



DAMODAR VALLEY CORPORATION
(ESTABLISHED BY ACT XIV OF 1948)

EOI
Page 1 of 19



DAMODAR VALLEY CORPORATION

EOI DOCUMENTS

FOR

Installation of FGD system at CTPS U#7&8(2X250 MW)

EOI NO. : DVC/FGD/CTPS#7&8/EOI

(This document is meant for the exclusive purpose of bidding against this EOI No. / Specification and shall not be transferred, reproduced or otherwise used for purposes other than that for which it is specifically issued).



DAMODAR VALLEY CORPORATION
(ESTABLISHED BY ACT XIV OF 1948)

EOI
Page 2 of 19

VOLUME – I

EOI No.: DVC/FGD/CTPS#7&8/EOI

Date: 02/11/2022

1.0 Damodar Valley Corporation (DVC) invites EOI (Expression of Interest) from interested Bidder/Applicants in India for “Installation of FGD system at CTPS U#7&8(2X250 MW)” as per the Scope mentioned in VOLUME-II of this EOI documents following the terms & conditions of this EOI documents.

2.0 EOI SCHEDULE:

EOI Document downloading Date & Timing	From 11:00 hrs.(IST) of 03/11/2020 to 11:00 hrs.(IST) of 30/11/2020
Last date of submission of queries on the EOI documents through e-mail	17/11/2022
Last date & time for submission/uploading of EOI by the Bidder/Applicants <u>online</u> .	On 30/11/2022 at 16:00 hrs.(IST)
Opening Date & Time of EOI of the Bidder/Applicants <u>online</u> .	On 01/12/2022 at 16:30 hrs.(IST)

The details are available at CPP Portal (Central public Procurement Portal) <https://etenders.gov.in/eprocure/app> and in www.dvc.gov.in (For information only). Any addendum/corrigendum /extension, if required, pertaining to this EOI documents will be hosted in <https://etenders.gov.in/eprocure/app> only. Bidder/Applicants are requested to visit website <https://etenders.gov.in/eprocure/app> regularly for any addendum/corrigendum/extension till opening of the EOI.

3.0 The complete set of this EOI Documents can be downloaded free of cost by the Bidder/Applicants through CPP Portal (Central public Procurement Portal) <https://etenders.gov.in/eprocure/app>.

The EOI shall be processed only through Government e-procurement system of NIC (Ge PNIC) under Central Public Procurement Portal (CPPP) (URL: <https://etenders.gov.in/eprocure/app>).

Valid Digital Signature Certificate (DSC of Class 2 or, Class 3 category) is mandatory to participate in the EOI under CPP Portal (URL: <https://etenders.gov.in/eprocure/app>). The certificate may be obtained from any of the authorised agencies of CCA (Controller of Certifying Authorities)] on Bidder/Applicant's own cost.

Bidder/Applicants are advised to go through “Special Instructions to the Contractors/Bidder/Applicants for the e-submission of their EOI online through this e-Procurement Portal”, “Information about DSC”, “Bidders Manual Kit”, “Site compatibility” & “FAQ” links available on the login page of the e-Tender portal for guidelines, Bidder enrolment, procedures for downloading of this EOI Documents & uploading of EOI and system requirements. In case of any technical difficulty, Bidder/Applicant may contact the help desk numbers & e-mail IDs mentioned at the e-tender portal.

The instructions given below are meant to assist the Bidder/Applicants in registering on the CPP Portal:-



DAMODAR VALLEY CORPORATION
(ESTABLISHED BY ACT XIV OF 1948)

EOI
Page 3 of 19

- a) Bidder/Applicants are required to register in the Government e-procurement portal, obtain 'Login ID' & 'Password' and go through the instructions available in the Home page after log in to the CPP Portal (**URL: <https://etenders.gov.in/eprocure/app>**), by clicking on the link "Online Bidder Enrolment" on the CPP Portal which is free of charge.
- b) As part of the enrolment process, the Bidder/Applicants will be required to choose a unique user name and assign a password for their accounts.
- c) Bidder/Applicants are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication from the CPP Portal.
- d) Upon enrolment, the Bidder/Applicants will be required to register their valid Digital Signature Certificate issued by any Certifying Authority recognized by CCA India with their profile.
- e) Bidder/Applicants then logs in to the site through the secured log-in by entering their user ID/password and the password of the DSC/ e-Token.
- f) The Bidder/Applicant intending to participate in the EOI is required to register in the e-tender portal using his/her Login ID and attach his/her valid Digital Signature Certificate (DSC) to his/her unique Login ID. He/she have to submit the relevant information as asked for about the firm/contractor. The Bidder/Applicants, who submit their EOI after digitally signing using their Digital Signature Certificate (DSC), accept that they have clearly understood and agreed the terms and conditions including all the Forms/Annexure of this EOI Documents and the EOI process.

More information useful for submitting online EOI/bids on the CPP Portal may be obtained at: **<https://etenders.gov.in/eprocure/app>**.

For clarification about e-EOI/tendering procedures, downloading & Uploading and further details / elaboration, the Bidder/Applicants are advised to contact the following FMP Support Persons, representatives of M/s. National Informatics Centre Services Incorporated(NICSI) :-

- (i) Mr. Sk Nawajesh Rahman, e-mail: rnawajesh@gmail.com (Contact No. 9831683690)
- (ii) Miss Armistha Kangsa Banik, e-mail: armistha.banik1989@gmail.com (Contact No. : 8240124812).

DVC shall not be responsible in any way for any delay/ difficulties/ inaccessibility of the downloading or uploading facility from the website for any reason whatsoever.

Downloading of this EOI Documents by any Bidder/Applicant shall not construe that such Bidder/Applicant is considered to be qualified. Transfer of this EOI Documents downloaded by one intending Bidder/Applicant to another is not permissible.

In case of any discrepancies found between this EOI documents downloaded from the website and the master copy available in the website **<https://etenders.gov.in/eprocure/app>**, the later shall prevail and will be binding on the Bidder/Applicant(s). No claim/appeal on this account will be entertained or given cognizance.

DVC reserves the right to reject any or all EOIs or cancel/withdraw this EOI process without assigning any reason whatsoever and in such case no Bidder/Applicant/intending Bidder/Applicant shall have any claim arising out of such action. DVC shall not be responsible in any way for any delay/ difficulties/ inaccessibility of the downloading facility from the website for any reason whatsoever.



DAMODAR VALLEY CORPORATION
(ESTABLISHED BY ACT XIV OF 1948)

EOI
Page 4 of 19

4.0 EOIs [Envelope1(Excel Sheet) and the scan copies of all the supporting documents as mentioned in this EOI documents online] received by DVC online through the above CPP Portal after last date & time of EOI submission/Uploading period will not be considered at all and DVC authorities will not take any responsibility to accept the same. The names and designation along with e-mail address of two officers specially assigned by the organisation for **receiving online queries on DVC's EOI documents** and as well as for future correspondence, are mentioned below:-

(i) Shri Souvik Mondal, EE (E), C&M Deptt. , DVC Towers, Kolkata
e-mail: souvik.mondal@dvc.gov.in; Mobile No. 7602773934

(ii) Shri Pallab Mallick, DCE(M) C&M Deptt. , DVC Towers, Kolkata
e-mail: pallab.mallick@dvc.gov.in; Mobile No. 9631935501

5.0 ADDRESS FOR COMMUNICATION:

Chief Engineer (E),
C&M Department, DVC,
DVC Towers, VIP Road, Kolkata-700054
E-mail: amitava.maity@dvc.gov.in, Tel No. 033-6607-2302

6.0 AMENDMENT TO DVC's EOI DOCUMENTS:-

At any time prior to the deadline for submission of EOI, DVC may, for any reason, whether at its own initiative, or in response to the clarifications requested by the prospective Bidder/Applicants, amend DVC's EOI documents. The amendment will be notified only on <https://etenders.gov.in/eprocure/app> . In order to afford prospective Bidder/Applicants reasonable time in which to take the amendment into account in preparing their EOI, DVC may, at its discretion, extend the deadline for the submission of EOI, if required.

Any addendum/corrigendum/extension, if required, will be hosted only to the <https://etenders.gov.in/eprocure/app>

Bidder/Applicants are requested to visit the above website regularly for any amendment/addendum/Corrigendum/extension till opening of the EOI. It will be assumed that the information contained therein will have been taken into account by the Bidder/Applicant in its EOI.

7.0 PERIOD OF VALIDITY OF BIDDER/APPLICANT'S EOI & LANGUAGE OF EOI:-

- 7.1 EOI shall remain valid for a period of 180 days from the closing date prescribed by DVC for the receipt of EOI.
- 7.2 In exceptional circumstances, DVC may solicit the Bidder/Applicant's consent to an extension of the EOI validity period. The request and responses thereto shall be made by e-mail. A Bidder/Applicant granting the request will not be required nor permitted to modify its EOI.
- 7.3 The EOI prepared by the Bidder/Applicant and all correspondence and documents related to the EOI exchanged between the Bidder/Applicant and DVC shall be written in English language, provided that any printed literature furnished by the Bidder/Applicant may be written in another language, as long as such literature is accompanied by a translation of its pertinent passages in English language in which case, for purposes of interpretation of the EOI, the translation shall



DAMODAR VALLEY CORPORATION
(ESTABLISHED BY ACT XIV OF 1948)

EOI
Page 5 of 19

govern.

8.0 QUALIFICATION REQUIREMENT FOR BIDDER/APPLICANTS:-

8.1 Qualifying Requirement on Competence of EOI:

The FGD system with the offered technology, having Flue Gas desulphurisation efficiency not less than 75%, should have been in successful operation for a period not less than one(01) year prior to the date of submission of EOI in a coal fired Thermal Power Plant of capacity not less than 200 MW.

9.0 MODIFICATION AND WITHDRAWAL OF PRE-QUALIFICATION BID

Bidder/Applicant may modify or withdraw its EOI online, after submission/uploading, prior to the deadline prescribed for EOI submission/uploading. No Bidder/Applicant will be allowed to withdraw or modify its EOI online after deadline of submission/uploading.

10.0 GENERAL CONDITIONS & METHODOLOGY:

- 1) Bidder/Applicants have to submit their EOIs online, along with all relevant supporting documents as asked in this EOI documents. This offer is a pre-bid stage and DVC will process to short list the qualified Bidder/Applicants for getting cost effective technology of FGD for compliance of new environmental norms of MoEF & CC, GoI during the process of EOI on the basis of Pre-Qualification Requirements (PQR) as mentioned in 8.0 above. Merely participation in the EOI process shall not be considered as pre-condition or, entitlement for participation in the final bidding process.
- 2) The Bidder/Applicant shall bear all cost associated with the preparation and submission of its EOI and DVC will in no case be responsible or liable for these costs, regardless of the conduct or outcome of the EOI & final bidding process.
- 3) The application that are incomplete in any respect or those that are not consistent with the Pre-qualification requirements as specified in this EOI document or those that do not adhere to formats, wherever specified will be considered non-responsive and liable for rejection and no further correspondence will be entertained with such Bidder/Applicants.
- 4) Shortlisted Bidder/Applicants who meets the above PQR shall be invited to make a presentation at a date, time notified by DVC. The purpose of such presentation would be to allow the Bidder/Applicant to present their technical solution, financial capability, approach and methodology & other key points for getting cost effective technology of FGD for compliance of new environmental norms of MoEF & CC, GoI for contentment of DVC. Copy of presentation shall have to be submitted to DVC.
- 5) Based on the outcome of this EOI technical documents /layout/specifications shall be firmed up and DVC will issue the Detailed Tender documents for the subsequent e-tendering process [Open Tender 'Two Stage' bidding basis ["Stage-I (Techno-Commercial) Bid" & "Stage-II (Price Bid) followed by e-Reverse Auction"] through <https://etenders.gov.in/eprocure/app> .
- 6) Canvassing in any form would disqualify the Bidder/Applicant.



DAMODAR VALLEY CORPORATION
(ESTABLISHED BY ACT XIV OF 1948)

EOI
Page 6 of 19

- 7) DVC reserves the right to reject any or all Pre-qualification Bids or cancel/withdraw this EOI process without assigning any reason whatsoever and in such case no Bidder/Applicant shall have any claim arising out of such action.

11.0 PRE-OFFER CLARIFICATIONS:

- 1) A prospective Bidder/Applicant requiring any clarification to this EOI documents may forward their queries to DVC only through e-mail to the two officers specially assigned for receiving online queries on the EOI documents as mentioned in clause 4.0 above, on or, before the last date of online submission of queries as mentioned in clause 2.0 above.
- 2) On the queries as asked by the Bidder/Applicants up to the last date of online submission of queries as mentioned above, the clarifications of DVC will also be hoisted online through <https://etenders.gov.in/eprocure/app>. The information contained in all the replies will have to be taken into account by the Bidder/Applicant in its EOI.

12.0 INSTRUCTIONS TO BIDDER/APPLICANTS FOR FORMULATION AND SUBMISSION OF THEIR EOIs:

- 1) The instruction mentioned should be read carefully by Bidder/Applicants before submitting their EOIs.
- 2) If any information sought in this EOI document is missing or not clearly specified by the Bidder/Applicant in its EOI, it will be assumed that the Bidder/Applicant is not in a position to supply the information and may be considered as unresponsive.
- 3) Please note that all the pages of the EOI to be uploaded by the Bidder/Applicant should be signed by authorized signatory along with seal of the Firm/Company.
- 4) EOI to be submitted online in <https://etenders.gov.in/eprocure/app> by the Bidder/Applicant shall comprise of scan copy the followings supporting documents for Envelope1 :-
 - (i) Envelope1 (Excel Sheet) duly filled up.
 - (ii) Documents in support of Qualifying Requirement on Competence of EOI, following the terms & conditions of the EOI documents.
 - (iii) Letter of EOI: This will be the covering letter of the Bidder/Applicant for his submitted EOI duly signed by the Bidder/Applicant. The content of the "Letter of EOI" printed/typed on Bidder/Applicant's letter head must be the same as per format given in Form No.1 of VOL-I of this EOI documents and it should not contain any other information.
 - (iv) Notarized Power of Attorney (as per Form No. 2 of VOL-I of this EOI document).
 - (v) Affidavit (as per Form No. 3 of VOL-I of this EOI document) on a non-judicial stamp paper of Rs. 10 regarding genuineness of the declaration/information furnished by him/them and authenticity of the documents being produced by him/them.

The Bidder/Applicant also has to upload filled up "Envelope1 (Excel Sheet)" in <https://etenders.gov.in/eprocure/app> as downloaded from the website, to complete their EOI submission process. Envelope1 (Excel Sheet) consists of Attachment-1(Declarations in support of



DAMODAR VALLEY CORPORATION
(ESTABLISHED BY ACT XIV OF 1948)

EOI
Page 7 of 19

qualification requirements) & Attachment-2(Other Declarations).

Note: After downloading of this EOI documents including the Amendments (if any), Bidder/Applicants are requested to fill up & upload their EOI through <https://etenders.gov.in/eprocure/app> duly taking care of all the Amendments. Bidder/Applicants are also requested not to upload any documents / files other than as asked in the EOI & its amendments (if any).

13.0 OPENING & EVALUATION OF EOI AS SUBMITTED BY THE BIDDER/APPLICANTS:

DVC will open the EOIs as submitted by the Bidder/Applicants online through <https://etenders.gov.in/eprocure/app> as per the EOI schedule mentioned in 2.0 above. In the event of the specified date for the opening of EOIs being declared a holiday for DVC, the EOIs will be opened at the appointed time on the next working day.

During EOI evaluation DVC may, at its discretion, ask the Bidder/Applicant for a clarification on their submitted EOI. The clarification and the response there to shall be through e-mail only, and no change in the substance of the EOI as submitted by the Bidder/Applicant shall be sought, offered or permitted.

Notwithstanding anything stated above, DVC reserves the right to assess the capabilities and capacity of the Bidder/Applicants at any stage during the entire EOI evaluation process should the circumstances warrant such assessment in the overall interest of DVC.

14.0 HARD COPY (Offline) SUBMISSION OF SUPPORTING DOCUMENTS OF THE EOIs:

Submission of the hard copies in Original / “self-authenticated and attested by Public Notary” of all the supporting documents for Envelope1 by the shortlisted Bidder/Applicants who meets the qualification requirements as mentioned above, for DVC’s verification and record, who was asked to submit the same on the Presentation date, following the terms & conditions of this EOI documents. No additional time will be allowed to the same Bidder/Applicants for producing the same supporting documents.



DAMODAR VALLEY CORPORATION
(ESTABLISHED BY ACT XIV OF 1948)

EOI
Page 8 of 19

FORM NO 1. LETTER OF EOI

To,
The

Sub:.....

Ref: EOI No:

Dear Sirs,

We offer our EOI vide No. dated to perform the services in accordance with the terms and conditions of the EOI document as published by DVC including its subsequent amendments..... and clarifications....., if any (Insert Numbers), as available in the website.

I/We are a Micro/ Small Enterprise covered under the provision of Micro Small and Medium Enterprises Act'2006 and registered with the authority of the State Government.

OR

I/We are not covered under the provision of Micro Small and Medium Enterprise Act, 2006.

We hereby confirm our acceptance of all the terms and conditions of the EOI document as published by DVC including its subsequent amendments (if any) & clarifications (if any), unconditionally.

Yours faithfully,

(Signature of Bidder/Bidder/Applicant,

OR, Authorized person of Bidder/Bidder/Applicant)

1. Name of Authorized Signatory

2. Type of Authorization

3. Name of the Bidder/Bidder/Applicant

4. Address

5. E-Mail Address



DAMODAR VALLEY CORPORATION
(ESTABLISHED BY ACT XIV OF 1948)

EOI
Page 9 of 19

6. Mobile Number

7. FAX Number

8. Telephone Number

9. Place

10. Date



DAMODAR VALLEY CORPORATION
(ESTABLISHED BY ACT XIV OF 1948)

EOI
Page 10 of 19

FORM NO 2. POWER OF ATTORNEY

ON NON JUDICIAL STAMP PAPER (minimum value of Rs.10).

TO WHOM IT MAY CONCERN

This is to certify that of M/s(Name of participating Firm / Company) has the authority to sign any document (s) in hardcopy pertaining to DVC's EOI No. dated using his official usual signature and the EOI as submitted by them shall be binding upon us during the full period of its validity.

Signature of <.....> is duly attested hereunder.

Thanking you

Yours faithfully

.....

<Signature of the Attesting Authority of the Company>

Signature of <.....> **of M/s** <Name of participating Firm / Company>

Attested by <Name of Attesting Authority>

.....

.....

Stamp

Notarized by

.....

.....

Stamp



DAMODAR VALLEY CORPORATION
(ESTABLISHED BY ACT XIV OF 1948)

EOI
Page 11 of 19

Form No 3 : PROFORMA FOR AFFIDAVIT TO BE SUBMITTED

(For genuineness of the information furnished and authenticity of the documents produced for verification in support of his eligibility)

Non Judicial Stamp Paper (minimum value of Rs.10).

A F F I D A V I T

I/We, _____, authorized representative of M/s. _____
solemnly declare that:

1. I/We am/are submitting our EOI for of against DVC's EOI no. dated vide our EOI ID
2. All declaration furnished by me/us in respect of fulfillment of eligibility criteria and qualification information of DVC's EOI is complete, correct and true.
3. I/We and or Our affiliates is / are not banned / suspended by DVC / Ministry of Power/ Govt. of India / Department of Power & Non-conventional Energy Sources, Govt. of West Bengal / Government of West Bengal/ Department of Energy, Government of Jharkhand / Govt. of Jharkhand.
OR
I/We and or Our affiliates have been banned / suspended by DVC / Ministry of Power / Govt. of India / Department of Power & Non-conventional Energy Sources, Govt. of West Bengal / Government of West Bengal / Department of Energy, Government of Jharkhand / Govt. of Jharkhand for a period of year/s, effective from to
4. All documents, submitted by me / us in support of the information furnished by me / us towards eligibility are valid and authentic.
5. I/We are a Micro/ Small Enterprise covered under the provision of Micro Small and Medium Enterprises Act'2006 and registered with the authority of the State Government.

OR

I/We are not covered under the provision of Micro Small and Medium Enterprise Act, 2006

6. If any information and documents furnished by me / us in support of the eligibility is found to be false / incorrect at any time, DVC may cancel my Pre-qualification Bid and penal action as deemed fit may be taken against me / us, including termination of the contract and banning / delisting of our firm and all partners of the firm for a minimum period of 01 (one) year.

Signature of the Tenderer

Dated:

Signature and Seal of Notary



DAMODAR VALLEY CORPORATION
(ESTABLISHED BY ACT XIV OF 1948)

EOI
Page 12 of 19

DAMODAR VALLEY CORPORATION



EXPRESSION OF INTEREST (EOI)
FOR
FLUE GAS DESULPHURISATION SYSTEM
AT
CTPS U#7&8 (2x250 MW)
VOLUME-II



DAMODAR VALLEY CORPORATION
(ESTABLISHED BY ACT XIV OF 1948)

EOI
Page 13 of 19

Table of Contents

Sl. No.	Title
1.	Introduction
2.	Scope of Work
3.	Annexure-I: Site Inputs
4.	Annexure-II: Design parameters (Critical parameters)
5.	Annexure-III: Layout with available space indicated
6.	Annexure-IV: Soil Report



DAMODAR VALLEY CORPORATION
(ESTABLISHED BY ACT XIV OF 1948)

EOI
Page 14 of 19

INTRODUCTION:

DVC: Damodar Valley Corporation (DVC) is the first multipurpose river valley project of independent India and came into existence on 7th July 1948 by an Act of the Constituent Assembly (Act No XIV of 1948). DVC has its command area of approx. 24,235 sq. kms. Spreading across the Damodar basin, boundaries of which transcend the state of West Bengal & Jharkhand. DVC has been generating, transmitting and distributing electrical energy since 1953. The installed Thermal & Hydel power Generation capacity is 6897.2 MW.

PROJECT INFORMATION:

Project Name: CHANDRAPURA THERMAL POWER STATION Unit # 7&8
Capacity of units: 2x250 MW
Project setting up by: EPC Contract by BHEL
Date of Commissioning: UNIT#7: 04.11.2009
UNIT#8: 31.03.2010
Design ambient condition: 45°C & 65%RH

LOCATION AND APPROACH

Place: Chandrapura
Location: 40 km from Dhanbad
District: Bokaro
State: Jharkhand
Postal address: Chandrapura Thermal Power Station,
PO–Chandrapura, Dist.– Bokaro,
Jharkhand, PIN – 828403
District Head Quarter: Bokaro Steel City
Distance From District Headquarter: 30 KM (approx.)
Latitude: 23° 46' (N)
Longitude: 86° 07'24" (E)

Distance from nearest Airports:

1. Birsa Munda Airport, Ranchi, Jharkhand, at 120 KM
2. Kazi Nazrul Islam Airport, Andal, Durgapur at 135 KM
3. Netaji Subhash Chandra Bose International Airport, Kolkata at 313 KM



DAMODAR VALLEY CORPORATION
(ESTABLISHED BY ACT XIV OF 1948)

EOI
Page 15 of 19

Nearest Railway Stations:

1. Chandrapura Junction
2. Dhanbad Junction
3. Bokaro Steel City

Scope of Work:

The purpose of this EOI is to obtain services from qualified & experienced bidders to carry out detailed study towards firming up the optimized technical solution as well as optimum cost for installation of Flue Gas Desulphurization (FGD) System at CTPS (2x 250 MW).

Both capital expenditure (CAPEX) & Operational cost (OPEX) shall be taken into consideration while considering balance plant life of 15 years.

The FGD system with the offered technology should have been in successful operation for a period not less than one (01) year prior to the date of submission of EOI in a coal fired Thermal Power Plant of capacity 200 MW and above. However, the financial capability of the bidders will be examined at the time of Tendering for installation of FGD following the stipulated guidelines of DVC in this regard.

The offered FGD technology should be capable to meet up the detailed technical specification for reduction of SO₂ from Flue Gas to the desired level as specified in the Technical Parameters sheet (Annexure-II).


The bidders will submit detailed technical proposal covering the followings as minimum:

- ✓ Detailed Layout
- ✓ Approximate footprint required
- ✓ SO₂ reduction efficiency both at full load and part load
- ✓ Auxiliary power consumption and its break-up
- ✓ Consumptive water requirement with breakup of each type
- ✓ Reagent requirement at 100% load
- ✓ Type of byproduct and its disposal
- ✓ Installation time from the date of award
- ✓ Any other relevant information

The Auxiliary Power consumption (APC) shall be limited to the desired level as specified in the aforesaid Annexure-II. The tentative space as available at Site has been attached for reference (Annexure-III). The bidders are advised to visit the Site and may suggest other space suitable for their Technology and that may be considered subject to Owner's approval.

Various Site inputs have been furnished as Annexure-I.

The design parameters (Critical parameters) for installation of FGD system has

		DAMODAR VALLEY CORPORATION (ESTABLISHED BY ACT XIV OF 1948)	
			EOI Page 16 of 19
<p>been furnished as Annexure-II.</p> <p>Interested bidders with suitable credentials may show their Expression of Interest (EOI) for offering their Technology of FGD complying the guidelines of “Make in India”, Gol.</p> <p>DVC will review technical proposals from different bidders and shall be at liberty to accept the proposal or reject outrightly without citing any reasons whatsoever. Decision of DVC in this regard shall be final and binding to the Bidders.</p> <p>On review and acceptance of technical proposals, DVC may seek for budgetary offer from the eligible bidders and thereafter tendering decision will be taken up suitably.</p>			



DAMODAR VALLEY CORPORATION
(ESTABLISHED BY ACT XIV OF 1948)

EOI
Page 17 of 19

Annexure-I

Site Inputs:

A. SITE CONDITIONS

1. Ground level of CTPS U #7-8: 194.5 M above MSL
2. Ambient Air Temperatures: Max. 44°C in May-June
Min. 4°C in Dec-Jan
3. Humidity: Avg. RH10%, in dry season & 100% in monsoon season
4. Wind data: a) Basic wind speed at 10 m height: 47 m/sec
b) Wind pressure: As per IS: 875 Part III-1984
5. Annual Rain fall: 1500 mm average annually
6. Seismic Zone: Zone III as per IS:1893 Part-3

B. WATER QUALITY

- 1 CW blow down water quality pH at 25°C: 8.0-8.3, Turbidity: 10.5 NTU to 38 NTU, Hardness (as CaCO₃): 250-550 ppm, MO-Alkalinity (as CaCO₃): 60-100 ppm
- 2 DM water quality pH at 25°C: 7.6 to 7.8, Silica (as SiO₂): 0.007-0.012 ppm, Hardness (as CaCO₃): nil.
- 3 Clarified water quality pH: 7.1 to 7.5, Ca-Hardness (as CaCO₃): 35-80 ppm, Total Hardness (as CaCO₃): 60-138 ppm.

C. COAL CHARACTERISTICS (FOR BOILER DESIGN)

Proximate Analysis			
1	Fixed carbon	%	38.3
2	Volatile matter	%	16.0
3	Total Moisture	%	6.0
4	Ash	%	40.0
5	Grindability Index	HGI	50
6	Higher Heating Value (HHV)	Kcal/kg	4100
7	Size of Coal to Mill	mm	25
Ultimate Analysis			
1	Carbon		42.83
2	Hydrogen		2.67
3	Nitrogen		0.81
4	Oxygen		7.37
5	Sulphur content		0.32-0.60



DAMODAR VALLEY CORPORATION
(ESTABLISHED BY ACT XIV OF 1948)

EOI
Page 18 of 19

6	Ash		40.00
7	Total Moisture (%)		6.0

D. ASH ANALYSIS OF COAL

	Ash Analysis	Performance Coal
1	Silica (%)	57.87-61.17
2	Alumina (%)	26.18-28.44
3	Iron Oxide (%)	5.13-9.92
4	Titania (%)	1.75-1.85
5	Phosphoric anhydride (%)	0.46-0.61
6	Lime (%)	0.79-1.22
7	Magnesia (%)	0.66-0.93
8	Sulphuric anhydride (%)	0.32-0.45
9	Sodium Oxide (%)	0.06-0.07
10	Alkali (%)	1.01-1.23



DAMODAR VALLEY CORPORATION (ESTABLISHED BY ACT XIV OF 1948)

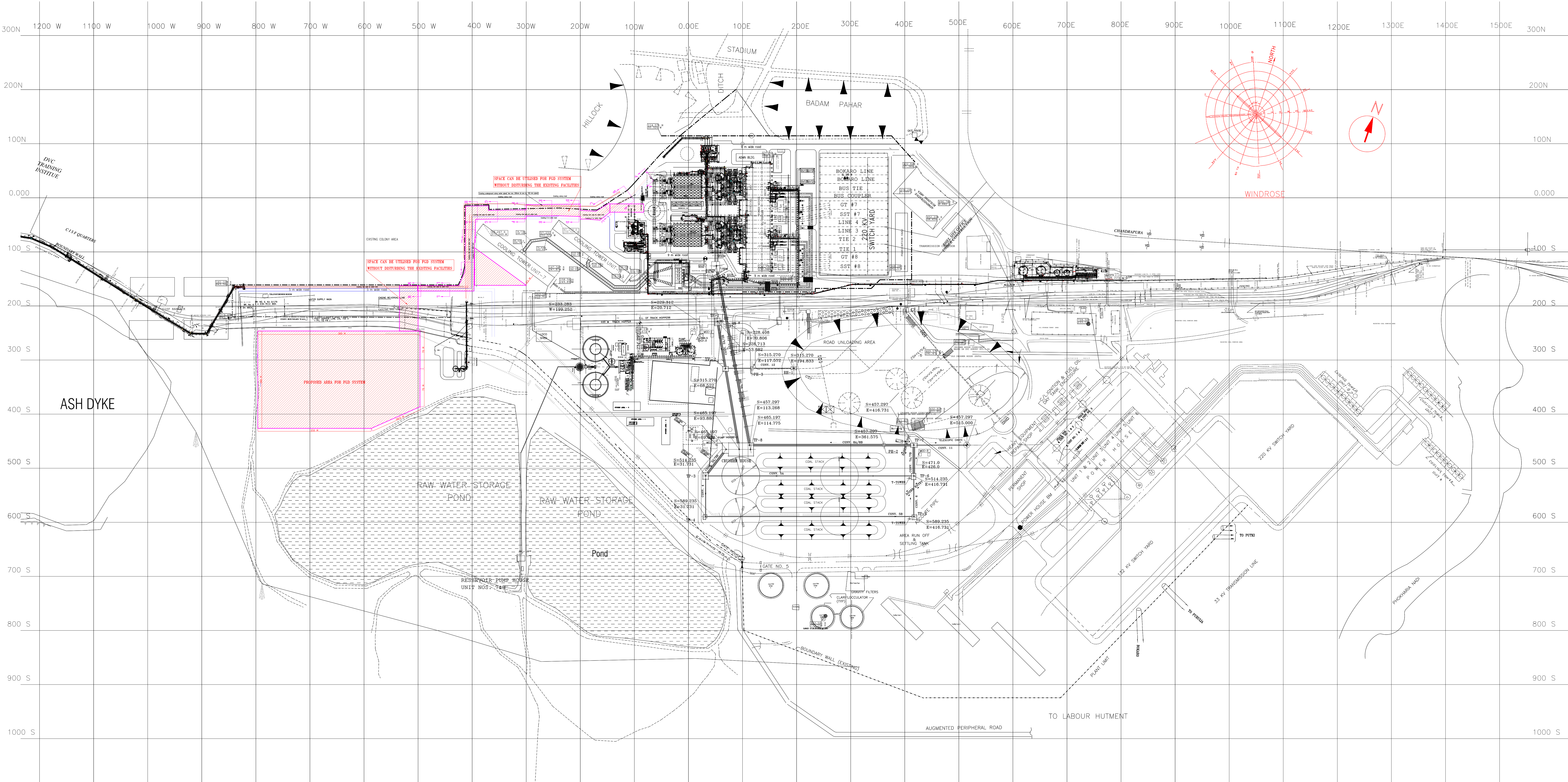
EOI
Page 19 of 19

Annexure-II

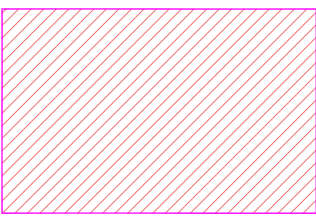
DESIGN PARAMETERS (CRITICAL PARAMETERS):

The Flue Gas Desulphurisation (FGD) System for CTPS U#7&8 shall be designed to comply with the requirements stipulated under 'Guarantee point and Design point' in the table below:

SL No	Item	Guarantee Point	Design Point
1	Boiler Load in MW (e)	2X250	2x250
2	Type of coal	Worst coal	Worst coal
3	Ambient air condition	Temp 45 °C RH 65%	Temp 45 °C RH 65%
4	Coal flow (T/hr)	184 for each unit	194 for each unit
5.A	Total Gas flow from two units at the FGD inlet when firing respective coal (m ³ /sec)	940	1034
5.B	Total Gas flow from two units at the FGD inlet when firing respective coal (Nm ³ /sec)	624	693
6	Gas temperature at FGD inlet (°C)	140	140
7	Flue gas Composition at FGD system inlet		
i)	O ₂ (% v/v wet)	7.50	7.80
ii)	CO ₂ (% V/V wet)	8.25	8.07
iii)	H ₂ O (% V/V wet)	17.00	16.74
iv)	SO ₂ (% v/v wet)	0.06887	0.06509
v)	N ₂ (% v/v wet)	67.17	67.32
vi)	Inlet SO ₂ (mg/Nm ³ -wet)	1969	1860
vii)	NO _x (at 6% O ₂)	750	
viii)	Dust (mg/Nm ³)	100	200
ix)	SO ₃ (ppm)	10.5	10.2
x)	HCL (ppm)-wet	45	45
xi)	HF (ppm)-wet	12	12
8	Min. SO ₂ removal efficiency % (Continuous)	82%	82%
9	Maximum Guaranteed Auxiliary Power Consumption (KW)	5000	5000



MARKED CROSS SECTIONAL TENTATIVE DETAIL

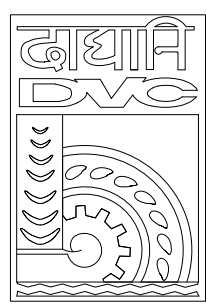
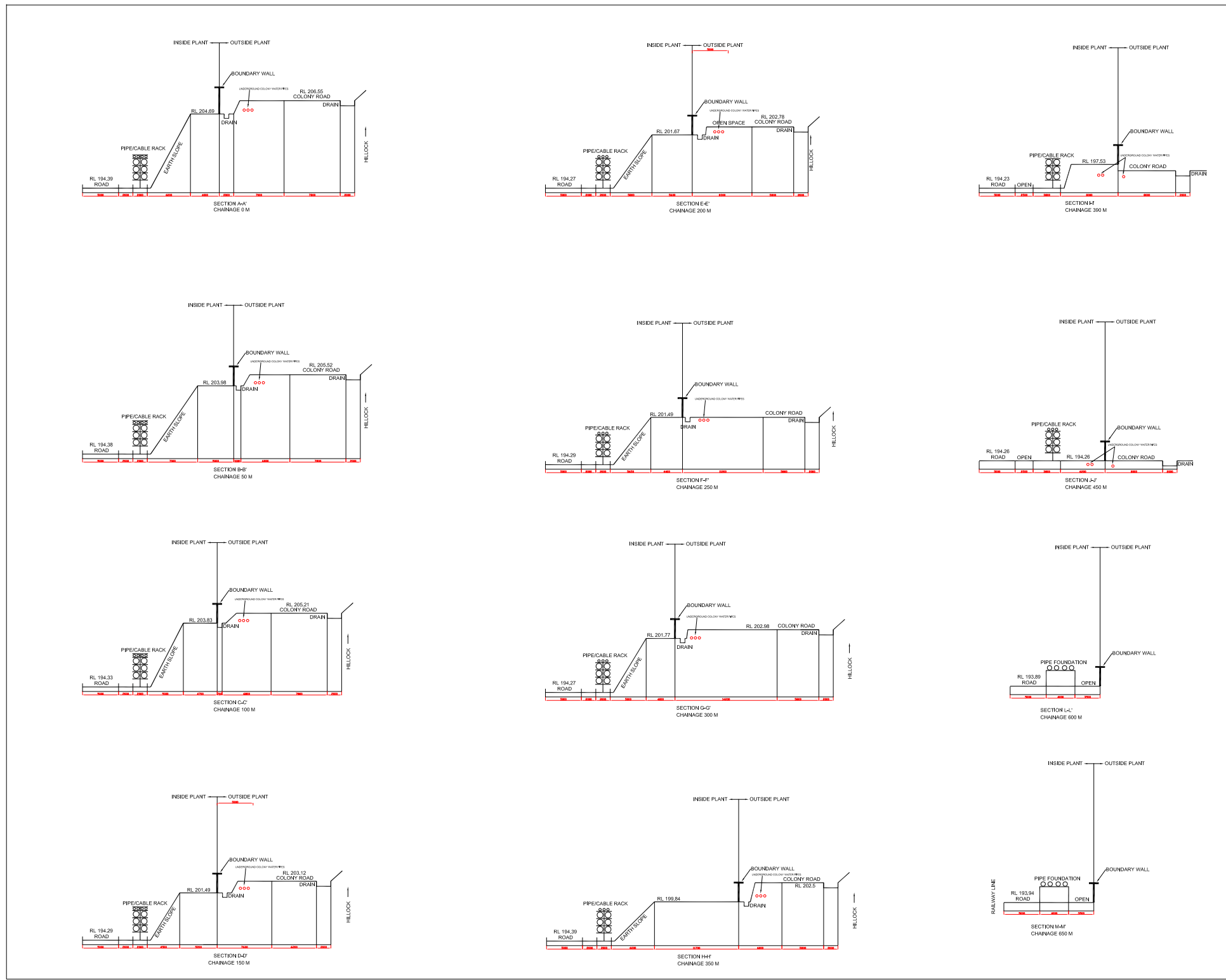


PROPOSED AREA FOR FGD SYSTEM

FOR EOI PURPOSE ONLY

NOTES

1. FINISHED GRADE LEVEL OF POWER HOUSE 194.5 M ABOVE MSL.
2. REF LVL 0.000 CORRESPONDS TO 195.000M ABOVE MSL.
3. EXISTING FUEL OIL PUMP HOUSE, ASH PIPE & CABLE RACK,WHICH MAY COME IN THE SPACE FOR PROPOSED FLUE GAS DUCT CAN NOT BE DISTURBED.
4. MINIMUM VERTICAL CLEARANCE ABOVE ROOF OF FUEL OIL PUMP HOUSE SHALL BE 3.0 M.



DAMODAR VALLEY CORPORATION

CHANDRAPURA THERMAL POWER STATION
UNITS 7&8 [2 X 250 MW]

TITLE:
GENERAL PLANT LAYOUT AND SPACE FOR FGD SYSTEM

DRAWN: E&P Section	SCALE	DATE:
CHECKED:	REVIEWED:	APPROVED:
3107-122-POM-A-001		JOB NO.
		SIZE A0
		REV-3

**DEVELOPMENT
CONSULTANTS****Damodar Valley Corporation***PPR&P 2 x 250 MW Extension Units at Chandrapura TPS*

area for movement of men and materials. The proposed sectional drawing and powerhouse floor plan are shown in Drawing Nos.K0003-010-DWG-PD-102 and K0003-010-DWG-PD-103 respectively.

10.5 **Civil Engineering Aspects**

Plant Levels :

The general ground level of the plot identified for the extension ranges between 193-195 m above MSL with eastern end of the plot located at higher elevation. In absence of detail contour survey of the plot the finished grade level of the expansion project is selected on the basis of the rail track (TOR) level of 192.45 m. HFL of the region is 171 m above MSL. For the purpose of this report, a terraced layout of the station is considered with plant and facilities located at 192.45 m above MSL and that of switchyard at 195 m above MSL. The finish grade will match the above plant levels.

Soil Characteristics :

Based on geotechnical investigations carried out earlier in the form of boreholes and trial pits, it is seen that, in general, there is a top clay cover of 1.2 to 2.4 metres underlain by a layer of medium compressible sandy



³ K. 09.2 v. 270A13 f. 100r. *Chamsa* = *chandrakara* (18).

clay of varying thickness and completely decomposed rocks containing mica in patches. Presence of isolated boulders has been observed. Underlying this area is a zone of fairly fresh and hard rock at an average depth of 12 m from ground level. From the computations made earlier, it has been observed that the safe bearing capacity at a depth of 4.5m from ground level would be 22 T/m². Based on experience of earlier units spread footing in foundation have been considered for major plant and equipment and the project cost estimate is prepared based on this assumption. Therefore, no piling has been considered for this station. To avoid rock cutting, basement in the power house block has been kept at minimum.

Seismic Considerations:

The power station is located under Zone-III as per IS:1893-1984 for which the basic horizontal seismic co-efficient is 0.04. Analysis and design of structures to resist the seismic forces are to be carried out as per the provisions of IS:1893. The applicable importance factors would be duly considered in the detail design.



Wind Condition :

The basic wind speed and the design wind speed as specified in IS:875-1987 (Part 3) for the zone where the proposed power station is located, while designing buildings and structures, will be adopted. The wind pressure corresponding to the design wind speed along with its variation with heights and with appropriate coefficients for shape of the structures will be considered for design.

10.6 Description of Building & Superstructure

Power House Building Superstructure :

The superstructure of the power house building will be in fabricated structural steelwork. All components will be of welded fabrication and the field connections will be with high-tensile bolts or welding as determined in design stage. The transverse frames will be of rigid type. In the longitudinal direction these rigid transverse frames will be braced to resist horizontal forces. Floors and roofs, except the turbine hall roof will have cast-in-situ RC slabs. The turbine hall roof will be made of pre-cast RC planks in order to reduce the period of construction. Side cladding will be of plastered brick work supported on steel wall beams.