40%	15%
8.2	<b>Reconstruction of WBM Roads</b>						
a)	Providing , laying ,spreading and compacting stone aggregates of specific sizes as per specification and drawing to water bound macadam including spreading in uniform thickness, hand packing, rolling with vibratory roller 8-10 tonnes in stages to proper grade and camber, applying and brooming requisite type of stone screenings & binding material, and completer as per specification drawing and as directed		25%	20%	0%	40%	15%
8.3	<b>Reconstruction of Concrete Roads</b>						
	Providing, placing and finishing Cement Concrete roads to match the existing roadway which was removed, if directed by the Employer's Representative . Grade M20 concrete shall be used and placed to the same depth as the existing roadway surface. A screeded finish shall be applied.		25%	20%	0%	40%	15%
8.4	<b>Reconstruction of Brick Roads</b>						
	Providing and laying of bricks on edge for road restoration on earth subgrade. The bricks shall be on edge, diagonally placed, and gap filled up with sand, all complete, as per specification and drawings.		25%	20%	0%	40%	15%
	<b>Subtotal</b>						
	<b>TOTAL</b>						

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