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## TENDER SPECIFICATION

**TENDER NO. BHEL/NR/SCT/L M BHATINDA /GATES/1003**

**FOR**

**“Making existing gates operational one each for CWPB & RWPH respectively (Handing over of the existing system) at site LM Bhatinda Stage-II Bhatinda”**

### **PART I – TECHNICAL BID**



**Bharat Heavy Electricals Limited**  
(A Govt. Of India Undertaking)  
**Power Sector – Northern Region,**  
**Plot No. 25 , Sector - 16A ,**  
**Distt. Gautam Budh Nagar, NOIDA – 201 301(INDIA)**



ISO 9001, ISO 14001,  
OHSAS 18001 & SA 8000  
certified company  
SubContract and Purchase Deptt.

**Bharat Heavy Electricals Limited**  
(A Govt. Of India Undertaking)  
**Power Sector – Northern Region,**  
**Plot No. 25 , Sector - 16A ,**  
**Distt. Gautam Budh Nagar, NOIDA – 201 301(INDIA)**  
**Phone: 0091-0120- 2416440/ 2416292**  
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**TENDER NO. BHEL/NR/SCT/L M BHATINDA/GATES/1003**

**IMPORTANT NOTE**

PURCHASER OF THIS TENDER DOCUMENT IS ADVISED TO CHECK AND ENSURE COMPLETION OF ALL PAGES OF TENDER DOCUMENT AND REPORT ANY DISCREPANCY TIMELY FOR CORRECTIVE ACTION, IF ANY, TO THE ISSUING AUTHORITY BEFORE THE BIDS ARE SUBMITTED. ORIGINAL COPY OF TENDER DOCUMENT COMPLETE IN ALL RESPECTS MUST BE SUBMITTED BACK AS PART OF THE BID WITHOUT WHICH THE SAME IS LIABLE TO BE REJECTED BY BHEL.

THIS TENDER SPECIFICATION ISSUED TO:

M/S-----  
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Rev 01  
1<sup>st</sup> Jun  
2012

# NOTICE INVITING TENDER

(Document No PS:MSX:NIT)

Bharat Heavy Electricals Limited



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**NOTICE INVITING TENDER (NIT)**

**NOTE: BIDDER MAY DOWNLOAD FROM WEB SITES**

**OR**

**PURCHASE TENDERS FROM THIS OFFICE ALSO**

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To

Dear Sir/Madam

**Sub : NOTICE INVITING TENDER**

Sealed offers in two part bid system are invited from reputed & experienced bidders (meeting PRE QUALIFICATION CRITERIA as mentioned in Annexure-I) for the subject job by the undersigned on the behalf of BHARAT HEAVY ELECTRICALS LIMITED as per the tender document. Following points relevant to the tender may please be noted and complied with.

**1.0 Salient Features of NIT**

SL NO	ISSUE	DESCRIPTION
i	TENDER NUMBER	<b>BHEL/NR/SCT/L M BHATINDA /GATES/1003</b>
ii	Broad Scope of job	<b>“Making existing gates operational one each for CWPB &amp; RWPB respectively (Handing over of the existing system) at site LM Bhatinda Stage-II Bhatinda.”</b>
iii	<b>DETAILS OF TENDER DOCUMENT</b>	
a	Volume-IA	<i>Technical Conditions of Contract (TCC) consisting of Scope of work, Technical Specification, Drawings, Procedures, Bill of Quantities, Terms of payment, etc</i> <span style="float: right;"><i>Applicable</i></span>
b	Volume-IB	<i>General Conditions of Contract (GCC)</i> <span style="float: right;"><i>Applicable</i></span>
C	Volume-IC	<i>Forms and Procedures</i> <span style="float: right;"><i>Applicable</i></span>
d	Volume-II	<i>Price Schedule (Absolute value).</i> <span style="float: right;"><i>Applicable</i></span>
iv	Issue of Tender Documents	<p><b>1. Sale from BHEL PS Regional office at :</b>  <b>Start : 14/08/15 , Time : 0900 HRS</b>  <b>Closes: 5/09/15 , Time :1200 HRS</b></p> <p><b>2. From BHEL website (<a href="http://www.bhel.com">www.bhel.com</a>)</b>  Tender documents will be available for downloading from website till due date of submission</p> <span style="float: right;"><i>Applicable</i></span>
v	<b>DUE DATE &amp; TIME OF OFFER SUBMISSION</b>	<b>Date : 5/09/15, Time : 1500 HRS</b> <b>Place : Noida</b> <span style="float: right;"><i>Applicable</i></span>
vi	<b>OPENING OF TENDER</b>	<b>Date : 5/09/15</b> <i>(Within 2 hours of the latest due date and time of offer submission).</i> Notes: <span style="float: right;"><i>Applicable</i></span>

		(1) In case the due date of opening of tender becomes a non-working day, then the due date & time of offer submission and opening of tenders get extended to the next working day. (2) Bidder may depute representative to witness the opening of tender	
vii	EMD AMOUNT	Rs 40,000/-	Applicable
viii	COST OF TENDER	Rs 2000/-.	Applicable
ix	LAST DATE FOR SEEKING CLARIFICATION	Date: 24/08/2015 Along with soft version also, addressing to undersigned & to others as per contact address given below	Applicable
x	SCHEDULE OF Pre Bid Discussion (PBD)		<b>Not applicable.</b>
xi	INTEGRITY PACT & DETAILS OF INDEPENDENT EXTERNAL MONITOR (IEM)		<b>Not applicable.</b>
xii	Latest updates	Latest updates on the important dates, Amendments, Correspondences, Corrigenda, Clarifications, Changes, Errata, Modifications, Revisions, etc to Tender Specifications will be hosted in BHEL webpage (www.bhel.com -->Tender Notifications →View Corrigendums) <b>and not in the newspapers</b> . Bidders to keep themselves updated with all such information	

- 2.0 The offer shall be submitted as per the instructions of tender document and as detailed in this NIT. Bidders to note specifically that all pages of tender document, including these NIT pages of this particular tender together with subsequent correspondences shall be submitted by them, duly signed & stamped on each page, as part of offer. **Rates/Price including discounts/rebates, if any, mentioned anywhere/in any form in the techno-commercial offer other than the Price Bid, shall not be entertained.**
- 3.0 Unless specifically stated otherwise, bidder shall remit cost of tender and courier charges if applicable, in the form of Demand Draft drawn in favour of Bharat Heavy Electricals Ltd, payable at Power Sector Regional HQ at Noida issuing the Tender, along with techno-commercial offer. Bidder may also choose to deposit the Tender document cost by cash at the Cash Office as stated above against sl no iv of 1, on any working day; and in such case copy of Cash receipt is to be enclosed with the Techno Commercial offer. Sale of tender Documents shall not take place on National Holidays, holidays declared by Central or State Governments and BHEL PS HQ at Noida, Sundays and second/ last Saturdays
- 4.0 Unless specifically stated otherwise, bidder shall deposit EMD through Demand Draft/Pay Order in favour of Bharat Heavy Electricals Ltd, payable at Noida. For other details and for 'One Time EMD' please refer General Conditions of Contract.
- 5.0 **Procedure for Submission of Tenders:** The Tenderers must submit their Tenders to Officer inviting Tender, as detailed below:
- PART-I consisting of 'PART-I A (Techno Commercial Bid)' & 'PART-I B (EMD/COST of TENDER)' in two separate sealed and superscribed envelopes (ENVELOPE-I & ENVELOPE-II)
  - PART-II (Price Bid) – in sealed and superscribed envelope (ENVELOPE-III)
  - One set of tender documents shall be retained by the bidder for their reference
- 6.0 The contents for ENVELOPES and the superscription for each sealed cover/Envelope are as given below. **(All pages to be signed and stamped)**

Sl no	Description	Remarks
	<b>Part-I A</b>	
	<p><b><u>ENVELOPE – I superscribed as :</u></b>            PART-I (TECHNO COMMERCIAL BID)            TENDER NO :            NAME OF WORK :            PROJECT:            DUE DATE OF SUBMISSION:</p> <p><b>CONTAINING THE FOLLOWING:-</b></p>	
i.	Covering letter/Offer forwarding letter of Tenderer.	
ii.	<p>Duly filled-in 'No Deviation Certificate' as per prescribed format to be placed after document under sl no (i) above.</p> <p><b>Note:</b></p> <p>a. In case of any deviation, the same should be submitted separately for technical &amp; commercial parts, indicating respective clauses of tender against which deviation is taken by bidder. The list of such deviation shall be placed after document under sl no (i) above. It shall be specifically noted that deviation recorded elsewhere shall not be entertained.</p> <p>b. BHEL reserves the right to accept/reject the deviations without assigning any reasons, and BHEL decision is final and binding.</p> <p>i). In case of acceptance of the deviations, appropriate loading shall be done by BHEL</p> <p>ii). In case of unacceptable deviations, BHEL reserves the right to reject the tender</p>	
iii.	<p>Supporting documents/ annexure/ schedules/ drawing etc as required in line with Pre-Qualification criteria.</p> <p>It shall be specifically noted that all documents as per above shall be indexed properly and credential certificates issued by clients shall distinctly bear the name of organization, contact ph no, FAX no, etc.</p>	
iv.	All Amendments/Correspondences/Corrigenda/Clarifications/Changes/ Errata etc pertinent to this NIT.	
v.	Integrity Pact Agreement (Duly signed by the authorized signatory)	If applicable
vi.	Duly filled-in annexures, formats etc as required under this Tender Specification/NIT	
vii.	Notice inviting Tender (NIT)	
viii.	Volume – I A : <u>Technical</u> Conditions of Contract (TCC) consisting of Scope of work, Technical Specification, Drawings, Procedures, Bill of Quantities, Terms of payment, etc	
ix.	Volume – I B : General Conditions of Contract (GCC)	
x.	Volume – I D : Forms & Procedures	
xi.	Volume – II (UNPRICED – without disclosing rates/price, but mentioning only 'QUOTED' or 'UNQUOTED' against each item	
xii.	Any other details preferred by bidder with proper indexing.	

<b>PART-I B</b>		
	<p><b><u>ENVELOPE – II superscribed as:</u></b>            PART-I (EMD/COST of TENDER)            TENDER NO :            NAME OF WORK :            PROJECT:</p>	

	DUE DATE OF SUBMISSION:	
	<b>CONTAINING THE FOLLOWING:-</b>	
i.	<p>1. Earnest Money Deposit (EMD) in the form as indicated in this Tender <b>OR</b> Documentary evidence for 'One Time EMD' with the Power Sector Region of BHEL floating the Tender</p> <p>2. Cost of Tender ( Demand Draft or copy of Cash Receipt as the case may be)</p>	

	<b>PART-II</b>	
	<b>PRICE BID</b> consisting of the following shall be enclosed	
	<p><b>ENVELOPE-III</b> superscribed as: PART-II (PRICE BID) TENDER NO : NAME OF WORK : PROJECT: DUE DATE OF SUBMISSION:</p> <p><b>CONTAINING THE FOLLOWING</b></p>	
i	Covering letter/Offer forwarding letter of Tenderer enclosed in Part-I	
ii	Volume II – PRICE BID ( Duly Filled in Schedule of Rates – rate/price to be entered in words as well as figures)	

	<b>OUTER COVER</b>	
	<p><b>ENVELOPE-IV</b> (MAIN ENVELOPE / OUTER ENVELOPE) superscribed as: TECHNO-COMMERCIAL BID, PRICE BID &amp; EMD TENDER NO: NAME OF WORK: PROJECT: DUE DATE OF SUBMISSION:</p> <p><b>CONTAINING THE FOLLOWING:</b></p>	
i	<ul style="list-style-type: none"> <li>○ Envelopes I</li> <li>○ Envelopes II</li> <li>○ Envelopes III</li> </ul>	

**SPECIAL NOTE:** All documents/ annexures submitted with the offer shall be properly annexed and placed in respective places of the offer as per enclosure list mentioned in the covering letter. BHEL shall not be responsible for any missing documents.

7.0 Deviation with respect to tender clauses and additional clauses/suggestions in Techno-commercial bid / Price bid shall NOT be considered by BHEL. Bidders are requested to positively comply with the same.

8.0 BHEL reserves the right to accept or reject any or all Offers without assigning any reasons thereof. BHEL also reserves the right to cancel the Tender wholly or partly without assigning any reason thereof. Also BHEL shall not entertain any correspondence from bidders in this matter (except for the refund of EMD).

**9.0 Assessment of Capacity of Bidders:**

**~~Bidders capacity for executing the job under tender shall be assessed 'LOAD' wise and 'PERFORMANCE' wise as per the following:~~**

- I. ~~**LOAD:** Load takes into consideration ALL the contracts of the Bidder under execution with BHEL Regions, irrespective of whether they are similar to the tendered scope or not. The 'Load' is the sum of the unit wise identified packages (refer Table-1) for contracts with BHEL Regions. The cut off month for reckoning 'Load' shall be the month, two (2) months preceding the month corresponding to the 'latest date of bid submission', in the following manner:~~

~~(Note: For example if latest bid submission is in Aug 2011, then the 'load' shall be calculated upto and inclusive of June 2011)~~

- i). ~~Total number of Packages  
Total number of Packages in hand = P  
Where~~

- ~~• 'P' is the sum of all unit wise identified packages under execution with BHEL Regions as of the cut off month defined above, including packages yet to be commenced, excepting packages which are on HOLD due to reasons not attributable to Bidder..~~

- II. ~~**PERFORMANCE:** Here 'Monthly Performance' of the bidder for all the packages (under execution/ executed during the 'Period of Assessment' in all the Power Sector Regions of BHEL) SIMILAR to the packages covered under the tendered scope, excepting packages not commenced shall be taken into consideration. The 'Period of Assessment' shall be 6 months preceding the cut off month. The cut off month for reckoning 'Period of Assessment' shall be the month two (2) months preceding the month corresponding to the 'latest date of bid submission', in the following manner:~~

~~(Note: For example if 'latest date of bid submission' is in Aug 2011, then the 'performance' shall be assessed for a 6 month period upto and inclusive of June 2011, for all the unit wise identified packages (refer Table-1)~~

- i). ~~Calculation of Overall 'Performance Rating' for 'similar Package/Packages' for the tendered scope under execution at Power Sector Regions for the 'Period of Assessment':  
This shall be obtained by summing up the 'Monthly Performance Evaluation' scores obtained by the bidder in all Regions for all the similar Package/packages', divided by the total number of Package months for which evaluation should have been done, as per procedure below:~~

- a) ~~P<sub>1</sub>, P<sub>2</sub>, P<sub>3</sub>, P<sub>4</sub>, P<sub>5</sub>, ... P<sub>N</sub> etc be the packages (under execution/ executed during the 'Period of Assessment' in all Regions) SIMILAR to the packages covered under the tendered scope, excepting packages not commenced. Total number of similar packages for all Regions = P<sub>T</sub> (ie P<sub>T</sub> = P<sub>1</sub> + P<sub>2</sub> + P<sub>3</sub> + P<sub>4</sub> + ... P<sub>N</sub>)~~

- b) ~~Number of Months 'T<sub>1</sub>' for which 'Monthly Performance Evaluation' as per relevant formats, should have been done in the 'Period of Assessment' for the corresponding similar package P<sub>1</sub>. Similarly T<sub>2</sub> for package P<sub>2</sub>, T<sub>3</sub> for package P<sub>3</sub>, etc for the tendered scope. Now calculate cumulative total months 'T<sub>T</sub>' for total similar Packages 'P<sub>T</sub>' for all Regions (i.e T<sub>T</sub> = T<sub>1</sub> + T<sub>2</sub> + T<sub>3</sub> + T<sub>4</sub> + ... T<sub>N</sub>)~~

- c) ~~Sum 'S<sub>1</sub>' of 'Monthly Performance Evaluation' Scores (S<sub>1.1</sub>, S<sub>1.2</sub>, S<sub>1.3</sub>, S<sub>1.4</sub>, S<sub>1.5</sub>, ... S<sub>1.N</sub>) for similar package P<sub>1</sub>, for the 'period of assessment' 'T<sub>1</sub>' (i.e S<sub>1</sub> = S<sub>1.1</sub> + S<sub>1.2</sub> + S<sub>1.3</sub> + S<sub>1.4</sub> + S<sub>1.5</sub> + ... S<sub>1.N</sub>). Similarly S<sub>2</sub> for package P<sub>2</sub> for period T<sub>2</sub>, S<sub>3</sub> for package P<sub>3</sub> for period T<sub>3</sub>, etc for the tendered scope for all Regions. Now calculate cumulative sum 'S<sub>T</sub>' of 'Monthly Performance Evaluation' Scores for total similar Packages 'P<sub>T</sub>' for all Regions (i.e 'S<sub>T</sub>' = S<sub>1</sub> + S<sub>2</sub> + S<sub>3</sub> + S<sub>4</sub> + S<sub>5</sub> + ... S<sub>N</sub>.)~~

- d) ~~**Overall Performance Rating 'R<sub>BHEL</sub>' for the similar Package/Packages (under execution/ executed during the 'Period of Assessment') in all the Power Sector Regions of BHEL):**~~

~~————— **Aggregate of Performance scores for all similar packages in all the Regions**~~

~~Aggregate of months for each of the similar package for which performance should have been evaluated in all the Regions~~

$$\frac{S_T}{T_T}$$

~~e) Bidders to note that the risk of non evaluation or non availability of the 'Monthly Performance Evaluation' reports as per relevant formats is to be borne by the Bidder~~

~~f) Table showing methodology for calculating 'a', 'b' and 'c' above~~

Sl no	Item Description	Details for all Regions							Total
		(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	
1	Similar Packages for all Regions → (under execution/ executed during period of assessment)	P <sub>1</sub>	P <sub>2</sub>	P <sub>3</sub>	P <sub>4</sub>	P <sub>5</sub>	...	P <sub>N</sub>	Total No of similar packages for all Regions = P <sub>T</sub> ie Sum (Σ) of columns (iii) to (ix)
2	Number of Months for which 'Monthly Performance Evaluation' as per relevant formats should have been done in the 'period of assessment for corresponding similar Package (as in row 1)	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>	T <sub>5</sub>	...	T <sub>N</sub>	Sum (Σ) of columns (iii) to (ix) = T <sub>T</sub>
3	Monthly performance scores for the corresponding period (as in Row 2)	S <sub>1-1T</sub> S <sub>1-2T</sub> S <sub>1-3T</sub> S <sub>1-4T</sub> ... S <sub>1-T1</sub>	S <sub>2-1T</sub> S <sub>2-2T</sub> S <sub>2-3T</sub> S <sub>2-4T</sub> ... S <sub>2-T2</sub>	S <sub>3-1T</sub> S <sub>3-2T</sub> S <sub>3-3T</sub> S <sub>3-4T</sub> ... S <sub>3-T3</sub>	S <sub>4-1T</sub> S <sub>4-2T</sub> S <sub>4-3T</sub> S <sub>4-4T</sub> ... S <sub>4-T4</sub>	S <sub>5-1T</sub> S <sub>5-2T</sub> S <sub>5-3T</sub> S <sub>5-4T</sub> ... S <sub>5-T5</sub>	.. ... ... ... ...	S <sub>N-1T</sub> S <sub>N-2T</sub> S <sub>N-3T</sub> S <sub>N-4T</sub> ... S <sub>N-TN</sub>	-----
4	Sum of Monthly Performance scores of the corresponding Package for the corresponding period (as in row 3)	S <sub>1</sub>	S <sub>2</sub>	S <sub>3</sub>	S <sub>4</sub>	S <sub>5</sub>	...	S <sub>N</sub>	Sum (Σ) of columns (iii) to (ix) = S <sub>T</sub>

~~ii) Calculation of Overall 'Performance Rating' (R<sub>BHEL</sub>) in case 'similar Package/Packages' for the tendered scope ARE NOT AVAILABLE, during the 'Period of Assessment':~~

This shall be obtained by summing up the 'Monthly Performance Evaluation' scores obtained by the bidder in all Regions for ALL the packages, divided by the total number of Package months for which evaluation should have been done. 'R<sub>BHEL</sub>' shall be calculated subject to availability of 'performance scores' for at least 6 'package months' in the order of precedence below:

- a) 'Period of Assessment.
- b) 12 months preceding the cut-off month
- c) 24 months preceding the cut-off month
- d) 36 months preceding the cut-off month

In case, R<sub>BHEL</sub> cannot be calculated as above, then Bidder shall be treated as 'NEW VENDOR'. Further eligibility and qualification of this bidder shall be as per definition of 'NEW VENDOR' described in 'Explanatory Notes'

~~iii) Factor "L" assigned based on Overall Performance Rating (R<sub>BHEL</sub>) at Power Sector Regions.:~~

Sl no	Overall Performance Rating (R <sub>BHEL</sub> )	Corresponding value of 'L'
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1	=60	NA
2	> 60 and ≤ 65	0.4
3	> 65 and ≤ 70	0.35
4	> 70 and ≤ 75	0.25
5	> 75 and < 80	0.2
6	≥ 80	NA

**III. Assessment of Capacity of Bidder:**

'Assessment of Capacity of Bidder' is based on the Maximum number of packages for which a vendor is eligible, considering the performance scores of similar packages, as below:

Max number of packages  $P_{Max} = (R_{BHEL} - 60)$  divided by corresponding value of 'L'  
 i.e.  $(R_{BHEL} - 60)/L$

**Note:**

- i. In case the value of  $P_{Max}$  results in a fraction, the value of  $P_{Max}$  is to be rounded off to next whole number
- ii. For  $R_{BHEL} = 60$ ,  $P_{Max} = '1'$
- iii. For  $R_{BHEL} \geq 80$ , there will be no upper limit on  $P_{Max}$

The Bidder shall be considered 'Qualified' as per 'Assessment of Capacity of Bidder' for the subject Tender if  $P \leq P_{Max}$   
 (where P is calculated as per clause 9.1)

**IV. Explanatory note:**

- a) Similar package means Boiler or ESP or Piping or Turbine or Civil or Structure or Electrical or CI, etc at the individual level irrespective of rating of Plant, and irrespective of whether the subject tender is a single package or as part of combined/composite packages. Normally Boiler, ESP, Piping, Turbine, Electrical, CI, Civil, Structure, etc is considered individual level of package. For example in case the tendered scope is a Boiler Vertical Package comprising of Boiler, ESP and Power Cycle Piping (i.e the identified packages as per Table-1 below), the 'PERFORMANCE' part against sl no II above, needs to be evaluated considering all the identified packages (ie Boiler, ESP and Power Cycle Piping) and finally the Bidder's capacity to execute the tendered scope is assessed in line with III above
- b) Identified Packages (Unit wise)

**Table-1**

Civil	Electrical & CI	Mechanical
i). Enabling works ii). Pile and Pile Caps iii). Civil Works including foundations iv). Structural Steel Fabrication & Erection v). Chimney vi). Cooling Tower vii). Others (Civil)	i). Electrical ii). CI iii). Others (Elec & CI)	i). Boiler & Aux (All types including CW Piping if applicable) ii). Power Cycle Piping/Critical Piping iii). LP Piping iv). ESP v). Steam Turbine Generator set & Aux vi). Gas Turbine Generator set & Aux vii). Hydro Turbine Generator set & Aux viii). Turbo Blower (including Steam Turbine) ix). Material Handling x). Material Management xi). Material Handling & Material Management xii). Others (Mechanical)

- c) Bidders who have not been evaluated for at least six package months in the last 36 months in the online BHEL system for contractor performance evaluation in BHEL PS Regions, wef July'2010 shall be considered "NEW VENDOR".

A 'NEW VENDOR' shall be considered qualified subject to satisfying all other tender conditions

A 'NEW VENDOR' if awarded a job (of package/packages identified under this clause) shall be tagged as "FIRST TIMER" on the date of first LOI from BHEL.

The "FIRST TIMER" tag shall remain till execution of work for a period of not less than 09 months, from the commencement of work of first package

A Bidder shall not be eligible for the next job as long as the Bidder is tagged as "FIRST TIMER" excepting for the Tenders which have been opened on or before the date of the bidder being tagged as 'FIRST TIMER'.

After removal of 'FIRST TIMER' tag, the Bidder shall be considered 'QUALIFIED' for the future tenders subject to satisfying all other tender conditions including 'Capacity Evaluation of Bidders'.

d) ~~In the unlikely event of all bidders shortlisted against Technical and Financial Qualification criteria not meeting the criteria on 'Assessment of Capacity of Bidders' detailed above, OR leads to a single tender response on applying the criteria of 'Assessment of Capacity of Bidders' or due to non approval by Customer, then BHEL at its discretion reserves the right to consider the further processing of the Tender based on the **Overall Performance Rating 'R<sub>BHEL</sub>'** only, starting from the upper band.~~

e) ~~'Under execution' shall mean works in progress as per the following:~~

i. ~~up to Boiler Steam Blowing in case of Steam Generator and Auxiliaries~~

ii. ~~upto Synchronisation in case of all other works excepting sl no (i) and (iii)~~

iii. ~~Upto execution of at least 90% of anticipated contract value in case of Civil & Structures (unit wise), Enabling works and upto 90% of material unloading (in tonnage) as per the original contract in case of MM Package.~~

Note : ~~BHEL at its discretion can extend (or reduce in exceptional cases in line with Contract conditions) the period defined against (i), (ii) and (iii) above, depending upon the balance scope of work to be completed.~~

f) ~~Performance evaluation in CL 9 above is applicable to Prime bidder and consortium partner (or Technical tie up partner) for their respective scope of work.~~

10.0 Since the job shall be executed at site, bidders must visit site/ work area and study the job content, facilities available, availability of materials, prevailing site conditions including law & order situation, applicable wage structure, wage rules, etc before quoting for this tender. They may also consult this office before submitting their offers, for any clarifications regarding scope of work, facilities available at sites or on terms and conditions.

11.0 For any clarification on the tender document, the bidder may seek the same in writing or through e-mail, as per specified format, within the scheduled date for seeking clarification, from the office of the undersigned. BHEL shall not be responsible for receipt of queries after due date of seeking clarification due to postal delay or any other delays. Any clarification / query received after last date for seeking clarification may not be normally entertained by BHEL and no time extension will be given.

12.0 BHEL may decide holding of pre-bid discussion [PBD] with all intending bidders as per date indicated in the NIT. The bidder shall ensure participation for the same at the appointed time, date and place as may be decided by BHEL. Bidders shall plan their visit accordingly. The outcome of pre-bid discussion (PBD) shall also form part of tender.

- 13.0 In the event of any conflict between requirement of any clause of this specification/ documents/drawings/data sheets etc or requirements of different codes/standards specified, the same to be brought to the knowledge of BHEL in writing for clarification before due date of seeking clarification (whichever is applicable), otherwise, interpretation by BHEL shall prevail. Any typing error/missing pages/ other clerical errors in the tender documents, noticed must be pointed out before pre-bid meeting/submission of offer, else BHEL's interpretation shall prevail.
- 14.0 Unless specifically mentioned otherwise, bidder's quoted price shall deemed to be in compliance with tender including PBD.
- 15.0 Bidders shall submit Integrity Pact Agreement (Duly signed by authorized signatory who signs in the offer), **if applicable**, along with techno-commercial bid. This pact shall be considered as a preliminary qualification for further participation. **The names and other details of Independent External Monitor (IEM) for the subject tender is as given at point (1) above.**
- 16.0 The Bidder has to satisfy the Pre Qualifying Requirements stipulated for this Tender in order to be qualified. The Price Bids of only those bidders will be opened who will be qualified for the subject job on the basis of satisfying the Pre Qualification Criteria specified in this NIT as per Annexure-I (as applicable), past performance etc. and date of opening of price bids shall be intimated to only such bidders. BHEL reserves the right not to consider offers of parties under HOLD.
- 17.0 In case BHEL decides on a 'Public Opening', the date & time of opening of the sealed PRICE BID shall be intimated to the qualified bidders and in such a case, bidder may depute one authorised representative to witness the price bid opening. BHEL reserves the right to open 'in-camera' the 'PRICE BID' of any or all Unsuccessful/Disqualified bidders under intimation to the respective bidders.
- 18.0 Validity of the offer shall be for **six months** from the latest due date of offer submission (including extension, if any) unless specified otherwise.
- 19.0 BHEL reserves the right to decide the successful bidder on the basis of Reverse Auction process. In such case all qualified bidders will be intimated regarding procedure/ modality for Reverse Auction process prior to Reverse Auction and price will be decided as per the rules for Reverse Auction. .
- However, if reverse auction process is unsuccessful as defined in the RA rules/procedures, or for whatsoever reason, then the sealed 'PRICE BIDS' will be opened for deciding the successful bidder. BHEL's decision in this regard will be final and binding on bidder.
- 20.0 On submission of offer, further consideration will be subject to compliance to tender & qualifying requirement and customer's acceptance, as applicable.
- 21.0 In case the bidder is an "Indian Agent of Foreign Principals", 'Agency agreement has to be submitted along with Bid, detailing the role of the agent along with the terms of payment for agency commission in INR, along with supporting documents.
- 22.0 The bidders shall not enter into any undisclosed M.O.U. or any understanding amongst themselves with respect to tender.
- 23.0 **Not used**
- 24.0 The bidder shall submit documents in support of possession of 'Qualifying Requirements' duly self certified and stamped by the authorized signatory, indexed and properly linked in the format for PQR. In case BHEL requires any other documents/proofs, these shall be submitted immediately.
- 25.0 The bidder may have to produce original document for verification if so decided by BHEL.
- 26.0 The offers of the bidders who are on the banned list as also the offer of the bidders, who engage the services of the banned firms, shall be rejected. The list of banned firms is available on BHEL web site [www.bhel.com](http://www.bhel.com).
- 27.0 BHEL reserves the right to go for Reverse Auction (RA) instead of opening the sealed envelope price bid, submitted by the bidder. This will be decided after techno-commercial evaluation. All bidders to give their

acceptance for participation in RA. Non-acceptance to participate in RA may result in non-consideration of their bids, in case BHEL decides to go for RA.

In case BHEL decides to go for Reverse Auction, only those bidders who have given their acceptance to participate in RA will be allowed to participate in the Reverse Auction. Those bidders who have given their acceptance to participate in Reverse Auction will have to necessarily submit „online sealed bid“ in the Reverse Auction. Non-submission of „online sealed bid“ by the bidder will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines in vogue.”

Information and General Terms and Conditions governing RA shall form part of the RFQ/ Enquiry.

28.0 It may please be noted that guidelines/rules in respect of Suspension of Business dealings’, ‘Vendor evaluation format’, ‘Quality, Safety & HSE guidelines’, etc may undergo change from time to time and the latest one shall be followed.

29.0 **Micro and Small Enterprises (MSE)**

Any Bidder falling under MSE category, shall furnish the following details & submit documentary evidence/ Govt. Certificate etc. in support of the same along with their techno-commercial offer

Type under MSE	SC/ST owned	Others
Micro		
Small		

**Note:** - If the bidder does not furnish the above, offer shall be processed construing that the bidder is not falling under MSE category.

MSE suppliers can avail the intended benefits only if they submit along with the offer, or before price bid opening, attested copies of either EM-II certificate having deemed validity (two years from the date of issue of acknowledgement in EM-II) or valid NSIC certificate or EM-II certificate along with CA certificate (format enclosed as Annexure - 3) applicable for the year, certifying quantum of investment in plant and machinery within the permissible limit as per the act for relevant status (Micro or Small) where the deemed validity of EM-II is over. Date to be reckoned for determining the deemed validity will be last date of technical bid submission. Non submission of such documents will lead to consideration of their bids at par with other bidders and MSE status of such suppliers shall be shifted to Non MSE supplier till the supplier submits these documents.

MSEs shall be exempted from payment of earnest money at the time of tender deposit. However, there is no exemption of security deposit submission

No benefits shall be applicable for that particular enquiry if the required documents are not submitted before price bid opening.

30.0 **Order of Precedence**

In the event of any ambiguity or conflict between the Tender Documents, the order of precedence shall be in the order below:

- a. Amendments/Clarifications/Corrigenda/Errata etc issued in respect of the tender documents by BHEL
- b. Notice Inviting Tender (NIT)
- c. Price Bid
- d. Technical Conditions of Contract (TCC)—Volume-1A
- e. Special Conditions of Contract (SCC) —Volume-1B
- f. General Conditions of Contract (GCC) —Volume-1C
- g. Forms and Procedures —Volume-1D

for BHARAT HEAVY ELECTRICALS LTD  
(SCT)

**Enclosure**

01. Annexure-1: Pre Qualifying criteria.
02. Annexure-2: Check List.
03. Annexure-3: Chartered Accountant certificate for MSMED
04. Annexure-4: General Terms And Conditions Of Reverse Auction (RA)
05. Annexure-5: Authorization of representative who will participate in the online Reverse Auction Process
- 06 Annexure-6 Modification in standard GCC clauses
- 07 Annexure-7: Feedback Form: From where did you get information reg. this tender
- 08 Other Tender documents as per this NIT

**ANNEXURE - 1****PRE QUALIFYING REQUIREMENTS**

JOB	<b>“Making existing gates operational one each for CWPH &amp; RWPH respectively (Handing over of the existing system) at site LM Bhatinda Stage-II Bhatinda.”</b>	
TENDER NO	<b>BHEL/NR/SCT/L M BHATINDA /GATES/1003</b>	
<b>Sl. No.</b>	<b>PRE QUALIFICATION CRITERIA</b>	<b>BIDDERS CLAIM IN RESPECT OF FULFILLING THE PQR CRITERIA</b>
<b>A</b>	<b>Submission of Integrity Pact duly signed</b>	<b>Not Applicable</b>
<b>B</b>	<b>Assessment of Capacity of Bidder to execute the work as per sl. no. 9 of NIT</b>	<b>Not Applicable</b>
<b>C</b>	<p><b>Technical Criteria:</b></p> <p><b>Bidders who wish to participate should have successfully executed work of stop log/sluice gates, during last 7 years ending on last day of month previous to the one in which bids are invited, and should be able to provide documentary evidence as mentioned below:</b></p> <p><b>One single work costing not less than Rs. 14.4 lacs or above.</b></p> <p style="text-align: center;"><b>“OR”</b></p> <p><b>Two works of costing not less than each of Rs. 9 lacs or above.</b></p> <p style="text-align: center;"><b>“OR”</b></p> <p><b>Three works of costing not less than each of Rs. 7.2 lacs or above.</b></p>	<b>Applicable</b>
<b>D</b>	<p><b>Financial Criteria:</b></p> <p><b>1.1 TURN OVER:</b>  <b>Bidders should have achieved an average annual financial turnover (Audited) of Rs 5.4 Lacs or more over last three Financial Years (FY) i.e. 2011-2012, 2012-13, 2013-14</b>  <b>In case audited financial statement have not been submitted for all the three years, then the applicable audited statements submitted by the bidders against the requisite three years, will be averaged for three years.</b></p> <p><b>1.2 Net worth: Net worth of the bidder based on the latest audited accounts as furnished for D 1.1 above should be positive.</b></p>	<b>Applicable</b>

1.3	<p><b>Net worth= Paid-up share capital (OR Partnership capital OR Proprietor Capital as the case may be) + Reserves</b></p> <p><b>Profit: Bidder should have earned net profit during anyone year of last three financial years as defined in D 1.1 above based on latest audited accounts.</b></p> <p><b>(Relevant documents, meeting above requirements at C &amp; D, shall be submitted by bidders.)</b></p>	
E	<b>Approval of Customer</b>	<b>Not Applicable</b>
F	<b>Consortium criteria</b>	<b>Not Applicable</b>

### Notes

#### EXPLANATORY NOTES FOR QR 'C':

1. For QR 'C' above the word 'Executed 'means the bidder should have achieved the Technical Criteria, specified in the QR (as in 'C' above), even if the total contract has not been completed or closed.
2. Bidder shall furnish the document(s) in respect of execution of work for stop log/ sluice gate in power plants/canal/ irrigation/water resource bodies/ industrial sector.
3. For QR 'C' value of work is to be updated as per the PVC formula of GCC with Indices for "All India Avg. Consumer Price Index for Industrial Workers" with base month as date of execution and indexed up to two months prior to the bid opening month. This condition will be applicable only for the completed jobs and not for the jobs in progress as on date of technical bid opening.

**ANNEXURE - 2****CHECK LIST****NOTE:- Tenderers are required to fill in the following details and no column should be left blank**

1	Name and Address of the Tenderer		
2	Details about type of the Firm/Company		
3.a	Details of Contact person for this Tender	Name : Mr/Ms Designation: Telephone No: Mobile No: Email ID: Fax No:	
3.b	Details of alternate Contact person for this Tender	Name : Mr/Ms Designation: Telephone No: Mobile No: Email ID: Fax No:	
4	EMD DETAILS	DD No:                      Date : Bank :                      Amount: Please tick ( <input type="checkbox"/> ) whichever applicable:- ONE TIME EMD / ONLY FOR THIS TENDER	
5	Validity of Offer	TO BE VALID FOR SIX MONTHS FROM DUE DATE	
		APPLICABILITY (BY BHEL)	ENCLOSED BY BIDDER
6	Whether the format for compliance with <b>PRE QUALIFICATION CRITERIA</b> (ANNEXURE-I) is understood and filled with proper supporting documents referenced in the specified format	Applicable	YES / NO
7	Audited profit and Loss Account for the last three years	Applicable/Not Applicable	YES/NO
8	Copy of PAN Card	Applicable/Not Applicable	YES/NO
9	Whether all pages of the Tender documents including annexures, appendices etc are read understood and signed	Applicable/Not Applicable	YES/NO
10	Integrity Pact	Applicable/Not Applicable	YES/NO
11	Declaration by Authorised Signatory	Applicable/Not Applicable	YES/NO
12	No Deviation Certificate	Applicable/Not Applicable	YES/NO
13	Declaration confirming knowledge about Site Conditions	Applicable/Not Applicable	YES/NO
14	Declaration for relation in BHEL	Applicable/Not Applicable	YES/NO
15	Non Disclosure Certificate	Applicable/Not Applicable	YES/NO
16	Bank Account Details for E-Payment	Applicable/Not Applicable	YES/NO
17	Capacity Evaluation of Bidder for current Tender	Applicable/Not Applicable	YES/NO

18	Tie Ups/Consortium Agreement are submitted as per format	Applicable/Not Applicable	YES/NO
19	Power of Attorney for Submission of Tender/Signing Contract Agreement	Applicable/Not Applicable	YES/NO
20	Analysis of Unit rates	Applicable/Not Applicable	YES/NO

NOTE : STRIKE OFF 'YES' OR 'NO', AS APPLICABLE. TENDER NOT ACCOMPANIED BY THE PRESCRIBED **ABOVE APPLICABLE DOCUMENTS** ARE LIABLE TO BE SUMMARILY REJECTED.

DATE :

**AUTHORISED SIGNATORY**  
(With Name, Designation and Company seal)

**ANNEXURE - 3****Certificate by Chartered Accountant on letter head**

This is to Certify that M/S ..... ,  
 (hereinafter referred to as 'company') having its registered office at  
 ..... is registered under MSMED Act 2006, (Entrepreneur  
 Memorandum No (Part—II) ..... dtd: ..... ,  
 Category: ..... (Micro/Small)). (Copy enclosed).

Further verified from the Books of Accounts that the investment of the company  
 as on date..... as per MSMED Act 2006 is as follows:

**1. For Manufacturing Enterprises:** Investment in plant and machinery (i.e.  
 original cost excluding land and building and the items specified by the Ministry of Small  
 Scale Industries vide its notification No. S.O.1722(E) dated October 5, 2006:

Rs ..... Lacs

**2. For Service Enterprises:** Investment in equipment (original cost excluding land and  
 building and furniture, fittings and other items not directly related to the service rendered or as  
 may be notified under the **MSMED** Act, 2006:

Rs ..... Lacs

The above investment of Rs . .....Lacs is within permissible limit of  
 Rs..... Lacs for ..... Micro / Small **(Strike off which is not applicable)**  
 Category under MSMED Act 2006.

Date:

(Signature)

Name -

Membership number -

Seal of Chartered Accountant

**ANNEXURE - 4****GENERAL TERMS AND CONDITIONS OF REVERSE AUCTION (RA)**

Against this enquiry for the subject item/ system with detailed scope of supply as per enquiry specifications, BHEL may resort to “REVERSE AUCTION PROCEDURE” i.e., ON LINE BIDDING (THROUGH A SERVICE PROVIDER). The philosophy followed for reverse auction shall be English Reverse (No ties).

1. For the proposed reverse auction, technically and commercially acceptable bidders only shall be eligible to participate.
2. Those bidders who have given their acceptance for Reverse Auction (quoted against this tender enquiry) will have to necessarily submit “online sealed bid” in the Reverse Auction. Non submission of “online sealed bid” by the bidder for any of the eligible items for which techno commercially qualified, will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines in vogue.
3. BHEL will engage the services of a service provider who will provide all necessary training and assistance before commencement of on line bidding on internet.
4. In case of reverse auction, BHEL will inform the bidders the details of Service Provider to enable them to contact & get trained.
5. Business rules like event date, time, bid decrement, extension etc. also will be communicated through service provider for compliance.
6. Bidders have to fax the Compliance form before start of Reverse auction. Without this, the bidder will not be eligible to participate in the event.
7. In line with the NIT terms, BHEL will provide the calculation sheet (e.g., EXCEL sheet) which will help to arrive at “Total Cost to BHEL” like Packing & forwarding charges, Taxes and Duties, Freight charges, Insurance, Service Tax for Services and loading factors (for non-compliance to BHEL standard Commercial terms & conditions) for each of the bidder to enable them to fill-in the price and keep it ready for keying in during the Auction.
8. Reverse auction will be conducted on scheduled date & time.
9. At the end of Reverse Auction event, the lowest bidder value will be known on auction portal.
10. The lowest bidder has to fax/e-mail the duly signed and filled-in prescribed format for price breakup including that of line items, if required, as provided on case-to-case basis to Service provider within two working days of Auction without fail.
11. In case BHEL decides not to go for Reverse Auction procedure for this tender enquiry, the Price bids and price impacts, if any, already submitted and available with BHEL shall be opened as per BHEL’s standard practice.
12. Bidders shall be required to read the “Terms and Conditions” section of the auctions site

of Service provider, using the Login IDs and passwords given to them by the service provider before reverse auction event. Bidders should acquaint themselves of the „Business Rules of Reverse Auction“, which will be communicated before the Reverse Auction.

13. If the Bidder or any of his representatives are found to be involved in Price manipulation/ cartel formation of any kind, directly or indirectly by communicating with other bidders, action *as per extant BHEL guidelines*, shall be initiated by BHEL and the results of the RA scrapped/ aborted.
14. The Bidder shall not divulge either his Bids or any other exclusive details of BHEL to any other party.
15. In case BHEL decides to go for reverse auction, the H1(s) bidder (whose quote is highest in online sealed bid) may not be allowed to participate in further RA process.

**ANNEXURE - 5****Authorization of representative who will participate in the on line Reverse Auction Process;**

1	NAME & DESIGNATION OF OFFICIAL	
2	POSTAL ADDRESS (COMPLETE)	
3	TELEPHONE NOS. (LAND LINE & MOBILE BOTH)	
4	FAX NO.	
5	E-MAIL ADDRESS	
6	NAME OF PLACE/ STATE/ COUNTRY, WHEREFROM S/HE WILL PARTICIPATE IN THE REVERSE AUCTION	

**ANNEXURE - 6****Modification / Deletions in Standard Clause of General Conditions of Contract (GCC) or Special Conditions of Contract (SCC)**

Clause No.	SCC Clauses (Description)	Modification/Deletion of SCC Clauses (Description)
4.1.4	TIG Filler wire for Boiler and Filler wires for Electrodes for P91/T91 piping: These shall be supplied by BHEL free of cost as supplied by BHEL Manufacturing Units as part of regular supply. Required quantity as arrived at by calculation / standards will only be supplied. It would be the contractors" responsibility to account for the consumption of these filler wires. Additional consumption beyond standard / calculated quantity will be at cost recovery basis only unless and otherwise accounted for. Surplus quantity of TIG filler wire, if any, shall be properly stored and returned to BHEL stores.	Not Applicable
4.1.9	All lubricants and chemicals required for pre-commissioning, commissioning, testing, preservation and lubricants for trial runs of the equipment shall be supplied by BHEL / BHEL's client. All services including labour and T&P will be provided by the contractor for handling, filling, emptying, refilling etc. The consumption of lubricants / chemicals shall be properly accounted for. Surplus material if any shall be properly stacked/ tagged and returned to BHEL/ CUSTOMER stores at no extra cost to BHEL. BHEL reserves the right to recover costs for wastage by the contractor.	
4.1.10	Transportation of oil drums, from stores, filling of oil for flushing, first filling, subsequent changeover if any, topping/making up till the unit is fully commissioned and handed over to customer is included in scope of this contract. The contractor shall have to return all the empty drums to BHEL / BHEL's client store at no extra cost. Any loss / damage to above drums shall be to contractor's account.	
4.2.2	Obligations in respect of T&Ps and MMEs provided by BHEL.	
8.3.2	Contractor should be qualified to execute pressure parts & piping work coming under the purview of IBR, for which he should register himself with CIB of state concerned. contractor also should be aware of the latest IBR regulations and Electricity Act, including the amendments thereof.	
8.3.3	Contractor shall comply with 'Qualification Tests for welders engaged in welding of Boilers and Steam Pipes under Construction, Erection and Fabrication at Site in India and in repairing Boilers and steam pipes by welding' in line with Chapter XIII of Indian Boiler Regulations-1950, for testing his welders / men / workers, including all associated fees, procedures, required instruments and equipments and their calibration thereof. It shall be contractor's responsibility to obtain approval of Statutory Authorities, wherever applicable, for the conducting of any work which comes under the purview of these authorities, at his cost.	
8.3.4	The following fees shall be excluded from scope of Contractor:	
	I. Registration Fee as per Regulation 385 of Chapter IX of Indian Boiler Regulations-1950	

	<p>II. Fees for inspection of Boiler at the site of Construction as per Regulation 395 A, sl no 4 of Chapter IX of Indian Boiler Regulations-1950</p> <p>However all other fees like visit fees charged by the Boiler Inspector and other arrangements for his visit or visits till satisfactory completion of work, shall be included in scope of Contractor.</p>	
Clause No.	GCC Clauses (Description)	Modification/Deletion of GCC Clauses (Description)
2.12	OVERRUN COMPENSATION	Not Applicable
2.17	PRICE VARIATION COMPENSATION	
2.13	INTEREST BEARING RECOVERABLE ADVANCES	
2.14.1	The quoted rates shall remain firm irrespective of any variations in the individual quantities. No compensation becomes payable in case the variation of the final executed contract value is within the limits of Plus (+) or Minus (-) 15% of awarded contract value	The quoted rates shall remain firm irrespective of any variations in the individual quantities. In case the variation of the final executed contract value, no compensation becomes payable.
2.24.1	<p>Even though the work will be carried out under the supervision of BHEL Engineers the Contractor will be responsible for the quality of the workmanship and shall guarantee the work done for a period of <b>twelve months</b> from the date of commencement of guarantee period as defined in Technical Conditions of Contract, for good workmanship and shall rectify free of cost all defects due to faulty erection detected during the guarantee period. In the event of the Contractor failing to repair the defective works within the time specified by the Engineer, BHEL may proceed to undertake the repairs of such defective works at the Contractor's risk and cost, without prejudice to any other rights and recover the same from the Guarantee money.</p>	<p>Even though the work will be carried out under the supervision of BHEL Engineers the Contractor will be responsible for the quality of the workmanship and shall guarantee the work done for a period of <b>30 days*</b> from the date of commencement of guarantee period as defined in Technical Conditions of Contract, for good workmanship and shall rectify free of cost all defects due to faulty erection detected during the guarantee period. In the event of the Contractor failing to repair the defective works within the time specified by the Engineer, BHEL may proceed to undertake the repairs of such defective works at the Contractor's risk and cost, without prejudice to any other rights and recover the same from the Guarantee money.</p>

**ANNEXURE - 7****Feedback Form: From where did you get information reg. this tender**

1	<b>NEWSPAPER ADVERTISEMENT</b> <b>(NAME OF NEWSPAPER)</b>	
2	<b>BHEL WEBISTE (TENDER NOTIFICATION)</b> <b>(<a href="http://www.bhel.com">www.bhel.com</a>)</b>	
3	<b>CENTRAL PUBLIC PROCUREMENT PORTAL OF</b> <b>GOVERNMENT OF INDIA (CPP PORTAL)</b> <b>(<a href="http://www.eprocure.gov.in">www.eprocure.gov.in</a>)</b>	
4	<b>EMAIL COMMUNICATION FROM BHEL</b>	
5	<b>ANY OTHER SOURCE (GIVE DETAILS)</b>	



## VOLUME- I: TECHNICAL CONDITIONS OF CONTRACT (TCC)

NAME OF WORK: Making existing gates operational one each for CWPH & RWPH respectively (Handing over of the existing system) at site LM Bhatinda Stage-II Bhatinda

BHARAT HEAVY ELECTRICALS  
LIMITED



## Contents

Sl. No.	DESCRIPTION	Clause
	<b>Part-I: Contract specific details</b>	
1	Project Information	Clause-I
2	General Scope of Works	Clause -II
3	Time Schedule	Clause -III
4	Terms of Payment	Clause -IV
5	Taxes and other Duties	Clause -V
6	Materials and Other Requirements	Clause -VI
7	Other Important Conditions	Clause -VII
8	Rate Schedule	Annexure-I
9	Detailed Scope of Work	Annexure-II
10	Drawings	Annexure-III

## TECHNICAL CONDITIONS OF CONTRACT (TCC)

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### **PROJECT SYNOPSIS:**

Name of the Owner : **LM Bhatinda Stage-II, BHEL**

Name of Customer : **M/s PSPCL**

Address : **The Construction Manager, BHEL PSNR Site Office, 2X250 MW Stage-II, GHTP, LM Bhatinda**

New Installation : **2 x 250 MW, STAGE-II**

Nearest Railway station : **Bhatinda Railway Station- 30 Kms (Approx.) from Project Site.**

Nearest City / Town : **Bhatinda: 30 Km (Approx.)**

Maximum Temperature : **41 deg. C.**

Minimum Temperature : **4 deg. C.**

**Note: - The bidder is advised to visit and examine the site of WORKS and its surroundings and obtain for himself on his own responsibility all information that may be necessary for preparing the bid and entering into the CONTRACT. All costs for and associated with site visits shall be borne by the bidder.**

## TECHNICAL CONDITIONS OF CONTRACT (TCC)

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<b>2.0</b>	<b>GENERAL SCOPE OF WORK</b>
<b>2.1</b>	The tender specification covers all the works for “ <b>Making existing gates operational one each for Cooling Water Pump House &amp; Raw Water Pump House respectively (Handing over of the existing system) at site LM Bhatinda Stage-II Bhatinda</b> ”. Work under this tender includes supply of all required materials, labour, consumables, transportation, and sample testing as defined in the scope of work (Annexure-II).
<b>2.2</b>	Work at site is likely to be executed in running plant condition. The work permit for the same shall be arranged by BHEL personnel from PSPCL
<b>2.2</b>	<b>DRAWINGS</b>
<b>2.2.1</b>	The detailed tentative drawings and specifications will form part of the tender documents. BHEL reserves the right to modify/alter the tender drawings, if necessary during the actual execution at site. However, the Drawings/Sketches are to be read along with specifications and shall be treated as in the scope of work. Drawings are at Annexure III.
<b>2.2.2</b>	<b>Drawings are indicative and strictly for tendering purpose, only meant to give an idea to tenderers about nature of job.</b> If any changes in the layout, plan, section, partition, truss, etc. are felt necessary to suit the site / work requirement, the same shall be done by contractor as per revised sketches / drawings prepared by contractor in consultation with BHEL Engineer after approval of these drawings by BHEL. Contractor shall ensure/ascertain the stability, safety of the said work. <b>Any modification/variation from the said drawings, if necessary as suggested by the contractor will have to get approved from BHEL in writing.</b>

<b>TIME SCHEDULE</b>	
<b>3.0</b>	<b>MOBILIZATION, TIME SCHEDULE, CONTRACT PERIOD AND GRACE PERIOD</b>
<b>3.1</b>	<b>INITIAL MOBILIZATION</b> After receipt of WO, Contractor shall discuss with Project Manager / Construction Manager regarding initial mobilization. Contractor shall submit the execution plan within three days from the date of W.O. Contractor shall mobilize necessary resources in such a way so as to start the work as early as possible. Such resources shall be progressively augmented to match the schedule of milestones as directed by BHEL Engineer.
<b>3.2</b>	<b>START DATE / ZERO DATE</b> The contract is required to commence the work within 7 days from the issue of W.O. unless BHEL decides to fix any other later date.

## TECHNICAL CONDITIONS OF CONTRACT (TCC)

<b>3.3</b>	<p><b>COMPLETION PERIOD</b></p> <p>Entire work as detailed in tender specification <b>shall be completed within 3 months from the date of start of contract period (Zero Date)</b>. Contractor has to mobilize adequate resources to meet BHEL's commitments to their customer as indicated from time to time.</p>
<b>3.4</b>	Detailed Work completion Schedule will be submitted for approval by the successful bidder within 3 days of issue of W.O.
<b>3.5</b>	In case due to reasons not attributable to the contractor, the work gets delayed and scheduled completion gets extended, time extension will be accordingly granted by BHEL.
<b>3.6</b>	The work under the scope of this contract is deemed to be completed in all respects, only when all the works are carried out as per satisfaction of BHEL. The decision of BHEL on completion date shall be final and binding on the contractor.
<b>3.7</b>	In order to meet above schedule in general, and any other intermediate targets set, to meet customer/ project schedule requirements, contractor shall arrange & augment all necessary resources from time to time on the instructions of BHEL.
<b>3.8</b>	<p><b><u>CONSEQUENCE OF DELAY</u></b></p> <p>In case of delay in completion is attributable to the contractor, BHEL shall impose LD on the contractor as per GCC.</p>
<b>4.0</b>	<b>TERMS OF PAYMENT</b>
<b>4.1</b>	First and final invoice shall be raised accompanied with NOC issued from BHEL engineer & final handing over protocol, duly signed by PSPCL, indicating closure of the corresponding Pending Point between BHEL and PSPCL on successful handing over of the complete work. Subsequently 100% payment shall be released after all applicable statutory deductions i.e. TDS as per Income Tax Act and Punjab VAT Act shall be deducted on total contract value
<b>4.2</b>	<b>Interest bearing recoverable advance: Not Applicable</b>
<b>5.0</b>	<b>TAXES &amp; DUTIES</b>
<b>5.1</b>	<p>The contractor shall pay all (save the specific exclusions as enumerated in this contract) taxes, fees, license charges, deposits, duties, tools, royalty, commissions or other charges which may be levied on the input goods &amp; services consumed and output goods &amp; services delivered in course of his operations in executing the contract. In case BHEL is forced to pay any of such taxes, BHEL shall have the right to recover the same from his bills or otherwise as deemed fit.</p> <p>However, provisions regarding Service Tax and Value Added Tax (VAT) on output services and goods shall be as per following clauses.</p>
<b>5.2</b>	<b>Service Tax &amp; Cess on Service Tax</b>
<b>5.2.1</b>	Service Tax and Cess on Service Tax as applicable on output Services are excluded from contractor's scope; therefore contractor's price/rates shall be

## TECHNICAL CONDITIONS OF CONTRACT (TCC)

	<b>exclusive of Service Tax and Cess on Output Services.</b>
<b>5.2.2</b>	Contractor shall obtain prior written consent of BHEL before billing the amount towards such taxes. The Service Tax Rules permit more than one option or methodology for discharging the liability of tax/levy/duty and BHEL will have the right to adopt the appropriate one considering the amount of tax liability on BHEL/Client as well as procedural simplicity with regard to assessment of the liability. The option chosen by BHEL shall be binding on the Contractor for discharging the obligation of BHEL in respect of the tax liability to the Contractor. Contractor shall submit to BHEL documentary evidence of Service Tax registration certificate specifying name of services covered under this contract.
<b>5.2.3</b>	For the purpose of claiming any Service Tax from BHEL, the following procedure shall be adopted :
<b>5.2.3.1</b>	Contractor shall submit serially numbered Service Tax and Cess Invoices, signed by him or a person authorized by him in respect of taxable service provided, and shall contain the following, namely:
	The name, address and registration number of the contractor
	The name and address of the party receiving taxable service (BHEL)
	Description, classification and value of taxable service provided and
	The Service Tax payable thereon.
<b>5.2.4</b>	All the four conditions shall be fulfilled in the invoice for payment of Service Tax by BHEL. Where more than one nature of Service under Service Tax Rules is involved, the invoice mentioned above shall contain the break up of all values for each nature of Service.
<b>5.2.5</b>	Name and address of the contractor should be same in the service tax invoice and monthly bill. Any change in the name and address in past should be supported by documentary evidence duly certified by the registering authority.
<b>5.2.6</b>	Purpose of above requirements, inter-alia, is to enable availment of CENVAT credit by BHEL. As per recent amendments, Time restrictions for taking Cenvat credit is within twelve months from date of invoice. Wherever Cenvat credit could not be availed by BHEL within statutory time limit of 12 months due to delay in submission of invoices or for any other reasons attributable to contractors, Liability towards loss of such Cenvat credit shall be passed on to contractors.
<b>5.3</b>	<b>VAT (Sales Tax /WCT)</b>
<b>5.3.1</b>	The rates quoted by the Contractor shall be inclusive of VAT/Sales Tax and BHEL shall not reimburse any amount on this account due to any reason whatsoever.
<b>5.3.2</b>	The Contractor shall register himself with the respective Sales Tax authorities of the state and submit proof of such registration to BHEL along with the first RA bill. Deduction of tax at source shall be made as per the provisions of law unless

## TECHNICAL CONDITIONS OF CONTRACT (TCC)

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	<p>otherwise found exempted. In case tax is deducted at source as per the provisions of law, this is to be construed as an advance tax paid by the contractor and no reimbursement thereof will be made unless specifically agreed to.</p> <p>Contractor has to make his own arrangement at his cost for completing the formalities, if required, with Sales Tax/VAT Authorities, for bringing all their material, plant and equipment etc at site for the execution of the work, including arrangement of Road Permits if and as applicable under the relevant VAT Act.</p>
<b>5.4</b>	<b>Modalities of Tax Incidence on BHEL</b>
<b>5.4.1</b>	Wherever the relevant tax laws permit more than one option or methodology for discharging the liability of tax/levy/duty, BHEL will have the right to adopt the appropriate one considering the amount of tax liability on BHEL/Client as well as procedural simplicity with regard to assessment of the liability. The option chosen by BHEL shall be binding on the Contractor for discharging the obligation of BHEL in respect of the tax liability to the Contractor.
<b>5.5</b>	<b>New Taxes/Levies</b>
<b>5.5.1</b>	In case the Government imposes any new levy/tax on the output service/goods/work after award of the contract, the same shall be reimbursed by BHEL at actual.
<b>5.5.2</b>	In case any new tax/levy/duty etc. becomes applicable after the date of Bidder's offer, the Bidder/Contractor must convey its impact on his price duly substantiated by documentary evidence in support of the same before opening of Price Bid. Claim for any such impact after opening the Price Bid will not be considered by BHEL for reimbursement of tax or reassessment of offer.
<b>5.5.3</b>	No reimbursement/recovery on account of increase/reduction in the rate of taxes, levies, duties etc. on input goods/services/work shall be made. Such impact shall be taken care of by the Price Variation/Adjustment Clause (PVC) if any. In case PVC is not applicable for the contract, Bidder has to make his own assessment of the impact of future variation if any, in rates of taxes/duties/levies etc. in his price bid.
<b>6.0</b>	<b>MATERIALS-</b>
<b>6.1</b>	<b>Contractor shall provide all material free of cost to BHEL</b>

## TECHNICAL CONDITIONS OF CONTRACT (TCC)

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<b>7.0</b>	<b>OTHER IMPORTANT CONDITIONS</b>
<b>7.1</b>	<b>EXECUTION OF WORK</b>
<b>7.1.1</b>	The work shall be executed in a workman like manner and to the entire satisfaction of the BHEL Engineer and as per technical specification issued with tender, IS codes, CPWD specifications as applicable. In case of conflict, the decision of the <b>BHEL</b> Engineer shall be final & binding.
<b>7.2</b>	<b>NUISANCE</b>
<b>7.2.1</b>	The Contractor shall not at any time do, cause or permit any nuisance on Site or do anything which shall cause unnecessary disturbance or inconvenience to owners, tenants or occupiers of other properties near the Site and to the public generally.
<b>7.3</b>	<b>PROTECTION OF WORKS</b>
<b>7.3.1</b>	The contractor shall provide and maintain at his own expense all lights, guards, fencing and watching when and where necessary or required by the BHEL Engineer for the protection of the Works or for the safety and convenience of those employed on the Works or the public.
<b>7.3.2</b>	The contractor shall have total responsibility for protecting his works till it is finally taken over by the BHEL. No claim will be entertained by the BHEL Engineer for any damage or loss to the contractor's works and the contractor shall be responsible for the complete restoration of the damaged works to its original condition to comply with the specifications and drawings. Should any such damage to the contractor's works occur because of other party not under his supervision or control, the contractor shall make his claim directly with the party concerned. The contractor shall not cause any delay in the repair of such damaged works because of any delay in the resolution of such disputes. The contractor shall proceed to repair the work immediately and no cause thereof will be assigned pending resolution of such disputes.
<b>7.4</b>	<b>PROTECTION OF EMBEDMENTS BOLTS ETC.</b>
<b>7.4.1</b>	The contractor shall ensure proper protection to the satisfaction of the BHEL Engineer, of all bolts, inserts, embedment etc. from weather etc. by greasing, rapping them with gunny bags or canvas or by any other means as directed by BHEL Engineer. Cost of such protections shall be deemed to be included in the rates quoted for the item.
<b>7.5</b>	<b>CLEARANCE OF SITE AND REPAIRS.</b>
<b>7.5.1</b>	Contractor has to clear the site / area where mechanical and electrical erection work is to be commenced / or in progress. The contractor shall remove construction materials and equipment lying in the vicinity and causing obstruction in the erection work within 24 hrs. notice, In case he fails to clear the site, this will be done at his risk & cost by BHEL.
<b>7.6</b>	<b>COMPLETION OF WORK</b>
<b>7.6.1</b>	The works shall be completed to the entire satisfaction of the BHEL Engineer and in accordance with the completion schedule as specified in the Contract, and all unused stores and materials, tools, plant, equipment, labour hutments and

## TECHNICAL CONDITIONS OF CONTRACT (TCC)

	other things shall be removed and the site and work cleared of rubbish and all waste materials and delivered up clean and tidy to the satisfaction of the BHEL Engineer at the Contractor's expenses.
<b>7.6.2</b>	BHEL shall have power to take over from the Contractor from time to time such sections of the work as have been completed to the satisfaction of the BHEL Engineer. Such work however shall not be treated as have been completed until the extra works are executed to the satisfaction of BHEL Engineer.
<b>7.7</b>	<b>COMMENCEMENT OF GUARANTEE PERIOD</b>
<b>7.7.1</b>	<b>The Guarantee period shall commence only after completion &amp; handing over of the entire works. Date of Protocol duly signed by BHEL and PSPCL indicating completion of entire works shall be considered for commencement of Guarantee Period.</b>
<b>7.8</b>	<b>HSE &amp; OHSAS:</b>
	<b>The contractor shall comply with the requirements / stipulations of Chapter-IX of SCC towards Health, Safety and Environment.</b>
<b>7.9</b>	<p><b>MODIFICATION/ DELETION OF GCC &amp; SCC CLAUSES:</b></p> <p>I. Clause No. 4.1.4, 4.1.9 &amp; 4.1.10 of SCC (Consumables &amp; Other Items) shall not be applicable.</p> <p>II. Clause No. 4.2.2 of SCC (Obligations in respect of T&amp;Ps and MMEs provided by BHEL) shall not be applicable.</p> <p>III. Clause No. 8.3.2, 8.3.3 and 8.3.4 of SCC (Statutory Inspection of Work) shall not be applicable.</p> <p>IV. Clause No. 2.12 of GCC (ORC) shall not be applicable.</p> <p>V. Clause No. 2.17 of GCC (PVC) shall not be applicable</p> <p>VI. Clause No. 2.13 of GCC (Interest bearing recoverable advance) shall not be applicable.</p> <p>VII. Clause No. 2.14.1 of GCC modified as: The quoted rates shall remain firm irrespective of any variations in the individual quantities. No compensation becomes payable in case the variation of the final executed contract value.</p> <p>VIII. Clause No. 2.24.1 of GCC modified as: If any problem is reported by customer i.e. PSPCL, LM Bhatinda regarding operation of gates within 30 days period from the date of commencement of guarantee period as defined in 7.7.1 of Technical Conditions of Contract, it shall be attended by vendor free of cost.</p>



ISO 9001: 2000  
ISO 14001, OHSAS 18001

# भारत हेवी इलेक्ट्रिकल्स लिमिटेड

(भारत सरकार का उपक्रम)

**BHARAT HEAVY ELECTRICALS LIMITED**

(A Govt. of India Undertaking)

पावर सेक्टर-उत्तरी क्षेत्र , नोएडा Power Sector-Northern Region, NOIDA

**TENDER ENQUIRY FOR MAKING EXISTING GATES OPERATIONAL ONE EACH FOR CWPH AND RWPH (HANDING OVER OF THE EXISTING SYSTEM AT BHEL, GHTP LEHRA MOHABBAT STAGE-II BATHINDA.**

RATE SCHEDULE		
Sl. No.	Description	Lump Sum Amount
1.	LUMPSUM AMOUNT FOR MAKING EXISTING GATES OPERATIONAL ONE EACH FOR CWPH AND RWPH (HANDING OVER OF THE EXISTING SYSTEM) AT BHEL, GHTP LEHRA MOHABBAT STAGE-II BATHINDA	

TOTAL Rs. (IN WORDS) – .....

**Notes:**

1. All the above quoted rates shall remain firm throughout the contract period.
2. The rate shall be entered in figures as well as in words. In case of difference in rates between words and figures, the lesser of the two will be treated as valid rate.

Date:  
Place:

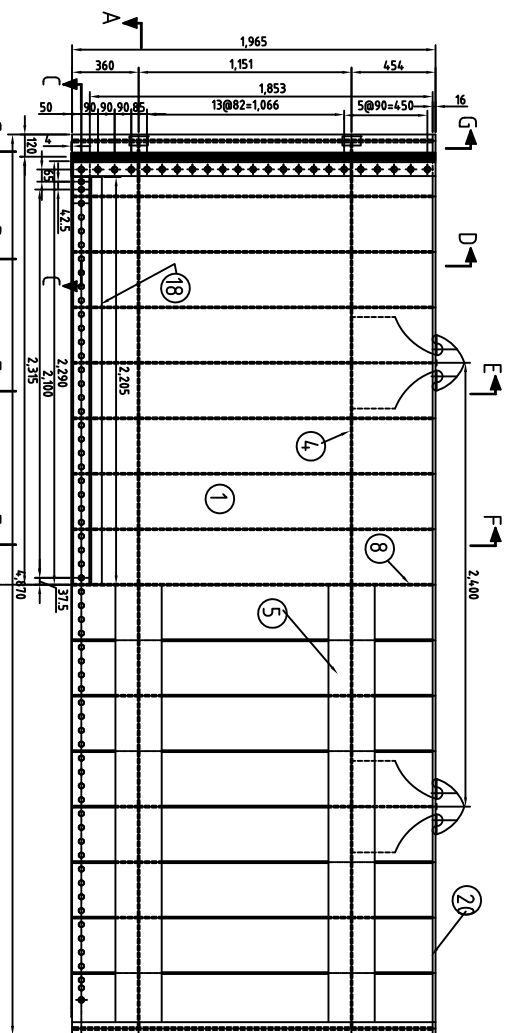
Signature:  
Name of Signatory:  
Name of Bidder:

**LM Bhatinda: Scope of Work for making existing gates operational one each for CWPB & RWPH respectively**

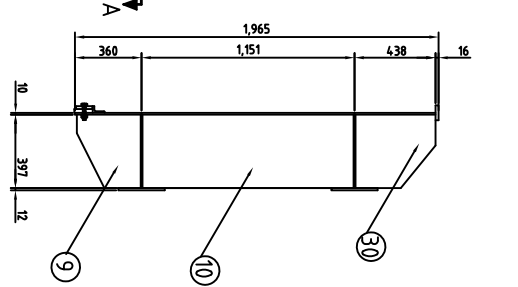
Sl. No.	Drawing reference	Component/ Activity Description
<b>CWPB Stop Log Gate</b>		
1	BIC/PSEB/CWPB07 Sheet No. 1 & 2	<b>Providing lifting beam</b> for stop log gate as per drawing as no lifting beam is available at site.
2		<b>Repairing of Stop log gate (Top unit filling valve type): 01 Nos.</b>
a	BIC/PSEB/CWPB 02&03	Filling valve to be provided in top unit as per the drawing as the existing part does not have the same.
b		Change of lifting lugs as per IS B2062 as the lugs provided are not proper. Also lugs to match new lifting beam.
c		All nut bolts with washer as per SS 304 M16*100[46] (csk), M16*100L[56] (hexhd), M16*50L[16] (hexhd) mis. Nut bolts as existing bolts are damaged ,non repairable & not as per drawing.
d		Bottom seal rubber 100*20*4580 as per IS 11055 to be provided new as the existing rubber is damaged.
e		Side seal 44dia*14*127*1969 musical note type to be replaced with a new one .
f		Providing new Side seal retaining bar SS 304 as the existing retaining bar is not provided of SS and is damaged.
g		Providing new Bottom seal retaining bar 100*20*4580 .
h		Side shoe channel complete arrangement with SS nut bolts.
i		All the gates to be properly cleaned, repaired for any other damages and painted as per the drawings.
3		
a	BIC/PSEB/CWPB01	Repairing of stop log gate ( Bottom interchangeable unit-4 Nos) and replacing of damage parts as mentioned below.
b		Change of lifting lugs as per IS B2062 as the lugs provided are not proper. Also lugs to match new lifting beam.
c		All nut bolts with washer as per SS 304 M16*100[46] (csk), M16*100L[56] (hexhd), M16*50L[16] (hexhd) mis. Nut bolts as existing bolts are damaged ,non repairable & not as per drawing.
d		Bottom seal rubber 100*20*4580 as per IS 11055 to be provided new as the existing rubber is damaged.
e		Side seal 44dia*14*127*1969 musical note type to be replaced with a new one .
f		Providing new Side seal retaining bar SS 304 as the existing retaining bar is not provided of SS and is damaged.
g		Providing new Bottom seal retaining bar 100*20*4580 .
h		Side shoe channel complete arrangement with SS nut bolts.
i		All the gates to be properly cleaned, repaired for any other damages and painted as per the drawings.
4		
<b>CWPB Coarse Screen</b>		
1	BIC/PSEB/CWPB08 Sheet No. 1 & 2	Providing lifting beam for coarse screen as per the drawing as no lifting beam is available/provided at site.
2		Using lifting beam to remove and reinstall each component of screen from each bay.

**LM Bhatinda: Scope of Work for making existing gates operational one each for CWPB & RWPB respectively**

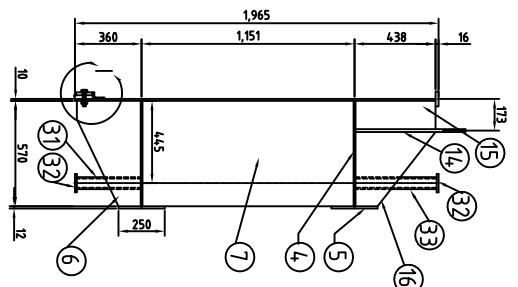
Sl. No.	Drawing reference	Component/ Activity Description
<b><u>RWPB Stop Log Gate</u></b>		
1		Providing lifting beam for stop log gate as per drawing as no lifting beam is available at site.
2		Preparations of drawings of gates and lifting beam as per the existing construction and civil drawings and getting the drawings approved.
3		<b>Repairing of Stop log gate (Top unit filling valve type): 01 Nos.</b>
a		Filling valve to be provided in top unit as per the drawing as the existing part does not have the same.
b		Change of lifting lugs as per IS B2062 as the lugs provided are not proper. Also lugs to match new lifting beam.
c		All nut bolts with washer as per SS 304 M16*100[46] (csk), M16*100L[56] (hexhd), M16*50L[16] (hexhd) mis or as per site requirements. Nut bolts as existing bolts are damaged ,non repairable & not as per drawing.
d		Bottom seal rubber 100*20*4580 or as per site requirements as per IS 11055 to be provided new as the existing rubber is damaged.
e		Side seal 44dia*14*127*1969 or as per site requirements musical note type to be replaced with a new one .
f		Providing new Side seal retaining bar SS 304 as the existing retaining bar is not provided of SS and is damaged.
g		Providing new Bottom seal retaining bar 100*20*4580 .
h		Side shoe channel complete arrangement with SS nut bolts.
i		All the gates to be properly cleaned, repaired for any other damages and painted as per the drawings.
4		
a	Not Available	Repairing of stop log gate ( Bottom interchangeable unit-2 Nos) and replacing of damage parts as mentioned below.
b		Change of lifting lugs as per IS B2062 as the lugs provided are not proper. Also lugs to match new lifting beam.
c		All nut bolts with washer as per SS 304 M16*100[46] (csk), M16*100L[56] (hexhd), M16*50L[16] (hexhd) mis or as per site requirements. Nut bolts as existing bolts are damaged ,non repairable & not as per drawing.
d		Bottom seal rubber 100*20*4580 or as per site requirements as per IS 11055 to be provided new as the existing rubber is damaged.
e		Side seal 44dia*14*127*1969 or as per site requirements musical note type to be replaced with a new one or as per site requirements .
f		Providing new Side seal retaining bar SS 304 as the existing retaining bar is not provided of SS and is damaged.
g		Providing new Bottom seal retaining bar 100*20*4580 or as per site requirements
h		Side shoe channel complete arrangement with SS nut bolts.
i		All the gates to be properly cleaned, repaired for any other damages and painted as per the drawings.
5		
<b><u>RWPB Coarse Screen</u></b>		
1	Not Available	Providing lifting beam for coarse screen as per the drawing as no lifting beam is available/provided at site.
2		Using lifting beam to remove and reinstall each component of screen from each bay.



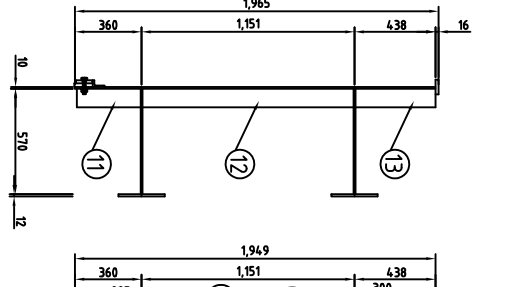
HALF UP STREAM & HALF DOWN STREAM ELEVATION



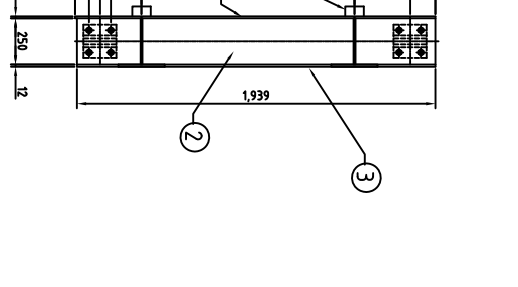
SECTION D-D



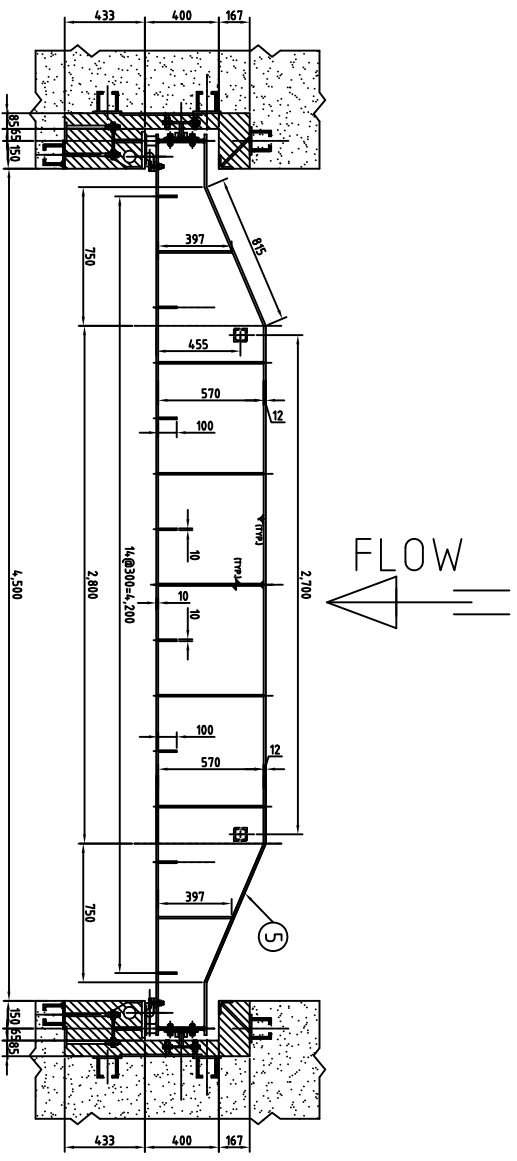
SECTION E-E



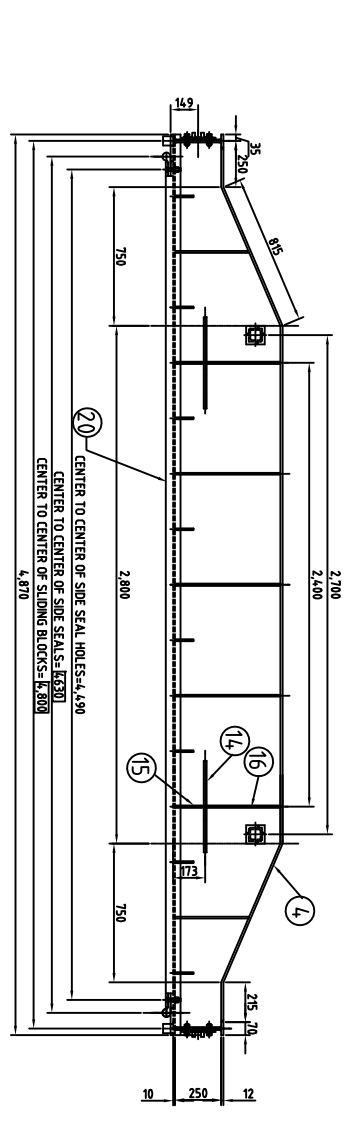
SECTION F-F



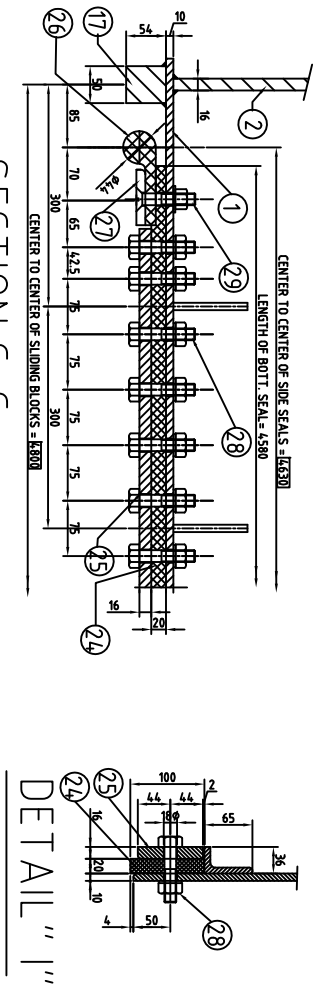
SECTION G-G



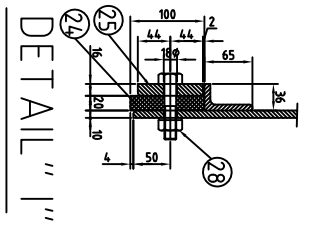
SECTIONAL PLAN A-A



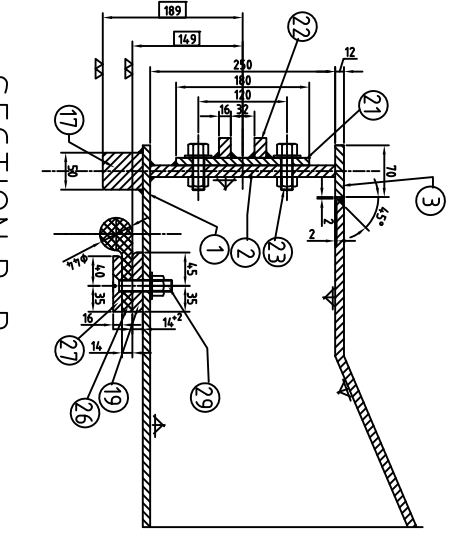
TOP PLAN



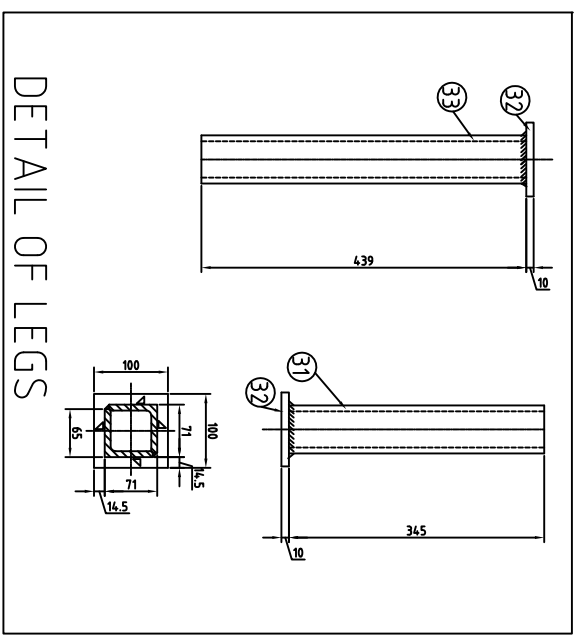
SECTION C-C



DETAIL "1"

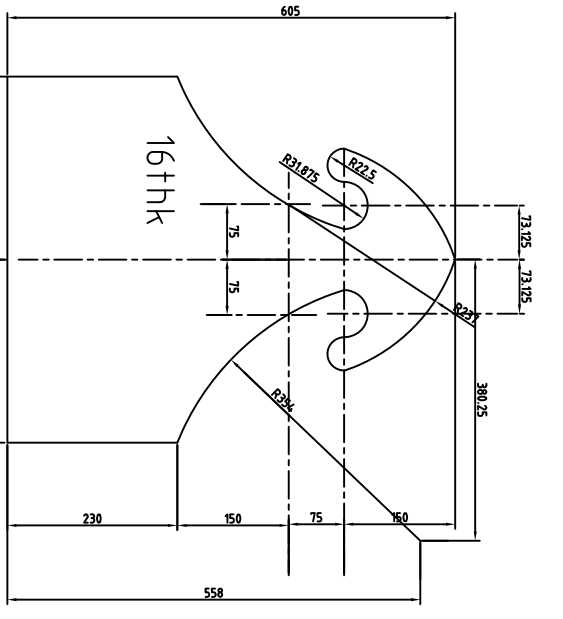


SECTION B-B



DETAIL OF LEGS

- NOTES :-
1. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN MILLIMETRES.
  2. TOTAL 3 NOS. OF SUCH STOP LOG GATE INTERCHANGEABLE UNITS) ARE REQUIRED TO BE FABRICATED.
  3. UNLESS OTHERWISE SPECIFIED ALL FILLET WELDS SHALL BE OF 6MM LEGS SIZE.
  4. FULL STRENGTH WELDED BUTT JOINTS, IF NECESSARY SHALL BE PROVIDED TO MAKE THE REQUIRED SIZE OF DIFFERENT TITERS.
  5. ALL BOX DIMENSIONS ARE TO BE CORRECTLY MAINTAINED.
  6. MATERIAL FOR DIFFERENT PARTS OF THE GATE SHALL BE AS BELOW:-
    - i) FOR GATE LEAF --- STRUCTURAL STEEL TO IS:2062 GR. B.
    - ii) FOR SIDE SEAL & BOTTOM SEAL --- RUBBER TO IS:1855.
    - iii) BOLTS & NUTS FOR SEAL FIXING --- STAINLESS STEEL TO AISI-304.
    - iv) OTHER BOLTS, NUTS & SCREWS --- M.S.GALV.
  7. SURFACE CLEANING AND PAINTING SHALL BE DONE AS PER IS:14:177.
  8. ALL ERECTION MARK SHOWN THUS --- [CWSI-1]
  9. ALL FULL STRENGTH BUTT WELDS SHALL BE ULTRASONICALLY AND ALL FILLET WELDS SHALL BE D.P. TESTED.
  10. FOR FILING VALVE ASSEMBLY, REFER SEPARATE DRGNO. BIC/PSEB/CWPH/03.
  11. FOR TOP UNIT, REFER SEPARATE DRGNO. BIC/PSEB/CWPH/02.

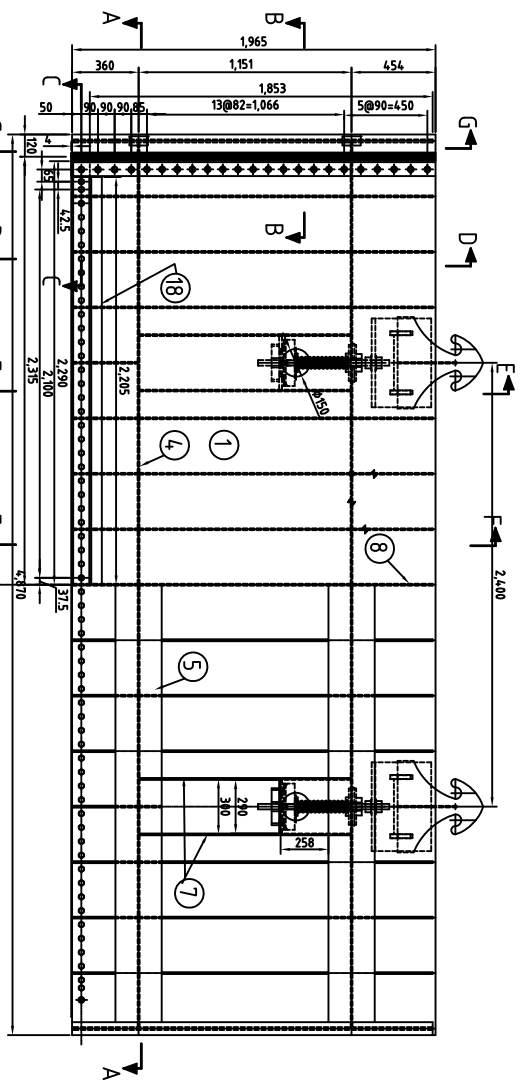


DETAIL OF ITEM NO.14

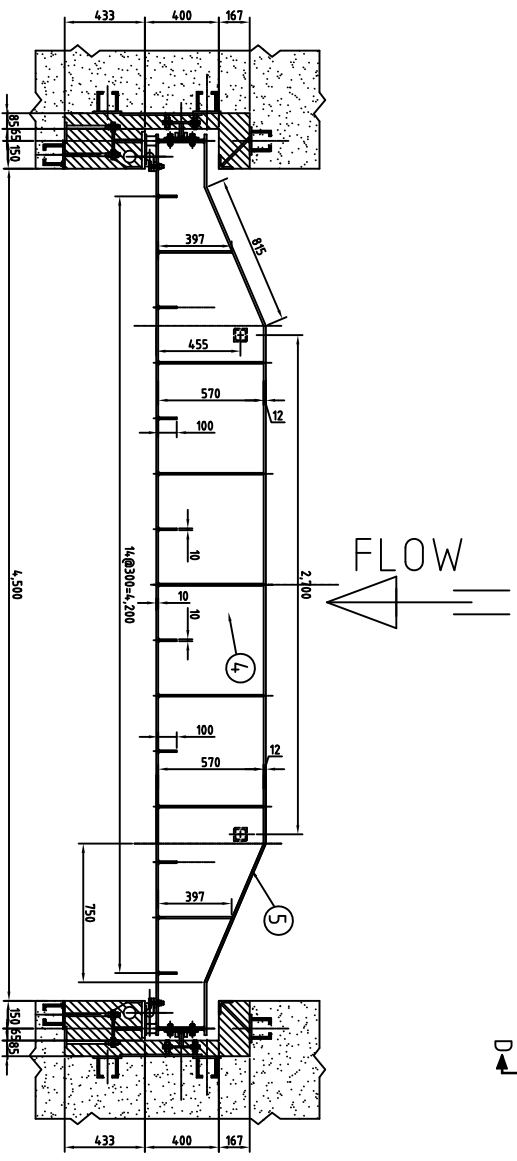
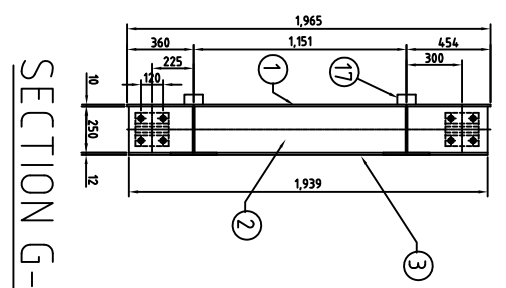
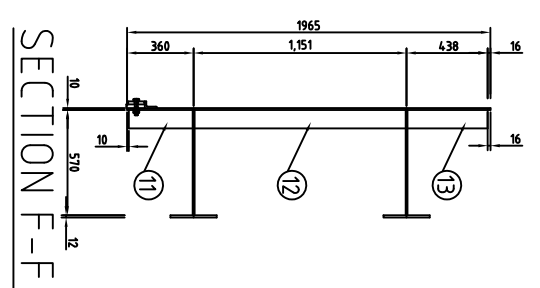
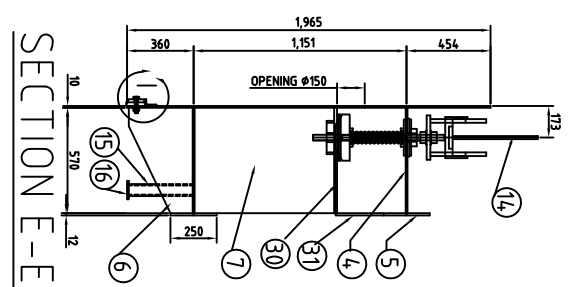
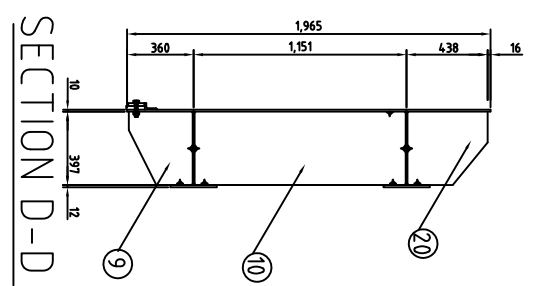
ITEM NO.	DESCRIPTION	MATERIAL	NOS.	WT. IN KGS.	REMARKS
29	C.S.K. Hd Bolt M16 x 80 Lg. with Nut and washer	S.S. TO AISI-304	46	10.0	
28	Hex Hd Bolt M16 x 70 Lg. with Nut and washer	S.S. TO AISI-304	56	9.5	
27	SIDE SEAL CLAMP 75 x 86 --- 899	IS:2062	1L x 1R	37.0	
26	SIDE SEAL 14 x 14 x 127 --- 969	RUBBER 855	1L x 1R	13.8	
25	BOT SEAL CLAMP 88 x 86 --- 440	IS:2062	1	4.87	
24	BOTTOM SEAL 100 x 20 --- 4580	RUBBER 855	1	11.5	
23	Hex. Hd Bolt M16 x 50 Lg. with Nut and washer	M.S.GALV.	16	2.2	
33	L65 X 65 X 8 --- 439	IS:2062	4	13.5	
32	PL. 100 X 10 --- 100	IS:2062	4	3.2	
31	L65 X 65 X 8 --- 345	IS:2062	4	10.6	
30	F.V.S.PL. 397 X 10 --- 433	IS:2062	2	27.0	
22	Shoe PL. 27 x 16 --- 180	IS:2062	4	4.9	
21	Shoe Base 180 x 10 --- 180	IS:2062	4	10.2	
20	TOP PL. 80 x 16 --- 4870	IS:2062	1	4.89	Cut to shape
19	S.S.BASE 80 x 14 --- 1853	IS:2062	2	32.9	
18	L65 X 36 X 8 --- 4410	IS:2062	1	31.0	
17	SLIDING BLOCK 50 x 54 x 100	IS:2062	4	8.5	
16	SHFT. PL. 399 x 10 x 433	IS:2062	2	28.8	
15	SHFT. PL. 155 x 10 x 433	IS:2062	2	10.2	
14	Lifting Lug 495 X 16 --- 605	IS:2062	2	44.2	
13	V.S.PL. 100 X 10 --- 433	IS:2062	8	28.2	
12	V.S.PL. 100 X 10 --- 1141	IS:2062	8	71.6	
11	V.S.PL. 100 X 10 --- 345	IS:2062	8	21.7	
10	F.V.S.PL. 397 X 10 --- 1141	IS:2062	2	71.1	
9	F.V.S.PL. 397 X 10 --- 345	IS:2062	2	21.5	
8	F.V.S.PL. 570 X 10 --- 433	IS:2062	3	58.1	
7	F.V.S.PL. 570 X 10 --- 345	IS:2062	5	255.3	
6	H. G. Web 570X10 --- 4860	IS:2062	2	228.9	Bend to shape
5	H. G. Web 570X10 --- 4784	IS:2062	2	366.2	Cut to shape
4	E. G. FL. 70X12 --- 1939	IS:2062	2	25.8	
3	E. G. PL. 250X16 --- 1939	IS:2062	2	122.8	
2	Skin PL. 194.9 X 10 --- 4870	IS:2062	1	745.0	

REV.	DESCRIPTION	BY
5		
6		
4		
3		

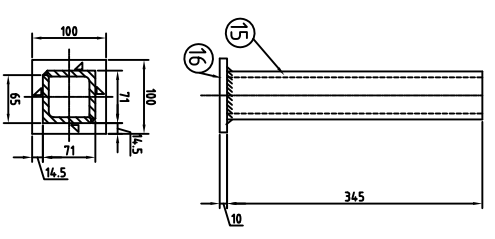
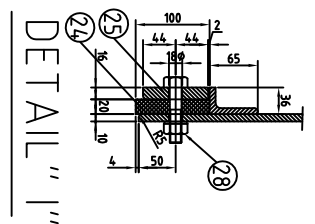
SUPPLIER	BHARAT INDUSTRIAL CORPORATION
PURCHASER	PETRON CIVIL ENGINEERING
EPC CONTRACTOR	BHARAT HEAVY ELECTRICALS LTD.
EMPLOYER	PUNJAB STATE ELECTRICITY BOARD
PROJECT	2 X 250 MW, GHPS - LEHA MOHABBAT PROJECT
SUBJECT	DETAILS OF STOPLOG ( BOTTOM INTERCHANGEABLE UNIT ) FOR STOPLOGS FOR CW PUMP HOUSE
DRAWN BY	KHURANA
CHKD. BY	SHARMA
SCALE	DESIGNED BY: BAQAL
	DRGNO. BIC/PSEB/CWPH/01
	REV.-0



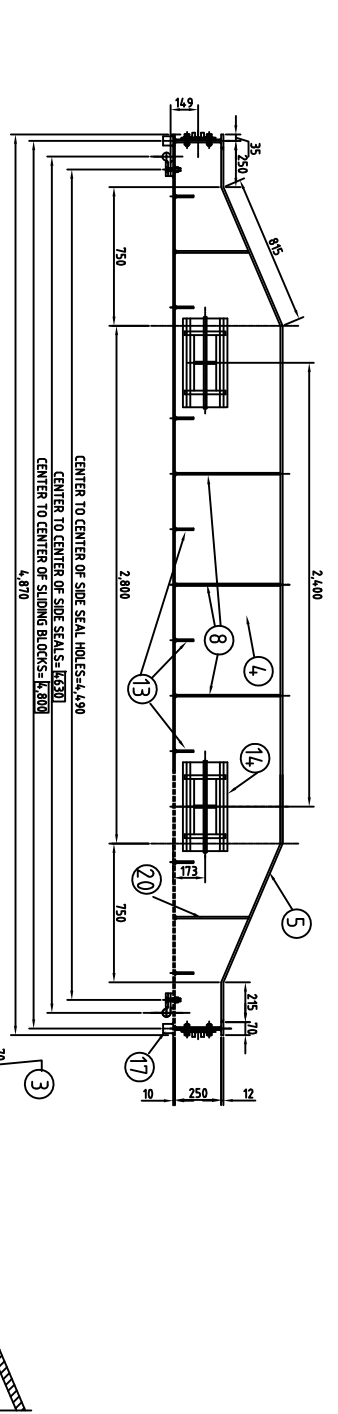
HALF UP STREAM & HALF DOWN STREAM ELEVATION



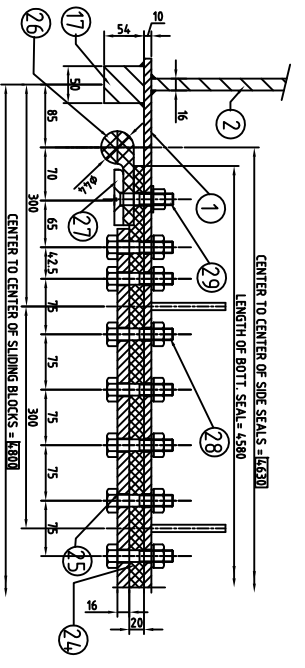
SECTIONAL PLAN A-A



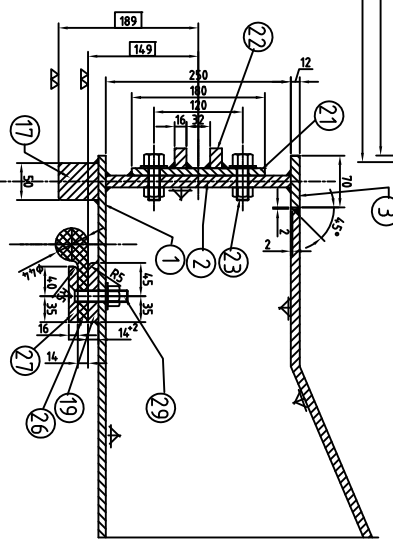
DETAIL OF LEGS



TOP PLAN



SECTION C-C



SECTION B-B

- NOTES :-
1. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN MILLIMETRES.
  2. TOTAL 1 NO. OF SUCH STOP LOG GATE (TOP UNIT) IS REQUIRED TO BE FABRICATED.
  3. UNLESS OTHERWISE SPECIFIED ALL FILLET WELDS SHALL BE OF 6MM LEG SIZE.
  4. FULL STRENGTH WELDED BUTT JOINTS, IF NECESSARY SHALL BE PROVIDED TO MAKE THE REQUIRED SIZE OF DIFFERENT THICKS.
  5. ALL BOX DIMENSIONS ARE TO BE CORRECTLY MAINTAINED.
  6. MATERIAL FOR DIFFERENT PARTS OF THE STOPLOG SHALL BE AS BELOW:-
    - i) FOR GATE LEAF-----STRUCTURAL STEEL TO IS:2062 GR. B.
    - ii) FOR SIDE SEAL-----RUBBER TO IS:1855.
    - iii) BOLTS & NUTS FOR SEAL FIXING-----STAINLESS STEEL TO AISI-304.
    - iv) OTHER BOLTS, NUTS & SCREWS-----M.S. GALV.
  7. SURFACE CLEANING AND PAINTING SHALL BE DONE AS PER IS:14:177.
  8. ALL FULL STRENGTH BUTT WELDS SHALL BE ULTRASONICALLY AND ALL FILLET WELDS SHALL BE D.P. TESTED.
  9. FOR FILLING VALVE ASSEMBLY, REFER SEPARATE DRG.NO. BIC/PSEB/CWPH/03.
  10. FOR BOTTOM INTERCHANGEABLE UNITS, REFER SEPARATE DRG.NO. BIC/PSEB/CWPH/01.

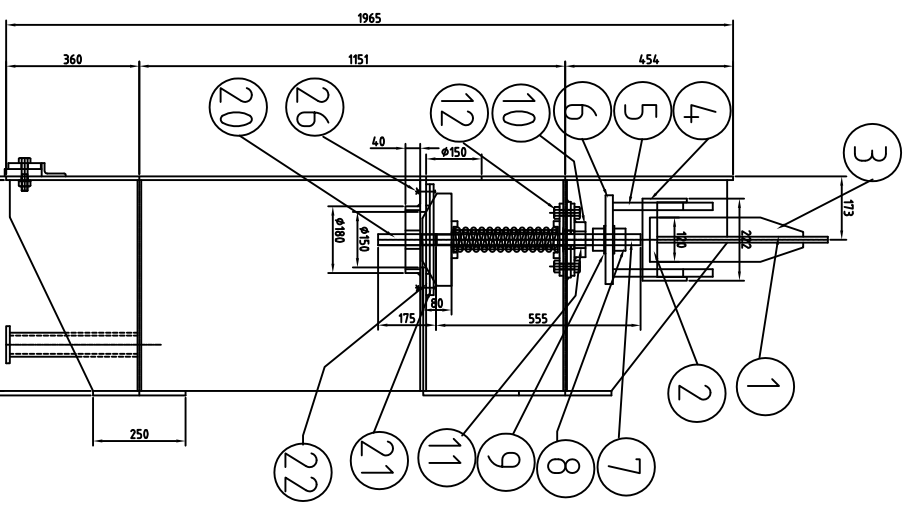
REV.	DESCRIPTION	BY	SCALE

ITEM NO.	DESCRIPTION	MATERIAL	NOS. REQD.	WT. IN KGS.	REMARKS
1	SHM PL. 1965 X 10	IS:2062	1	7512	
2	E. G. PL. 250X16	IS:2062	2	122.8	
3	H. G. FL. 70X12	IS:2062	2	25.8	Cut to shape
4	H. G. Web 570X10	IS:2062	2	366.2	Bend to shape
5	H. G. FL. 250X12	IS:2062	2	228.9	
6	F.V.S.PL. 570 X 10	IS:2062	5	71.2	
7	F.V.S.PL. 570 X 10	IS:2062	7	357.4	
8	F.V.S.PL. 397 X 10	IS:2062	3	581.4	
9	F.V.S.PL. 397 X 10	IS:2062	2	215	
10	F.V.S.PL. 397 X 10	IS:2062	2	71.1	
11	V.S.PL. 100 X 10	IS:2062	8	21.7	
12	V.S.PL. 100 X 10	IS:2062	8	71.6	
13	V.S.PL. 100 X 10	IS:2062	8	28.2	
14	FILLING VALVE ASSEMBLY	AS PER DRG.	2	346.0	
15	L55 X 65 X 8	IS:2062	4	10.6	
16	PL. 100 X 10	IS:2062	2	1.6	
17	SLIDING BLOCK 50 X 54 X 100	IS:2062	4	8.5	
18	L65 X 36 X 8	IS:2062	1	31.0	
19	S.S.BASE 80 X 14	IS:2062	2	32.9	
20	F.V.S.PL. 397 X 10	IS:2062	2	27.0	
21	Shoe Base 180 X 10	IS:2062	4	10.2	
22	Shoe PL. 27 X 16	IS:2062	8	4.9	
23	Hex. Hd Bolt M16 x 50 Lg. with Nut and washer	M.S. GALV.	16	2.2	
24	BOTTOM SEAL 100 X 20	RUBBER	1	11.5	
25	BOT SEAL CLAMP 88 X 16	RUBBER	1	48.7	
26	SIDE SEAL 44 X 14 X 17	RUBBER	1	13.8	
27	SIDE SEAL CLAMP 75 X 16	RUBBER	1	37.0	
28	Hex. Hd Bolt M16 x 70 Lg. with Nut and washer	AISI-304	56	9.5	
29	C.S.K. Hd Bolt M16 x 80 Lg. with Nut and washer	S.S. 10	46	10.0	
TOTAL				2807.1	

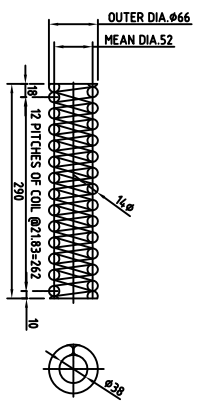
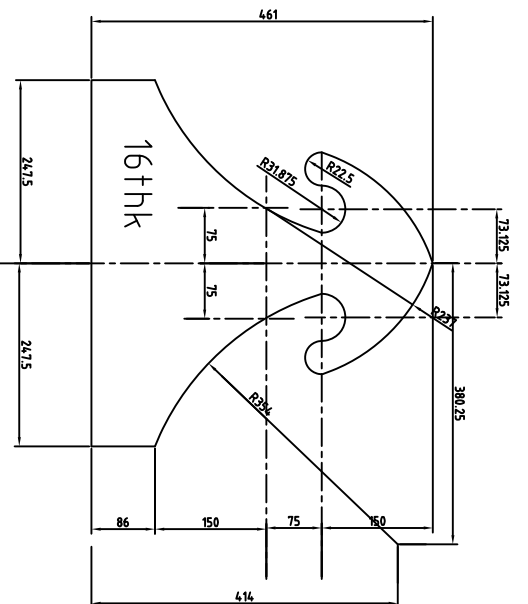
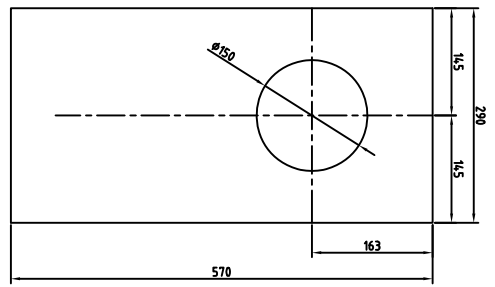
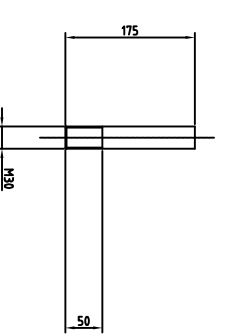
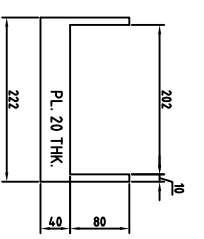
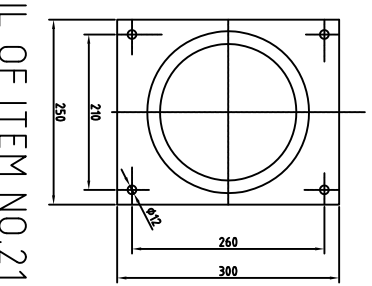
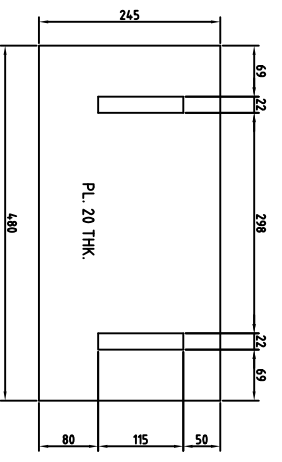
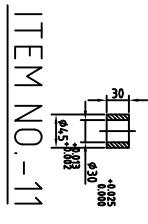
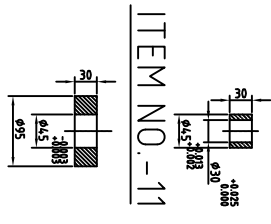
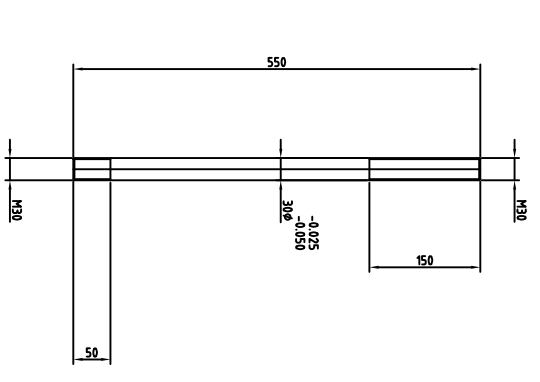
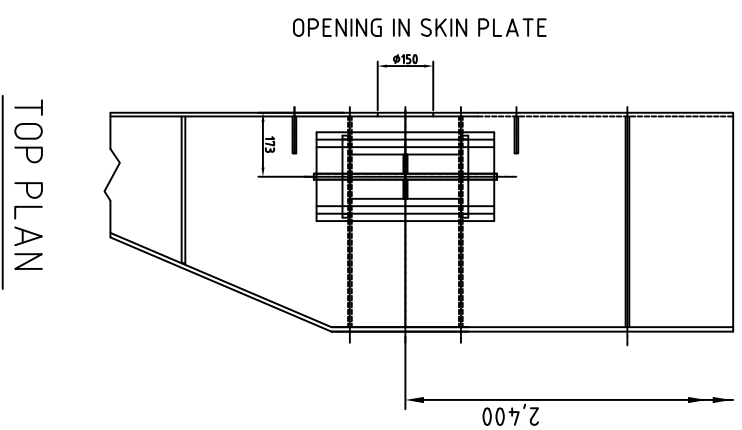
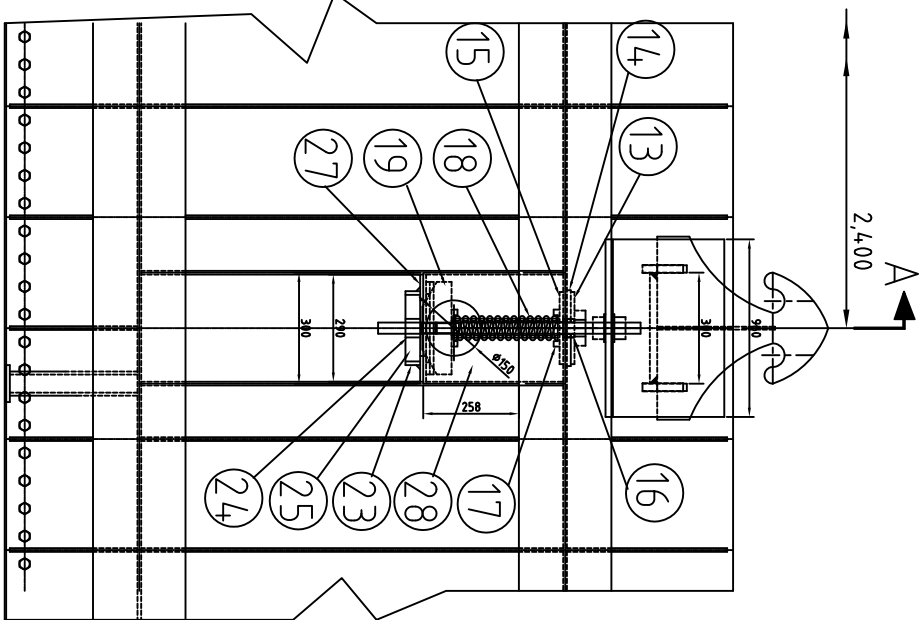
SUPPLIER: BHARAT INDUSTRIAL CORPORATION  
 PURCHASER: PETRON CIVIL ENGINEERING  
 EPC CONTRACTOR: BHARAT HEAVY ELECTRICALS LTD.  
 EMPLOYER: PUNJAB STATE ELECTRICITY BOARD  
 PROJECT: 2 X 250 MW, GHTPS - LEHNA MOHABBAT PROJECT  
 SUBJECT: DETAILS OF STOPLOG (TOP UNIT) FOR STOPLOGS FOR CW PUMP HOUSE

DRAWN BY: KHURANA  
 CHKD. BY: SHARMA  
 DESIGNED BY: BADAL

DRGNO. BIC/PSEB/CWPH/02  
 REV.-0



FLOW



NOTES:-  
 1. LOAD V/S DEFLECTION TEST RESULTS ARE REQUIRED.  
 HELICAL COMPRESSION SPRING FOR FILLING VALVE  
 SPECIFICATION OF SPRING  
 1. SPRING WIRE DIA. = 14 mm  
 2. MEAN COIL DIA. = 52 mm  
 3. INNER DIA. OF SPRING = 38 mm  
 4. OUTER DIA. OF SPRING = 66 mm  
 5. COMPRESSED LENGTH OF SPRING = 207 mm  
 7. SPRING CONSTANT = 67 KG/CM  
 8. EFFECTIVE NUMBER OF COIL = 12  
 9. TYPE OF SPRING ENDS = SQUARED & GROUND ENDS  
 10. MATERIAL OF SPRING = EN-45  
 11. WT. PER PIECE = 3.1 KGS.

DETAIL OF ITEM NO. 4

DETAIL OF ITEM NO. 19

DETAIL OF ITEM NO. 27

DETAIL OF ITEM NO. 1

DETAIL OF ITEM NO. 18

UP STREAM ELEVATION

A

SECTION A-A

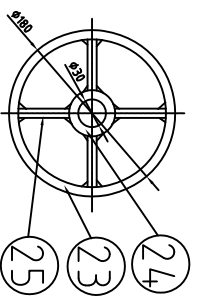
DETAIL OF ITEM NO. 5

DETAIL OF ITEM NO. 21

ITEM NO. -10

ITEM NO. -11

DETAIL OF ITEM NOS 23, 24 & 25



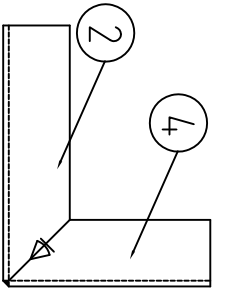
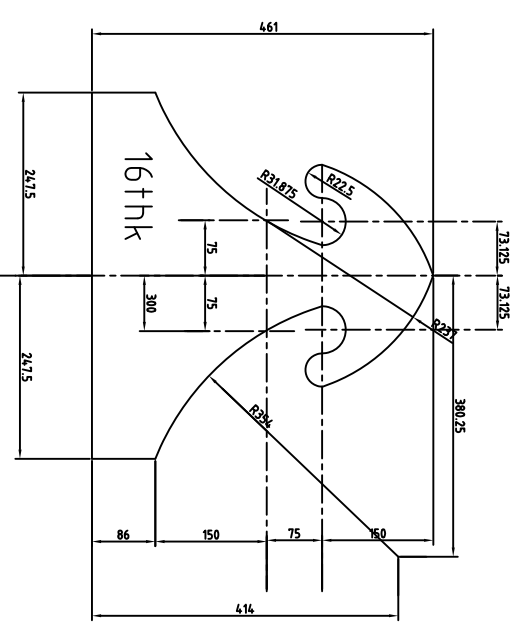
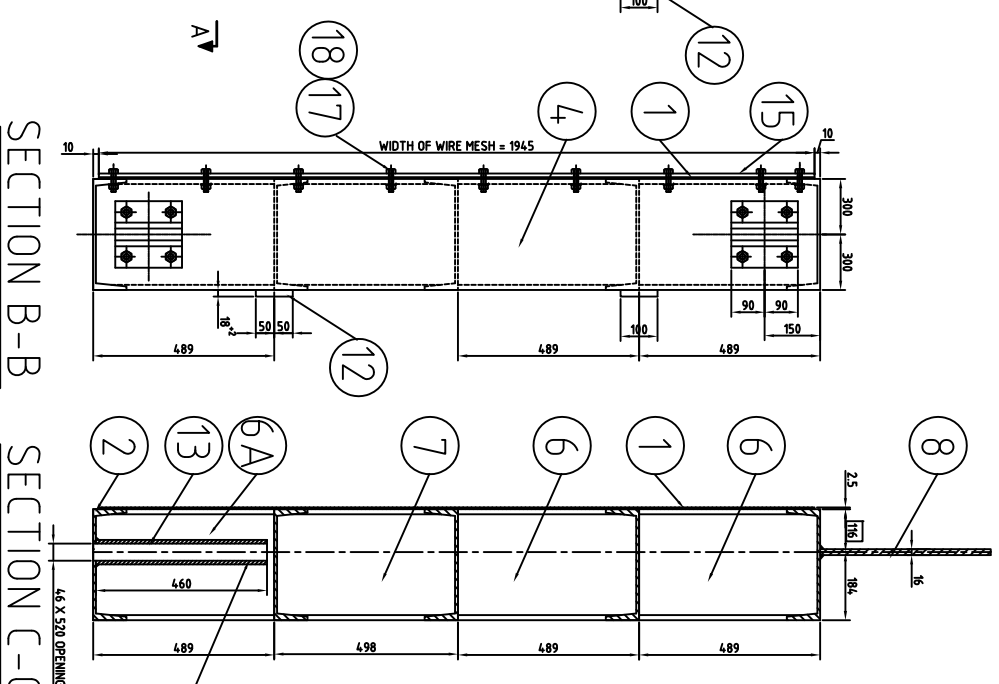
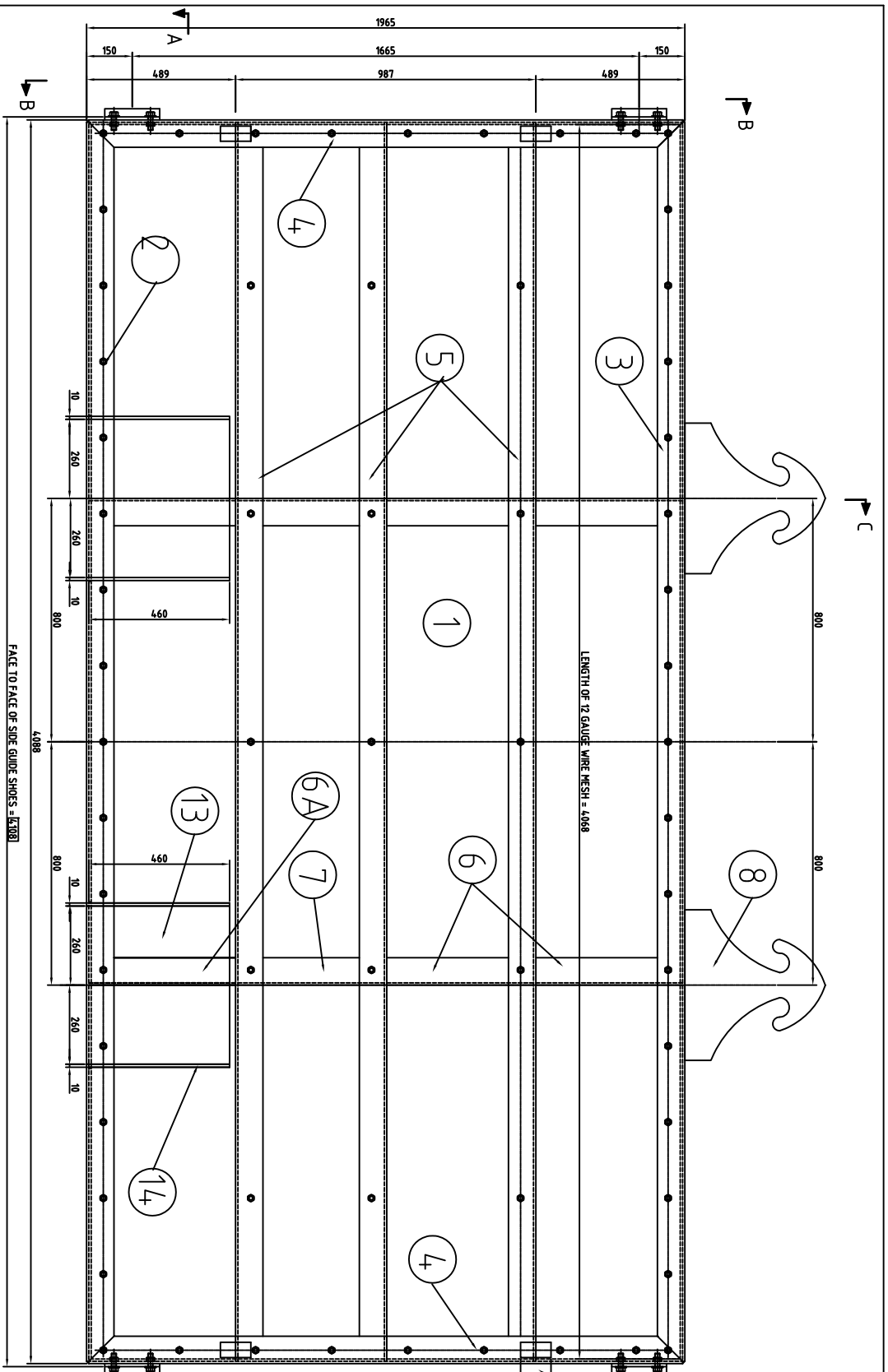
TOTAL WT. 173.0

ITEM NO.	DESCRIPTION	MATERIAL	QTY	WT. IN KGS.	REMARKS
28	PL. 250 X 12 ---300	IS:2062	2	7.3	
27	PL. 290 X 16 ---570	IS:2062	2	20.7	
26	HEX HD BOLT M10 X 50 WITH HEX NUT	M.S. GALV.	4	0.5	
25	PL. 40 X 10 ---55 LG	IS:2062	4	0.7	
24	500/300 x 4.0	IS:2062	1	0.4	
23	1800/1600x4.0 LG	IS:2062	1	1.7	
22	PACKING 250x10x 300	RUBBER	1	1.0	
21	VALVE SEAT 250x10---300 BRONZE IS:318	BRONZE	1	5.0	
20	ROUND 300 x 175 LG	IS:2062	1	1.0	
19	VALVE 2500x 80 THICK	IS:2062	1	29.5	
18	SPRING (AS NOTED)	EN-45	1	3.1	
17	PL. 1000/400x 16 THK	IS:2062	2	1.7	
16	100 GLAND 450 LG	Fibre	1	2.4	
15	PL. 1950/320x 10 THK	IS:2062	1	2.6	
14	PL. 2100/500x 10 THK	IS:2062	1	2.3	
13	PL. 1950/500x 10 THK	IS:2062	1	2.3	
12	HEX. Screw M16 x 20	PROP. CL. 4.6	8	0.5	
11	BUSH 450/300 x30	AL-BRONZE	1	0.2	
10	ROUND 950/450x30	IS:2062	1	1.3	
9	SPRING WASHER FOR M30 BOLT	SPRING STEEL	2	0.3	
8	Hex. Nut M30 To IS:1363	PR. CL. 5	2	0.4	
7	STEM 300 x 550 LG	IS:1570 Ph-16	1	3.5	
6	PL. 2400/20---480	IS:2062	1	18.1	
5	PL. 245x 20---480	IS:2062	2	37.2	
4	PL. 120x 20---222	IS:2062	2	6.1	Cut to shape
3	LUO STEF PL. 57x10 ---320	IS:2062	2	2.8	
2	PL. 120x20---300	IS:2062	1	5.7	
1	LIFTING LUG 464x16---495	IS:2062	1	17.0	

NOTES:-  
 1. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN MILLIMETRES.  
 2. TOTAL 2 NOS. OF SUCH FILLING VALVE ASSEMBLIES ARE FITTED ON TOP UNIT OF STOPLOG.  
 3. UNLESS OTHERWISE SPECIFIED ALL FILET WELDS SHALL BE OF 6MM LEG SIZE.  
 4. SURFACE CLEANING AND PAINTING SHALL BE DONE AS PER IS:1471.  
 5. FIRST OF ALL LIFTING LUG (ITEM NO.1) TO BE WELDED WITH ITEM NO. 2 AND 3 THEN ITEM NO. 2 TO BE WELDED WITH ITEM NO.4, ITEM NOS.5 TO BE ASSEMBLED WITH ITEM NO. 4, AND WELDED ON ITEM NO.6 AS PER DRAWING.  
 6. ITEM NO. 28 TO BE WELDED AFTER DOING AND ALIGNING FILLING VALVE ASSEMBLY.  
 7. FOR TOP UNIT, REFER SEPARATE DRG. NO. BIC/PSEB/CWPH/02.  
 8. FOR BOTTOM INTERCHANGEABLE UNITS, REFER SEPARATE DRG. NO. BIC/PSEB/CWPH/01.

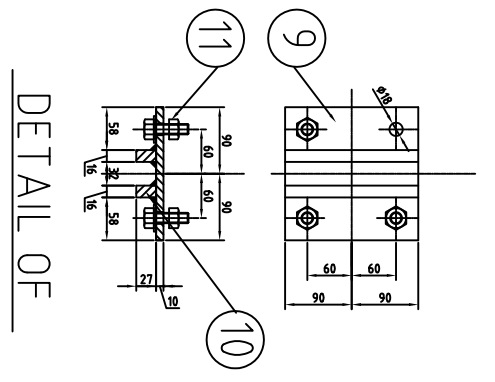
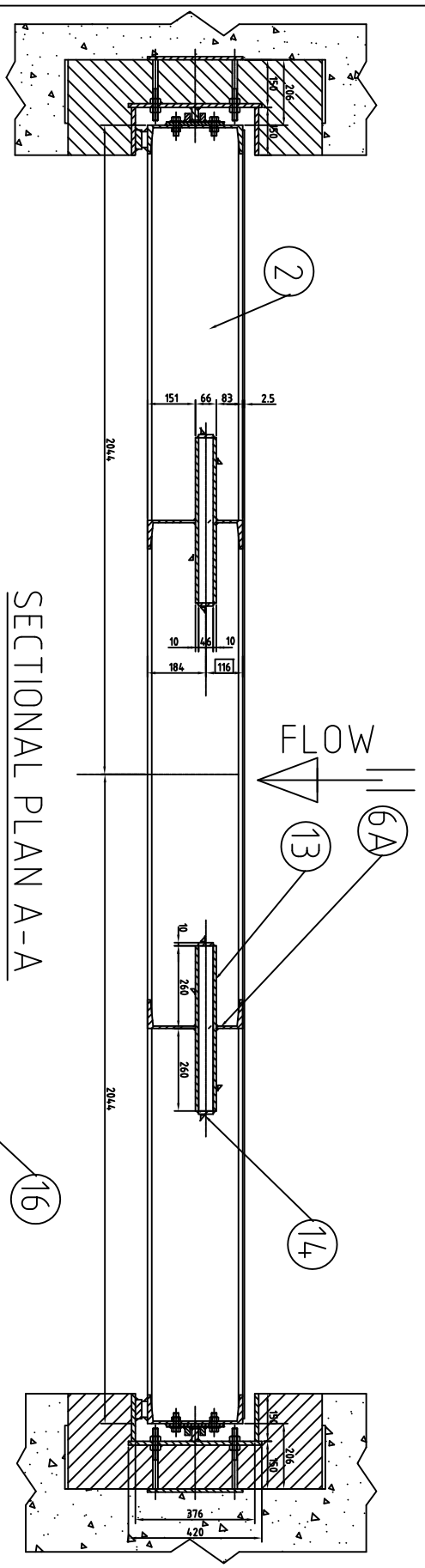
REV.	DESCRIPTION	BY	SCALE	REV.-0

SUPPLIER	BHARAT INDUSTRIAL CORPORATION
PURCHASER	PETRON CIVIL ENGINEERING
EPC CONTRACTOR	BHARAT HEAVY ELECTRICALS LTD.
EMPLOYER	PUNJAB STATE ELECTRICITY BOARD
PROJECT	2 X 250 MW, GHTPS - LEHRA MOHABBAT PROJECT
SUBJECT	FILLING VALVE ASSEMBLY FOR STOPLOG TOP UNIT FOR CW PUMP HOUSE
DRAWN BY	KHURANA
CHKD. BY	SHARMA
DESIGNED BY:	BADAL
DRG. NO.	BIC/PSEB/CWPH/03
SCALE	
REV.-0	

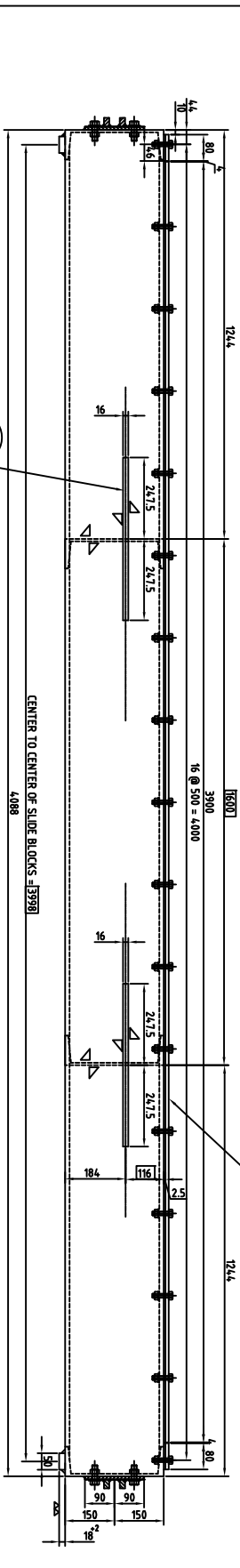


SECTION B-B SECTION C-C

DOWN STREAM ELEVATION



DETAIL OF SIDE GUIDE SHOE

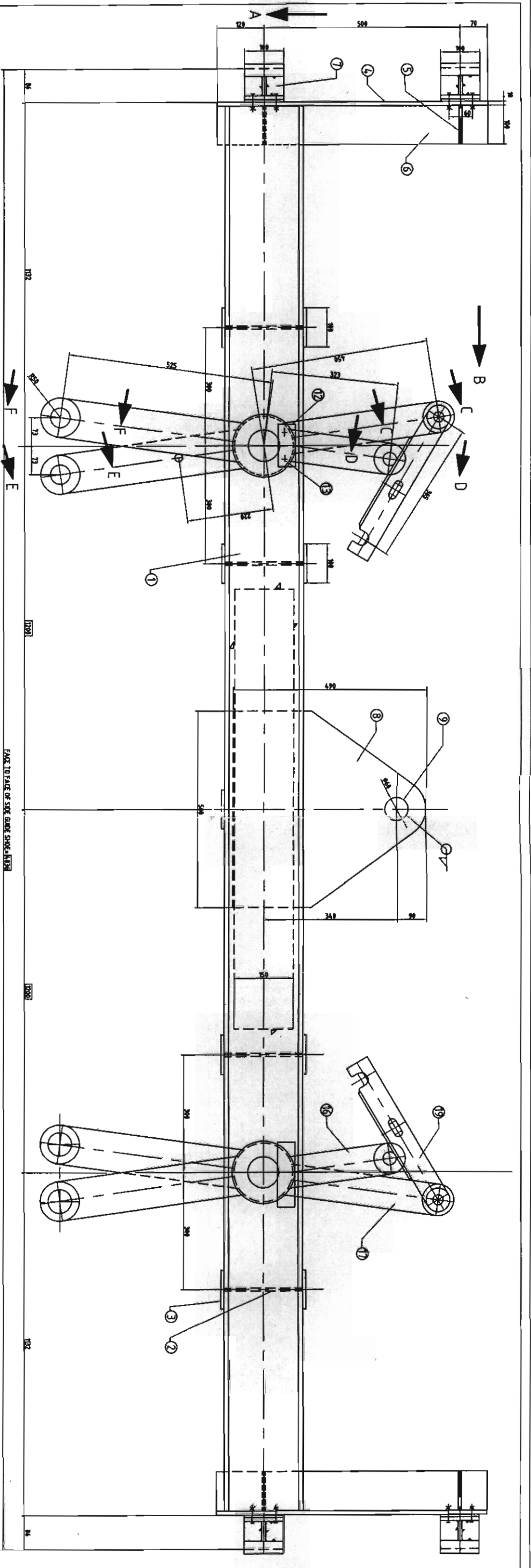


TOP PLAN

- NOTES:-
- 1 UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN MILLIMETRES.
  - 2 TOTAL 20 NOS. OF SUCH COARSE SCREEN ARE REQUIRED TO BE FABRICATED.
  - 3 UNLESS OTHERWISE SPECIFIED ALL FILLET WELDS SHALL BE OF 6MM LEG SIZE.
  - 4 FULL STRENGTH WELDED BUTT JOINTS. IF NECESSARY SHALL BE PROVIDED TO MAKE THE REQUIRED SIZE OF DIFFERENT ITEMS.
  - 5 ALL BOX DIMENSIONS ARE TO BE CORRECTLY MAINTAINED.
  - 6 MATERIAL FOR DIFFERENT PARTS OF THE COARSE SCREEN SHALL BE STRUCTURAL STEEL TO IS:2062
  - 7 SURFACE CLEANING AND PAINTING SHALL BE DONE AS PER IS:14:177.

ITEM NO.	DESCRIPTION	MATERIAL	NOS.	WT. IN KGS.	REMARKS
1	12 GAUGE WIRE MESH 1945 X 4068	IS:2062	1	48.8	
<b>SUPPLIER</b>					
BHARAT INDUSTRIAL CORPORATION					
<b>PURCHASER</b>					
PETRON CIVIL ENGINEERING					
<b>EPC CONTRACTOR</b>					
BHARAT HEAVY ELECTRICALS LTD.					
<b>EMPLOYER</b>					
PUNJAB STATE ELECTRICITY BOARD					
<b>PROJECT</b>					
2 X 250 MW, GHTPS - LEHRA MOHABBAT PROJECT					
<b>SUBJECT</b>					
DETAILS OF COARSE SCREEN FOR C. W. PUMP HOUSE					
<b>DRAWN BY</b>					
KHURANA					
<b>CHKD. BY</b>					
SHARMA					
<b>DESIGNED BY:</b> BAQAL					
<b>SCALE</b>					
DRG.NO. BIC/PSEB/CWPH/05					
<b>REV.</b>					
REV.-0					

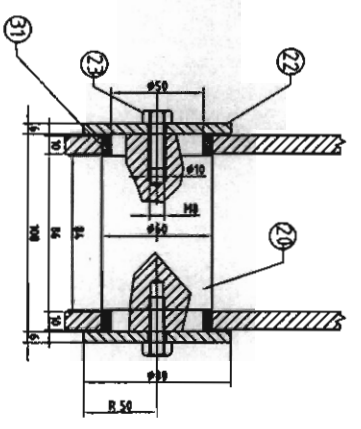
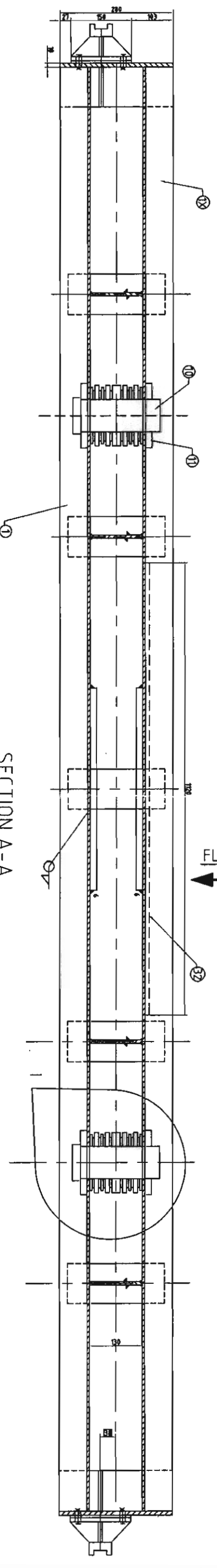




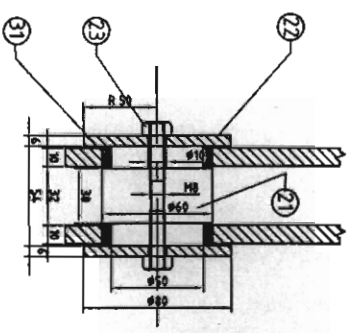
ELEVATION

FLOW

SECTION A-A



SECTION F-F



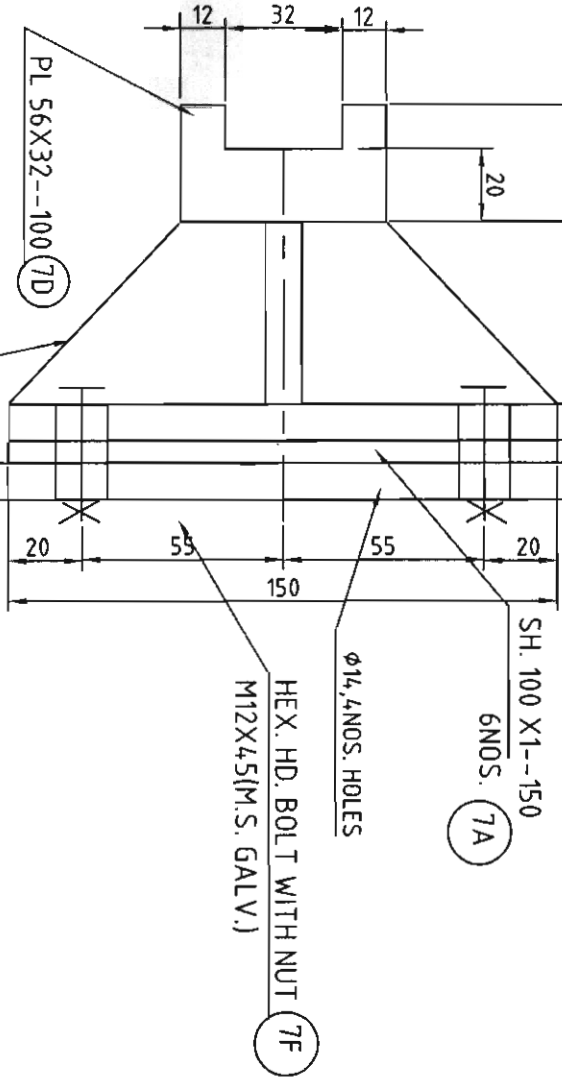
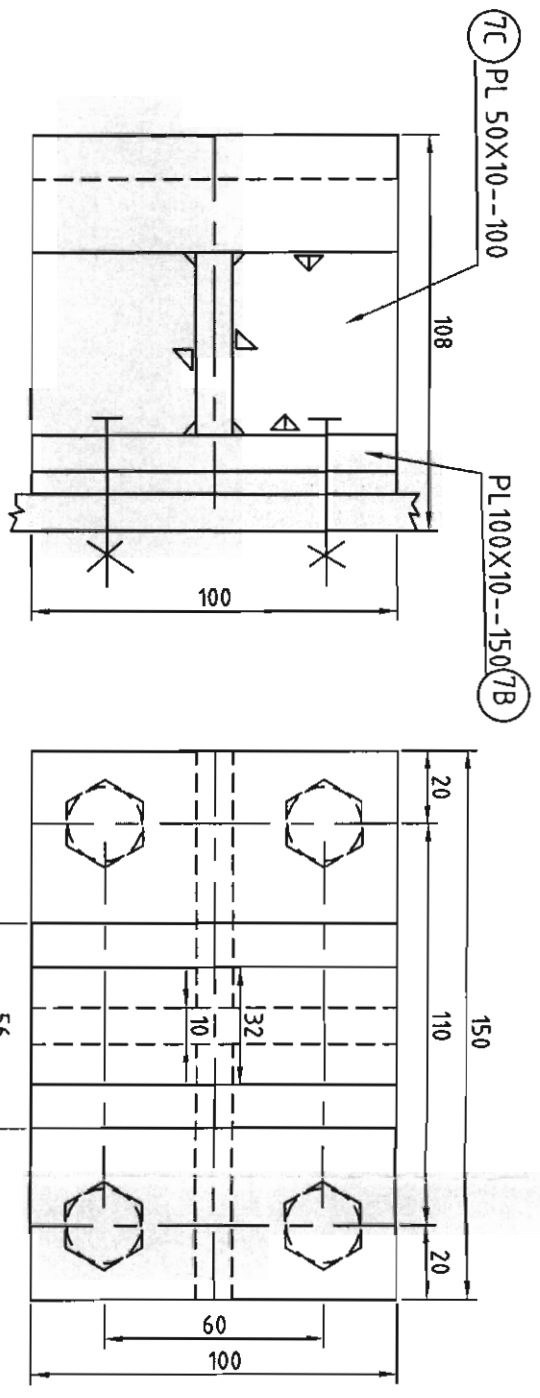
SECTION E-E

- NOTES:-
1. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN MILLIMETRES.
  2. ALL FIXING PLATES SHALL BE WELDED TO LIFTING BEAM STRUCTURE BY FILLET WELDS OF 6 mm LEG SIZE.
  3. UNLESS OTHERWISE SPECIFIED, ALL FILLET WELDS SHALL BE OF 6mm LEG SIZE CONTINUOUS.
  4. FULL STRENGTH WELDED BUTT JOINTS, IF NECESSARY, SHALL BE PROVIDED TO MAKE THE REQUIRED SIZE OF THE DIFFERENT ITEMS.
  5. SURFACE CLEANING & PAINTING SHALL BE DONE AS PER IS:14.177.
  6. BOX DIMENSIONS ARE TO BE CORRECTLY MAINTAINED.
  7. THE FABRICATOR SHALL CHECK ALL DIMENSIONS BEFORE START OF FABRICATION, CORRECT FIT OF PART SHALL BE FABRICATOR'S RESPONSIBILITY.
  8. THE DIMENSIONS SHOWN ARE NORMAL DIMENSIONS. THE FABRICATOR SHALL ALLOW ADEQUATE CUTTING AND MACHINING ALLOWANCES ON THE RAW MATERIAL TO ENSURE ACCURATE FINISH DIMENSIONS.
  9. THE LIFTING BEAM SHALL BE COMPLETELY ASSEMBLED AND CHECKED FOR DIMENSIONS & OPERATIONS.
  10. THE ENGAGING AND DISENGAGING OPERATIONS OF THE LATCH PLATE SHALL BE TESTED SEVERAL TIMES IN THE SHOP FOR SATISFACTORY OPERATIONS AND HAVE NECESSARY MODIFICATIONS IN THE SYSTEM TO SUIT. IN ADDITION, THE LIFTING BEAM SHALL BE CHECKED FOR PLUMBNESS WHEN LIFTED VERTICALLY FROM THE LIFTING HOOK.
  11. DEAD WEIGHT THAT IS 80 X 10 THICK PLATE OF SUITABLE LENGTH (TO BE TAKEN BY IIT & TRIAL) AS SHOWN IN SECTION B-B, MAY BE WELDED TO LONG LATCH PLATE (ITEM NO.17) AT SUITABLE LOCATION TO ENSURE POSITION OF LATCH PLATES (SYMMETRICAL ABOUT VERTICAL AXIS) AS SHOWN IN THE ELEVATION.

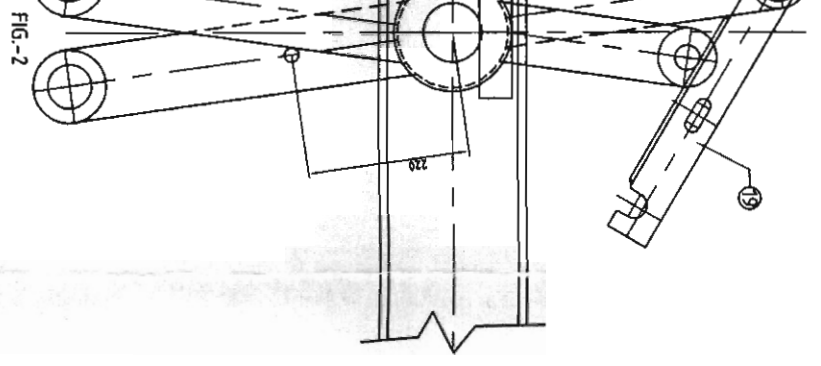
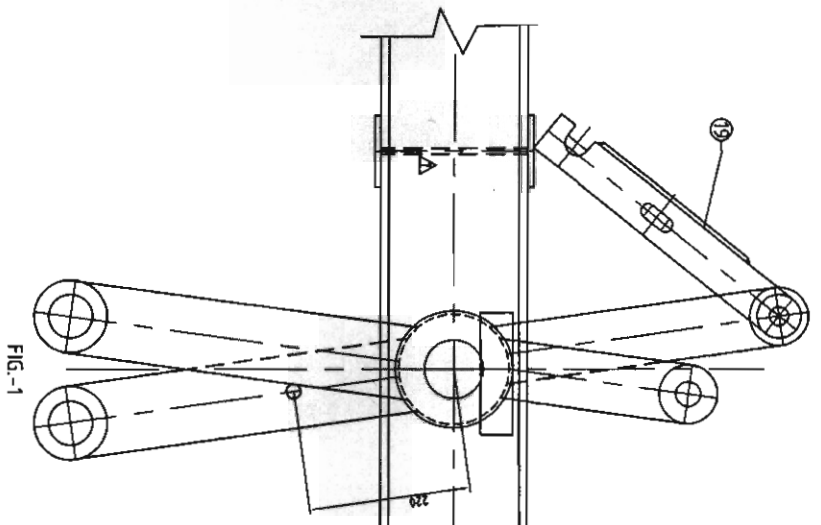
REV	DESCRIPTION	BY	SCALE

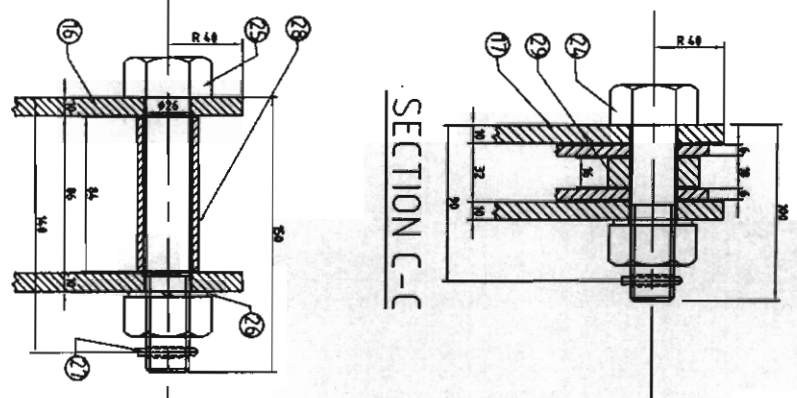
SUPPLIER	BHARAT INDUSTRIAL CORPORATION
PURCHASER	PETRON CIVIL ENGINEERING
EPC CONTRACTOR	BHARAT HEAVY ELECTRICALS LTD.
EMPLOYER	PUNJAB STATE ELECTRICITY BOARD
PROJECT	2 X 250 MW, GHTPS - LEHRA MOHABBAT PROJECT
SUBJECT	DETAILS OF LIFTING BEAM FOR STOPLOGS FOR CW PUMP HOUSE
DRAWN BY	KHURANA
CHKD. BY	SHARMA
DESIGNED BY:	BAOAL
DRG. NO.	BIC/PSEB/CWPH/07 (SH.10R.2)
REV.-0	



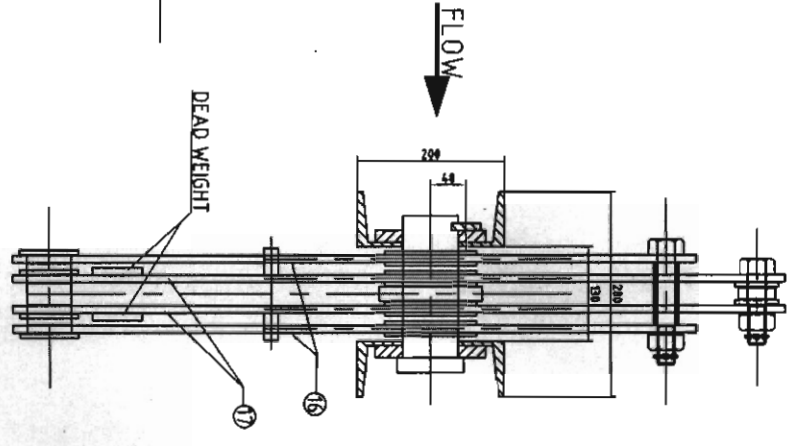
DETAIL OF ITEM NO. 7



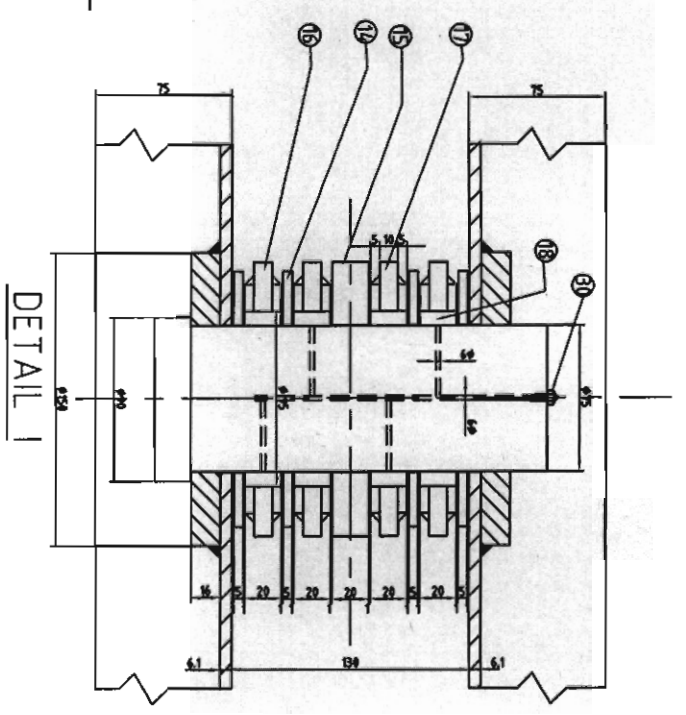
**OPERATION INSTRUCTION:-**  
 1-WHEN THE LIFTING BEAM IS TO BE LOWERED IN THE GROOVE FOR ENGAGING WITH THE GATE POSITION OF HOOK(ITEM NO. 19) SHOULD BE KEPT AS SHOWN IN FIG. 1.  
 2-WHEN THE LIFTING BEAM ENGAGED WITH GATE IS TO BE LOWERED IN GROOVE FOR DISENGAGING FROM GATE, THE POSITION OF HOOK(ITEM NO. 19) SHOULD BE CHANGED MANUALLY FROM PL. PLATFORM BEFORE LOWERING, TO MAKE IT REST ON SHORT LATCH SLEEVE ITEM NO.28 AS SHOWN IN FIG.2



SECTION D-D



SECTION B-B



DETAIL 1

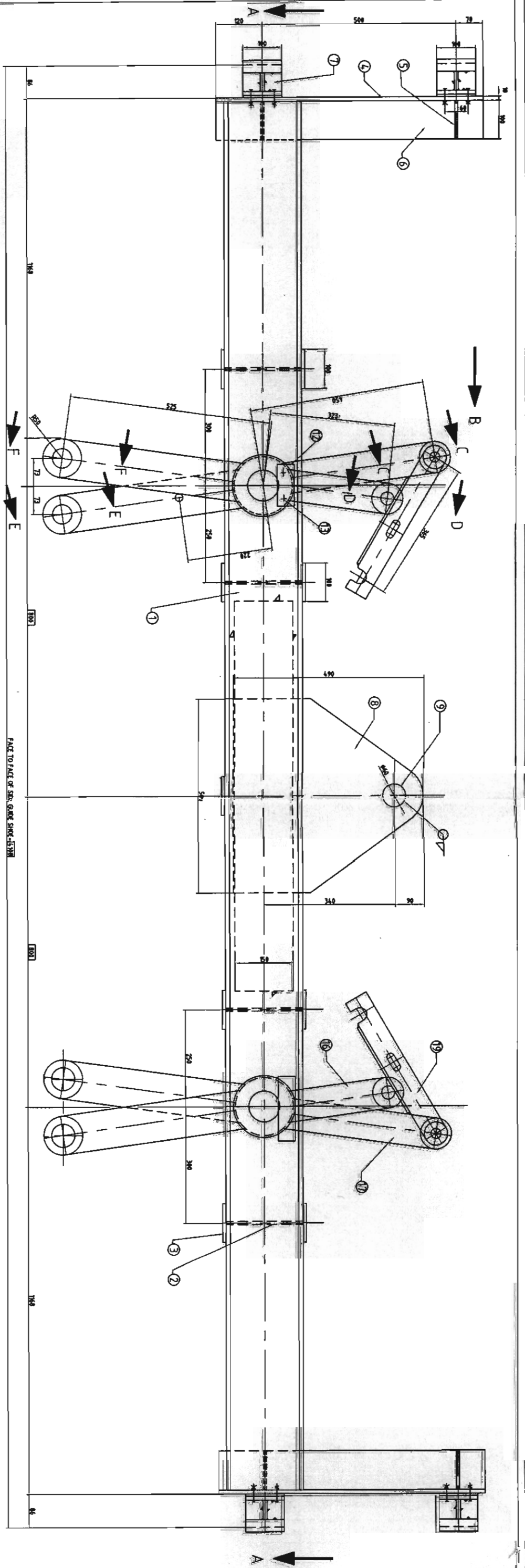
TOTAL WT. = 458.0 KGS.

ITEM NO.	DESCRIPTION	LENGTH	DUTY	MATERIAL	WT. IN KGS.	REMARKS
32	COUNTER WT. PL. 50X10X120	1		IS-2062	13.2	
31	BUSH SMALL 60X50X10	8		BRONZE TO IS-305 GR-AB-1	0.6	
30	CONC. PL. HO. GREASE NEPPLE (H10 X 1)	2		BRASS/S.S.	---	
29	SPACER 70X75X16	2		IS-2062	0.8	
28	SLEEVE FOR SHORT LATCH (25 LB. HEAVY BOLT) P/5 X10X19 NB	2		IS-2062	0.4	DR. AISI-304
27	SPLIT PIN 50X140	4		M.S. STD.	0.1	
26	SPRING WASHER FOR M24 BOLT	4		SPRING STEEL	0.1	
25	HEX HD. BOLT WITH NUT M24X150	2		IS-1570 PT-5 X10X17 DR. AISI-304	1.6	
24	HEX HD. BOLT WITH NUT M24X100	2		IS-1570 PT-5 X10X17 NB DR. AISI-304	1.2	
23	HEX HD. SCREW M8X25	8		IS-1570 PT-5 X10X17 NB DR. AISI-304	0.2	
22	LOCKING PL. 80X16X16	8		IS-2062	1.9	
21	LATCH PIN LONG	2		IS-1570 PT-5 X10X17 DR. AISI-410	2.0	
20	LATCH PIN SHORT	2		IS-1570 PT-5 X10X17 DR. AISI-410	4.6	
19	HOOK	2		IS-2062	6.2	
18	BUSH 55X75X20	8		BRONZE TO IS-305 GR-AB-1	3.2	
17	LATCH PLATE LONG	2L+2R		IS-2062	30.0	
16	LATCH PLATE SHORT	2L+2R		IS-2062	29.2	
15	SPACER 140X77X207TK	2		IS-2062	3.4	
14	HEX HD. SCREW M8X25	8		M.S. GALV.	0.6	
13	KEEPER PL. 40X10	4		IS-2062	1.8	
12	FIXING PL. 50X75X16	4		IS-2062	6.7	
11	PN 75#	2		IS-1570 PT-5 X10X17 DR. AISI-410	5.0	
10	LFT. PN 60#	1		IS-1570 PT-5 X10X17 DR. AISI-410	3.4	
9	LFT. PL. 450 X16	2		IS-2062	44.0	
8	SIDE GUIDE SHOE	4		IS-2062	16.0	
7	VERT. PL. 100X8	2		IS-2062	8.7	
6	DIAPH. PL. 100X8	8		IS-2062	3.1	
5	MAIN VERT. PL. 280X10	2		IS-2062	30.3	
4	BAT. PL. 100X8	9		IS-2062	13.7	
3	DIAPH. PL. 130 X8	4		IS-2062	5.4	
2	ISHC 200 X 75	1-1		IS-2062	206.2	

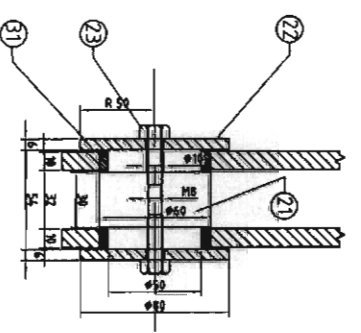
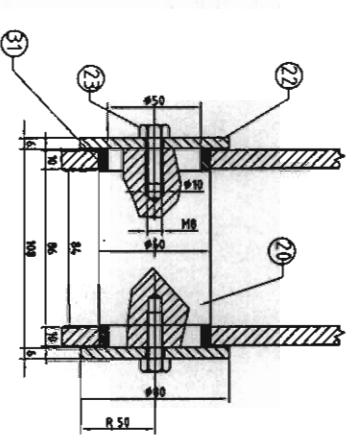
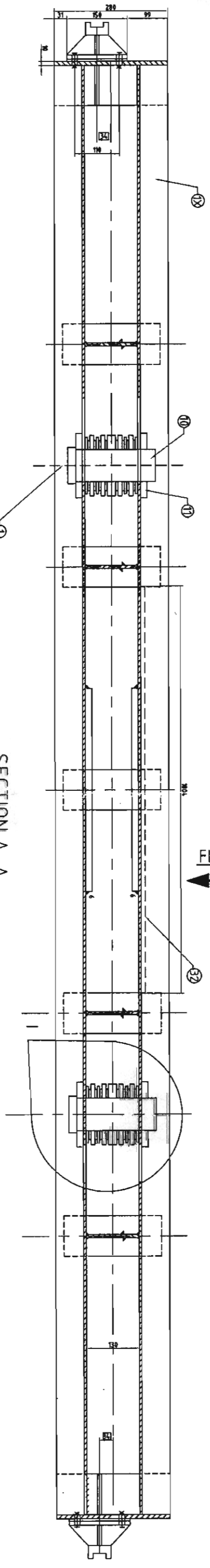
REV.	DESCRIPTION	BY	SCALE

SUPPLIER	BHARAT INDUSTRIAL CORPORATION
PURCHASER	PETRON CIVIL ENGINEERING
EPC CONTRACTOR	BHARAT HEAVY ELECTRICALS LTD.
EMPLOYER	PUNJAB STATE ELECTRICITY BOARD
PROJECT	2 X 250 MW, GHTPS - LEHRA MOHABAT PROJECT
SUBJECT	DETAILS OF LIFTING BEAM FOR STOPLOGS FOR CW PUMP HOUSE
DRAWN BY	KHURANA
CHKD. BY	SHARMA
DESIGNED BY	BADAL
DRG. NO.	BIC/PSEB/CWPH/07 1 SH. 2 OF 21
REV.	0



ELEVATION  
FLOW



NOTES:-

1. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN MILLIMETRES.
2. ALL FIXING PLATES SHALL BE WELDED TO LIFTING BEAM STRUCTURE BY FILLET WELDS OF 6 mm LEG SIZE.
3. UNLESS OTHERWISE SPECIFIED ALL FILLET WELDS SHALL BE OF 6mm. EG SIZE CONTINUOUS.
4. FULL STRENGTH WELDED BUTT JOINTS NECESSARY SHALL BE PROVIDED TO HAVE THE REQUIRED SIZE OF THE DIFFERENT ITEMS.
5. SURFACE CLEANING & PAINTING SHALL BE DONE AS PER IS:1477.
6. BOX DIMENSIONS ARE TO BE CORRECTLY MAINTAINED.
7. THE FABRICATOR SHALL CHECK ALL DIMENSIONS BEFORE START OF FABRICATION. CORRECT FIT OF PART SHALL BE FABRICATOR'S RESPONSIBILITY.
8. THE DIMENSIONS SHOWN ARE NORMAL DIMENSIONS. THE FABRICATOR SHALL ALLOW ADEQUATE CUTTING AND MACHINING ALLOWANCES ON THE RAW MATERIAL TO ENSURE ACCURATE FINISH DIMENSIONS.
9. THE LIFTING BEAM SHALL BE COMPLETELY ASSEMBLED AND CHECKED FOR DIMENSIONS & OPERATIONS.
10. THE ENGAGING AND DISENGAGING OPERATIONS OF THE LATCH PLATE SHALL BE TESTED SEVERAL TIMES IN THE SHOP FOR SATISFACTORY OPERATION AND MAKE NECESSARY MODIFICATIONS IN THE SYSTEM TO SUIT IN ADDITION. THE LIFTING BEAM SHALL BE CHECKED FOR PLUMBNESS WHEN LIFTED VERTICALLY FROM THE LIFTING HOOK.
11. DEAD WEIGHT THAT IS 80 X 10 THICK PLATE OF SUITABLE LENGTH (TO BE TAKEN BY INT. 2. TRAIL 1) AS SHOWN IN SECTION B-B, MAY BE WELDED TO LONG LATCH PLATE (WITH NO. 7) AT SUITABLE LOCATION TO ENSURE POSITION OF LATCH PLATES (SYMMETRICAL ABOUT VERTICAL AXIS) AS SHOWN IN THE ELEVATION.

SECTION F-F

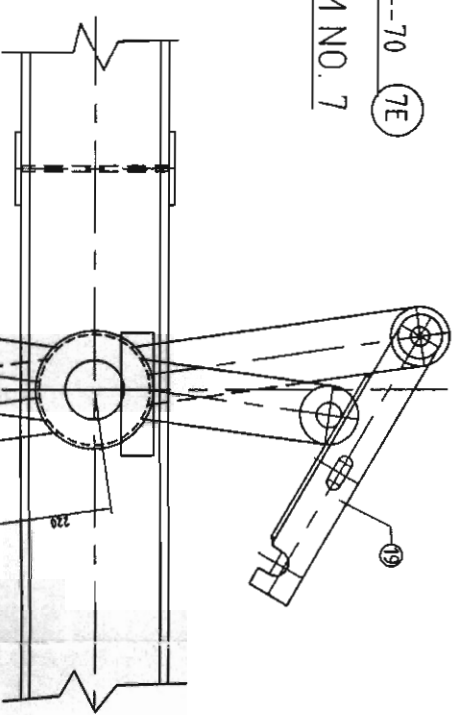
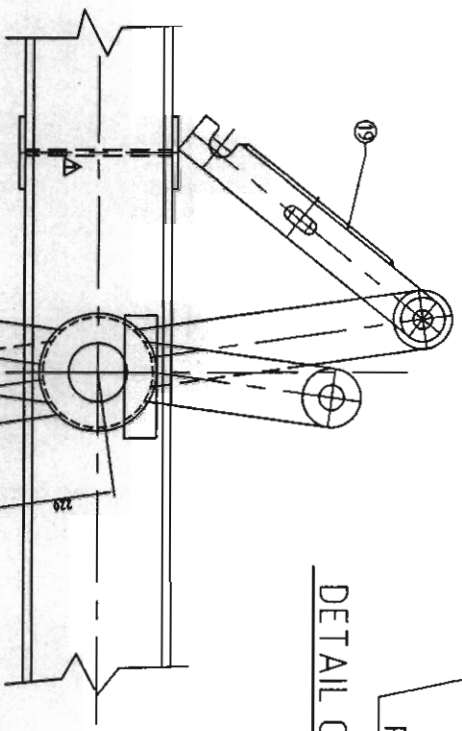
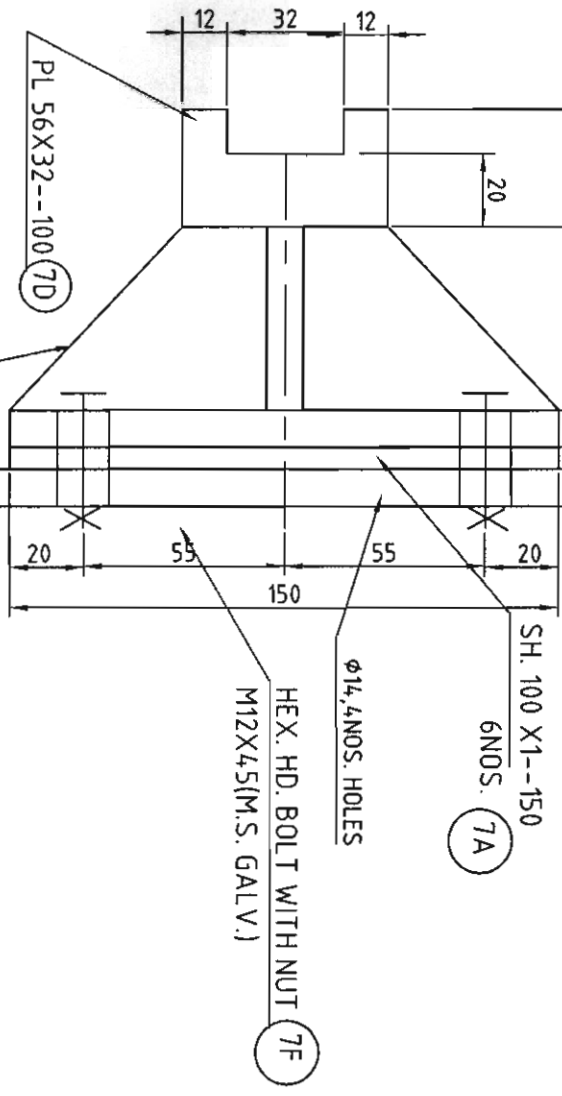
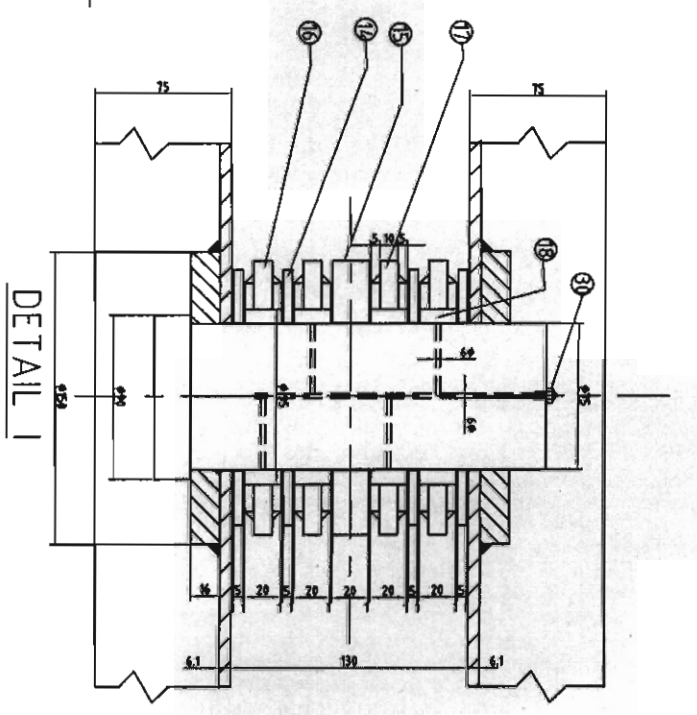
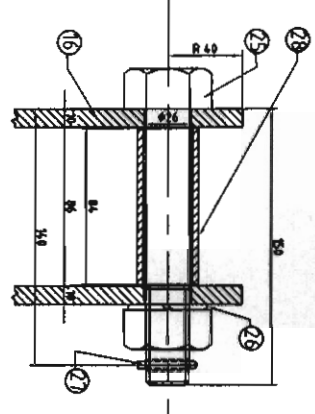
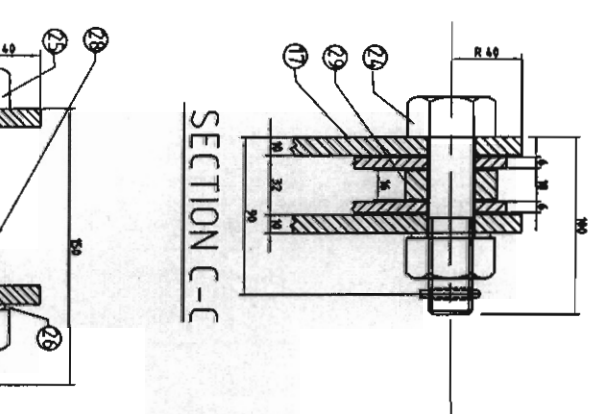
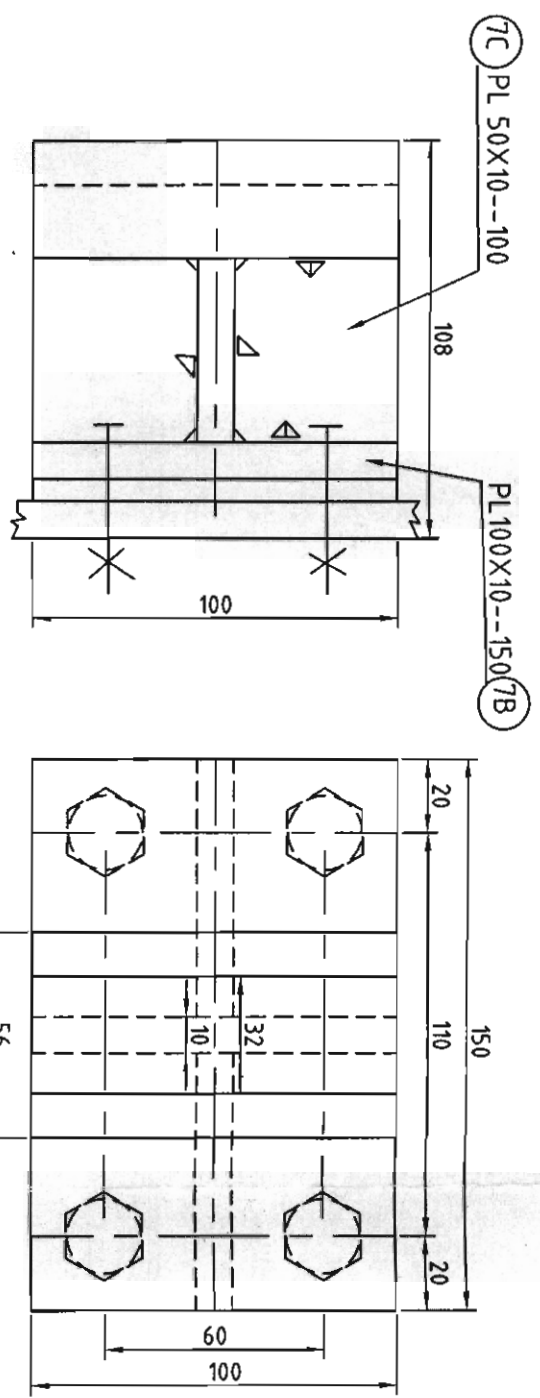
SECTION E-E

SECTION A-A

REV.	DESCRIPTION	BY	SCALE

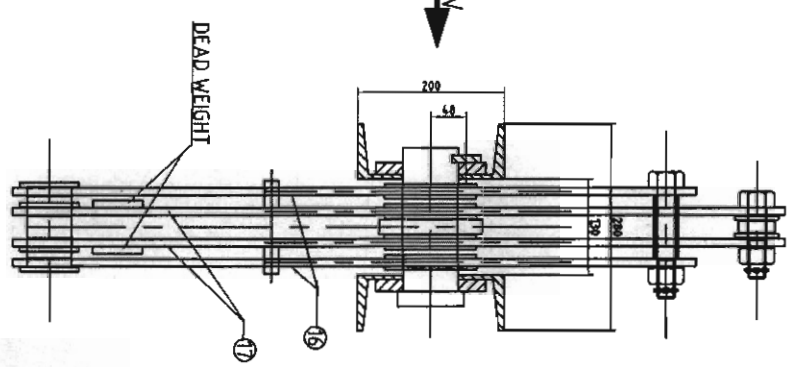
SUPPLIER	BHARAT INDUSTRIAL CORPORATION
PURCHASER	PETRON CIVIL ENGINEERING
EPC CONTRACTOR	BHARAT HEAVY ELECTRICALS LTD.
EMPLOYER	PUNJAB STATE ELECTRICITY BOARD
PROJECT	2 X 250 MW. GHPS - LEHRA MOHABBAT PROJECT
SUBJECT	DETAILS OF LIFTING BEAM FOR COARSE SCREEN FOR CW PUMP HOUSE
DRAWN BY	KHURANA
CHKD. BY	SHAARMA
DESIGNED BY:	BADAL
DRGNO.	BIC/PSEB/WPI/08 (SH.10F.21)
REV.	0



**OPERATION INSTRUCTION:-**

1- WHEN THE LIFTING BEAM IS TO BE LOWERED IN THE GROOVE FOR ENGAGING WITH THE GATE POSITION OF HOOK ITEM NO. 7 SHOULD BE KEPT AS SHOWN IN FIG. 1

2- WHEN THE LIFTING BEAM ENGAGED WITH GATE IS TO BE LOWERED IN GROOVE FOR DISENGAGING FROM GATE THE POSITION OF HOOK ITEM NO. 7 SHOULD BE CHANGED MANUALLY FROM PLATFORM BEFORE LOWERING TO MAKE IT REST ON SHORT LATCH SLEEVE ITEM NO. 28 AS SHOWN IN FIG. 2



SECTION D-D

SECTION C-C

DETAIL 1

SECTION B-B

REV.	DESCRIPTION	BY	SCALE

DRG. NO.	ITEM NO.	DESCRIPTION	LENGTH	QTY	MATERIAL	WT. IN KGS.	REMARKS
C/PH/07/11	1	COUNTER WT. PL. 150X100X10	1	1	IS-2062	118	
	2	BUSH SMALL 600/500X10	8	8	BRONZE TO IS-305 GR-AB-1	0.6	
	3	CONICAL HD. GREASE NIPPLE	2	2	BRASS/S.S.		
	4	SPACER 700/760X16	2	2	IS-2062	0.8	
	5	SLEEVE FOR SUPPORT LATCH	2	2	IS-370 PT-5 X100X19 HD	0.4	OR AISI-304
	6	HEAVY DUTY PIPE X40	2	2	M.S. STD.	0.1	
	7	SPLIT PIN 50X4.0	4	4			
	8	SPRING WASHER FOR M24 BOLT	4	4	SPRING STEEL	0.1	
	9	HEX HD. BOLT WITH NUT M24X160	2	2	IS-1363 PT-5 X100X19 HD	1.6	OR AISI-304
	10	HEX HD. BOLT WITH NUT M24X100	2	2	IS-1363 PT-5 X100X19 HD	1.2	OR AISI-304
	11	HEX HD. SCREW HBX25	8	8	IS-1510 PT-5 X100X19 HD	0.2	OR AISI-304
	12	LOCKING PL. 800X67HK	8	8	IS-2062	1.9	
	13	LATCH PIN LONG	2	2	IS-1510 PT-5 X100X19 HD	2.0	OR AISI-410
	14	LATCH PIN SHORT	2	2	IS-1510 PT-5 X100X19 HD	4.6	OR AISI-410
	15	HOOK	2	2	IS-2062	6.2	
	16	BUSH 950/750X20	8	8	BRONZE TO IS-305 GR-AB-1	3.2	
	17	LATCH PLATE LONG	2L-2R	2	IS-2062	30.0	
	18	LATCH PLATE SHORT	2L-2R	2	IS-2062	29.2	
	19	SPACER 1400/770X207HK	2	2	IS-2062	3.4	
	20	SPACER 1400/770X207HK	2	2	IS-2062	3.4	
	21	HEX HD. SCREW HBX25	8	8	M.S. GALV.	0.6	
	22	KEEPER PL. 40X10	4	4	IS-2062	1.8	
	23	FIXING PL. 500/750X16	4	4	IS-2062	6.7	
	24	PIN 750	2	2	IS-1510 PT-5 X100X19 HD	15.0	OR AISI-410
	25	LFT PIN 600	1	1	IS-1510 PT-5 X100X19 HD	3.4	OR AISI-410
	26	LFT. PL. 490 X16	2	2	IS-2062	44.0	
	27	SIDE GUIDE SHOE	4	4	IS-2062	16.0	
	28	VERT. PL. 100X8	2	2	IS-2062	8.7	
	29	DIAPH. PL. 800X8	61	61	IS-2062	3.1	
	30	MAIN VERT. PL. 280X10	2	2	IS-2062	30.3	
	31	BAT. PL. 100X8	24.0	9	IS-2062	13.7	
	32	DIAPH. PL. 130 X8	200	4	IS-2062	6.4	
33	ISMC 200 X 75	3916	1+1	IS-2062	173.9		

SUPPLIER: BHARAT INDUSTRIAL CORPORATION

PURCHASER: PETRON CIVIL ENGINEERING

EPC CONTRACTOR: BHARAT HEAVY ELECTRICALS LTD.

EMPLOYER: PUNJAB STATE ELECTRICITY BOARD

PROJECT: 2 X 250 MW, GHPS - LEHRA MOHABBAT PROJECT

SUBJECT: DETAILS OF LIFTING BEAM FOR COARSE SCREEN FOR CW PUMP HOUSE

DRAWN BY: KHURANA

CHKD. BY: SHARMA

DESIGNED BY: BADAL

TOTAL WT = 424.3 KGS.

DRG. NO. BIC/PSEB/CWPH/08 (SAL 2 OF 2) REV.-0