BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL, (CZ) AT BHOPAL (MP)

Appeal No. 06 of 2019 (CZ)

BUDHSEN RATHOUR ..... APPLICANT

VS

UNION OF INDIA & Others ..... RESPONDENTS

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मध्य प्रदेश सरकार ★ GOVT. OF M.P. ★ विजय प्रताप सिंह एडवोकेट/नोटरी म.प्र. 41/04/सतना 04/21-अप्रै)2021

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Date: .19.../08/2022

Respondent no. 04/ SECL

Through Counsel

(Om Shanker Shrivastava, Adv)
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Ph:- 7869911990 / email:- omslawhouse1@gmail.com

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BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL, (CZ) AT BHOPAL (MP)

Appeal No. 06 of 2019 (CZ)

BUDHSEN RATHOUR ..... APPLICANT

VS

UNION OF INDIA & Others ..... RESPONDENTS

APPLICATION FOR FILING ADDITIONAL DOCUMENTS AND ACTION TAKEN/ STATUS REPORT IN COMPLIANCE OF THE DIRECTION AND JOINT COMMITTEE REPORT ON BEHALF OF SOUTH EASTERN COAL FIELDS LIMITED (SECL)

MAY IT PLEASE,

The humble respondent submits here as under:

1. That, it's most humbly submitted that, in compliance of the order dated 28.03.2022 passed by this Hon'ble Tribunal joint committee comprising of CPCB, SPCB, and State administration was constituted to ascertain the status of Compliance Conditions for Expansion and impact of the project of respondent SECL. The humble respondent seeks to file the documents in support of compliance and action taken on observation of joint committee as follows.
2. That, In fact, the answering respondent for opening of mine, and different mine development activities, at present only 11.432 Ha out 472.065 Ha is acquired, and sufficient numbers of plants are planted in 2 Ha, out of 11.432 Ha- acquired area.
3. That, to fulfil the countries need of power generation, CIL planned to produce coal of 1 BT in 2019-20 in which the contribution of SECL has been planned as 239 Mte. Based on "Road Map for Enhancement Coal Production of CIL" the target of SECL for the

year 2018-19 is 167.00 Mt. To meet this growth in production of SECL in the year 2018-19, Khairaha underground mine has been identified for enhancement of production from 0.585 MTPA to - 0.819 MTPA. Moreover, Coal of SECL mines is not only supplied to Thermal Power Plant. In 2018-19- 64% of total coal and 2019-20 (upto Dec)- 58% of total coal from Khairaha UG mine is dispatched to power sector, and remaining coal supplied to other then power sector (like Cement etc.).

4. That, the answering respondent applied for expansion of EC for Khairaha UG, mines. After detailed scrutiny of Environment Clearance (in short "EC") the expansion proposal was duly considered by EAC (Environmental Appraisal Committee) in its 36th EAC and in 41st EAC meeting and the EC was granted for one year, subjected to compliance of certain condition, which is duly fulfilled by the answering respondent.
5. The respondent prepared comprehensive EIA – EMP report considering the impact of already existing project (Rajendra UG and Damni UG mine) as per prescribed ToR. The increase in PM10 values due to incremental capacity enhancement of 0.234 MTPA have been predicted with pollution control measures provisioned as per mine plan. When the coal production from Khairaha UG will be enhanced from 0.585 to 0.819 MTPA, considering the existing concentration as 98 percentile and the average value, the predicted concentration of PM10 at all receptor locations were found well within the prescribed norms of coal mining standards/National Ambient Air Quality Standards. During submission of EC expansion application, the EIA-EMP report along with the inspection report of RO, MoEF & CC, Bhopal and Public Hearing compliance was submitted for consideration of the project before EAC.
6. That, as the mine progress and land will acquired for depillaring operation, plantation will be carried out in remaining depillared area. Further, digital monitoring of land is being carried out once in a three year, enclosed and also periodical health surveillance program of the workers are being carried out, Once in five year – up to 45-year age, once in three year- after 45 years aged employ.

7. That, further it's most humbly submitted that, Ambient Air Quality seasonal data for the period from November 2017 to February 2018, submitted to the EAC in 2018 part of EIA- EMP Report. *(The same date is part of the EIA-EMP report from page no. 108 to 124 and 179-187.)*
8. That, Inspection report of the Regional Office, MoEF & CC which was submitted to the EAC in 2018 is part of EIA- EMP Report *(The same is a part of the EIA-EMP report from page no. 664-673)*
9. That, the Public Hearing Compliance of the Khairaha UG Mine, submitted to the EAC in 2018 is part of EIA- EMP Report. *(The same is a part of the EIA-EMP report form page no. 674-677)*
10. That, the Subsidence map of the Khairaha UG Mine 0.819Ha land, submitted to the EAC in 2018 is also part of EIA- EMP Report. *(The same is a part of the EIA-EMP report from page no. 154-179 and 340-358 Plates).*
11. That, this Hon'ble Tribunal vide its order dated 28.03.2022 has directed to constitute a joint committee comprising of CPCB, SPCB, and State administration to ascertain the status of Compliance Conditions for Expansion and impact of the project of respondent SECL. After inspection, the committee has submitted a details report on compliance status and Impact of Expansion along with recommendations. The Action taken report by answering respondent SECL follows as under:

Point wise Reply / compliance and Action taken report are as follows for kind consideration of this Hon'ble Tribunal

S N.	Observation	Compliance Status/Action Taken Report
1.	Establish more number of Groundwater recharge structure, construct or reclaim ponds in nearby villages where water is not being supplied.	Presently, one rainwater harvesting structure is installed near the mine Manager's office for groundwater recharge. **(photo enclosed)** More recharge structure, deepening/ desilting of a nearby pond, and construction of a check dam will be carried out under the

		CSR head.
2.	Increase the plantation on the road side as per the EC Condition.	The SECL management constructed a 14 Km exclusive by-pass road for coal transportation. Along this road, a target of 28,000 plant saplings was planned in the years 2021-22, but we were able to plant only 12,000 nos of plants, due to the resistance of farmers. More plantations will be carried out in the coming year. **(Target, work order, and Joint inspection report copy enclosed)**
3.	Further raise the height of railway siding wall from 12ft to 15-20ft in total by tin sheds.	Presently, a concrete wind-breaking wall of 12 feet is in place and 8 feet green net was installed thrice, which weathered off as time passes. On trial basis at 200 m length, 08 ft GI sheet has installed **(Photograph enclosed)** and proposal for remaining potation is in the final stage of tendering, the work will be completed soon. **(Tender document is enclosed)**
4.	Increase the water sprinkling frequency on the haul road to further minimise the fugitive emission.	For increasing the frequency of water sprinkling and effective control of fugitive dust, the SECL management has procured a truck-mounted mist fog-forming machine, which is under testing and trial stage and will be deployed soon **(Supply order and Photo enclosed)**. A contractual mobile water tanker is also deployed for dust suppression.
5.	Ensure the trucks are not overloaded and covered with tarpaulin to avoid fall of coal on the road that results in fugitive emission.	100% of coal is being transported in optimally loaded tarpaulin-covered trucks to avoid fugitive dust emissions. The repairing of the road is also under process (30% length is completed) (work order copy and photograph enclosed).
6.	Place speed limit boards on suitable sites of the road network for the truck movement.	Speed Limit Board has been installed on strategic locations like turning, intersections, etc. **(Photographs enclosed).**
7.	Periodically update the display board showing the	Complied. The Hindi-translated display board has been erected for the display of

	details of CTO, HW authorization etc, Also translate in Hindi language for understanding of the public.	CTO, and HW Authorization details to the local people. The board is also being updated on regular basis. **Photo Enclosed.**
8.	Monitoring the drinking water quality of the water supplied to Khannath village.	Complied. Drinking Water Quality monitoring of water supplied to the Khannath village is being done. **Report Enclosed**
9.	Monitor the heavy metals in ambient & water biannually.	Agreed to comply: The monitoring of heavy metals in the Air will commence soon, the same has been communicated to CMPDIL.

12. That, an affidavit is being filed in support of the application

It's therefore, in facts and circumstances the written submission and additional documents in compliance of the committee report on behalf of respondent SECL may kindly be taken on record and this Hon'ble Tribunal may kindly be pleased to dismiss the instant Appeal and pass appropriate order (s) as deem fit and necessary in the interest of justice.

Date:- 19/ 08/2022

Place:- ...Khairaha UG Mine

Respondent No-4

(SECL)

Through Counsel

(Om Shanker Shrivastava, Advocate)

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL,

(CZ) AT BHOPAL (MP)

Appeal No. 06 of 2019 (CZ)

S.N/13973/2022
19.08.22

19.8.22
विजय प्रताप सिंह
एडवोकेट/नोटरी
बुरहार जिला शहडोल (म.प्र.)
मोबा 9425890798

BUDHSEN RATHOUR ..... APPLICANT

VS

UNION OF INDIA & Others ..... RESPONDENTS

AFFIDAVIT

I PRASHANT KUMAR SHARMA S/o SHRI K.K SHARMA office of CHIEFMANAGER / COLLIERY MANAGER KHAIRAHA UG MINE do hereby affirm on oath as under:-

1. That, the deponent is well versed with the case and competent to file the present application.
2. That, the point wise application from 01 to end is drafted by the counsel on our instructions and based on available documents.
3. The attached documents are true copy of the originals and nothing has been concealed there from.
4. That, the affidavit is filed in support of the application.

VERIFICATION

I, the above deponent do hereby verify that the contents of the written submission are true to based on the available records. Nothing concealed there from.

Signed and verify on ..19../08/2022 at ....Khairaha UG Mine.

शपथकर्ता

Deponent

शपथकर्ता

आज दिनांक 19.8.22 को श्री/श्रीमती/कु. प्रशान्त कुमार शर्मा

पिता/पति उमेश शर्मा निवासी बैढ़न

ने शपथपूर्वक उक्त लिखित कथन किया तथा।

शपथकर्ता को श्री एस. के. बोस पिता स्व. सुकुमार बोस नि. राजेन्द्र कॉलोनी ने परिचित होना

स्वीकार किया जिसके हस्ताक्षर सामने हैं।

19.8.22

विजय प्रताप सिंह
एडवोकेट/नोटरी
बुढ़ार जिला शहडोल (म प्र)
मोबा 9425890798

पहचानकर्ता

(एस. के. बोस
S/o स्व. सुकुमार बोस
R/o राजेन्द्र कॉलोनी
H. No. B 8
P.S. बैढ़न
जिला शहडोल
म.प्र.)

शपथकर्ता निष्पादक श्री/... प्रशान्त कुमार शर्मा

को ... पढ़कर सुनाया व सही पाया।

होना स्वीकार किया गया।

19.8.22

विजय प्रताप सिंह
एडवोकेट/नोटरी
बुढ़ार जिला शहडोल (म प्र)
मोबा 9425890798

मध्य प्रदेश सरकार ★ GOVT. OF M.P. ★
विजय प्रताप सिंह
नोटरी
04/21

ANNEXURE - A

Ambient Air Quality Seasonal data
EIA-EMP report page no 108 to 124 and 179 to 187

South Eastern Coalfields Limited
(A Subsidiary of Coal India Limited)
A 'MINIRATNA' P.S.U.

SEEPAT ROAD,
PO. SECL,
BILASPUR(CG)
PIN- 495 006.
Tel. 07752- 246324
Fax. 07752- 246324

SECL / BSP / ENVT / Khairaha UG/18 / 6932 Dated: - 18.06.2018

To
The Director IA-Coal Mining,
Ministry of Environment, Forest & Climate Change
Indira Paryavaran Bhawan, Jor Bagh Road
New Delhi-110003

Subject: - Submission of Form-1 for Khairaha UG Mine (Expansion from 0.585 MTPA to 0.819MTPA) under clause 7(ii) of EIA notification 2006.

Dear Sir,

Please find enclosed herewith 02 sets of EIA/EMP for Khairaha UG Mine (0.585 MTPA to 0.819 MTPA) - expansion under clause 7(ii) of EIA notification 2006. Details are as under:

Sl. No.	Name of Project, Company, District and State.	Mine Lease Area and Production Capacity (if expansion in production from….. to…)	Documents Enclosed
1.	**Project:** Khairaha UG Mine **District**: Shahdol **State**: Madhya Pradesh **Company**: South Eastern Coalfields Limited Seepat Road, Bilaspur (CHHATISGARH) - 495006.	Total land required for 0.819 MTPA is 472.065 Ha.	• EIA/EMP

You are requested to kindly consider the proposal in EAC meeting for EC

Thanking You.

Yours faithfully

18/6/18

General Manager
Environment

Encl.:- as above

Nov 17 to Feb 18			Air Temp.	RH	Wind Speed	Wind Dir.	Barometric Pressure	Rain fall	Cloud Cover
Date	**Month**	**Year**	**°C**	**%**	**mtr/sec**	**°**	**milibar**	**mm**	**Oktas**
12	2	2018	22.35	46.50	3.2	101	967.4	0	0
13	2	2018	21.49	46.00	2.7	138	967.0	0	0
14	2	2018	22.64	45.61	1.8	147	967.1	0	1
15	2	2018	22.11	45.11	1.7	83	968.7	0	0

3.2.4 Ambient Air Quality Data:

Location-wise results of AAQM & its statistical summaries, graphical representations and analysis thereof are given below.

3.2.4.1 ***Results & statistical calculations for Location- L1:***

Table – 3.12 a

Name Of Location		Khairaha Mine Office				
SL No	**Starting Date**	**PM10**	**SPM**	**PM2.5**	**SO2**	**NOx**
Unit		µg/m3	µg/m3	µg/m3	µg/m3	µg/m3
GSR 826 (E)		**100**	**-**	**60**	**80**	**80**
GSR 742 (E)		**250**	**500**	**-**	**120**	**120**
1	27.11.2017	77	198	37	12	26
2	29.11.2017	72	222	28	10	34
3	04.12.2017	80	170	25	16	32
4	07.12.2017	79	187	34	21	27
5	12.12.2017	74	231	37	18	38
6	16.12.2017	68	212	21	17	36
7	22.12.2017	64	244	38	14	28
8	24.12.2017	69	196	33	19	30
9	27.12.2017	62	168	30	22	35
10	29.12.2017	68	180	22	13	38
11	01.01.2018	70	202	37	26	30
12	04.01.2018	79	165	33	16	28
13	09.01.2018	80	177	29	28	32
14	13.01.2018	71	152	26	16	27
15	19.01.2018	72	196	28	27	37
16	21.01.2018	67	180	31	19	35
17	24.01.2018	76	198	30	22	27
18	26.01.2018	77	214	34	29	34
19	29.01.2018	66	234	36	25	37
20	01.02.2018	61	230	32	18	29
21	06.02.2018	77	199	31	15	31
22	10.02.2018	79	178	39	21	34
23	12.02.2018	76	183	32	26	36

24	14.02.2018	79	197	26	14	28
RESULT INTERPRETATIONS						
No Of Observations		24	24	24	24	24
Minimum Concentration		61	152	21	10	26
Maximum Concentration		80	244	39	29	38
98th Percentile		80	234	38	28	38
Arithmetic Mean		73	196	31	19	32
RSD (%)		8.3	12.2	15.9	27.9	12.5

A. ***Graphical Representation of the Results:***

(i) **For PM_{10}, $PM_{2.5}$ & SPM:** The above Results for PM_{10}, $PM_{2.5}$ & SPM are showing graphically.

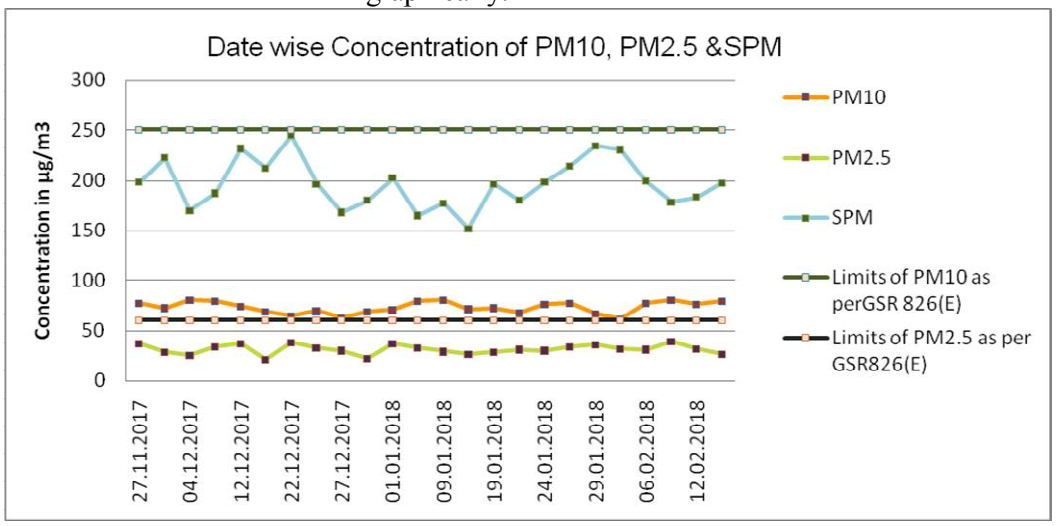


Fig. – 3.8

From the above graphical presentation it is clearly interpreted that all the values of PM_{10}, $PM_{2.5}$ & SPM were lower than the prescribed limits for location L1 i.e. Khairaha Mine Office.

Coming to the result, the average concentration of SPM in this location was found 196 µg/m^3 with the range of 152 to 244 µg/m^3. As per the standards for coal mines, GSR 742(E) dated 25th September 2000, the concentration of SPM in this location was lower than the limits i.e. 500 µg/m^3 for entire the study period.

In case of PM_{10}, the concentration was below the limits proposed in the standards GSR 826 (E) dated 16th November 2009 of MoEF. The average concentration of PM_{10} was found 73 µg/m^3 with the range of 61 to 80 µg/m^3.

For $PM_{2.5}$, the arithmetic mean was found 31 µg/m^3 & the range was 21 to 39 µg/m^3. Concentration of $PM_{2.5}$ for entire the study period was lower than the limits as per GSR 826(E) dated 16th November 2009 of MoEF.

(ii) For Oxides of Sulphur and Oxides of Nitrogen:

``

The Concentration of SO_2 & NOx of Khairaha Mine Office for the month Nov'17 to Feb'18 is showing graphically.

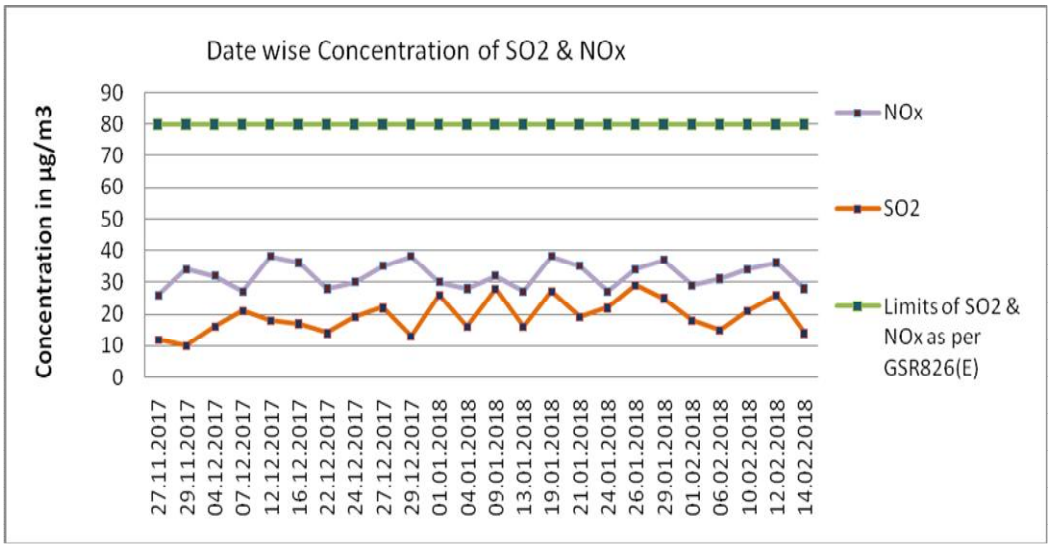


Fig. – 3.9

It is clearly interpreted that the concentration for SO_2 & NO_x in Khairaha Mine Office was far below from the prescribed limits. Average values for SO_2 & NO_x were noticed 19 & 32 µg/m^3respectively.

3.2.4.2 *Results & statistical calculations for Location- L2:*

Table – 3.12 b

Name Of Location		**Chirhiti Village**				
SL No	**Starting Date**	**PM10**	**SPM**	**PM2.5**	**SO2**	**NOx**
Unit		µg/m3	µg/m3	µg/m3	µg/m3	µg/m3
GSR 826 (E)		**100**	**-**	**60**	**80**	**80**
GSR 742 (E)		**250**	**500**	**-**	**120**	**120**
1	27.11.2017	68	197	22	16	32
2	29.11.2017	65	180	38	20	30
3	04.12.2017	66	204	29	18	36
4	07.12.2017	67	247	30	22	38
5	12.12.2017	72	212	26	17	30
6	16.12.2017	80	188	24	26	42
7	22.12.2017	70	199	33	19	36
8	24.12.2017	65	219	36	15	35
9	27.12.2017	62	235	39	14	32
10	29.12.2017	66	195	31	18	37
11	01.01.2018	60	186	32	20	36
12	04.01.2018	74	222	35	18	40

13	09.01.2018	68	207	34	18	38
14	13.01.2018	76	236	33	16	35
15	19.01.2018	75	196	36	22	35
16	21.01.2018	69	203	30	19	38
17	24.01.2018	71	188	24	15	33
18	26.01.2018	79	212	32	23	29
19	29.01.2018	63	233	28	26	43
20	01.02.2018	68	197	26	18	31
21	06.02.2018	74	186	39	14	44
22	10.02.2018	72	208	38	24	37
23	12.02.2018	76	215	30	22	40
24	14.02.2018	66	196	36	17	35

RESULT INTERPRETATIONS					
No Of Observations	24	24	24	24	24
Minimum Concentration	60	180	22	14	29
Maximum Concentration	80	247	39	26	44
98th Percentile	79	236	39	26	43
Arithmetic Mean	70	207	32	19	36
RSD (%)	7.6	8.7	15.7	18.4	11.4

A. *Graphical Representation of the Results:*

(i) For PM_{10}, $PM_{2.5}$ & SPM: The above Results for PM_{10}, $PM_{2.5}$ & SPM are showing graphically.

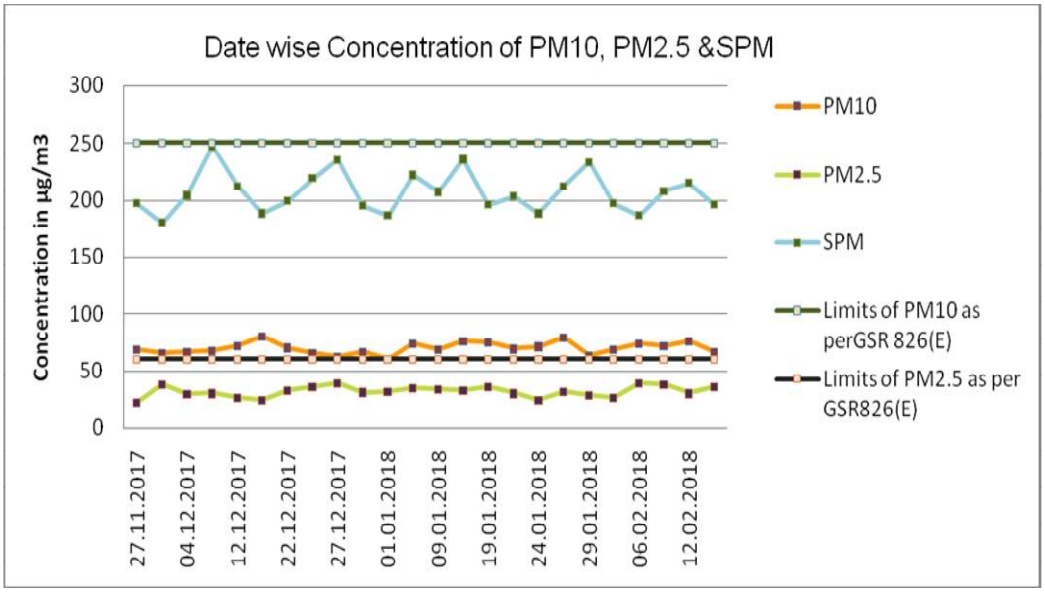


Fig. – 3.10

From the above graphical presentation it is clearly interpreted that all the values of PM_{10}, $PM_{2.5}$ & SPM were lower than the prescribed limits for location L2 i.e. Chirhiti Village.

Coming to the result, the average concentration of SPM in this location was found 207 µg/m^3 with the range of 180 to 247 µg/m^3. As per the standards for coal mines, GSR 742(E) dated 25th September 2000, the concentration of SPM in this location was lower than the limits i.e. 500 µg/m^3 for entire the study period.
In case of PM_{10}, the concentration was below the limits proposed in the standards GSR 826(E) dated 16th November 2009 of MoEF. The average concentration of PM_{10} was found 70 µg/m^3 with the range of 60 to 80 µg/m^3.

For $PM_{2.5}$, the arithmetic mean was found 32 µg/m^3 & the range was 22 to 39 µg/m^3. Concentration of $PM_{2.5}$ for entire the study period was lower than the limits as per GSR 826(E) dated 16th November 2009 of MoEF.

(ii) <u>For Oxides of Sulphur and Oxides of Nitrogen:</u>

The Concentration of SO_2 & NOx of Chirhiti Village for the month Nov'17 to Feb'18 is showing graphically.

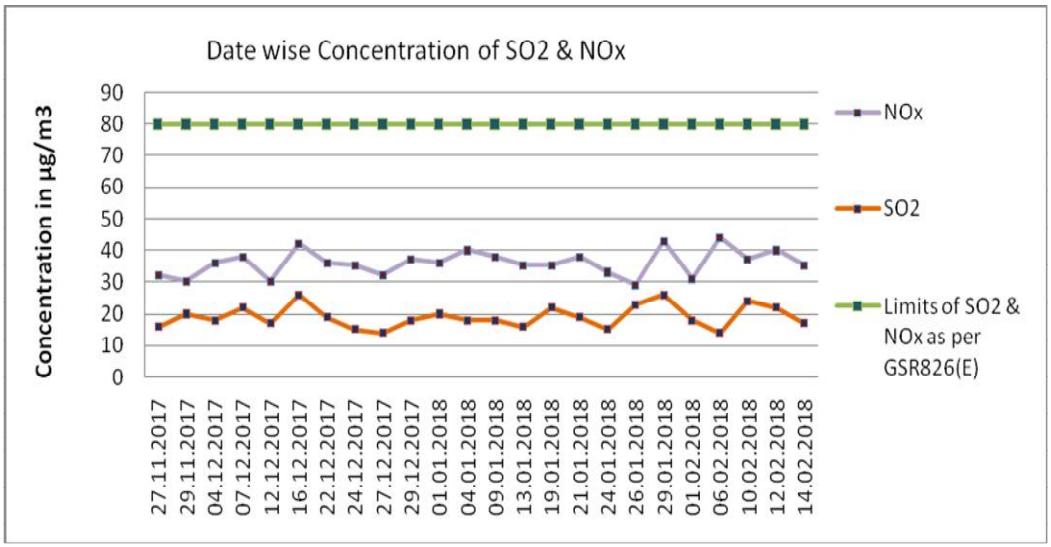


Fig. – 3.11

It is clearly interpreted that the concentration for SO_2 & NO_x in Chirhiti Village was far below from the prescribed limits. Average values for SO_2 & NO_x were noticed 19 & 36 µg/m^{3}respectively.

3.2.4.3 *<u>Results & statistical calculations for Location</u>- L3:*

Table – 3.12 c

Name Of Location		**PIPARIA VILLAGE**				
SL No	**Starting Date**	**PM10**	**SPM**	**PM2.5**	**SO2**	**NOx**
Unit		µg/m3	µg/m3	µg/m3	µg/m3	µg/m3
GSR 826 (E)		**100**	**-**	**60**	**80**	**80**
GSR 742 (E)		**250**	**500**	**-**	**120**	**120**
1	27.11.2017	66	190	34	22	33

2	29.11.2017	68	184	31	20	36
3	04.12.2017	76	222	33	26	39
4	07.12.2017	63	201	28	25	33
5	12.12.2017	71	210	26	19	40
6	16.12.2017	76	187	30	28	44
7	22.12.2017	68	233	33	23	46
8	24.12.2017	65	198	22	24	42
9	27.12.2017	70	202	24	27	42
10	29.12.2017	64	194	38	26	40
11	01.01.2018	69	191	31	18	42
12	04.01.2018	77	225	28	26	44
13	09.01.2018	79	246	36	17	40
14	13.01.2018	80	221	34	19	38
15	19.01.2018	76	235	36	16	37
16	21.01.2018	81	197	37	25	40
17	24.01.2018	69	210	39	28	36
18	26.01.2018	74	234	35	30	39
19	29.01.2018	65	211	26	22	42
20	01.02.2018	67	223	39	19	33
21	06.02.2018	76	198	36	25	40
22	10.02.2018	69	176	31	16	43
23	12.02.2018	64	216	25	26	37
24	14.02.2018	78	221	38	20	35

RESULT INTERPRETATIONS					
No Of Observations	24	24	24	24	24
Minimum Concentration	63	176	22	16	33
Maximum Concentration	81	246	39	30	46
98th Percentile	80	235	39	28	44
Arithmetic Mean	71	209	32	23	39
RSD (%)	8.0	8.8	15.7	18.1	9.3

A. ***Graphical Representation of the Results:***

(i) **For PM_{10}, $PM_{2.5}$ & SPM:** The above Results for PM_{10}, $PM_{2.5}$ & SPM are showing graphically.

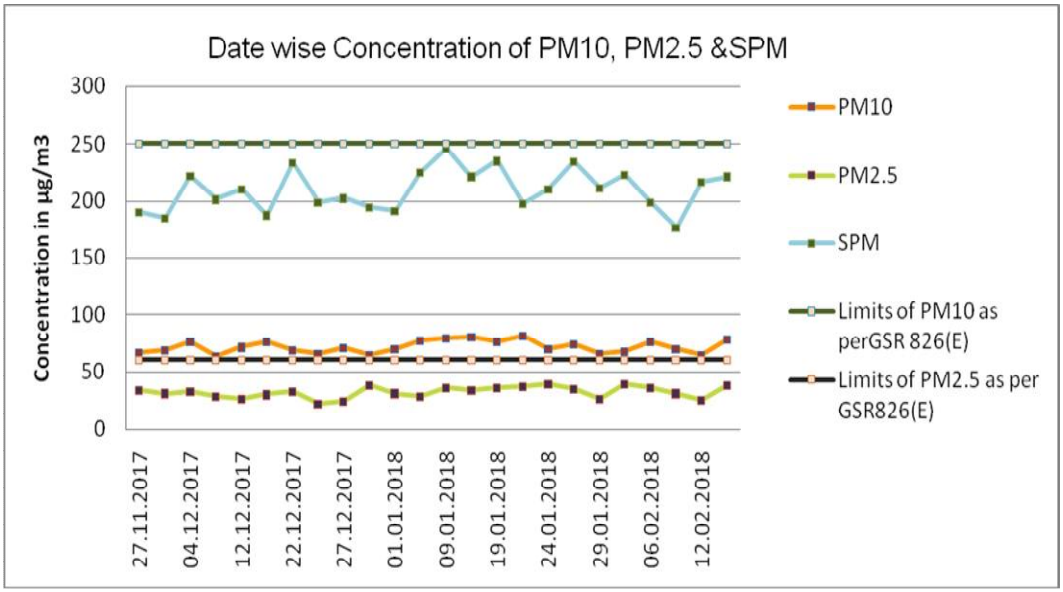


Fig. – 3.12

From the above graphical presentation it is clearly interpreted that all the values of PM_{10}, $PM_{2.5}$ & SPM were lower than the prescribed limits for location L3 i.e. Piparia Village.

Coming to the result, the average concentration of SPM in this location was found 209 µg/m^3 with the range of 176 to 246 µg/m^3. As per the standards for coal mines, GSR 742(E) dated 25th September 2000, the concentration of SPM in this location was lower than the limits i.e. 500 µg/m^3 for entire the study period.

In case of PM_{10}, the concentration was below the limits proposed in the standards GSR 826(E) dated 16th November 2009 of MoEF. The average concentration of PM_{10} was found 71 µg/m^3 with the range of 63 to 81 µg/m^3.

For $PM_{2.5}$, the arithmetic mean was found 32 µg/m^3 & the range was 22 to 39 µg/m^3. Concentration of $PM_{2.5}$ for entire the study period was lower than the limits as per GSR 826(E) dated 16th November 2009 of MoEF.

(ii) ***For Oxides of Sulphur and Oxides of Nitrogen:***

The Concentration of SO_2 & NOx of Piparia Village for the month Nov'17 to Feb'18 is showing graphically.

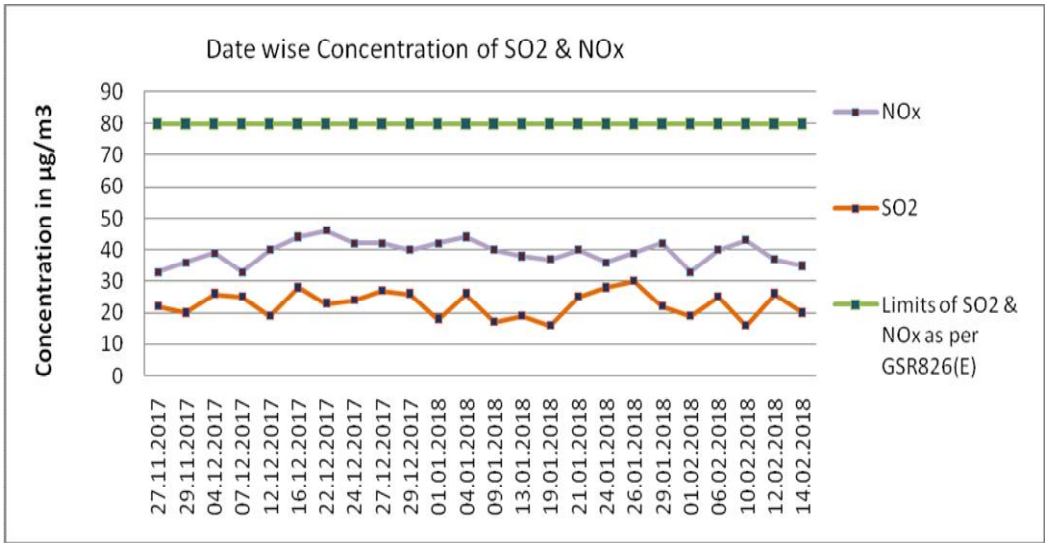


Fig. – 3.13

It is clearly interpreted that the concentration for SO_2 & NO_x in Piparia Village was far below from the prescribed limits. Average values for SO_2 & NO_x were noticed 23 & 39 µg/m^3respectively.

3.2.4.4 ***Results & statistical calculations for Location- L4:***

Table – 3.12 d

Name Of Location		KANDOHA VILLAGE				
SL No	**Starting Date**	**PM10**	**SPM**	**PM2.5**	**SO2**	**NOx**
Unit		µg/m3	µg/m3	µg/m3	µg/m3	µg/m3
GSR 826 (E)		**100**	**-**	**60**	**80**	**80**
GSR 742 (E)		**250**	**500**	**-**	**120**	**120**
1	27.11.2017	71	223	24	22	34
2	29.11.2017	66	202	28	34	38
3	04.12.2017	79	199	36	26	37
4	07.12.2017	64	213	32	25	38
5	12.12.2017	69	189	30	20	38
6	16.12.2017	66	191	37	24	42
7	22.12.2017	67	212	21	28	40
8	24.12.2017	60	244	29	28	40
9	27.12.2017	65	276	36	25	44
10	29.12.2017	75	254	31	22	41
11	01.01.2018	76	267	34	20	39
12	04.01.2018	77	238	31	27	36
13	09.01.2018	71	227	27	30	40
14	13.01.2018	69	241	28	31	38
15	19.01.2018	62	205	31	29	37
16	21.01.2018	68	234	33	24	34
17	24.01.2018	69	245	35	18	27

18	26.01.2018	76	198	37	26	30
19	29.01.2018	76	250	29	29	28
20	01.02.2018	71	229	39	34	43
21	06.02.2018	74	197	34	22	31
22	10.02.2018	77	201	32	19	35
23	12.02.2018	70	220	34	23	40
24	14.02.2018	75	208	38	26	32

RESULT INTERPRETATIONS					
No Of Observations	24	24	24	24	24
Minimum Concentration	60	189	21	18	27
Maximum Concentration	79	276	39	34	44
98th Percentile	77	267	38	34	43
Arithmetic Mean	71	223	32	26	37
RSD (%)	7.4	11.0	13.9	17.2	12.5

A. *Graphical Representation of the Results:*

(i) For PM_{10}, $PM_{2.5}$ & SPM: The above Results for PM_{10}, $PM_{2.5}$ & SPM are showing graphically.

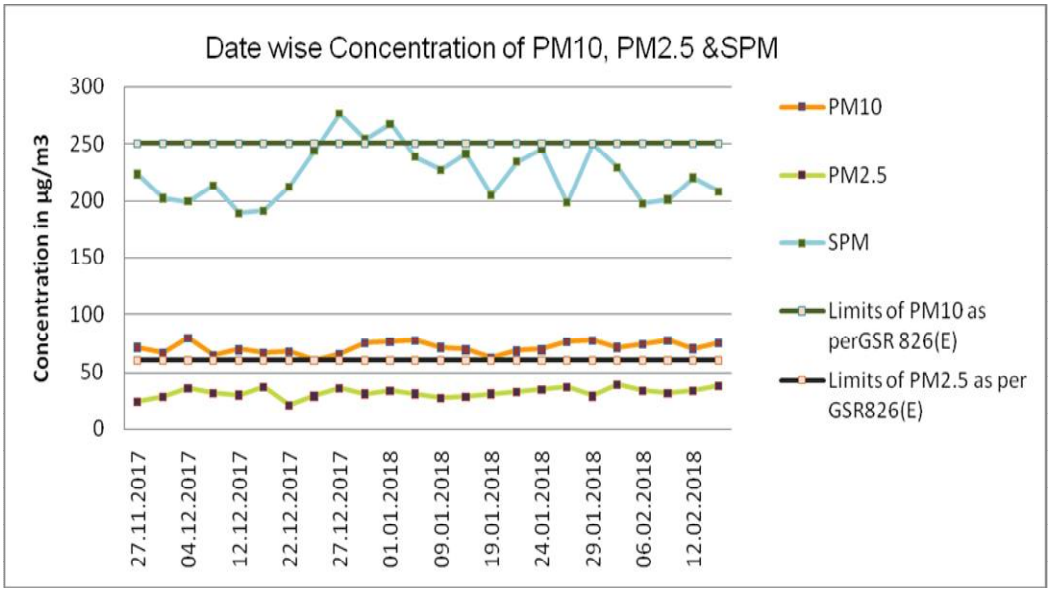


Fig. – 3.14

From the above graphical presentation it is clearly interpreted that all the values of PM_{10}, $PM_{2.5}$ & SPM were lower than the prescribed limits for location L4 i.e. Kandoha Village.

Coming to the result, the average concentration of SPM in this location was found 223 µg/m^3 with the range of 189 to 276 µg/m^3. As per the standards for coal mines,

GSR 742(E) dated 25th September 2000, the concentration of SPM in this location was lower than the limits i.e. 500 µg/m^3 for entire the study period.
In case of PM_{10}, the concentration was below the limits proposed in the standards GSR 826(E) dated 16th November 2009 of MoEF. The average concentration of PM_{10} was found 71 µg/m^3 with the range of 60 to 79 µg/m^3.

For $PM_{2.5}$, the arithmetic mean was found 32 µg/m^3 & the range was 21 to 39 µg/m^3. Concentration of $PM_{2.5}$ for entire the study period was lower than the limits as per GSR 826(E) dated 16th November 2009 of MoEF.

(ii) <u>For Oxides of Sulphur and Oxides of Nitrogen:</u>

The Concentration of SO_2 & NOx of . Kandoha Village for the month Nov'17 to Feb'18 is showing graphically.

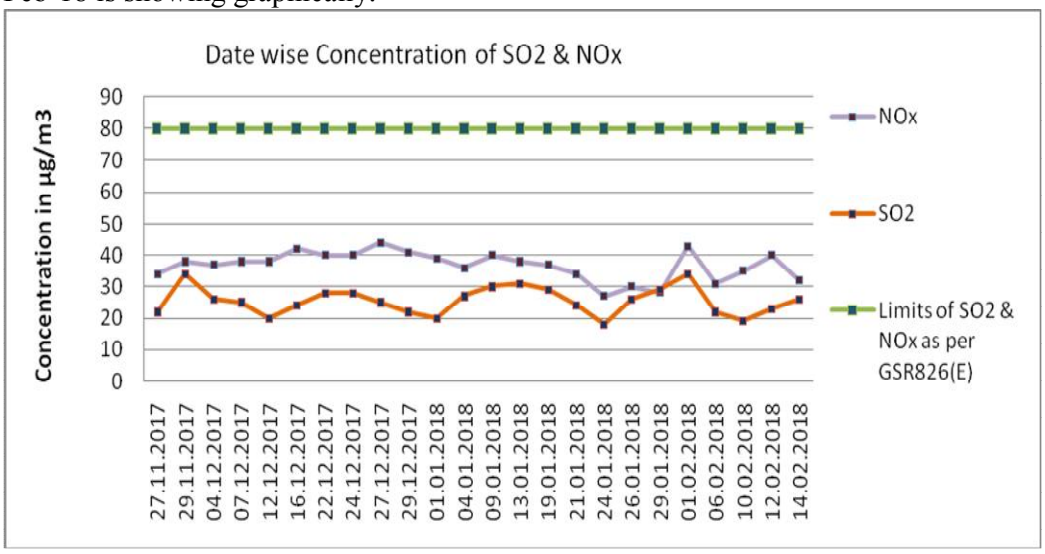


Fig. – 3.15

It is clearly interpreted that the concentration for SO_2 & NO_x in . Kandoha Village was far below from the prescribed limits. Average values for SO_2 & NO_x were noticed 26 & 37 µg/m^{3}respectively.

3.2.4.5 *<u>Results & statistical calculations for Location- L5:</u>*

Table – 3.12 e

Name Of Location		MAJHAR VILLAGE				
SL No	**Starting Date**	**PM10**	**SPM**	**PM2.5**	**SO2**	**NOx**
Unit		µg/m3	µg/m3	µg/m3	µg/m3	µg/m3
GSR 826 (E)		**100**	**-**	**60**	**80**	**80**
GSR 742 (E)		**250**	**500**	**-**	**120**	**120**
1	27.11.2017	78	203	26	12	27
2	29.11.2017	74	265	22	18	34
3	04.12.2017	69	223	38	16	32
4	07.12.2017	74	189	36	19	25
5	12.12.2017	62	198	21	22	22

6	16.12.2017	67	231	27	17	29
7	22.12.2017	69	227	38	20	31
8	24.12.2017	72	245	20	22	28
9	27.12.2017	65	241	29	25	34
10	29.12.2017	79	195	26	24	21
11	01.01.2018	77	173	35	18	27
12	04.01.2018	78	188	39	15	28
13	09.01.2018	76	199	39	17	33
14	13.01.2018	77	222	36	18	20
15	19.01.2018	72	251	25	19	26
16	21.01.2018	76	264	30	22	29
17	24.01.2018	68	190	39	20	24
18	26.01.2018	63	234	38	19	29
19	29.01.2018	65	220	28	25	30
20	01.02.2018	69	214	24	21	28
21	06.02.2018	64	225	26	18	32
22	10.02.2018	71	198	29	19	17
23	12.02.2018	69	207	30	23	20
24	14.02.2018	68	230	35	22	27

RESULT INTERPRETATIONS					
No Of Observations	24	24	24	24	24
Minimum Concentration	62	173	20	12	17
Maximum Concentration	79	265	39	25	34
98th Percentile	78	264	39	25	34
Arithmetic Mean	71	218	31	20	27
RSD (%)	7.3	11.3	20.6	16.2	17.1

A. ***Graphical Representation of the Results****:*

(i) **For PM_{10}, $PM_{2.5}$ & SPM:** The above Results for PM_{10}, $PM_{2.5}$ & SPM are showing graphically.

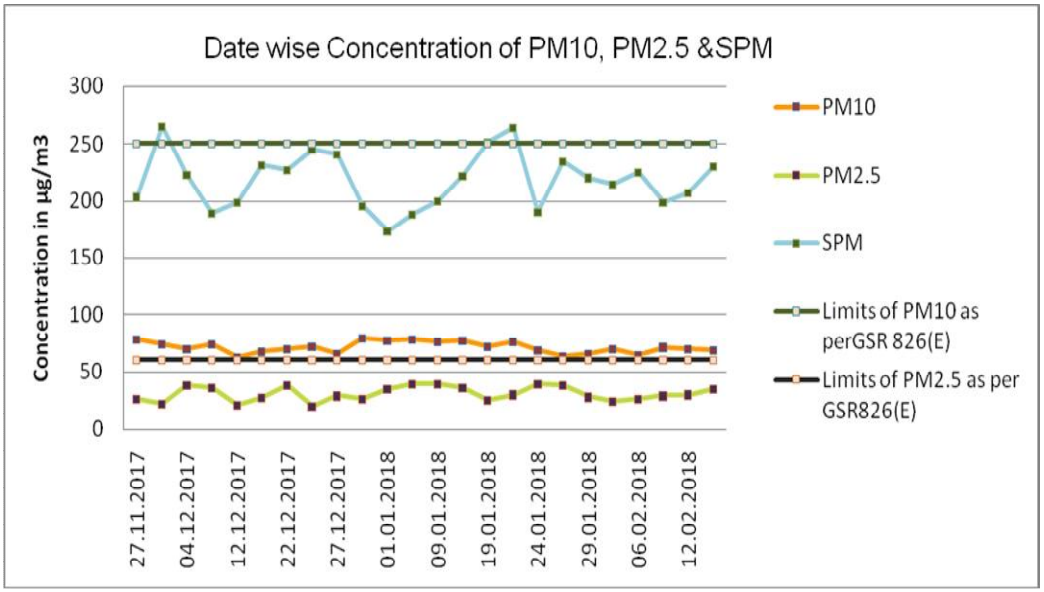


Fig. – 3.16

From the above graphical presentation it is clearly interpreted that all the values of PM_{10}, $PM_{2.5}$ & SPM were lower than the prescribed limits for location L5 i.e. Majhar Village.

Coming to the result, the average concentration of SPM in this location was found 218 µg/m^3 with the range of 173 to 265 µg/m^3. As per the standards for coal mines, GSR 742(E) dated 25th September 2000, the concentration of SPM in this location was lower than the limits i.e. 500 µg/m^3 for entire the study period.

In case of PM_{10}, the concentration was below the limits proposed in the standards GSR 826(E) dated 16th November 2009 of MoEF. The average concentration of PM_{10} was found 71 µg/m^3 with the range of 60 to 79 µg/m^3.

For $PM_{2.5}$, the arithmetic mean was found 31 µg/m^3 & the range was 20 to 39 µg/m^3. Concentration of $PM_{2.5}$ for entire the study period was lower than the limits as per GSR 826(E) dated 16th November 2009 of MoEF.

(ii) <u>For Oxides of Sulphur and Oxides of Nitrogen:</u>

The Concentration of SO_2 & NOx of Majhar Village for the month Nov'17 to Feb'18 is showing graphically.

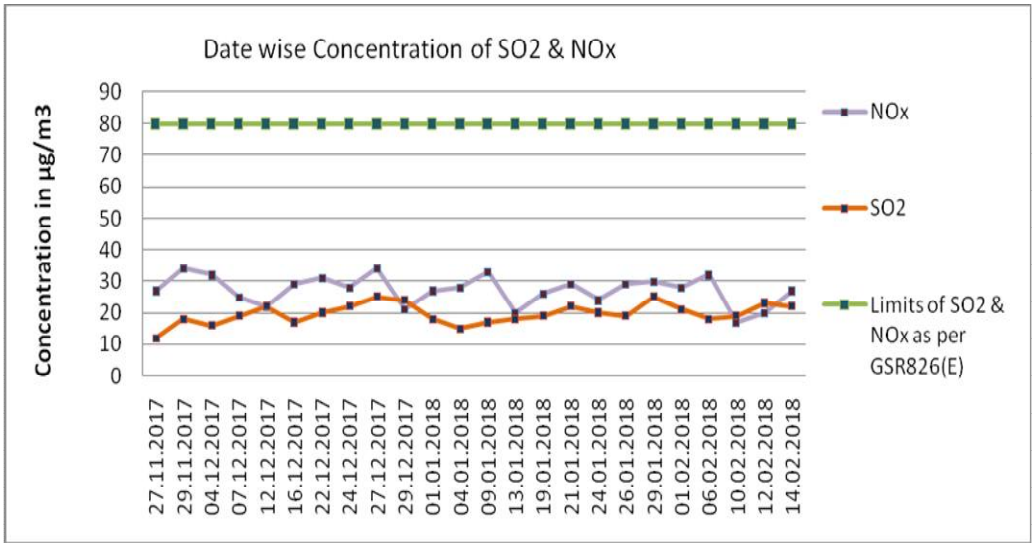


Fig. – 3.17

It is clearly interpreted that the concentration for SO_2 & NO_x Majhar Village was far below from the prescribed limits. Average values for SO_2 & NO_x were noticed 20 & 27 µg/m^{3}respectively.

3.2.4.6 ***Results & statistical calculations for Location- L6:***

Table – 3.12 f

Name Of Location		DULHARA VILLAGE				
SL No	**Starting Date**	**PM10**	**SPM**	**PM2.5**	**SO2**	**NOx**
Unit		µg/m3	µg/m3	µg/m3	µg/m3	µg/m3
GSR 826 (E)		**100**	**-**	**60**	**80**	**80**
GSR 742 (E)		**250**	**500**	**-**	**120**	**120**
1	27.11.2017	65	212	22	12	22
2	29.11.2017	78	231	28	18	26
3	04.12.2017	56	198	32	17	32
4	07.12.2017	68	171	36	15	28
5	12.12.2017	63	163	31	22	34
6	16.12.2017	71	190	38	13	30
7	22.12.2017	77	209	27	27	42
8	24.12.2017	75	196	26	20	38
9	27.12.2017	70	148	21	22	36
10	29.12.2017	76	178	29	19	29
11	01.01.2018	77	153	27	13	30
12	04.01.2018	69	187	31	17	34
13	09.01.2018	76	165	36	18	32
14	13.01.2018	70	195	39	21	35
15	19.01.2018	79	201	26	16	33
16	21.01.2018	62	156	28	18	38
17	24.01.2018	68	197	30	20	36

18	26.01.2018	74	159	29	24	28
19	29.01.2018	79	205	37	18	33
20	01.02.2018	68	170	31	20	37
21	06.02.2018	60	210	36	28	29
22	10.02.2018	61	187	26	19	30
23	12.02.2018	65	168	31	23	35
24	14.02.2018	69	217	29	15	39

RESULT INTERPRETATIONS					
No Of Observations	24	24	24	24	24
Minimum Concentration	56	148	21	12	22
Maximum Concentration	79	231	39	28	42
98th Percentile	79	217	38	27	39
Arithmetic Mean	70	186	30	19	33
RSD (%)	9.4	12.2	15.9	21.6	14.1

A. *Graphical Representation of the Results:*

(i) For PM_{10}, $PM_{2.5}$ & SPM: The above Results for PM_{10}, $PM_{2.5}$ & SPM are showing graphically.

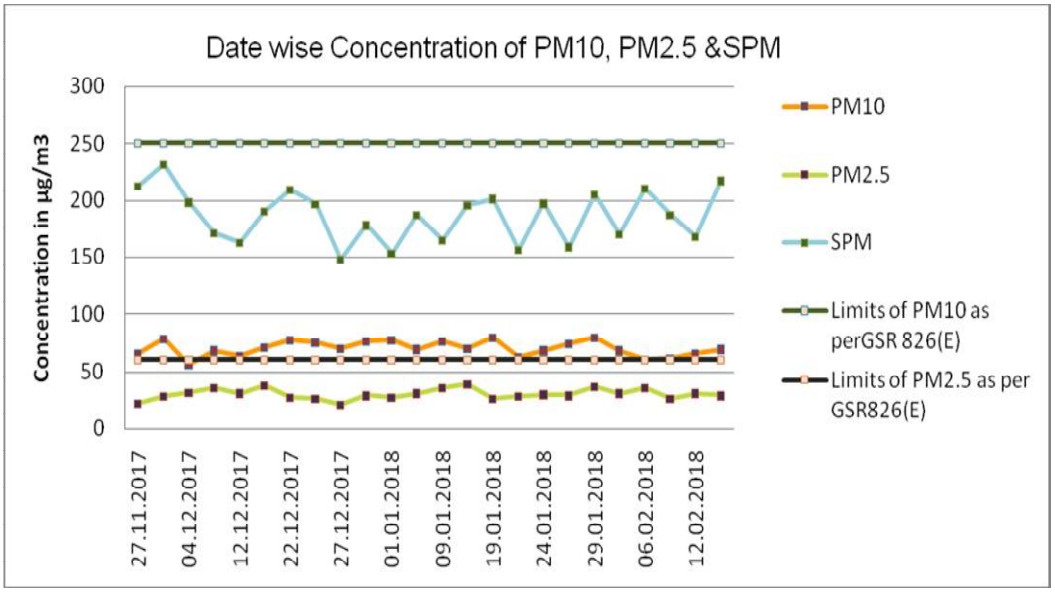


Fig. – 3.18

From the above graphical presentation it is clearly interpreted that all the values of PM_{10}, $PM_{2.5}$ & SPM were lower than the prescribed limits for location L6 i.e. Dulhara Village.

Coming to the result, the average concentration of SPM in this location was found 186 µg/m^3 with the range of 148 to 231 µg/m^3. As per the standards for coal mines,

GSR 742(E) dated 25th September 2000, the concentration of SPM in this location was lower than the limits i.e. 500 µg/m^3 for entire the study period.
In case of PM_{10}, the concentration was below the limits proposed in the standards GSR 826(E) dated 16th November 2009 of MoEF. The average concentration of PM_{10} was found 70 µg/m^3 with the range of 56 to 79 µg/m^3.

For $PM_{2.5}$, the arithmetic mean was found 30 µg/m^3 & the range was 21 to 39 µg/m^3. Concentration of $PM_{2.5}$ for entire the study period was lower than the limits as per GSR 826(E) dated 16th November 2009 of MoEF.

(ii) <u>For Oxides of Sulphur and Oxides of Nitrogen:</u>

The Concentration of SO_2 & NOx of Dulhara Village for the month Nov'17 to Feb'18 is showing graphically.

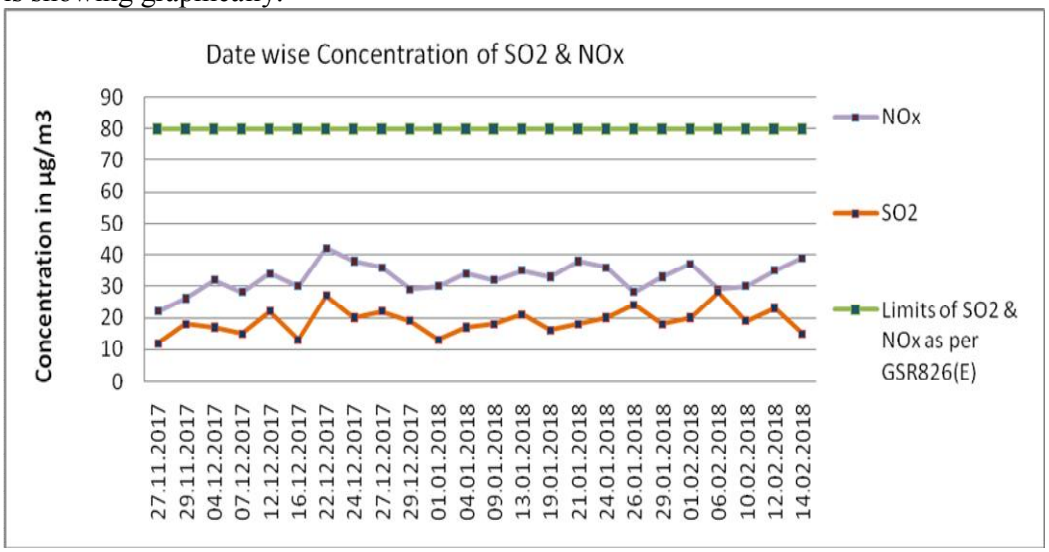


Fig. – 3.19

It is clearly interpreted that the concentration for SO_2 & NO_x in Dulhara Village was far below from the prescribed limits. Average values for SO_2 & NO_x were noticed 19 & 33 µg/m^{3}respectively.

3.2.4.7 *<u>AAQM (Heavy Metals, Benzene, CO, O_3, NH_3, BAP) Results & its Interpretations:</u>*

In this study we also monitor on monthly once some other criteria pollutants like Ozone, Ammonia, Lead & CO to assess the existing levels of air pollutants of the proposed project area.

Beside these, we also monitored some Heavy metal (in particulates) concentration in the air under this project area.

Table – 3.12 g

Location	Sampling Date	O3	NH3	CO	C_6H_6	As	BAP	Cd	Cr	Pb	Hg	Ni
Unit		**µg/m³**	**µg/m³**	**mg/m³**	**µg/m³**	**ng/m³**	**ng/m³**	**ng/m³**	**ng/m³**	**µg/m³**	**ng/m³**	**ng/m³**
Limits as per GSR 826 Standard		**180**	**400**	**4**	**5**	**6**	**1**	**-**	**-**	**1**	**-**	**20**
Khairaha Project Office	16/12/2017	<10	25.5	0.45	<2	<0.5	<0.5	<0.5	1.93	<0.01	<0.5	<0.5
	19/01/2018	<10	32.1	0.54	<2	<0.5	<0.5	<0.5	2.74	<0.01	<0.5	<0.5
	12/02/2018	<10	28.7	0.61	<2	<0.5	<0.5	<0.5	1.62	<0.01	<0.5	<0.5
Chirhiti village	16/12/2017	<10	17.4	0.39	<2	<0.5	<0.5	<0.5	3.16	<0.01	<0.5	<0.5
	19/01/2018	<10	15.9	0.58	<2	<0.5	<0.5	<0.5	4.01	<0.01	<0.5	<0.5
	12/02/2018	<10	22.2	0.66	<2	<0.5	<0.5	<0.5	2.66	<0.01	<0.5	<0.5
Piparia village	16/12/2017	<10	31.4	0.71	<2	<0.5	<0.5	<0.5	1.34	<0.01	<0.5	<0.5
	19/01/2018	<10	35.2	0.49	<2	<0.5	<0.5	<0.5	3.20	<0.01	<0.5	<0.5
	12/02/2018	<10	26.8	0.38	<2	<0.5	<0.5	<0.5	3.55	<0.01	<0.5	<0.5
Kandoha village	16/12/2017	<10	22.9	0.46	<2	<0.5	<0.5	<0.5	4.27	<0.01	<0.5	<0.5
	19/01/2018	<10	24.7	0.42	<2	<0.5	<0.5	<0.5	1.84	<0.01	<0.5	<0.5
	12/02/2018	<10	28.5	0.53	<2	<0.5	<0.5	<0.5	2.99	<0.01	<0.5	<0.5
Majhar village	16/12/2017	<10	26.6	0.69	<2	<0.5	<0.5	<0.5	3.28	<0.01	<0.5	<0.5
	19/01/2018	<10	24.9	0.54	<2	<0.5	<0.5	<0.5	1.22	<0.01	<0.5	<0.5
	12/02/2018	<10	31.1	0.47	<2	<0.5	<0.5	<0.5	2.08	<0.01	<0.5	<0.5
Dulhara village	16/12/2017	<10	18.8	0.35	<2	<0.5	<0.5	<0.5	3.58	<0.01	<0.5	<0.5
	19/01/2018	<10	23.4	0.39	<2	<0.5	<0.5	<0.5	3.60	<0.01	<0.5	<0.5
	12/02/2018	<10	21.9	0.46	<2	<0.5	<0.5	<0.5	3.04	<0.01	<0.5	<0.5

From the above results it is concluded that all the values of the pollutants, either in gaseous form or as particulate form are below the acceptance limit.

* Remarks: All the AAQM parameters mentioned above had been sampled & tested as per standard methodology under the Scope of NABL & MoEFCC.

3.2.4.8 Abstract of Air Quality Status:

Table – 3.12 h

Parameter	**PM10**	**SPM**	**PM2.5**	**SOx**	**NOx**
Unit	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3
GSR 826 (E)	100	-	60	80	80
GSR 742 (E)	250	500	-	120	120
Location	KHAIRAHA PROJECT OFFICE				
Minimum Concentration	61	152	21	10	26
Maximum Concentration	80	244	39	29	38
Arithmetic Mean	73	196	31	19	32
Location	CHIRHITI VILLAGE				
Minimum Concentration	60	180	22	14	29
Maximum Concentration	80	247	39	26	44
Arithmetic Mean	70	207	32	19	36
Location	PIPARIA VILLAGE				
Minimum Concentration	63	176	22	16	33
Maximum Concentration	81	246	39	30	46
Arithmetic Mean	71	209	32	23	39
Location	KANDOHA VILLAGE				
Minimum Concentration	60	189	21	18	27
Maximum Concentration	79	276	39	34	44
Arithmetic Mean	71	223	32	26	37
Location	MAJHAR VILLAGE				
Minimum Concentration	62	173	20	12	17
Maximum Concentration	79	265	39	25	34
Arithmetic Mean	71	218	31	20	27
Location	DULHARA VILLAGE				
Minimum Concentration	56	148	21	12	22
Maximum Concentration	79	231	39	28	42
Arithmetic Mean	70	186	30	19	33

3.2.5 Water Quality:

Observations of Study:

The details of analytical results are given below.

Sl. No.	Parameters	Impact Assessment	
		Within mining area	**Outside mining area**
	subsidence.	assessment of subsidence (its magnitude & location) have been made and accordingly remedial measures have suggested, which includes leaving of pillars/partial extraction of panels etc. Hence, overall impact on surface will be minimum and easily mitigatable and land use pattern will not undergo any major change.	
3.00	Change in Landscape and Land use pattern than pre-mining scenario such as visual impact-loss of aesthetic beauty, ugly scar on land; deforestation-loss of surface soil and vegetation cover.	In the mine area, the waste dump created on pit mouth is temporary in nature, as it is utilized as packing materials in underground haulage track in due course of mine development. Hence, there will be negligible or no change over landscape.	No appreciable damage is envisaged.
4.00	Change in Surface Drainage.	There will be no stark change in surface drainage. But, some minor change on surface drainage is likely, where construction of infrastructure, roads and drains is to be executed.	Surface drainage is likely to change in minor extent, where construction of colony, roads and drains is to be executed.

4.3.2 Environmental & Ecological factors:

4.3.2.1 Impact on Air Quality:

A) Identification of items for Impact assessment:

Phase-wise items have been identified for impact assessment as per table-4.4a given hereinafter.

Table-4.14 a

Sl. No.	Items to be identified for impact assessment
1.00	Phase-wise preparation of inventory of air pollution emission sources
2.00	Phase-wise Impact assessment

B) Inventory of air pollution emission sources:

Table-4.14 b

Sl No.	Phase/Parameters	Pollution Emission sources	
		Sources	**Emission**
A.	**Operational**		
1.00	Meteorological condition	Mines & combustion of coal	Dusts, Fires & smokes.
2.00	Ambient air quality		
2.01		Drilling & blasting	SPM, PM_{10}, & PM $_{2.5}$
2.02		Coal Handling	SPM, PM_{10}, & PM $_{2.5}$
2.03		OB handling	SPM, PM_{10}, & PM $_{2.5}$
2.04		OB formation	SPM & exhaust fumes from dumpers
2.05		Dump (internal & external)	SPM, PM_{10}, & PM $_{2.5}$ till development of green coverings.
2.06		Haul Road	SPM & PM_{10}, PM $_{2.5}$
2.07		Transportation & Movement of vehicle	SPM, PM_{10}, PM $_{2.5}$, NOx & SO_2
B.	**Post-operational**		
1.00	Meteorological condition	-	-
2.00	Ambient air quality		
2.01		Reclamation of dump area	SPM, PM_{10}, & PM $_{2.5}$
2.02		Salvaging and shifting operation of mining equipment	SPM, NOx & SO_2
2.03		Clearing of coal and other materials besides restoration of infrastructure area to the extent possible	SPM, PM_{10}, & PM $_{2.5}$

C) Impact Assessment:

Table-4.14 c

Sl. No.	Parameters	Impact Assessment	
1.00	Meteorological Condition	Coal dumps are susceptible to fire, and combustion may occur therein; hence there may be a likely change in ambient temperature, wind speed and direction to somewhat extent.	
2.00	Ambient air quality	**Type**	**Impact**
2.01		Direct	Minimal increase in dust & noxious emission to the air owing to transport vehicles. Coal transportation layout & flow diagram within the mine lease area are given in plates-XV & XV (A)

Sl. No.	Parameters	Impact Assessment	
			respectively, which indicates the specific areas of generating fugitive emissions. Coal cutting in coal faces & transportation/handling causes slight increase in the ambient SPM and CO levels.
2.02		Indirect	Surface coal transport & Workshop will generate indirect impact in the long run.
2.03		Short term	Drilling and blasting in underground atmosphere may attribute to slight increase in the ambient SPM and CO levels.
2.04		Long term	Surface coal transport/handling & Workshop will produce long term impact upon the air quality.

4.3.2.1.1 Ambient Air Quality Impact Prediction Modeling by AERMOD, USEPA:

The assessment for impact of mineral transportation, handling, storage and transfer of minerals/waste and adopted remedial measures such as mobile/static water sprinkling system along the transportation road, mine/stockyard/siding on air quality is required as per standard ToR (condition no XVII, XVIII & XXI).

The Air Quality Impact Prediction (AQIP) for mining operation due to expansion of Khairaha UG mine from 0.585 MTPA to 0.819 MTPA peak capacity has been assessed by AERMOD model version 16216r. The reasons for selection of AERMOD are as follows:

1. Recommended regulatory model for AAQ impact modelling by USEPA.

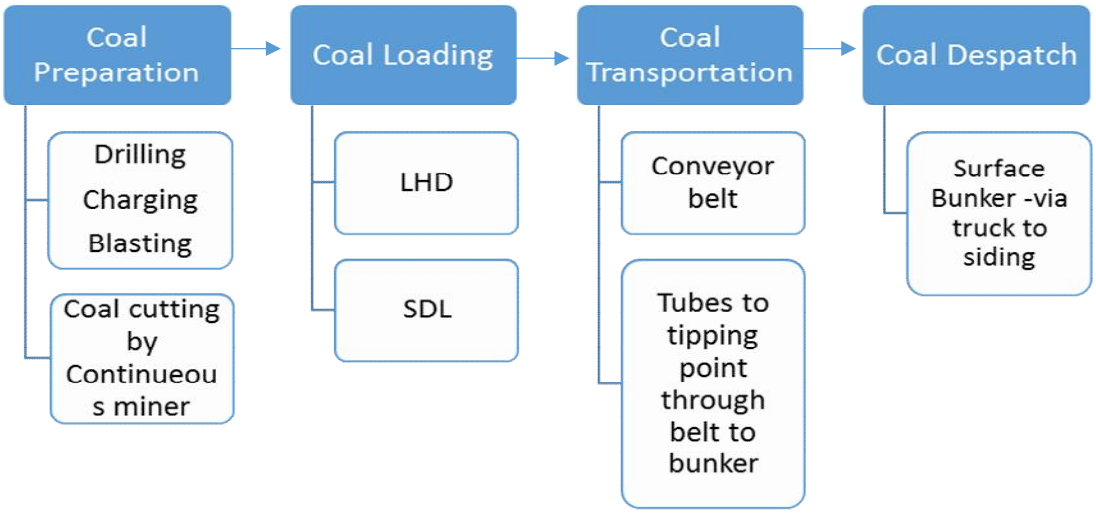
2. A steady-state plume model that incorporates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of both surface and elevated sources, and both simple and complex terrain.

In the air quality modelling, AERMOD (Model version 16216r) has been used to assess impact on AAQ in the area due to mining activities due to expansion of Khairaha UG mine. In the modeling, one full season baseline air quality data (period – Nov,2017 to Feb, 2018) winter season along with micro meteorological data have been used for assessment of impact on ambient air quality (PM10) at 6 control locations termed as receptors and grid of other arbitrary receptors.

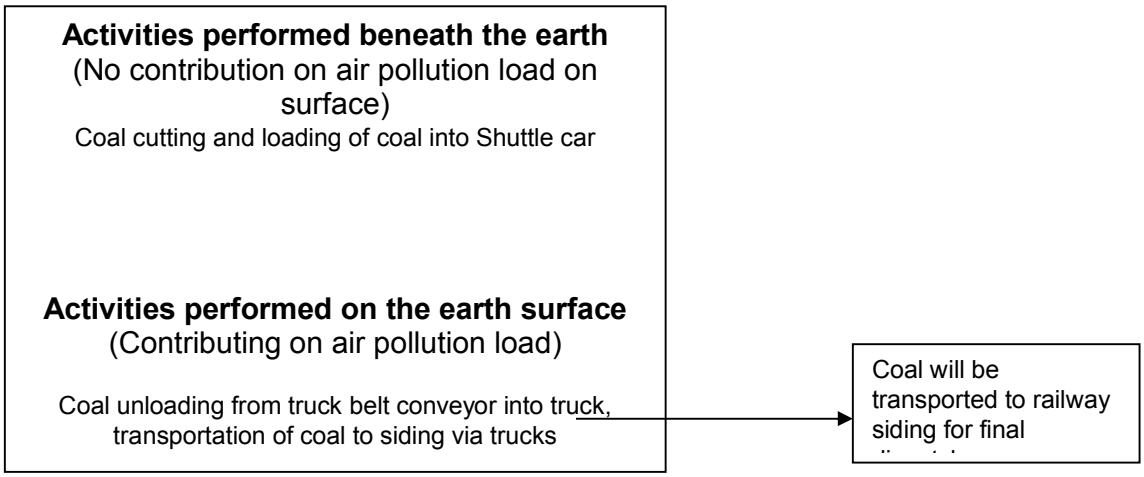
A. Activities and their Emission rates/factors used in the study:

Khairaha UG mine is an underground mine. The coal extraction will be done by continuous miner so eliminating the drilling, blasting and coal sizing process. The coal cutting and loading of coal is carried out beneath the earth and because of this, the load on air pollution is insignificant on surface. In this model, determination of the incremental PM_{10} levels in $\mu g/m^3$ on the receptors have been assessed due to the loading of coal into trucks in the coal bunker, wind erosion in coal bunker,

transportation of coal from bunker to railway siding (Burhar Railway siding) located at a distance of about 13km from mine boundary.

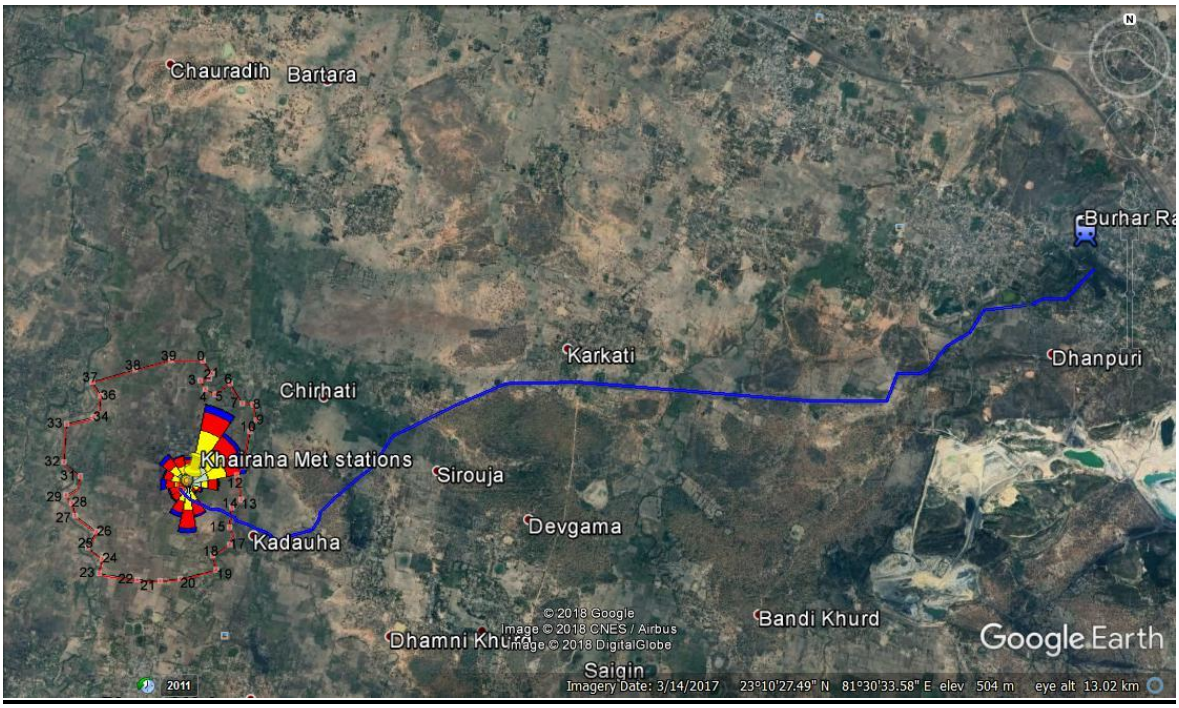


Process plan for Underground coal mining – Generic view



Various Mining activities within the Project area of Khairaha UG

The main activities which contribute to air dust pollution is unloading of coal in bunker and the final dispatch to siding via trucks.



A google earth image showing transportation route from bunker to siding

Emission factors For Coal

1. Coal unloading - 1.23 x 10^{-3} kg/te
2. Coal transportation - 0.53 Kg./ vehicle km travelled (for paved road)
3. Wind erosion - 0.09 Kg/ Ha./ Hr. (taking the number of calm hours into account)

Table no. 4.14 d:
Summarized details of Emission Factors and control factors used in the AQIP Study in coal mines

Sl. No.	Uncontrolled Emission Factor (E.F.) for PM -10			Control Factor (as given in EET)	Reference of E.F.
	Activity	Unit	PM -10		
1.	Top soil removal by scrapper	kg/t	0.0052	50 % control when soil is wet	AP -42, USEPA(1988)
2.	Drilling in Coal Bench	kg/hole	0.22	90 % for fabric filter 70 % for water sprays	Coal S&T Project by CMPDI (2007)
3.	Drilling in OB Bench	kg/hole	0.56	- do -	-do -
4.	OB Loading	kg/t	0.00014	None	-do -
5.	OB Unloading	kg/t	0.0005	None	-do -
6.	Coal Loading	kg/t	0.0015	None	-do -
7.	Coal Unloading	kg/t	0.00123	None and 70% if water spraying is done	-do -

8.	Coal / OB transportation on unpaved haul road	kg/VKT	0.53 (1.06 if water sprinkling arrangement is inadequate)	None as the emission factor was developed under controlled conditions or 75% control if 1.06 kg./VKT taken –for water spraying @ more than 2 liter/m2/hr.	-do-
9.	Coal Sizing				
	(a) Primary Crusher	kg/t	0.056	99 % for enclosure with dust extraction system 70% with water spray	Coal S& T Project by CMPDI (2007) and Emission Estimation Technique (EET) for Mining, version 2.3,EPA Australia
	(b) Secondary Crusher	kg/t	0.13	- do -	- do -
10	Blasting OB / Coal	kg/ blast	0.000114 $(A)^{1.5}$, A= area of blasting grid	None	AP -42, USEPA(1988)
11	Dozing OB*	kg/hr	0.29 x 2.6 $(S)^{1.2}$ $(M)^{1.3}$	None	AP -42, USEPA(1988)
12	Dozing Coal*	kg/hr	0.29 x 35.6 $(S)^{1.2}$ $/(M)^{1.4}$	None	AP -42, USEPA(1988)
13	Wind erosion from OB dumps, coal mine pits and coal stockyard	kg/ha/hr	0.09 (exclude contribution of calm hours)	50 % for water sprays	AP -42, USEPA(1988)
14	Pit retention		5 %	Emission Estimation Technique (EET) for Mining, version 2.3, EPA Australia	

- S = Silt content in % and M = Moisture content in %

Other aspects consider in the AQIP study

1. Complete three months hourly Micro meteorological data has been considered for modelling.
2. The emission factors are derived on the basis of a CMPDI S&T study entitled "Air quality impact prediction (AQIP) for coal mining projects" conducted in the year 2011-12, AP-42 USEPA(1988) and NPI-Emission estimation technique manual-For Mining, Version 3.1, January 2012 (Refer Table No. 4.1 for details).
3. There is no emission factors available for transportation of trucks on paved road so emission factor for transportation of trucks on unpaved road under control condition i.e. 0.53kg/VKT has been consider for Air quality impact assessment.

4. The details of sources, receptors and control pathway are given as"AERMOD RUN FILES FOR KHAIRAHA UG" in annexure – XIV in section – B of EIA/EMP report.

The Emission factors for PM_{10} considered in the AQIP of Khairaha UG is tabulated below:

Table 4.14e – Emission Factors for Khairaha UG Mine:

TOTAL EMISSION FACTORS FOR KHAIRAHA UG	
Activity for Coal	**Emission factors**
EF for Coal Bunker	1.04E-06 g/m2/s
EF for coal transportation till siding	4.55 g/s

B. Modelling Results and analysis:

The results of air quality modelling for PM10 have been presented in **Table – 4.14f**. The predicted ground level concentration includes the 98 percentile as well as average value of background (existing) value of PM10.

Table 4.14f – Increase in PM_{10} levels due to expansion of Khairaha UG Mine

S.No.	Name of station	As per Wind Direction	Baseline PM10 values (in µg/m3)- 98 percentile	Baseline PM10 values (in µg/m3)- average value	Incremental conc. of PM10 due to Khairaha UG (in µg/m3)	Predicted GLC of PM10 (in µg/m3)		Prescribed limits (in µg/m3)
						98 percentile	average	
1	Khairaha Project Office	Core Zone	80	73	20.15	100.15	93.15	300
2	Chirhiti village	Cross Wind	79	70	7.36	86.36	77.36	100
3	Piparia village	Down Wind	80	71	0.79	80.79	71.79	100
4	Kandoha village	Down Wind	77	71	4.47	81.47	75.47	100
5	Majhar village	Up Wind	78	71	0.33	78.33	71.33	100
6	Dulhara village	Cross Wind	79	70	0.76	79.76	70.76	100

The modelling exercise reveals the followings:

(i) The maximum incremental value of PM-10 at Khairaha Project Office -L1-Core station and village will be 20.15 µg/m3.

(ii) The maximum incremental value of PM-10 at Chirhiti village L2, located in ESE direction and about 1.8 km from mine boundary, will be 7.36 µg/m3.

(iii) The maximum incremental value of PM-10 at Piparia village– L3-, located in SW direction and about 2.5 km from mine boundary, is 0.79 µg/m3.

(iv) The maximum incremental value of PM-10 at Kandoha village– L4, located in SSE direction and about 1.2 km from mine boundary, is 4.47 µg/m3.

(v) The maximum incremental value of PM-10 at Majhar village –L5, located in N direction and about 2.2km from mine boundary, is 0.33 µg/m3.

(vi) The maximum incremental value of PM-10 at Dulhara village–L6, located in WNW direction and about 1.7km from mine boundary, is 0.76 µg/m3.

The isopleth of the incremental PM_{10} levels due to 0.234 MT coal production from Khairaha Mine is shown in Plate XVI (A) within the study area.

Note: The maximum incremental PM_{10} levels will be 50.96 µg/m3 on the mine boundary at X=547733.05, Y=2560834.79 UTM 44Q at periphery of mine boundary

in the direction of East from Coal Bunker and considering the background level of the zone/area, the total predicted PM_{10} will be well within the prescribed norms. The isopleth of the incremental PM_{10} levels nearby mine boundary is shown in Plate XVI (B).

C. Conclusion:

The incremental PM_{10} values due to Khairaha UG mine with incremental capacity of 0.234 MTPA have been predicted with measures provisioned as per mine plan. It may be concluded from AQIP study that when the coal production from Khairaha UG will be enhanced from 0.585 to 0.819 MTPA, considering the existing concentration as 98 percentile and the average value, the predicted concentration of PM10 at all receptor locations are well within the prescribed norms of coal mining standards/National Ambient Air Quality Standards.

4.3.2.2 Impact on Water Resources:

A) Identification:

Table-4.15 a

Sl.No.	Items to be identified for impact assessment	
1.00	Hydro-geological	Topography & drainage, Changes in aquifer system, Lowering of water table & draw down
2.00	Quality of Water of Ground water and Surface water	Physico-Chemical and Bacteriological such as Turbidity, Colour, Suspended particles, Oil & Grease, BOD, TDS, etc. if effluents are discharged without treatment.

B) Inventory of Water pollution sources:

Table-4.15 b

Sl. No.	Parameters	Pollution sources
1.00	**Hydro-geological**	Seepage from coal dump affecting surface water as well as ground water.
2.00	**Water quality**	
2.01	Ground water	Seepage from coal dump rendering ground water contaminated with seepage or leachate of mine effluent with Total Suspended Solids (TSS).
2.02	Surface Water	Mine water discharge, Workshop & coal handling discharge and Waste water discharged into surface water course without treatment and mine impoundments.

C) Impact Assessment:

Table-4.15 c

Sl. No.	Parameters	Impacts Assessment
1.00	**Hydro-geology - Ground water**	
1.01	Topography & Drainage	Topography and drainage by developing micro basins
1.02	Aquifer	Changes in aquifer geometry, water level in the vicinity

ANNEXURE – B

Regional Officer MoEFCC inspection report in EIA-EMP page no 664-673

सत्यमेव जयते

भारत सरकार
GOVERNMENT OF INDIA
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE

SPEED POST

क्षेत्रीय कार्यालय, पश्चिम क्षेत्र,
Regional Office, Western Region,
''केन्द्रीय पर्यावरण भवन''
"Kendriya Paryavaran Bhavan"
लिन्क रोड नं0-3/Link Road No. 3
E-5, रविशंकर नगरRavi Shankar Nagar,
भोपाल ;म0प्र0)/Bhopal-462016 (M.P.)
Telefax: 0755-2465054
E-mail: rowz.bpl-mef@nic.in

File No: 3-41/2005(ENV)/304

Dated: 18/06/2018

To,

The Director
Monitoring Cell,
Ministry of Environment, Forest and Climate Change
Indira Paryavaran Bhawan, Jorbagh Road, Aliganj,
New Delhi-110003

Sub: Khairaha UG mine, Rajendra sub area,villl. Khairaha Shahdol, Madhya Pradesh By M/s SECL -Environmental Clearance reg.

Ref : Ministry's Letter No. J-11015/72/2004-14-II(M), dated 28 July 2005.

महोदय,

मंत्रालय के उपरोक्त संदर्भित पत्र के संदर्भ में उक्त परियोजनाओं को पर्यावरणीय दृष्टिकोण से अनुमति देते समय अनुबद्ध शर्तों के अनुपालन एवं certification of compliance के निर्देशानुसार, पर्यावरणीय अनुमति दिनांक 28 July 2005. का अनुवीक्षण प्रतिवेदन (मॉनिटरिंग रिपोर्ट) एतद् द्वारा संलग्न कर प्रेषित है। उक्त प्रतिवेदन सक्षम प्राधिकारी द्वारा अनुमोदित है।

भवदीय

संलग्नः उपरोक्तानुसार

(डा. एस के लाल)
वैज्ञानिक 'सी'

प्रतिलिपिः

1. The Joint Secretary (IA), Ministry of Environment, Forest and ClimateChange, Indira Paryavaran Bhawan, Jorbagh Road, Aliganj, NewDelhi-110003 for formation please.
2. Sub Area Manager, SECL Rajendra sub area, office of sub area manager, Rajendra sub area, village Khairaha, Shahdol, Madhya Pradesh for formation please.

भवदीय

(डा. एस के लाल)
वैज्ञानिक 'सी'

Monitoring the Implementation of Environmental Safeguards
Ministry of Environment & Forest, Western Region,
Regional Office, Bhopal
Monitoring Report-Part-I- Data Sheet

Sr. No.	Particulars	Reply
1.	Project type: River Valley/Mining/industry/ Thermal/Nuclear/Other(Specify)	Coal Mining
2.	Name of the project	Khairaha UG mine
3.	Clearance letter(s)/MO No. and date	J-11015/72/2004-14-II(M), dated 28 July 2005
4.	Location (a) District (b) State (c) Location/Lat./Long.	 (a) Shahdol (b) Madhya Pradesh (c) Latitude- 23^0 08' 08"- 23^0 10' 23" Longitude-81^0 26' 48'' - 81^0 28'16''
5.	Address for correspondence (a) Address of concerned chief Engineer (With Pin Code & Mob N./E-mail/Fax) (b) Address of concerned Project Engineer With Pin Code & Mob N./E-mail/Fax)	 Sub Area Manager, Rjendra sub area Address: office of sub area manager, Rajendra sub area,villl. Khairaha, 484110, 9425533410 Same as above.
6.	Salient Feature (A) of the project (B) Of the environment management plan.	 (a)Mechanized Underground coal mining project (b) EMP was approved on oct 2004 covering different major environmental issue and their solution.
7.	Breakup of the projectt Area (a) Submerged area: forest &non Forest (b) Others.	Project area Forest land : Nil Gove. Land: 35.848 Ha Tenancy land : 436.217 Ha
8.	Breakup of project affected population with enumeration of those losing house/dwelling unit only agricultural land, both dwelling unit agriculture land & land less labours/artisan (a) SC,ST,Adivasi (b) Others	Only Govt. and agricultural land is involved, no R&R issues. Demographic Profile of khairaha SC:701 person, ST: 449 person (As per approved EIA-EMP report)
9.	Financial Details (a) Project cost as originally revised estimaes and the year of price reference (b) Allocation made for environment management plan with item wise and year wise breakup (c) Benefit cost ratio/internal rate of return and the year of assessment(if applicable) (d) Whether above includes the cost of environment	 (a) 8833.00 Lakhs (b) Rs. 85.17 Lakhs (as per PR) (c) 13.44%

	management as shown in the above (e) Actual expenditure incurred on the Environmental management plan so far	(d) Yes (e) 49.70 Lakhs (O&M is not included.)
10.	Forest Land Requirement (a) The status of approval for diversion of forest land for non forestry use (b) The status of cleaning felling..	NA, NO forest land is involved
11.	The status of clear felling in non forest areas(such as submergence area of reservoir, approach road) if any with quantitive information	NA
12.	Statusof Construction (a) Date of commencement(Actual and/or Planned) (b) Date of completion (Actual and/or planned)	(a) 21.11.2008 (b) 15.03.2012
13.	Reasons for the delay if the project is yet to start.	NA
14.	Details of site visit (a) The dates on which the project was monitored by the MoEF&CC, regional office on previous occasions.(if applicable) (b) The dates on which the project was monitored by the MoEF&CC, regional office	28.08.2008 09.05.2018
15.	Details of correspondence with project authorities for obtaining action plans/information on status of compliance to safeguards other than the routine letters for logistic support for site visit (The first monitoring report may contain the details of all the letters issued so far but the later reports may cover only the letters issued subsequently)	

Letter from RO	Letter from PP
27.03.2015 Information called	04.04.2015 letter replied and information submitted
18.04 2016 Information called	11.10.2017 Information submitted regarding expansion
	18.01.2018 Detail reply submitted with compliance.

PART – II & III
DESCRIPTIVE REPORT ON STATUS OF COMPLIANCE FOR THE PERIOD OF JUNE, 2017 -DECEMBER, 2017 TO CONDITIONS OF ENVIRONMENTAL CLEARANCE AND ENVIRONMENTAL MANAGEMENT

EC No- J-11015/72/2004-IA-II(M), dated. 28th July 2005

A. Specific Conditions

S. No.	Condition	Compliance status
i	No Mining shall be carried out below the Khairaha village located within the core zone.	PP informed that no mining is being done below Khairaha village. All working including plants and machinery are being done as per DGMS permission. **Being Complied.**
ii	Suitable precautionary measures shall be taken to prevent inundation of mine working from peak flow of the Sarpha nallah and Baisaha nallah. Garland drains and protective bunds shall be made before start of actual extraction to prevent entry of water into the workings and avoid inundation in the mine.	The mine opening is more than 5.00 Mtr. HFL comparatively with Sarpha river and Baisaha Nala. At present mine is in developmental stage. Garland drain and protective barrier will be prepared at the time of depillaring of the mine (year of depillaring 2020-21).At present garland drains are provided around the mine premises, and at mine entry. **Being Complied.**
iii	Provision of garland drain around the mine should be made to prevent precipitation runoff. The water so collected should be utilized for watering the mine area, roads, green belt development, etc. The drains should be regularly desilted and maintained properly. Garland drains (size, gradient & length) and sump capacity should be designed keeping 50% safety margin over and above the peak sudden rainfall and maximum discharge in the area adjoining the mine site.	PP assured that Garland drain be prepared/construct at the time of depillaring. (year of depillaring 2020-21). At present mine is in developmental stage. At present garland drains of 2.5"x2.5" for about 500meters length has been provided around the mine premises, and at mine entry. Collected water is used in continuous miner after treatment in pressure filter. **Agreed to comply with.**
iv	Pumps of adequate number and capacity should be provided to drain the mine water even during maximum rainfall.	Sufficient nos. of pumps(4+1=5,1000GPM) installed in mine for dewatering. **Being Complied.**
v	A subsidence map showing original surface topography, surface features and super out shall be prepared before expansion is undertaken. A copy of this map shall be furnished to CCF, Bhopal, Regional Office, MoEF, Bhopal.	The surface map shown with all feature and necessary information has been submitted. A subsidence map showing original surface topography, surface features and super out will be prepared before expansion in capacity. **Agreed to comply with.**
vi	Monitoring of the subsidence shall be done on a monthly basis up to 3 years after completion of extraction. A qualified and competent person shall be engaged for C He will report to the company on the visual impacts of subsidence such as formation of subsidence through, change in drainage pattern etc.Copies of all monitoring and compliance reports shall be simultaneously furnished to the APCCF, Bhopal, R.O, MoEF, Bhopal.	Till date no depillaring started, Mine is in developmental stage. As Subsidence do not occurs during development stage of mine. However Monitoring of subsidence will be done on the visual impacts of subsidence such as formation of subsidence and change in drainage pattern. **Agreed to comply with.**

vii	Drills should be wet operated or with dust extractors.	The U/G, Drilling & roof bolting is being done wet only. PP use wet operated Continuous Miner system. **Being Complied.**
viii	Controlled blasting should be practiced with the use of delay detonators.	Currently no blasting is in use, coal extraction is being done with the help of Continuous Miner only. **Not Applicable.**
ix	Afforestation shall cover a total of 20.60 ha] along the ML boundary, roads, etc. In addition, area within township outside the lease area shall be covered under greenbelt. Plantation shall be taken up by planting native plant species in consultation with the local DFO/Agriculture Department. The density of the trees should be around 2500 plants per ha.	PP has taken up Plantation of 5000 Nos.in 2.0Ha.area the Balance will be planted as the mines progresses. PP informed that some area other than mine lease area been planted with 52000 plants in Amarkantak. PP has been advised to take up plantation by planting native plant species in consultation with the local DFO/Agriculture Department. **Agreed to comply with.**
x	Regular monitoring of groundwater level and quality should be carried out by establishing a network of existing wells and construction of new peizometers. The Monitoring for quantity should be done for minimum four times a year in pre-monsoon, monsoon, post-monsoon and winter seasons and for quality in may. Data thus collected should be submitted to the MoEF and the CGWB, Regional Office quarterly within one month of monitoring.	PP informed that the Ground water level is being monitored with the help of existing tube wells in the mine premise and nearby area, and the records are being maintained. The ground water monitoring report/ data for 4 villages wells from May 2012 to Dec.2017 has been submitted by PP. **Being Complied.**
xi	The Company shall put up artificial groundwater recharge measures for augmentation of groundwater resource. The project authorities should meet water requirement of nearby village(s) in case the village wells go dry due to de-watering of the mine.	PP submitted that ground water recharge is being done by Rain Water harvesting system. The PP informed that as per CMO, Shahdol Nagar Palika direction the water is being discharged into Sarpha Nallah goes to Sarpha dam for domestic use of Shahdol town. Also the nearby villagers are using mine water for agricultural use. The ground water monitoring report/ data for 4 villages wells from May 2012 to Dec.2017 has been submitted by PP. As per record no village well has been dried up. **Being Complied.**
xii	Sewage treatment plant should be installed in the existing colony.	As there is no residential colony in Khairaha UG. **Not Applicable.**
xiii	Digital processing of the lease area using remote sensing techniques should be done regularly once in 3 years for monitoring land use pattern and report submitted to MoEF and its Regional Office at Bhopal.	PP submitted that the mine is in developmental stage and no subsidence has occurred till date. PP submitted proposal for Land Use Monitoring by Remote Sensing technology/ digital processing and report will be submitted shortly. **Agreed to comply with.**
xiv	A Final Mine Closure Plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.	The mine is in development stage and the expected age of mine is up to 2041. PA assured that Final Mine Closure Plan will be submitted to the MoEF& CC, 5 year advance of final mine closure. **Agreed to comply with**

xv	Consent to operate should be obtained from the SPCB before expansion in production.	At present mine is operating within the permitted capacity and consent has been accorded from MPPCB valid up to 28.2.2019. **Being complied**
xvi	Necessary approval from State Land Use Board shall be obtained for diversion of agricultural land.	PP submitted that Acquisition of Land is under Coal bearing areas (acquisition and development) Act, 1957. However, there is no proposal for diversion of agricultural land. **Agreed to comply with.**

B. General Conditions:

S. No.	Condition	Compliance
I	No change in mining technology and scopes of working should be made without prior approval of the Ministry of Environment and Forests.	**Agreed to comply with**
Ii	No change in the calendar plan including excavation, quantum of mineral coal and waste should be made.	The mine is in operation as per given capacity. The production detail for last three years are as under:- • 2015-16- 170300 T • 2016-17- 245670 T • 2017-18 (target)- 500000 T **Agreed to comply with**
Iii	Four ambient air quality monitoring stations should be established in the core zone as well as in the buffer zone for RPM, SPM, SO2, NOx, monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board.	As per direction of the MPPCB 4 Monitoring stations are in function in core zone and 4 ambient air quality station in buffer zone as well. Monitoring of Air, Water, & Noise are being done fortnightly and Heavy metals are once in six month and reports are submitted. Random verification of samples is done by MPPCB, Shahdol. **Being complied**
Iv	Data on ambient air quality (RPM, SPM, SO2, NOx) should be regularly submitted to the Ministry including its Regional Office at Bhopal and the State Pollution Control Board and the Central Pollution Control Board once in six months.	The AAQ monitoring is done on intervals and data submitted along with six monthly reports. PA has been advised for regular submission of six monthly reports and it's uploading on the website. **Being complied**
V	Fugitive dust emissions from all the sources should be controlled regularly monitored and data recorded properly, water spraying arrangement on haul roads, wagon loading, dump trucks (loading & unloading) points should be provided and properly maintained.	Fugitive dust emissions are controlled by road swiping machine, water spraying through mobile water tanker(2) and manually by flexible pipe. Monitoring of Air quality is being done fortnightly, and Heavy metals are done once in six month. **Being complied.**

Vi	Adequate measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in blasting and drilling operations, operations of HEMM, etc., should be provided with ear plugs/muffs.	PP has monitored the noise level which is under permitted limits. Ear muffs/plugs (In 2016-17-25 nos.) are provided to the blasting crew and to the machine operators (pumps, conveyor belt, SDL, etc.). Also green belt developed around the mine premises, fan house using native species of plants to control the noise level. The data of noise monitoring is submitted along with six monthly reports. **Being complied**
vii	Industrial wastewater (workshop and wastewater from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dtd. 19th May 1993 and 31st December 1993 or as amended from time to time before discharge. Oil and grease trap should be installed before discharge of workshop effluents.	The waste water from mine is being settled in underground sump. Thereafter settled mine water discharged to surface settling tanks and clear mine water is discharged into Baisha nallah/Sarpha Nallah. The water quality is being monitored fortnightly & quality is within permissible limit. No workshop effluent is generated. **Being complied**
viii	Vehicular emissions should be kept under control and regularly monitored. Vehicles used for transporting the mineral should be covered with tarpaulins and optimally loaded.	It is noted that 10-15 dumper/ trucks are used every day. PP keeps the record of PUC certificate. The coal is being transported in optimally loaded covered truck. **Being complied**
ix	Environmental laboratory should be established with adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board	The SECL has its lab established under CMPDIL. The environmental monitoring is being done by the NABL accredited CMPDIL lab. **Agreed to comply with**
x	Personnel working in dusty areas should wear protective respiratory devises and they should also be provided with adequate training and information on safety and health aspects. Occupational health surveillance programme of the workers should be undertaken periodically to observe and contractions due to exposure to dust and take corrective measures, if needed.	In dusty areas Water spraying is provided, in the working areas Dust mask provided to persons are engaged in active mining operation (In 2016-17-50 nos.), 33% workforce goes under PME every year (In 2016-17- 175 employee). Regular training and information on safety and health aspects is conducted for workers as per DGMS norms. **Being complied**
xi	A separate environmental management cell with suitable qualified personnel should be set- up under the control of a senior Executive, who will report directly to the Head of the Company.	The environmental management cell has been established as under: Gm (Envt), Chief manager (Envt), Sr. Manager (Envt.) Asst. manager (Envt). **At project level –** Project officer (Dy. GM, Mining), Manager (Khairaha), Sr. Manager (Civil), Sr Subordinate Engineer (Civil)+ 2 satff. **Being complied**

xv	Consent to operate should be obtained from the SPCB before expansion in production.	At present mine is operating within the permitted capacity and consent has been accorded from MPPCB valid up to 28.2.2019. **Being complied**
xvi	Necessary approval from State Land Use Board shall be obtained for diversion of agricultural land.	PP submitted that Acquisition of Land is under Coal bearing areas (acquisition and development) Act, 1957. However, there is no proposal for diversion of agricultural land. **Agreed to comply with.**

B. General Conditions:

S. No.	Condition	Compliance
I	No change in mining technology and scopes of working should be made without prior approval of the Ministry of Environment and Forests.	**Agreed to comply with**
Ii	No change in the calendar plan including excavation, quantum of mineral coal and waste should be made.	The mine is in operation as per given capacity. The production detail for last three years are as under:- • 2015-16- 170300 T • 2016-17- 245670 T • 2017-18 (target)- 500000 T **Agreed to comply with**
Iii	Four ambient air quality monitoring stations should be established in the core zone as well as in the buffer zone for RPM, SPM, SO2, NOx, monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board.	As per direction of the MPPCB 4 Monitoring stations are in function in core zone and 4 ambient air quality station in buffer zone as well. Monitoring of Air, Water, & Noise are being done fortnightly and Heavy metals are once in six month and reports are submitted. Random verification of samples is done by MPPCB, Shahdol. **Being complied**
Iv	Data on ambient air quality (RPM, SPM, SO2, NOx) should be regularly submitted to the Ministry including its Regional Office at Bhopal and the State Pollution Control Board and the Central Pollution Control Board once in six months.	The AAQ monitoring is done on intervals and data submitted along with six monthly reports. PA has been advised for regular submission of six monthly reports and it's uploading on the website. **Being complied**
V	Fugitive dust emissions from all the sources should be controlled regularly monitored and data recorded properly, water spraying arrangement on haul roads, wagon loading, dump trucks (loading & unloading) points should be provided and properly maintained.	Fugitive dust emissions are controlled by road swiping machine, water spraying through mobile water tanker(2) and manually by flexible pipe. Monitoring of Air quality is being done fortnightly, and Heavy metals are done once in six month. **Being complied.**

xii	The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year-wise expenditure should be reported to the Ministry and its Regional Office located at Bhopal.	Budgeted fund Rs. 50 Lakhs has been provided for environmental protection measures. Expenditure details are (In 2016-17): 1. Monitoring by CMPDI: 13.66 Lakhs 2. Monitoring by MPPCB: 0.87 Lakhs 3. Water cess-2.17 Lakhs 4. Consent (hazardous waste) - 0.5 Lakhs etc. 5. Construction of Road from PWD Junction to Khairaha UG mine- 639.00 lakhs 6. Construction of village Road- 8.5 Lakhs. 7. Water spraying by water tanker- 1.76 Lakhs 8. Pressure filter installation (2 No)-7 Lakhs. 9. O & M of settling tank- 0.25 Lakhs 10. Rain water harvesting – 2.2 lakhs Aprrox. Expenditure- 676 Lakhs. **Being complied**
xiii	The Regional Office of this Ministry located at Bhopal shall monitor compliance of the stipulated conditions. The projects authorities should extend full co operation to the office(s) of the Regional Office by furnishing the requisite data/information/monitoring reports.	**Agreed.**
xiv	A copy of the clearance letter will be marked to concerned Panchayat /local Ngo, if any from whom and suggestion/representation has been received while processing the proposal.	The copy of the clearance letter is marked to concerned Panchayat- Khannat Village panchayat on 01.09.2005. **Complied.**
xv	State Pollution Control Board should display a copy of the EC at the RO, District Industry Centre and Collector's Office/Tehsildar's Office for 30 days.	**Compiled by MPPCB.**
xvi	The PA should advertise at least in two local newspapers widely circulated around the project, one of which shall be in the vernacular language of the locality concerned within seven days of issue of the clearance letter informing that the project has been accorded EC and a copy of the clearance letter is available with the State Pollution Control Board and may also be seen at web site of the Ministry of Environment & Forests at http://envfor.nic.in	EC Letter has been circulated through local newspaper and advertisement published+ in local news paper Vindhyanchal, Jabalpur and Samay on 03.09.2005. **Complied.**
3.	The Ministry or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.	**Agreed Upon.**
4.	Concealing factual data or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (P) Act, 1986.	**Agreed Upon.**

5.	The above condition will be in forced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act 1974 and the Air (Prevention & Control of Pollution) Act 1981, the E (P) Act 1986 and the Public Liability Insurance Act 1991 along with their Amendment and Rules made their under and also any order passed by Hon'ble Supreme Court India/High Court of M.P and any other Court of Law Relating to the subject matter.	**Agreed Upon.**

SUMMARY NOTE:

1. **Implementation of Conditions:** It is inferred from the above that the implementations of environmental safeguards are found satisfactory and some compliance needs improvements which are in progress, PA has been advised for compliances is to be taken care peri-pasu with mine development and attention is to be given to the vital conditions like environmental management, green belt development, Control of fugitive dust and also the submission of six monthly compliance reports as per stipulations.

2. **Review w.r.f to MOEFs letter dated 30.05.2012:** The above mentioned report is prepared after site visit on 09-05.2018 for the proposed expansion in production from 0.585 to 0.819 MTPA at Khairaha UG mine, Rajendra sub area, village. Khairaha, Shahdol, (M.P.) PP has applied for expansion for which TOR has been issued and the expansion is proposed within the existing lease area.

3. **Court Cases and show cause/closure notices:** PP vide certificate submitted that there is no court case against the project and no show cause/closure notice issued by the SPCB/CPCB during last 3 years.

(Dr. S.K.Lal)
Scientist-C

ANNEXURE – C

Public Hearing Compliance of Khairaha UG Mine, EIA-EMP Page no 674-677

COMPLIANCE OF PUBLIC HEARING

पर्यावरण अनापत्ति हेतु दिनॉक 30.10.2003 को हुई लोक सुनवाई की शर्ते एव उनका अनुपालन :–

क्र0	आवश्यक शर्ते	अनुपालन	वर्तमान स्थिति
1.	परियोजना के महाप्रबंधक श्री पचीसिया द्वारा दी गयी जानकारी के अनुसार परियोजना हेतु 513. 50 हे0 भूमि माइनिंग लीज हेतु पूर्व से उपलब्ध है वर्तमान में केवल 6 हे0 भूमि इन्फ्रा इस्ट्राक्चर के विकास के लिए आवश्यक होगी, जिसका अधिग्रहण की कार्यवाही की जा रही है। इस 06 हे0 भूमि के अधिग्रहण किये जाने पर पात्र भूमि स्वामी को नियमानुसार रोजगार, मुआवजा उपलब्ध कराया जाना आवश्यक होगा।	वर्तमान में केवल 11.432 हे0 भूमि इंफ्रास्ट्क्चर के लिये अधिग्रहीत की गई है। जिसके लिए पात्र भूमिस्वामी को रोजगार दिया जा चुका है।	शर्त का अनुपालन किया जा रहा है।
2.	परियोजना द्वारा सामुदायिक विकास के कार्यो को करने हेतु व्यय होने वाली राशि का आवंटन नियमानुसार पर्यावरण सरंक्षण मदो को ध्यान में रखते हुए किया जाना होगा।	परियोजना द्वारा सामुदायिक विकाश के कार्य पर्यावरण संरक्षण के मदों को ध्यान में रखते हुए किया जा रहा है।	शर्त का अनुपालन किया जा रहा है।
3.	पर्यावरण संरक्षण हेतु जल, वायु,ध्वनि प्रदूषण नियंत्रण के लिए सक्षम एवं प्रभावी व्यवस्थाये परियोजना के अन्य निर्माण कार्यो के साथ–साथ पूरा किया जाना होगा। विशेष तौर पर कोयले की परिवहन,लोडिंग,अनलोडिंग, स्टोरेज के द्वारा होने वाले वायु प्रदूषण नियंत्रण के लिए सक्षम एवं प्रभावी व्यवस्थाये की जानी होगी।	पर्यावरण संरक्षण हेतु जल, वायु, ध्वनि प्रदूषण नियंत्रण के लिए कोयला परिवहन मार्ग में पानी का छिड़काव किया जाता है, तथा साथ ही साथ तारपोलिन से ढंके हुए ट्कों के द्वारा ही कोयला परिवहन किया जाता है।	वर्तमान में शर्त का अनुपालन किया जा रहा है।
4.	परियोजना द्वारा सामुदायिक विकास कार्यो जैसे– शिक्षा,स्वास्थ्य, पेयजल, बिजली, सड़क जैसी बुनियादी सुविधायें आसपास के ग्रामवासियों के लिए योजना स्वरूप बनायी जावें एवं उनका क्रियान्वन सुनिश्चित किया जाये।	परियोजना द्वारा सामुदायिक विकाश कार्य हेतु सी0 एस0 आर0 स्कीम के तहत शिक्षा, स्वाश्थ्य, पेय जल, विजली सड़क जैसी बुनियादी सुविधाएं प्रदान की गई है।	वर्तमान में शर्त का अनुपालन किया जा रहा है।
5.	परियोजना द्वारा वर्तमान में सी0एम0पी0डी0आई0 नामक अपने सह सस्थान से जल,वायु, ध्वनि मॉनीटरिंग कार्य कराया जाकर रिपोर्ट उपलब्ध करायी है जो कि अधिकांशतः निर्धारित मानको में रहती है, जिस कारण पैनल के सदस्यों ने शंका की स्थिति जताई, साथ ही उपस्थित गणमान्य नागरिको का मत रहा कि मॉनीटरिंग सम्बंधी कार्य म0प्र0 प्रदूषण बोर्ड से कराया जाये।	परियोजना द्वारा सी0एम0पी0डी0आइ0एल0 से जल, वायु एवं ध्वनि मॉनीटरिंग का कार्य प्रत्येक तीन माह में कराया जाता है तथा साथ ही साथ म0 प्र0 प्रदूषण नियंत्रण बोर्ड के द्वारा भी मॉनीटरिंग का कार्य किया जाता है।	वर्तमान में शर्त का अनुपालन किया जा रहा है।

6.	वृक्षारोपण कार्य योजनाबद्ध तरीके से न केवल परियोजना क्षेत्र में बल्कि आसपास के गॉवो में भी कराया जाना सुनिश्चित किया जाये।	बृक्षारोपण का कार्य अधिग्रहित क्षेत्र के 02 हे0 भूमि में किया गया है। तथा साथ ही साथ राजेन्द्रा खदान के अन्तर्गत छिरहिटी गॉव के समीप बृक्षारोपण का कार्य 18.60 हे0 में किया गया है।	वर्तमान में शर्त का अनुपालन किया जा रहा है।
7.	श्री अशोक शुक्ला, निवासी ग्राम खैरहा, ने कहा कि परियोजना द्वारा जो जानकारी यहॉ पर दी गयी है उससे सहमत हूँ किन्तु कोल माइंस अपने कर्मचारियों के लिए सुविधाएँ मुहैया कराती है, आम लोगो के लिए नही अतः उचित होगा परियोजना द्वारा पेयजल व्यवस्था, शिक्षा, स्वास्थ्य की व्यवस्थाएँ आम लोगो के लिए भी बनायी जावें। परियोजना के आसपास अन्य कोल माइंस हैं, इस परियोजना के चालू होने से गतिविधियॉ बढ़ेगी, और प्रदूषण बढ़ेगा। परियोजना को डस्ट प्रदूषण नियंत्रण हेतु पानी छिड़काव की व्यवस्था, माइन्स वाटर के उचित प्रबंधन की व्यवस्था करना होगा, जिन लोगो की यदि भूमि अधिग्रहण किया जाता है तो उन्हें नियमानुसार मुआवजा दिया जाना होगा, परियोजना यदि यह कार्यवाही करती है तो मुझे कोई आपत्ति नही है।	परियोजना द्वारा पेय जल व्यवस्था हेतु ग्राम खन्नाथ में वाटर टैंक का निर्माण किया जा रहा हैं, एवं डस्ट प्रदूषण नियंत्रण हेतु पानी के छिड़काव के लिए वाटर टैंकर एवं वाटर स्प्रिंकलर लगाए गए हैं। तथा माइन वाटर के ट्रीटमेंट हेतु बनाए गए सेटलिंग टैंक से उपचार के पश्चात ही पानी को खदान के बाहर छोड़ा जाता है। तथा साथ ही साथ अधिग्रही भूमि–स्वामियों को मुआबजा दिया जा चुका है।	वर्तमान में शर्त का अनुपालन किया जा रहा है।
8.	श्री चन्द्रशेखर निवासी ग्राम खैरहा, ने कहा कि कोयला खदान से जो पर्यावरण असंतुलन की स्थिति बनेगी उसके लिये लघुगामी,मध्यमगामी,और दीर्घगामी योजनाएँ बनायी जावे ताकि क्षेत्र का पर्यावरण संतुलित रहे।	पर्यावरण संतुलन के लिए योजना जैसे– बृक्षारोपण, बाउण्ड्रीबाल, सेटलिंग टैंक, स्प्रिंकलर एवं रोड का डामरी करण किया जा चुका है।	वर्तमान में शर्त का अनुपालन किया जा रहा है।
9.	श्री सुरेश बुनकर ने कहा कि गॉव के अधिकतर लोग पर्यावरण की चेतना से अवगत नही है, उन्हे पर्यावरण के सम्बंध में जानकारी न होने से पर्यावरण के प्रति सजग नही है। परियोजना द्वारा आम लोगो के लिए भी वे सभी बुनियादी सुविधाएँ जैसे –पेयजल, स्वास्थ्य, शिक्षा उपलब्ध करायी जानी चाहियें जैसा कि परियोजना अपने कर्मचारियो के लिए उपलब्ध कराती है।प्रतिपूरक वानिकीकरण परियोजना द्वारा नियमानुसार कराये जाने की आवश्यकता नही है बताया गया फिर भी परियोजना द्वारा आसपास के क्षेत्र में परिवहन मार्गो पर वृक्षारोपण कराया जाना	परियोजना के आस–पास के सभी गावों में कंपनी के नियमानुसार सी0एस0आर0 पॉलिसी के तहत पेयजल, शिक्षा एवं स्वास्थ्य की व्यवस्थएं की गई है।	वर्तमान में शर्त का अनुपालन किया जा रहा है।

	चाहिये, जिनका डस्ट कन्ट्रोल हेतु परियोजना अपने कर्मचारियो का मास्क उपलब्ध कराती है, आम लोगो के लिए भी व्यवस्था करे।		
10.	श्री अजय जयसवाल ने कहा कि परियोजना द्वारा जानकारी दी गयी है कि कोयले का परिवहन किया जावेगा व किन–किन मार्गो से होगा बताया गया, रहवासी क्षेत्र से भी परिवहन होगा इस सम्बंध में परियोजना को प्रदूषण नियंत्रण हेतु कारगर पहल करना होगी। ताकि रहवासी क्षेत्र के लोगो को कोयला परिवहन के दौरान होने वाली कठिनाईयों से बचाया जा सके। रहवासी क्षेत्र के दोनो ओर मकान, दुकाने आदि है, कोयले के ट्रक निकलते है जिससे धूल उड़ती है, व मकानो, दुकानों में जाती है, जिससे काफी क्षति होती है यहॉ तक की दुकानो में धूल भर जाती है, ग्राहक सामान खरीदने से कतराता है। हमारी दुकानदारी कम होती है। अतः परियोजना द्वारा परिवहन मार्गो पर खास तौर पर रहवासी क्षेत्रो में पानी छिड़काव की व्यवस्था करना चाहिये।	कोयला परिवहन हेतु प्रस्तावित बाई पास मार्ग बनाया जा चुका है। तथा वर्तमान में कोयला परिवहन उसी मार्ग से किया जा रहा है। तथा साथ ही साथ पानी का छिड़काव भी किया जा रहा है।	वर्तमान में शर्त का अनुपालन किया जा रहा है।
11.	अफसर खान ने कहा कि परियोजना को आवंटित राशि का खर्च, सामुदायिक विकास कार्यो व पर्यावरण संरक्षण के लिए भी सुनिश्चित किया जाये। मुझे आपत्ति नही है, खदान खुले, तभी क्षेत्र का विकास संभव है। श्री खान ने कहा कि परियोजना सी0एम0पी0डी0आई0 से मॉनिटरिंग कार्य कराती है व रिपोर्ट मानको में देती है अतः अन्य सस्थाओ से भी मानिटरिंग करायी जाये ताकि शंका की स्थिति न रहे।	सामुदायिक विकाश के कार्य कंपनी के सी0एस0आर0 पॉलिसी के तहत किए जाते हैं। एवं पर्यावरण संरक्षण के लिए भी राषि प्रतिवर्ष खर्च की जाती है। तथा सी0एम0पी0डी0आई0एल0 के अतिरिक्त म0 प्र0 प्रदूषण नियंत्रण बोर्ड के द्वारा भी समय–समय पर मॉनीटरिंग का कार्य किया जाता है।	वर्तमान में शर्त का अनुपालन किया जा रहा है।
12.	श्री विजय कुमार ने कहा कि, मुआवजा दिया जाता है वह कितने दिन चलेगा, इससे बेहतर है कि परियोजना, रोजगार/नौकरी देद्व जिनकी जमीन ली जावे उन्हें नौकरी दी जावे।	कंपनी के द्वारा प्रभावित परिवारों को दिया जानें वाला मुआबजा व नौकरी कंपनी के द्वारा निर्धारित नियमों एवं भू–राजस्व अधिनियम के अन्तर्गत दिया जाता है।	वर्तमान में शर्त का अनुपालन किया जा रहा है।

22/5/18
उपक्षेत्रीय प्रबंधक
राजेन्द्रा उपक्षेत्र

23/05/18
नोडल अधिकारी(पर्यावरण)
सोहागपुर क्षेत्र

ANNEXURE – D

Subsidence map of Khairaha UG Mine, EIA-EMP report page no 154-179 and 340-358

near the isolation stoppings and working areas with the help of continuous tele-monitoring system. This will help to keep track of temperature, CO, CO/O_2 ratio, etc., so that appropriate steps to control eruption of fire can be taken. Provision of 2 sets of Tele-Monitoring System for parameters such as CH_4, CO, other poisonous gases, airflow, O_2, etc. with properly trained manpower is envisaged in this report.

4.2.7 Multi-section Working:

* Seam VII is the top most seam. The overlying seam of VIB i.e. seam VII in the proposed area has to be depillared first or kept in advance before starting depillaring of seam VIB to avoid any possible danger.

* Verticality of pillars and Barriers may be maintained to the extent possible.

* The upper seam shall be dewatered regularly so as to be free of water accumulation.

4.2.8 Subsidence:

Subsidence prediction modelling is prepared to assess the danger associated on surface land over the pillars under extraction (depillaring operation) in the planned schedule of extraction programme for 0.819 MTPA. The details of subsidence and suggested control measures are given below.

4.2.8.1 Subsidence prediction:

The subsidence prediction model based on Influence Function method, developed in CMPDI, has been used for estimation of likely subsidence over the mining area. Subsidence prediction has been done for the panels proposed to be extracted by caving method in mine projection plans of VII Seam and VIB Seam. The minimum and maximum thicknesses of extraction have been considered to be 1.5 m and full thickness of the seams respectively. Input data used for subsidence prediction, such as mine plans, calendar program, mining parameters, geology, panel dimension, sequence of extraction of the panels and surface features have been collected from the mine.

Details of mine layout, surface contours, surface features, forest and other relevant features have been digitized from the working plans of VII Seam and VIB Seam. The digitized data has been used as input parameters for subsidence prediction model. Refer surface layout plan of the mine in plate – XIII (A).

Since, no measured data are available regarding subsidence parameters of the mine and nearby mines, the values of subsidence factor, angle of draw and non-effective width of the panels for multiple seam extraction have been taken considering the rock mass of overlying strata, geo-mining conditions and subsidence data observed in the neighboring coalfields having similar geo-mining conditions. The parameters taken for subsidence prediction are as follows:

i) Subsidence factor: 0.46 for the upper seam or for areas where single seam extraction is proposed and 0.54 for lower/multi seam extraction.

ii) Angle of draw: 250 for areas where single seam extraction is proposed and 300 for areas where two seams are to be worked.

(iii) Anticipated percentage of extraction in panels: 80%

(iv) Depth: Average depth for each panel calculated from borehole data.

(v) Width: Maximum width for each panel measured in strike direction.

Before subsidence prediction, the prediction model has been calibrated according to the above mentioned subsidence parameters. For subsidence calculation, underground extraction area has been divided into 20m x 20m grid blocks as individual elements. The numerical procedure followed for prediction involves estimation of subsidence at the grid points of each element and subsequent integration to arrive at resultant values and the final area influenced by ground movement. Subsidence has been calculated over 28800 points.

Subsidence prediction has been done for six stages of mining, i.e. at the end of 2019-20, at the end of 2022-23, at the end of 2025-26, at the end of 2028-29, at the end of 2031-32 and at the end of mine life, i.e., 2034-35. Stages of depillaring of panels in Seam VII and Seam VIB are shown in Plates – XVII (A) and XVII (B) respectively.

4.2.8.2 Software used:

1. Surfer 7.0
2. Autocad 15
3. Substrain (developed by cmpdi)
4. Ms office (excel, word and access).

4.2.8.3 Subsidence Prediction Results:

(i) Maximum Subsidence, Subsidence contours and Subsidence profiles:

(a) The anticipated maximum possible subsidence likely to occur over the mining area due to extraction of Seam VII only is 1.89 m over panel number T5 of Seam VII [refer Table – 4.5 and Plate – XVII (C)].

(b) The anticipated maximum possible subsidence likely to occur over the mining area due to extraction of Seam VIB only is 1.95 m over panel B37 [refer Table – 4.6 and Plate – XVII (D)].

(c) The anticipated maximum possible subsidence likely to occur at the end of 2019-20 is 1.95 m over panel T11 of seam VII [refer Table – 4.7 and Plate – XVII (E)].

(d) The anticipated maximum possible subsidence likely to occur at the end of 2022-23 is 2.77 m over panels -- VII-Panel no. T13, VIB-Panel no. B22 [refer Table – 4.8 and Plate – XVII (F)].

(e) The anticipated maximum possible subsidence likely to occur at the end of 2025-26 is 3.56 m over seam – VII -Panel no. T6 and VIB-Panel no. B15 [refer Table – 4.9 and Plate – XVII (G)].

(f) The anticipated maximum possible subsidence likely to occur at the end of 2028-29 is 4.00 m over panels – VII -Panel no. T4 and VIB-Panel no. B13 [refer Table – 4.10 and Plate – XVII (H)].

(g) The anticipated maximum possible subsidence likely to occur at the end of 2031-32 is 4.00 m over panels – VII -Panel no. T4 and VIB-Panel no. B13 [refer Table – 4.11 and Plate – XVII (I)].

(h) The anticipated maximum possible subsidence likely to occur at the end of mine life i.e. year 2034-35 is 4.00 m over panels -- VII-Panel no. T4 and VIB-Panel no. B13 [refer Table – 4.12 and Plate – XVII (J)].

(i) From the estimated subsidence at each grid point, subsidence contours have been drawn at the end of 2019-20, 2022-23, 2025-26, 2028-29, 2031-32 and 2034-35 and shown in Plates - XVII (E), XVII (F), XVII (G), XVII (H), XVII (I) & XVII (J) respectively. In all the Plates subsidence contours are shown in 0.2m intervals. Final subsidence profiles along lines AA' to EE' passing through the points of maximum subsidence have also been drawn and shown below in figures – 4.1 to 4.5 respectively.

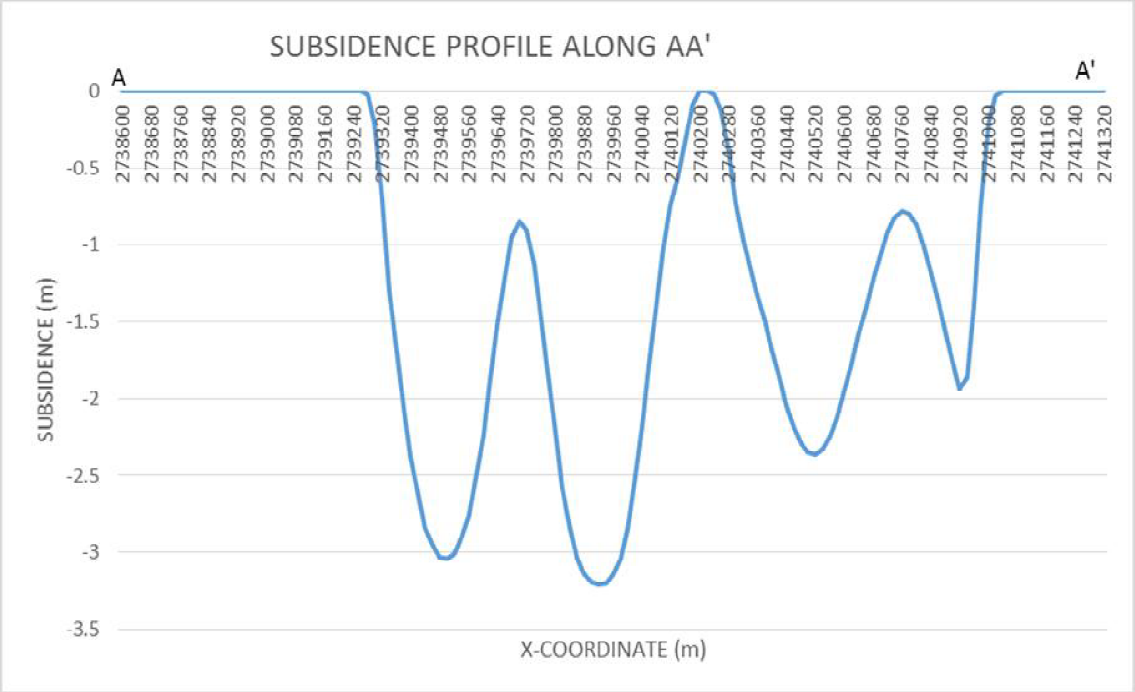


Fig. – 4.1

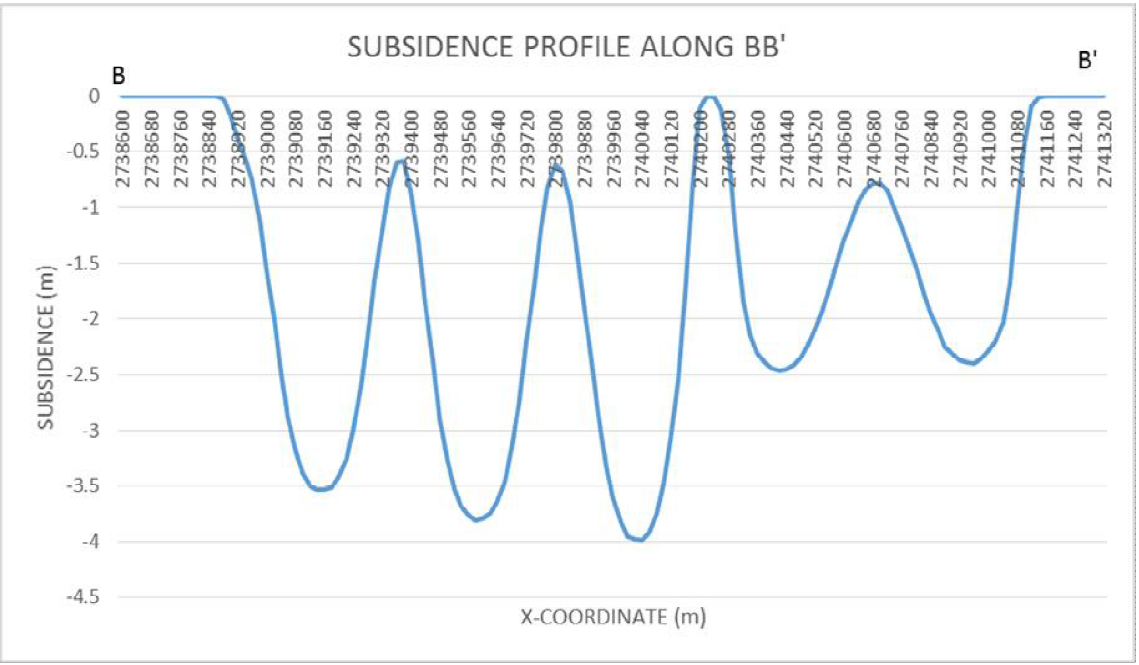

SUBSIDENCE PROFILE ALONG BB'
B
B'
SUBSIDENCE (m)
0
-0.5
-1
-1.5
-2
-2.5
-3
-3.5
-4
-4.5
2738600
2738680
2738760
2738840
2738920
2739000
2739080
2739160
2739240
2739320
2739400
2739480
2739560
2739640
2739720
2739800
2739880
2739960
2740040
2740120
2740200
2740280
2740360
2740440
2740520
2740600
2740680
2740760
2740840
2740920
2741000
2741080
2741160
2741240
2741320
X-COORDINATE (m)

Fig. – 4.2

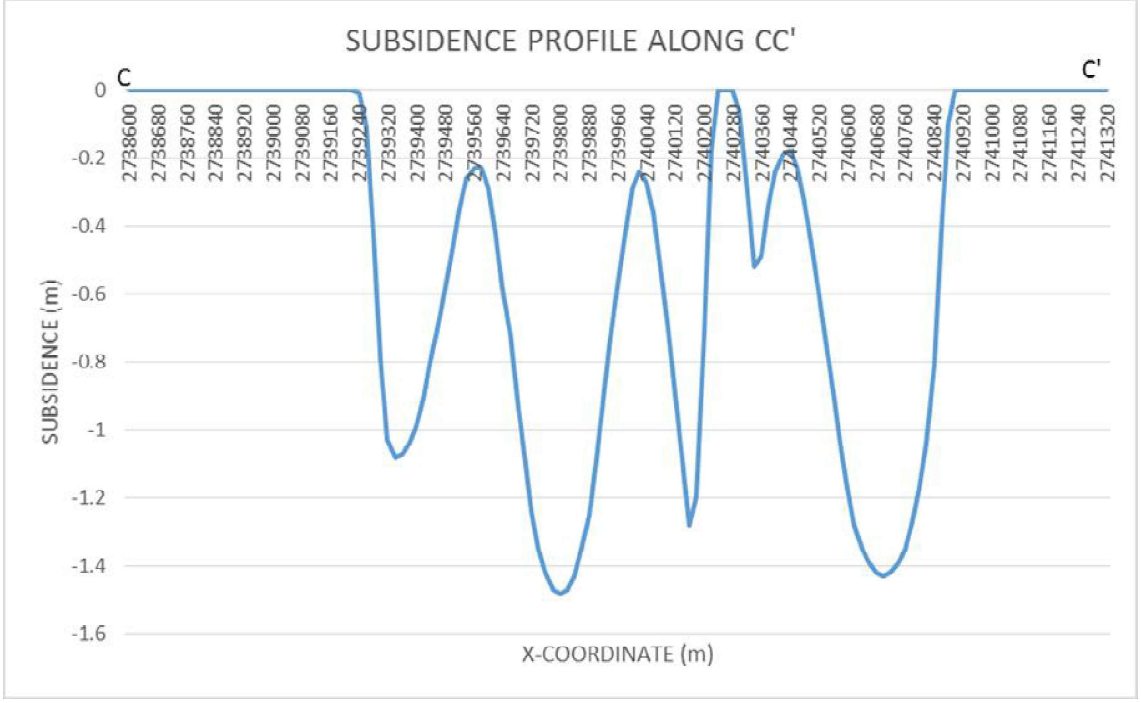

SUBSIDENCE PROFILE ALONG CC'
C
C'
SUBSIDENCE (m)
0
-0.2
-0.4
-0.6
-0.8
-1
-1.2
-1.4
-1.6
2738600
2738680
2738760
2738840
2738920
2739000
2739080
2739160
2739240
2739320
2739400
2739480
2739560
2739640
2739720
2739800
2739880
2739960
2740040
2740120
2740200
2740280
2740360
2740440
2740520
2740600
2740680
2740760
2740840
2740920
2741000
2741080
2741160
2741240
2741320
X-COORDINATE (m)

Fig. – 4.3

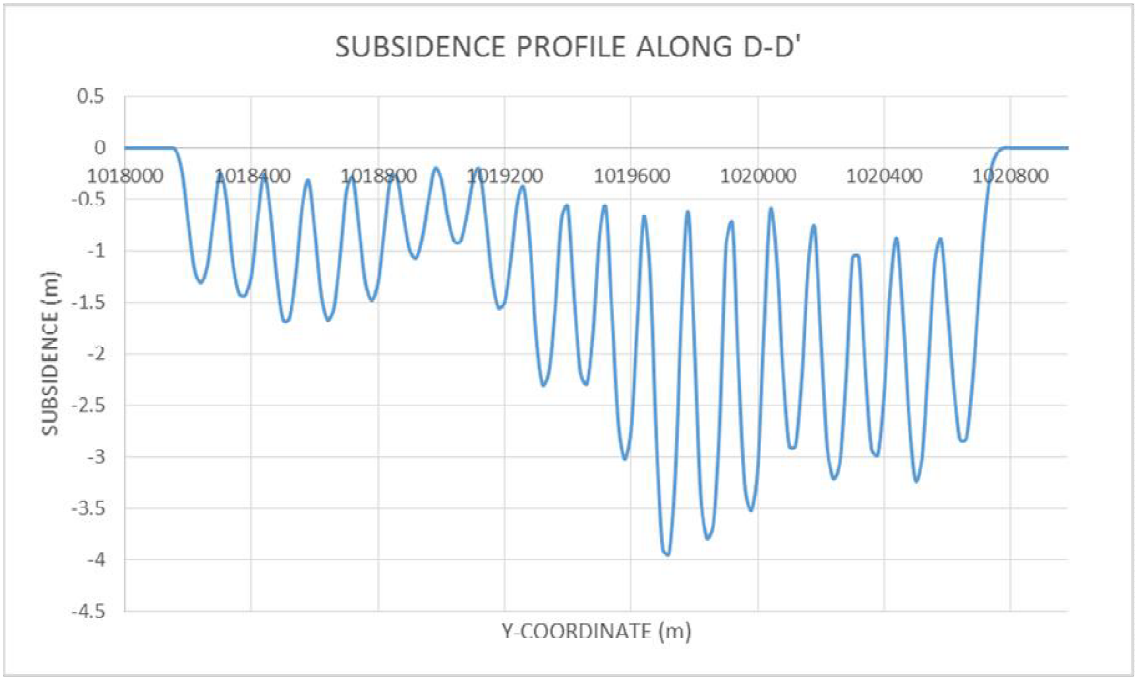


Fig. – 4.4

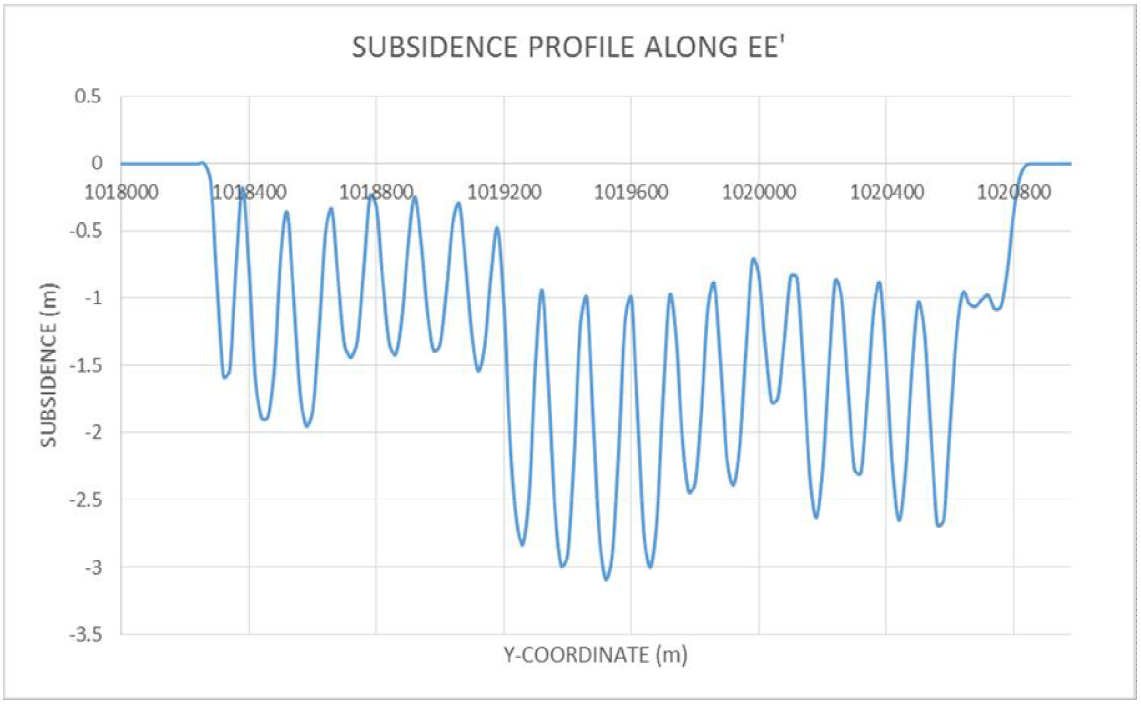


Fig. – 4.5

(j) Surface Topography and its 3D views:

The variation in surface topography on account of subsidence at the end of 2019-20, 2022-23, 2025-26, 2028-29, 2031-32, after extraction of VII Seam only, after extraction of VIB Seam only and at the end of mine life are shown in Plates – XVII (K), XVII (L), XVII (M), XVII (N), XVII (O), XVII (P), XVII

(Q) and XVII (R) respectively. For a comparative assessment of ground condition before and after mining, 3D views of surface before and after mining are shown in Plates - XVII (S) and XVII (T) respectively. Final surface profiles along lines AA' to EE' passing through the points of maximum subsidence have also been drawn and shown below in figures 4.6 to 4.10 respectively.

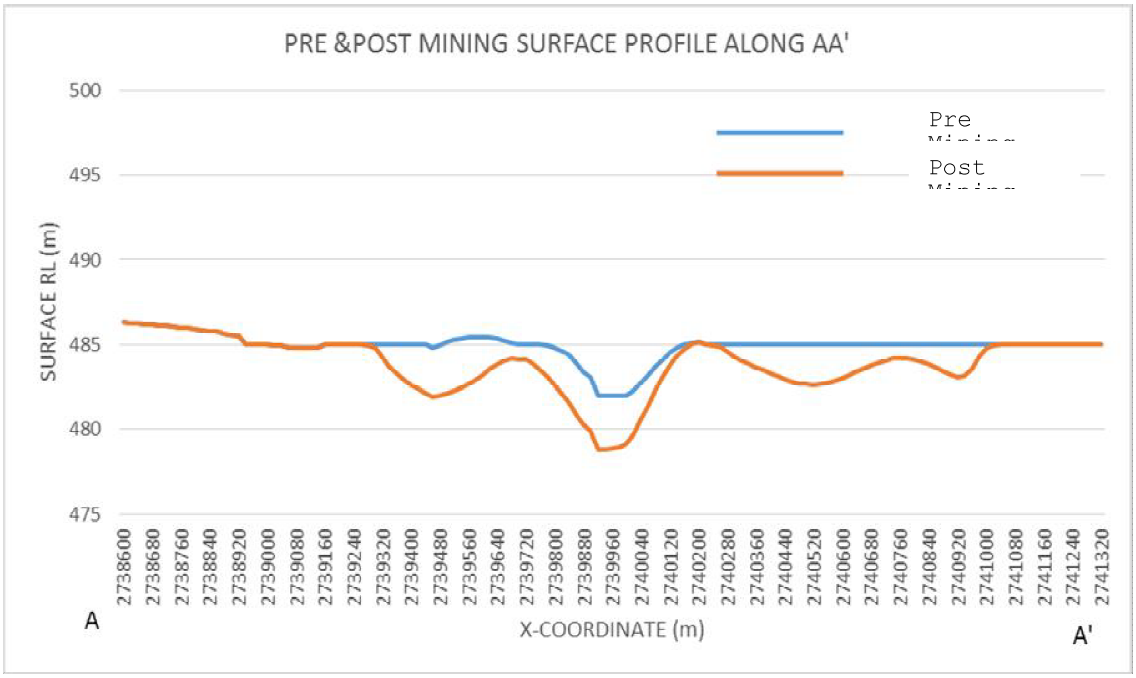


Fig. – 4.6

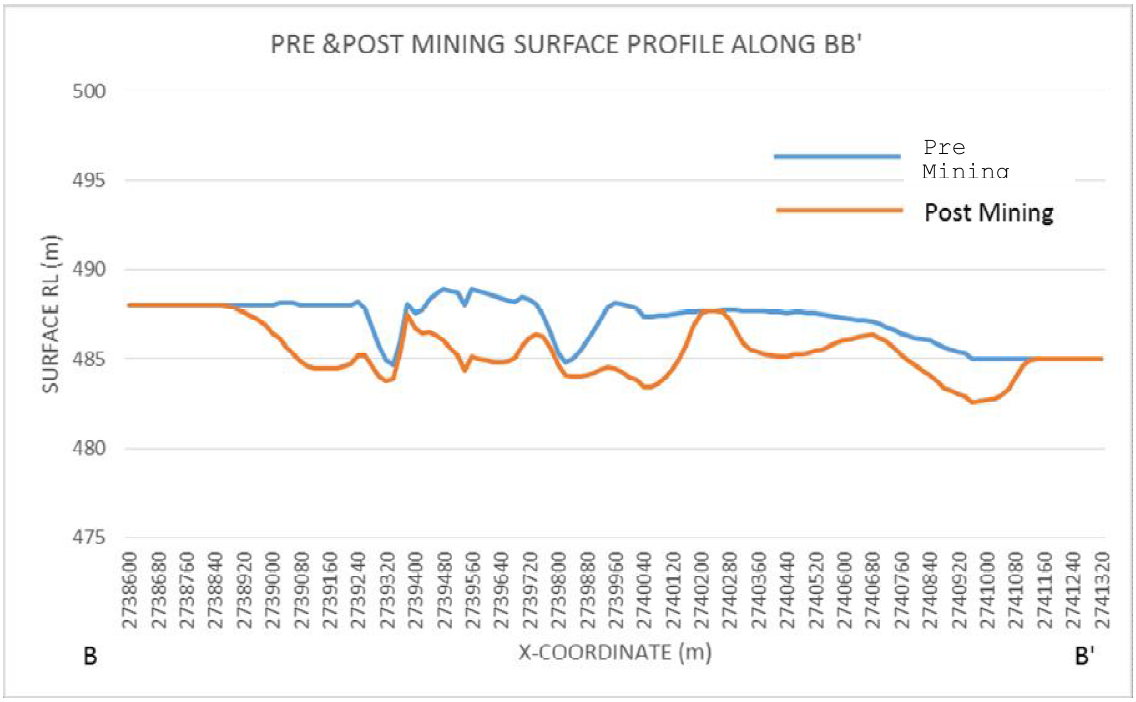

PRE &POST MINING SURFACE PROFILE ALONG BB'
500
495
490
485
480
475
SURFACE RL (m)
Pre Mining
Post Mining
2738600
2738680
2738760
2738840
2738920
2739000
2739080
2739160
2739240
2739320
2739400
2739480
2739560
2739640
2739720
2739800
2739880
2739960
2740040
2740120
2740200
2740280
2740360
2740440
2740520
2740600
2740680
2740760
2740840
2740920
2741000
2741080
2741160
2741240
2741320
B
X-COORDINATE (m)
B'

Fig. – 4.7

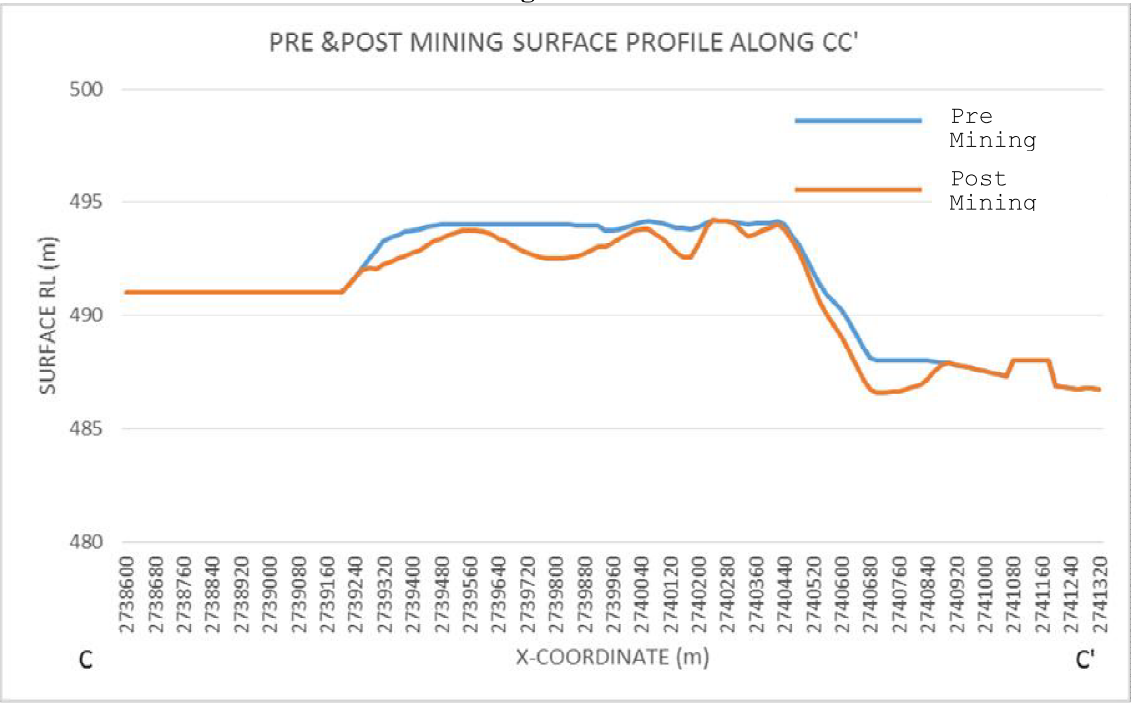

PRE &POST MINING SURFACE PROFILE ALONG CC'
500
495
490
485
480
SURFACE RL (m)
Pre Mining
Post Mining
2738600
2738680
2738760
2738840
2738920
2739000
2739080
2739160
2739240
2739320
2739400
2739480
2739560
2739640
2739720
2739800
2739880
2739960
2740040
2740120
2740200
2740280
2740360
2740440
2740520
2740600
2740680
2740760
2740840
2740920
2741000
2741080
2741160
2741240
2741320
C
X-COORDINATE (m)
C'

Fig. – 4.8

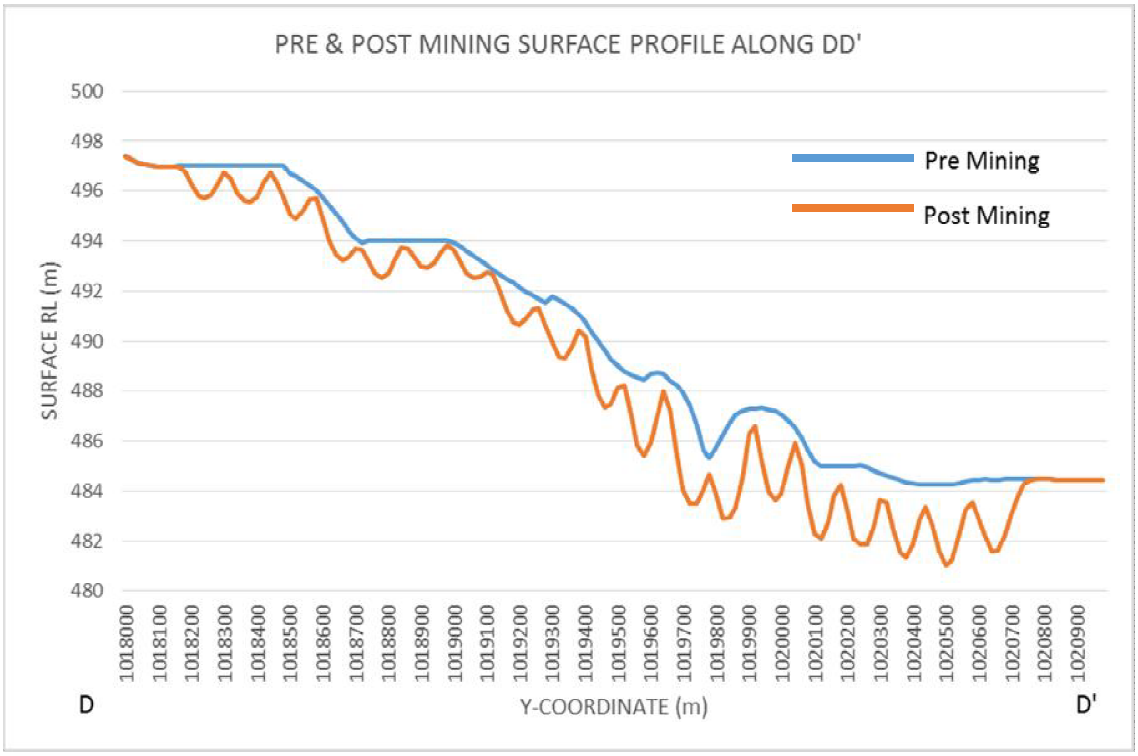


Fig. – 4.9

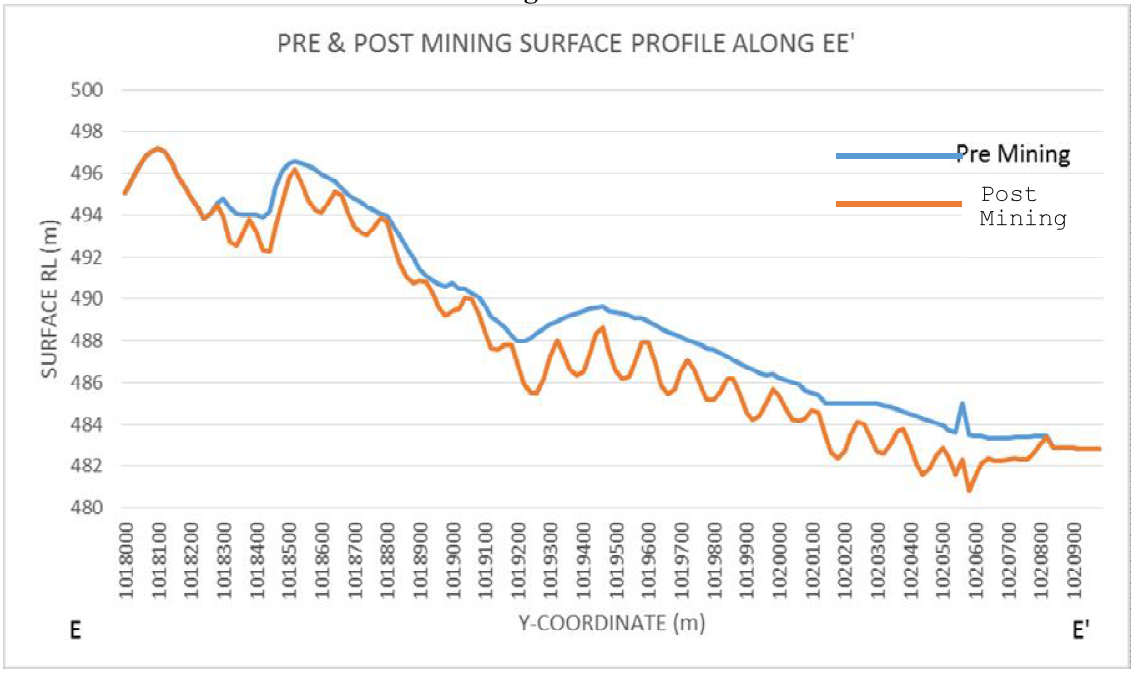


Fig. – 4.10

(ii) Effect of Subsidence on Surface Topography and Surface Features along with Mitigative Measures:

For estimating the effect of subsidence on surface topography and surface features, panel wise anticipated maximum possible subsidence, slope and tensile strain have

been calculated after extraction of each seam and after extraction of both seams which are shown in tables – 4.5, 4.6 and 4.12. Tables 4.5 and 4.6 show the anticipated maximum possible subsidence, slope and tensile strain after extraction of seams VII and VIB respectively. After extraction of only upper VII seam, the estimated maximum possible subsidence over the mining area is 1.89 m. The estimated maximum possible slope and tensile strain likely to occur are 74.18 and 38.94 mm/m respectively. After extraction of only VIB seam, the estimated maximum possible subsidence over the mining area is 1.95 m. The estimated maximum possible slope and tensile strain likely to occur are 49.17 and 25.81 mm/m respectively. After extraction of both the seams, the estimated maximum possible subsidence over the mining area is 4.00 m. The estimated maximum possible slope and tensile strain likely to occur are 149.54 and 78.51 mm/m respectively. For such amount of tensile strain, width of surface cracks likely to occur along the boundary and barriers is more than 300mm.

The surface topography over the mining area is gently rolling and slope is towards the north. The ground elevation of the mining area ranges from 482 m to 500 m, i.e., a difference of elevation of 18 m. For such terrain, the maximum anticipated subsidence of 4.0 m is unlikely to extensively affect the drainage pattern in the area. However, subsidence may result in the formation of depressions over the centre of the panels and cracks at the zones of high tensile strain such as along the boundary and barriers. Pools of water are likely to be formed in these depressions during rains, which may be retained wherever possible for the benefit of vegetation or filled up/drained out by cutting drains depending on safety of underground workings. The surface cracks, developed due to subsidence, need to be filled up properly and regularly with non-carbonaceous debris. Where exposed rocks are present on surface, clay with stone chips or non-carbonaceous debris is put into the cracks to achieve the original drainage pattern of the area and to prevent ingress of air and water into the goaf. This will minimise the chances of underground inundation and spontaneous heating.

Strain developed due to subsidence is the prime cause of damage to the surface features. Thus, values of strain likely to occur near important surface features have been estimated to envisage the extent of damages to the surface features and the same is shown in Plate – XVII (U). The impact of subsidence on different surface features are outlined below.

(iii) Impact of Subsidence on Nallas:

Sarpaha and Baisaha/Jamunia nallas flowing at the western and eastern mine boundaries respectively are unlikely to be affected by subsidence because depillaring in the panels is proposed to be restricted within 60m from the nallas. The 60 m barrier line is drawn in orange colour and shown in the plate – XVII (V). A few seasonal streams flowing over the property are likely to be affected by subsidence, a stream parallel to sarpaha nalla on the western side of the property is likely to be affected by maximum amount of 4.00 m subsidence and 46.62 mm/m tensile strain and another stream on the eastern side of the property is likely to be affected by maximum amount of 3.09 m subsidence and 30.59 mm/m tensile strain. Therefore it is suggested that safety barrier in the form of unextracted pillars be left below and within angle of draw from the bank of the streams (considering angle of draw as 30 degrees) in order to prevent any damage due to subsidence. For such protection an extraction restriction

line has been drawn against the streams and shown in red colour in plate – XVII (V) beyond which depillaring should be restricted in the panels. Alternatively, considering the flow of water in the streams during monsoon, due care has to be taken while extraction below these seasonal streams, such as development of surface cracks in the stream bed should be properly filled up, when dry, and by avoiding extraction below streams during monsoon to eliminate chances of inrush of water below ground.

(iv) Impact of subsidence on Ponds:

Two ponds existing over the property are likely to be affected by subsidence. The pond over panel B10 and T1 is likely to be affected by a maximum amount of 2.32 m subsidence and 43.51 mm/m tensile strain. Another pond over panel T11 and B20 is likely to be affected by a maximum amount of 2.91 m subsidence and 32.73 mm/m tensile strain. These ponds need to be dried and filled up before depillaring is made in the area or should be protected by leaving coal pillars unextracted vertically below and within angle of draw from the embankment of the pond (considering angle of draw as 30 degrees) in order to prevent any damage due to subsidence. Such protection has been suggested by drawing extraction restriction line around the ponds in red colour as shown in plate – XVII (V).

(v) Impact of subsidence on Roads:

A PWD road passing close to the south-eastern side of the mine boundary is unlikely to be damaged by subsidence because it is away from the subsidence influence area. A mine approach road and three other fair weather roads running over the property are likely to be affected by a maximum amount of 3.26 m subsidence. These roads are likely to be damaged by development of cracks, stepping and changes in road profile. Considering the importance of these roads these should be either protected by leaving coal pillars unextracted vertically below and within subsidence influence area or to be repaired and regraded, whenever necessary. For protection of these roads extraction restriction lines have been drawn against the roads which are shown in red colour in plate – XVII (V). Depillaring should be restricted in the panels beyond these extraction restriction line.

(vi) Impact of subsidence on HT Lines:

Two HT lines pass over the mine area. Below the alignment of east-west crossing HT line, the maximum subsidence is 2.32 m and below the alignment of north-south crossing HT line, the maximum subsidence is 3.09 m. Since the location of trestles of this HT line was not marked on the plans by the mine authorities, it is not possible to specify the subsidence below the trestles. Therefore it is suggested that safety barrier in the form of unextracted pillars be left below and within angle of draw of these trestles (considering angle of draw as 30 degrees) in order to prevent any damage due to subsidence. However, such protection has been suggested by drawing extraction restriction lines against the entire length of HT lines and shown in red colour in plate – XVII (V).

(vii) Impact of subsidence on villages:

Khairaha and Kudri villages close to the northern and southern mine boundary respectively are unlikely to be affected by subsidence because they are away from the subsidence influence area.

4.2.8.4 Subsidence Management:

Considering the impact of subsidence on surface topography, water bodies and other surface features, as explained above, the following subsidence management aspects are required to be undertaken to overcome or to minimise adverse effects.

i) Due to subsidence, surface cracks likely to develop over the mining area need to be filled up properly and regularly by clay and stone chips (non-carbonaceous debris) and thereafter with about 0.3m high clay heap over the cracks. It will help in achieving the original drainage pattern over the mining area, improving the water retention capacity of the soil, minimising the top soil erosion and avoiding chances of underground inundation and spontaneous heating.

ii) It is suggested that a team is formed by the mine management which will be responsible for the proper and regular filling of surface cracks developed due to subsidence. The team will also maintain record of the development and filling of surface cracks. Adequate supply of filling materials should be arranged by mine management at the site.

iii) To prevent the chances of underground inundation from Sarpaha and Baisaha/Jamunia nallas flowing at the western and eastern mine boundaries respectively are to be kept outside the subsidence influence area by leaving sufficient barrier against the nallas. Such protection has been suggested by drawing 60 m barrier line against the nallas which is shown in orange colour in plate – XVII (V). Due care has to be taken while extraction below these seasonal streams, such as development of surface cracks in the stream bed should be properly filled up, when dry, and by avoiding extraction below streams during monsoon.

iv) Two ponds existing over the property are likely to be affected by subsidence. These ponds need to be dried and filled up before depillaring is made in the area or should be protected by leaving coal pillars unextracted vertically below and within subsidence influence area.

v) HT lines over the property are likely to be affected by subsidence. Therefore it is suggested that safety barrier in the form of unextracted pillars be left below and within angle of draw of the trestles (considering angle of draw as 30 degrees) in order to prevent any damage due to subsidence. However, such protection has been suggested by drawing extraction restriction lines against the entire length of HT lines and shown in red colour in plate – XVII (V).

vi) A mine approach road and three other fair weather roads running over the property are likely to be affected by subsidence. Considering the importance of

these roads these should be either protected by leaving coal pillars unextracted vertically below and within subsidence influence area or to be repaired and regraded, whenever necessary. For protection of these roads extraction restriction lines have been drawn against the roads which are shown in red colour in plate – XVII (V).

vii) While extracting panels in lower seam, it will be necessary to drain all water bodies in the subsidence area. It is also suggested that dewatering of old goaves of upper seam needs to be continued as long as the lower seam is worked to prevent accumulation of large water bodies over working area.

viii) It is suggested that a time lag of about 5 years should be maintained between extractions of successive panels in superimposition. This will allow the super-incumbent strata to consolidate and settle before the extraction of lower seam. With this time lag in multiple seam extraction, depressions on the surface will take place in steps and after long intervals of time, and as a result reduced amount of slope and strain will develop on the surface. This will minimise the adverse effect of subsidence on the surface. Only a limited number of trees located on the edges of subsidence trough and surface cracks may get tilted.

ix) Subsidence may result in depressions on the surface with accumulation of water during the rains. Such accumulation of water may be beneficial for vegetation. These water bodies may be retained wherever possible or filled up/drained out by cutting drains to ensure safety of the underground workings.

x) Surface drains should be made outside of the subsidence influence area to prevent the surface water of adjoining area from coming into active subsidence area.

xi) Coal pillars are to be left un-extracted vertically below and within subsidence influence area from the surface features which are required to be protected from subsidence damages.

The impact of subsidence on different surface features and forest land along with the degree of damage are provided in Annexure - XXVIII for reference, i.e. the "Subsidence Impact Matrix". The Subsidence Impact Matrix (SIM) shown therein was developed by CMRI under a Ministry of Coal funded S&T Project.

4.2.8.5 Conclusion:

i) The anticipated maximum possible subsidence likely to occur over the mining area due to extraction of Seam - VII only is 1.89 m .The estimated maximum possible slope and tensile strain likely to occur are 74.18 and 38.94 mm/m.

ii) The anticipated maximum possible subsidence likely to occur over the mining area due to extraction of VIB Seam only is 1.95 m. The estimated maximum possible slope and tensile strain likely to occur are 49.17 and 25.81 mm/m respectively.

iii) The anticipated maximum possible subsidence likely to occur at the end of 2019-20 is 1.95 m. The estimated maximum possible slope and tensile strain likely to occur are 41.78 and 21.93 mm/m respectively.

iv) The anticipated maximum possible subsidence likely to occur at the end of 2022-23 is 2.77 m. The estimated maximum possible slope and tensile strain likely to occur are 87.13 and 45.74 mm/m respectively.

v) The anticipated maximum possible subsidence likely to occur at the end of 2025-26 is 3.56 m. The estimated maximum possible slope and tensile strain likely to occur are 128.01 and 67.20 mm/m respectively.

vi) The anticipated maximum possible subsidence likely to occur at the end of 2028-29 is 4.00 m. The estimated maximum possible slope and tensile strain likely to occur are 149.54 and 78.51 mm/m respectively.

vii) The anticipated maximum possible subsidence likely to occur at the end of 2031-32 is 4.00 m. The estimated maximum possible slope and tensile strain likely to occur are 149.54 and 78.51 mm/m respectively.

viii) The anticipated maximum possible subsidence likely to occur at the end of 2034-35 (end of mine life) is 4.00 m. The estimated maximum possible slope and tensile strain likely to occur are 149.54 and 78.51 mm/m respectively.

ix) The surface topography over the mining area is gently rolling and slope is towards the north. The ground elevation of the mining area ranges from 482 m to 500 m, i.e., a difference of elevation of 18 m. For such terrain, the maximum anticipated subsidence of 4.0 m is unlikely to extensively affect the drainage pattern in the area. However, subsidence may result in the formation of depressions over the centre of the panels and cracks at the zones of high tensile strain such as along the boundary and barriers. Pools of water are likely to be formed in these depressions during rains, which may be retained wherever possible for the benefit of vegetation or filled up/drained out by cutting drains.

x) Sarpaha and Baisaha/Jamunia nallas flowing at the western and eastern mine boundaries respectively are unlikely to be affected by subsidence because depillaring in the panels is proposed to be restricted within 60m from the nallas. However, small seasonal streams flowing over the property are likely to be affected by subsidence. Thus, considering the flow of water in the streams during monsoon, due care has to be taken while extraction below these seasonal streams, such as development of surface cracks in the stream bed should be properly filled up, when dry, and by avoiding extraction below streams during monsoon to eliminate chances of inrush of water below ground.

xi) PWD road and villages exist close to the mine boundary are unlikely to be affected by subsidence.

xii) A mine approach road and three other fair weather roads running over the property are likely to be affected by a maximum amount of 3.26 m subsidence. Considering

the importance of these roads these should be either protected by leaving coal pillars unextracted vertically below and within subsidence influence area or to be repaired and regraded, whenever necessary.

xiii) Two HT lines pass over the mine area. Below the alignment of east-west crossing HT line, the maximum subsidence is 2.32 m and below the alignment of north-south crossing HT line, the maximum subsidence is 3.09 m. Since the location of trestles of this HT line was not marked on the plans by the mine authorities, it is not possible to specify the subsidence below the trestles. Therefore it is suggested that safety barrier in the form of unextracted pillars be left below and within angle of draw of these trestles (considering angle of draw as 30 degrees) in order to prevent any damage due to subsidence.

xiv) Two ponds existing over the property are likely to be affected by subsidence. These ponds need to be dried and filled up before depillaring is made in the area or should be protected by leaving coal pillars unextracted vertically below and within the subsidence influence area. Cracks developed on surface due to subsidence need to be filled up properly and regularly with clay and stone chips to achieve original drainage pattern in the mining area and to avoid underground inundation and spontaneous heating.

xv) It is suggested that the Mine Management forms a team that will be responsible for the proper and regular filling of surface cracks developed due to subsidence. The team will also maintain a record of the development and filling of surface cracks. Adequate supply of filling materials should be arranged by the mine management at the site.

xvi) Surface drains should be made outside of the subsidence influence area to prevent the surface water of adjoining area from coming into active subsidence area.

xvii) For the safety of underground workings it will be necessary to prevent the formation of water bodies on the surface while extracting panels in the lower seam. It is also suggested that dewatering of the goaves of upper seam should be continued as long as the lower seam is worked to prevent the formation of large underground water bodies over the working area.

xviii) It is recommended that while carrying out extraction in the panels, close subsidence monitoring should be done over some initial panels and over the area near important surface features. On the basis of observed data, necessary correction in subsidence estimation may be done, if required.

Table-4.3, Liquidation Plan of Seam VII

Sl. No.	Seam	Panel No.	Width (m)	Depth (m)	Thickness (m)	Year
1	VII	T11	108	93	3.7	2019-20
2	VII	T12	108	104	2.8	2020-21
3	VII	T10	108	79	3.9	2020-21
4	VII	T13	108	93	3.5	2020-21
5	VII	T9	108	65	3.2	2020-21
6	VII	T14	108	86	3.2	2020-21

7	VII	T8	108	59	3.6	2020-21
8	VII	T1	92	56	1.8	2020-21
9	VII	T23	103	53	2.1	2020-21
10	VII	T15	108	82	3.1	2021-22
11	VII	T7	108	68	3.5	2021-22
12	VII	T16	108	79	2.3	2021-22
13	VII	T6	108	56	4	2021-22
14	VII	T2	108	54	1.9	2021-22
15	VII	T22	108	56	1.9	2021-22
16	VII	T3	108	56	2.5	2021-22
17	VII	T21	108	58	2.1	2021-22
18	VII	T20	108	61	2.1	2021-22
19	VII	T17	108	76	1.5	2022-23
20	VII	T5	108	51	4.1	2022-23
21	VII	T4	108	58	3.9	2022-23
22	VII	T19	108	56	1.5	2022-23
23	VII	T18	108	61	1.5	2022-23

Table – 4.4, Liquidation Plan of Seam VI B

Sl. No.	Seam	Panel No.	Width (m)	Depth (m)	Thickness (m)	Year
1	VI B	B21	108	137.7	1.6	2022-23
2	VI B	B22	108	120.6	2.3	2022-23
3	VI B	B20	108	123.8	1.9	2023-24
4	VI B	B19	108	110.4	2.4	2023-24
5	VI B	B18	108	101.8	2.7	2023-24
6	VI B	B23	108	120.4	2.3	2023-24
7	VI B	B24	108	116	1.6	2023-24
8	VI B	B17	108	90.5	2.5	2024-25
9	VI B	B16	108	98.5	2.2	2024-25
10	VI B	B25	108	113.8	3.1	2024-25
11	VI B	B26	108	114.5	2.3	2024-25
12	VI B	B15	108	90.4	2.8	2025-26
13	VI B	B27	108	106.9	3.2	2025-26
14	VI B	B14	108	86.2	3.1	2026-27
15	VI B	B28	108	104.6	3.3	2026-27
16	VI B	B13	108	90.1	3.7	2027-28
17	VI B	B29	108	106.7	3.8	2027-28
18	VI B	B30	108	106.1	4	2027-28
19	VI B	B12	108	90.7	3.4	2028-29
20	VI B	B31	108	105.6	4.1	2028-29
21	VI B	B11	108	91	2.7	2029-30
22	VI B	B10	108	94.7	2.7	2029-30

23	VI B	B32	108	104.4	3.5	2029-30
24	VI B	B33	108	104.4	3.5	2029-30
25	VI B	B9	108	94	3.4	2030-31
26	VI B	B34	108	95.7	3.1	2030-31
27	VI B	B35	108	89.2	3.1	2030-31
28	VI B	B8	108	93.4	2.1	2031-32
29	VI B	B36	108	82.6	3.1	2031-32
30	VI B	B37	108	91.9	4.3	2031-32
31	VI B	B7	108	102	2.4	2032-33
32	VI B	B6	108	91.2	3.3	2032-33
33	VI B	B38	108	77.5	4.1	2032-33
34	VI B	B39	76.5	67.1	3.6	2032-33
35	VI B	B5	108	91.4	3.7	2033-34
36	VI B	B4	108	94	3.8	2033-34
37	VI B	B3	108	83	3.1	2034-35
38	VI B	B2	108	88.2	2.8	2034-35
39	VI B	B1	76.5	87.5	3	2034-35

Table - 4.5, Anticipated Maximum Subsidence, Slope and Tensile Strain Over Mining Area Due to Extraction of Seam VII

Sl. No.	Seam	Panel No.	Width	Depth	Thick-ness	Max. Subsi-dence	Max. Tensile Strain	Max. Slope	Likely Width of Cracks on Surface
			(m)	(m)	(m)	(mm)	(mm/m)	(mm/m)	(mm)
1	VII	T11	108	93.4	3.7	1700	19.12	36.42	<300
2	VII	T12	108	103.5	2.8	810	8.22	15.65	<100
3	VII	T10	108	78.6	3.9	1800	24.04	45.8	>300
4	VII	T13	108	92.5	3.5	1570	17.82	33.95	<200
5	VII	T9	108	65.3	3.2	1470	23.65	45.05	>300
6	VII	T14	108	85.8	3.2	1460	17.87	34.05	<200
7	VII	T8	108	58.7	3.6	1660	29.67	56.52	>300
8	VII	T1	92	56	1.8	830	15.57	29.65	<200
9	VII	T23	103	53.1	2.1	970	19.18	36.53	<300
10	VII	T15	108	81.9	3.1	1430	18.34	34.94	<300
11	VII	T7	108	68.3	3.5	1610	24.73	47.11	>300
12	VII	T16	108	79.2	2.3	1060	14.06	26.78	<150
13	VII	T6	108	55.6	4	1840	34.73	66.16	>300
14	VII	T2	108	53.8	1.9	870	16.98	32.34	<200
15	VII	T22	108	56.3	1.9	870	16.24	30.93	<200
16	VII	T3	108	55.7	2.5	1150	21.67	41.27	>300
17	VII	T21	108	57.7	2.1	970	17.65	33.63	<200
18	VII	T20	108	61	2.1	970	16.7	31.8	<200
19	VII	T17	108	76.5	1.5	690	9.47	18.04	<100
20	VII	T5	108	51	4.1	1890	38.94	74.18	>300

21	VII	T4	108	58.1	3.9	1800	32.53	61.97	>300
22	VII	T19	108	55.7	1.5	690	13.01	24.78	<150
23	VII	T18	108	60.9	1.5	690	11.9	22.66	<100

Table-4.6, Anticipated Maximum Subsidence, Slope and Tensile Strain Over Mining Area Due to Extraction of Seam VI B

S. No.	Seam	Panel No.	Width	Depth	Thick-ness	Max. Subsi-dence	Max. Tensile Strain	Max. Slope	Likely Width of Cracks on Surface
			(m)	(m)	(m)	(mm)	(mm/m)	(mm/m)	(mm)
1	VI	B21	108	137.7	1.6	300	2.29	4.36	Fine Cracks
2	VI	B22	108	120.6	2.3	970	8.44	16.08	<100
3	VI	B20	108	123.8	1.9	890	7.55	14.38	<50
4	VI	B19	108	110.4	2.4	1090	10.37	19.75	<100
5	VI	B18	108	101.8	2.7	1210	12.48	23.76	<100
6	VI	B23	108	120.4	2.3	970	8.46	16.11	<100
7	VI	B24	108	116	1.6	690	6.25	11.9	<50
8	VI	B17	108	90.5	2.5	1130	13.11	24.96	<150
9	VI	B16	108	98.5	2.2	990	10.55	20.1	<100
10	VI	B25	108	113.8	3.1	1340	12.36	23.55	<100
11	VI	B26	108	114.5	2.3	960	8.8	16.77	<100
12	VI	B15	108	90.4	2.8	1250	14.53	27.67	<150
13	VI	B27	108	106.9	3.2	1450	14.25	27.14	<150
14	VI	B14	108	86.2	3.1	1410	17.18	32.72	<200
15	VI	B28	108	104.6	3.3	1500	15.06	28.68	<200
16	VI	B13	108	90.1	3.7	1700	19.81	37.74	<300
17	VI	B29	108	106.7	3.8	1720	16.93	32.24	<200
18	VI	B30	108	106.1	4	1780	17.62	33.56	<200
19	VI	B12	108	90.7	3.4	1520	17.6	33.53	<200
20	VI	B31	108	105.6	4.1	1830	18.2	34.66	<300
21	VI	B11	108	91	2.7	1200	13.84	26.36	<150
22	VI	B10	108	94.7	2.7	1210	13.41	25.54	<150
23	VI	B32	108	104.4	3.5	1550	15.59	29.69	<200
24	VI	B33	108	104.4	3.5	1540	15.49	29.5	<200
25	VI	B9	108	94	3.4	1570	17.54	33.4	<200
26	VI	B34	108	95.7	3.1	1410	15.46	29.45	<200
27	VI	B35	108	89.2	3.1	1430	16.84	32.07	<200
28	VI	B8	108	93.4	2.1	940	10.57	20.13	<100
29	VI	B36	108	82.6	3.1	1440	18.3	34.86	<300
30	VI	B37	108	91.9	4.3	1950	22.27	42.43	>300

Table- 4.7, Anticipated Maximum Subsidence, Slope and Tensile Strain Over Mining Area (Period 2017-18 to 2019-20)									
Sl. No.	**Seam**	**Panel No.**	**Width**	**Depth**	**Thick-ness**	**Max. Subsi-dence**	**Max. Tensile Strain**	**Max. Slope**	**Likely Width of Cracks on Surface**
			(m)	**(m)**	**(m)**	**(mm)**	**(mm/m)**	**(mm/m)**	**(mm)**
1	VII	T11	108	93.4	3.7	1950	21.93	41.78	>300

Table - 4.8, Anticipated Maximum Subsidence, Slope and Tensile Strain Over Mining Area (Period 2017-18 to 2022-23)									
S. No.	**Seam**	**Panel No.**	**Width**	**Depth**	**Thick-ness**	**Max. Subsi-dence**	**Max. Tensile Strain**	**Max. Slope**	**Likely Width of Cracks on Surface**
			(m)	**(m)**	**(m)**	**(mm)**	**(mm/m)**	**(mm/m)**	**(mm)**
1	VII	T11	108	93.4	3.7	1950	21.93	41.78	>300
2	VII	T12	108	103.5	2.8	1110	11.26	21.45	<100
3	VII	T10	108	78.6	3.9	2070	27.65	52.67	>300
4	VII	T13	108	92.5	3.5	2770	31.44	59.89	>300
5	VII	T9	108	65.3	3.2	1950	31.37	59.76	>300
6	VII	T14	108	85.8	3.2	1640	20.08	38.24	>300
7	VII	T8	108	58.7	3.6	1950	34.86	66.39	>300
8	VII	T1	92	56	1.8	970	18.19	34.65	<300
9	VII	T23	103	53.1	2.1	1140	22.54	42.94	>300
10	VII	T15	108	81.9	3.1	1630	20.91	39.83	>300
11	VII	T7	108	68.3	3.5	1890	29.04	55.31	>300
12	VII	T16	108	79.2	2.3	1220	16.18	30.82	<200
13	VII	T6	108	55.6	4	2160	40.77	77.67	>300
14	VII	T2	108	53.8	1.9	1030	20.1	38.28	>300
15	VII	T22	108	56.3	1.9	1030	19.23	36.62	<300
16	VII	T3	108	55.7	2.5	1350	25.44	48.45	>300
17	VII	T21	108	57.7	2.1	1140	20.75	39.52	>300
18	VII	T20	108	61	2.1	1140	19.62	37.38	<300
19	VII	T17	108	76.5	1.5	800	10.98	20.92	<100
20	VII	T5	108	51	4.1	2220	45.74	87.13	>300
21	VII	T4	108	58.1	3.9	2110	38.14	72.64	>300
22	VII	T19	108	55.7	1.5	810	15.27	29.08	<200
23	VII	T18	108	60.9	1.5	810	13.97	26.6	<150
24	VI B	B21	108	137.7	1.6	1110	8.46	16.12	<100
25	VI B	B22	108	120.6	2.3	2770	24.11	45.92	>300

Table - 4.9, Anticipated Maximum Subsidence, Slope and Tensile Strain Over Mining Area (Period 2017-18 to 2025-26)									
S. No.	**Seam**	**Panel No.**	**Width**	**Depth**	**Thick-ness**	**Max. Subsi-dence**	**Max. Tensile Strain**	**Max. Slope**	**Likely Width of Cracks on Surface**
			(m)	**(m)**	**(m)**	**(mm)**	**(mm/m)**	**(mm/m)**	**(mm)**
1	VII	T11	108	93.4	3.7	2910	32.73	62.34	>300
2	VII	T12	108	103.5	2.8	1110	11.26	21.45	<100
3	VII	T10	108	78.6	3.9	3260	43.54	82.94	>300
4	VII	T13	108	92.5	3.5	2770	31.44	59.89	>300
5	VII	T9	108	65.3	3.2	3040	48.91	93.16	>300
6	VII	T14	108	85.8	3.2	2670	32.69	62.26	>300
7	VII	T8	108	58.7	3.6	3230	57.73	109.97	>300
8	VII	T1	92	56	1.8	970	18.19	34.65	<300
9	VII	T23	103	53.1	2.1	1140	22.54	42.94	>300
10	VII	T15	108	81.9	3.1	2370	30.4	57.91	>300
11	VII	T7	108	68.3	3.5	2970	45.63	86.91	>300
12	VII	T16	108	79.2	2.3	2670	35.41	67.45	>300
13	VII	T6	108	55.6	4	3560	67.2	128.01	>300
14	VII	T2	108	53.8	1.9	1030	20.1	38.28	>300
15	VII	T22	108	56.3	1.9	1030	19.23	36.62	<300
16	VII	T3	108	55.7	2.5	1350	25.44	48.45	>300
17	VII	T21	108	57.7	2.1	1140	20.75	39.52	>300
18	VII	T20	108	61	2.1	1140	19.62	37.38	<300
19	VII	T17	108	76.5	1.5	1830	25.12	47.85	>300
20	VII	T5	108	51	4.1	2220	45.74	87.13	>300
21	VII	T4	108	58.1	3.9	2110	38.14	72.64	>300
22	VII	T19	108	55.7	1.5	810	15.27	29.08	<200
23	VII	T18	108	60.9	1.5	2400	41.38	78.82	>300
24	VI B	B21	108	137.7	1.6	1110	8.46	16.12	<100
25	VI B	B22	108	120.6	2.3	2770	24.11	45.92	>300
26	VI B	B20	108	123.8	1.9	2910	24.69	47.02	>300
27	VI B	B19	108	110.4	2.4	3260	31.01	59.07	>300
28	VI B	B18	108	101.8	2.7	3040	31.34	59.7	>300
29	VI B	B23	108	120.4	2.3	2670	23.28	44.35	>300
30	VI B	B24	108	116.0	1.6	2370	21.45	40.86	>300
31	VI B	B17	108	90.5	2.5	3230	37.46	71.35	>300
32	VI B	B16	108	98.5	2.2	2970	31.66	60.30	>300
33	VI B	B25	108	113.8	3.1	2670	24.64	46.93	>300
34	VI B	B26	108	114.5	2.3	1830	16.78	31.97	<200
35	VI B	B15	108	90.4	2.8	3560	41.37	78.80	>300
36	VI B	B27	108	106.9	3.2	2400	23.58	44.92	>300

Table - 4.10, Anticipated Maximum Subsidence, Slope and Tensile Strain Over Mining Area (Period 2017-18 to 2028-29)									
Sl. No.	**Seam**	**Panel No.**	**Width**	**Depth**	**Thick-ness**	**Max. Subsi-dence**	**Max. Tensile Strain**	**Max. Slope**	**Likely Width of Cracks on Surface**
			(m)	**(m)**	**(m)**	**(mm)**	**(mm/m)**	**(mm/m)**	**(mm)**
1	VII	T11	108	93.4	3.7	2910	32.73	62.34	>300
2	VII	T12	108	103.5	2.8	1110	11.26	21.45	<100
3	VII	T10	108	78.6	3.9	3260	43.54	82.94	>300
4	VII	T13	108	92.5	3.5	2770	31.44	59.89	>300
5	VII	T9	108	65.3	3.2	3040	48.91	93.16	>300
6	VII	T14	108	85.8	3.2	2670	32.69	62.26	>300
7	VII	T8	108	58.7	3.6	3230	57.73	109.97	>300
8	VII	T1	92	56	1.8	970	18.19	34.65	<300
9	VII	T23	103	53.1	2.1	1140	22.54	42.94	>300
10	VII	T15	108	81.9	3.1	2370	30.4	57.91	>300
11	VII	T7	108	68.3	3.5	2970	45.63	86.91	>300
12	VII	T16	108	79.2	2.3	2670	35.41	67.45	>300
13	VII	T6	108	55.6	4	3560	67.2	128.01	>300
14	VII	T2	108	53.8	1.9	1030	20.1	38.28	>300
15	VII	T22	108	56.3	1.9	3030	56.56	107.73	>300
16	VII	T3	108	55.7	2.5	3020	56.9	108.38	>300
17	VII	T21	108	57.7	2.1	3090	56.24	107.12	>300
18	VII	T20	108	61	2.1	3030	52.16	99.34	>300
19	VII	T17	108	76.5	1.5	1830	25.12	47.85	>300
20	VII	T5	108	51	4.1	3810	78.51	149.54	>300
21	VII	T4	108	58.1	3.9	4000	72.3	137.71	>300
22	VII	T19	108	55.7	1.5	2460	46.37	88.33	>300
23	VII	T18	108	60.9	1.5	2400	41.38	78.82	>300
24	VI B	B21	108	137.7	1.6	1110	8.46	16.12	<100
25	VI B	B22	108	120.6	2.3	2770	24.11	45.92	>300
26	VI B	B20	108	123.8	1.9	2910	24.69	47.02	>300
27	VI B	B19	108	110.4	2.4	3260	31.01	59.07	>300
28	VI B	B18	108	101.8	2.7	3040	31.34	59.7	>300
29	VI B	B23	108	120.4	2.3	2670	23.28	44.35	>300
30	VI B	B24	108	116	1.6	2370	21.45	40.86	>300
31	VI B	B17	108	90.5	2.5	3230	37.46	71.35	>300
32	VI B	B16	108	98.5	2.2	2970	31.66	60.3	>300
33	VI B	B25	108	113.8	3.1	2670	24.64	46.93	>300
34	VI B	B26	108	114.5	2.3	1830	16.78	31.97	<200
35	VI B	B15	108	90.4	2.8	3560	41.37	78.8	>300
36	VI B	B27	108	106.9	3.2	2400	23.58	44.92	>300
37	VI B	B14	108	86.2	3.1	3810	46.42	88.42	>300
38	VI B	B28	108	104.6	3.3	2460	24.7	47.04	>300
39	VI B	B13	108	90.1	3.7	4000	46.62	88.79	>300

40	VI B	B29	108	106.7	3.8	3030	29.82	56.79	>300
41	VI B	B30	108	106.1	4	3090	30.59	58.26	>300
42	VI B	B12	108	90.7	3.4	3020	34.97	66.62	>300
43	VI B	B31	108	105.6	4.1	3030	30.13	57.39	>300

Table - 4.11, Anticipated Maximum Subsidence, Slope and Tensile Strain Over Mining Area (Period 2017-18 to 2031-32)

Sl. No.	Seam	Panel No.	Width	Depth	Thick-ness	Max. Subsi-dence	Max. Tensile Strain	Max. Slope	Likely Width of Cracks on Surface
			(m)	(m)	(m)	(mm)	(mm/m)	(mm/m)	(mm)
1	VII	T11	108	93.4	3.7	2910	32.73	62.34	>300
2	VII	T12	108	103.5	2.8	1110	11.26	21.45	<100
3	VII	T10	108	78.6	3.9	3260	43.54	82.94	>300
4	VII	T13	108	92.5	3.5	2770	31.44	59.89	>300
5	VII	T9	108	65.3	3.2	3040	48.91	93.16	>300
6	VII	T14	108	85.8	3.2	2670	32.69	62.26	>300
7	VII	T8	108	58.7	3.6	3230	57.73	109.97	>300
8	VII	T1	92	56	1.8	2320	43.51	82.87	>300
9	VII	T23	103	53.1	2.1	2830	55.96	106.59	>300
10	VII	T15	108	81.9	3.1	2370	30.4	57.91	>300
11	VII	T7	108	68.3	3.5	2970	45.63	86.91	>300
12	VII	T16	108	79.2	2.3	2670	35.41	67.45	>300
13	VII	T6	108	55.6	4	3560	67.2	128.01	>300
14	VII	T2	108	53.8	1.9	2340	45.66	86.97	>300
15	VII	T22	108	56.3	1.9	3030	56.56	107.73	>300
16	VII	T3	108	55.7	2.5	3020	56.9	108.38	>300
17	VII	T21	108	57.7	2.1	3090	56.24	107.12	>300
18	VII	T20	108	61	2.1	3030	52.16	99.34	>300
19	VII	T17	108	76.5	1.5	1830	25.12	47.85	>300
20	VII	T5	108	51	4.1	3810	78.51	149.54	>300
21	VII	T4	108	58.1	3.9	4000	72.3	137.71	>300
22	VII	T19	108	55.7	1.5	2460	46.37	88.33	>300
23	VII	T18	108	60.9	1.5	2400	41.38	78.82	>300
24	VI B	B21	108	137.7	1.6	1110	8.46	16.12	<100
25	VI B	B22	108	120.6	2.3	2770	24.11	45.92	>300
26	VI B	B20	108	123.8	1.9	2910	24.69	47.02	>300
27	VI B	B19	108	110.4	2.4	3260	31.01	59.07	>300
28	VI B	B18	108	101.8	2.7	3040	31.34	59.7	>300
29	VI B	B23	108	120.4	2.3	2670	23.28	44.35	>300
30	VI B	B24	108	116	1.6	2370	21.45	40.86	>300
31	VI B	B17	108	90.5	2.5	3230	37.46	71.35	>300
32	VI B	B16	108	98.5	2.2	2970	31.66	60.3	>300
33	VI B	B25	108	113.8	3.1	2670	24.64	46.93	>300
34	VI B	B26	108	114.5	2.3	1830	16.78	31.97	<200

35	VI B	B15	108	90.4	2.8	3560	41.37	78.8	>300
36	VI B	B27	108	106.9	3.2	2400	23.58	44.92	>300
37	VI B	B14	108	86.2	3.1	3810	46.42	88.42	>300
38	VI B	B28	108	104.6	3.3	2460	24.7	47.04	>300
39	VI B	B13	108	90.1	3.7	4000	46.62	88.79	>300
40	VI B	B29	108	106.7	3.8	3030	29.82	56.79	>300
41	VI B	B30	108	106.1	4	3090	30.59	58.26	>300
42	VI B	B12	108	90.7	3.4	3020	34.97	66.62	>300
43	VI B	B31	108	105.6	4.1	3030	30.13	57.39	>300
44	VI B	B11	108	91	2.7	2340	26.99	51.41	>300
45	VI B	B10	108	94.7	2.7	2320	25.71	48.98	>300
46	VI B	B32	108	104.4	3.5	2830	28.46	54.21	>300
47	VI B	B33	108	104.4	3.5	1540	15.49	29.5	<200
48	VI B	B9	108	94	3.4	1570	17.54	33.4	<200
49	VI B	B34	108	95.7	3.1	1410	15.46	29.45	<200
50	VI B	B35	108	89.2	3.1	1430	16.84	32.07	<200
51	VI B	B8	108	93.4	2.1	940	10.57	20.13	<100
52	VI B	B36	108	82.6	3.1	1440	18.3	34.86	<300
53	VI B	B37	108	91.9	4.3	1950	22.27	42.43	>300

Table - 4.12, Anticipated Maximum Subsidence, Slope and Tensile Strain Over Mining Area (Period 2017-18 to 2034-35)

Sl. No.	Seam	Panel No.	Width	Depth	Thick-ness	Max. Subsi-dence	Max. Tensile Strain	Max. Slope	Likely Width of Cracks on Surface
			(m)	(m)	(m)	(mm)	(mm/m)	(mm/m)	(mm)
1	VII	T11	108	93.4	3.7	2910	32.73	62.34	>300
2	VII	T12	108	103.5	2.8	1110	11.26	21.45	<100
3	VII	T10	108	78.6	3.9	3260	43.54	82.94	>300
4	VII	T13	108	92.5	3.5	2770	31.44	59.89	>300
5	VII	T9	108	65.3	3.2	3040	48.91	93.16	>300
6	VII	T14	108	85.8	3.2	2670	32.69	62.26	>300
7	VII	T8	108	58.7	3.6	3230	57.73	109.97	>300
8	VII	T1	92	56	1.8	2320	43.51	82.87	>300
9	VII	T23	103	53.1	2.1	2830	55.96	106.59	>300
10	VII	T15	108	81.9	3.1	2370	30.4	57.91	>300
11	VII	T7	108	68.3	3.5	2970	45.63	86.91	>300
12	VII	T16	108	79.2	2.3	2670	35.41	67.45	>300
13	VII	T6	108	55.6	4	3560	67.2	128.01	>300
14	VII	T2	108	53.8	1.9	2340	45.66	86.97	>300
15	VII	T22	108	56.3	1.9	3030	56.56	107.73	>300
16	VII	T3	108	55.7	2.5	3020	56.9	108.38	>300
17	VII	T21	108	57.7	2.1	3090	56.24	107.12	>300
18	VII	T20	108	61	2.1	3030	52.16	99.34	>300
19	VII	T17	108	76.5	1.5	1830	25.12	47.85	>300

20	VII	T5	108	51	4.1	3810	78.51	149.54	>300
21	VII	T4	108	58.1	3.9	4000	72.3	137.71	>300
22	VII	T19	108	55.7	1.5	2460	46.37	88.33	>300
23	VII	T18	108	60.9	1.5	2400	41.38	78.82	>300
24	VI B	B21	108	137.7	1.6	1110	8.46	16.12	<100
25	VI B	B22	108	120.6	2.3	2770	24.11	45.92	>300
26	VI B	B20	108	123.8	1.9	2910	24.69	47.02	>300
27	VI B	B19	108	110.4	2.4	3260	31.01	59.07	>300
28	VI B	B18	108	101.8	2.7	3040	31.34	59.7	>300
29	VI B	B23	108	120.4	2.3	2670	23.28	44.35	>300
30	VI B	B24	108	116	1.6	2370	21.45	40.86	>300
31	VI B	B17	108	90.5	2.5	3230	37.46	71.35	>300
32	VI B	B16	108	98.5	2.2	2970	31.66	60.3	>300
33	VI B	B25	108	113.8	3.1	2670	24.64	46.93	>300
34	VI B	B26	108	114.5	2.3	1830	16.78	31.97	<200
35	VI B	B15	108	90.4	2.8	3560	41.37	78.8	>300
36	VI B	B27	108	106.9	3.2	2400	23.58	44.92	>300
37	VI B	B14	108	86.2	3.1	3810	46.42	88.42	>300
38	VI B	B28	108	104.6	3.3	2460	24.7	47.04	>300
39	VI B	B13	108	90.1	3.7	4000	46.62	88.79	>300
40	VI B	B29	108	106.7	3.8	3030	29.82	56.79	>300
41	VI B	B30	108	106.1	4	3090	30.59	58.26	>300
42	VI B	B12	108	90.7	3.4	3020	34.97	66.62	>300
43	VI B	B31	108	105.6	4.1	3030	30.13	57.39	>300
44	VI B	B11	108	91	2.7	2340	26.99	51.41	>300
45	VI B	B10	108	94.7	2.7	2320	25.71	48.98	>300
46	VI B	B32	108	104.4	3.5	2830	28.46	54.21	>300
47	VI B	B33	108	104.4	3.5	1540	15.49	29.5	<200
48	VI B	B9	108	94	3.4	1570	17.54	33.4	<200
49	VI B	B34	108	95.7	3.1	1410	15.46	29.45	<200
50	VI B	B35	108	89.2	3.1	1430	16.84	32.07	<200
51	VI B	B8	108	93.4	2.1	940	10.57	20.13	<100
52	VI B	B36	108	82.6	3.1	1440	18.3	34.86	<300
53	VI B	B37	108	91.9	4.3	1950	22.27	42.43	>300
54	VI B	B7	108	102	2.4	1080	11.12	21.18	<100
55	VI B	B6	108	91.2	3.3	1480	17.05	32.47	<200
56	VI B	B38	108	77.5	4.1	1890	25.62	48.8	>300
57	VI B	B39	76.5	67.1	3.6	1650	25.81	49.17	>300
58	VI B	B5	108	91.4	3.7	1670	19.19	36.55	<300
59	VI B	B4	108	94	3.8	1710	19.11	36.4	<300
60	VI B	B3	108	83	3.1	1440	18.23	34.72	<300
61	VI B	B2	108	88.2	2.8	1310	15.59	29.7	<200
62	VI B	B1	76.5	87.5	3	1280	15.37	29.27	<200

4.3 Impacts Due to Project Design, Construction And Regular Operation:

The major impacts under this category are discussed below.

Table 4.13a

Sl. No.	Impacts
4.3.1	**Impact on Land Use**
4.3.2	**Environmental & ecological factors**
4.3.2.1	Impact on Air Quality
4.3.2.2	Impact on Water Resources
4.3.2.3	Impact on Noise Levels
4.3.2.4	Impact on Soil Quality
4.3.2.5	Impact of solid waste
4.3.3	**Impact on Health**
4.3.4	**Impact on Flora & Fauna**
4.3.5	**Impact on Meteorology**
4.3.6	**Impact due to Hazards**
4.3.7	**Impact on Final decommissioning or rehabilitation of completed project.**

4.3.1 Impact on Land Use:

Land is the most natural resource which embodies soil, water, flora, fauna and total ecosystem. All human activities are based on the land which is the scarcest natural resource in our country. Therefore, there is an urgent need to reclaim and restore the land for its productive use for sustainable development of the area. In this project there is no proposal of acquisition of additional land for this expansion.

The impact on land use pattern in the region can be divided into two distinct domains, namely within and outside the mining area.

A. Identification:

Table-4.13b

Sl. No.	Items to be identified for impact assessment	
	Within mining area	**Outside mining area**
1.00	Topography and undulation.	-
2.00	Surface cracks and damage to the vegetation.	-
3.00	Change in Landscape and Land use pattern than pre-mining scenario such as visual impact-loss of aesthetic beauty, ugly scar on land; deforestation-loss of surface soil and vegetation cover.	Landscape and Land use pattern than pre-mining scenario.
4.00	Change in Surface Drainage than pre-mining scenario.	Change in Surface Drainage than pre-mining scenario.

B. Source of change of Land Use:

Table-4.13c

Sl No.	Parameters		Sources of change of Land use	
	Within mining area	Outside mining area	Within mining area	Outside mining area
1.00	Topography	-	Depillaring of developed coal panels civil construction, coal transportation roads, etc.	Construction of colony, roads & drains including approach road, etc.
2.00	Surface cracks and damage to the forest land, Agricultural land and other surface features due to subsidence.	-	Depillaring of developed coal panels.	-
3.00	Change in Landscape and Land use pattern than pre-mining scenario such as visual impact-loss of aesthetic beauty, ugly scar on land; deforestation-loss of surface soil and vegetation cover.	-	Temporary dumping of wastes produced due to excavation of shaft/incline drivages, construction of pit head gear/ haulage /conveyor system etc., construction of other infrastructures.	Construction of colony, roads & drains including approach road, etc.
4.00	Change in Surface Drainage.	-	- Do -	-

C. Impact Assessment:

Table-4.13d

Sl. No.	Parameters	Impact Assessment	
		Within mining area	Outside mining area
1.00	Topography	In the mine area, the waste dump created on pit mouth is temporary in nature, as it is utilized as packing materials in underground haulage track in due course of mine development. Hence, there will be negligible impacts over surface topography.	No appreciable damage is envisaged.
2.00	Surface cracks and damage to the forest land, if any, agricultural land and other surface features due to	Surface cracks may form over U/G panels after starting of depillaring operation. But after carrying out subsidence prediction modelling, the	-

Sl. No.	Parameters	Impact Assessment	
		Within mining area	**Outside mining area**
	subsidence.	assessment of subsidence (its magnitude & location) have been made and accordingly remedial measures have suggested, which includes leaving of pillars/partial extraction of panels etc. Hence, overall impact on surface will be minimum and easily mitigatable and land use pattern will not undergo any major change.	
3.00	Change in Landscape and Land use pattern than pre-mining scenario such as visual impact-loss of aesthetic beauty, ugly scar on land; deforestation-loss of surface soil and vegetation cover.	In the mine area, the waste dump created on pit mouth is temporary in nature, as it is utilized as packing materials in underground haulage track in due course of mine development. Hence, there will be negligible or no change over landscape.	No appreciable damage is envisaged.
4.00	Change in Surface Drainage.	There will be no stark change in surface drainage. But, some minor change on surface drainage is likely, where construction of infrastructure, roads and drains is to be executed.	Surface drainage is likely to change in minor extent, where construction of colony, roads and drains is to be executed.

4.3.2 Environmental & Ecological factors:

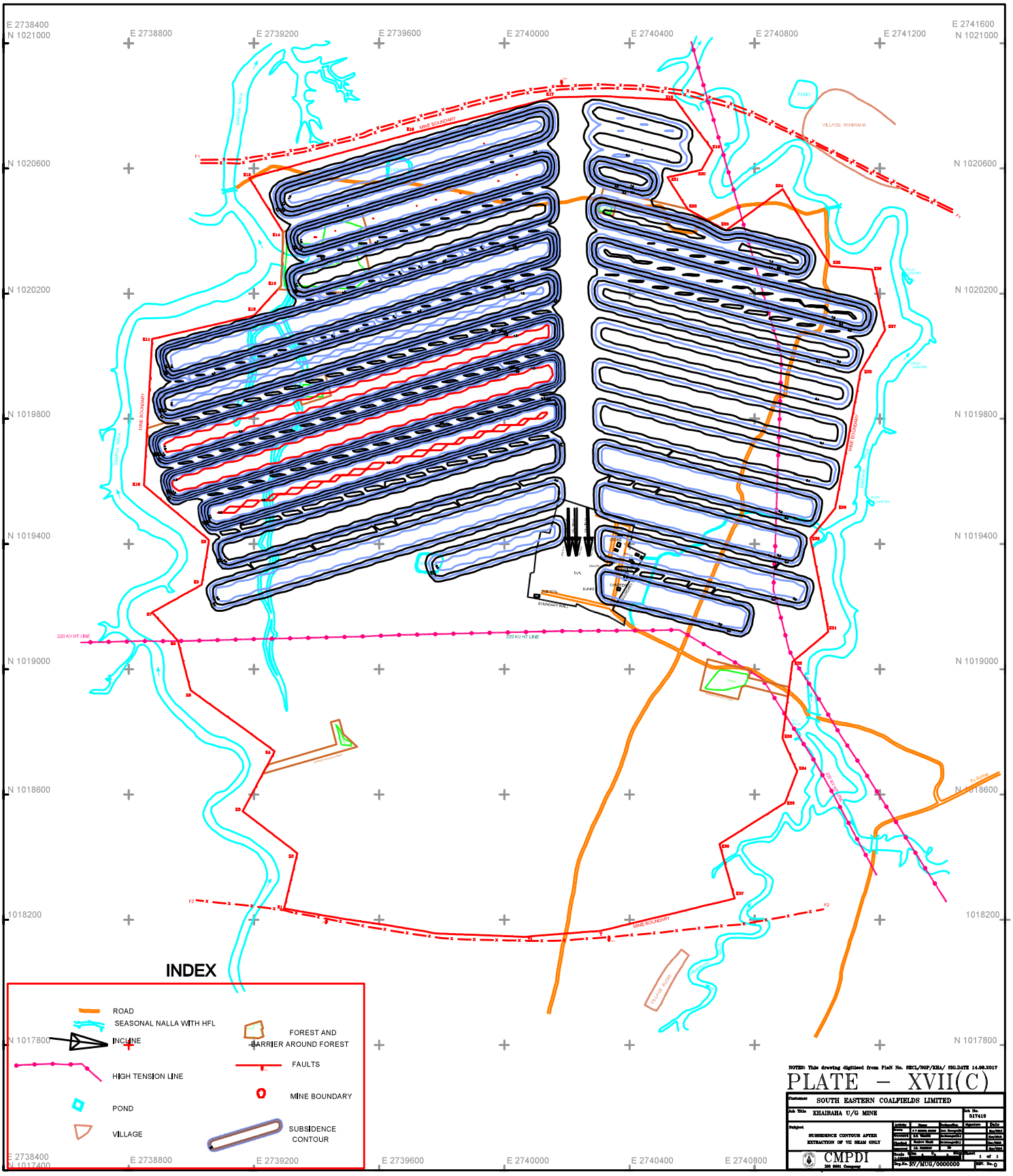
4.3.2.1 Impact on Air Quality:

A) Identification of items for Impact assessment:

Phase-wise items have been identified for impact assessment as per table-4.4a given hereinafter.

Table-4.14 a

Sl. No.	Items to be identified for impact assessment
1.00	Phase-wise preparation of inventory of air pollution emission sources
2.00	Phase-wise Impact assessment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E 2738800
E 2739200
E 2739600
E 2740000
E 2740400
E 2740800
MINE BOUNDARY
220 KV HT LINE
INDEX
ROAD
SEASONAL NALLA WITH HFL
INCLINE
HIGH TENSION LINE
POND
VILLAGE
FOREST AND BARRIER AROUND FOREST
FAULTS
MINE BOUNDARY
SUBSIDENCE CONTOUR
NOTES: This drawing digitised from PlaN No. SECL/SGP/KHA/ SIG.DATE 14.08.2017
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Job No. 517419
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Dwg.No. KV/MUG/0000000
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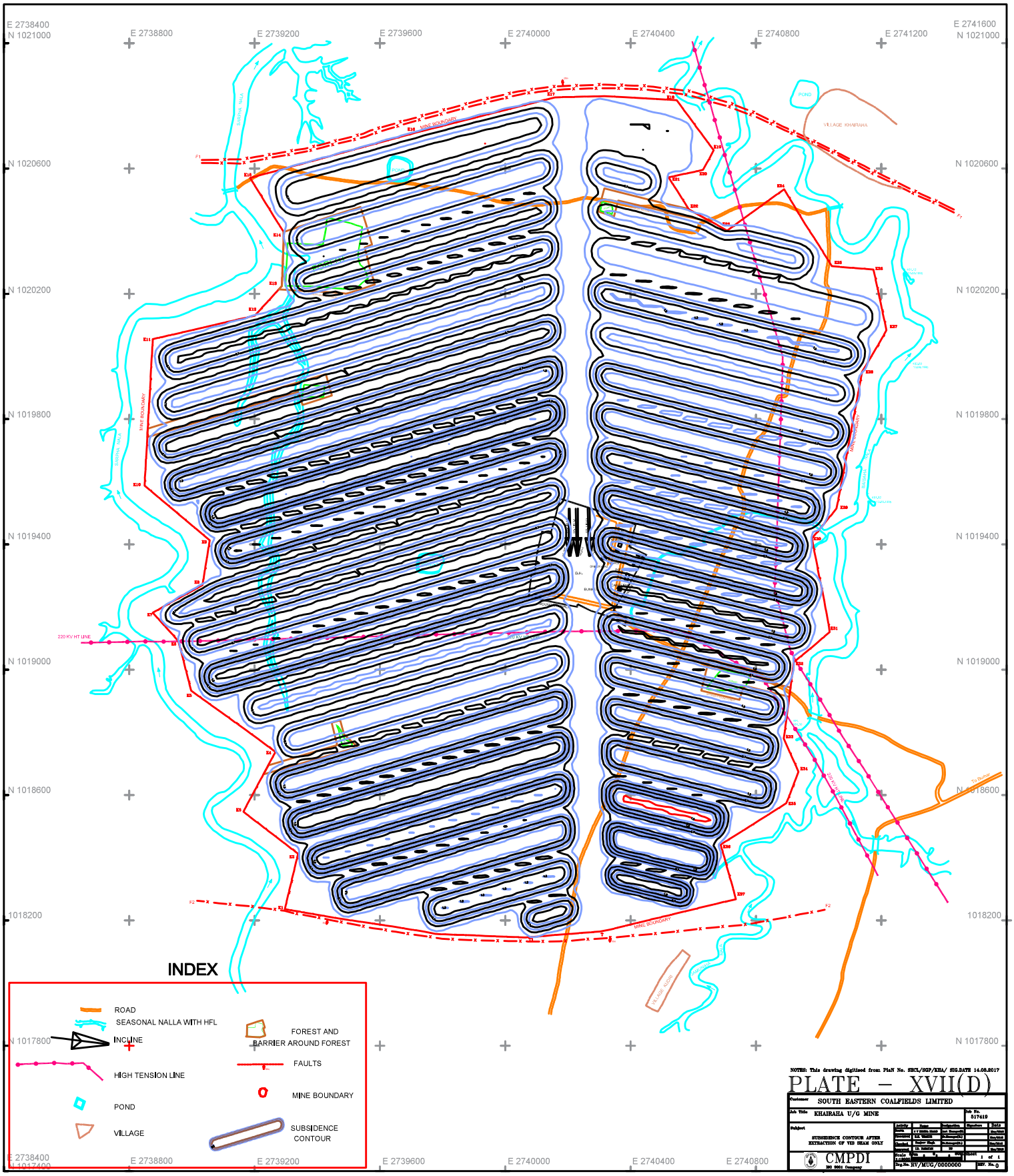
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INDEX
ROAD
SEASONAL NALLA WITH HFL
INCLINE
HIGH TENSION LINE
POND
VILLAGE
FOREST AND BARRIER AROUND FOREST
FAULTS
MINE BOUNDARY
SUBSIDENCE CONTOUR
220 KV HT LINE
MINE BOUNDARY
VILLAGE KHAIRAHA
POND
NOTES: This drawing digitised from PlaN No. SECL/SGP/KHA/ SIG.DATE 14.08.2017
PLATE – XVII(D)
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Sub No. 8176419
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CMPDI
ISO 9001 Company
Dwg.No. KV/MUG/0000000
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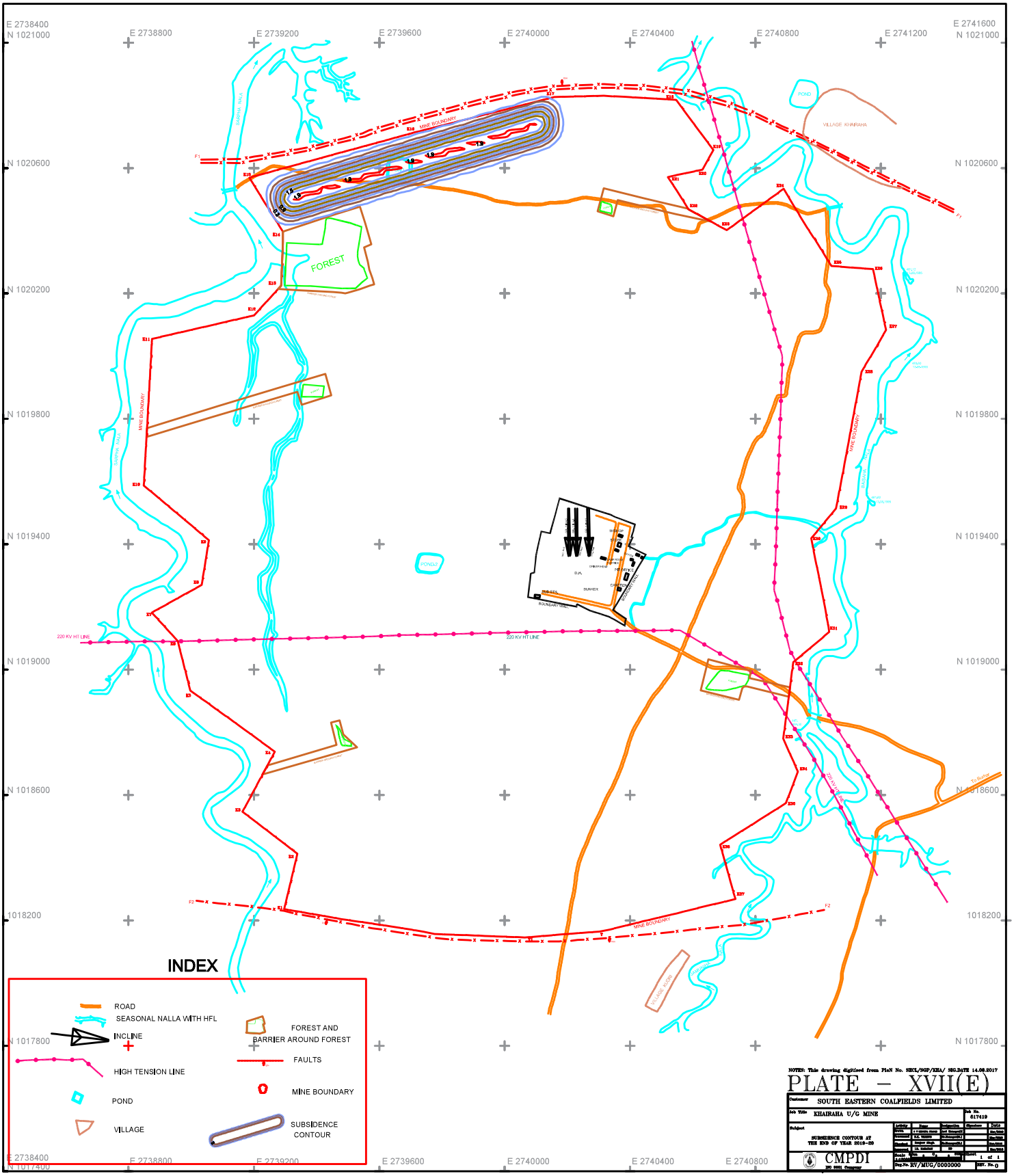
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FOREST
MINE BOUNDARY
220 KV HT LINE
POND2
VILLAGE KHAIRAHA
INDEX
ROAD
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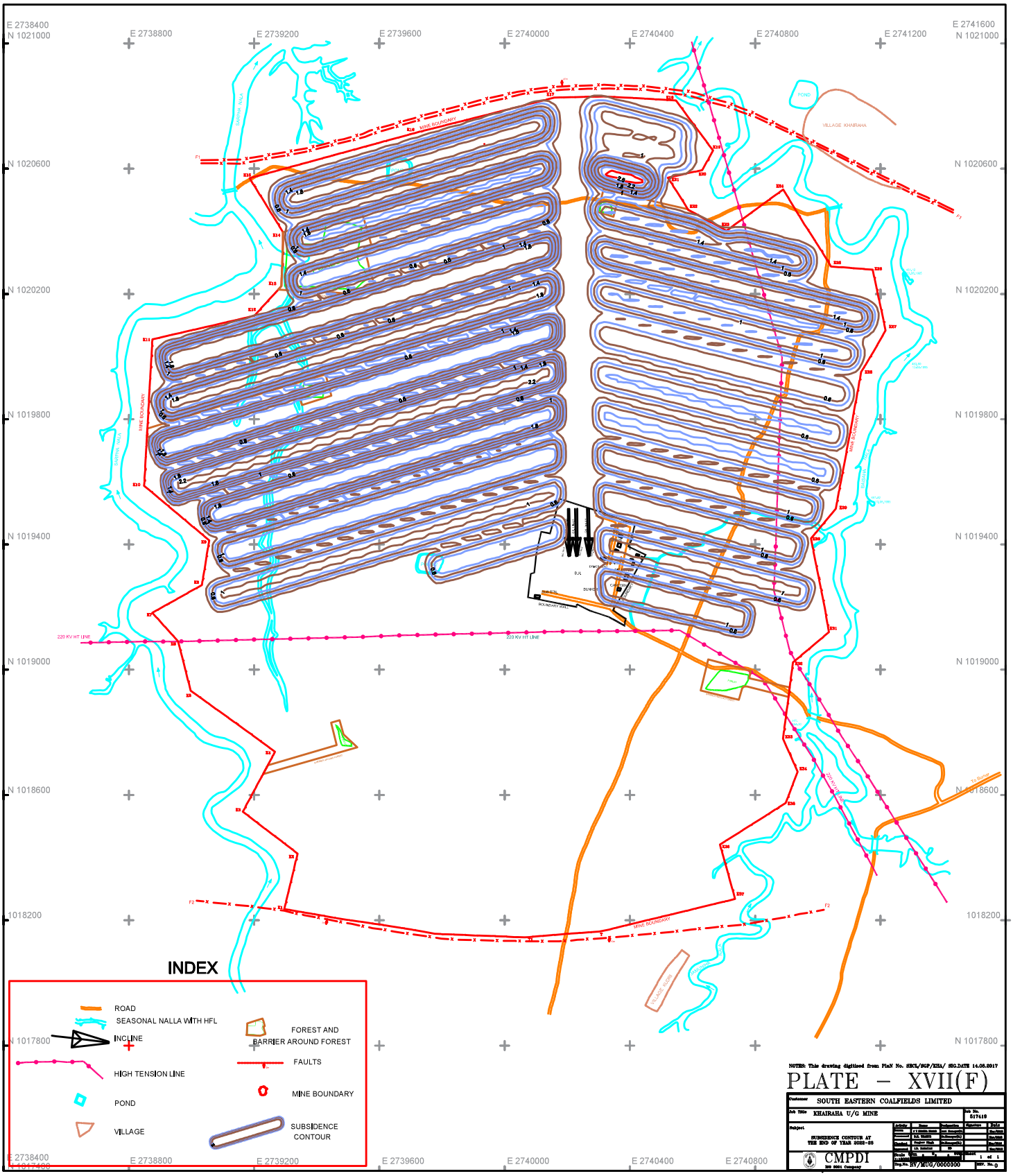
INCLINE
HIGH TENSION LINE
POND
VILLAGE
FOREST AND BARRIER AROUND FOREST
FAULTS
MINE BOUNDARY
SUBSIDENCE CONTOUR
PLATE – XVII(E)
SOUTH EASTERN COALFIELDS LIMITED
KHAIRAHA U/G MINE
SUBSIDENCE CONTOUR AT THE END OF YEAR 2019-20
CMPDI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SUBSIDENCE
CONTOUR
220 KV HT LINE
MINE BOUNDARY
PLATE – XVII(F)
SOUTH EASTERN COALFIELDS LIMITED
KHAIRAHA U/G MINE
CMPDI

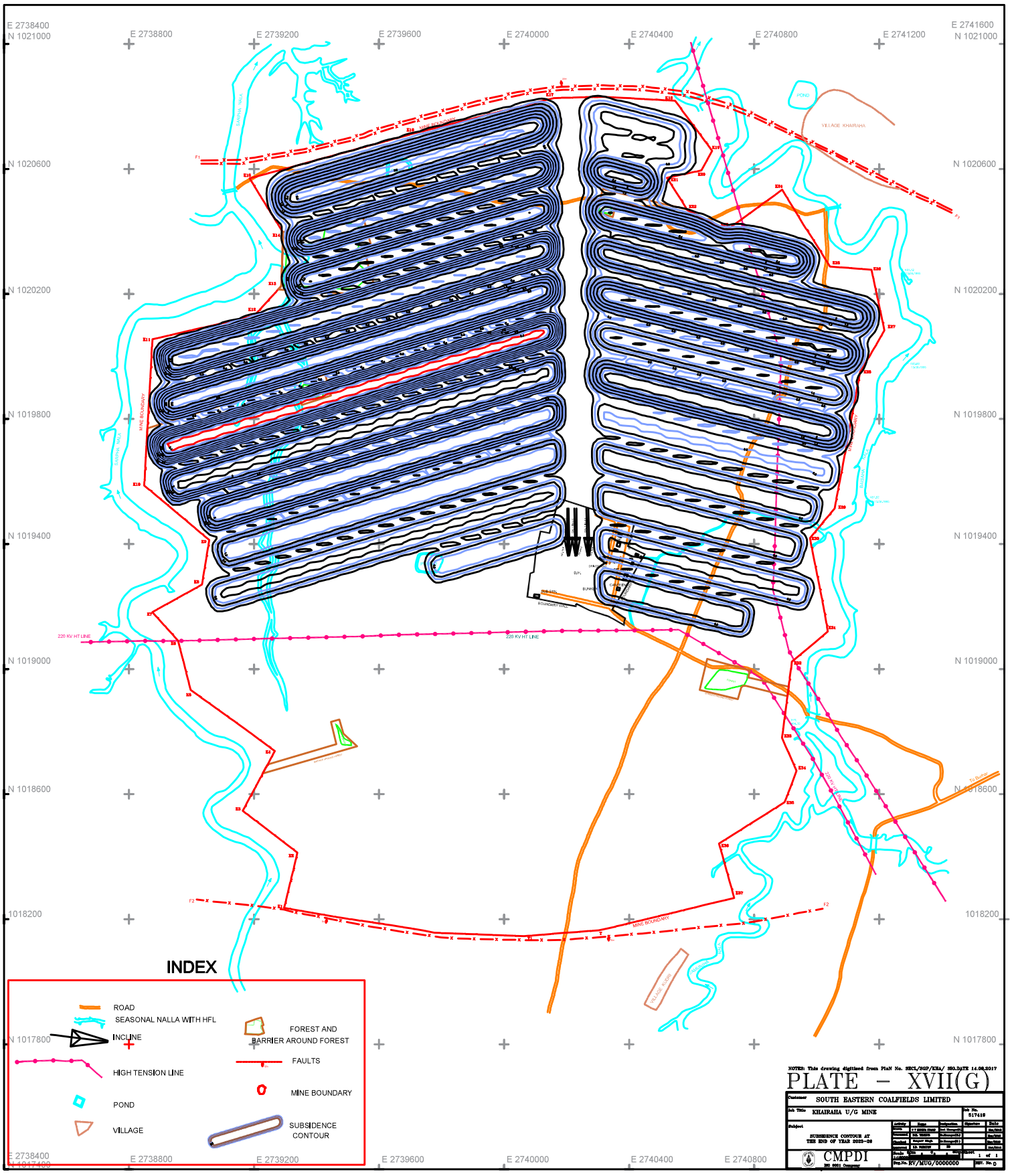
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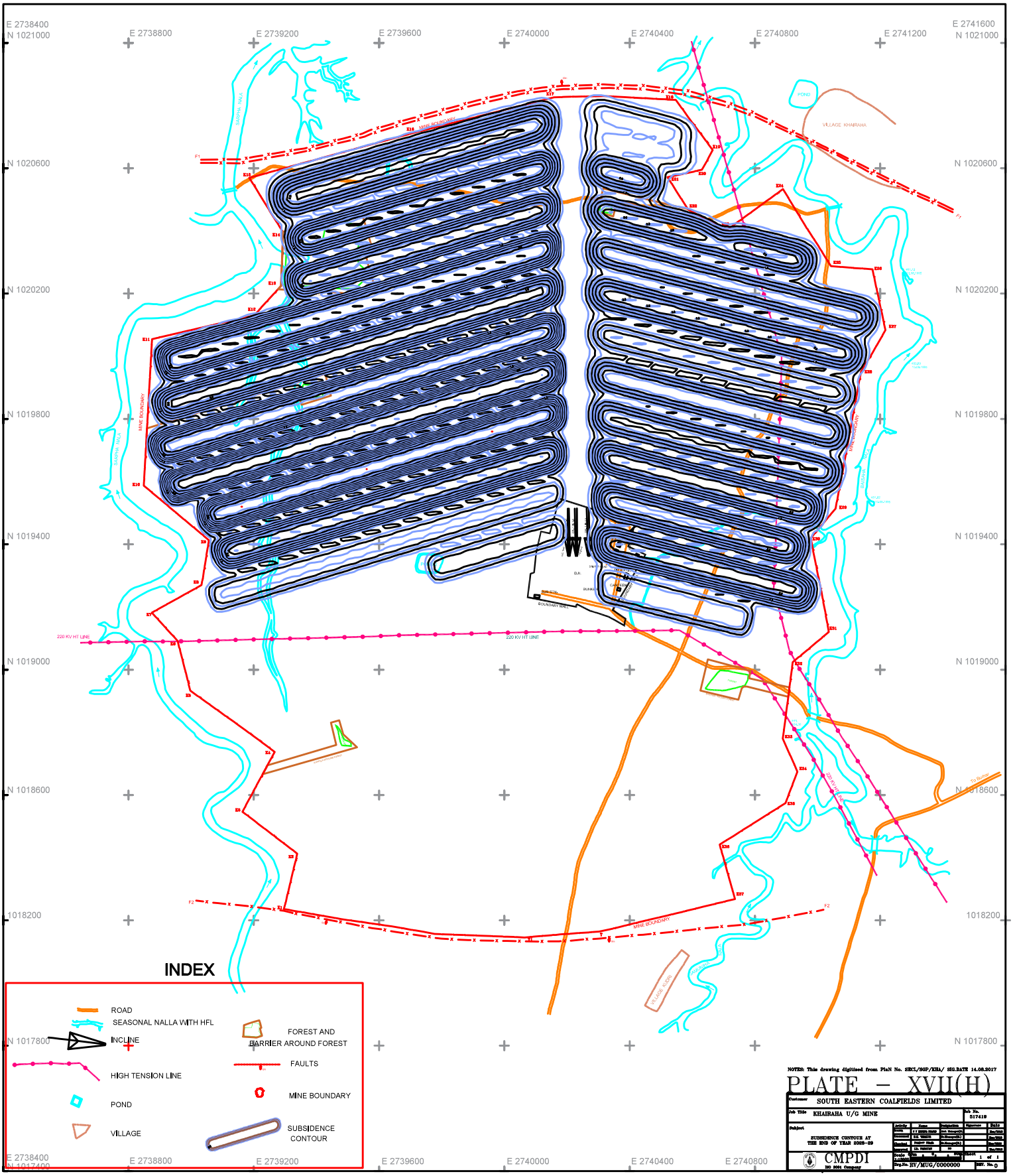
PLATE – XVII(G)
SOUTH EASTERN COALFIELDS LIMITED
KHAIRAHA U/G MINE
SUBSIDENCE CONTOUR AT THE END OF YEAR 2025-26
CMPDI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MINE BOUNDARY
SUBSIDENCE
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MINE BOUNDARY
VILLAGE KHAIRAHA
POND
NOTES: This drawing digitised from Plan No. SECL/SGP/KHA/ SIG.DATE 14.08.2017
PLATE – XVII(H)
SOUTH EASTERN COALFIELDS LIMITED
KHAIRAHA U/G MINE
SUBSIDENCE CONTOUR AT
THE END OF YEAR 2028-29
CMPDI
Drg.No. RV/MUG/0000000

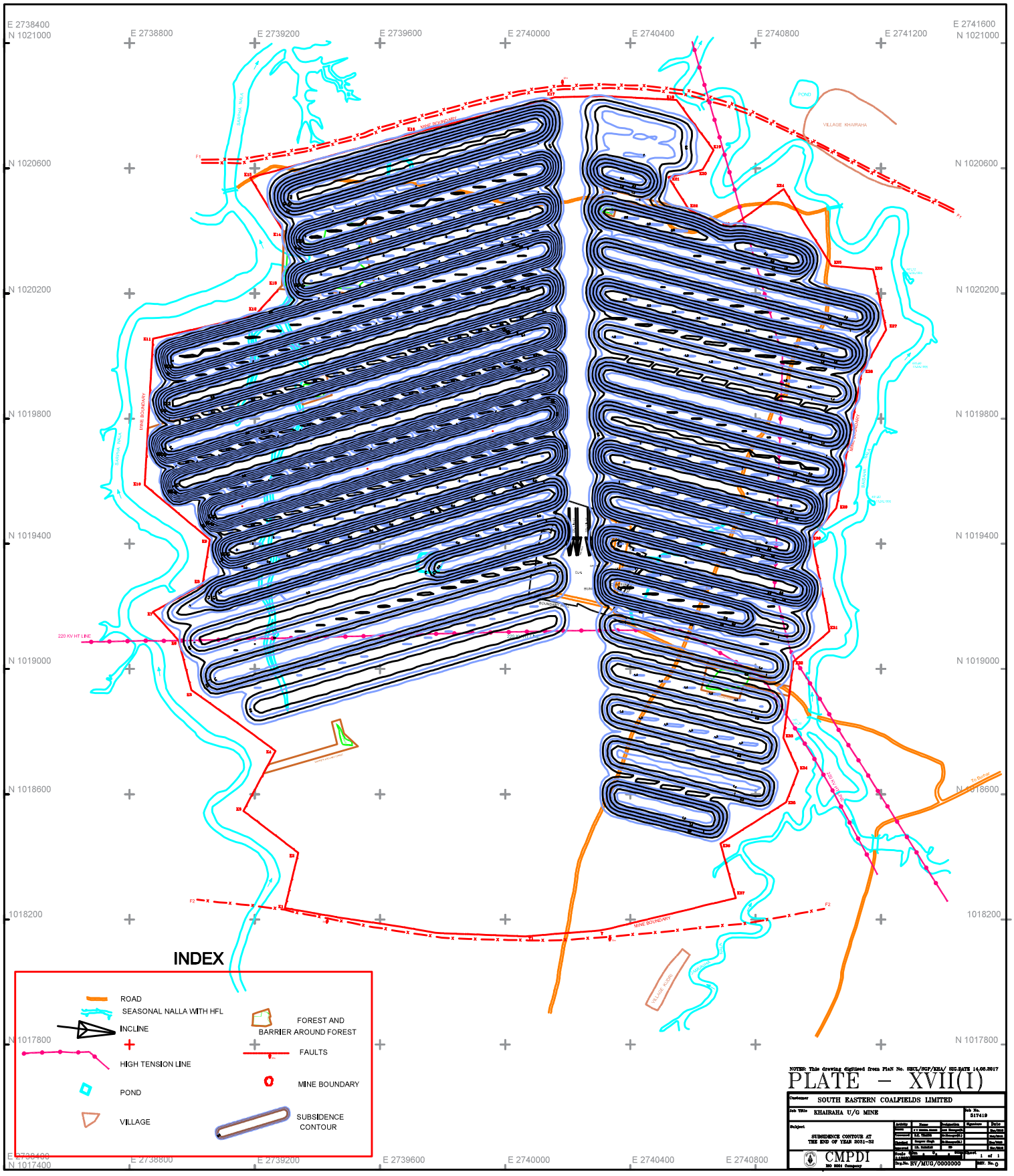
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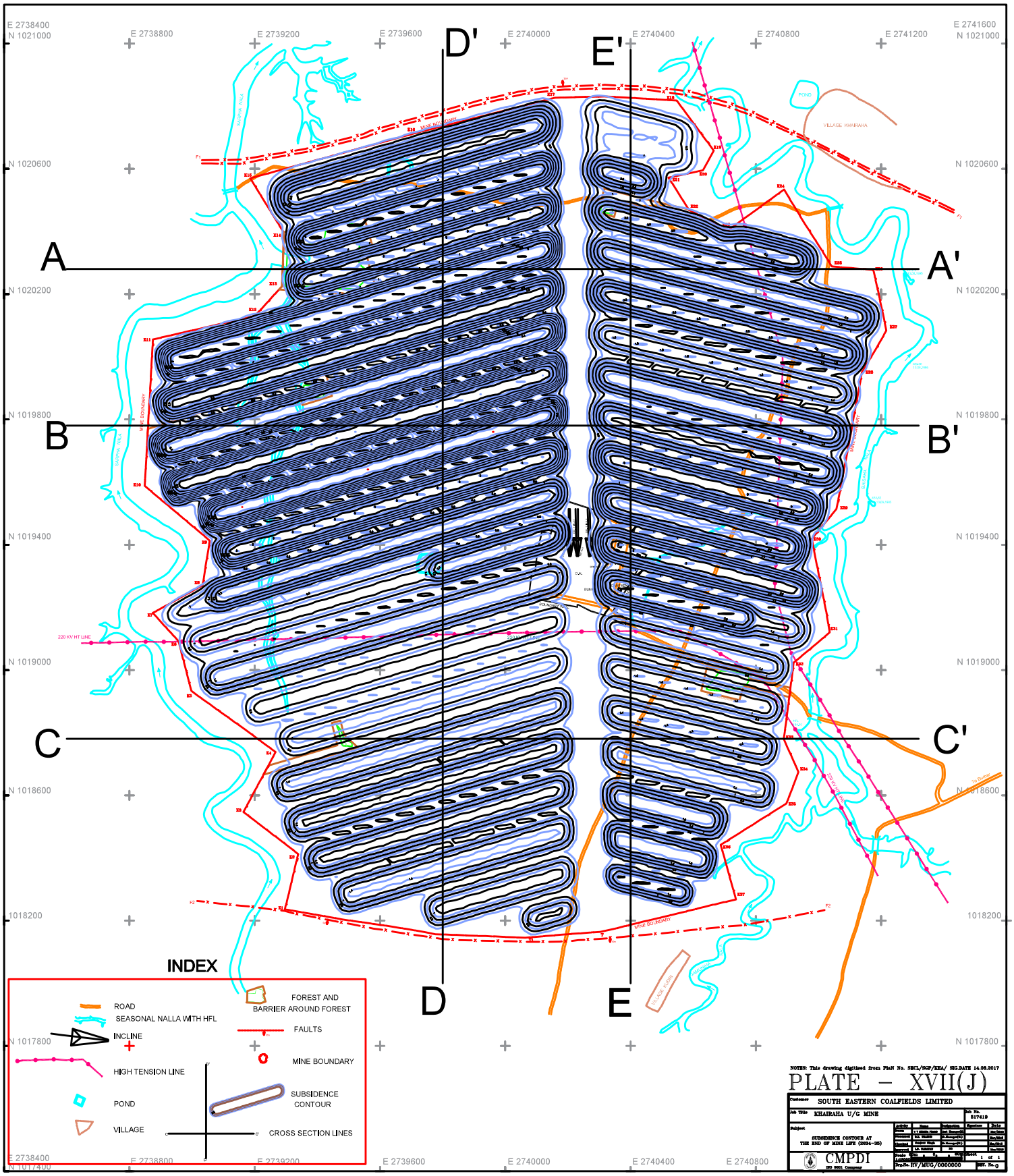
PLATE – XVII(I)
SOUTH EASTERN COALFIELDS LIMITED
KHAIRAHA U/G MINE
SUBSIDENCE CONTOUR AT
THE END OF YEAR 2031-32
CMPDI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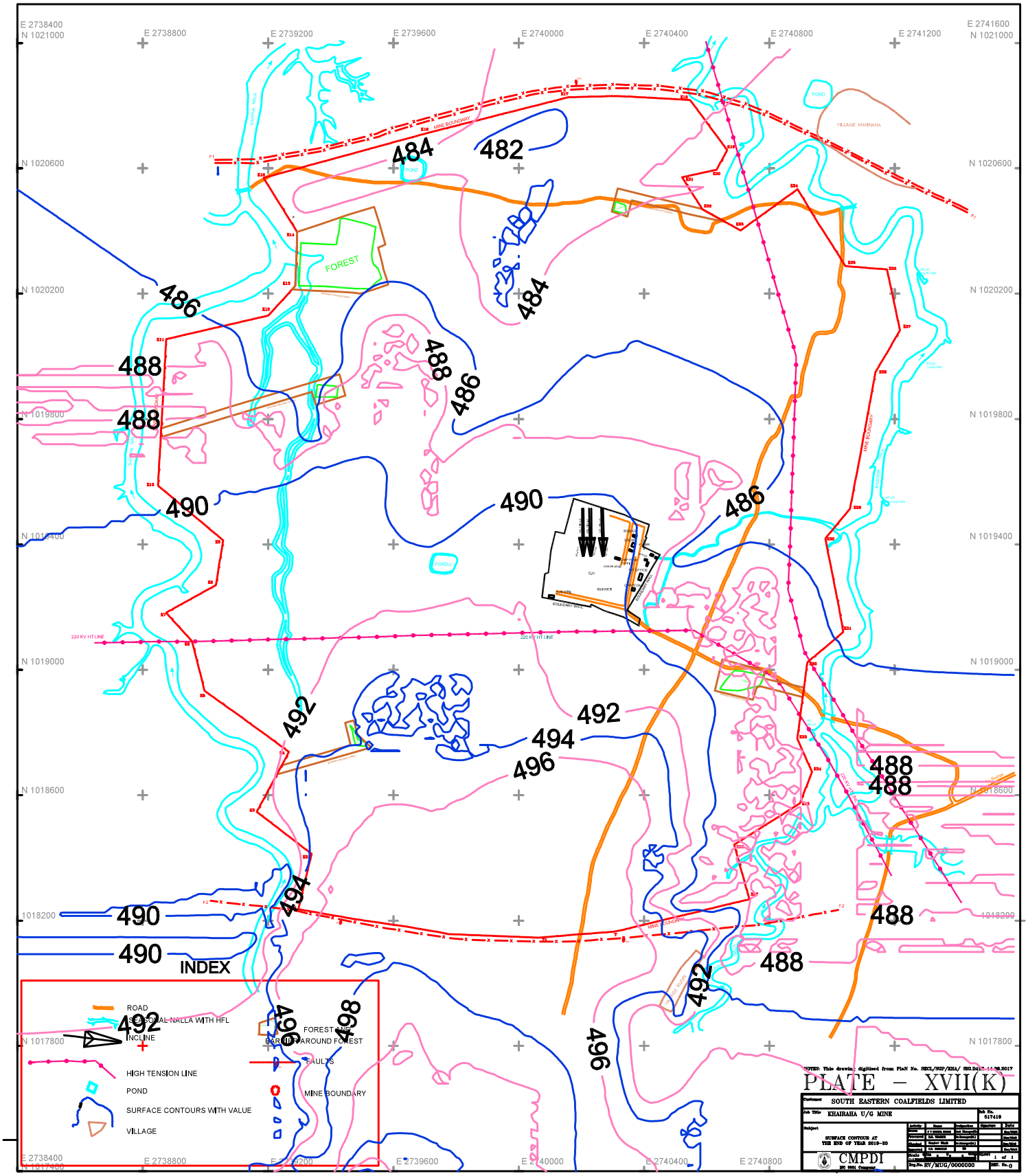
CROSS SECTION LINES
PLATE – XVII(J)
SOUTH EASTERN COALFIELDS LIMITED
KHAIRAHA U/G MINE
SUBSIDENCE CONTOUR AT THE END OF MINE LIFE (2034-35)
CMPDI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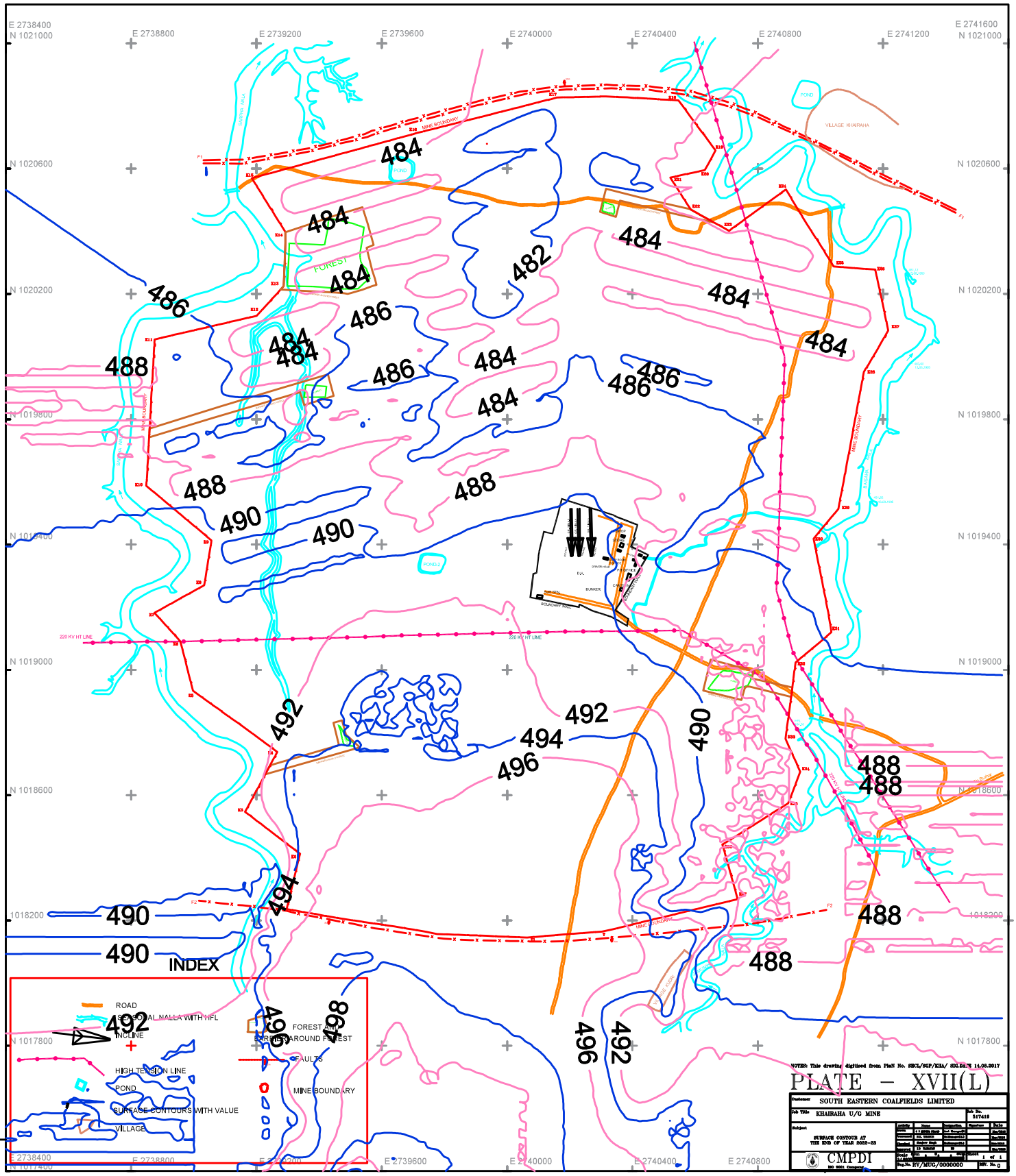
MINE BOUNDARY
PLATE – XVII(K)
SOUTH EASTERN COALFIELDS LIMITED
KHAIRAHA U/G MINE
CMPDI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VILLAGE
FOREST LINE
BARRIER AROUND FOREST
FAULTS
MINE BOUNDARY
PLATE – XVII(L)
SOUTH EASTERN COALFIELDS LIMITED
KHAIRAHA U/G MINE
CMPDI

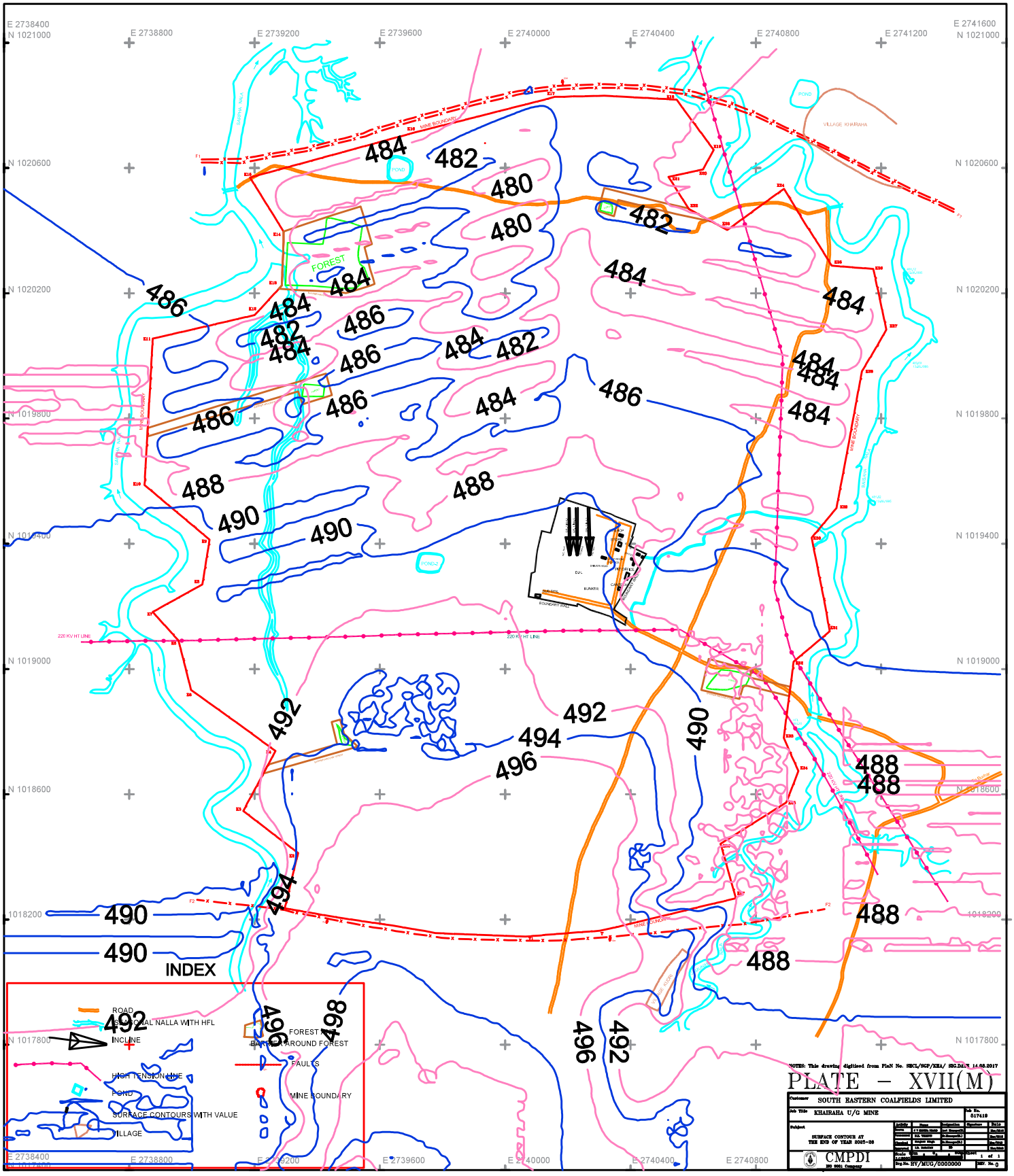
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PLATE – XVII(M)
SOUTH EASTERN COALFIELDS LIMITED
KHAIRAHA U/G MINE
CMPDI

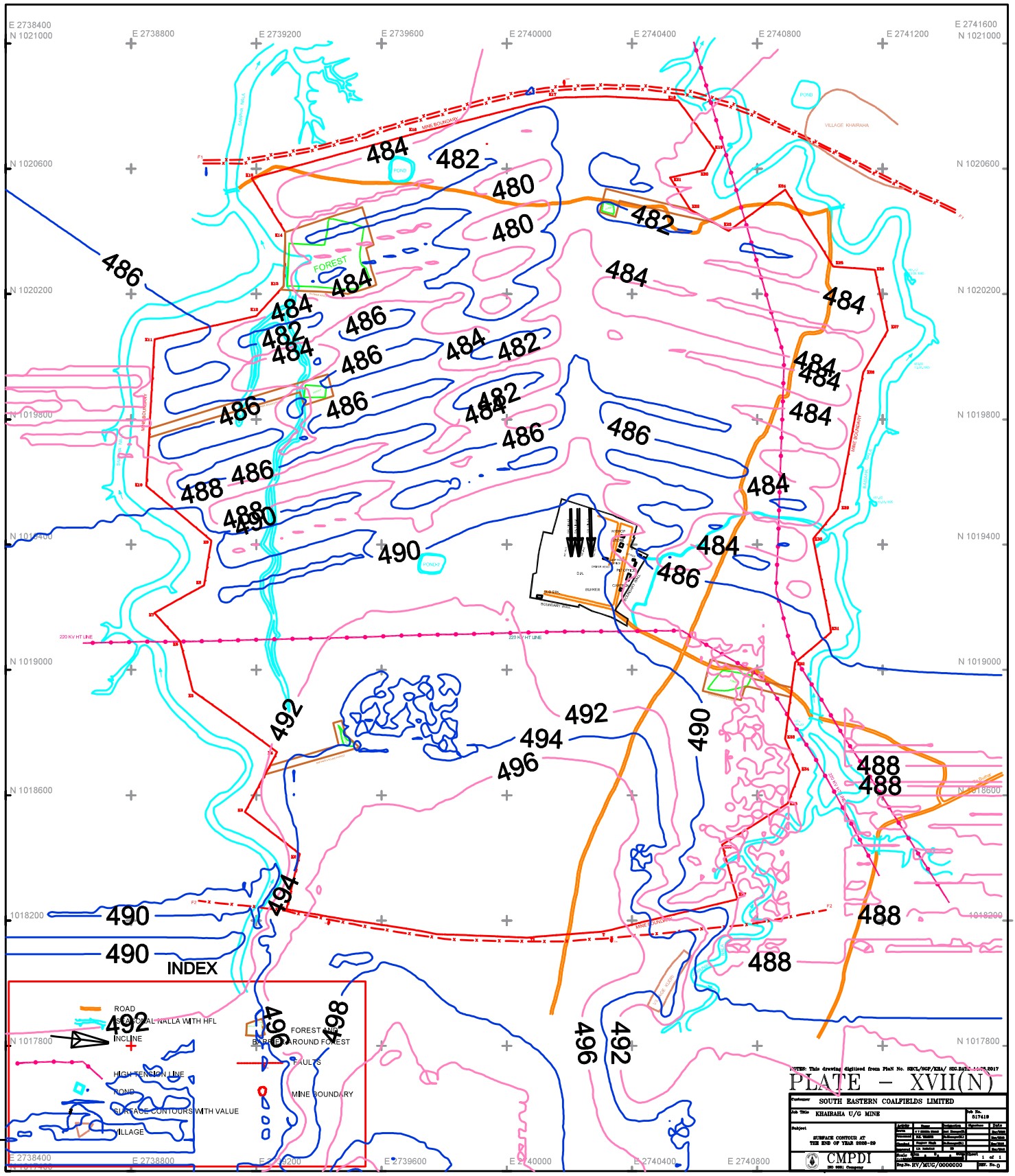
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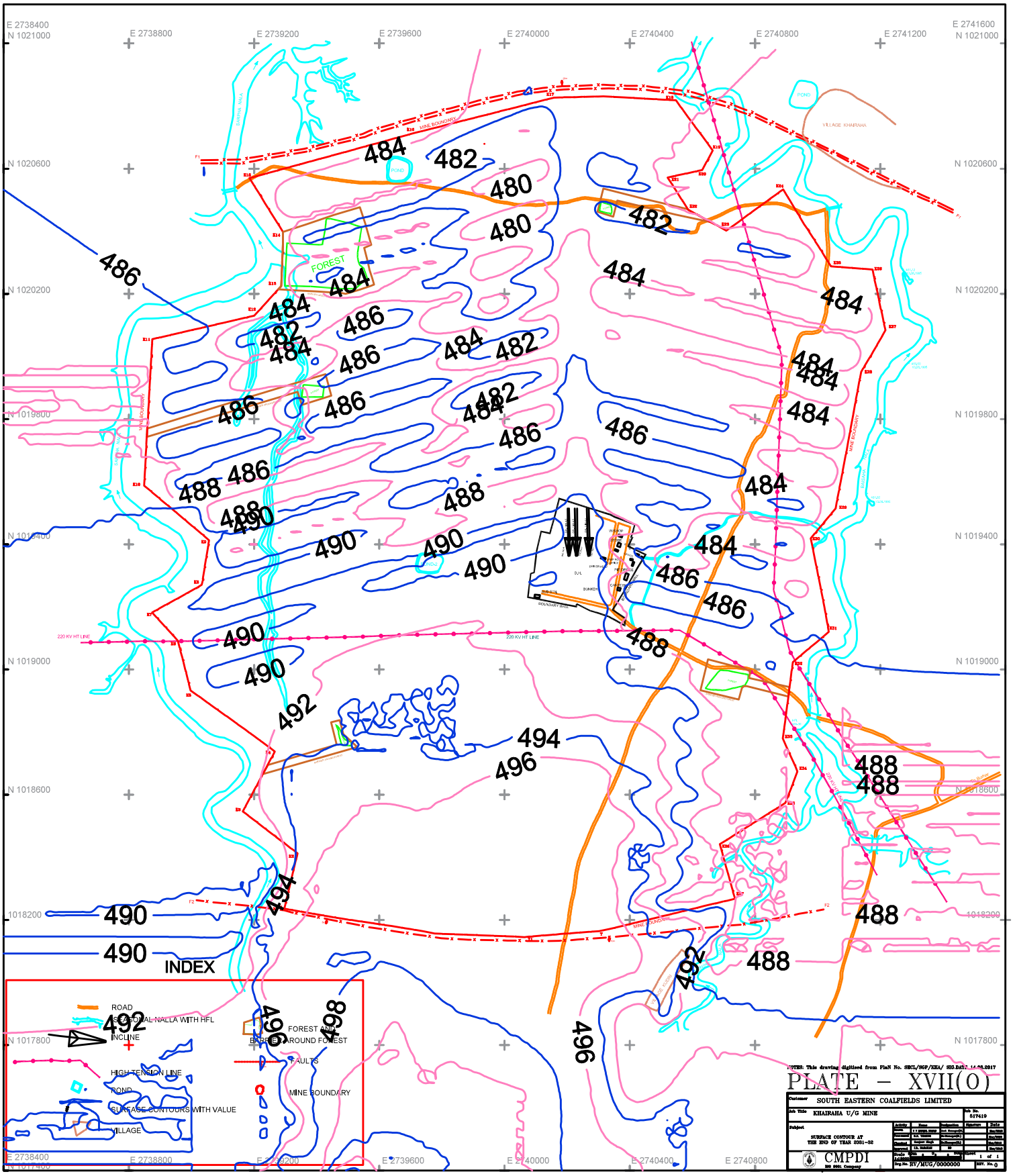
PLATE – XVII(N)
SOUTH EASTERN COALFIELDS LIMITED
KHAIRAHA U/G MINE
SURFACE CONTOUR AT THE END OF YEAR 2028-29
CMPDI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MINE BOUNDARY
NOTE: This drawing digitized from PlaN No. SECL/SGP/KHA/ SEC.DATE 14.08.2017
PLATE – XVII(O)
SOUTH EASTERN COALFIELDS LIMITED
KHAIRAHA U/G MINE
SURFACE CONTOUR AT THE END OF YEAR 2031-32
CMPDI
RV/MUG/0000000

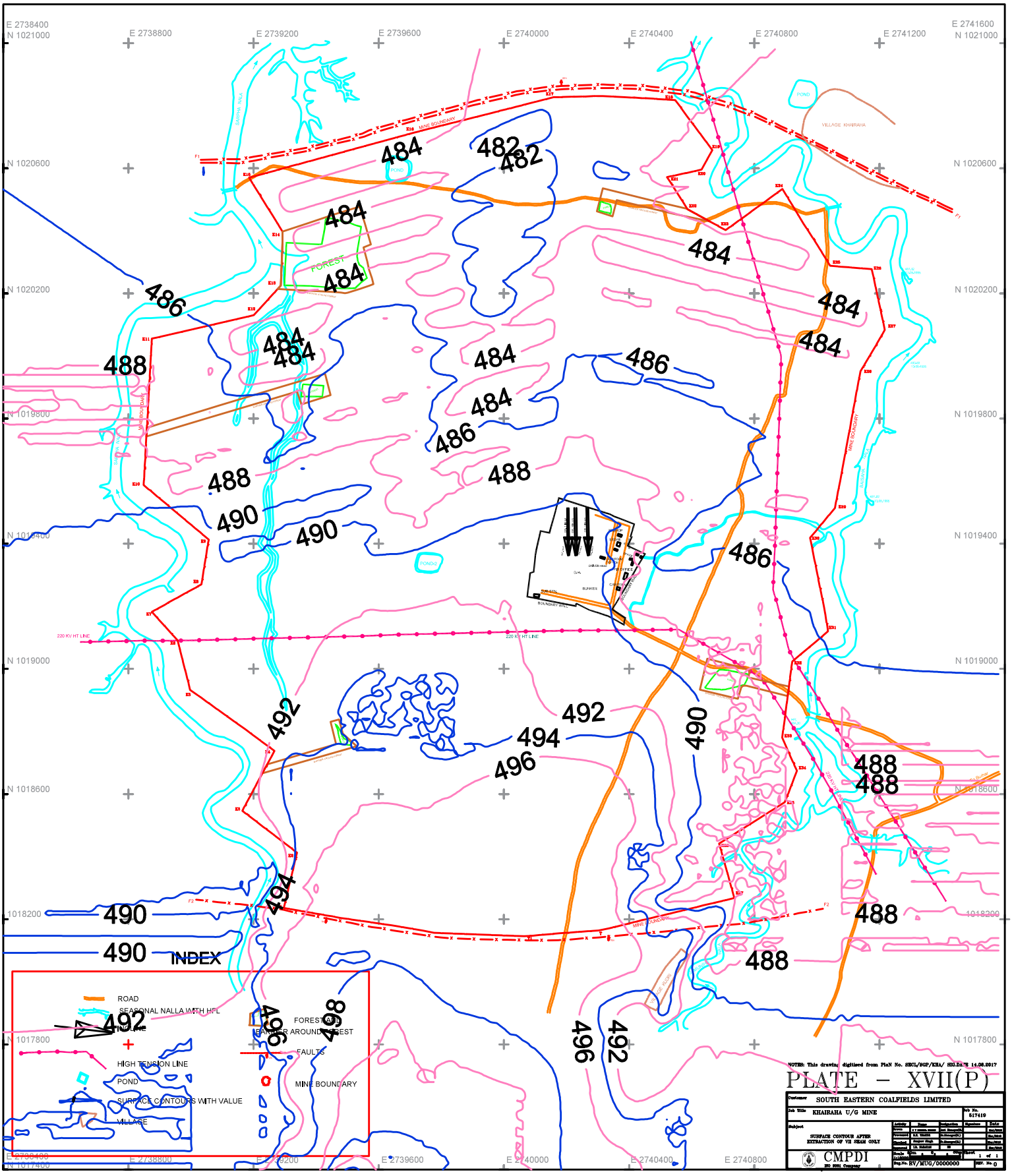
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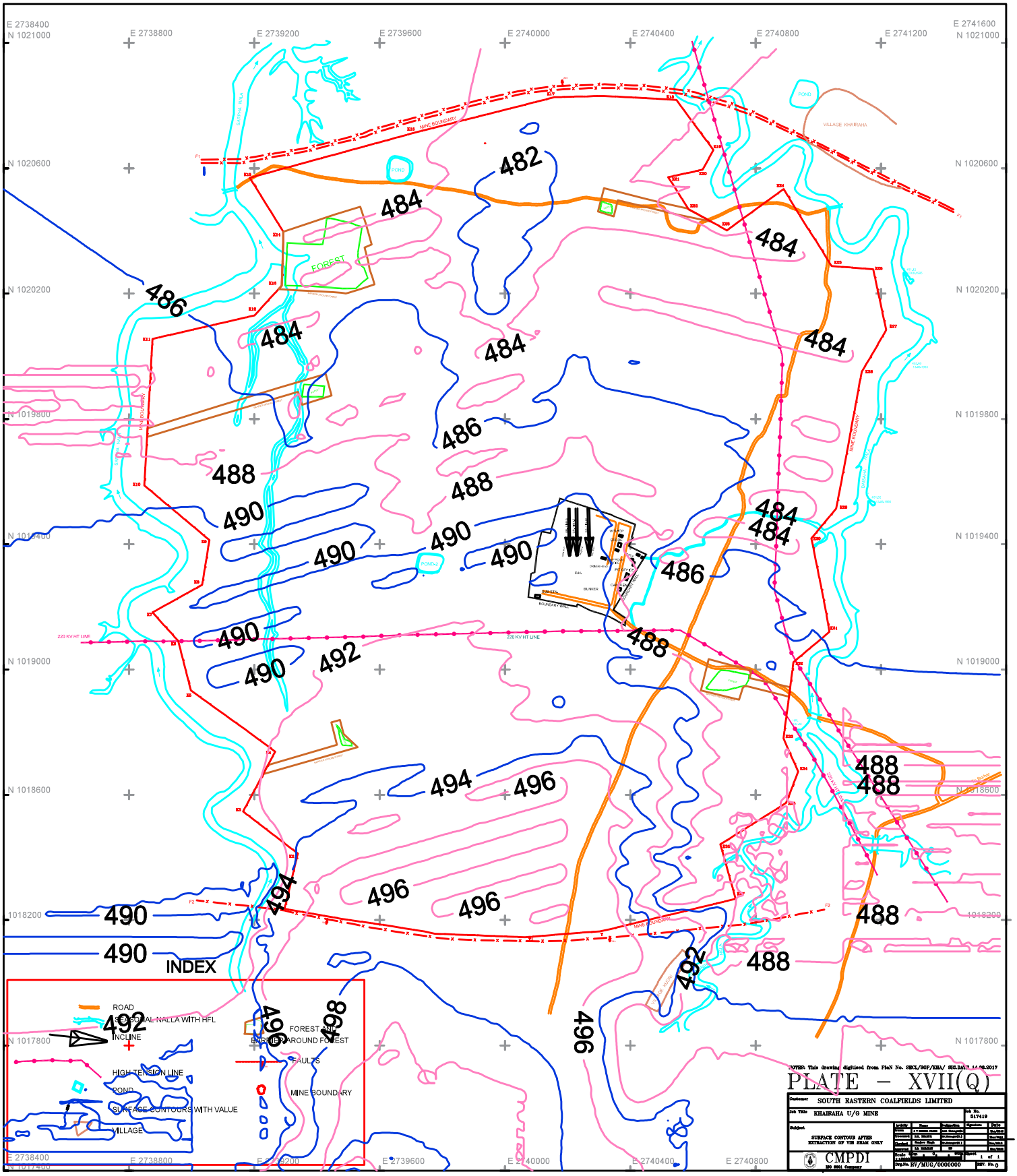
PLATE – XVII(P)
SOUTH EASTERN COALFIELDS LIMITED
KHAIRAHA U/G MINE
SURFACE CONTOUR AFTER EXTRACTION OF VII SEAM ONLY
CMPDI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SURFACE CONTOURS WITH VALUE
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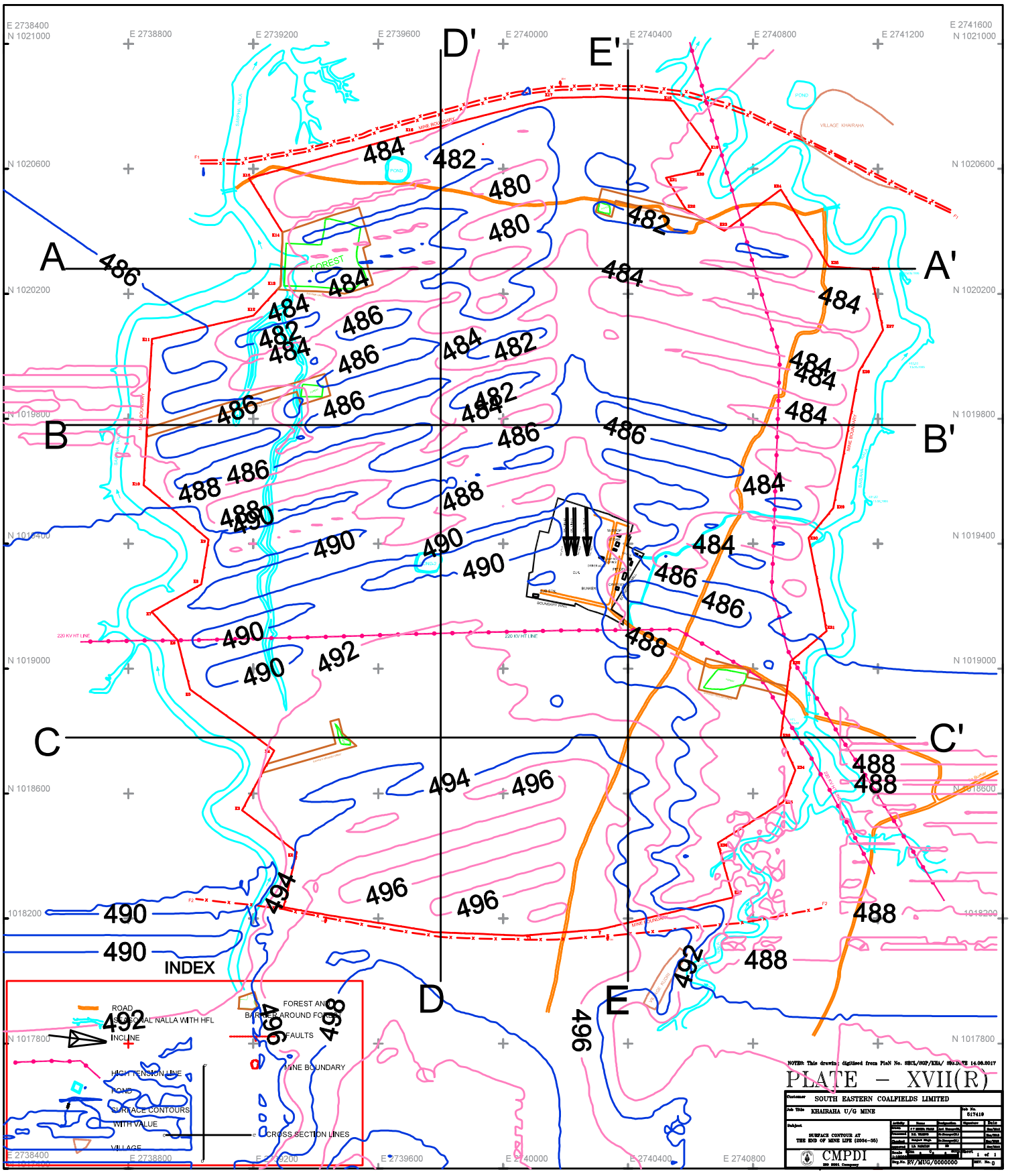
PLATE – XVII(Q)
SOUTH EASTERN COALFIELDS LIMITED
KHAIRAHA U/G MINE
SURFACE CONTOUR AFTER EXTRACTION OF VIII SEAM ONLY
CMPDI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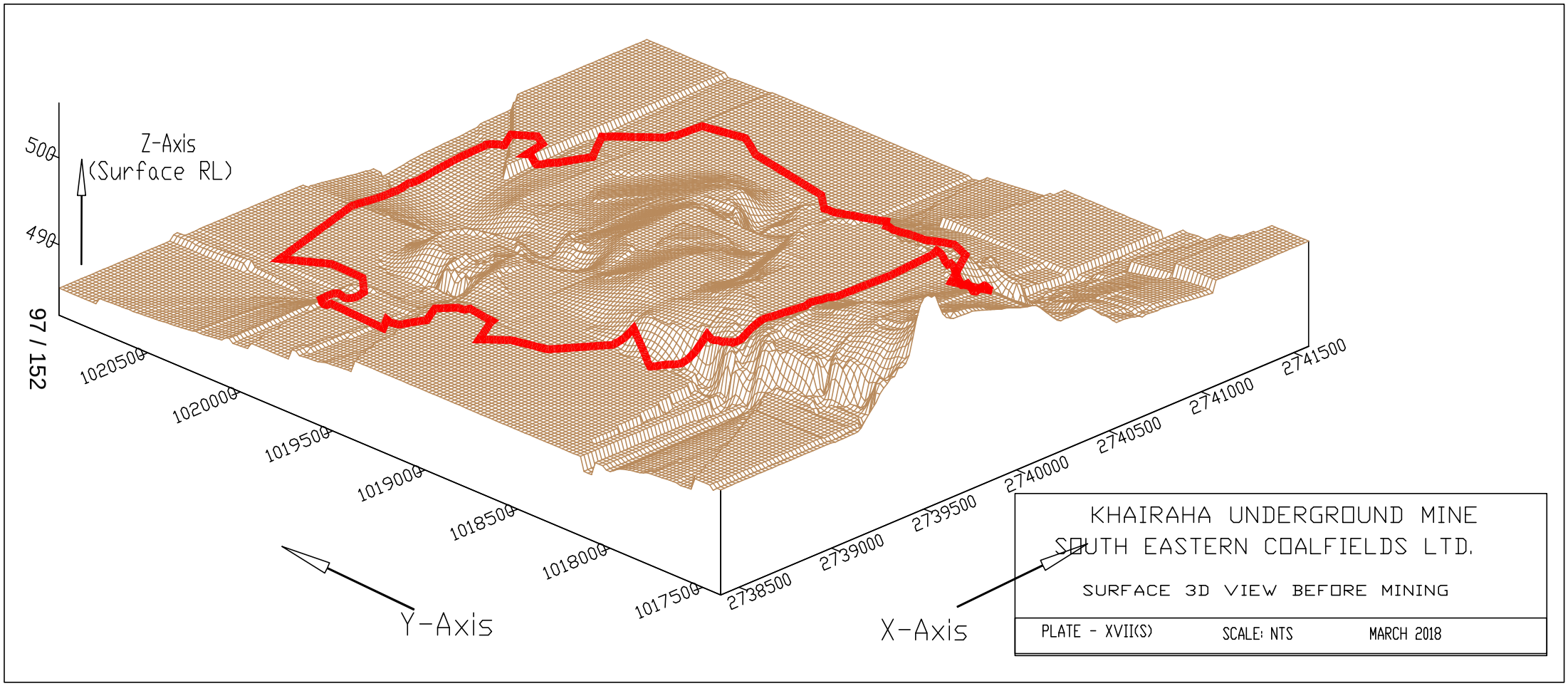
MINE BOUNDARY
CROSS SECTION LINES
PLATE – XVII(R)
SOUTH EASTERN COALFIELDS LIMITED
KHAIRAHA U/G MINE
SURFACE CONTOUR AT THE END OF MINE LIFE (2054-55)
CMPDI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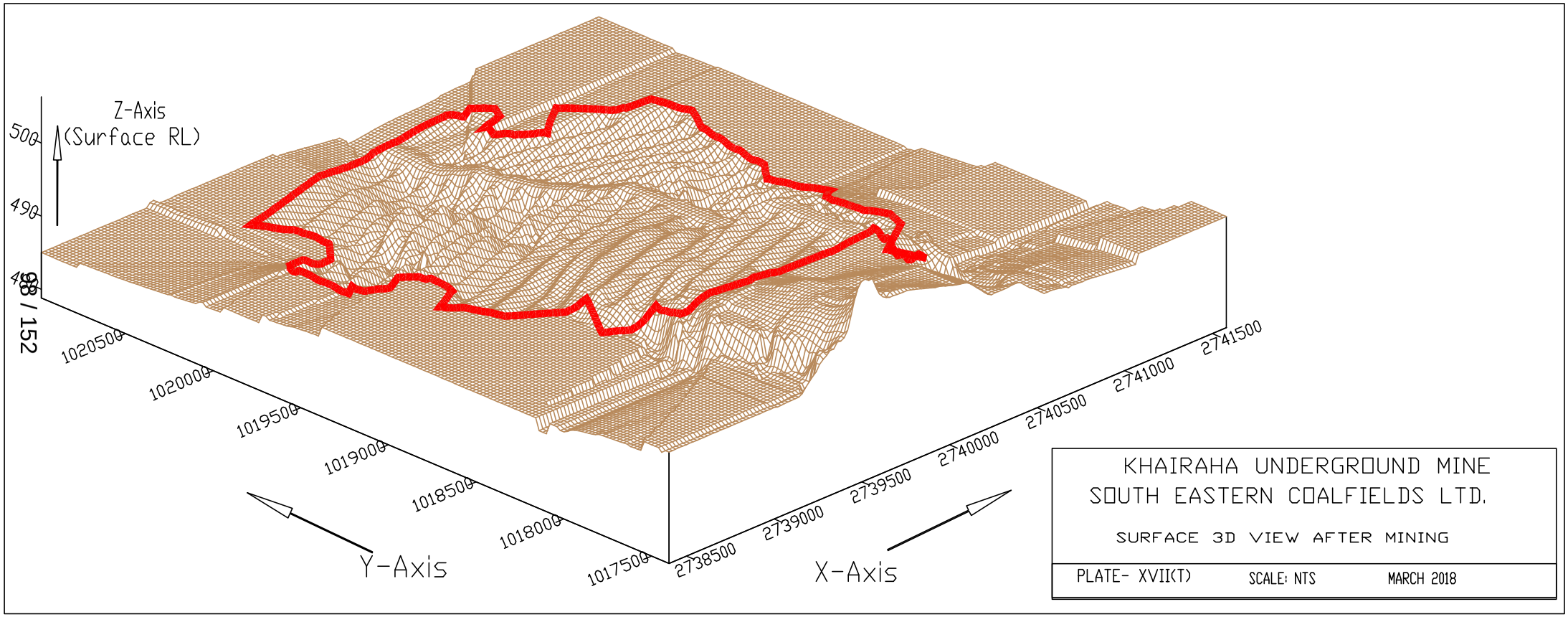
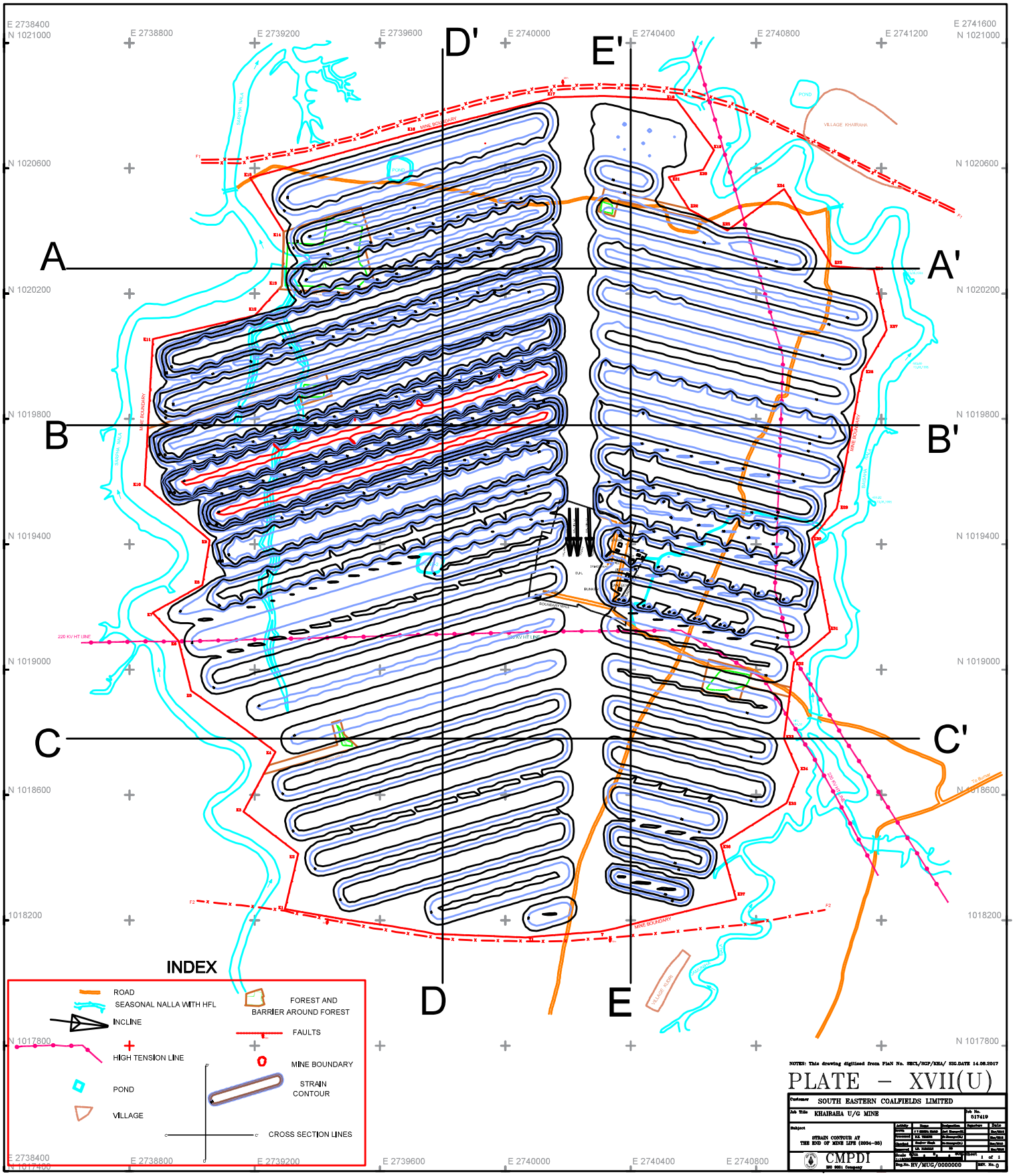
2740000
2740500
2741000
2741500
X-Axis
KHAIRAHA UNDERGROUND MINE
SOUTH EASTERN COALFIELDS LTD.
SURFACE 3D VIEW BEFORE MINING
PLATE - XVII(S)
SCALE: NTS
MARCH 2018



KHAIRAHA UNDERGROUND MINE
SOUTH EASTERN COALFIELDS LTD.

SURFACE 3D VIEW AFTER MINING

PLATE- XVII(T) SCALE: NTS MARCH 2018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SEASONAL NALLA WITH HFL
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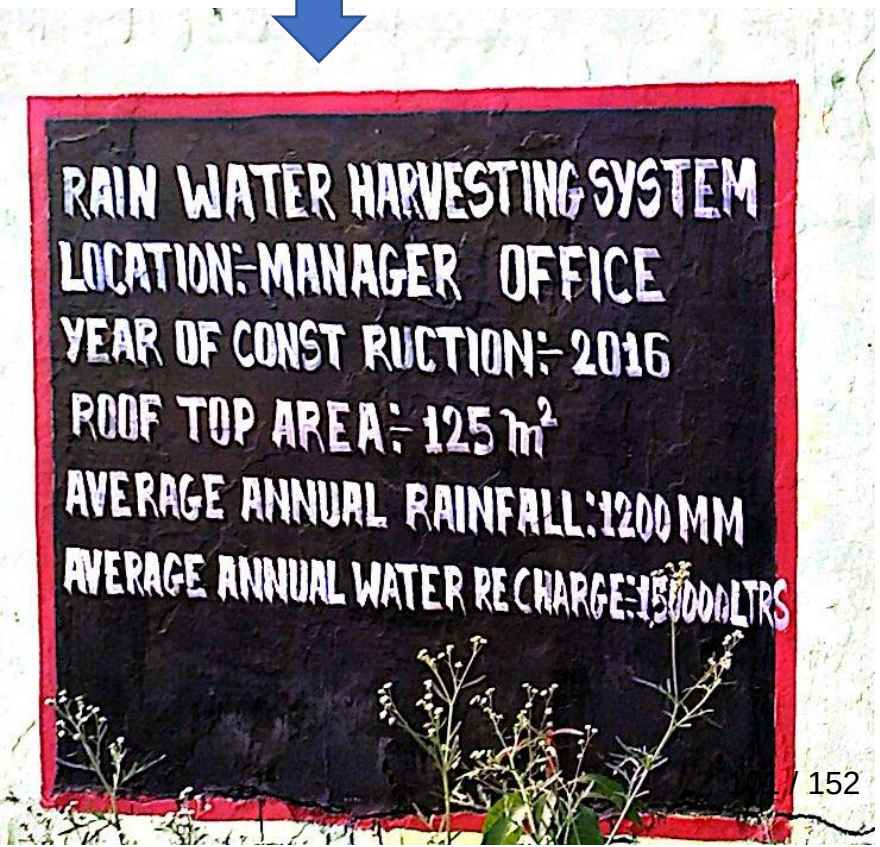
PLATE – XVII(U)
SOUTH EASTERN COALFIELDS LIMITED
KHAIRAHA U/G MINE
STRAIN CONTOUR AT THE END OF MINE LIFE (2024-25)
CMPDI

ANNEXURE – E

Rain Water Harvesting Structure
Constructed at Manager's Office

RAIN WATER HARVESTING STRUCTURE CONSTRUCTED AT MANAGER'S OFFICE KHAIRAHA UG MINE



ANNEXURE – F

Plantation Target, Work Order, and Joint Inspection Report of Plantation work at Khairaha UG Mine for the FY 2021-22

Under Jurisdiction of Bilaspur High Court Only
SOUTH EASTERN COALFIELDS LIMITED
OFFICE OF THE GENERAL MANAGER: SOHAGPUR AREA,
P.O. Dhanpuri – 484 114, Dist.: Shahdol (M.P.)
Phone: (07652) 250302, Fax: (07652) 250882

No: SECL/SGP/ENVT/ Plantation/20/ **Date: 08.12.2020**

To,
The General Manager (Forest)
SECL HQ,
Seepat road, Bilaspur.

Subject: - Submission of Plantation Target for the Year 2021-22 in respect of different mines of Sohagpur Area.
Ref No: SECL/BSP/Forest/Plantation/ 2020/64 dated 28.11.2020

Dear Sir,
The plantation target for the Financial Year 2021-22 was desired vide above mentioned letter.
The mine wise plantation target for the finanancial year 2021-22 is appended below:

S.N.	Name of Mine	Plantation		Grass bed	Barbed Wire Fencing	Tree Guard	CPT (RMT)	CPW (RMT)
		OB Dump	Non-OB Dump					
1	Amlai OC Sec B Mine	12500	0	5000	Nil	Nil	0	500
2	Bangwar UG	0	2000	0	Nil	2000	0	0
3	Damni UG	0	0	0	Nil	0	0	0
4	Dhanpuri OC	25000	0	5000	Nil	0	0	1200
5	Khairaha UG	0	28000	0	Nil	28000	0	0
6	Rajendra UG	0	14000	0	Nil	0	1100	0
7	Sharda OC	30000	10000	25000	Nil	0	1000	4000
Total		**67500**	**54000**	**35000**	**Nil**	**30000**	**2100**	**5700**
Grand Total		**121500**						

This is for your kind information and necessary action please.

Yours faithfully

Area General Manager
Sohagpur Area

Enclosed: As above

Copy to:
1. SAM AOCM/DOCM/SOCM/Rajendra Sub Area.
2. Staff officer (P&P), Sohagpur area.
3. Nodal officer (Envt), Sohagpur area.

SOUTH EASTERN COALFIELDS LIMITED

(A Subsidiary 0f Coal India Limited)
OFFICE OF THE DY.GM(M)/SAM RAJENDRA,SUB AREA.
SOHAGPUR AREA, PO : KHAIRAHA, DIST: SHAHDOL (MP)

L.No.SECL/DY.GM(M)/SAM/RSA./Envt./20/ 0346 Dated:08/12/2020

To

The Nodal Officer(Envt.)
Sohagpur Area.

Sub.:- Target for tree plantation for the year 2021-22 in respect of Rajendra UG Mine and Khairaha UG Mine under Rajendra Sub Area.

Dear Sir,

Please find herewith the detailed target of tree plantation for the year 2021-22 in respect of Rajendra UG Mine and Khairaha UG Mine in the prescribed format. The location of the proposed tree plant site of Rajendra UG Mine at 58 LW (depillalred panel) and along the approach road of Khairaha UG Mine .

Name of site	Plantation (OB dump in Nos.)	Plantation (Non OB Dump in Nos.)	Total Plantation (Nos.)	Grass Bed (Nos.)	Barbed wire fencing (RMT)	Cattle proof trench (RMT)	Cattle proof wall (RMT)
Rajendra UG Mine	Nil	14000 Nos.	14000 Nos.	Nil	-	(420+130) X 2 =1100 RMT	-
Khairaha UG Mine	Nil	28000 Nos.	28000 Nos.	Nil	4x14Km, = 56000 (RMT) Or 28000 Nos. Brick Tree Guard	Nil	Nil

This is for your kind information and necessary action please.

Yours faithfully,

08/12/2020

Dy, GM(M)/SAM
Rajendra Sub Area.

Copy to:-

- The General Manager, Sohagpur area- for kind information please.
- Nodal Officer(Envt.) Rajendra UG Mine.

साउथ ईस्टर्न कोलफील्ड्स लिमिटेड
South Eastern Coalfields Limited
भारत के सार्वजनिक उपक्रम की एक "मिनी रत्न कंपनी"
A "MINI RATNA COMPANY" P.S.U. OF INDIA
(कोल इण्डिया लिमि. की एक सहायक कंपनी)
(A SUBSIDIARY OF COAL INDIA LIMITED)

महाप्रबधक का कायालय,
Office of The General Manager,
वन विभाग, **Forest Department,**
पंजीकृत कार्या0:सीपत रोड,पो.आ.–एसईसीएल
Regd. Office: Seepat Road, P.O.- SECL
बिलासपुर (छग) Bilaspur (CG) - 495006
CIN – U10102CT1985GOI003161
टेली Tele/फैक्स fax – 07752-246351
(ई–मेल e-mail - hodforest@secl. gov. In)
Website: www.secl.gov.in

क्रमांक–एसईसीएल/बीएसपी/वन/वृक्षा.(2021–22)/कार्यआदेश/मप्रराववविनिलि./2021/02 दिनांक 05.04.2021

कार्य आदेश

प्रति,
प्रबंध संचालक,
मध्यप्रदेश राज्य वन विकास निगम लिमिटेड,
मध्यप्रदेश सरकार का एक उपक्रम
पंचानन, पॉचवी मंजिल, मालवीय नगर,
भोपाल (मध्य प्रदेश)

विषय : एसईसीएल एवं मप्रराववविनिलि. के मध्य लांग टर्म एमओयू के अंतर्गत " **मध्यप्रदेश** राज्य के एसईसीएल के सोहागपुर क्षेत्र में वर्ष 2021–22 के दौरान किए जाने वाले **वृक्षारोपण कार्य तथा आगामी चार वर्षों अर्थात 2025–26 तक इनके रखरखाव के संबंध में अवार्ड आफ वर्क।**"

संदर्भ : एसईसीएल एवं मप्रराववविनिलि. के मध्य पत्र कं.–एसईसीएल/बीएसपी/वन/एमओयू प्लांटेशन/मप्रराववविनि/2018/190, दिनांक 29.12.2018 के तहत किए गए एमओयू।

महोदय,

उपर्युक्त के संदर्भ में एस.ई.सी.एल.बिलासपुर एवं मप्रराववविनि लिमिटेड,भोपाल (म0प्र0) के मध्य लंबी अवधि समझौता ज्ञापन (लॉग टर्म एमओयू) के अधीन मेसर्स मध्य प्रदेश राज्य वन विकास लिमिटेड,भोपाल (म0प्र0) के पक्ष में विषयांकित कार्य के लिए कार्य आदेश देने के संबंध में अध्यक्ष प्रबंध निदेशक, एस.ई.सी.एल. का अनुमोदन एतद् द्वारा संसूचित किया जाता है। इस एमओयू के अधीन आपको दिनांक 29.12.2018 को एस.ई.सी.एल.,बिलासपुर एवं मप्रराववविनि लिमिटेड, भोपाल (म0प्र0) के मध्य पूर्व में किए गए, लॉग टर्म एमओयू की अनुमोदित की गई नियम एवं शर्तों के साथ वर्ष 2021–22 के दौरान मध्य प्रदेश राज्य के एसईसीएल क्षेत्रों में किए जाने वाले **वृक्षारोपण कार्य एवं तत्पश्चात आगामी 04 (चार) वर्षों अर्थात 2025–26 तक इसके रखरखाव कार्य,** जिसका कुल **मूल्य रूपए 5,41,66,217.00 (पांच करोड़ इकतालीस लाख छैसठ हजार दो सौ सत्रह) मात्र** है, एव जिसका विवरण नीचे दर्शित है, के लिए एतद द्वारा आपको कार्य अवार्ड किया जाता है।

मद कं.	कार्य का विवरण	मात्रा	ईकाई	दर (रू.)	राशि (रूपए में)
1	Raising of nurseries and supply of seedlings in poly-pots, digging pits, Plantation of seedlings at required place & weeding, application of fertilizer and pesticides, fire protection, watering etc., during the year 2021-22 and complete subsequent maintenance for 04 years i.e. 2022-23 ,2023-24 , 2024-25 & 2025-26. (a)On OB dump	77500	प्रति पौधा	216.92	16811300.00
	(b)On non OB dump	154000	प्रति पौधा	197.00	30338000.00
2	Cattle Proof Trench, size: 1.5M (top width) X 0.90M (depth) X 0.75M (bottom width). (a) In 1st year (i.e. 2021-22)	4300	आरएमटी	135.63	583209.00
	(b) In 2nd year i.e. 2022-23 (maintenance cost @ 10% of 1st year rate)			13.56	58308.00
	(c) In 3rd year i.e.2023-24 (maintenance cost @ 10% of 1st year rate)			13.56	58308.00

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मद कं.	कार्य का विवरण	मात्रा	ईकाई	दर (रू.)	राशि (रूपए में)
3	Cattle Proof Wall, Cattle Proof Wall (Including collection of stone), size: 1.5M (bottom width) X 0.90M (height) X 0.75M (top width). (a) In 1st year (i.e. 2021-22)	5700	आरएमटी	135.63	773091.00
	(b) In 2nd year i.e. 2022-23 (maintenance cost @ 10% of 1st year rate)			13.56	77292.00
	(c) In 3rd year i.e. 2023-24 (maintenance cost @ 10% of 1st year rate)			13.56	77292.00
4	Grass Bed size: 2M X 0.50M– for 1st year only (i.e. 2021-22).	40000	नग	79.33	3173200.00
5	Barbed wire fencing with R.C.C. Post (1.2 Mtr. High fencing with 1.8 Mtr. Long RCC post as per specification placed every 2.5 Mtr. Apart embedded in Cement Concrete Block (1:5:10) and every 15th post, last but one end post and corner post strutted on both side and end post on one side only. Provided with 6 horizontal line and two diagonal of barbed-wire 9.38 kg. per 100 Mtr. Between 2 posts fitted and fixed with iron clips made in RCC posts, as per instruction of In-charge of the work	5605	आरएमटी	395.40	2216217.00
				TOTAL	**54166217.00**

(पांच करोड़ इकतालीस लाख छैसठ हजार दो सौ सत्रह) मात्र

वृक्षारोपण हेतु विभिन्न प्रजातियॉ सुझाई गई हैं जो इस प्रकार हैं:

पौधे के प्रकार
फलदार वृक्ष : जामुन, इमली, गंगा इमली, बेल, आम, सीताफल आदि।
औषधीय /हर्बल पौधे : नीम, करंज,हर्रा,बहरा,ऑवला (आमला), अर्जुन, सिकाकाई,कुसुम,महुआ आदि।
मूल्यवान लकड़ी के पेड़ : सागौन,सीवान/खम्हार,सिस्सू,कालासिरस,सफेद सिरस, बांस,पेल्टाफोरम, बबूल, आदि।
सजावटी पेड़ (सड़क और कालोनियों की तरफ से) : गुलमोहर, कचनार, अमलतास,सप्तपर्णी,ग्रेविलिया,पीपल,पाम आदि।

समस्त वृक्ष वन संरक्षण अधिनियम 1980 के अंतर्गत 'वन' के अर्थ में आना चाहिए।

क्षेत्रवार वृक्षारोपण अर्थात 2021–22 (वृक्षारोपण वर्ष) तथा तत्पश्चात 2025–26(चार वर्षों) के लिए रखरखाव में होने वाले वर्षवार व्यय का विवरण एतद् द्वारा संलग्न है।

एमओयू की कंडिका कं.–10 a (i) के अनुसार "Amount equal to 80% of 1st year plantation work will be released for the completion of Nursary preparation, Site preparation and Plantation work as per the approved scheme." कार्यआदेश जारी होने पर वर्ष 2021–22 के वृक्षारोपण कार्य को प्रारम्भ करने हेतु अग्रिम राशि जारी किया जाएगा।

आपसे अनुरोध है कि आप कार्य प्रारम्भ करने के लिए संबंधित क्षेत्र के महाप्रबंधक से संपर्क करने का कष्ट करें।

संलग्न– यथोक्त।

भवदीय,

5.4.2021

महाप्रबंधक (खनन/वन)/विभागा.,
एसईसीएल,वन विभाग,बिलासपुर

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प्रतिलिपि

- निदेशक तकनीकी (संचालन),एसईसीएल,बिलासपुर – सादर सूचनार्थ।
- निदेशक (यो./परि.) ,एसईसीएल,बिलासपुर – सादर सूचनार्थ।
- निदेशक (वित्त) ,एसईसीएल,बिलासपुर – सादर सूचनार्थ।
- निदेशक (कार्मिक) ,एसईसीएल,बिलासपुर – सादर सूचनार्थ।
- मुख्य सतर्कता अधिकारी,एसईसीएल,बिलासपुर – सादर सूचनार्थ।
- अप्रनि के तक. सचिव,एसईसीएल,बिलासपुर – अप्रनि के सादर सूचनार्थ।
- महाप्रबंधक (पर्यावरण.), एसईसीएल, बिलासपुर।
- महाप्रबंधक (सिविल),एस.ई.सी.एल.बिलासपुर।
- महाप्रबंधक (सिविल/कल्याण), एस.ई.सी.एल., बिलासपुर।
- महाप्रबंधक(वित्त.),एसईसीएल, बिलासपुर को उनके संदर्भित डायरी कं.–बीसी कं.– **SECL/GM (F)/BC/Misc. Exp./SECL Areas/2021-22 to 2025-26/110/1 Dated 01.04.2021 for ₹1898.17lacs**
- महाप्रबंधक,एसईसीएल, हसदेव,जोहिला,जमुना–कोतमा एवं सोहागपुर क्षेत्र– क्षेत्रवार विवरण, वर्षवार वृक्षारोपण एवं पांच वर्ष के लिए किए गए व्यय अर्थात 2021–22 (वृक्षारोपण वर्ष) और आगामी 04 (चार) वर्ष अर्थात 2025–26 तक इसी के साथ संलग्न किया गया है।
- क्षेत्रीय वित्त अधिकारी/नोडल अधिकारी,एसईसीएल, हसदेव,जोहिला,जमुना–कोतमा एवं सोहागपुर क्षेत्र– क्षेत्रवार विवरण, वर्षवार वृक्षारोपण एवं पांच वर्ष के लिए किए गए व्यय अर्थात 2021–22 (वृक्षारोपण वर्ष) और आगामी 04 (चार) वर्ष अर्थात 2025–25 तक इसी के साथ संलग्न किया गया है।
- क्षेत्रीय महाप्रबंधक, मप्रराविनि लिमिटेड, जबलपुर (म0प्र0)।
- संभागीय प्रबंधक, मप्रराविनि लिमिटेड,उमरिया प्रोजेक्ट मंडल,उमरिया (म0प्र0)।
- सहायक श्रम आयुक्त (कें0),शहडोल (म0प्र0) के कृपया सूचनार्थ।

BILL OF QUANTITIES FOR LONG TERM MOU:
Name of Work : PLANTATION JOBS TO BE CARRIED-OUT IN SECL AREAS OF MADHYA PRADESH STATE DURING THE YEAR 2021-22 WITH ITS SUBSEQUENT MAINTENANCE FOR 04 YEARS i.e. UPTO 2025-26. (FOR ADMINISTRATIVE AREAS UNDER MADHYAPRADESH STATE [SECL AREAS - SOHAGPUR, JOHILLA, JAMUNA&KOTMA & HASDEO *M.P. PORTION)

Item No.	Particulars of Work	Qty.	Unit.	Rates (in Rs.)	Amount (in Rs.)
1	Raising of nurseries and supply of seedlings in poly-pots, digging pits, Plantation of seedlings at required place & weeding, application of fertilizer and pesticides, fire protection, watering etc., during the year 2021-22 and complete subsequent maintenance for 04 years i.e. 2022-23 ,2023-24 , 2024-25 & 2025-26. (a)On OB dump	77500	Per Plant	216.92	16811300.00
	(b)On non OB dump	154000	Per Plant	197.00	30338000.00
2	Cattle Proof Trench, size: 1.5M (top width) X 0.90M (depth) X 0.75M (bottom width). (a) In 1st year (i.e. 2021-22)	4300	RMT	135.63	583209.00
	(b) In 2nd year i.e. 2022-23 (maintenance cost @ 10% of 1st year rate)			13.56	58308.00
	(c) In 3rd year i.e.2023-24 (maintenance cost @ 10% of 1st year rate)			13.56	58308.00
3	Cattle Proof Wall, Cattle Proof Wall (Including collection of stone), size: 1.5M (bottom width) X 0.90M (height) X 0.75M (top width). (a) In 1st year (i.e. 2021-22)	5700	RMT	135.63	773091.00
	(b) In 2nd year i.e. 2022-23 (maintenance cost @ 10% of 1st year rate)			13.56	77292.00
				13.56	77292.00
4	Grass Bed size: 2M X 0.50M– for 1st year only (i.e. 2021-22).	40000	Nos	79.33	3173200.00
5	Barbed wire fencing with R.C.C. Post (1.2 Mtr. High fencing with 1.8 Mtr. Long RCC post as per specification placed every 2.5 Mtr. Apart embedded in Cement Concrete Block (1:5:10) and every 15th post, last but one end post and corner post strutted on both side and end post on one side only. Provided with 6 horizontal line and two diagonal of barbed-wire 9.38 kg. per 100 Mtr. Between 2 posts fitted and fixed with iron clips made in RCC posts, as per instruction of In-charge of the work	5605	RMT	395.40	2216217.00
				TOTAL	**54166217.00**

(Five Crore Forty One Lakh Sixty Six Thousand Two Hundred Seventeen Only)

महा प्रबंधक (खनन/वन)/विभागाध्यक्ष
वन विभाग
एस.ई.सी.एल., बिलासपुर (छ.ग.)

17/2/2021
SDE(CC)
Forest

AREA WISE PLANTATION TARGET FOR THE PLANTATION YEAR 2021-22 WITH ITS SUBSEQUENT FOUR YEAR MAINTENANCE i.e. UP TO 2025-26 FOR ADMINISTRATIVE AREAS UNDER MADHYA PRADESH STATE (SECL AREAS - SOHAGPUR , JOHILLA, JAMUNA & KOTMA & HASDEO *M.P. PORTION)

Sl. No	Name of the Area	Plantation on OB Dump (In Nos.)	Plantation on Non-OB Dump (In Nos.)	Total Plantation (In Nos.)	Grass Bed (In Nos.)	Cattle Proof Trench (CPT) (In Rmt.)	Cattle Proof Wall (CPW) (In Rmt.)	Barbed-wire Fencing (In Rmt.)
1	Hasdeo	0	50000	50000	0	0	0	2500
2	Johilla	10000	20000	30000	5000	0	0	1340
3	J&K	0	30000	30000	0	2200	0	1765
4	Sohagpur	67500	54000	121500	35000	2100	5700	0
TOTAL:		**77500**	**154000**	**231500**	**40000**	**4300**	**5700**	**5605**

वन प्रबंधक (खनन/वन)/विभागाध्यक्ष
वन विभाग
एस.ई.सी.एल., बिलासपुर (छ.ग.)

Plantation Jobs to be carried-out during the year 2021-22 with its subsequent maintenance for four years i.e. upto 2025-26 in the SECL Areas falling in Madhya Pradesh State to be raised by MPRVVN Limited, Bhopal.

ABSTRACT

Sr. No.	Area/Unit	No of Plants	Unit rate for plantation in 2021-22 1st year plantation rate	Cost of Plantation for 2021-22 1st year plantation cost	Advance work amount i.e. 80% of the 1st year plantation cost	Completion work amount i.e. 20% of the 1st year plantation cost	Unit rate for plantation in 2022-23 2nd year i.e. 1st year maintenance rate	Cost of Plantation for 2022-23 2nd year i.e.1st year maintenance cost	Unit rate for plantation in 2023-24 3rd year i.e. 2nd year maintenance rate	Cost of Plantation for 2023-24 3rd year i.e. 2nd year maintenance cost	Unit rate for plantation in 2024-25 4th year i.e. 3rd year maintenance rate	Cost of Plantation for 2024-25 4th year i.e. 3rd year maintenance cost	Unit rate for plantation in 2025-26 5th year i.e. 4th year maintenance rate	Cost of Plantation for 2025-26 5th year i.e. 4th year maintenance cost	Unit rate for plantation in 2021-22 to 2025-26 (5 years)	Total Cost for plantation in 2021-22 to 2025-26 (5 years)
1	*2*	*3*	*4*	*5*	*5a*	*5b*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*
ON OB-DUMP AREA																
1	Hasdeo	0	109.91	0.00	0.00	0.00	50.17	0.00	20.82	0.00	18.01	0.00	18.01	0.00	216.92	0.00
2	Johilla	10000	109.91	1099100.00	879280.00	219820.00	50.17	501700.00	20.82	208200.00	18.01	180100.00	18.01	180100.00	216.92	2169200.00
3	J&K	0	109.91	0.00	0.00	0.00	50.17	0.00	20.82	0.00	18.01	0.00	18.01	0.00	216.92	0.00
4	Sohagpur	67500	109.91	7418925.00	5935140.00	1483785.00	50.17	3386475.00	20.82	1405350.00	18.01	1215675.00	18.01	1215675.00	216.92	14642100.00
	TOTAL	**77500**		**8518025.00**	**6814420.00**	**1703605.00**		**3888175.00**		**1613550.00**		**1395775.00**		**1395775.00**		**16811300.00**

Plantation Jobs to be carried-out during the year 2021-22 with its subsequent maintenance for four years i.e. upto 2025-26 in the SECL Areas falling in Madhya Pradesh State to be raised by MPRVVN Limited, Bhopal.

ABSTRACT

Sr. No.	Area/Unit	No of Plants	Unit rate for plantation in 2021-22 1st year plantation rate	Cost of Plantation for 2021-22 1st year plantation cost	Advance work amount i.e. 80% of the 1st year plantation cost	Completion work amount i.e. 20% of the 1st year plantation cost	Unit rate for plantation in 2022-23 2nd year i.e. 1st year maintenance rate	Cost of Plantation for 2022-23 2nd year i.e.1st year maintenance cost	Unit rate for plantation in 2023-24 3rd year i.e. 2nd year maintenance rate	Cost of Plantation for 2023-24 3rd year i.e. 2nd year maintenance cost	Unit rate for plantation in 2024-25 4th year i.e. 3rd year maintenance rate	Cost of Plantation for 2024-25 4th year i.e. 3rd year maintenance cost	Unit rate for plantation in 2025-26 5th year i.e. 4th year maintenance rate	Cost of Plantation for 2025-26 5th year i.e. 4th year maintenance cost	Unit rate for plantation in 2021-22 to 2025-26 (5 years)	Total Cost for plantation in 2021-22 to 2025-26 (5 years)
1	*2*	*3*	*4*	*5*	*5a*	*5b*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*
ON NON OB-DUMP AREA																
1	Hasdeo	50000	97.50	4875000.00	3900000.00	975000.00	42.66	2133000.00	20.82	1041000.00	18.01	900500.00	18.01	900500.00	197.00	9850000.00
2	Johilla	20000	97.50	1950000.00	1560000.00	390000.00	42.66	853200.00	20.82	416400.00	18.01	360200.00	18.01	360200.00	197.00	3940000.00
3	J&K	30000	97.50	2925000.00	2340000.00	585000.00	42.66	1279800.00	20.82	624600.00	18.01	540300.00	18.01	540300.00	197.00	5910000.00
4	Sohagpur	54000	97.50	5265000.00	4212000.00	1053000.00	42.66	2303640.00	20.82	1124280.00	18.01	972540.00	18.01	972540.00	197.00	10638000.00
	TOTAL	**154000**		**15015000.00**	**12012000.00**	**3003000.00**		**6569640.00**		**3206280.00**		**2773540.00**		**2773540.00**		**30338000.00**

Plantation Jobs to be carried-out during the year 2021-22 with its subsequent maintenance for four years i.e. upto 2025-26 in the SECL Areas falling in Madhya Pradesh State to be raised by MPRVVN Limited, Bhopal.

Sr. No.	Area/Unit	No of Plants	Unit rate for plantation in 2021-22 1st year plantation rate	Cost of Plantation for 2021-22 1st year plantation cost	Advance work amount i.e. 80% of the 1st year plantation cost	Completion work amount i.e. 20% of the 1st year plantation cost	Unit rate for plantation in 2022-23 2nd year i.e. 1st year maintenance rate	Cost of Plantation for 2022-23 2nd year i.e.1st year maintenance cost	Unit rate for plantation in 2023-24 3rd year i.e. 2nd year maintenance rate	Cost of Plantation for 2023-24 3rd year i.e. 2nd year maintenance cost	Unit rate for plantation in 2024-25 4th year i.e. 3rd year maintenance rate	Cost of Plantation for 2024-25 4th year i.e. 3rd year maintenance cost	Unit rate for plantation in 2025-26 5th year i.e. 4th year maintenance rate	Cost of Plantation for 2025-26 5th year i.e. 4th year maintenance cost	Unit rate for plantation in 2021-22 to 2025-26 (5 years)	Total Cost for plantation in 2021-22 to 2025-26 (5 years)
1	*2*	*3*	*4*	*5*	*5a*	*5b*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*
CPT (in RMT) with two year maintenance																
1	Hasdeo	0	135.63	0.00	0.00	0.00	13.56	0.00	13.56	0.00	0.00	0.00	0.00	0.00	162.75	0.00
2	Johilla	0	135.63	0.00	0.00	0.00	13.56	0.00	13.56	0.00	0.00	0.00	0.00	0.00	162.75	0.00
3	J&K	2200	135.63	298386.00	238708.80	59677.20	13.56	29832.00	13.56	29832.00	0.00	0.00	0.00	0.00	162.75	358050.00
4	Sohagpur	2100	135.63	284823.00	227858.40	56964.60	13.56	28476.00	13.56	28476.00	0.00	0.00	0.00	0.00	162.75	341775.00
	TOTAL	**4300**		**583209.00**	**466567.20**	**116641.80**		**58308.00**		**58308.00**		**0.00**		**0.00**		**699825.00**

Plantation Jobs to be carried-out during the year 2021-22 with its subsequent maintenance for four years i.e. upto 2025-26 in the SECL Areas falling in Madhya Pradesh State to be raised by MPRVVN Limited, Bhopal.

Sr. No.	Area/Unit	No of Plants	Unit rate for plantation in 2021-22 1st year plantation rate	Cost of Plantation for 2021-22 1st year plantation cost	Advance work amount i.e. 80% of the 1st year plantation cost	Completion work amount i.e. 20% of the 1st year plantation cost	Unit rate for plantation in 2022-23 2nd year i.e. 1st year maintenance rate	Cost of Plantation for 2022-23 2nd year i.e.1st year maintenance cost	Unit rate for plantation in 2023-24 3rd year i.e. 2nd year maintenance rate	Cost of Plantation for 2023-24 3rd year i.e. 2nd year maintenance cost	Unit rate for plantation in 2024-25 4th year i.e. 3rd year maintenance rate	Cost of Plantation for 2024-25 4th year i.e. 3rd year maintenance cost	Unit rate for plantation in 2025-26 5th year i.e. 4th year maintenance rate	Cost of Plantation for 2025-26 5th year i.e. 4th year maintenance cost	Unit rate for plantation in 2021-22 to 2025-26 (5 years)	Total Cost for plantation in 2021-22 to 2025-26 (5 years)
1	*2*	*3*	*4*	*5*	*5a*	*5b*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*
CPW (in RMT) with two year maintenance																
1	Hasdeo	0	135.63	0.00	0.00	0.00	13.56	0.00	13.56	0.00	0	0.00	0	0.00	162.75	0.00
2	Johilla	0	135.63	0.00	0.00	0.00	13.56	0.00	13.56	0.00	0	0.00	0	0.00	162.75	0.00
3	J&K	0	135.63	0.00	0.00	0.00	13.56	0.00	13.56	0.00	0	0.00	0	0.00	162.75	0.00
4	Sohagpur	5700	135.63	773091.00	618472.80	154618.20	13.56	77292.00	13.56	77292.00	0	0.00	0	0.00	162.75	927675.00
	TOTAL	**5700**		**773091.00**	**618472.80**	**154618.20**		**77292.00**		**77292.00**		**0.00**		**0.00**		**927675.00**

Plantation Jobs to be carried-out during the year 2021-22 with its subsequent maintenance for four years i.e. upto 2025-26 in the SECL Areas falling in Madhya Pradesh State to be raised by MPRVVN Limited, Bhopal.

Sr. No.	Area/Unit	No of Plants	Unit rate for plantation in 2021-22 1st year plantation rate	Cost of Plantation for 2021-22 1st year plantation cost	Advance work amount i.e. 80% of the 1st year plantation cost	Completion work amount i.e. 20% of the 1st year plantation cost	Unit rate for plantation in 2022-23 2nd year i.e. 1st year maintenance rate	Cost of Plantation for 2022-23 2nd year i.e.1st year maintenance cost	Unit rate for plantation in 2023-24 3rd year i.e. 2nd year maintenance rate	Cost of Plantation for 2023-24 3rd year i.e. 2nd year maintenance cost	Unit rate for plantation in 2024-25 4th year i.e. 3rd year maintenance rate	Cost of Plantation for 2024-25 4th year i.e. 3rd year maintenance cost	Unit rate for plantation in 2025-26 5th year i.e. 4th year maintenance rate	Cost of Plantation for 2025-26 5th year i.e. 4th year maintenance cost	Unit rate for plantation in 2021-22 to 2025-26 (5 years)	Total Cost for plantation in 2021-22 to 2025-26 (5 years)
1	*2*	*3*	*4*	*5*	*5a*	*5b*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*
Preparation of GRASS BED (Only one year) in Nos.																
1	Hasdeo	0	79.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	79.33	0.00
2	Johilla	5000	79.33	396650.00	317320.00	79330.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	79.33	396650.00
3	J&K	0	79.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	79.33	0.00
4	Sohagpur	35000	79.33	2776550.00	2221240.00	555310.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	79.33	2776550.00
	TOTAL	**40000**		**3173200.00**	**2538560.00**	**634640.00**		**0.00**		**0.00**		**0.00**		**0.00**		**3173200.00**

Plantation Jobs to be carried-out during the year 2021-22 with its subsequent maintenance for four years i.e. upto 2025-26 in the SECL Areas falling in Madhya Pradesh State to be raised by MPRVVN Limited, Bhopal.

Sr. No.	Area/Unit	No of Plants	Unit rate for plantation in 2021-22 1st year plantation rate	Cost of Plantation for 2021-22 1st year plantation cost	Advance work amount i.e. 80% of the 1st year plantation cost	Completion work amount i.e. 20% of the 1st year plantation cost	Unit rate for plantation in 2022-23 2nd year i.e. 1st year maintenance rate	Cost of Plantation for 2022-23 2nd year i.e.1st year maintenance cost	Unit rate for plantation in 2023-24 3rd year i.e. 2nd year maintenance rate	Cost of Plantation for 2023-24 3rd year i.e. 2nd year maintenance cost	Unit rate for plantation in 2024-25 4th year i.e. 3rd year maintenance rate	Cost of Plantation for 2024-25 4th year i.e. 3rd year maintenance cost	Unit rate for plantation in 2025-26 5th year i.e. 4th year maintenance rate	Cost of Plantation for 2025-26 5th year i.e. 4th year maintenance cost	Unit rate for plantation in 2021-22 to 2025-26 (5 years)	Total Cost for plantation in 2021-22 to 2025-26 (5 years)
1	*2*	*3*	*4*	*5*	*5a*	*5b*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*
Barbed Wire Fencing (In RMT.) For One Year Only																
1	Hasdeo	2500	395.4	988500.00	790800.00	197700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	395.40	988500.00
2	Johilla	1340	395.4	529836.00	423868.80	105967.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	395.40	529836.00
3	J&K	1765	395.4	697881.00	558304.80	139576.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	395.40	697881.00
4	Sohagpur	0	395.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	395.40	0.00
	TOTAL	**5605**		**2216217.00**	**1772973.60**	**443243.40**		**0.00**		**0.00**		**0.00**		**0.00**		**2216217.00**

COMPANY: S.E.C.L.

AREA-WISE FUND ALLOCATION FOR PLANTATION JOBS TO BE CARRIED-OUT BY MPRVVN LIMITED.

YEAR 2021-22

S. NO.	AREA/UNIT	COST OF PLANTATION					
		2021-22 1st year maintenance cost	2022-23 2nd year maintenance cost	2023-24 3rd year maintenance cost	2024-25 4th year maintenance cost	2025-26 5th year maintenance cost	Total Cost (From 2021-22 to 2025-26) (Five Years)
1	Hasdeo	5863500.0	2133000.0	1041000.0	900500.0	900500.0	10838500.0
2	Johilla	3975586.0	1354900.0	624600.0	540300.0	540300.0	7035686.0
3	J&K	3921267.0	1309632.0	654432.0	540300.0	540300.0	6965931.0
4	Sohagpur	16518389.0	5795883.0	2635398.0	2188215.0	2188215.0	29326100.0
	TOTAL:	**30278742.0**	**10593415.0**	**4955430.0**	**4169315.0**	**4169315.0**	**54166217.0**

SUB ORDINATE ENGG.(CIVIL)
FOREST DEPARTMENT
SECL, BILASPUR

12,000/28000
Target - 28000

JOINT INSPECTION REPORT
OF COAL MINES PLANTATION S.E.C.L. SOHAGPUR AREA
BY S.E.C.L. AUTHORITIES & M.P.R.V.V.N. AUTHORITIES

(3) NO. JOINT INSPECTION REPORT

Dated MAR/2022

(1)	Name of Plantation Centre	: KHAIRHAUG MINE
(2)	Year of Plantation	: 2021 (1st YEAR)
(3)	No. of Plants Planted	: 12,000 PLANT'S
(4)	Survival Percentage	: 96.70 % = 11604 PLANT'S
(5)	Maximum Height	: 1.15 METER
(6)	Minimum Height	: 0.90 METER
(7)	Fencing/ CPT Position	: –
(8)	Other details if any	: WORK ORDER NO- 02 DATED-5/4/2

Location - ALONG the BY PASS ROAD BOTH SIDE

M.R. MISHRA
A.P.R.O.
MPRVVN UMARIA

Signature of Representative of
M.P. Rajya Van Vikas Nigam
Umaria Project Division Umaria

Signature of Representative of
S.E.C.L. Sohagpur Area

16/04/2022
Sr. Manager (Survey)

भैयालाल कोल
वन रक्षक घुनघुटी
जिला-उमरिया (म.प्र.)

Divisional Manager
MPRVVN LTD UMARIA

N.O. (Env)
Rajendra Sub Area
16/4/22

(1) रिदेश प्रजापति
(2) रामू चौरसिया
(3) रामू चौरसिया

16.4.22

ANNEXURE – G

Photographs of 20 feet high Wind breaking wall around Burhar Railway Siding

WIND BREAKING WALL OF HEIGHT : 20 FEET (12FEET BRICK WALL + 8 FEET GI SHEET) ALONG BURHAR RAILWAY SIDING

साउथ ईस्टर्न कोलफील्ड्स लिमिटेड
SOUTH EASTERN COALFIELDS LIMITED
महाप्रबंधक कार्यालय : सोहागपुर क्षेत्र
OFFICE OF THE GENERAL MANAGER: SOHAGPUR AREA
पो. आ. धनपुरी – 484114, जिला : शहडोल (म0प्र0)
P.O. Dhanpuri – 484114, Distt. : Shahdol (M.P.)

Gram: BURHAR COAL
Phone : (07652)250302
Fax : (07652) 250882

NIT No : SECL/SGP/SO(C)/ e-TENDER/2022-23/44 Date: **05.08.2022**

निविदा सूचना

NOTICE INVITING TENDER

FOR ESTIMATED VALUE PUT TO TENDER UP TO 50.00 LAKHS

1. Tenders are invited on-line under **Single Cover system** on the website **https://coalindiatenders.nic.in** from the eligible bidders having Digital Signature Certificate (DSC) issued from any agency authorized by Controller of Certifying Authority (CCA), Govt. of India and which can be traced up to the chain of trust to the Root Certificate of CCA, for the following work:

Description of work	Location	Estimated Value (Updated Cost of Work) (Including GST) (In Rs.)	Earnest Money (In Rs.)	Period of Completion (In Days)
Replacement and repair of damaged green net by providing profile sheet over Wind Breaking wall of Burhar Railway Siding of Burhar - Sharda sub area.	Area – Sohagpur Area Distt. - Shahdol PIN - 484114	**29,51,915 /-**	**36,900 /-**	**45 Days**

i) Details of GST Registration of SECL:

GSTIN of SECL	Chhattisgarh (CG)	Madhya Pradesh (MP)	West Bengal (WB)
	22AADCS2066E9ZL	23AADCS2066E1ZR	19AADCS2066E1ZG

ii) Salient Details of Tender:

Goods & Services Tax (GST)	**Applicable**
Input Tax Credit (ITC) to SECL	**Applicable**
Price Variation Clause (Escalation)	**As per General Terms and Conditions of Contract**
Payment of Wages to Contractor's Labours	As per Minimum Wages Act of Central/State Govt. (Higher) or High Power Committee (HPC) Wages of CIL.
Participation of Joint Venture	Not Allowed

iii) For Site visit of location of work, the prospective bidder(s) may contact Shri K.K. Singh , Chief Manager (C) , SGP , Contact No. :- 9425533478

Tender inviting authority	Contact Person(s) / Tender Dealing Officer(s)	
Dy. GM / Staff Officer (Civil) Sohagpur Area, SECL (e-mail ID – soc.sgp2@gmail.com)	Shri K.K. Singh (Mob. No. 9425533478)	Shri Pranay Gour (Mob. No. 7587391029)

2. Time Schedule of Tender:

Sl. No	Particulars	Date	Time
a.	Tender e-Publication date	06.08.2022	**10.00 hours**
b.	Document download start date	06.08.2022	**10.00 hours**
c.	Document download end date	18.08.2022	**17.00 hours**
d.	Bid Submission start date	08.08.2022	**10.00 hours**
e.	Bid submission end date	18.08.2022	**17.00 hours**
f.	Start date for seeking Clarification on-line	06.08.2022	**10.00 hours**
g.	Last date for seeking Clarification on-line	13.08.2022	**17.00 hours**
h.	Date of Pre-bid meeting (if any)	N.A	**N.A**
i.	Bid Opening date	20.08.2022	**11.00 hours**

Note: The auto extension of submission of bid shall be applicable as per details mentioned in clause No.14 of NIT.

3. Earnest Money Deposit (EMD):

The bidder will have to make the payment of EMD through ONLINE mode only. In Online mode the bidder can make payment of EMD either through NET-BANKING from designated Bank(s) or through NEFT/RTGS from any scheduled Bank(s).

NET-BANKING: In case of payment through net-banking the money will be immediately transferred to South Eastern Coalfields Limited's designated Account.

NEFT/RTGS: In case of payment through NEFT/RTGS from any scheduled bank(s), the bidder will have to make payment as per the Challan(s) generated by system on e-Procurement portal.

The Bidder will be allowed to submit his/her/their bid only when the EMD is successfully received in SECL's designated account and the information flows from Bank to e-Procurement system.

4. Pre-bid Meeting:

The pre-bid meeting if applicable shall be held in the office of Tender Inviting Authority, on the scheduled date & time, if specified in the NIT. The purpose of the pre-bid meeting is to clarify the issues and to answer the questions on any matter that may be raised at that stage. Non-attendance at the pre-bid meeting will not be a cause for disqualification of bidder and it shall be presumed that the bidder does not require any

clarification. The management shall circulate proceedings of the pre-bid meeting, if held.

5. Clarification of Bid:

The bidder may seek clarification on-line within the specified period. However, the management will clarify as far as possible to the relevant queries. The identity of the Bidder will not be disclosed by the system. The clarifications given by department will be visible to all the bidders intending to participate in that tender.

6. User Portal Agreement:

The bidders have to accept the on-line user portal agreement which contains the acceptance of all the Terms and Conditions of NIT and tender document, undertakings and the e-Procurement system through **https://coalindiatenders.nic.in** in order to become an eligible bidder. This will be a part of the agreement.

7. Eligible Bidders:

The invitation for bid is open to all bidders including an individual, proprietorship firm, partnership firm, company, Joint Venture having eligibility to participate as per eligibility criteria stipulated in clause No.8 of NIT and having Digital Signature Certificate (DSC) issued from any agency authorized by Controller of Certifying Authority (CCA), Govt. of India and which can be traced up to the chain of trust to the Root Certificate of CCA.

Note: Joint Venture is not allowed to participate in the tender.

8. Eligibility Criteria:

A. Permanent Account Number (PAN) :

The bidder should possess valid Permanent Account Number (PAN) issued by Income Tax department, Govt. of India.

In respect of the above eligibility criteria the bidders are required to furnish the following information on-line:

i) Confirmation regarding possessing of Permanent Account Number(PAN) issued by Income Tax department, Govt. of India in the form of Yes / No.

Scanned copy of documents to be uploaded by bidders (BIDDER SPACE/ MY DOCUMENT): PAN CARD of the bidder

B. Goods and Services Tax (Not Applicable for Exempted Services) :

The bidder should be either GST Registered Bidder under regular scheme

OR

GST Registered Bidder under composition scheme

OR

GST unregistered Bidder

In respect of the above eligibility criteria the bidder is required to furnish the following information online:

i) Confirmation in the form of Yes/No regarding possessing of required document as enlisted in NIT with respect to GST status of the bidder.

Scanned copy of documents to be uploaded by bidders (BIDDER SPACE/ MY DOCUMENT): GST Registration Certificate of the bidder

Note:

i) If turnover of bidder exceeds exemption/threshold limit, the bidder must have GST registration as per GST Act and rules.

ii) During the execution of the contract if the GST status of the bidder changes, then the payment of GST, if any, to the contractor will be made as per the GST status declared by the bidder during tender stage based on which cost to company has been ascertained or at actuals, whichever is lower.

C. Purchase Preference under 'Make in India' Policy for "Local supplier".

Preference to Make in India (as applicable) vide Order No. P-45021/2/2017-PP (BE-II) dated 16.09.2020, issued by Govt. of India as amended from time to time shall be applicable.

In terms of the above said policy, purchase preference shall be given to Class-I local supplier.

In terms with the above said policy, Class-I local suppliers and Class-II local suppliers shall be eligible to bid.

The definitions of Class-I *Local Supplier*, Class-II local supplier, Non-Local supplier, *Local Content* and Margin of Purchase Preference as per above mentioned Order are as follows:-

A. 'Class-I local supplier' means a supplier or service provider, whose goods, services or works offered for procurement, has local content equal to or more than 50%, as defined under said order.

B. 'Class-II local supplier' means a supplier or service provider, whose goods, services or works offered for procurement, has local content equal to more than 20% but less than 50%, as defined under said order.

C. 'Non-Local supplier' means a supplier or service provider, whose goods, services or works offered for procurement, has local content less than 20% as defined under said order

D. '*Local Content*' means the amount of value added in India which shall be the total value of the item procured (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties) as a proportion of the total value, in percent.

E. 'Margin of Purchase Preference' means the maximum extent to which the price quoted by a Class-I local supplier may be above the L1 for the purpose of purchase preference. The margin of purchase preference is 20%.

In respect of the above eligibility criteria the bidder is required to furnish the following information online:

i) Confirmation in the form of Yes/No regarding possessing of required document indicating percentage of local content as enlisted in NIT.

Note:-

I. If the estimated value of Procurement is less than Rs. 10 crores, all the Bidders at the time of bidding shall submit either self-certification indicating the percentage of local content in the offered items in undertaking as per format at Annexure – XV.

II. If the estimated value of procurement is more than Rs. 10 crores, all the Bidders shall submit along with its bid a certificate (with UDIN) from the statutory auditor or cost auditor of the company (in case of companies) or from a practicing cost accountant or practicing chartered account (in respect of suppliers other than companies) giving the percentage of local content.

9. Submission of Bid:

a. Bidder Online Registration:

In order to submit the Bid, the bidders have to get themselves registered online on the e-Procurement portal of CIL (**https://coalindiatenders.nic.in**) with valid Digital Signature Certificate (DSC) issued from any agency authorized by Controller of Certifying Authority (CCA), Govt. of India and which can be traced up to the chain of trust to the Root Certificate of CCA. The online Registration of the Bidders on the portal will be free of cost and one time activity only. The registration should be in the name of bidder, whereas DSC holder may be either bidder himself or his duly authorized person. The bidder is one whose name will appear as bidder in the e-Procurement Portal.

b. User Portal Agreement:

The bidders have to accept unconditionally the online user portal agreement which contains the acceptance of all the Terms and Conditions of NIT including General and Special Terms & Conditions, Integrity Pact and other conditions, if any, along with on-line undertaking in support of the authenticity of the declarations regarding the facts, figures, information and documents furnished by the Bidder on-line in order to become an eligible bidder. No conditional bid shall be allowed/accepted.

c. General Technical Evaluation (GTE) and Bidder's space/ My Document:

The bidders have to accept unconditionally in GTE (General Technical Evaluation) the Undertaking at **Annexure II** regarding Genuineness of the information furnished by him on-line & authenticity of the scanned copy of documents uploaded by him on-line in support of his eligibility criteria, declaration w.r.t procurement from the bidder of a country which shares a land border with India etc. and **Annexure I** (Letter of Bid). No recycling will be done for this document i.e. no further clarification will be sought from bidder.

Moreover, the following documents shall be considered from the Bidder's space/ My Document and no recycling will be done for these documents i.e. no further clarification will be sought from bidder –

Sl. No.	Eligibility Criteria	Scanned copy of document(s) uploaded by bidder in Bidder's space/ My Document
1	2	3

1.	Permanent Account Number *(Ref. Clause No.8(A) of NIT)*	PAN card issued by Income Tax department, Govt. of India.
2.	Goods and Services Tax (GST) Status of Bidder **(Not Applicable for Exempted Services)** (Ref. Clause No.8(**B**) of NIT and BOQ)	The following documents depending upon the status w.r.to GST as declared by Bidder in the BOQ sheet: a) Status: GST Registered Bidder under regular scheme Document: GST Registration Certificate (i.e. GST identification Number) issued by appropriate authority of India. b) Status: GST Registered Bidder under composition scheme Document: GST Registration Certificate (i.e. GST identification Number) issued by appropriate authority of India. c) Status: GST unregistered bidder: Document: A Certificate (with UDIN) from a practicing Chartered Accountant having membership number with Institute of Chartered Accountants of India certifying that the bidder is GST unregistered bidder in compliance with the relevant GST rules of. India. Note: If the turnover of a bidder exceeds the exemption/threshold limit, the bidder must have GST registration as per GST Act and rules.
3.	Legal Status of the bidder	Document(s) covered under any one of the following sub-head(s): i. Affidavit or any other document to prove Proprietorship/Individual status of the bidder. ii. Partnership deed containing name of partners iii. Memorandum & Article of Association with certificate of incorporation containing name of bidder. **iv.** In case of MSME, copy of documentary evidence(s), issued by their registering authority whether they are either small enterprise or micro enterprise as per provisions of Public Procurement Policy for Micro and Small Enterprise (MSEs) Order, 2012 with latest guidelines/clarifications provided by MoMSME **(Applicable for Service Nature of tenders only).**

d. Confirmatory Documents:

All the confirmatory documents as enlisted in the NIT in support of online information submitted by the bidder are to be uploaded in Cover-I by the bidder while submitting his/her/their bid.

	Eligibility Criteria	Scanned copy of documents to be uploaded by bidder(s) in support of information/declaration furnished online by the bidder against Eligibility Criteria (CONFIRMATORY DOCUMENTS)
1	**2**	**3**
1.	Digital Signature Certificate (DSC)	If the bidder himself is the DSC holder bidding on-line then no document is required. However, if the DSC holder is bidding online on behalf of the bidder then the Power of Attorney or any sort of legally acceptable document for the authority to bid on behalf of the bidder.
2.	Undertaking	Undertaking regarding relatives as employees of company, Registration with CMPF /EPF authorities, Banning/ Delisting of Bidder, Arbitration clause (in case of partnership/Joint Venture firm), Local supplier status of the Bidder as per clause 8(C) of NIT etc as per the format given in the bid document at **Annexure XV.**
Note: Only one file in .pdf format can be uploaded against each eligibility criteria. Any additional/ other relevant documents to support the information/declaration furnished by bidder online against eligibility criteria may also be attached by the bidder in the same file to be uploaded against respective eligibility criteria.		

b) **Letter of Bid (LoB):**

The format of Letter of Bid is given at Annexure I of Tender document. This will be the covering letter of the bidder for his submitted bid. The bidders have to accept unconditionally the Letter of Bid in GTE (General Technical Evaluation) at the time of bid submission. No recycling will be done for this document i.e. no further clarification will be sought from bidder(s).

c) **Price bid:**

The Price bid containing the Bill of Quantity will be in Excel format and will be downloaded by the bidder and bidder will quote the rates for all items on this Excel file. Prior to quoting the rates in the BOQ file, the bidder will select the appropriate status from the following drop down list given in the BOQ:-

I. Status: GST Registered Bidder under regular scheme
II. Status: GST Registered Bidder under composition scheme
III. Status: GST unregistered bidder

The rates quoted by the bidder will be excluding GST and GST component (to be paid by CIL / Subsidiary and/or the bidder) will appear as a separate entity. The component of GST will be taken by the system based on the status of bidder selected by the bidder during bid submission and with the pre-defined business logic given in the BOQ file by the department. This file will be digitally signed and uploaded by the bidder after ascertaining the correctness of facts and figures.

Thereafter, the bidder will upload the same Excel file during bid submission in **cover-I.** The Price-bid (excluding GST) will be in Item Rate or Percentage Rate or Mixed Rate[combination of Item Rate and Percentage Rate] BOQ format and the bidder will have to quote for all the tendered items. The Price Bid of the tenderers will have no condition. The price bid which is incomplete and not submitted as per instruction given in this document is liable for rejection.

System for decision of L1 bidder

The L1 bidder will be decided based on Overall Quoted Value (i.e. cost to the Company). The system for decision of L1 bidder will be as per following 02(two) cases:-

Case – 1: Supply for which INPUT TAX CREDIT (ITC) is not available to the Company.

For calculation of Overall Bid Value, the GST [CGST, SGST/UTGST, IGST and GST (compensation to state tax)] to be paid by the bidder **or** by CIL/ Subsidiary taken by the system will be added to decide the L1 i.e the ranking of the Bidders will be decided based on rates quoted by the bidders plus GST. This value of the bidder will be "the Cost to Company".
Then share of GST to be deposited by CIL/ Subsidiary, if any will be deducted from overall bid value to arrive at the Contract value. The Price-bids of the tenderers shall have no condition. The Price Bid which is incomplete and not submitted as per instruction given above is liable for rejection.

Case – 2: Supply for which INPUT TAX CREDIT (ITC) is available to the Company.

For calculation of Overall Bid Value, the GST [CGST, SGST/UTGST, IGST and GST (compensation to state tax)] to be paid by the Bidder **or** by CIL/ Subsidiary taken by the system will be ignored to decide the L1 i.e the ranking of the Bidders will be decided based on rates quoted by the bidders excluding GST. This value of the bidder will be "the cost to Company".

Then share of GST to be paid by bidder shall be added with overall bid value to arrive at the Contract value. The Price-bids of the tenderers shall have no condition. The Price Bid which is incomplete and not submitted as per instruction given above is liable for rejection.

Note: The bidder should select their GST category as per clause no. 8.B of NIT.

10. **Bid Submission:**

All bids are to be submitted on-line on the website **https://coalindiatenders.nic.in**. No bid shall be accepted off-line unless otherwise specified.

11. **System Requirement:**

It is the bidder's responsibility to comply with the system requirement i.e. hardware, software and internet connectivity at bidder's premises to access the e-tender website. Under any circumstances, CIL/ Subsidiary shall not be liable to the bidders for any direct/indirect loss or damages incurred by them arising out of incorrect use of the e-tender system or internet connectivity failures.

12. **Opening of Technical Bid:**

Tender will be decrypted and opened online by the "Bid Openers" with their Digital Signature Certificates on/after the prescheduled date & time of Tender Opening.

13. **Technical Evaluation of Tender:**

a. After opening of bid, the documents submitted by L-1 bidder in cover I as enlisted in the NIT will be downloaded by the Evaluator and shall be put up to the Tender

Committee. The tender Committee will examine the uploaded documents against information/declarations furnished by the L1 bidder online. If it confirms to all of the information/declarations furnished by the bidder online and does not change the eligibility status of the bidder then the bidder will be considered eligible for award of Contract.

b. In case the Tender Committee finds that there is some deficiency in uploaded documents corresponding to the information furnished online or in case corresponding document have not been uploaded by L-1 bidder then the same will be specified online by Evaluator clearly indicating the omissions/shortcomings in the uploaded documents and indicating start date and end date allowing 7 days (7 x 24 hours) time for online re-submission by L-1 bidder. The L-1 bidder will get this information on his personalized dashboard under "Upload confirmatory document" link. Additionally, information shall also be sent by system generated email and SMS, but it will be the bidder's responsibility to check the updated status/information on their personalized dash board regularly after opening of bid. No separate communication will be required in this regard. Non-receipt of e- mail and SMS will not be accepted as a reason of non-submission of documents within prescribed time. The L-1 bidder will upload the scanned copy of all those specified documents in support of the information/ declarations furnished by them online within the specified period of 7 days. No further clarification shall be sought from L-1 Bidder.

c. The tender will be evaluated on the basis of documents uploaded by L-1 bidder online. The L-1 bidder is not required to submit hard copy of any document through offline mode. Any document submitted offline will not be given any cognizance in the evaluation of tender.

d. In case the L-1 bidder submits requisite documents online as per NIT, then the bidder will be considered eligible for award of Contract.

e. In case the L-1 bidder fails to submit requisite documents online as per NIT or if any of the information/declaration furnished by L-1 bidder online is found to be wrong by Tender Committee during evaluation of scanned documents uploaded by bidder, which changes the eligibility status of the bidder, then his bid shall be rejected and **EMD of L-1 bidder will be forfeited.**

f. In case the L1 bidder is technically eligible but rejection is due to high rate quoted by him/her then the tender shall be cancelled and retendered.

g. In case the L1 bidder is rejected due to noncompliance of confirmatory documents then the L2 bidder will become L-1 bidder and confirmatory documents of this bidder shall be evaluated by TC and the process shall be followed as mentioned in clause no. A to F above.

h. The process as mentioned at Cl. g shall be repeated till the work is either awarded or all the eligible bidders are exhausted.

i. In case none of the bidder complies the technical requirement, then re-tender will be done (with the same or different quantity, as per the instant requirement).

j. It is responsibility of Bidders to upload legible/clearly readable scanned copy of all the required documents as mentioned in clause no. 9(c).

k. If L1 bidder backs out (i.e. Techno commercially established L1 bidder), the EMD will be forfeited and the bidder will be debarred for minimum one (1) year from participating in tenders in SECL. This banning shall be done under the provisions of the NIT and online blocking of the bidder shall be done in CIL e-Procurement portal.

l. Preference to Make in India (as applicable) vide Order No. P-45021/2/2017-PP (BE-II) dated 16.09.2020, issued by Govt. of India as amended from time to time shall be applicable. (NOT APPLICABLE WHERE ESTIMATED COST PUT TO TENDER IS LESS THAN 5 LAKHS.)

In terms with the above said policy, Class-I local suppliers and Class-II local suppliers shall be eligible to bid. Non-local supplier is not eligible to bid. The purchase preference shall be given to Class-I local supplier only.

In terms of the above said policy, purchase preference shall be given to Class-I local suppliers in the following manner :

I. In the procurement of works which are divisible in nature, the following procedure shall be followed :-

i) Among all qualified bids, the lowest bid will be termed as L-1. If L-1 is from a Class-I local supplier, the contract for full quantity will be awarded to L-1 at L-1 price by the Purchaser.

ii) If L-1 is not a Class-I local supplier, 50% of the order quantity shall be awarded to L-1. Thereafter, the lowest bidder among the Class-I local suppliers will be invited to match the L-1 price for the remaining 50% quantity subject to Class-I local supplier's quoted price falling within the margin of purchase preference, and the contract for that quantity shall be awarded to such local supplier subject to his matching the L-1 price. In case such lowest eligible Class-I supplier fails to match the L-1 price or accept less than the offer quantity, the next higher Class-I local supplier within the margin of purchase preference shall be invited to match the L-1 price for remaining quantity and so on, and contract shall be awarded accordingly. In case some quantity is still left uncovered on Class-I local supplier, then such balance quantity may also be ordered on L-1 bidder.

II. In the procurement of works which are not divisible, and in procurement of services where the bid is evaluated on price alone, the following procedure shall be followed:-

i) Among all qualified bids, the lowest bid will be termed as L-1. If L-1 is from a Class-I local supplier, the contract will be awarded to L-1.

ii) If L-1 is not from a Class-I local supplier, the lowest bidder among the Class-I local suppliers, will be invited to match the L-1 price subject to Class-I local supplier's quoted price falling within the margin of purchase preference, and the contract shall be awarded to such Class-I local supplier subject to matching the L-1 price.

iii) In case such lowest eligible Class-I local supplier fails to match the L-1 price, the

Class-I local supplier with the next higher bid within the margin of purchase preference shall be invited to match the L-1 price and so on and contract shall be awarded accordingly. In case none of the Class-I local suppliers within the margin of purchase preference matches the L-1 price, then the contract may be awarded to the L-1 bidder.

Note: The confirmation from the bidder regarding matching of L1 price may be taken in confirmatory document link of e-Procurement portal by recycling 'Any other document' link.

Verification of local content :

i) All the Bidders at the time of bidding shall submit self-certification indicating the percentage of local content in the offered items in undertaking as per format at Annexure – XV.

ii) CIL/ Subsidiary may constitute committees with internal and external experts for independent verification of auditor's / accountant's certificates on random basis and in the case of complaints.

iii) False declarations will attract banning of business of the bidder for a period up to two year and with process in line with clause 19 of GTC.

iv) A local supplier who has been debarred by any procuring entity for violation of above order shall not be eligible for preference under this Order for procurement by any other procuring entity for the duration of debarment. The debarment for such other procuring entities shall take effect prospectively from the date on which it comes to the notice of other procurement entities.

m. Procurement from Micro and Small Enterprises (MSEs) (APPLICABLE FOR SERVICE NATURE OF TENDERS)

i) Subject to meeting terms and conditions stated in the tender document including but not limiting to prequalification criteria, 25% of the work will be awarded to MSE as defined in MSE Procurement Policy issued by Department of Micro, Small and Medium Enterprises (MSME) for the tendered work/item. Where the tendered work can be split, MSE quoting a price within a price band of L1 + 15% shall be awarded at least 25% of total tendered work provided they match L1 price. In case the tendered work cannot be split, MSE shall be awarded full work provided their quoted price is within a price band of L1 + 15% and they match the L1 price.

ii) In case of more than one such MSEs are in the price band of L1 + 15% and matches the L1 price, the work may be shared proportionately if the job can be split.

If the job cannot be split, then the opportunity to match the L-1 rate of the tender shall be given first to MSE who has quoted lowest rate among the MSEs and the total job shall be awarded to them after matching the L-1 price of the tender, in case the L-1 is other than MSE. If MSE is a L1 Bidder, full work will be awarded to such Bidder. If the MSE who have quoted lowest rate among the MSEs in the price band of L-1 + 15% do not agree to match the rate of L-1 of the tender, then the MSE with next higher quoted rate in the price band of L-1 + 15% shall be given chance to match the rate of L-1 for award of the complete job. This process to be repeated in till work is awarded to MSE or MSE Bidders

are exhausted.

iii) Out of the 25% target of annual procurement from micro and small enterprises 3(three) percent shall be earmarked for procurement from micro and small enterprises owned by women. In the event of failure of such MSEs to participate in the tender process or meet the tender requirements and L1 price, 3(three) percent sub-target so earmarked shall be met from other MSEs.

iv) Out of the 25% target of annual procurement from micro and small enterprises 4(four) percent shall be earmarked for procurement from micro and small enterprises owned by Scheduled Caste & Scheduled Tribe entrepreneurs. In the event of failure of such MSEs to participate in the tender process or meet the tender requirements and L1 price, four percent sub-target so earmarked shall be met from other MSEs.

v) To qualify for entitlement as SC/ST owned MSE, the SC/ST certificate issued by District Authority must be submitted by the bidder in addition to certificate of registration with anyone of the agencies mentioned in paragraph (i) above. The bidder shall be responsible to furnish necessary documentary evidence for enabling CIL/ Subsidiary to ascertain that the MSE is owned by SC/ST. MSE owned by SC/ST is defined as:

- In case of proprietary MSE, proprietor(s) shall be SC /ST
- In case of partnership MSE, The SC/ST partners shall be holding at least 51% shares in the enterprise.
- In case of Private Limited Companies, at least 51% share shall be held by SC/ST promoters.

vi) Classification of Micro and Small Enterprise are as under:

a. Micro Enterprise –Enterprise where the investment in plant and machinery or equipment does not exceed one crore Rupees and turnover does not exceed five core rupees.
b. Small Enterprise- Enterprise where the investment in plant and machinery or equipment does not exceed ten crore Rupees and turnover does not exceed fifty core rupees.

vii) The MSEs should be registered with District Industries Centers (DICs)/ Khadi & Village Industries Commission (KVIC)/ Khadi & Village Industries Board (KVIB)/ Coir Board/ NSIC/ Directorate of Handicrafts and Handloom or any other body specified by Ministry of Micro, Small & Medium Enterprises (MoMSME) are eligible for availing benefits under the Public Procurement Policy for Micro and Small Enterprise (MSEs) Order, 2012.

viii) The MSEs are required to submit copy of documentary evidence, issued by their registering authority whether they are small enterprise or micro enterprise as per provisions of Public Procurement Policy for Micro and Small Enterprise (MSEs) Order, 2012 with latest guidelines/clarifications provided by MoMSME.

14. <u>Auto Extension of Critical Date</u>

If number of bids received online is found to be less than 03(three) on end date of bid submission then the following critical dates of the Tender will be automatically extended for a period of **04 (four) days** ending at 17.00 hrs:

- Last date of submission of Bid.
- Last date of receipt of EMD.
- Date of Opening of Tender.

If any of the above extended Dates falls on Holiday i.e. a non-working day as defined in the e-Procurement Portal then the same is to be rescheduled to the next working day. This extension will be also applicable in case of receipt of zero bid.

Notes:

1. The validity period of tender should be decided based on the final end date of submission of bids.
2. The auto extension shall work on the basis of number of bids received only. It may so happen that any of these bids may be eventually rejected during Tender Opening, Technical evaluation or further process of evaluation resulting the total number of valid bids becoming less than 03(three).
3. After the extension, the tender shall be opened irrespective of available number of bids on the extended date of opening of tender.

15. <u>One Bid per Bidder</u>:

15.1 Each Bidder shall submit only one Bid, either individually, or as a proprietor, or as a partner in a partnership firm or as a partner in a joint venture or as a Company registered under Companies Act. A Bidder who submits or participates in more than one Bid (other than as a sub-contractor or in cases of alternatives that have been permitted or requested) will cause all the proposals with the Bidder's participation to be disqualified.

15.2 Conflict of Interest-

A Bidder may be considered to have a Conflict of Interest with one or more parties in this bidding process, if:

a) they have controlling partner(s) in common; or
b) they receive or have received any direct or indirect subsidy/financial stake from any of them; or
c) they have the same legal representative/agent for purposes of this bid; or
dJ they have relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the bid of another Bidder; or
e) a Bidder or any of its affiliate participated as a consultant in the preparation of the design or technical specification of the contract that is the subject of the bid; or
f) in case of a holding company having more than one Subsidiary/Sister Concern having common business ownership/management only one of them can bid. Bidders must proactively declare such sister/common business/management in same/similar line of Business;

All such Bidders having a Conflict of Interest, shall be disqualified

16. <u>Refund of EMD</u> :

a. If EMD is paid by the Bidder in online mode (Direct Debit/NEFT/RTGS) then the EMD of rejected bidders will be refunded at any stage directly to the account from where it had been received (except the cases where EMD is to be forfeited).

b. No claim from the bidders will be entertained for non-receipt of the refund in any account other than the one from where the money is received.

c. If the refund of EMD is not received by the bidder in the account from which the EMD has been made due to any technical reason then it will be paid through conventional system of e-payment. For this purpose, if required, Tender Inviting Authority will obtain the Mandate Form (as per format enclosed at Annexure-III) from the Bidder.

d. In case the tender is cancelled then EMD of all the participating bidders will be refunded unless it is forfeited by the department.

e. If the bidder withdraws his/her bid online (i.e. before the end date of submission of tender) then his/her EMD will be refunded automatically after the opening of tender.

f. The EMD of successful bidder (on Award of Contract) will be retained by SECL and will be adjusted to Performance Security Deposit at the option of the Bidder.

17. Site Visit:

17.1. The bidder, at the Bidder's own responsibilities, cost and risk, is encouraged to visit and examine the Site of Works and it's surrounding, approach road, soil condition, investigation report, existing works, if any, connected to the tendered work, drawings connected to the work, if / as available and obtain all information that may be necessary for preparing the Bid and entering into a contract for execution of the works. The cost of visiting the Site shall be at the Bidder's own expense.

17.2. It shall be deemed that the Bidder has visited the Site/Area and got fully acquainted with the working conditions and other prevalent conditions and fluctuations thereto whether he/she/they actually visits the Site /Area or not and has taken all the factors into account while quoting his/her/their rates.

17.3. The Bidder is expected, before quoting his rate, to go through the requirement of materials/workmanship, specification, requirements and conditions of contract.

17.4. The Bidder, in preparing the bid, shall rely on the site investigation report referred to in the bid document (if available), supplemented by any information available to the Bidder.

18. Taxes and Duties:

All duties, taxes (excluding Goods and Services Tax (GST) & GST Compensation Cess (if applicable) only) and other levies, royalty, building and construction workers cess (as applicable in States) payable by the bidder/Contractor under the Contract, or for any other cause as applicable on the last date of submission of Bid, shall be included in the rates, prices and the total Bid Price submitted by the Bidder. Applicable GST, if any, either payable by bidder or by company under reverse change mechanism shall be computed by system in BOQ sheet as per predefined logic.

All investments, operating expenses, incidentals, overheads, leads, lifts, carriages, tools and plants etc. as may be attendant upon execution and completion of works shall also be included in the rates, prices and total Bid price submitted by the bidder.
However, such duties, taxes, levies etc. which is notified after the last date of submission of Bid and/or any increase over the rate existing on the last date of submission of Bid shall be reimbursed by the company on production of documentary evidence in support of payment actually made to the concerned authorities.

Similarly, if there is any decrease in such duties, taxes and levies the same shall become recoverable from the contractor. The details of such duties, taxes and other levies along with rates shall be declared by the bidder.

The item wise rate quoted by bidder shall be inclusive of all taxes, duties & levies but excluding GST & GST Compensation Cess, if applicable. The payment of GST and GST Compensation Cess by service availer (i.e. CIL/Subsidiary) to bidder/contractor (if GST payable by bidder/contractor) would be made only on the latter submitting a Bill/invoice in accordance with the provision of relevant GST Act and the rules made

there under and after online filing of valid return on GST portal. Payment of GST & GST Compensation Cess is responsibility of the service provider/contractor.

Further, any GST credit note required to be issued by the bidder / contractor under the GST provisions should be issued within the time limit prescribed under the GST law.

However, in case bidder/contractor is GST unregistered bidder/dealer or GST registered under composition scheme in compliance with GST rules, the bidder/dealer shall not charge any GST and/or GST Compensation Cess on the bill/invoice. In case of unregistered dealer/bidder, GST, if applicable will be deposited by CIL/Subsidiary directly to concerned authorities in terms with GST provisions.
Input tax credit is to be availed by CIL/Subsidiary as per rule.

If CIL/Subsidiary fails to claim Input Tax Credit(ITC) on eligible Inputs, input services and Capital Goods or the ITC claimed is disallowed due to failure on the part of supplier/vendor of goods and services in incorporating the tax invoice issued to CIL/Subsidiary in its relevant returns under GST, payment of CGST & SGST or IGST, GST (Compensation to State) Cess shown in tax invoice to the tax authorities, issue of proper tax invoice or any other reason whatsoever, the applicable taxes & cess paid based on such Tax invoice shall be recovered from the current bills or any other dues of the supplier/vendor along with interest and penalty, if any.

The rates and prices quoted by the Bidder shall be fixed for the duration of the contract and shall not be subject to variations on any account except to the extent variations allowed as per the conditions of the contract of the bidding document.

The company reserves the right to deduct/ withhold any amount towards taxes, levies, etc. and to deal with such amount in terms of the provisions of the Statute or in terms of the direction of any statutory authority and the company shall only provide with certificate towards such deduction and shall not be responsible for any reason whatsoever.

In case of collection of minor minerals in area (both virgin and non-virgin), acquired by the Company under the Coal Act, the contractor will have to produce a royalty clearance certificate from the District Authorities before full and final payment.

Further, where any damages or compensation becomes payable by either the Company or the bidder / contractor pursuant to any provision of this Agreement, appropriate GST wherever applicable as per the GST provisions in force shall also apply in addition to such damages or compensation.

Note:
During the execution of the contract if the GST status of the bidder changes, then the payment of GST, if any, to the contractor will be made as per the GST status declared by the bidder during tender stage based on which cost to company has been ascertained or at actuals, whichever is lower.

19. Cost of Bidding:

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

20. Technical Specifications:

The tenderer shall closely study all specifications in detail, which govern the rates for which he is tendering.

21. Currencies of Bid and Payment:

The unit rates and prices shall be quoted by the Bidder entirely in Indian Rupees only.

22. Handing Over of Site:

On completion of the work all rubbish, debris, brick bats etc. shall be removed by the contractor(s) at his/their own expense and the site cleaned and handed over to the company and he/they shall intimate officially of having completed the work as per contract.

23. Deployment of Manpower and Machineries:

The tenderer(s) will deploy sufficient number and size of equipments/machineries/vehicles and the technical/ supervisory personnel required for execution of the work.

24. Change in Constitution of the Contracting Agency:

Prior approval in writing of the company shall be obtained before any change is made in the constitution of the contracting agency, otherwise it will be treated as a breach of Contract.

25. Canvassing in Tender:

Canvassing in connection with the tenders in any shape or form is strictly prohibited and tenders submitted by such tenderers who resort to canvassing shall be liable for rejection.

26. Letter of Acceptance (LOA)/Work Order/Agreement:

The Bidder, whose Bid has been accepted, will be notified /communicated by the Employer electronically online on the e-procurement portal of CIL prior to expiration of the Bid validity period. The L-1 bidder will get the information regarding award of work on their personalised dash-board on-line. On receipt of Letter of Acceptance (LOA)/Work Order of the tender issued by the Company, the successful tenderer shall execute contract agreement in the company's prescribed form for the due fulfilment of the contract. Failure to enter into the required contract within the specified period in the work order shall entail cancellation of LOA/work order **and the EMD will be forfeited and the bidder will be debarred for minimum one (1) year from participating in tenders in SECL** with intimation to all concerned and online blocking of bidder shall be done on receipt of written communication from the Tender Inviting Authority by application admin of CIL e-Procurement Portal.

27. Bid Validity:

The validity period of the tenders shall be **120 (One Hundred Twenty)** days from the end date of bid submission. The validity period of tender shall be decided based on the final end date of submission of bids.

In exceptional circumstances, prior to expiry of the original time limit, the Employer may request the bidders to extend the period of validity for a specified additional period. The employer's request and the bidder's responses shall be made in writing. A bidder may refuse the request without forfeiting his bid security. A bidder agreeing to the request will not be required or permitted to modify his bid.

The tenderer shall not, during the said period or within the period extended by mutual consent, revoke or cancel his tender or alter the tender or any terms/conditions thereof

without consent in writing of the company. In case the tenderer violates to abide by this, the Company will be entitled to take action as per clause No.28 (Modification and Withdrawal of Bid) of NIT.

28. Modification and Withdrawal of Bid:

Modification of the submitted bid shall be allowed on-line only before the deadline of submission of tender and the bidder may modify and resubmit the bid on-line as many times as he may wish. Bidders may withdraw their bids online within the end date of bid submission and their EMD will be refunded. However, if the bidder once withdraws his bid, he will not be able to resubmit the bid in that particular tender. For withdrawal of bid after the end date of bid submission, the bidder will have to make a request in writing to the Tender Inviting Authority. Withdrawal of bid may be allowed till issue of work order/LOA with the following provision of penal action:

The penal actions are-

1. the EMD will be forfeited and
2. the Bidder will be debarred for minimum one year from participating in tenders in SECL with intimation to all concerned and online blocking of bidder shall be done on receipt of written communication from the Tender Inviting Authority by application admin of CIL e-Procurement Portal.

The Price-bids of all eligible Bidders including this Bidder will be opened and action will follow as under:

i). If the Bidder withdrawing his bid is other than L-1, the tender process shall go on.
ii). If the Bidder withdrawing his bid is L-1, then re-tender will be done.

Note : Penal action against clause (a) & (b) above will be enforced from the date of issue of such order. The standard operating procedure to handle withdrawal of bid after end date of submission shall be as Clause no 29 of NIT.

29. Standard Operating Procedure for Withdrawal of Bid:

I. The Mode of withdrawal: -

A. Online Withdrawal of Bids:

a. The system of online withdrawal is available on the portal up to end date of bid submission, where any bidder can withdraw his/her bid which will attract no penal action from department side.
b. The system of online withdrawal beyond end date of bid submission and till award of contract is also available but not fully functional and under development stage. Once it is developed and implemented only online withdrawal shall be considered except for some exceptional cases as mentioned in clause below.

B. Offline Withdrawal of Bids :

a. A partner of bidder (in case of JV and partnership firms) whose DSC is registered on the e-Procurement portal can access the portal for online withdrawal but when there is a split in the business relationship, the partners whose DSC is not registered on the portal do not have the option of online withdrawal of bid. Hence such partners may opt to use offline method of withdrawal of his/her offer (or express his disassociation from the bidder organization).

b. Till a fully functional system of online withdrawal of bid (beyond end date of bid submission and till award of contract) is not developed and implemented, offline withdrawal shall also be considered.

II. Acceptance of withdrawal by Tender Committee:

A. Every case of withdrawal under Clause I-(A) (b) and Clause I-(B) shall be put up to Tender Committee for deliberation and further course of action.

B. The Tender Committee shall apply its due diligence to decide:

a. Whether the request for withdrawal of offer has been received from right source and authentic. For this purpose a letter is to be sent by registered post/speed post to the bidder on the address as given by him in the enrollment page of e-Procurement portal, allowing 10 days' time to confirm the withdrawal. If the bidder does not confirm the withdrawal within the stipulated period then it should be construed that there is no withdrawal of bid. In case the withdrawal/disassociation from the firm (Joint Venture or Partnership firm) has been submitted by any other partner then also the confirmation has to be sought from the bidder and if bidder wants to deny the withdrawal/disassociation from the JV or the partnership firm then the bidder shall be required to furnish a legally acceptable document signed by all the partners of the firm to substantiate his claim.
b. Whether the withdrawal is due to the reason other than to support any mala fide intention of any participating bidder such as participating or supporting a cartel formation etc.
c. If the mala fide intentions in the withdrawal are apprehended then the tender should be cancelled apart from other penal action as per e-Procurement Manual for works and services of CIL and other guidelines/manuals of CIL.
d. If no mala fide intentions in the withdrawal are apprehended then the penal action in line with the prescriptions of the e-Procurement Manual for works and services of CIL will be applicable.
e. The Tender Committee may also obtain the opinion of legal department in order to ascertain the legal course of action in case of Clause II-(B)(b) and II-(B)(c) above.

30. Postponement of scheduled date(s):

The Company reserves the right to postpone the date of receipt and opening of tenders or to cancel the tenders without assigning any reason whatsoever.

31. Public Enterprises preference:

The Company reserves its right to allow Public Enterprises purchase preference facility as admissible under prevailing policy.

32. Contract Agreement Document(s):

This Tender Notice shall be deemed to be part of the Contract Agreement. The "General Terms & Conditions", Additional Terms & Conditions, Special Terms & Conditions (if any), Technical Specifications, drawings (if any) and any other document uploaded on portal as NIT document forms an integral part of this NIT and shall also form a part of the contract agreement as per clause 2 of General Terms and Conditions.

33. Sub-letting of Work:

No subletting of work as a whole by the contractor is permissible. Subletting of work in piece rated jobs is permissible with the prior approval of the department.

The Contract Agreement will specify major items of supply or services for which the contractor proposes to engage sub-contractor/sub-vendor. The contractor may from

time to time propose any addition or deletion from any such list and will submit proposals in this regard to the Engineer-in -Charge/Designated Officer-in-charge for approval well in advance so as not to impede the progress of work. Such approval of the Engineer-in-Charge/Designated Officer-in-Charge will not relieve the contractor from any of his obligations, duties and responsibilities under the contract.

34. Prohibition of Child Labour engagement:

The contractor/contractual Agencies must not engage any Child Labour during the course of execution of the contract work within the meaning and scope of the Child Labour Prohibition & Regulation Act-1986 and its relevant Act and Rules amended from time to time by the Govt. of India.

35. Implementation of CMPF/EPF:

The tenderer shall have to ensure implementation of **CMPF/EPF,** if applicable, in respect of the workers deployed by him as detailed in the tender document.

36. Splitting up of the work:

The Company does not bind itself to accept the lowest tender and reserves the right to reject any or all the tenders without assigning any reasons whatsoever and to split up the work between two or more tenderer(s) or accept the tender in part and not in its entirety.

37. Settlement of Disputes:

Matters relating to any dispute or difference arising out of this tender and subsequent contract Awarded based on this tender, shall be dealt as per Clause No. 16- title- 'Settlement of Disputes' of the 'General Terms and Conditions' of 'Conditions of Contract' of the tender document.

38. Corrigendum:

Any addendum/corrigendum/date extension etc. in respect of this tender shall be issued on our website (https://coalindiatenders.nic.in) only. No separate notification shall be issued in the press. Bidders are therefore requested to visit our website regularly to keep themselves updated.

39. Restrictions on Procurement from a bidder of a country which shares a land border with India and on sub-contracting to contractors from such countries:

The guidelines as per order no.**F.No.6/18/2019-PPD dt 23/7/2020** of Ministry of Finance, GoI as amended from time to time shall be applicable.

I. Any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with the Competent Authority.
II. "Bidder" (including the term 'tenderer', 'consultant' or 'service provider' in certain context) means any person or firm or company, including any member of a Joint venture (that is an association of several persons or firms or companies), every artificial juridical person not falling in any of the descriptions of bidders stated herein before, including any agency, branch or office controlled by such person, participating in a procurement process.
III. "Bidder from a country which shares a land border with India" for the purpose of order F.No. **6/18/2019-PPD** dated 23.07.2020 means :-
    a. An entity incorporated, established or registered in such a country; **or**

b. A subsidiary of an entity incorporated, established or registered in such a country; **or**
c. An entity substantially controlled through entities incorporated, established or registered in such a country; **or**
d. An entity whose beneficial owner is situated in such a country; **or**
e. An Indian (or other) agent of such an entity; **or**
f. A natural person who is a citizen of such a country; **or**
g. A joint venture where any member of the joint venture falls under any of the above.

IV. "The beneficial owner" for the purpose of (III) above will be as under:

1. In case of a company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person(s), has a controlling ownership interest or who exercises control through other means.

Explanation-

a. "Controlling ownership interest" means ownership of, or entitlement to more than Twenty Five Percent of shares or capital or profits of the company;
b. "Control" shall include the right to appoint the majority of the directors or to control the management or policy decisions, including by virtue of their shareholding or management rights or shareholders agreements or voting agreements;

2. In case of a partnership firm, the beneficial owner is the natural person(s) who, whether acting alone or together, or through one or more juridical person, has ownership of entitlement to more than fifteen percent of capital or profits of the partnership;
3. In case of an unincorporated association or body of individuals, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has ownership of or entitlement to more than fifteen percent of the property or capital or profits of such association or body of individuals.
4. Where no natural person is identified under (1) or (2) or (3) above, the beneficial owner is the relevant natural person who holds the position of senior managing official.
5. In case of a trust, the identification of beneficial owner(s) shall include identification of the author of the trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.

V. An Agent is a person employed to do any act for another, or to represent another in dealings with third person.

VI. The successful bidder shall not be allowed to sub-contract works to any contractor from a country which shares a land border with India unless such contractor is registered with the competent Authority.

Note:

1. (a) The intending bidders must accept unconditionally in General Technical Evaluation (GTE) the Undertaking at **Annexure-II** in compliance to order no.F.No.**6/18/2019-PPD dt 23/7/2020** and as amended from time to time of Ministry of Finance, GoI.

AND

(b) Valid registration from competent authority (if applicable). Registration should be valid at the time of submission of bid and at the time of acceptance of bids.

2. Guidelines issued by Government of India (GoI) regarding registration with Competent Authority and regarding exclusion from restriction may please be referred.

Tender Inviting Authority with Designation

Dy. GM / Staff Officer (Civil)
Sohagpur Area, SECL

ANNEXURE – H

Supply order of 05 nos of truck mounted mist fog forming machine

Testing and Trial of Truck Mounted Mist Fog Machine

Contract

Contract No: GEMC-511687769313013
Generated Date: 14-Jan-2022
Bid/RA/PR No:GEM/2021/B/1472498

Organisation Details

Type:	Central PSU
Ministry:	Ministry of Coal
Department:	Materials Management
Organisation Name:	South Eastern Coalfields Limited
Office Zone:	Secl Bilaspur Cg

Buyer Details

Designation:	DM
Contact No.:	07752-246321-
Email ID:	sahil.watta@nic.in
GSTIN:	22AADCS2066E9ZL
Address:	3RD FLOOR, MM DEPARTMENT, SOUTH EASTERN COALFIELDS LIMITED, PO BOX NO. - 60, SEEPAT ROAD, BILASPUR, CHHATTISGARH-495006, India

Financial Approval Detail

IFD Concurrence:	No
Designation of Administrative Approval:	GM(MM)
Designation of Financial Approval:	GM(F)

Paying Authority Details

Payment Mode:	Offline
Designation:	Manager Finance
Email ID:	subhashis.mukherjee@nic.in
GSTIN:	-
Address:	FINANCE DEPT, SOUTH EASTERN COALFIELDS LIMITED, PO BOX NO. - 60, SEEPAT ROAD, BILASPUR, CHHATTISGARH-495006, India

Seller Details

GeM Seller ID:	42B4180000481920
Company Name:	NATURE GREEN TOOLS & MACHINES PRIVATE LIMITED
Contact No.:	09599785277
Email ID:	gitanjali@ngmgf.com
Address:	Khasra No.-963, 965,Dhoom Maikpur,Opp. Amrit Varsha Factory, Gautam Buddha nagar, UTTAR PRADESH-203207, -
MSME verified:	Yes
MSME Registration number:	UP29A0000540
MSE Social Category:	General
MSE Gender:	Female
GSTIN:	09AACCV6083B1ZC , 09AACCV6083B1ZC

*GST / Tax invoice to be raised in the name of - Consignee

Product Details

#	Item Description	Ordered Quantity	Unit	Unit Price (INR)	Tax Bifurcation (INR)	Price (Inclusive of all Duties and Taxes in INR)
1	**Product Name :** Truck Mounted Long Range Mist/Fog Forming Dust Suppression System Mounted On The Truck Chassis **Brand :** NATURE GREEN **Brand Type :** Registered Brand **Catalogue Status :** Catalogue not verified by OEM **Selling As :** Reseller not verified by OEM Category Name & Quadrant : Truck Mounted Long Range Mist/Fog Forming Dust Suppression System Mounted On The Truck Chassis (Q3) NATURE/Water Mist Cannon HSN not specified by seller	8	pieces	3,816,832	NA	30,534,656
2	**Product Name :** ICT charges for Truck Mounted Long Range Mist/Fog Forming Dust Suppression System Mounted On The Truck Chassis **Brand :** NA **Brand Type :** Unbranded **Catalogue Status :** Catalogue not verified by OEM **Selling As :** Reseller not verified by OEM Category Name & Quadrant : Addon Services for bid (Q3) ICT HSN not specified by seller	8	pieces	38,170	NA	305,360
Total Order Value (in INR)						**30,840,016**

Consignee Detail

S.No	Consignee	Item	Lot	Quantity	Delivery Start	Delivery To Be

			No.		After	Completed By
1	Designation: - Email ID: jk.prajapati@nic.in Contact: 07653-268336- GSTIN: 23AADCS2066E1ZR Address: Depot Officer, Regional Stores, Johilla Area SECL , Naurozabad Dist:Umaria, Madhya Pradesh - 484555, SHAHDOL, MADHYA PRADESH-484555, India	Truck Mounted Long Range Mist/Fog Forming Dust Suppression System Mounted On The Truck Chassis	-	3	14-Jan-2022	14-May-2022
2	Designation: - Email ID: glaxmannaidu.wcl@nic.in Contact: 07652-250236- GSTIN: 23AADCS2066E1ZR Address: REGIONAL STORE, SOHAGPUR AREA, POST-AMLAI, BEHIND AMLAI POLICE STATION., ANUPPUR, MADHYA PRADESH-484116, India	Truck Mounted Long Range Mist/Fog Forming Dust Suppression System Mounted On The Truck Chassis	-	5	14-Jan-2022	14-May-2022

Product Specification for Truck Mounted Long Range Mist/Fog Forming Dust Suppression System Mounted On The Truck Chassis

Specification	Sub-Spec	Value
Custom Specification	Custom Specification	Yes

Installation Commissioning and Testing (ICT) details for the above item:

% of Product Cost Payable on Product Delivery	80 %
Min Cost Allocation for ICT as a % of product cost	1 %
Number of days allowed for ICT after site readiness communication to seller	30 Days

Seller Specification Document:

1. SpecificationDocument1	mkp.gem.gov.in/catalog_data/catalog_support_document/56/14/065/CatalogAttrs/SpecificationDocument/2021/9/28/2021_09_28_17_06_26_technial-data-sheet-letter_comp_2021-09-28-17-06-30_692e5c2d467e4a3853d8715f0b153f24.pdf

Buyer Specification Document:

1. SpecificationDocument	mkp.gem.gov.in/catalog_data/catalog_support_document/buyer_documents/971655/54/78/703/CatalogAttrs/SpecificationDocument/2021/8/27/15361_1626784308950_2021-08-27-13-20-22_a929bd67104be565ae67dd789979b036.pdf

General Clauses w.r.t RCM/FCM

1. Where ever RCM is applicable, for sellers (Regular GST registered seller who opted out of FCM as per notifications of GST like GTA , unregistered seller), Buyer have liability of paying the GST and GST cess to the government on the specified rate mentioned by them in this contract. Seller will invoice buyer with Zero GST and GST cess.
2. For Registered sellers as per FCM, rates will be inclusive of prescribed rate of GST and GST cess. ITC available to buyer as shown in the bid document have been applied while evaluating the bids. Seller has liability of paying the GST and GST cess to the govt and same will be charged from buyer while invoice.
3. For Registered sellers who opted for RCM while quoting for specified category under section 9(3) like GTA rates will be exclusive of GST and GST cess. GST and GST cess as indicated by the buyer in the bid document payment of GST and GST Cess will be the liability of buyer.
4. For Unregistered sellers Liability of payment of GST and GST cess is in Buyers scope. GST and GST cess as indicated by the buyer in the bid document will be the liability of buyer . Unregistered seller will invoice buyer with zero GST and Zero GST cess.
5. For sellers under Composition Scheme: There is no liability of payment of GST and GST cess in Buyers cope. Seller will invoice Zero GST and GST cess in the invoice to buyer.

Terms and Conditions

1. General Terms and Conditions-

1.1 This Contract between the Seller and the Buyer, is for the supply of the Goods and/ or Services, detailed in the schedule above, in accordance with the General Terms and Conditions (GTC) as available on the GeM portal (unless otherwise superseded by Goods / Services specific Special Terms and Conditions (STC) and/ or BID/Reverse Auction Additional Terms and Conditions (ATC), as applicable

1.2 Terms of delivery: Free Delivery at Site including loading/unloading. In respect of items requiring installation and / or commissioning and other services in the scope of supply (as indicated in respective product category specification / STC / ATC), and the cost of the same is also included in the Contract price.

1.2.1 Contracted goods should be delivered at the consignee or designated delivery location as per the working time of the buying organisation. Seller may get the same confirmed from consignee before scheduling delivery.

1.2.2 A copy of the contract should be available with the messenger / dispatching agency that delivers the Goods at consignee / delivery location (preferably pasted / attached outside the consignment / package) for easy reference and ease in delivery acceptance.

1.3 Delivery period: The Delivery Period/Time shall be essence of the Contract and delivery must be completed not later than such date(s). Any modification thereto shall be mutually agreed and incorporated in the Contract as per the provisions of the GTC.

1.4 Performance Security: If the Seller fails or neglects to observe or perform any of his obligations under the contract it shall be lawful for the Buyer to forfeit either in whole or in part, the Performance Security furnished by the Seller.

1.5 Taxes and Duties: Contract Prices are all inclusive i.e. including all taxes, duties, local levies / transportation / loading-unloading charges etc. Break up of GST shall be indicated by the Seller while raising invoice / bill on GeM. While submitting the bill / invoice Seller shall undertake that the Goods and Services Tax (GST) charged on this bill is not more than what is payable under the provision on the relevant Act or the Rules made there under and that the Goods on which GST has been charged have not been exempted under the GST Act or the Rules made there under and the charges on account of GST on these goods are correct under the provision of that Act or the rules made there under.

1.6 Octroi Duty and / or other local taxes:Contract Prices are all inclusive hence no reimbursement over and above the contract price(s) shall be allowed to seller towards payment of local taxes (such as levy of town duty, Octroi Duty, Terminal Tax and other levies of local bodies etc).

1.7 Limitation of Liability: The provisions of limitation of liability between Buyer and Seller as given in the GTC shall be applicable here.

1.8 Resolution of disputes: The provisions of DISPUTE RESOLUTION BETWEEN BUYER AND SELLER as given in the GTC shall be applicable here.

1.9 Liquidated Damages: If the Seller fails to deliver any or all of the Goods/Services within the original/re-fixed delivery period(s) specified in the contract, the Buyer will be entitled to deduct/recover the Liquidated Damages for the delay, unless covered under Force Majeure conditions aforesaid, @ 0.5% per week or part of the week of delayed period as pre-estimated damages not exceeding 10% of the contract value without any controversy/dispute of any sort whatsoever. In case, Service Level Agreement (SLA) is applicable the same shall be applicable for the Contract.

1.10 Financial Certificate:

1.10.1 The expenditure involved for this purpose has received the Sanction of the competent financial authority.

1.10.2 The funds are available under the proper head in the sanction budget allotment for the concern financial year.

1.10.3 I have been fully authorized by the department to sign the supply order or incur the liability of the Goods being ordered.

1.11 The bidder should submit a self declaration to the effect in bidder's official letter head that their agency have not been black listed by any Agency whatsoever till date.

2. Buyer Added Bid Specific Terms and Conditions-

2.1 Scope of supply (Bid price to include all cost components) : Supply Installation Testing Commissioning of Goods and Training of operators and providing Statutory Clearances required (if any)

2.2 Bidder's offer is liable to be rejected if they don't upload any of the certificates / documents sought in the Bid document, ATC and Corrigendum if any.

2.3 Buyer Added text based ATC clauses

Buyer Added text based ATC clauses:

1.1 Experience Criteria: The Bidder or its OEM {themselves or through reseller(s)} should have regularly manufactured and supplied same or similar category products to any Central/ State Govt. Organization/PSU/Public Listed Company during any 01 (one) financial year, before the bid opening date. Same/similar category product means: Dust Suppression System with mist blower/fog forming long range water sprinkler with horizontal throw of 40 meter (min.) mounted on truck chassis / Truck mounted mist cannon dust suppression system / Truck mounted mist cannon Road Sprinkler / Truck Mounted Fog Cannon Dust Suppression System complete with fog cannon machine, Gun set, water tank, Rear Sprinkler system etc.

1.2. To fulfill experience criteria following document shall be submitted with bid:

1.2.1. Copies of relevant Purchase order(s)/supply order(s)/contracts.

1.2.2. Proof of supply/proof of execution of order. Against proof of supply/proof of execution of order, the bidder can also submit self-certificate that supplies against the submitted Purchase/ supply order(s) has been successfully executed.

1.3. Experience criteria is relaxed for Startup/MSE firms as per GeM terms and condition subject to meeting quality & specification. To claim relaxation, startup/MSE manufacturing firms shall submit relevant documents (with bid) as per GeM terms and condition.

Note: The bidder may also submit documents to establish technical capability with bid (e.g. PO copy for same or higher capacity items/NSIC document covering the offered item, other document showing capability to manufacture the offered item). Buyer has the right to inspect the manufacturing facility/factory for assessing technical capability.

1.4. Upload Manufacturer Authorization: Wherever Authorized reseller/agent/dealer/ distributor is submitting the bid, Authorization issued by manufacturer/OEM shall be submitted along with the bid.

1.5. Inspection: Final inspection shall be done at consignee end before acceptance of equipment.

1.6. Clarification/ shortfall document shall be asked and considered only for the documents related to already submitted documents in the original offer or details/information already indicated in the original offer. Clarification/shortfall document will be sought only for historical documents which pre-existed at the time of bid opening. Further, to fulfil experience criteria, the bidder shall submit document (supply order/purchase

order/contract document) with the bid itself with other relevant documents (e.g. proof of execution of order) as per bid requirement. Any new supply order submitted with clarification/shortfall round will not be considered against experience criteria.

1.7 "Warranty period of the supplied products shall be 01 year from the date of completion of installation, commissioning & testing of goods at consignee location. OEM Warranty certificates must be submitted by successful Bidder at the time of delivery of Goods. The seller should guarantee the rectification of goods in case of any break down during the guarantee period".

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2.4 Buyer uploaded ATC document Click here to view the file.

2.5 Bidders are advised to check applicable GST on their own before quoting. Buyer will not take any responsibility in this regards. GST reimbursement will be as per actuals or as per applicable rates (whichever is lower), subject to the maximum of quoted GST %.

2.6

Bidder shall submit the following documents along with their bid for Vendor Code Creation:

a. Copy of PAN Card.

b. Copy of GSTIN.

c. Copy of Cancelled Cheque.

d. Copy of EFT Mandate duly certified by Bank.

2.7 OPTION CLAUSE: The Purchaser reserves the right to increase or decrease the quantity to be ordered up to 25 percent of bid quantity at the time of placement of contract. The purchaser also reserves the right to increase the ordered quantity by up to 25% of the contracted quantity during the currency of the contract at the contracted rates. Bidders are bound to accept the orders accordingly.

2.8 Supplier shall ensure that the Invoice is raised in the name of Consignee with GSTIN of Consignee only.

2.9 1. The Seller shall not assign the Contract in whole or part without obtaining the prior written consent of buyer.
2. The Seller shall not sub-contract the Contract in whole or part to any entity without obtaining the prior written consent of buyer.
3. The Seller shall, notwithstanding the consent and assignment/sub-contract, remain jointly and severally liable and responsible to buyer together with the assignee/ sub-contractor, for and in respect of the due performance of the Contract and the Sellers obligations there under.

2.10 While generating invoice in GeM portal, the seller must upload scanned copy of GST invoice and the screenshot of GST portal confirming payment of GST.

2.11 Without prejudice to Buyer's right to price adjustment by way of discount or any other right or remedy available to Buyer, Buyer may terminate the Contract or any part thereof by a written notice to the Seller, if:
i) The Seller fails to comply with any material term of the Contract.
ii) The Seller informs Buyer of its inability to deliver the Material(s) or any part thereof within the stipulated Delivery Period or such inability otherwise becomes apparent.
iii) The Seller fails to deliver the Material(s) or any part thereof within the stipulated Delivery Period and/or to replace/rectify any rejected or defective Material(s) promptly.
iv) The Seller becomes bankrupt or goes into liquidation.
v) The Seller makes a general assignment for the benefit of creditors.
vi) A receiver is appointed for any substantial property owned by the Seller.
vii) The Seller has misrepresented to Buyer, acting on which misrepresentation Buyer has placed the Purchase Order on the Seller.

2.12 Timely Servicing / rectification of defects during warranty period: After having been notified of the defects / service requirement during warranty period, Seller has to complete the required Service / Rectification within 15 days time limit. If the Seller fails to complete service / rectification with defined time limit, a penalty of 0.5% of Unit Price of the product shall be charged as penalty for each week of delay from the seller. Seller can deposit the penalty with the Buyer directly else the Buyer shall have a right to recover all such penalty amount from the Performance Security (PBG).Cumulative Penalty cannot exceed more than 10% of the total contract value after which the Buyer shall have the right to get the service / rectification done from alternate sources at the risk and cost of the Seller besides forfeiture of PBG. Seller shall be liable to re-imberse the cost of such service / rectification to the Buyer.

2.13 Successful Bidder can submit the Performance Security in the form of Account Payee Demand Draft also (besides PBG which is allowed as per GeM GTC). DD should be made in favour of SOUTH EASTERN COALFIELDS LIMITED, SEEPAT ROAD BILASPURpayable at AXIS BANK LIMITED, RAMA TRADE CENTER, BILASPUR (C.G.), ACC.NO:914020047244694,IFSC - UTIB0000164.. After award of contract, Successful Bidder can upload scanned copy of the DD in place of PBG and has to ensure delivery of hard copy to the original DD to the Buyer within 15 days of award of contract.

2.14 Buyer Organization specific Integrity Pact shall have to be complied by all bidders. Bidders shall have to upload scanned copy of signed integrity pact as per Buyer organizations policy along with bid. Click here to view the file

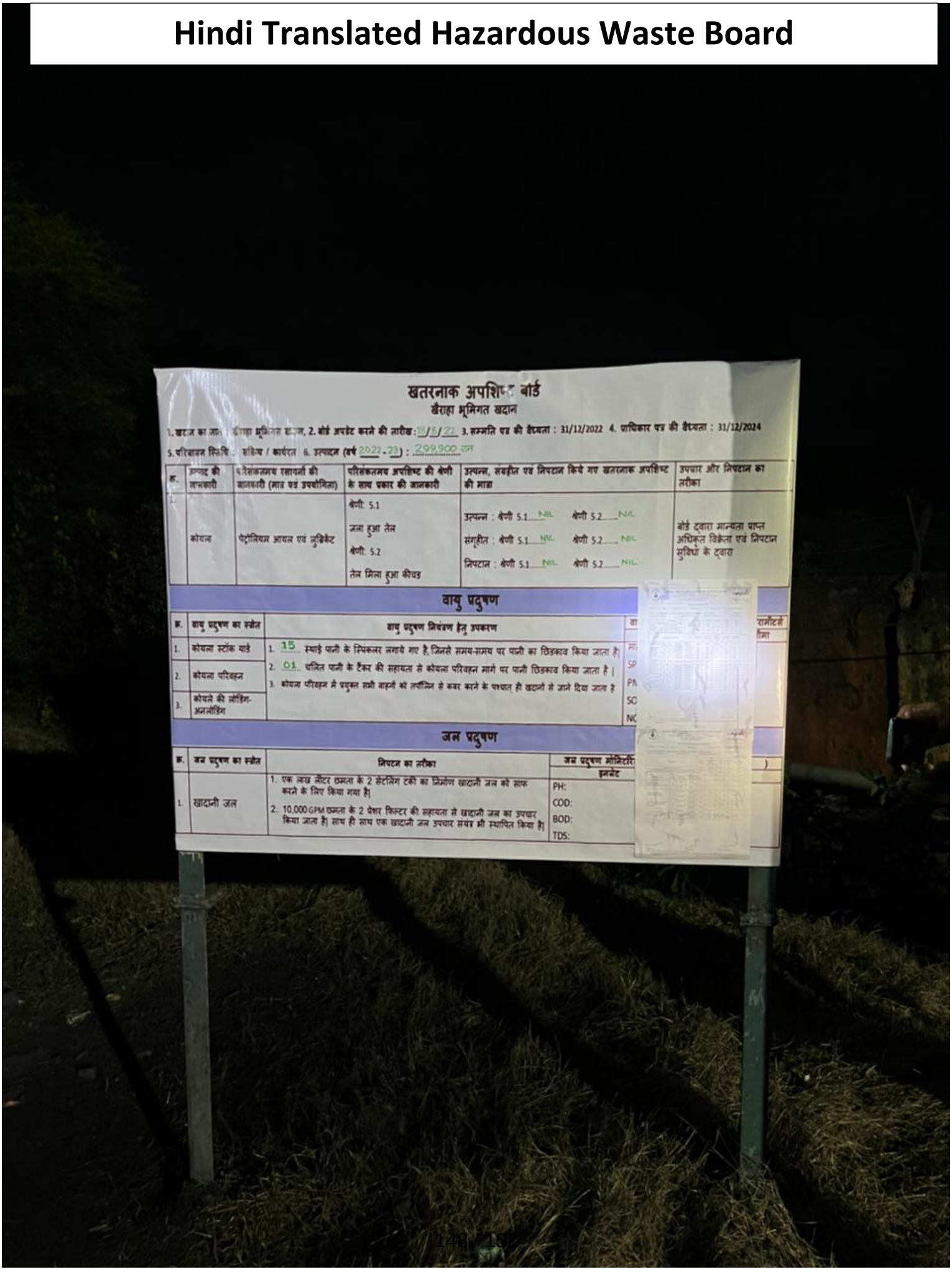
Note: This is system generated file. No signature is required. Print out of this document is not valid for payment/ transaction purpose.

ANNEXURE – I

Photographs of Speed Limit Board and Hindi translated display board

Speed Limit Boards Installed along the Coal Transportation road of Khairaha UG Mine

Hindi Translated Hazardous Waste Board



ANNEXURE – J

Khannath Village drinking water quality report

cmpdi

A Mini-Ratna Company

ENVIRONMENTAL MONITORING REPORT

DRINKING WATER

(SOHAGPUR AREA)

JUNE- 2022

SOUTH EASTERN COALFIELDS LIMITED

(A Mini Ratna Company)

Central Mine Planning & Design Institute Limited
Regional Institute – V, CMPDI Complex,
BILASPUR (C.G.)

INDEX

CENTRAL MINE PLANNING AND DESIGN INSTITUTE LIMITED

cmpdi
A Mini-Ratna Company

Environment Laboratory, Regional Institute-V

DRINKING WATER ANALYSIS REPORT

CMPDI Complex, Songanga Colony
Bilaspur (C.G.)- 495 006
Phone: (07752) 246371
email: hk.gour@coalindia.in; mr.singh@coalindia.in

Month	June	2022	Area	Sohagpur	Report No.	JN22SG
Customer	South Eastern Coalfields Ltd (SECL), Bilaspur				Date of Issue	30-06-2022 15:25
Project	Khairaha UG			Sample Ref. No.	CMPDI/ENV/HSD/22/434, Date:-26.06.2022	
Sampling Stations	i	Drinking water of Khairaha UG F/P			Date of Sampling	25-Jun-2022

Date of Analysis: 25-Jun-2022 to 30-Jun-2022

Sl. No.	Parameter	Method of Analysis	Observed Values		IS 10500: 2012		Uncertainty of Measurement (at 95% Confidence Level & K= 1.96)
			i		Acceptable Limit (Max)*	Permissible Limit in the Absence of Alternate Source (Max)	
1	Colour, Hazen *LDL: 1.0 Hazen*	APHA, 23rd Edition,2017, 2120. C. Spectrophotometric single wavelength method	1		5	15	±1.05 Hazen at 49.86 Hazen
2	Turbidity, NTU LDL: 1.0 NTU	IS 3025 (Part 10):1984, R : 2006, Nephelometric Method	4		1	5	±0.855 NTU at 41.58 NTU
3	Magnesium Hardness, mg/l as $CaCO_3$	IS 3025 (Part 46) : 1992 R : 2009, AAS-Flame Method	103		---	---	---
4	pH *LDL: 4.00*	IS 3025 (Part 11):1983, R : 2012, Electrometric Method	8.21		6.5-8.5	No relaxation	±0.1272 at 7.01
5	Total Alkalinity, mg/l as $CaCO_3$ *LDL: 5.0 mg/l*	IS 3025(Part 23):1986,R 2003 Titration Method	220		200	600	±0.19696 mg/l at 10.0 mg/l
6	Total Hardness, mg/l as $CaCO_3$ *LDL: 4.0 mg/l*	IS 3025 (Part 21):2009, EDTA Method	200		200	600	±11.545 mg/l at 612.8 mg/l
7	Iron, mg/l *LDL: 0.05 mg/l*	IS 3025 (Part 53) :2003, R:2009 AAS-Flame Method	BDL		0.3	No relaxation	±0.0782 mg/l at 7.95 mg/l
8	Chlorides, mg/l *LDL: 5.0 mg/l*	IS 3025(Part 32):1988 , R : 2007, Argentometric Method	24		250	1000	±6.551 mg/l at 253.5 mg/l
9	Residual Free Chlorine, mg/l *LDL: 0.1 mg/l*	APHA, 23rd Edition,2017, 4500G, DPD Colorimetric Method	BDL		0.2	1	±0.0082 mg/l at 0.1 mg/l
10	Total Suspended Solids, mg/l *LDL: 10.0 mg/l*	IS 3025 (Part 17):1984 R : 1996, Gravimetric Method	12			Not Specified	±0.445 mg/l at 24.429 mg/l
11	Total Dissolved Solids, mg/l *LDL: 30.0 mg/l*	IS 3025 (Part 16):1984 R : 2006, Gravimetric Method	334		500	2000	±4.473 mg/l at 592.0 mg/l
12	Calcium, Hardness mg/l as $CaCO_3$	IS 3025 (Part 40): 1991, R : 2009, EDTA Method	97		---	----	---
13	Copper, mg/l *LDL: 0.03 mg/l*	IS 3025 (Part 42) : 1992 R : 2009, AAS-Flame Method	BDL		0.05	1.5	±0.131 mg/l at 4.90 mg/l
14	Sulphate, mg/l *LDL: 2.0 mg/l*	APHA, 23rd Edition,2017, 4500-SO42- E Turbidimetric Method	8.00		200	400	±0.640 mg/l at 19.88 mg/l
15	Fluoride, mg/l *LDL: 0.1 mg/l*	APHA, 23rd Edition,2017, 4500, F- D SPADNS Method	0.23		1	1.5	±0.014 mg/l at 0.98 mg/l
16	COD : mg/l LDL: 8.0 mg/l	APHA, 23rd , Edition, 2017, 5220C, closed Reflux, Titration Method	24			Not Specified	±6.209 mg/l at 247.427 mg/l
17	Lead, mg/l *LDL: 0.005 mg/l*	APHA, 23rd Edition,2017, 3113B, AAS-GTA Method	BDL		0.01	No relaxation	±0.000266 mg/l at 0.005 mg/l
18	Zinc, mg/l LDL: 0.01 mg/l	IS 3025 (Part 49) : 1994, R : 2009, AAS-Flame Method	0.037		5	15	±0.0013 mg/l at 0.01 mg/l
19	Total Solid	IS 3025 Part 15 1984	396		---	---	---
20	Ammonical Nitrogen, mg/l LDL: 0.02 mg/l	APHA, 23rd Edition, 2017 4500-NH, F, Phenate Method	BDL		---	---	±0.0018 mg/l at 0.02 mg/l

**Except Sl. No. 9 for which Acceptable Limit is Min*

LDL indicates Lower Detection Limit & BDL indicates Below Detection Limit

R.K Thakur
Scientific Asst

M. Reagan Singh
Technical Manager

Note: The results above relate to the samples tested as received. This report cannot be reproduced in part or full without the written permission of the HOD (Env), CMPDI, RI-V. The Green, Yellow and Red color highlights in observed values indicate acceptable values, values exceeding acceptable limits but below permissible limits and values exceeding permissible limits respectively.