

**GOVERNMENT OF ANDHRA PRADESH  
ABSTRACT**

**FOREST DEPARTMENT - Diversion of Forest Land 236 ha. for OCP-I Koyyagudem in Chatakonda Reserve Forest in favour of M/s Singareni Collarries Company Limited - Permission - Accorded.**

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**ENVIRONMENT, FORESTS, SCIENCE & TECHNOLOGY (FOR.I) DEPARTMENT**

G.O.Ms.No.48

Dated: 4th June, 2001

Read the following :-

1. From Prl.CCF., Hyd. Lr.No.19903/97/F1, dt.22.1.1999.
2. From Prl.CCF., Hyd. Lr.No.19903/97/F1, dt.3.5.1999.
3. State Govt. Lr.No.4975/For.I/99-1, dt.19.11.1999.
4. From GOI, MoEF, New Delhi, Lr.No.8-113/99-FC, dt.14.5.2001.

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**ORDER:-**

The Principal Chief Conservator of Forests in his letters 1st and 2nd read above had submitted a proposal for diversion of 236 ha. of forest land in compartment No.36 & 37 of Chatakonda Reserve Forests, Kothagudem Division for OCP-I Koyyagudem Mining lease in favour of M/s Singareni Collarries Company Limited and requested the Government to forward the proposal to Government of India for their approval under section 2 of Forest (Conservation) Act, 1980.

2. The above said proposal had been sent to Government of India for their approval under Forest (Conservation) Act, 1980 vide letter 3rd read above.

3. The Government of India in their letter 4th read above had conveyed their approval under section 2 of Forest (Conservation) Act, 1980 for diversion of 236 ha. forest land for open cast mining of coal for Koyyagudem mining lease in favour of M/s Singareni Collarries Company Limited in Khammam District subject to certain conditions.

4. The Government after consideration of the proposal hereby accord permission for diversion of 236 ha. of forest land in compartment No.36 & 37 of Chatakonda Reserve Forests, Kothagudem Division for OCP-I Koyyagudem Mining lease in favour of M/s Singareni Collarries Company Limited subject to the following conditions.

- (a) Legal status of forest land shall remain unchanged.
- (b) Compensatory afforestation will be carried out over equivalent non-forest land at the cost of user agency.
- (c) The non-forest land transferred to Forest Department for compensatory afforestation shall be declared Protected Forest/ Reserve Forest under Indian Forest Act, 1927.
- (d) Lease period shall be for 30 years w.e.f. date of issue of GOI letter dt.14.5.2001.
- (e) Phased reclamation plan will be implemented by the user agency at their cost.
- (f) The forest land shall not be used for any purpose other than that

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- (g) Fencing, protection and regeneration of the safety zone area will be done at the project cost. Besides this, afforestation over one and half times of safety zone area in degraded forest elsewhere will be done at the project cost.
- (h) Demarcation of mining lease area will be done on the ground using four feet high reinforced cement concrete pillars with serial numbers, forward & back bearings and distance from pillar to pillar at project cost.
- (i) The approval under the Forest (Conservation) Act, 1980 is subject to the clearance under the Environmental Protection Act, '86.
- (j) Adequate measures will be taken to compensate the bonafide users of the part of forest land as per the guidelines of the State Government.
- (k) The user agency will make arrangement for free supply of fuel wood preferably alternate energy source to labourers and staff working on the project site so as to avoid any pressure on the adjacent forest areas.
- (l) Any other conditions which the State Government or Chief Conservator of Forests (Central) Bangalore may stipulate from time to time in the interest of afforestation and protection and improvement of flora and fauna of the area.

(BY ORDER AND IN THE NAME OF THE GOVERNOR OF ANDHRA PRADESH)

C.MADHUKAR RAJ  
SPECIAL SECRETARY TO GOVERNMENT

To

The Principal Chief Conservator of Forests, AP, Hyd.

Copy to:-

The Secretary to Government of India,  
Ministry of Environment & Forests,  
Paryavaran Bhavan, CGO Complex,  
Lodi Road, New Delhi.

The Chief Conservator of Forests (C),  
Government of India,  
Ministry of Environment & Forests,  
Regional Office (Southern Zone),  
Kendriya Sadan, IV th Floor, E& F 1  
17th Main Road, II Block,  
Koramangala, Bangalore - 560 034.

Sf/Sc.

// FORWARDED :: BY ORDER //

Copy to:

Govt. of T.S.  
GOVERNMENT OF TALANGANA  
ABSTRACT

Forest Conservation Act - Proposal for diversion of 231.84 Ha of Forest land in Chatakonda Reserve Forest of Kothagudem Division, for Koyagudem OC-II (Phase-II) Coal Mining Project, in favour of Singareni Collieries Company Limited located in Khammam district - Final (stage-II) approval - Accorded.

ENVIRONMENT, FORESTS, SCIENCE & TECHNOLOGY (FOR.I) DEPARTMENT

G.O. No. 22

Dated: 01.06.2017  
Read the following:

1. From PCCF, A.P., Hyd., Lr.No.3830/2011-F1, Dated:01.06.2013.
2. Govt. Letter No. 6116/FOR.I (1)/2012, EFS&T (For.I) Dept. Dated: Dt.12.11.2013.
3. From Govt. of India, MoEF, New Delhi Lr.No. F.No.8-22/2014-FC Dt.16.03.2015.
4. From PCCF, T.S., Hyd., Lr.No.3830/2011/FCA-1/TS, Dated:23.02.2016.
5. Govt. Letter No.6116/FOR.I (1)/2012, EFS&T (For.I) Dept. Dated: 04.03.2016.
6. From Govt. of India, MoEF, New Delhi, Lr.No. F.No.8-22/2014-FC dt. 18.04.2017.

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ORDER

In his letter 1<sup>st</sup> read above, the Pri. Chief Conservator of Forests (HoFF), A.P., Hyderabad has furnished a proposal for diversion of 231.84 Ha of Forest land in Chatakonda Reserve Forest of Kothagudem Division, for Koyagudem OC-II (Phase-II) Coal Mining Project, in favour of Singareni Collieries Company Limited located in Khammam district.

2. In the letter 2<sup>nd</sup> read above, the proposal in para-1 above was forwarded to Government of India, Ministry of Environment & Forests, New Delhi for granting approval under section -2 of the Forest (C) Act, 1980.

3. In their letter 3<sup>rd</sup> read above, the Ministry of Environment & Forests, GoI have granted in-principle (Stage-I) approval for the above proposal, subject to fulfillment of the conditions stipulated thereof.

4. In the letter 5<sup>th</sup> read above, Government of Telangana have sent the report of compliance on the conditions stipulated by GoI, as submitted by the Pri. Chief Conservator of Forests, Telangana State, Hyderabad in his letter 4<sup>th</sup> read above, to the Ministry of Environment & Forests, New Delhi for according necessary approval.

5. In their letter 6<sup>th</sup> read above, the Central Government have granted final approval for the proposal in para 1 above, under Section 2 of the Forest (C) Act, 1980, subject to fulfillment of the conditions stipulated therein.

6. Accordingly, Government hereby accord **final (Stage-II)** approval for diversion of 231.84 Ha of Forest land in Chatakonda Reserve Forest of Kothagudem Division, for Koyagudem OC-II (Phase-II) Coal Mining Project, in favour of Singareni Collieries Company Limited located in Khammam district under section-2 of the Forest Conservation Act, 1980, subject to fulfillment of the following conditions:-

- (i) Legal status of the diverted forest land shall remain unchanged;

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- (ii) Few identified compensatory afforestation sites in degraded forest land was not suitable for plantation, accordingly, the Regional Office, Chennai was requested to inspect the site identified for Compensatory Afforestation for the proposal and report the suitability of degraded forest land for Compensatory Afforestation and the Regional Office, Chennai, after DSS analysis and the Google Maps along with site inspection, recommended that the moderately dense forest may be excluded for the planting of additional area in the Compartment No.311. Therefore, the total available area suitable for planting shall be as below: -

Compt.No.	Available CA area suitable for planting (Ha)
312 & 307	130 (Open Forest-129, Non-Forest-1)
311	79 (Open Forest-72, Non-Forest-7)
310	62 (Open Forest-41, Non-Forest-21)
293	208 (Open Forest-199, Non-Forest-9)
<b>Total area in (Ha)</b>	<b>479</b>

Thus, the required compensatory afforestation of 464 ha. from the suitable area of 479 ha. as stated above in lieu of the forest land proposed to be diverted shall be raised within a period of three years with effect from the date of issue of Stage-II clearance and maintained thereafter in accordance with the approved Plan in consultation, with the State Forest Department at the cost of the user agency;

**AP \* (iii)** Following activities shall be ensured by the State Govt. as per approved plan at the project cost:

- (a) Appropriate mitigative measures to minimize soil erosion and choking of streams;
- (b) Planting or adequate drought hardy plant species and sowing of seeds in the appropriate area within the mining lease to arrest soil erosion;
- (c) Construction of check dams, retention/toe walls along the contour to arrest sliding down of the excavated material;
- (d) Stabilize the overburden dumps by appropriate grading/benching so as to ensure that the angles of repose at any given place is less than 28o; and
- (e) Strict adherence to the prescribed top-soil management.

(iv) The user agency shall pay the additional amount of NPV, if so determined, as per the final decision of the Hon'ble Supreme Court of India;

**AP \* (v)** The User Agency shall obtain the Environment Clearance as per the provisions of the Environmental (Protection) Act, 1986, before work for the project is initiated;

**AP \* (vi)** The State Govt. shall ensure the implementation of approved Wildlife Conservation Plan to mitigate impact of project on Kinnerasani Wildlife sanctuary and other habitats of wildlife located in and around the forest land proposed to be diverted at the cost of user agency.

(Contd. -)



(vii) The State Govt. shall ensure that each family being displaced from the project site and settles on non-forest land to prevent illegal occupation/encroachment of the forest land by them. Apart from taking other measures to achieve the said objective, as a measure to discourage the project affected families from encroachment on the forest land, payment of annuity for a period of at least five years at the rate of the minimum wage payable to the unskilled person for 200 person-days per annum to each adult member of the project affected families, on receipt of a certificate signed by a forest officer not below the rank of a Range Officer having jurisdiction over the area where such person has settled after displacement from the project site. In addition, the User Agency shall track location of each displaced family and ensure that none of them encroach/occupy forest land. The State Govt. shall implement the approved R&R plan at the cost of the user agency. In support of compliance to this condition at least for five years from the date of taking possession of the forest land, the User Agency shall submit an annual certificate to the Principal Chief Conservator of Forests, Telangana that none of the persons displaced from the project land has encroached/settled on the forest land during the year;

(viii) The user agency in consultation with State Forest Department shall erect chain-link fence of suitable gauge to a height of 2.0 m around the safety zone area to prevent entry of the wildlife into the mining area;

(ix) The mined area (dugout pits) shall be refilled with fertile soil and bench terracing be done, if required, besides raising plantation with tall plants of native species at the cost of the user agency as a part of reclamation of the mined area;

→ (x) Boundary of the individual mines and safety zone shall be demarcated by erecting RCC pillars to avoid disputes among the lease holders as well as to check encroachment into adjoining forests;

(xi) The State Govt. ensure that the suitable bridges/quality roads shall be constructed at all low lying spots being frequently damaged due to movement of lorries with heavy loads of coal at the cost of the user agency;

AP → (xii) User agency in consultation with the State Forest Department shall create and maintain alternate habitat/home for the avifauna whose nesting trees are to be cleared in this project. Bird nests artificially made out of eco-friendly materials shall be used in the area including forest area and human settlements, adjoining the forest area being diverted for the project;

AP → (xiii) Fencing, protection and regeneration of the safety zone area [7.5 meters strip all along the outer boundary or the mining lease area as recommended by the state govt.] shall be done within three years at the project cost as per approved scheme. Besides this afforestation on degraded forest land to be selected elsewhere measuring one & a half times the area under safety zone shall also be done at the project cost;

AP → (xiv) The period of diversion of the said forest land under this approval shall be for a period co-terminus with the period of the mining lease proposed to be granted under the Mines and Minerals (Development & Regulating) Act, 1957, as amended or Rules framed there under;

(Contd...)

- AP → (xv) The User Agency in consultation with State forest Department shall under take gap planting and soil & moisture conservation activities to restock and rejuvenate the degraded open forests (having crown density less than 0.4), if any, located in the area within 100 m. from outer perimeter of the mining lease;
- AG → (xvi) The State Govt. and the User agency shall ensure de-silting of the village tanks and other water bodies located within five km from the mine lease boundary for which GPS coordinates given so as to mitigate the impact of siltation of such tanks/water bodies, whenever required, preferably within five years;
- (xvii) The User Agency shall undertake mining in a phased manner after taking due care for reclamation of the mined over area. The concurrent reclamation plan shall be executed by the User Agency from the very first year, and an annual report on implementation there of shall be submitted to the Nodal Officer, Forest (Conservation) Act, 1980, Government of Odisha and the Addl. Principal Chief Conservator of Forests (Central), Ministry of Environment & Forests, Regional Office (Southern Eastern Zone), Chennai. If it is found from the annual report that the activities indicated in the concurrent reclamation plan are not being executed by the User Agency, the Nodal Officer or the Addl. Principal Chief Conservator of Forests (Central) may direct that the mining activities shall remain suspended till such time, such reclamation activities are satisfactorily executed;
- (xviii) The State Govt. and the User Agency shall ensure that no labour camp shall be established on the forest land;
- (xix) The State Govt. shall ensure that the User Agency shall provide firewood preferably alternate fuel to the labourers and the staff working at the site so as to avoid any damage and pressure on the adjacent forest areas;
- (xx) The boundary of the mining lease and safety zone shall be demarcated on ground at the project cost, by erecting four feet high reinforced cement concrete pillars, each inscribed with its serial number, forward and back bearing, distance from pillar to pillar and GPS co-ordinates;
- (xxi) The forest land shall not be used for any purpose other than that specified in the proposal;
- (xxii) Any other condition that the Regional Office (Southern Zone), Chennai of this Ministry and the State Govt. may stipulate, from time to time, in the interest of conservation, protection and development of forests & wildlife;
- (xxiii) All other conditions stipulated in the Stage-I approval for which the user agency has submitted undertakings shall be complied with;
- (xxiv) The User Agency shall submit annual report on compliance to conditions stipulated in this clearance and also to the conditions stipulated in the Stage-I approval for which the user agency submitted undertakings, to the State Government, concerned Regional Office and this Ministry by the end of March every year regularly;

(xiv) The User Agency and the State Government shall ensure compliance to provisions of the all Acts, Rules, Regulations, Guidelines and Hon'ble Court's order(s) pertaining to this project for the time being in force, as applicable to the project.

7. The Principal Chief Conservator of Forests (HoFF), Telangana State, Hyderabad shall take necessary action, accordingly.

(BY ORDER AND IN THE NAME OF THE GOVERNOR OF TELANGANA)

B.R. MEENA  
SPECIAL CHIEF SECRETARY TO GOVERNMENT

To  
~~The~~ Principal Chief Conservator of Forests (HoFF),  
Telangana State, Hyderabad.

Copy to:  
M/s. Singareni Collieries Company Limited (SCCL) and User Agency.

The Director, Government of India, Ministry of Environment & Forests and  
Climate Change, Indira Paryavaran Bhawan, Aliganj, Jorbagh Road, New  
Delhi 110 003.

SC.

//FORWARDED:: BY ORDER//

  
SECTION OFFICER

Govt. of T.S.  
GOVERNMENT OF TALANGANA  
ABSTRACT

Forest Conservation Act - Proposal for diversion of 231.84 Ha of Forest land in Chatakonda Reserve Forest of Kothagudem Division, for Koyagudem OC-II (Phase-II) Coal Mining Project, in favour of Singareni Collieries Company Limited located in Khammam district - Final (stage-II) approval - Accorded.

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G.O. No. 22

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ORDER

In his letter 1<sup>st</sup> read above, the Pri. Chief Conservator of Forests (HoFF), A.P., Hyderabad has furnished a proposal for diversion of 231.84 Ha of Forest land in Chatakonda Reserve Forest of Kothagudem Division, for Koyagudem OC-II (Phase-II) Coal Mining Project, in favour of Singareni Collieries Company Limited located in Khammam district.

2. In the letter 2<sup>nd</sup> read above, the proposal in para-1 above was forwarded to Government of India, Ministry of Environment & Forests, New Delhi for granting approval under section -2 of the Forest (C) Act, 1980.

3. In their letter 3<sup>rd</sup> read above, the Ministry of Environment & Forests, GoI have granted in-principle (Stage-I) approval for the above proposal, subject to fulfillment of the conditions stipulated thereof.

4. In the letter 5<sup>th</sup> read above, Government of Telangana have sent the report of compliance on the conditions stipulated by GoI, as submitted by the Pri. Chief Conservator of Forests, Telangana State, Hyderabad in his letter 4<sup>th</sup> read above, to the Ministry of Environment & Forests, New Delhi for according necessary approval.

5. In their letter 6<sup>th</sup> read above, the Central Government have granted final approval for the proposal in para 1 above, under Section 2 of the Forest (C) Act, 1980, subject to fulfillment of the conditions stipulated therein.

6. Accordingly, Government hereby accord **final (Stage-II)** approval for diversion of 231.84 Ha of Forest land in Chatakonda Reserve Forest of Kothagudem Division, for Koyagudem OC-II (Phase-II) Coal Mining Project, in favour of Singareni Collieries Company Limited located in Khammam district under section-2 of the Forest Conservation Act, 1980, subject to fulfillment of the following conditions:-

- (i) Legal status of the diverted forest land shall remain unchanged;

(PTO)

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announced  
6/6/17

9/6/17  
PCA-1/ps  
in final





- (ii) Few identified compensatory afforestation sites in degraded forest land was not suitable for plantation, accordingly, the Regional Office, Chennai was requested to inspect the site identified for Compensatory Afforestation for the proposal and report the suitability of degraded forest land for Compensatory Afforestation and the Regional Office, Chennai, after DSS analysis and the Google Maps along with site inspection, recommended that the moderately dense forest may be excluded for the planting of additional area in the Compartment No.311. Therefore, the total available area suitable for planting shall be as below: -

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Thus, the required compensatory afforestation of 464 ha. from the suitable area of 479 ha. as stated above in lieu of the forest land proposed to be diverted shall be raised within a period of three years with effect from the date of issue of Stage-II clearance and maintained thereafter in accordance with the approved Plan in consultation, with the State Forest Department at the cost of the user agency;

**AP \* (iii)** Following activities shall be ensured by the State Govt. as per approved plan at the project cost:

- (a) Appropriate mitigative measures to minimize soil erosion and choking of streams;
- (b) Planting or adequate drought hardy plant species and sowing of seeds in the appropriate area within the mining lease to arrest soil erosion;
- (c) Construction of check dams, retention/toe walls along the contour to arrest sliding down of the excavated material;
- (d) Stabilize the overburden dumps by appropriate grading/benching so as to ensure that the angles of repose at any given place is less than 28o; and
- (e) Strict adherence to the prescribed top-soil management.

(iv) The user agency shall pay the additional amount of NPV, if so determined, as per the final decision of the Hon'ble Supreme Court of India;

**AP \* (v)** The User Agency shall obtain the Environment Clearance as per the provisions of the Environmental (Protection) Act, 1986, before work for the project is initiated;

**AP \* (vi)** The State Govt. shall ensure the implementation of approved Wildlife Conservation Plan to mitigate impact of project on Kinnerasani Wildlife sanctuary and other habitats of wildlife located in and around the forest land proposed to be diverted at the cost of user agency.

(Contd. -)

(vii) The State Govt. shall ensure that each family being displaced from the project site and settles on non-forest land to prevent illegal occupation/encroachment of the forest land by them. Apart from taking other measures to achieve the said objective, as a measure to discourage the project affected families from encroachment on the forest land, payment of annuity for a period of at least five years at the rate of the minimum wage payable to the unskilled person for 200 person-days per annum to each adult member of the project affected families, on receipt of a certificate signed by a forest officer not below the rank of a Range Officer having jurisdiction over the area where such person has settled after displacement from the project site. In addition, the User Agency shall track location of each displaced family and ensure that none of them encroach/occupy forest land. The State Govt. shall implement the approved R&R plan at the cost of the user agency. In support of compliance to this condition at least for five years from the date of taking possession of the forest land, the User Agency shall submit an annual certificate to the Principal Chief Conservator of Forests, Telangana that none of the persons displaced from the project land has encroached/settled on the forest land during the year;

(viii) The user agency in consultation with State Forest Department shall erect chain-link fence of suitable gauge to a height of 2.0 m around the safety zone area to prevent entry of the wildlife into the mining area;

(ix) The mined area (dugout pits) shall be refilled with fertile soil and bench terracing be done, if required, besides raising plantation with tall plants of native species at the cost of the user agency as a part of reclamation of the mined area;

→ (x) Boundary of the individual mines and safety zone shall be demarcated by erecting RCC pillars to avoid disputes among the lease holders as well as to check encroachment into adjoining forests;

(xi) The State Govt. ensure that the suitable bridges/quality roads shall be constructed at all low lying spots being frequently damaged due to movement of lorries with heavy loads of coal at the cost of the user agency;

AP → (xii) User agency in consultation with the State Forest Department shall create and maintain alternate habitat/home for the avifauna whose nesting trees are to be cleared in this project. Bird nests artificially made out of eco-friendly materials shall be used in the area including forest area and human settlements, adjoining the forest area being diverted for the project;

AP → (xiii) Fencing, protection and regeneration of the safety zone area [7.5 meters strip all along the outer boundary or the mining lease area as recommended by the state govt.] shall be done within three years at the project cost as per approved scheme. Besides this afforestation on degraded forest land to be selected elsewhere measuring one & a half times the area under safety zone shall also be done at the project cost;

AP → (xiv) The period of diversion of the said forest land under this approval shall be for a period co-terminus with the period of the mining lease proposed to be granted under the Mines and Minerals (Development & Regulating) Act, 1957, as amended or Rules framed there under;

(Contd...)

- AP → (xv) The User Agency in consultation with State forest Department shall under take gap planting and soil & moisture conservation activities to restock and rejuvenate the degraded open forests (having crown density less than 0.4), if any, located in the area within 100 m. from outer perimeter of the mining lease;
- AG → (xvi) The State Govt. and the User agency shall ensure de-silting of the village tanks and other water bodies located within five km from the mine lease boundary for which GPS coordinates given so as to mitigate the impact of siltation of such tanks/water bodies, whenever required, preferably within five years;
- (xvii) The User Agency shall undertake mining in a phased manner after taking due care for reclamation of the mined over area. The concurrent reclamation plan shall be executed by the User Agency from the very first year, and an annual report on implementation there of shall be submitted to the Nodal Officer, Forest (Conservation) Act, 1980, Government of Odisha and the Addl. Principal Chief Conservator of Forests (Central), Ministry of Environment & Forests, Regional Office (Southern Eastern Zone), Chennai. If it is found from the annual report that the activities indicated in the concurrent reclamation plan are not being executed by the User Agency, the Nodal Officer or the Addl. Principal Chief Conservator of Forests (Central) may direct that the mining activities shall remain suspended till such time, such reclamation activities are satisfactorily executed;
- (xviii) The State Govt. and the User Agency shall ensure that no labour camp shall be established on the forest land;
- (xix) The State Govt. shall ensure that the User Agency shall provide firewood preferably alternate fuel to the labourers and the staff working at the site so as to avoid any damage and pressure on the adjacent forest areas;
- (xx) The boundary of the mining lease and safety zone shall be demarcated on ground at the project cost, by erecting four feet high reinforced cement concrete pillars, each inscribed with its serial number, forward and back bearing, distance from pillar to pillar and GPS co-ordinates;
- (xxi) The forest land shall not be used for any purpose other than that specified in the proposal;
- (xxii) Any other condition that the Regional Office (Southern Zone), Chennai of this Ministry and the State Govt. may stipulate, from time to time, in the interest of conservation, protection and development of forests & wildlife;
- (xxiii) All other conditions stipulated in the Stage-I approval for which the user agency has submitted undertakings shall be complied with;
- (xxiv) The User Agency shall submit annual report on compliance to conditions stipulated in this clearance and also to the conditions stipulated in the Stage-I approval for which the user agency submitted undertakings, to the State Government, concerned Regional Office and this Ministry by the end of March every year regularly;



(xiv) The User Agency and the State Government shall ensure compliance to provisions of the all Acts, Rules, Regulations, Guidelines and Hon'ble Court's order(s) pertaining to this project for the time being in force, as applicable to the project.

7. The Principal Chief Conservator of Forests (HoFF), Telangana State, Hyderabad shall take necessary action, accordingly.

(BY ORDER AND IN THE NAME OF THE GOVERNOR OF TELANGANA)

B.R. MEENA  
SPECIAL CHIEF SECRETARY TO GOVERNMENT

To  
~~The~~ Principal Chief Conservator of Forests (HoFF),  
Telangana State, Hyderabad.

Copy to:  
M/s. Singareni Collieries Company Limited (SCCL) and User Agency.

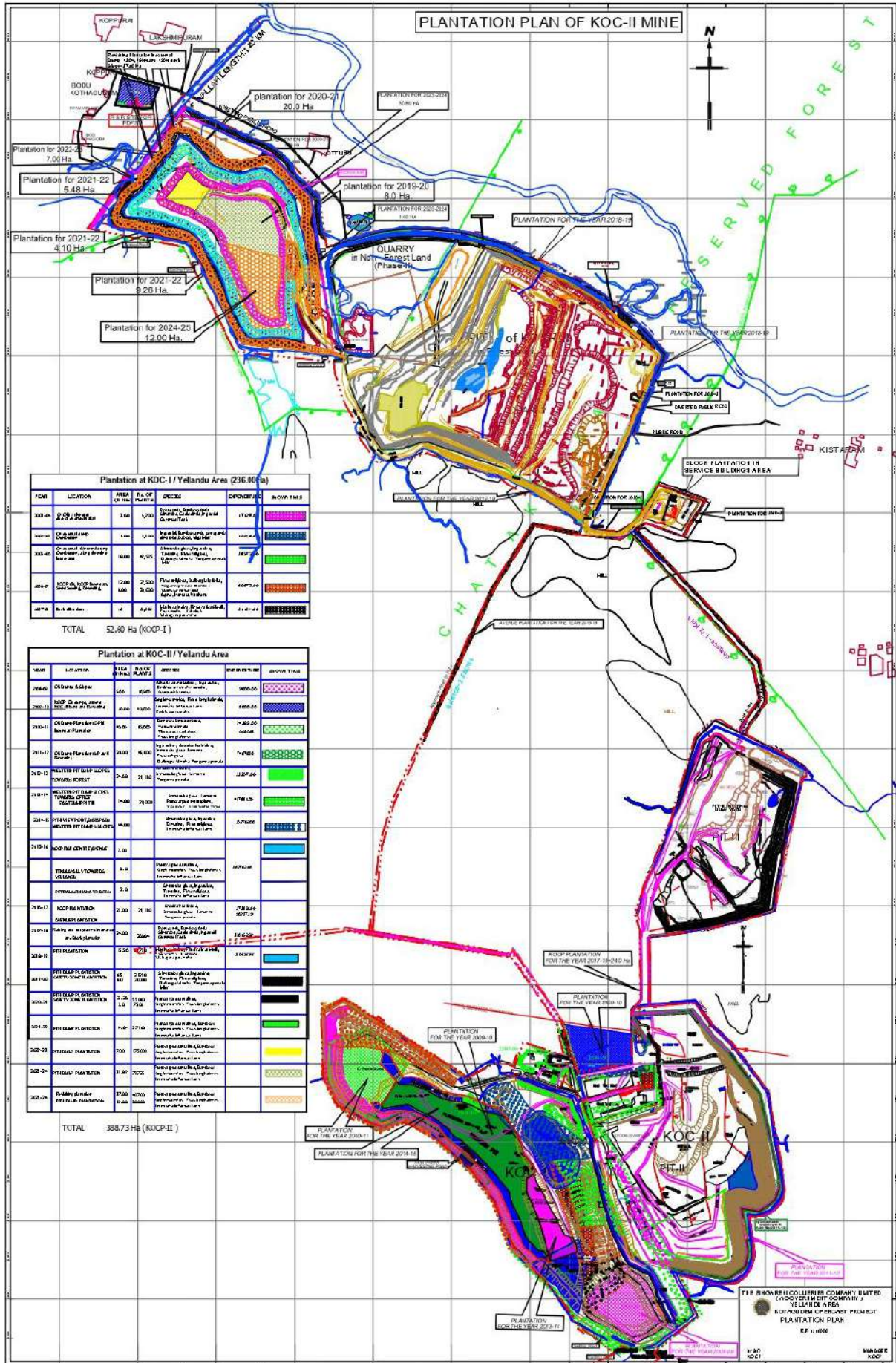
The Director, Government of India, Ministry of Environment & Forests and  
Climate Change, Indira Paryavaran Bhawan, Aliganj, Jorbagh Road, New  
Delhi 110 003.

SC.

//FORWARDED:: BY ORDER//

  
SECTION OFFICER

Plantation Plan



YEAR WISE PLANTATION DETAILS IN KOCP-II

YEAR	AREA(Ha)
2008-2009	5.00
2009-2010	20.00
2010-2011	40.00
2011-2012	20.00
2012-2013	24.68
2013-2014	14.00
2014-2015	44.00
2015-2016	9.00
2016-2017	25.00
2017-2018	24.00
2018-2019	15.56
2019-2020	16.50
2020-2021	28.26
2021-2022	14.84
2022-2023	7.00
2023-2024	31.89
2024-2025	49.00
<b>TOTAL</b>	<b>388.73</b>



GOVERNMENT OF TELANGANA  
GROUND WATER DEPARTMENT

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(4)

From:  
M.Ramesh., M.Sc,  
District Ground Water Officer  
Ground Water Department  
Bhadradi Kothagudem District

To:  
General Manager,  
Singareni Collieries Company Limited,  
Yellandu Area,

Lr.No: 321/SCCL/2021, dt. 16/10/2024.

Sir,

Sub: DGWO, Ground Water Department, Bhadradi Kothagudem – TGWLTA – Telangana Ground Water Extraction Rules 2023 – Mining Projects “ NO OBJECTION CERTIFICATE” for Ground Water Extraction /Dewatering – Issued - Reg.

Ref: 1. Director, Ground Water Department, Hyderabad, Memo No.2182/Hgl/2018-1, Dated: 04.10.2024.

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Kind attention is invited to the subject and reference cited wherein, the Director Ground Water Department, Hyderabad has issued a No Objection Certificate (NOC) for the groundwater extraction and dewatering operations for the following mining project subject to the undertaking given by SCCL for installation of flow meters within 30 days (Specifications enclosed).

S.No	Name of the Mining Project	Address	NOC. No	Permitted Quantum (m <sup>3</sup> /day)
1	Koyagudem Open Cast Mine –II Expansion Project (KOC-II)	Koyagudem village, Tekulapalli Mandal, Bhadradi Kothagudem District.	TGGWD/BDK/WALTA/NOC/MINE/0001	1928

Therefore, the General Manager, Yellandu Area is instructed submit the compliance report as per the conditions mentioned in the NOC at earliest.

Yours Faithfully,

Encl:

1. NOC
2. Flowmeter Specifications
3. Compliance format

*(Signature)*  
District Ground Water Officer  
Ground Water Department  
Bhadradi Kothagudem District

Copy submitted to The Director, Ground Water Department for favor of kind information.

PO. Koy / Som (EW) / Dum (C)  
Mand

GWD/BDK/WALTA/NOC/MINE/0001

**GOVERNMENT OF TELANGANA  
GROUND WATER DEPARTMENT**

**NO OBJECTION CERTIFICATE (NOC) FOR GROUND WATER  
EXTRACTION UNDER TSWALTA**

Project Name:	Koyagudem Open Cast -II (KOC-II)
Project Address:	General Manager, Yellandu area, Koyagudem (V), Tekulapalli (M), Bhadradi Kothagudem (D)
Village:	Koyagudem Mandal Tekulapalli
District:	Bhadradi Kothagudem
Pin Code:	507 123
Communication Address:	General Manager, Kothagudem area, Koyagudem (V), Tekulapalli (M), Bhadradi Kothagudem (D). Pin Code:507 123, Phone: 08745-240044.

1. NOC No.:	TGGWD/BDK/WALTA/NOC/MINE/0001		
2. Application No.:	Ref.No.YLD/ENV/2021-22/54, Dt.10.08.2021, GM, Yellandu.	3. Category: (GWRA 2022)	Safe
4. Project Status:	Existing	5. NOC Type:	Renewal
6. Valid from:	27-09-2024	7. Valid up to:	26-09-2026
8. Ground Water Abstraction Permitted:			

Fresh Water		Saline Water		Dewatering		Total	
m <sup>3</sup> /day	m <sup>3</sup> /year	m <sup>3</sup> /day	m <sup>3</sup> /year	m <sup>3</sup> /day	m <sup>3</sup> /year	m <sup>3</sup> /day	m <sup>3</sup> /year
-	-	-	-	1928	703720	1928	703720

9. Details of ground water Extraction /Dewatering structures	Total Existing No. 4						Total Proposed/Recommended No. 0					
	DW	BW	TW	FP	No. Mine Pumps	Purpose of use	DW	DCB	BW	TW	FP	Purpose of use
No. of Extraction Structures*	-	-	-	-		-	-	-	-	-	-	-
Dia/Depth of well/HP	-	-	-	-	4		-	-	-	-	-	-

\*DW- Dug Well, BW-Bore Well; TW-Tube Well; FP-Filter Point;

## 10. Details of Rain Water Harvesting Structure/Artificial Recharge Structure

Recharge Structures	Existing Structures							Recommended Structures					
	RTRWH	CD	PT	SP	RS	Others	RTRWH	CD	PT	SP	RS	Others	
	0	1	1	5	-	3	3	1	2	-	2	-	

RTRWH; Roof Top Rain Water Harvesting, CD; Check dam; PT; Percolation tank, SP; Storage pond RS; Recharge shaft

11. Ground Water Extraction/Restoration/Regularization Charges paid	(Rs.):389583/- DD. No: 757035, Dt:07.12.2021			
12. Number of Piezometers (Observation wells) to be Constructed/ Monitored & Monitoring mechanism.	No. of Piezometers	Monitoring Mechanism		
		Manual	DWLR **	DWLR With Telemetry
**DWLR - Digital Water Level Recorder	9	5	-	4

(Compliance Conditions given overleaf)

*K. Laxmi*  
4/10/22

**DIRECTOR  
With Seal  
DIRECTOR**

Ground Water Department  
Government of Telangana  
Hyderabad

**SAVE WATER - SAVE ENVIRONMENT**



## Monitoring of Ground water Levels Koyagudem OC-II

ATTITUDE OF PHREATIC SURFACE														
Well No.	Name of village	Location	Owner's name	Type of well	Dimensions (m)	Total depth (m)	Geology	Measuring point (m)	Period	Depth to water (m)				
										2020	2021	2022	2023	2024
1	Andugulagudem	School road 17°35'24.16" , 80°28'02.80"	M.Veerawamy	Domestic	1.00	9.50	Gneisses	0.75	Winter	6.00	3.65	3.79	3.82	3.92
									Pre-monsoon	7.78	4.48	5.42	4.34	
									Monsoon	1.77	1.45	1.15	2.04	
									Post-monsoon	2.11	2.46	2.00	3.20	
4	Bodu	Entrance of the village 17°40'28.94" 80°26'27.90"	Torlikonda Bhadraiah	Domestic	1.50	6.50	Pakhal Fm	0.30	Winter	3.72	3.41	2.86	3.62	3.24
									Pre-monsoon	5.80	4.13	4.48	4.43	
									Monsoon	1.26	1.40	1.02	2.17	
									Post-monsoon	1.99	1.75	1.83	3.30	
5	Modugulagudem	Road side 17°40'59.26" , 80°26'58.21"	Punem Papaiah	Domestic	1.20	8.65	Barranmeasures Fm	0.75	Winter	5.05	4.79	5.04	5.15	5.57
									Pre-monsoon	6.46	5.48	6.12	6.22	
									Monsoon	2.43	3.36	2.6	4.47	
									Post-monsoon	3.39	3.60	3.77	3.80	
6	Patha Koppurai	Opp.Primary school lane 17°41'04.80" , 80°27'11.23"	Govt.well	Domestic	1.50	7.50	Barranmeasures Fm	0.60	Winter	3.85	2.87	4.4	3.32	3.50
									Pre-monsoon	5.76	4.13	4.27	4.05	
									Monsoon	1.82	1.90	1.70	2.50	
									Post-monsoon	2.50	2.45	2.26	2.75	
7	Koppurai	Opp.Grampanchayath Office 17°41'10.22" ,	Goggala Sri Ramulu house	Domestic	1.00	8.20	Barranmeasures Fm	0.60	Winter	4.58	4.30	5.45	5.08	7.34
									Pre-monsoon	6.75	4.57	4.97	5.90	
									Monsoon	2.97	3.56	2.1	3.94	



		80°27'28.31"							Post-monsoon	2.94	3.08	3.02	4.20	
8	Barlagudem	Opp.Primary school 17°43'48.37" , 80°28'27.74"	Punem Ramulu /Punem Raju	Domestic	1/1.20	13/9.00	Kamthi Fm.	0.6/0.20	Winter	4.03	3.53	3.92	3.89	4.67
									Pre-monsoon	5.17	4.47	5.8	4.97	
									Monsoon	1.59	3.20	1.72	2.85	
									Post-monsoon	2.05	2.94	2.39	4.40	
10	Sampath nagaram	Junction raod side 17°39'34.97" , 80°32'28.89"	Koditheti Ramulu	Domestic	1.00	8.00	Kamthi Fm.	0.50	Winter	5.59	5.42	5.58	5.70	5.78
									Pre-monsoon	7.10	6.75	6.49	6.50	
									Monsoon	3.70	4.75	3.02	4.71	
									Post-monsoon	4.27	4.95	4.81	5.60	
11	Patha Lachigudem	X Road 17°39'25.06" 80°30'38.00"	Karsa Buchaiah	Domestic	1.50	7.75	Kamthi Fm.	0.50	Winter	5.42	4.90	5.86	3.75	5.99
									Pre-monsoon	7.65	6.73	4.47	6.58	
									Monsoon	2.64	4.20	1.52	3.81	
									Post-monsoon	2.15	2.72	2.9	5.60	
15	Tekulapalli	Main road village entrance 17°33'33.93" , 80°28'35.44"	Gurram Bhima shankar rao	Domestic	1.00	8.50	Gneiss	0.70	Winter		5.16	6.13	6.47	7.23
									Pre-monsoon	7.70	7.40	3.97	Dry	
									Monsoon	2.73	4.36	3.97	5.65	
									Post-monsoon	3.41	5.19	4.96	7.60	
16	Bodu	Village end 17°40'38.61" N 80°26'33.70" E	Terala shankar lingam	Domestic	1.30	6.00	Pakhal Fm	0.50	Winter			3.46	3.43	3.71
									Pre-monsoon			4.44	4.28	
									Monsoon			1.43	2.65	
									Post-monsoon			2.40	3.35	

## ATTITUDE OF PIEZOMETRIC SURFACE

Piezometric well no.	Location	Depth (m)	Dia(m)	Measuring point (m)	Period	Depth to Water (m)				
						2020	2021	2022	2023	2024
KOC-PW1	About 500m from NE edge of the quarry in the sub-station. 17°37'32.39"N, 80°29'7.12"E	30.00	0.10	0.05	Winter	2.45	2.30	2.38	2.34	2.25
					Pre-monsoon	3.42	3.07	3.38	2.81	
					Monsoon	0.58	1.70	0.31	1.10	
					Post-monsoon	0.92	1.65	1.09	1.85	
KOC-PW5	About 350m North of the Western Pit near hill opposite the OC-II Road in the Forest area. 17°37'48.95"N, 80°28'21.27"E	50.00	0.10	0.40	Winter	8.08	7.20	7.86	6.84	8.51
					Pre-monsoon	10.05	9.23	9.11	8.74	
					Monsoon	3.69	6.73	4.38	6.24	
					Post-monsoon	4.86	6.05	4.79	7.85	
KOC-PW7	About 170m south of PIT-II Quarry, by the side of proposed way to Mutyalam padu Village.(Quarry back side well) 17°36'47.67"N, 80°29'32.71"E	50.00	0.10	0.25	Winter	3.42	3.29	3.22	3.08	3.26
					Pre-monsoon	4.78	4.45	4.22	4.36	
					Monsoon	0.83	1.35	0.91	1.94	
					Post-monsoon	0.83	1.93	1.44	3.40	
KOC-PW8	About 140m East of PIT-II along the strike side Quarry.(Near hill) 17°37'20.00"N, 80°29'55.94"E	50.00	0.10	0.25	Winter	21.90	22.18	22.00	21.62	21.9
					Pre-monsoon	22.40	22.34	22.46	21.64	
					Monsoon	17.77	18.60	17.78	18.86	
					Post-monsoon	18.36	19.35	18.63	18.90	
KOC-PW9	About 225m North west of PIT-II towards pit III (Near coal yard) 17°37'49.49"N, 80°29'21.27"E	50.00	0.10	0.25	Winter	1.95	1.45	1.91	1.38	2.44
					Pre-monsoon	3.43	2.93	2.85	2.65	
					Monsoon	0.46	1.16	0.35	1.22	
					Post-monsoon	0.49	0.75	0.43	2.34	
KOC-PW11	About 190m North of PIT-III on right side of the proposed way towards Pit-I.(Near cheruvu) 17°38'44.68"N, 80°29'54.86"E	50.00	0.10	0.25	Winter	19.16	18.29	18.25	17.75	18.57
					Pre-monsoon	20.25	19.55	19.26	19.31	
					Monsoon	17.50	18.70	17.2	18.93	
					Post-monsoon	17.42	17.59	16.87	17.50	
KOC-PW12	About 800m East of PIT-I on the right side of the road towards Kistaram village. 17°39'43.88"N, 80°29'33.05"E	50.00	0.10	0.25	Winter	2.33	2.38	2.27	2.61	1.71
					Pre-monsoon	2.96	3.00	2.95	3.11	
					Monsoon	0.79	1.20	1.09	1.28	
					Post-monsoon	1.13	1.66	1.26	1.60	
KOC-PW13	About 550 m from east of PIT-I,Near Proposed Office buildings, Adj.Pillar	50.00	0.10	0.70	Winter	5.20	4.70	5.75	5.20	7.82
					Pre-monsoon	5.61	5.05	5.78	5.62	

	no. C-146 17°39'20"N, 80°29'39"E				Monsoon	3.40	NA	WD	2.73	
					Post-monsoon	6.54	NA	3.83	2.50	
KOC-PW14	About 1200 m from east of PIT-III, In Primary school, Tekulagumpu village. 17°38'23.15"N, 80°30'41.06"E	50.00	0.10	0.70	Winter	6.54	6.72	6.55	6.76	6.8
					Pre-monsoon	7.33	7.48	6.94	7.21	
					Monsoon	4.93	5.80	6.20	5.92	
					Post-monsoon	5.70	5.86	5.84	7.00	



## KOC-II Ground water Quality

### Groundwater Sampling Locations

Sl. No.	Sampling code	Date of sampling		Sampling Location	Latitude	Longitude
		1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter			
1.	GW-4	12.04.2024	19.06.2024	Borewell at Koyagudem Village	N 17°58' 55.4"	E 80°50' 45.4"
2.	GW-5	12.04.2024	19.06.2024	Borewell at Bodu Village	N 17°40' 33.8"	E 80°26' 24.5"

### Organoleptic and Physical Parameters

Sl. No.	Parameters	Unit	Test Method	IS: 10500 Requirement (Acceptable Limit)	IS: 10500 Permissible Limit in the absence of alternate source	RESULT			
						GW-4 Koyagudem Village		GW-5 Bodu Village	
						1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter	1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter
1.	Colour	Hazen	2120. B	5	15	5	5	5	5
2.	Odour	TON	2150. B	Agreeable	Agreeable	Agree.	Agree.	Agree.	Agree.
3.	pH	-	4500-H+B	6.5 to 8.5	No relaxation	7.6	7.5	8.1	8
4.	Taste	FTN	2160. B	Agreeable	Agreeable	Agree.	Agree.	Agree.	Agree.
5.	Turbidity	NTU	2130. B	1	5	0.3	0.1	0.2	0.1
6.	Total Dissolved Solids at 180° C	mg/L	2540.C	500	2000	513	428	498	468

**General Parameters Concerning Substances Undesirable in Excessive Amounts**

Sl. No.	Parameters	Unit	Test Method	IS: 10500 Requirement (Acceptable Limit)	IS: 10500 Permissible Limit in absence of alternate source	RESULT			
						GW-4 Koyagudem Village		GW-5 Bodu Village	
						1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter	1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter
1.	Calcium as Ca	mg/L	3500-Ca.B	75	200	55	40	52	32
2.	Magnesium as Mg	mg/L	3500-Mg.B	30	100	41	34	45	28
3.	Chlorides as Cl-	mg/L	4500-Cl-.B	250	1000	65	70	68	97
4.	Sulphates as SO42-	mg/L	4500-SO42- .E	200	400	46	95	38	89
5.	Fluoride as F-	mg/L	4500-F.C	1.0	1.5	1.3	1.3	1.5	0.5
6.	Nitrates as NO3	mg/L	4500-NO3-.B	45	No relaxation	34	10	28	19
7.	Total Alkalinity as CaCO3	mg/L	2320. B	200	600	340	190	330	175
8.	Total Hardness as CaCO3	mg/L	2340. C	200	600	306	240	315	195
9.	Sulphide as H <sub>2</sub> S	mg/L	4500-S2-F&D	0.05	No relaxation	BDL	BDL	BDL	BDL
10.	Total Ammonia-N	mg/L	IS 3025 (Part 34)	0.5	No relaxation	BDL	BDL	BDL	BDL
11.	Phenolic compounds as C <sub>6</sub> H <sub>5</sub> OH	mg/L	5530-D	0.001	0.002	BDL	BDL	BDL	BDL
12.	Residual free chlorine	mg/L	4500-Cl-.B	0.2	1.0	BDL	BDL	BDL	BDL
13.	Mineral oil	mg/L	IS:3025 (part 39)	0.5	No relaxation	absent	absent	absent	absent
14.	Anionic Detergents (as MBAS)	mg/L	IS:13428:2005K	0.2	1.0	<0.2	<0.2	<0.2	<0.2
15.	Aluminium as Al	mg/L	3120-B	0.03	0.2	BDL	BDL	0.09	0.06
16.	Barium as Ba	mg/L	3120. B	0.7	No relaxation	0.26	0.25	0.18	0.17
17.	Boron as B	mg/L	3120-B	0.5	2.4	0.15	0.09	0.11	0.22
18.	Iron as Fe	mg/L	3120-B	1.0	No relaxation	0.52	0.81	0.38	0.47
19.	Zinc as Zn	mg/L	3120-B	5	15	0.24	0.16	0.21	0.18
20.	Copper as Cu	mg/L	3120-B	0.05	1.5	0.06	BDL	BDL	BDL
21.	Manganese as Mn	mg/L	3120-B	0.1	0.3	0.08	BDL	0.07	BDL
22.	Selenium as Se	mg/L	3120-B	0.01	No relaxation	BDL	BDL	BDL	BDL
23.	Silver as Ag	mg/L	3120. B	0.1	No relaxation	BDL	BDL	BDL	BDL

### Parameters Concerning Toxic Substances

Sl. No.	Parameters	Unit	Test Method	IS: 10500 Requirement (Acceptable Limit)	IS: 10500 Permissible Limit in absence of alternate source	RESULT			
						GW-4 Koyagudem Village		GW-5 Bodu Village	
						1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter	1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter
1.	Cadmium as Cd	mg/L	3120-B	0.003	No relaxation	BDL	BDL	BDL	BDL
2.	Cyanide as CN-	mg/L	4500-CN.F	0.05	No relaxation	BDL	BDL	BDL	BDL
3.	Lead as Pb	mg/L	3120-B	0.01	No relaxation	BDL	BDL	BDL	BDL
4.	Molybdenum as Mo	mg/L	3120.B	0.07	No relaxation	BDL	BDL	BDL	BDL
5.	Nickel as Ni	mg/L	3120-B	0.02	No relaxation	BDL	BDL	BDL	BDL
6.	Total Arsenic as As	mg/L	3120-B	0.01	0.05	BDL	BDL	BDL	BDL
7.	Total Chromium as Cr	mg/L	3120-B	0.05	No relaxation	BDL	BDL	BDL	BDL
8.	Mercury as Hg	µg/L	3500-Hg.B	0.001	No relaxation	BDL	BDL	BDL	BDL
9.	<b>Pesticides:</b> α-BHC, β-BHC, γ-BHC, δ-BHC, o, p-DDT, p, p' -DDT, Endosulfan, β- Endosulfan, Aldrin, Dieldrin	µg/L	6630.D	Absent	0.001	ND	ND	ND	ND
	2,4-D, Carboryl (Carbonate) Malathion Methyl Parathion Anilophos, Chloropyriphos	Qualitative Analysis	6630.D	Absent	0.001	ND	ND	ND	ND
10.	<b>Polyaromatic Hydrocarbons (PAH's):</b> Acenaphthene, Acenaphthylene, Anthracene, B(a)A, B(a)P, B(b)F, B(k)F, Pyrene, Dibenz (a,h) anthracene, Fluoranthene, Fluorene, Indeno (1,2,3-(d) Pyrene, Naphthalene, Phenanthrene, Pyrene, Methyl Naphthalene	µg/L	6440.C	--	--	ND	ND	ND	ND

### Bacteriological Quality of Drinking water

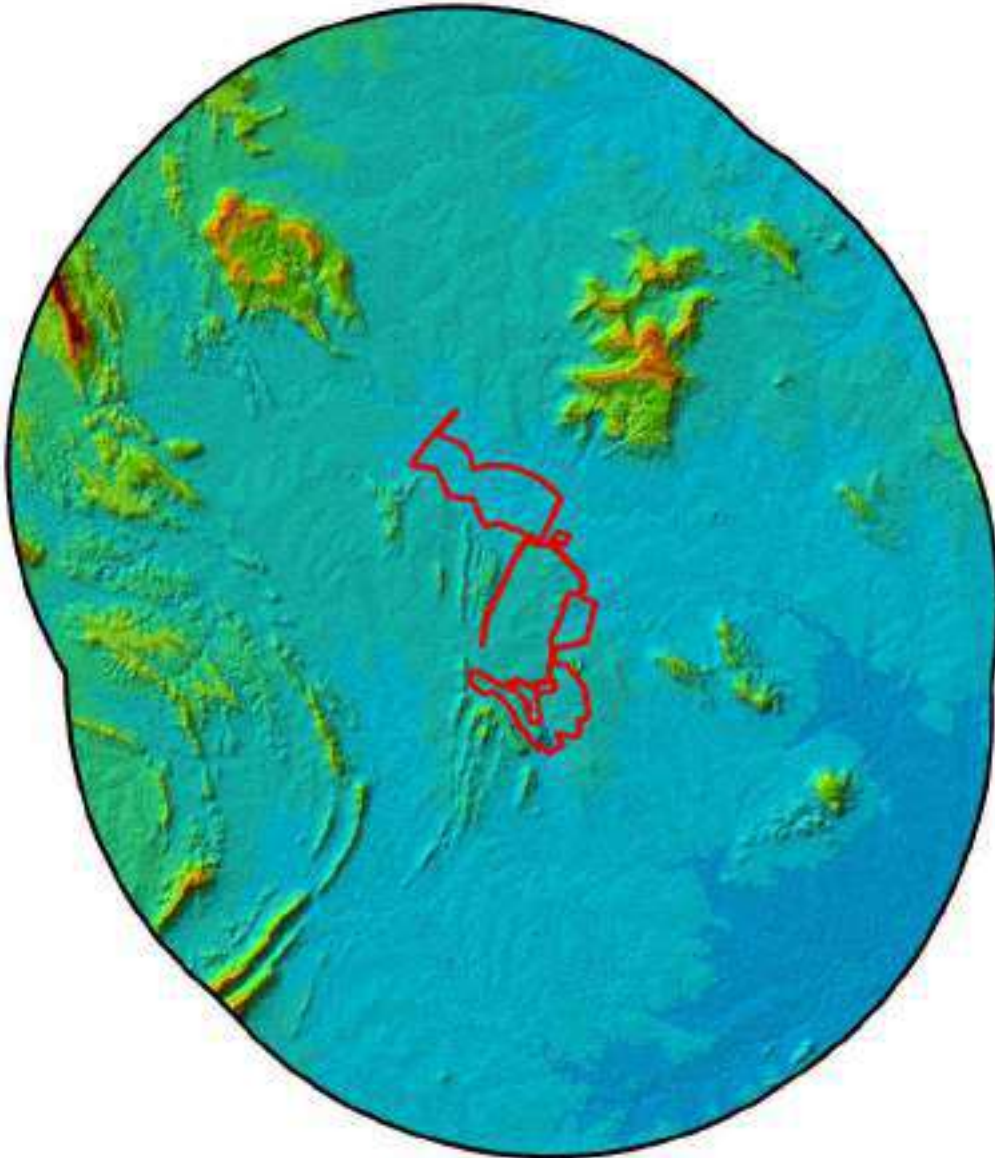
Sl. No.	Parameters	Unit	Test Method	IS: 10500 Requirement (Acceptable Limit)	IS: 10500 Permissible Limit in absence of alternate source	RESULT			
						GW-4 Koyagudem Village		GW-5 Bodu Village	
						1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter	1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter
1	Total Coliforms	MPN/100 mL	9221 B	-	-	<1.8	<1.8	<1.8	<1.8
2	Fecal Coliforms	MPN/100 mL	9221 E	-	-	<1.8	<1.8	<1.8	<1.8



# Report on Land Use Land Cover Study of Core & Buffer Zone of Koyagudem Opencast - II Coal Mine Project

**Project Location: Yellandu, Khammam District, Telangana.**

**Year of Study: 2022**



PROJECT PROPONENT  
THE SINGARENI COLLIERIES COMPANY LIMITED  
(A Government Company)  
Department of Environment and Project Planning.  
(ISO-9001-2015 certified)



ENVIRONMENT CONSULTANT  
M/s Greencindia Consulting Private Limited  
QCI-NABET certificate no: NABET/EIA/2023/SA0155

**THE LAND USE / LAND COVER STUDY REPORT FOR**  
**KOYAGUDEM OPENCAST - II COAL MINE PROJECT**  
**LOCATED AT YELLANDU, KHAMMAM DISTRICT, TELANGANA STATE. PROJECT PROPONENT: M/S SINGARENI**  
**COLLIERIES COMPANY LTD.**

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**THE LAND USE / LAND COVER STUDY REPORT FOR**  
**KOYAGUDEM OPENCAS - II COAL MINE PROJECT**  
**LOCATED AT YELLANDU, KHAMMAM DISTRICT, TELANGANA STATE. PROJECT PROPONENT: M/S SINGARENI**  
**COLLIERIES COMPANY LTD.**

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# 1 INTRODUCTION

## 1.1 PURPOSE OF THE REPORT

The mining industry in India is a significant economic activity which contributes significantly to the economy of India. The mining and quarrying sector contributes around 2.5% of the Gross Domestic Product (GDP). The mining sector under the index of Industrial Production (IIP) witnessed a growth of 1.7 percent Year on Year basis. Indian economy is on the aspirational path of becoming a \$5 trillion GDP economy by 2024-25. Mining Industry is going to have a sizable contribution to the envisaged GDP and wealth creation (Desk of DG & CIM 2020).

Unless mining of the minerals is properly regulated, they can show adverse consequences on environment and socio-economic components of the society. It also disturbs the Air, soil, water and ecological parameters. On the other hand, it develops the economic standard of the region. Issues of Technology for zero waste or low waste mining, relief & rehabilitation, mine closure activity need to implemented strictly and monitored otherwise leads to land degradation and other adverse consequences on environment.

The study of land use and land cover changes by remote sensing and GIS tools give valuable and accurate information for the study area. This kind of study beneficial for regulator and mine operator and developer for making sustainable planning of mine operation. In order to mitigate the impact of mineral mining on the environment, a scientific assessment is very important for framing sustainable development strategies.

The ISRO/DOS have built the framework for indigenous remote sensing system specially design for Indian sub-continent. The evolution of Indian remote sensing program over the past two decades, providing a variety of remote sensing- based solutions for national development, is an apt and timely national initiative. Some of the important projects of ISRO/DOS under the theme of LULC are given in the Table – 1-1.

**Table 1-1: Major Land Use Land Cover Mapping Projects carried out by ISRO / DOS**

S. No.	PROJECT NAME	YEAR
1	Nationwide Wasteland Mapping	1985, 1986 – 1999, 2003, 2005-06, 2008-09, 2015-16
2	Land Use Land Cover Mapping for Planning based on Agro-Climatic Zone	1989 – 1990

Source: Desk of DG & CIM 2020 (<https://www.dgms.gov.in/UserView/index?mid=1287> ).

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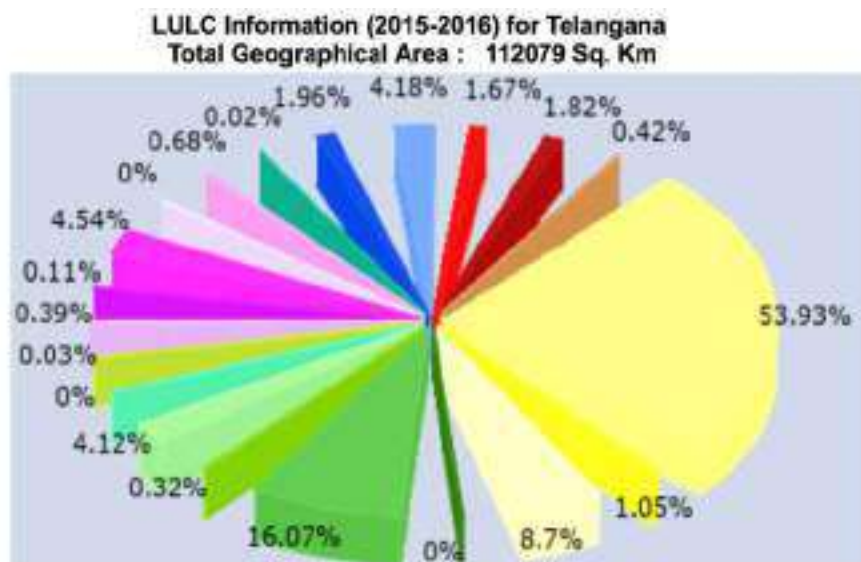
**THE LAND USE / LAND COVER STUDY REPORT FOR**

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S. No.	PROJECT NAME	YEAR
3	Nationwide Wetland Mapping	1995
4	Urban Sprawl of Million Plus Cities	1988 – 1990
5	Land Use Land Cover Database for Zoning Atlas for siting of Industries	1999
6	Urban Information Systems (BMR; NCR; MMDA; AUDA, HUDA, NCRPB etc.	From 1990 onwards at different times
7	Land Use Land Cover Mapping using AWiFS data	2004 onwards at one year of interval
8	Integrated Mission for Sustainable Development	1992-1998
9	Integrated Resource Information for Desert Areas	2002
10	Land Use/Land Cover Mapping on 1: 50,000 scale	2005-06, 2011-12

A project on National Land Use/ Land Cover Mapping on 1:50,000 scale (Second Cycle) using multi-temporal Resourcesat-2 terrain corrected Linear Imaging Self Scanning Sensor (LISS) -III data was taken up by DOS, under Natural Resources Census (NRC) Project of National Natural Resources Repository (NRR) Program. The above project final outcome of the land use and land cover study for Telangana state are presented in figure 1-1. For Telangana state major land use type is Agriculture, crop land and Fallow land are 63.68 % of the total geographic area of the state. Second highest land cover type is Forest cover and plantation, which is approx. 20.52 % of the total geographic area of the state.



**Figure 1-1: LULC statistical information (2015-2016) for Telangana state.**

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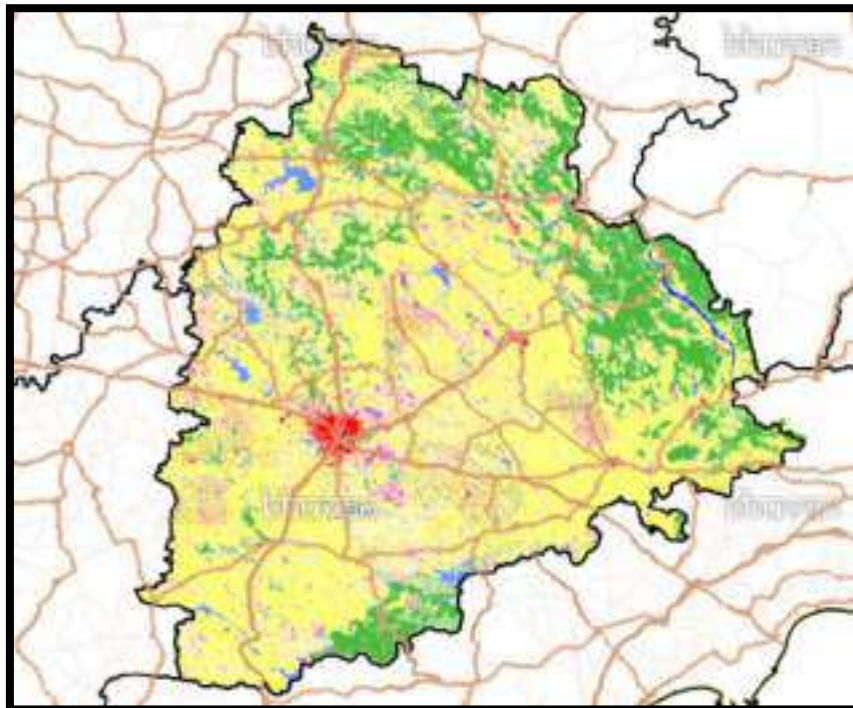
**LOCATED AT YELLANDU, KHAMMAM DISTRICT, TELANGANA STATE. PROJECT PROPONENT: M/S SINGARENI COLLIERIES COMPANY LTD.**

Date Source: National Remote Sensing Centre, Hyderabad. ( <https://bhuvan-app1.nrsc.gov.in/thematic/thematic/index.php> )

**Table 1-2: LULC class with respective area for Telangana State**

LULC Class	Area (Sq.Km)	LULC Class	Area (Sq.Km)
Builtup,Urban	1866.44	Builtup,Rural	2035.82
Builtup,Mining	466.35	Agriculture,Crop land	60442.02
Agriculture,Plantation	1176.89	Agriculture,Fallow	9748.65
Forest,Evergreen/ Semi evergreen	0.13	Forest,Deciduous	18014.42
Forest,Forest Plantation	354.02	Forest,Scrub Forest	4616.13
Forest,Swamp/ Mangroves	0.03	Grass/Grazing	32.48
Barren/unculturable/ Wastelands, Salt Affected land	434.11	Barren/unculturable/ Wastelands, Gullied/Ravinous Land	128.8
Barren/unculturable/ Wastelands, Scrub land	5067.01	Barren/unculturable/ Wastelands, Sandy area	4.99
Barren/unculturable/ Wastelands, Barren rocky	767.26	Wetlands/Water Bodies, Inland Wetland	18.97
Wetlands/Water Bodies, River/Stream/canals	2196.58	Wetlands/Water Bodies, Reservoir/Lakes/Ponds	4687.91

Date Source: National Remote Sensing Centre, Hyderabad. ( <https://bhuvan-app1.nrsc.gov.in/thematic/thematic/index.php> )



**Figure 1-2: LULC map of Telangana state (2015-2016)**

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Date Source: National Remote Sensing Centre, Hyderabad. ( <https://bhuvan-app1.nrsc.gov.in/thematic/thematic/index.php> )

M/s The Singareni Collieries Company Limited, Yellandu is holding a mining lease of Koyagudem Opencast - II Coal Mine Project with EC No. J-11015/306/2006-JA-II. II(M) Project for an area of 816.11 Ha at Khammam District, Yellandu, Telangana State. EPTRI is preparing Environmental Impact Assessment Study and Environment Compliance Report to maintain Environmental Clearance for coal mining in the SCCL Project area from Ministry of Environment, Forest and Climate Change (MOEFCC), Government of India.

M/s Greencindia consultant Private Limited is an Indian company providing world-class Enterprise Geographic Information System (GIS) solutions thereby helping businesses, governments and private organizations to make timely, informed and mission-critical decisions by leveraging the power of geography.

## **1.2 SCOPE OF THE STUDY**

The objective of the present study is to prepare the Essential (Thematic) Maps of Core zone (project area) & Buffer zone (10 Km. radius around periphery of the project) for coal mining projects to be provided to the Ministry of Environment & Forests as part of the EIA/EMP and Environment Compliance Report, for maintaining the Environmental Clearance (EC), as per Environmental Impact Assessment Guidance Manual.

## **1.3 LOCATION OF THE PROJECT**

The mine is covered in Koyagudem village, Tekulapalli Tehsil, Khammam district, Telangana State. The location of the Mining lease area falls under Survey of India Toposheet No E44O6 (65C/6) the geographical co- ordinates of the lease area as follows:

North-West Corner: 17°41'11.5619" N (Latitude), 80°29'59.4563" E(Longitude)

South-East Corner: 17°36'34.5024" N (Latitude), 80°27'24.7859" E (Longitude)

The 10 km buffer Zone of the Koyagudem Opencast - II Coal Mine Project is falling in E44O5(65C/5), E44O6(65C/6), E44O9 (65C/9), E44O10(65C/10) SOI Toposheets. The buffer zone is covered in Khammam District of Telangana State. Location Map shown in Figure 1-3.

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### 1.4 TOOLS AND RESOURCES

To meet the project requirements, M/s Greencindia consultant Private Limited has acquired the following satellite data for the study area from National Remote Sensing Centre, Hyderabad. The Resourcesat-2 imageries have been merged with the CartoSat-3 imageries for the core zone to get the high spatial and spectral information in single image. The CartoSat-3 imagery for the core zone is shown in the Figure 1-6.

**Table 1-3: Details of the satellite data used for LULC study.**

Details Parameters of the data Source	10 km Buffer Zone		Core Zone
	Rabi Season	Kharif Season	High resolution Panchromatic Data
<b>Satellite:</b>	Resourcesat 2 LISS IV	Resourcesat2 LISS IV	CartoSat-3
<b>Sensor:</b>	LISS4(MX70)	LISS4(MX70)	MX(SPOT)
<b>Path:</b>	101	101	14801
<b>Row:</b>	60	60	58
<b>Spatial Resolution:</b>	5.0 m	5.0 m	1.1 m
<b>Date of pass:</b>	25th January 2022	9th November 2022	24 September 2022

### 1.5 LIMITATIONS

The limitations of Remote Sensing, Image Processing, Geographical Information Systems, cartography and GPS are applicable in this study.

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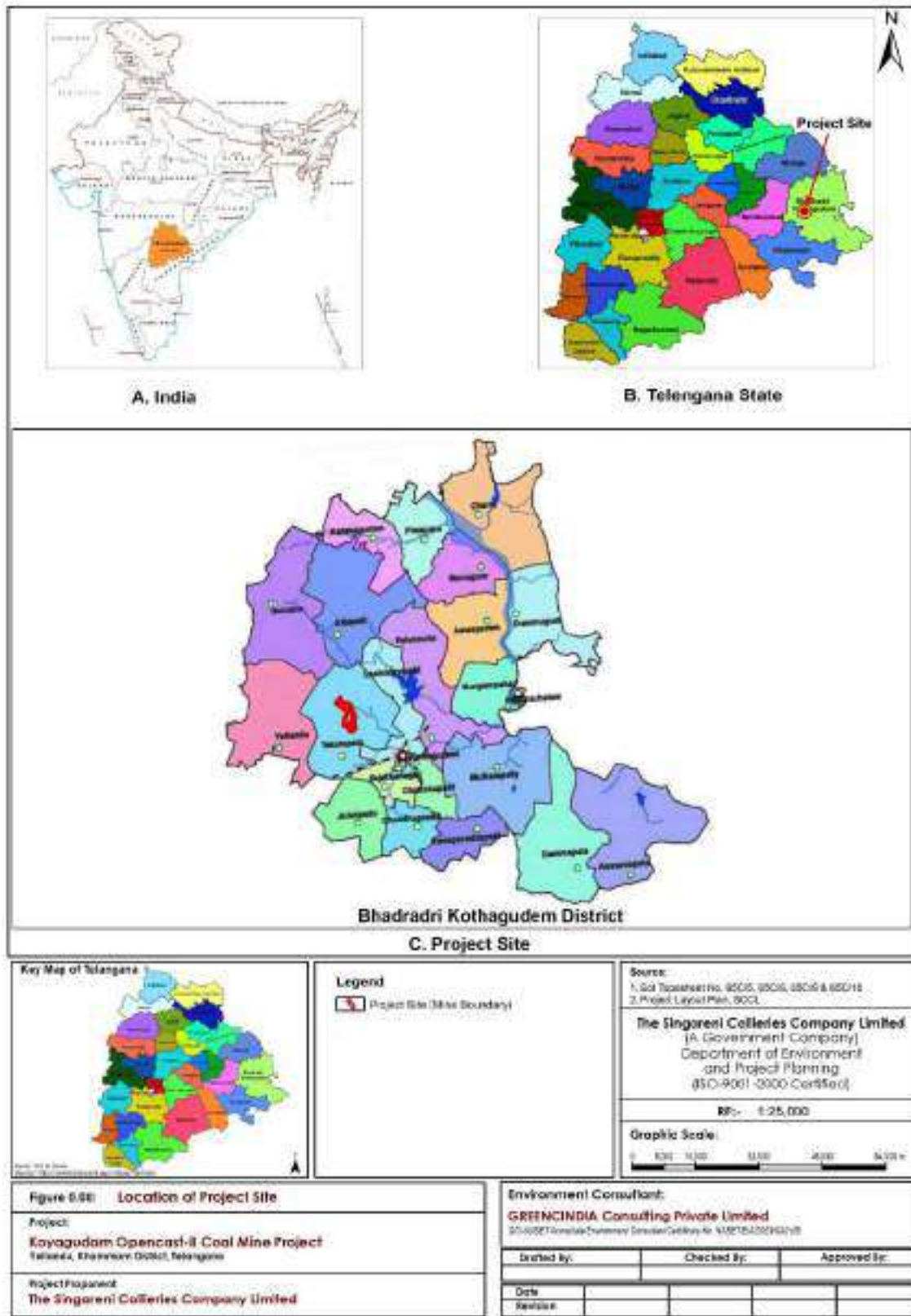
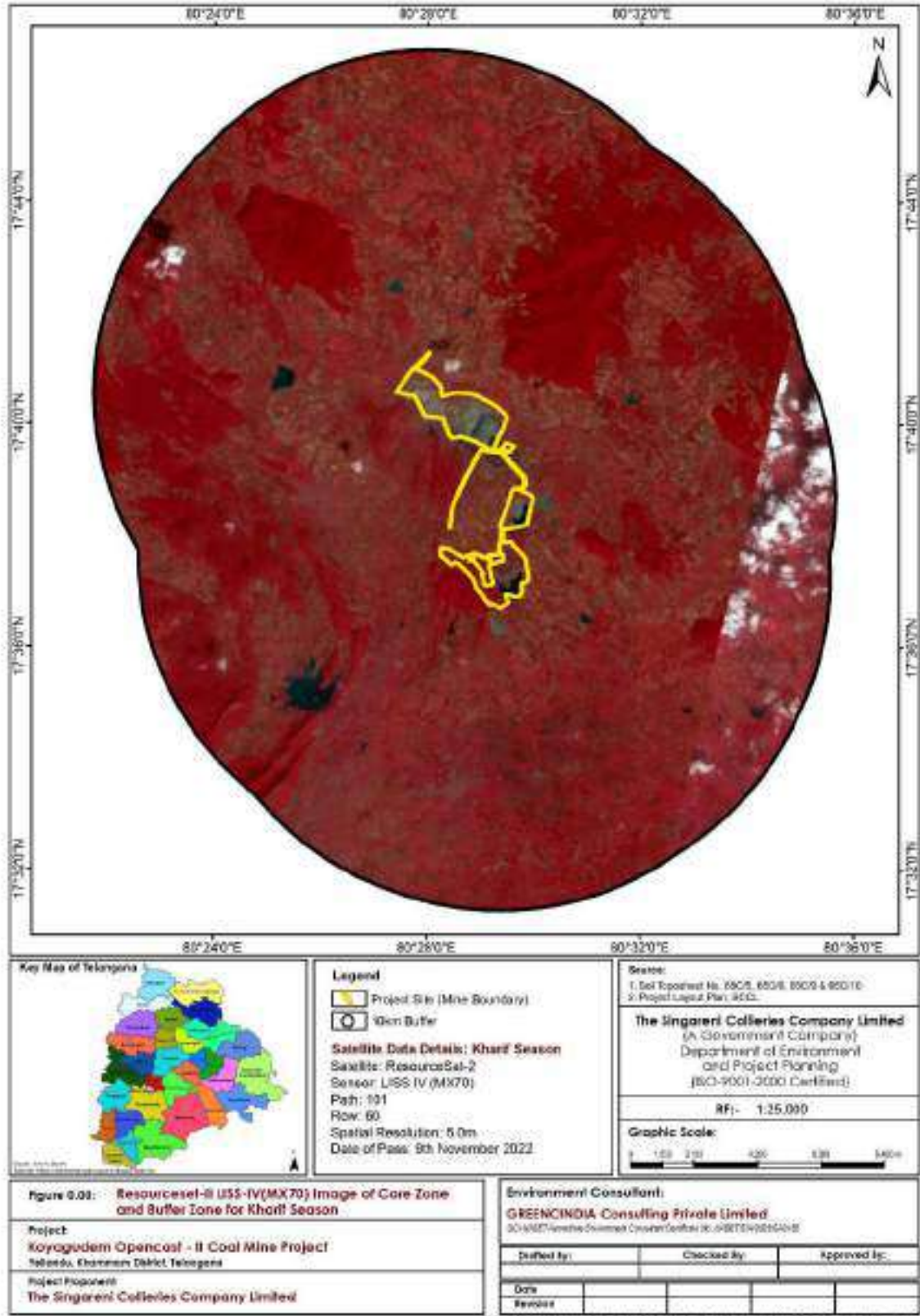


Figure 1-3: Project Location map.

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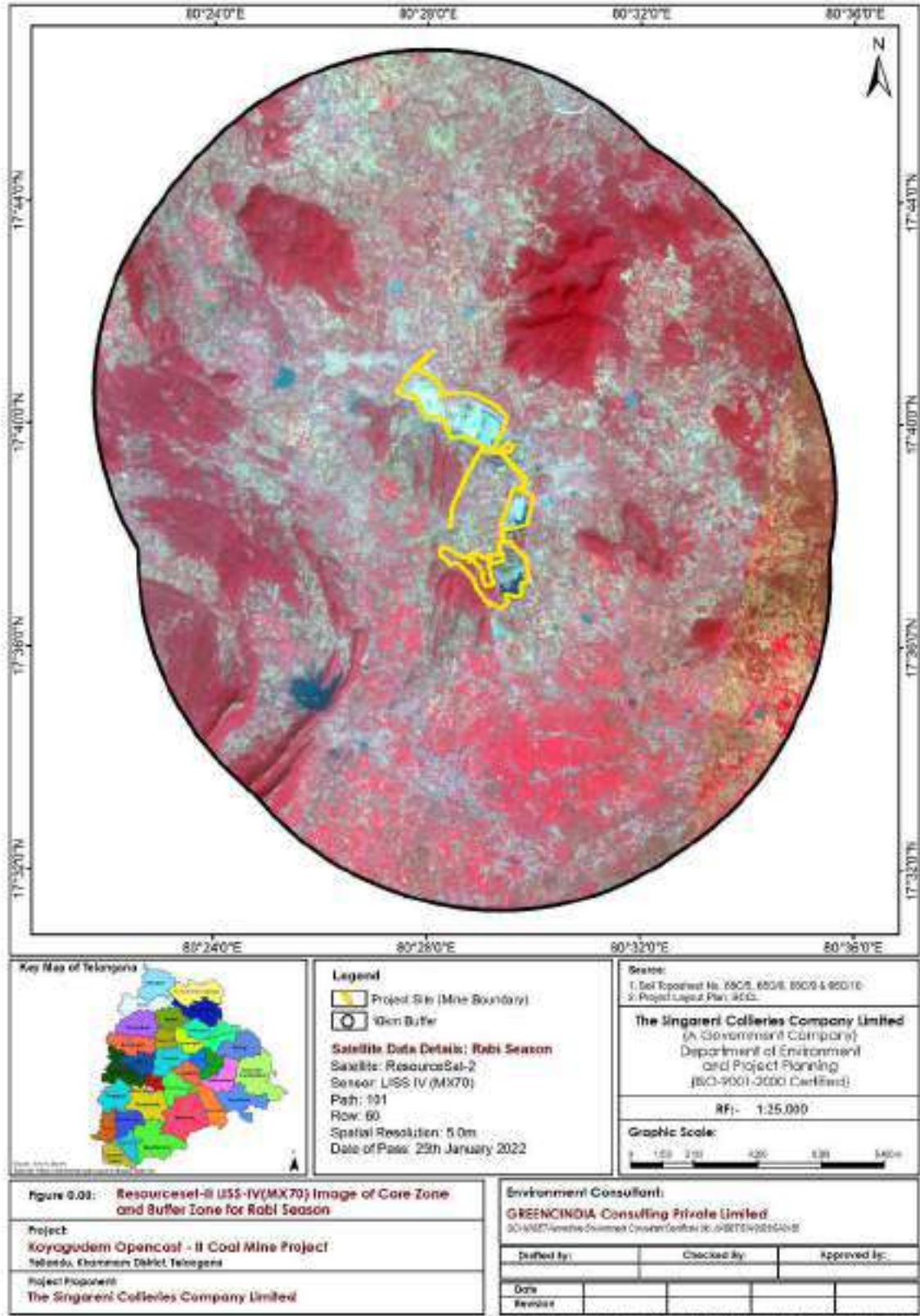
**Figure 1-4: Resourcesat 2 LISS IV Image of Core and Buffer Zone for Kharif season.**

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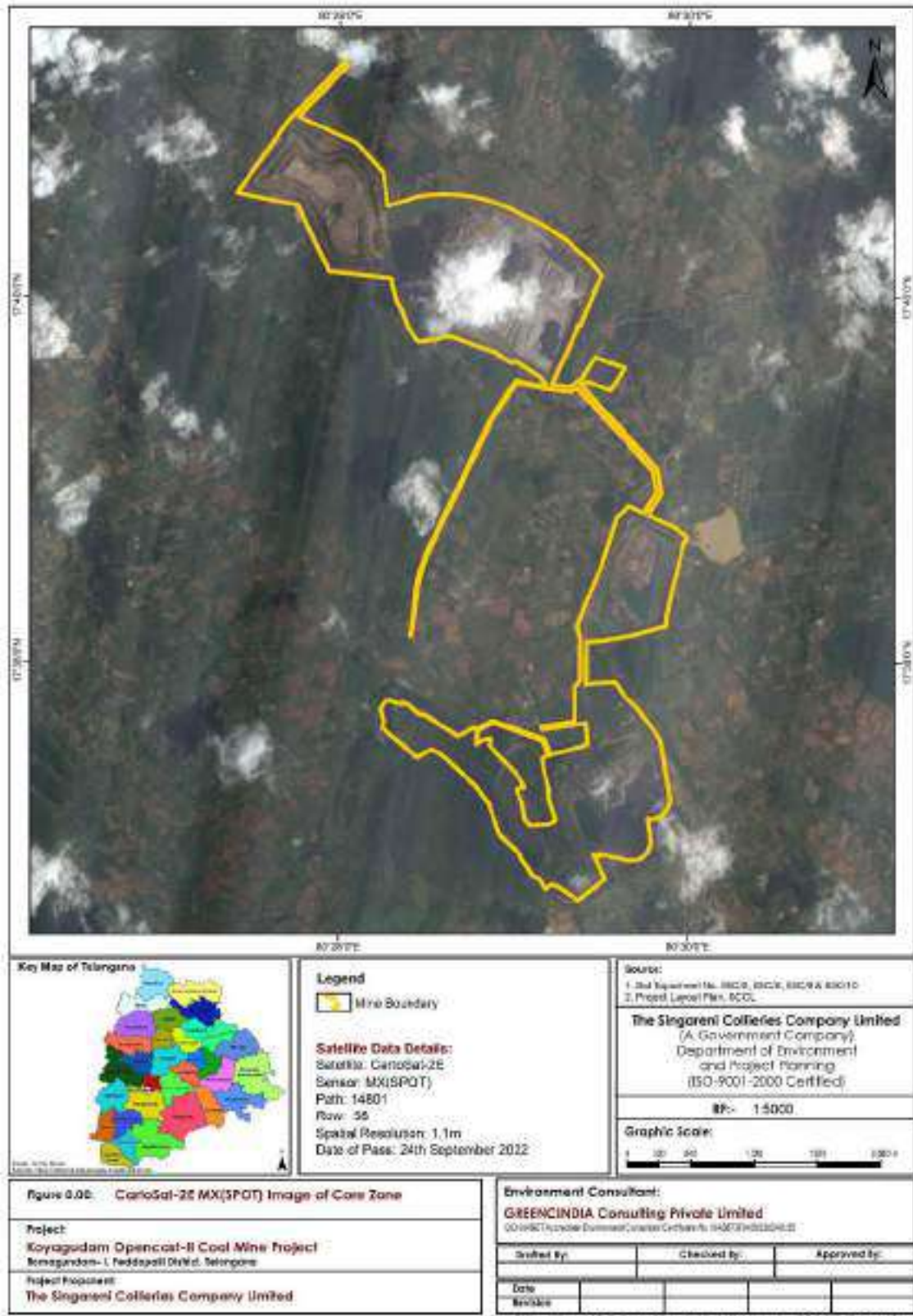
**Figure 1-5: Resourcesat2 LISS IV Image of Core and Buffer Zone for Rabi season.**

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**Figure 1-6: Cartosat 3 MX (SPOT) Imagery Map of The Core Zone.**

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## **2 METHODOLOGY**

### **2.1 DATA PROCESSING**

For the creation of the Land use/Land cover maps, the IRS Resourcesat 2 LISS IV Multispectral satellite imageries of the Kharif and Rabi seasons for buffer zone and Cartosat 3 MX (SPOT) and PAN (SPOT) imageries for core zone were used.

ArcGIS Desktop and ArcGIS Pro software tools have been used to carry out the digital image processing, classification and on-screen digitization. At the end, a polygon map was created, with each polygon standing for a different class. Thereafter the, the classes were matched with the appropriate attributes. Using high resolution photos from independent sources, accuracy was verified.

For the purpose of creating the land use/land cover map, both remote sensing and the visual image interpretation technique of classification were used. It is a process of recognising the characteristics that appear in photographs and conveying the knowledge gathered from these images to others for the purpose of assessing their importance.

For the study area, the remote sensing and visual interpretation method was used. It includes the following six crucial steps:

1. Selection and acquisition of data
2. Pre-Processing
3. Classification
4. Ground data collection and verification
5. Post-field Interpretation and Modification
6. Computation of area
7. Final cartographic Map preparation.

Each endeavour to map the earth's natural resources must begin with a reconnaissance of the area under consideration. In order to adopt a suitable categorization scheme and interpretation key for the final map production, the preliminary survey of the area helped in familiarising with the various classes of LULC types that are present in the field.

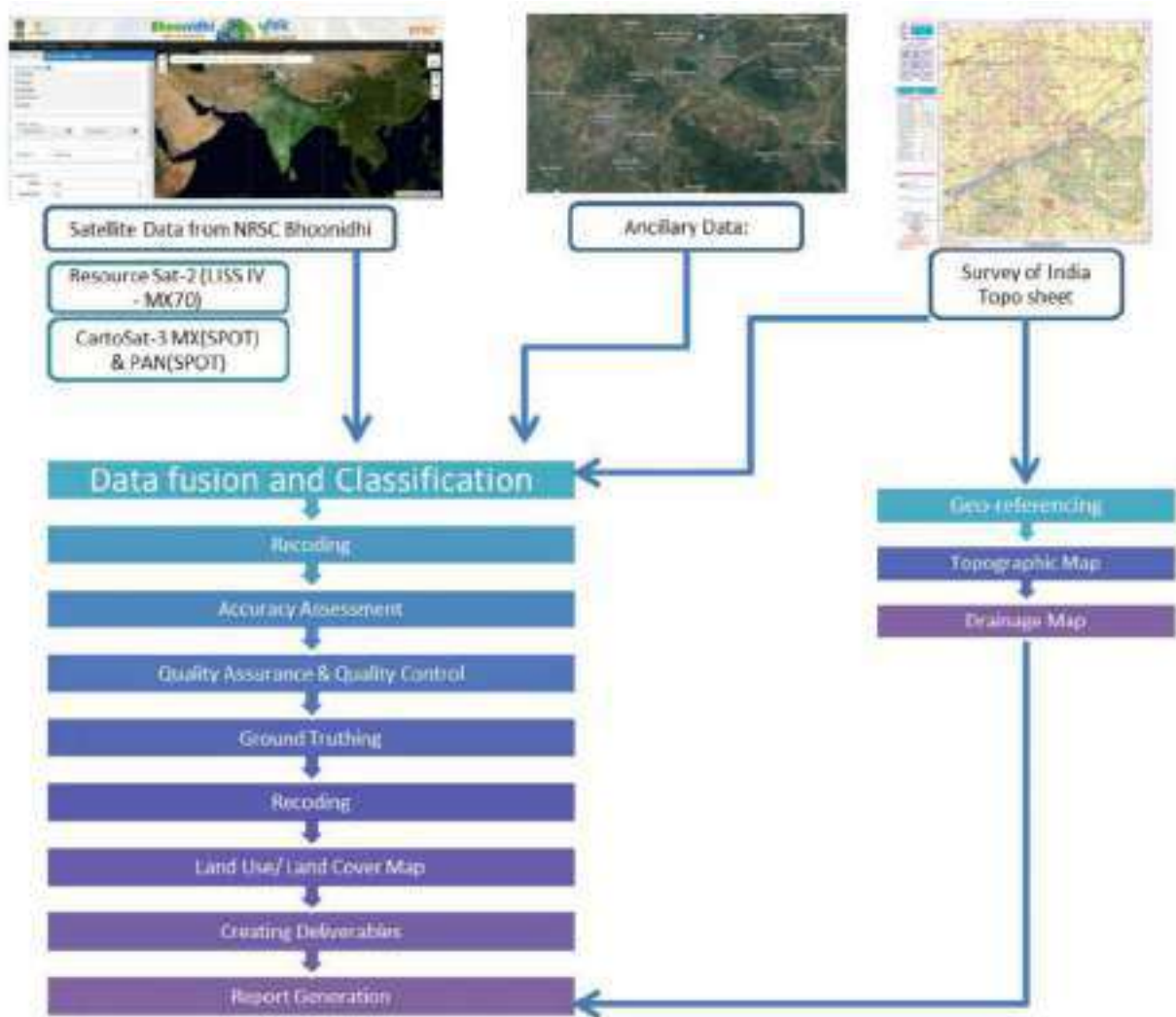
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Using the spectral properties of the classes and with reference to other sources, a final Interpretation key for the different classes was created. Table 2-1 contains the LULC classification's interpretation key.

**2.2 FLOWCHART OF THE STUDY**








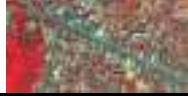




**Table 2-1: Image Interpretation techniques.**

S.no	LULC Class	Tone	Texture	Shape	Spectral Signature	Description
1	Water Bodies	Dark Blue or Light Blue	Smooth	Irregular/ Regular		Rivers, Streams and Ponds

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S.no	LULC Class	Tone	Texture	Shape	Spectral Signature	Description
2	Mining area	Light Blue or Light Cyan with white spots	Smooth	Irregular		Place where Mining Operations are taken.
3	Industrial Establishments	Cyan or Whitish	Rough	Irregular/Regular		Large footed building in Urban and Rural Areas
4	Built-up Land	Cyan	Rough	Irregular		Urban and Rural Areas
5	Open Forest	Light Red	Smooth	Irregular		Tree Cover (If Forest Canopy Density is between 10-40%)
6	Dense Forest	Dark Red to Light Red	Rough	Irregular		Tree Cover (If Forest Canopy Density >40%)
7	Roads	Cyan	Rough	Linear		Major and other roads used for transportation
8	Barren Land	Light Blue or Light Cyan	Smooth	Irregular		Areas are sparse, stunted and contain limited biodiversity
9	Fallow Land	Light Cyan or Whitish	Medium Smooth	Regular		Fields without any Crop surrounded by small to Medium Size Settlements
10	Plantation	Blackish Red to Dark Red	Medium Smooth/ Medium Coarse	Irregular/Regular/Rectangular		Mature or Young Plants
11	Single Crop	Pinkish or Light Green or Light Blue or Light Cyan	Medium Smooth	Regular		Crops/Current Fallow Land surrounded by small to Medium Size Settlements


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S.no	LULC Class	Tone	Texture	Shape	Spectral Signature	Description
12	Double Crop	Dark Red to Light Red	Medium Smooth	Regular		Crops Lands surrounded by small to Medium Settlements

ArcGIS Desktop and ArcGIS Pro were used for classification and on-screen digitisation. At the end, a polygon map was created, with each polygon standing for a different class. Afterwards, the classes were matched with the appropriate attributes. During the field visit, a handheld GPS device was used to verify the ground truth. It was discovered that the satellite image's points were highly accurate. Ultimately, a color-coded classification map and area statistics for the various LULC categories were developed.

### 2.3 LAND USE / LAND COVER CLASSIFICATION FOR BUFFER ZONE

IRS Resourcesat2 LISS IV Multispectral satellite imageries of the Kharif and Rabi seasons were used for buffer zone LULC classification. By assigning the necessary training sets, which were identified based on tone, texture, size, shape pattern, and location information, digital image processing was used to delineate various land use/ land cover categories in the 10 km buffer Zone, including built-up area, crop lands, forests, scrubs, land with or without scrub, and water bodies. Where there is a disagreement between the signatures of different classes, the right land use class has been identified with the necessary care. The final land use/land cover map was created after the interpreted map was only validated on the ground at limited points.

### 2.4 LAND USE / LAND COVER CLASSIFICATION FOR CORE ZONE

Cartosat 3 MX (SPOT) and PAN(SPOT) imageries were used for core zone LULC classification. By assigning the necessary training sets, which were identified based on tone, texture, size, shape pattern, and location information, digital image processing was used to delineate various land use/ land cover categories in the core Zone, including active mining, area under reclamation, area under plantation, agricultural area, waste land, forest land, water body and settlements. The final land use/land cover map was created after the interpreted map was only validated on the ground.

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**LOCATED AT YELLANDU, KHAMMAM DISTRICT, TELANGANA STATE. PROJECT PROPONENT: M/S SINGARENI COLLIERIES COMPANY LTD.**

### **3 LULC RESULTS AND DISCUSSION**

#### **3.1 LAND USE & LAND COVER DETAILS FOR BUFFER ZONE:**

The satellite imagery of the study area around 10 km from mine site (core zone boundary) as captured by satellite. The Land use land cover in this study area is given here below.

**Table 3-1: Land use Land Cover details of 10km Buffer zone.**

<b>Land Use Land Cover Class</b>	<b>2022</b>	
	<b>Area in Hectares</b>	<b>Area Percentage</b>
Water Bodies	692.11	1.28
Mining Area	503.97	0.94
Industrial Establishments	5.80	0.01
Built-up Land	545.69	1.01
Open Forest	1253.22	2.33
Dense Forest	15300.99	28.40
Roads	875.28	1.62
Barren Land	282.87	0.53
Fallow Land	2890.11	5.36
Plantation	1771.99	3.29
Single Crop	10153.82	18.85
Double Crop	16691.79	30.98
Land with/without scrub	2909.40	5.40
<b>TOTAL AREA</b>	<b>53877.02</b>	<b>100.00</b>



80°24'0"E

80°28'0"E

80°32'0"E

80°36'0"E



17°44'0"N

17°44'0"N

17°40'0"N

17°40'0"N

17°36'0"N

17°36'0"N

17°32'0"N

17°32'0"N



80°24'0"E

80°28'0"E

80°32'0"E

80°36'0"E

**Legend**

-  Project Site (Mine Boundary)
-  10km Buffer

**Key Map of Telangana**



Scale: Not to Scale  
Source: <https://www.telangana.gov.in/about/districts>

Map Symbol	Land Use Land Cover Class	Area in Hectares	Area Percentage
	Water Bodies	692.11	1.28
	Mining Area	503.97	0.94
	Industrial Establishments	5.80	0.01
	Built-up Land	545.69	1.01
	Open Forest	1253.22	2.33
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	Plantation	1771.99	3.29
	Single Crop	10153.82	18.85
	Double Crop	16691.79	30.98
	Land with/without scrub	2908.40	5.40

**Source:**

1. SoI Toposheet No. 65C/5, 65C/6, 65C/9 & 65C/10
2. Project Layout Plan, SCCL

**The Singareni Collieries Company Limited**  
 (A Government Company)  
 Department of Environment  
 and Project Planning  
 (ISO-9001-2000 Certified)

**RF:- 1:25,000**

**Graphic Scale:**



**Figure 0.00: Land Use/Land Cover pattern map of the Buffer Zone**

**Project:**

**Buffer Area Classification of Koyagudam Opencast-II  
 Coal Mine Project**  
 Yellandu, Khammam District, Telangana

**Project Proponent:**

**The Singareni Collieries Company Limited**

**Environment Consultant:**

**GRENCINDIA Consulting Private Limited**

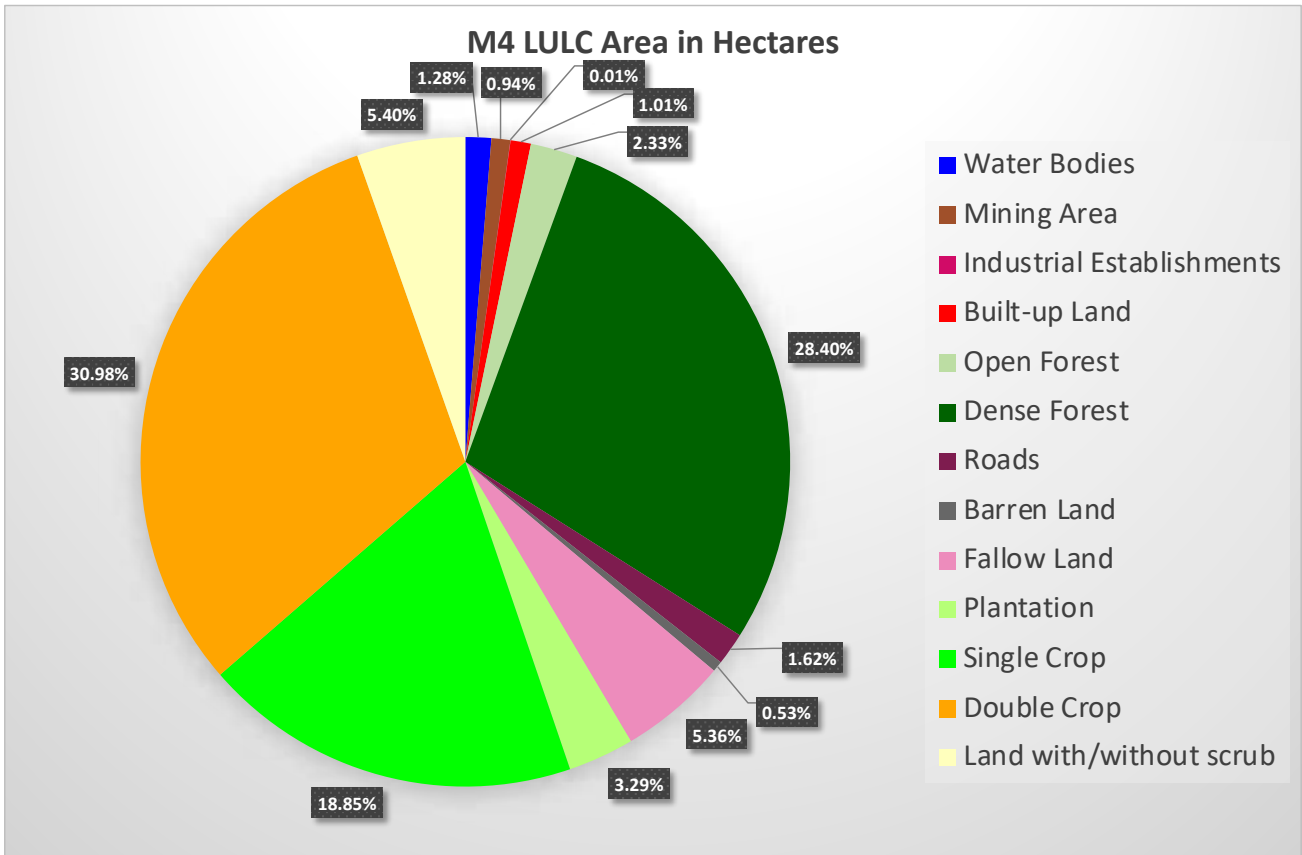
QCI-NABET Accrediate Environment Consultant Certificate No. NABET/EIA/2023/SA0155

<b>Drafted By:</b>	<b>Checked By:</b>	<b>Approved By:</b>

<b>Date</b>			
<b>Revision</b>			



**THE LAND USE / LAND COVER STUDY REPORT FOR**  
**KOYAGUDEM OPENCAST - II COAL MINE PROJECT**  
**LOCATED AT YELLANDU, KHAMMAM DISTRICT, TELANGANA STATE. PROJECT PROPONENT: M/S SINGARENI**  
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**Figure 3-2: Pie chart of LULC class (10 km buffer) of Koyagudem Opencast - II.**

### 3.2 RESULTS FOR BUFFER AREA:

The visual interpretation of the satellite imagery data along with ground verification was used to map different categories of land use/ land cover (LULC) for Buffer Area. Figure 3-1 shows the LULC map of Koyagudem Opencast - II Coal Mine Project for Buffer Area. The Area statistics of different categories of Buffer Area of land use/ land cover is also given in Table 3-1 and figure 3-2.

In the LULC study, thirteen categories of LULC were classified in the Buffer Area as represented in Table 3-2. The major proportion (58.48 %) of the buffer zone is under agriculture land use type (Fallow Land + Plantation + Single Crop + Double Crop). The second major LULC type is forest covers (open + dense forest) 30.73 % of Koyagudem Opencast - II Coal Mine Project. Water bodies occupy 1.28%. Few ponds were also found scattered in and around the area. Industrial Establishments occupy around 0.01 % area.

**THE LAND USE / LAND COVER STUDY REPORT FOR**

KOYAGUDEM OPENCAST - II COAL MINE PROJECT

**LOCATED AT YELLANDU, KHAMMAM DISTRICT, TELANGANA STATE. PROJECT PROPONENT: M/S SINGARENI COLLIERIES COMPANY LTD.**

### 3.3 LULC COMPARATIVES STUDY OF BUFFER ZONE FOR 2019 AND 2022

**Table 3-2: LULC data (Buffer Zone) of 2019 and 2022**

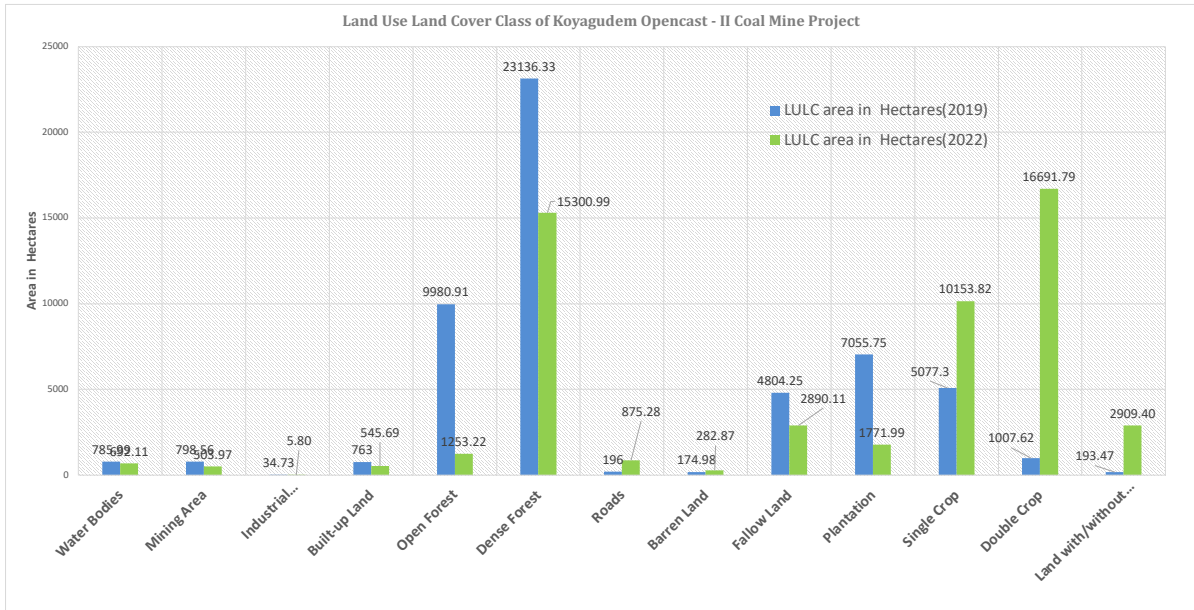
Land Use Land Cover Class	2019		2022		Area change (in %) from 2019 to 2022**
	LULC area in Hectares(2019)	Area in Percentage	LULC area in Hectares(2022)	Area in Percentage	
Water Bodies	785.99	1.46	692.11	1.28	<b>-0.18</b>
Mining Area	798.56	1.48	503.97	0.94	<b>-0.54</b>
Industrial Establishments	34.73	0.06	5.80	0.01	<b>-0.05</b>
Built-up Land	763	1.41	545.69	1.01	<b>-0.40</b>
Open Forest	9980.91	18.48	1253.22	2.33	<b>-16.15</b>
Dense Forest	23136.33	42.84	15300.99	28.40	<b>-14.44</b>
Roads	196	0.36	875.28	1.62	<b>1.26</b>
Barren Land	174.98	0.32	282.87	0.53	<b>0.21</b>
Fallow Land	4804.25	8.9	2890.11	5.36	<b>-3.54</b>
Plantation	7055.75	13.06	1771.99	3.29	<b>-9.77</b>
Single Crop	5077.3	9.4	10153.82	18.85	<b>9.45</b>
Double Crop	1007.62	1.87	16691.79	30.98	<b>29.11</b>
Land with/without scrub	193.47	0.36	2909.40	5.40	<b>5.04</b>
<b>Total Area</b>	<b>54008.89</b>	<b>100</b>	<b>53877.02</b>	<b>100.00</b>	<b>---</b>

\*\* Positive and Negative value implies LULC specific class area (in %) correspondingly increases or decrease from 2019 to 2022. The formula used for calculating LULC changes is (% of area change = Percentage of LULC class area for 2022 - Percentage of LULC class area for 2019).

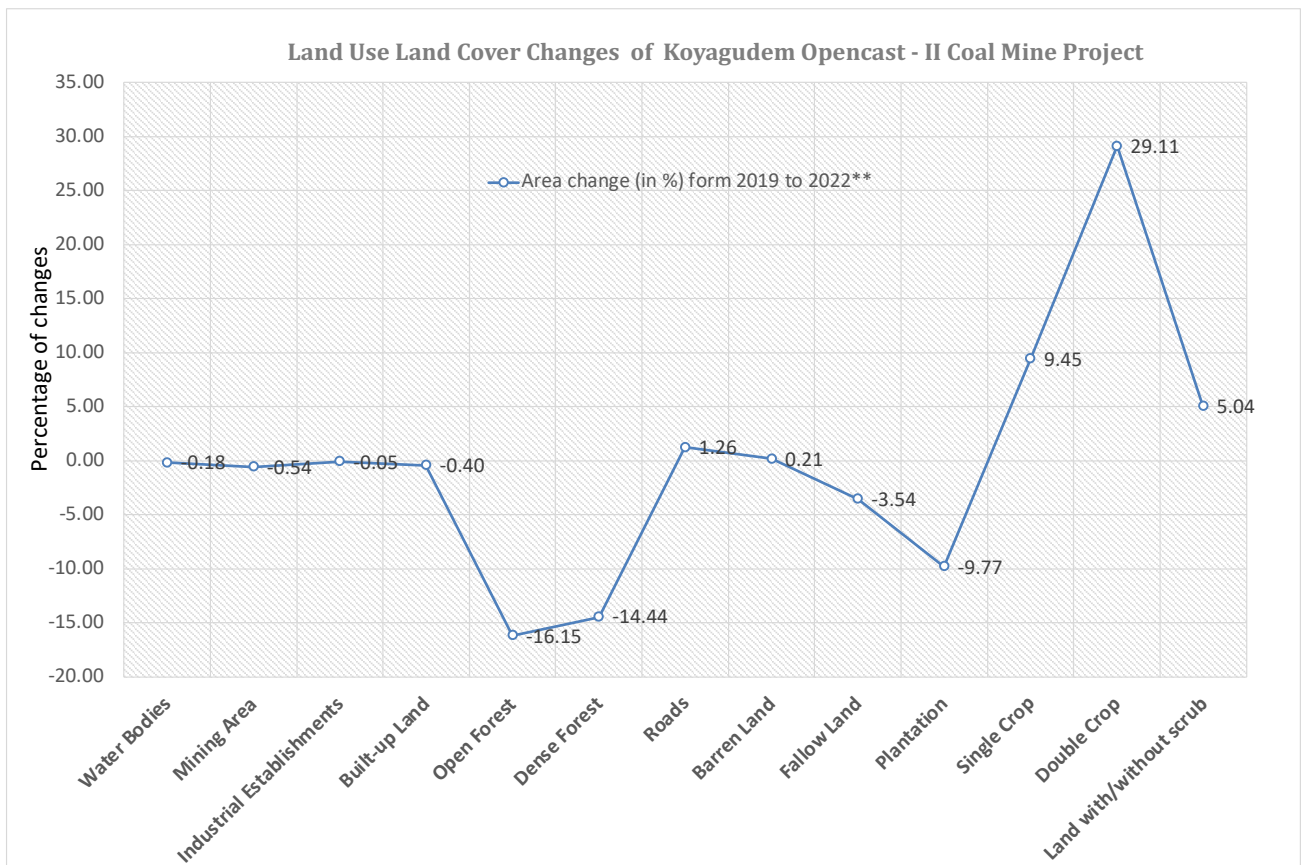
**ENVIRONMENT CONSULTANT:  
GREENCINDIA CONSULTING PRIVATE LIMITED**

**PROJECT PROPONENT: M/S SINGARENI  
COLLIERIES COMPANY LTD.**

**THE LAND USE / LAND COVER STUDY REPORT FOR**  
**KOYAGUDEM OPENCAST - II COAL MINE PROJECT**  
**LOCATED AT YELLANDU, KHAMMAM DISTRICT, TELANGANA STATE. PROJECT PROPONENT: M/S SINGARENI**  
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**Figure 3-3: LULC Class (10 km buffer) of Koyagudem Opencast - II on 2019 and 2022.**



**Figure 3-4: LULC Changes (10 km buffer area) of Koyagudem Opencast - II on 2019 and 2022.**

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### 3.4 LAND USE & LAND COVER DETAILS FOR CORE ZONE:

The Satellite data of the core zone of 816.11 Ha has been presented. The classified data of the Mine core zone. The extents of various Land Use/Land Cover classes pertaining to the study area.

**Table 3-3: Land use Land Cover details of Core zone.**

Land Use Land Cover Class	Area in Hectares	Area in Percentage
Coal Dump	5.85	0.70
Over Burden Dump	82.74	10.14
Plantations Greenbelt	64.80	7.94
Plantations OB Dump	128.81	15.78
Plantations Scrub	90.81	11.13
Quarry Area	210.41	25.78
Roads	31.52	3.86
Service Buildings	3.64	0.45
Water Bodies	22.98	2.82
Quarry Sump	55.75	6.83
Agriculture Fallow Land	12.09	1.48
Agriculture Crop Land	9.15	1.12
Backfilling area Plantation	63.64	7.80
Backfilling area Under reclamation	33.91	4.20
Barren Land	0.00	0.00
<b>Total Area</b>	<b>816.11</b>	<b>100.00</b>

**THE LAND USE / LAND COVER STUDY REPORT FOR**

**KOYAGUDEM OPENCAST - II COAL MINE PROJECT**

**LOCATED AT YELLANDU, KHAMMAM DISTRICT, TELANGANA STATE. PROJECT PROPONENT: M/S SINGARENI COLLIERIES COMPANY LTD.**

**3.5 RESULTS FOR CORE AREA:**

Figure 3-5 shows the LULC map of Koyagudem Opencast - II Coal Mine Project for Core zone or project area. The area statistics of different categories of land use/ land cover for core area was also given in Table 3-3.

Fifteen categories of LULC were classified in the core zone area. The major portion of the project area i.e., 42.65% is under plantation (Plantations Greenbelt + Plantations OB Dump + Plantations Scrub + Backfilling area Plantation). The Quarry area 25.78% area the second major LULC type of Koyagudem Opencast - II Coal Mine Project. Further larger LULC type is Over Burden Dump 10.14%, Other land use categories included Coal Dump 0.07%, water bodies 2.82%, agriculture (Agriculture Fallow Land + Agriculture Crop Land) 2.6%, and Quarry Sump 6.83 % of the total area.

80°28'0"E

80°30'0"E



17°40'0"N

17°40'0"N

17°38'0"N

17°38'0"N



Map Symbol	Land Use Land Cover Class	Area in Hectares	Area %
	Coal Dump	5.85	0.7
	Overburden Dump	82.74	10.1
	Plantations Greenbelt	64.80	7.9
	Plantations OB Dump	128.81	15.8
	Plantations Scrub	90.81	11.1
	Quarry Area	210.41	25.8
	Roads	31.52	3.9
	Service Buildings	3.64	0.4
	Water Bodies	22.98	2.8
	Quarry Sump	55.75	6.8
	Agriculture Fallow Land	12.09	1.5
	Agriculture Crop Land	9.15	1.1
	Backfilling area Plantation	63.64	7.8
	Backfilling area Under reclamation	33.91	4.2

80°28'0"E

80°30'0"E

**Key Map of Telangana**



Scale: Not to Scale  
Source: <https://www.telangana.gov.in/about/districts>

**Legend**

- Mine Boundary
- Water Bodies
- Coal Dump
- Quarry Sump
- Overburden Dump
- Agriculture Fallow Land
- Plantations Greenbelt
- Agriculture Crop Land
- Plantation OB Dump
- Backfilling area Plantation
- Plantations Scrub
- Quarry Area
- Roads
- Service Buildings
- Backfilling area Under reclamation

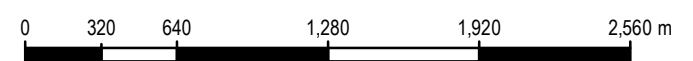
**Source:**

- SoI Toposheet No. 65C/5, 65C/6, 65C/9 & 65C/10
- Project Layout Plan, SCCL

**The Singareni Collieries Company Limited**  
(A Government Company)  
Department of Environment  
and Project Planning  
(ISO-9001-2000 Certified)

**RF:- 1:5000**

**Graphic Scale:**



**Figure 0.00: Core Area Classification Koyagudam Opencast-II Coal Mine Project**

**Project:**

**Koyagudam Opencast-II Coal Mine Project**  
Ramagundam- I, Peddapalli District, Telangana

**Project Proponent:**

**The Singareni Collieries Company Limited**

**Environment Consultant:**

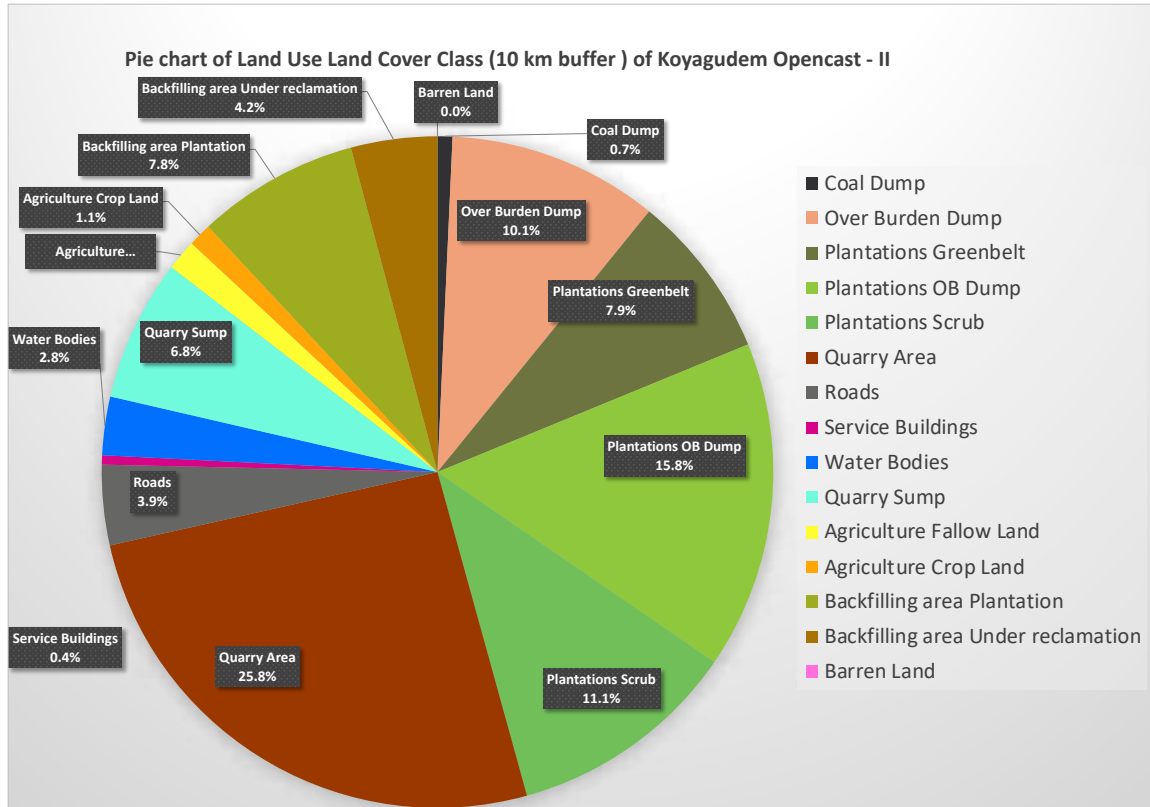
**GRENCINDIA Consulting Private Limited**

QCI-NABET Accrediate Environment Consultant Certificate No. NABET/EIA/2023/SA0155

<b>Drafted By:</b>	<b>Checked By:</b>	<b>Approved By:</b>

<b>Date</b>			
<b>Revision</b>			

**THE LAND USE / LAND COVER STUDY REPORT FOR**  
**KOYAGUDEM OPENCAST - II COAL MINE PROJECT**  
**LOCATED AT YELLANDU, KHAMMAM DISTRICT, TELANGANA STATE. PROJECT PROPONENT: M/S SINGARENI**  
**COLLIERIES COMPANY LTD.**



**Figure 3-6: Pie chart of Land use Land Cover details of Core zone.**

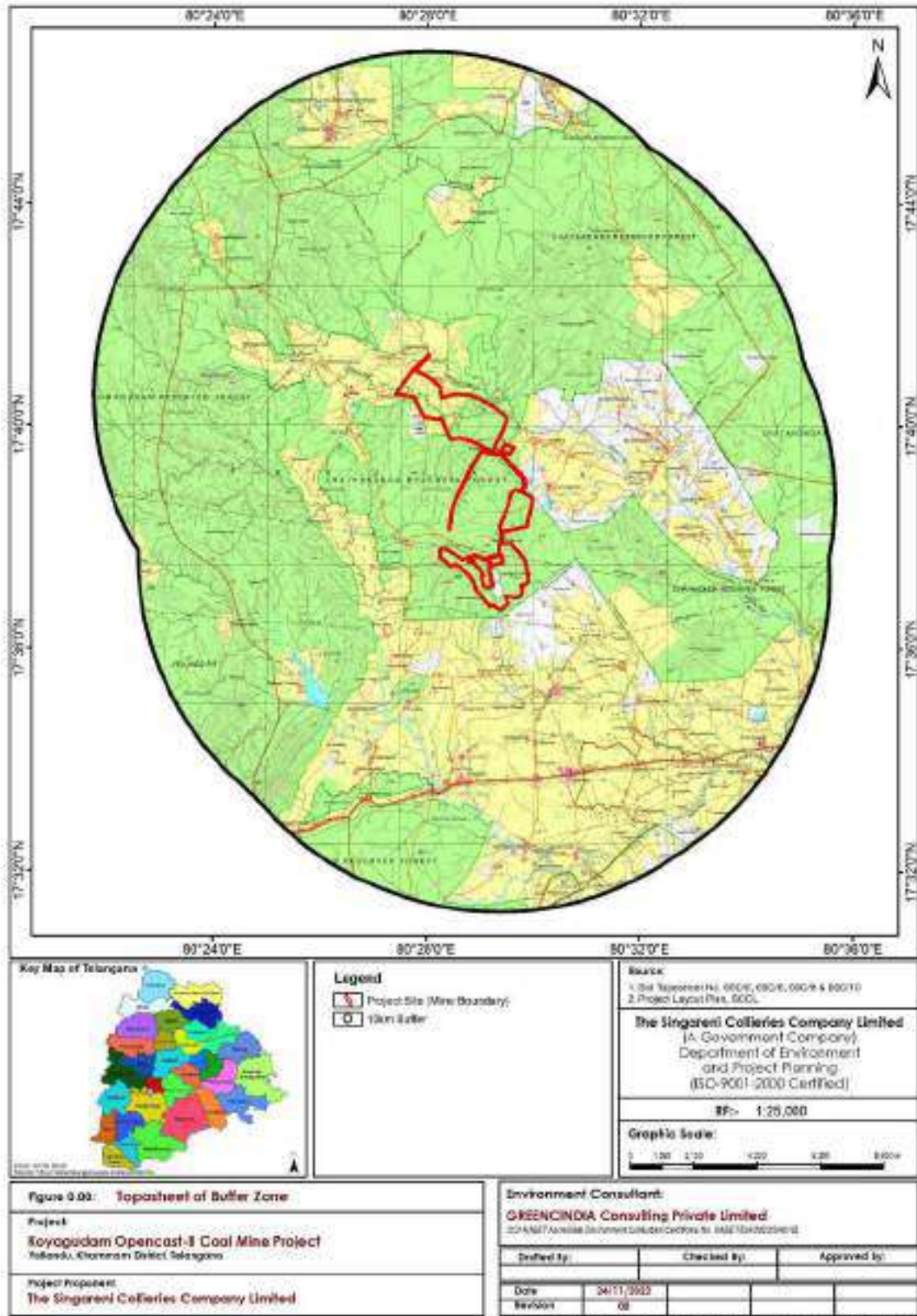
### **3.6 TOPOGRAPHY:**

Survey of India Toposheets E44O5, E44O6, E44O9 and E44O10 has been used for the topography studies. In topography map of buffer zone contours, drainage pattern, Roads, settlements, water bodies and forest boundaries has been shown.

The 10km buffer zone from the core zone boundary i.e. mine lease area of Koyagudem Opencast - II Coal Mine Project is mostly plain area, the elevation values range between -98m to 178m. The buffer zone covers the reserved forests namely Chathakonda Reserved Forest, Komararam Reserved Forest, Yellandu Reserved Forest, Kachinapalli Reserved Forest, Punukulachilka Reserved Forest, Chimalpad Reserved Forest and Betampudi Reserved Forset. Mureru vagu, Nalla vagu, Parkela Vagu, Murredu Vagu, Jibandala Vagu and Kninarasani River are passing through the buffer zone. The buffer zone is covered with 1- 5th order streams. Koyagudem, Tekulapalli, Muthyalam Padu, Betampudi, Kachinapalli and Sulanagar are the major urban Settlements that are covered in the 10km buffer zone. The South- Central Railway main line is passing in the buffer zone.



**THE LAND USE / LAND COVER STUDY REPORT FOR**  
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**COLLIERIES COMPANY LTD.**



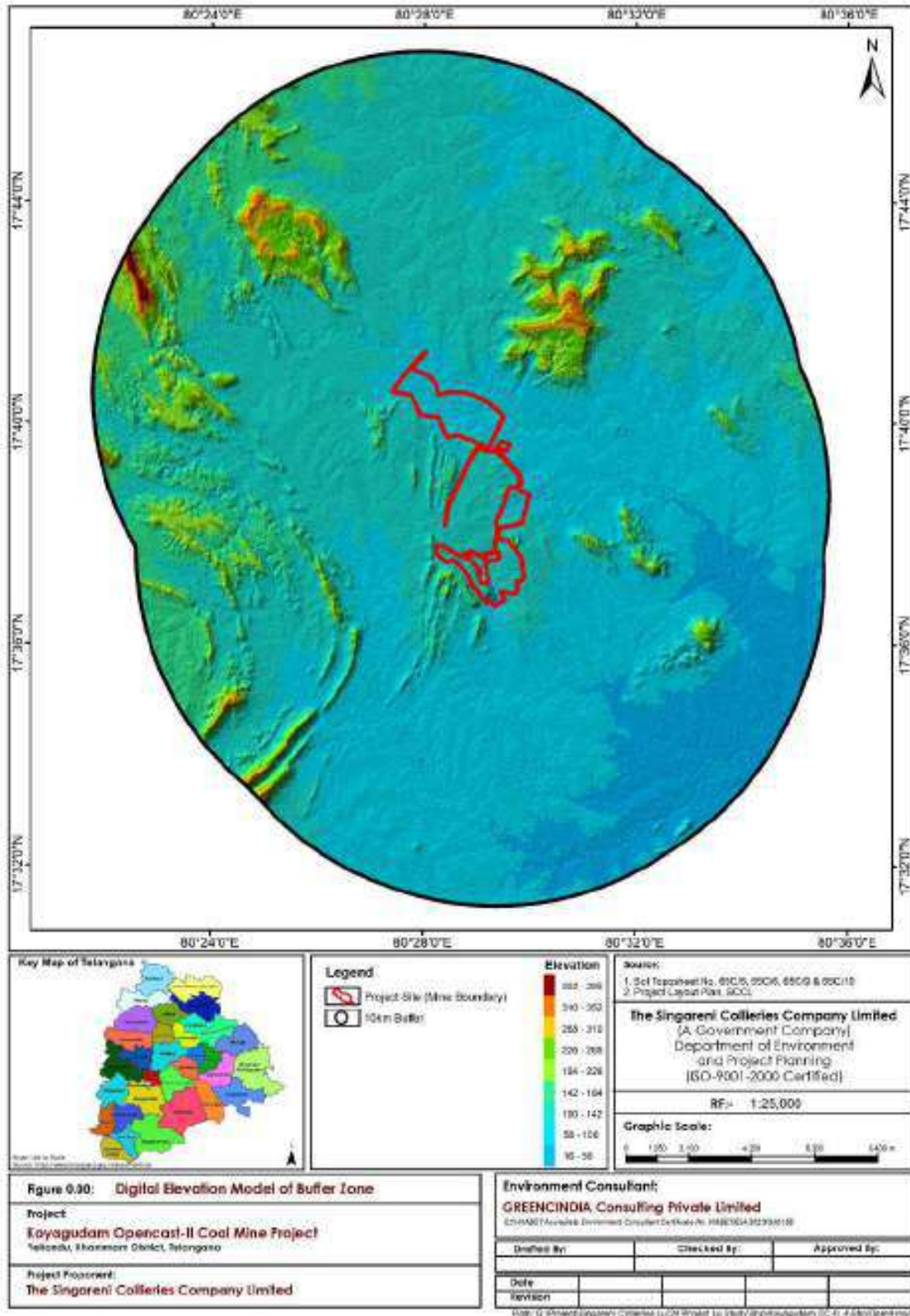
**Figure 3-7: Koyagudem Opencast - II project with 10 km buffer zone on Toposheet.**

**ENVIRONMENT CONSULTANT:**  
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**THE LAND USE / LAND COVER STUDY REPORT FOR**  
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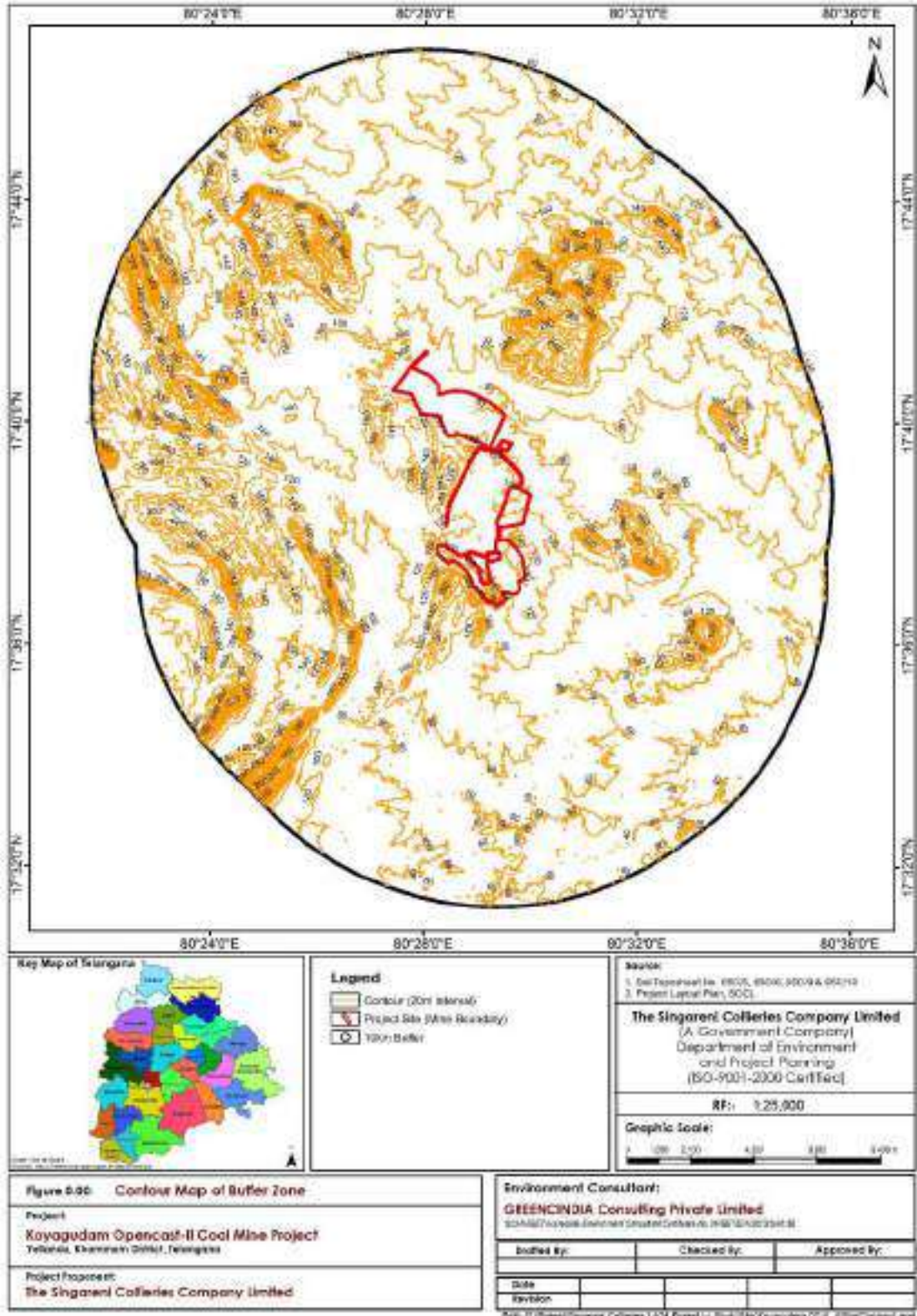


**Figure 3-8: Digital elevation map of Koyagudem Opencast - II Project with 10 km buffer zone**

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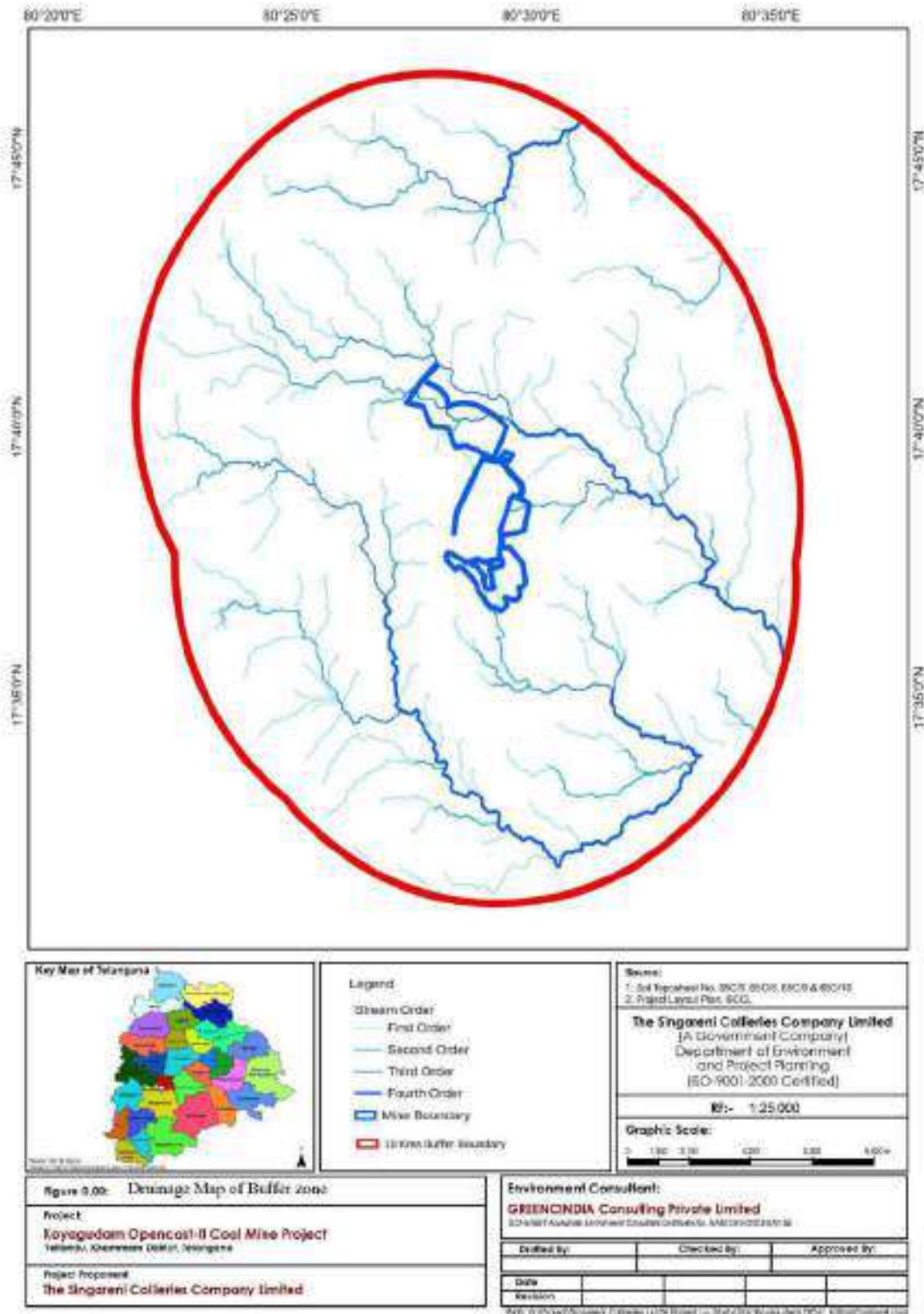
**Figure 3-9: Contour for Buffer Zone.**

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**Figure 3-10: Drainage Map of Buffer zone.**

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**THE LAND USE / LAND COVER STUDY REPORT FOR**

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### **3.7 BOUNDARY COORDINATES:**

The Geographic Coordinates of the boundary have been collected from field visit. The Coordinates of the Mine Boundary's GCP are shown below.

**Table 3-4: Project Boundary Co-ordinates.**

<b>GCP_ID</b>	<b>Longitude</b>	<b>Latitude</b>
1	80.479907619	17.627008895
2	80.471461943	17.629814076
3	80.470793760	17.627308465
4	80.474179653	17.624585835
5	80.475554092	17.625347343
6	80.481137461	17.619899129
7	80.485183525	17.613860853
8	80.487062164	17.613010892
9	80.492137553	17.613540519
10	80.486122171	17.626151085
11	80.490401672	17.625847984
12	80.489175576	17.629394071
13	80.489421439	17.636607824
14	80.490766102	17.639983449
15	80.494298657	17.647621843
16	80.496566198	17.650740438
17	80.481198936	17.655382212
18	80.473459162	17.635711047
19	80.483558766	17.658868392
20	80.478264388	17.662709135
21	80.474141315	17.662583205
22	80.471677181	17.667853525
23	80.465651030	17.669024924
24	80.462613256	17.675050037
25	80.456884713	17.676161815
26	80.467375594	17.687729951
27	80.462757943	17.683132837
28	80.468353348	17.680662106
29	80.470815836	17.678023123
30	80.471238485	17.674962900
31	80.480316476	17.675655352
32	80.491683364	17.668674378

**THE LAND USE / LAND COVER STUDY REPORT FOR**

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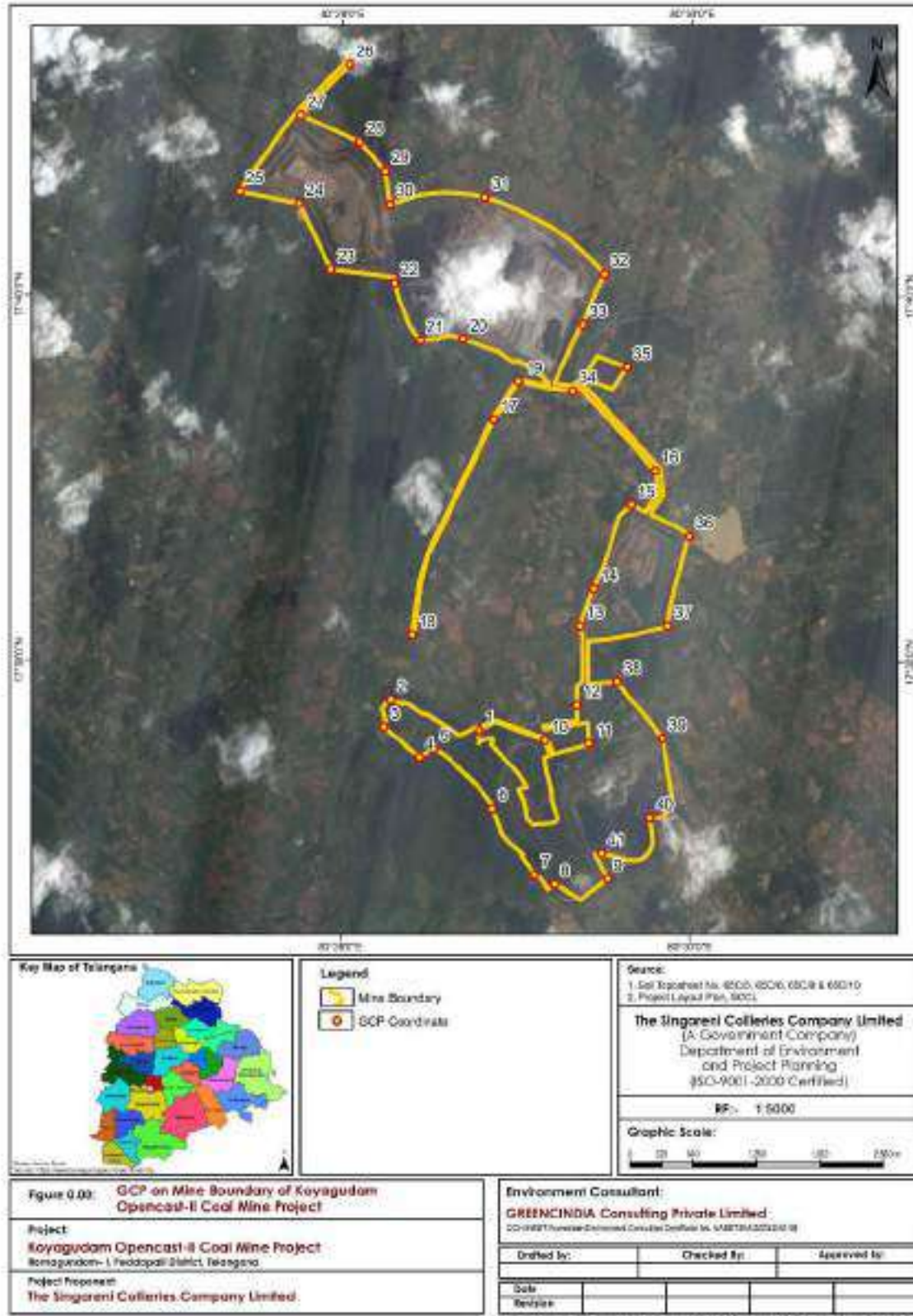
<b>GCP_ID</b>	<b>Longitude</b>	<b>Latitude</b>
33	80.489646241	17.664075669
34	80.488708282	17.658030217
35	80.493862798	17.660217464
36	80.499850696	17.644744087
37	80.497840762	17.636617450
38	80.493025812	17.631516618
39	80.497314283	17.626307368
40	80.496157495	17.619076364
41	80.491540716	17.615834976

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**PROJECT PROPONENT: M/S SINGARENI  
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**THE LAND USE / LAND COVER STUDY REPORT FOR**  
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**COLLIERIES COMPANY LTD.**



**Figure 3-11: Mine boundary on high resolution satellite image.**

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**THE LAND USE / LAND COVER STUDY REPORT FOR**

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### 3.8 LULC COMPARATIVES STUDY CORE ZONE FOR 2019 AND 2022

**Table 3-5: LULC data (Core Zone) of 2019 and 2022.**

Land Use Land Cover Class	2019		2022		Area change (in %) from 2019 to 2022**
	LULC area in Hectares(2019)	Area in Percentage	LULC area in Hectares (2022)	Area in Percentage	
Coal Dump	33.62	4.12	5.85	0.70	<b>-3.42</b>
Over Burden Dump	104.77	12.84	82.74	10.14	<b>-2.70</b>
Plantations Greenbelt	68.54	8.4	64.80	7.94	<b>-0.46</b>
Plantations OB Dump	102.84	12.6	128.81	15.78	<b>3.18</b>
Plantations Scrub	46.72	5.72	90.81	11.13	<b>5.41</b>
Quarry Area	145.28	17.8	210.41	25.78	<b>7.98</b>
Roads	45.73	5.6	31.52	3.86	<b>-1.74</b>
Service Buildings	4.5	0.55	3.64	0.45	<b>-0.10</b>
Water Bodies	25.46	3.12	22.98	2.82	<b>-0.30</b>
Quarry Sump	31.46	3.85	55.75	6.83	<b>2.98</b>
Agriculture Fallow Land	55.81	6.84	12.09	1.48	<b>-5.36</b>
Agriculture Crop Land	66.95	8.2	9.15	1.12	<b>-7.08</b>
Backfilling area Plantation	1.4	0.17	63.64	7.80	<b>7.63</b>
Backfilling area Under reclamation	81.24	9.95	33.91	4.20	<b>-5.75</b>
Barren Land	1.81	0.22	0.00	0.00	<b>-0.22</b>
<b>Total Area</b>	<b>816.13</b>	<b>99.98</b>	<b>816.11</b>	<b>100.00</b>	<b>---</b>

\*\* Positive and Negative value implies LULC specific class area (in %) correspondingly increases or decrease from 2019 to 2022. The formula used for calculating LULC changes is (% of area change = Percentage of LULC class area for 2022 - Percentage of LULC class area for 2019).

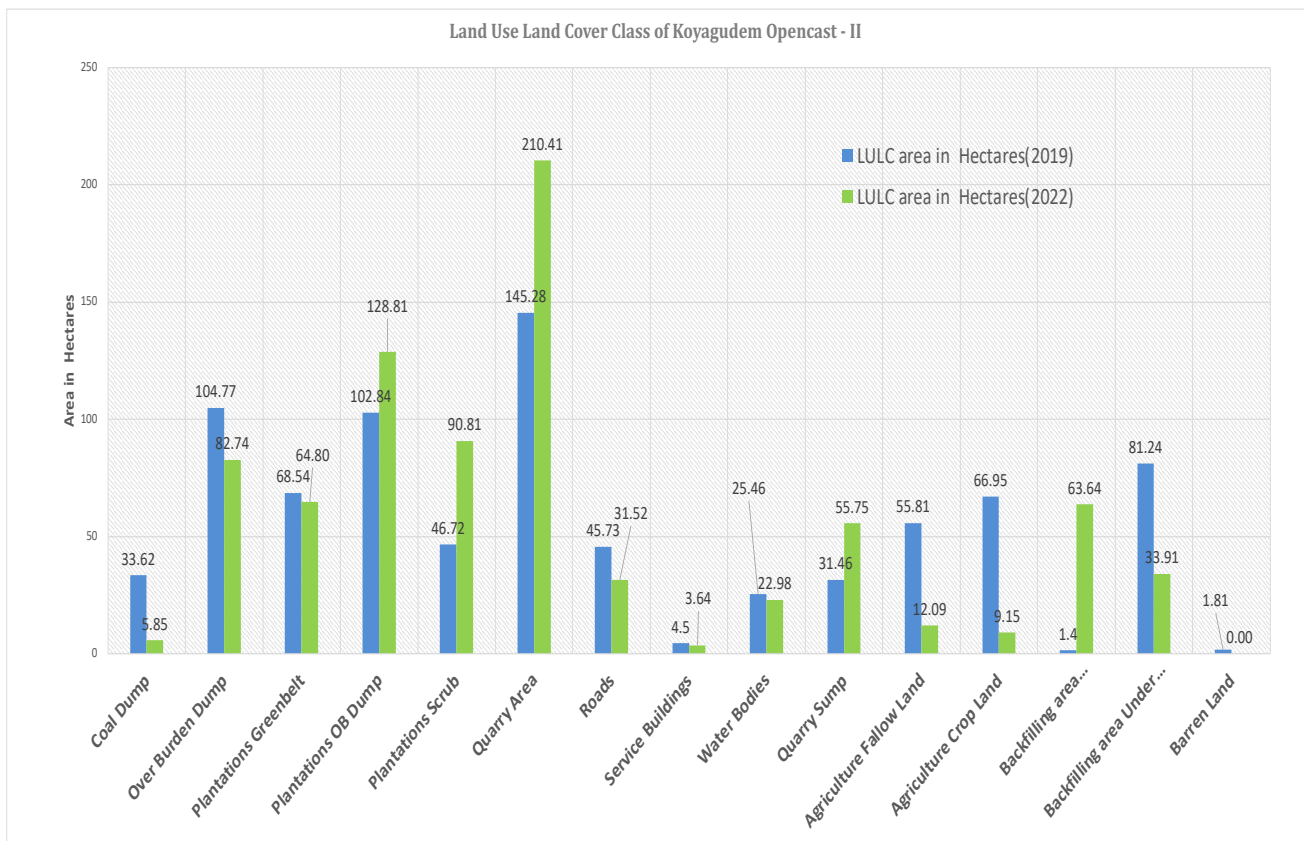
**THE LAND USE / LAND COVER STUDY REPORT FOR**

**KOYAGUDEM OPENCAST - II COAL MINE PROJECT**

**LOCATED AT YELLANDU, KHAMMAM DISTRICT, TELANGANA STATE. PROJECT PROPONENT: M/S SINGARENI COLLIERIES COMPANY LTD.**

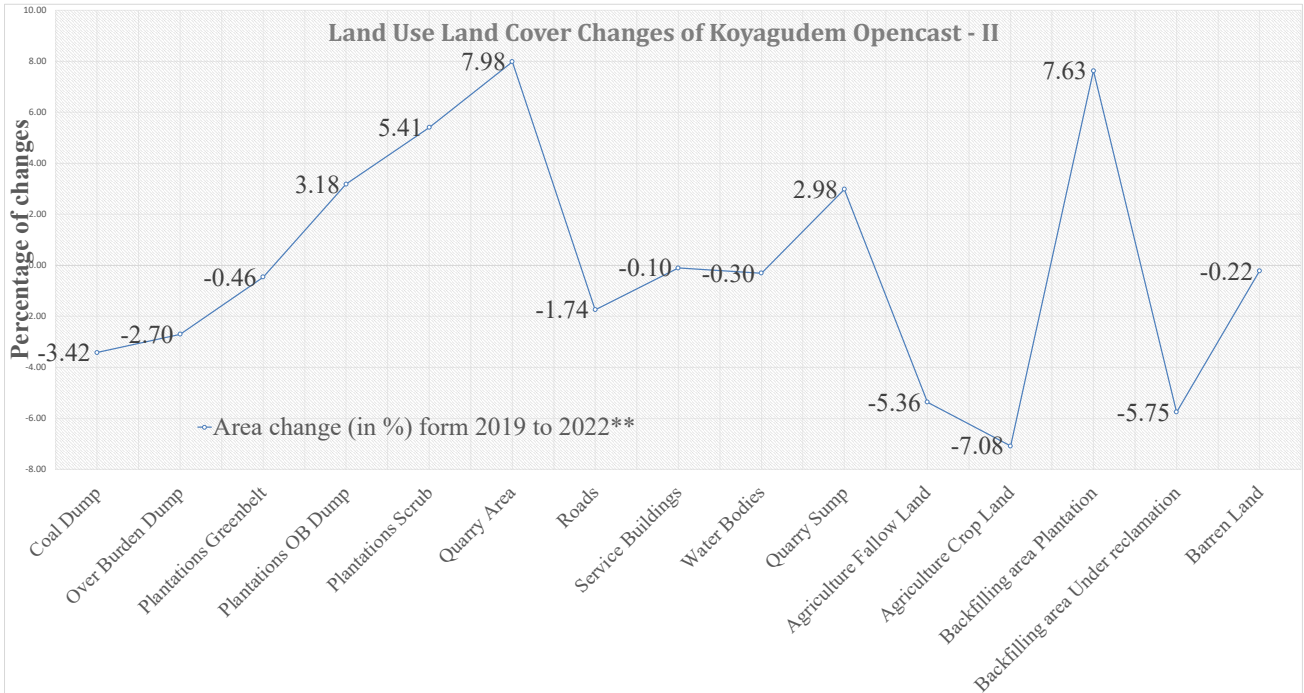
**3.9 COMPARISON OF LULC DATA OF 2019 & 2022**

The project site or core area LULC changes in 2022 are presented in table 3-5, total fourteen LULC class are identified. The coal Dump area decreased from 4.12 % in 2019 to 0.7 % in 2022 of the core zones. The overall plantation area (Plantations Greenbelt + Plantations OB Dump + Plantations Scrub + Backfilling area Plantation) is 26.89 % of the core area in 2019 and in 2022 it increases to 42.65 percentage of the total project area. The water bodies area is 2.82% in 2022. Service buildings area (0.55% in 2019), is decreased to 0.45 % of the project area in 2022. The agriculture land (Agriculture Fallow Land + Agriculture Crop Land) in 2019 was 15.04% and in 2022 decrease to 2.6% of the project site. The Quarry Sump increase from 3.85% to 6.83% and the quarry area increase form 17.8% in 2019 to 25.78% in 2022 of the core zone.



**Figure 3-12: LULC Class (Core Zone) of Koyagudem Opencast - II at 2019 and 2022.**

**THE LAND USE / LAND COVER STUDY REPORT FOR**  
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**LOCATED AT YELLANDU, KHAMMAM DISTRICT, TELANGANA STATE. PROJECT PROPONENT: M/S SINGARENI**  
**COLLIERIES COMPANY LTD.**



**Figure 3-13: Land Use Land Cover Changes (Core Zone) of Koyagudem Opencast - II.**



**THE LAND USE / LAND COVER STUDY REPORT FOR**  
**KOYAGUDEM OPENCAST - II COAL MINE PROJECT**  
**LOCATED AT YELLANDU, KHAMMAM DISTRICT, TELANGANA STATE. PROJECT PROPONENT: M/S SINGARENI**  
**COLLIERIES COMPANY LTD.**

**SITE PHOTOGRAPHS**



**Quarry Area.**



**Overburden dump**



**Haul Road**



**Barren Land**



**Plantations Greenbelt**



**Quarry Sump**

**ENVIRONMENT CONSULTANT:**  
**GREENCINDIA CONSULTING PRIVATE LIMITED**

**PROJECT PROPONENT: M/S SINGARENI**  
**COLLIERIES COMPANY LTD.**



**THE LAND USE / LAND COVER STUDY REPORT FOR**

**KOYAGUDEM OPENCAST - II COAL MINE PROJECT**

**LOCATED AT YELLANDU, KHAMMAM DISTRICT, TELANGANA STATE. PROJECT PROPONENT: M/S SINGARENI COLLIERIES COMPANY LTD.**



**Service Buildings**



**Roads**



**Backfilling area Under reclamation**

**ENVIRONMENT CONSULTANT:  
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**PROJECT PROPONENT: M/S SINGARENI  
COLLIERIES COMPANY LTD.**



**TELANGANA STATE POLLUTION CONTROL BOARD  
PARYAVARAN BHAVAN, A - 3, INDUSTRIAL ESTATE,  
SANATHNAGAR, HYDERABAD - 500 018**

Phone: 23887500  
Fax: 040 - 23815631  
Website: tspcb.cgg.gov.in

**CONSENT ORDER (RENEWAL)  
RED CATEGORY**

**Consent Order No : 220523543179**

**Date :20.04.2022**

(Consent Order for Existing/New or altered discharge of sewage and/or trade effluents/outlet under Section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and amendments thereof, Operation of the plant under section 21/22 of Air (Prevention & Control of Pollution) Act 1981 and amendments thereof.

CONSENT is hereby granted under section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974, under section 21/22 of Air (Prevention & Control of Pollution) Act 1981 and amendments thereof, (hereinafter referred to as 'the Acts', 'the Rules' and the rules and orders made there under to M/s. Singareni Collieries Company Ltd., Koyagudem Open Cast – II, Koyagudem (V), Tekulapalli (M), Bhadradi Kothagudem District (hereinafter referred to as 'the Applicant /Industry') and the mine is authorized to operate the industrial plant to discharge the Effluents from the outlets, as detailed below,

**i) Out lets for discharge of Effluents:**

Outlet No.	Description of Outlet	Max Daily Discharge in KLD	Point of Disposal
1	Excess mine discharge water after treatment	120	After treatment, shall be used for on land for gardening duly meeting the standards stipulated at Schedule –B.
2	Domestic	60	Septic tank followed by soak pit.

This consent order is valid for Mining of Coal in Mine lease area of 816 Ha. for the following capacity:

Sl. No	Line of activity	Capacity
1	Coal (open cast mining )	2.0 Million TPA

This order is subject to the provisions of 'the Acts' and the Rules' and amendments made thereunder and further subject to the terms and conditions incorporated in the schedule A and B enclosed to this order.

This Consent order is valid for a period upto 28<sup>th</sup> February,2027.

Sd/-  
MEMBER SECRETARY

To  
M/s. Singareni Collieries Company Ltd.,  
Koyagudem Open Cast – II, Koyagudem (V),  
Tekulapalli (M), Bhadradi Kothagudem District

///T.C.F.B.O///

*B. S. Girish*

SENIOR ENVIRONMENTAL ENGINEER (FAC)

### SCHEDULE – A

1. The applicant shall make applications through online for renewal of Consent (under Water & Air Acts) and Authorisation under HWM Rules at least 120 days before the date of expiry of this order, along with prescribed fee under Water and Air Acts for obtaining Consent & HW Authorisation of the Board. The applicant can also apply for Auto Renewal of the CFO atleast 30 days before the expiry of this order as per the procedure and eligibility stipulated in the Board Circular dt.19.11.2015 & 08.12.2015 (available in Board's Website: <http://tspcb.cgg.gov.in/Pages/Circulars.aspx>).
2. This order is issued in line with Board's CFO order dt.16.03.2017. Concealing the factual data or submission of false information/ fabricated data and failure to comply with any of the conditions mentioned in this order may result in withdrawal of this order and attract action under the provisions of relevant pollution control Acts. The mine shall comply with all other conditions of CFO order dt. 16.03.2017 is still applicable.
3. Any person aggrieved by an order made by the State Board under Section 25, Section 26, Section 27 of Water Act, 1974 or Section 21 of Air Act, 1981 may within thirty days from the date on which the order is communicated to him, prefer an appeal as per Andhra Pradesh Water Rules, 1976 and Air Rules 1982, to such authority (hereinafter referred to as the Appellate Authority) constituted under Section 28 of the Water (Prevention and Control of Pollution) Act, 1974 and Section 31 of the Air (Prevention and Control of Pollution) Act, 1981.
4. The mine may explore the possibility of tapping the solar energy for their energy requirements.
5. The mine shall comply with the all the directions issued by the Board from time to time.
6. The Board reserves its right to modify above conditions or stipulate any further conditions and to take action including revoke of this order in the interest of protection of public health and environment.

### SCHEDULE – B

1. Total Water Consumption shall not exceed 800 KLD

S. No	Purpose	Quantity (KLD)
1.	Process & Washings (including overhauls)	560
2.	Greenbelt	160
3.	Domestic	80
	Total	800 KLD

2. The effluent discharged should not contain constituents in excess of the tolerance limits prescribed below.

Outlet No.	Parameter	Limiting Standards
1	pH	5.5 – 9.0
	Total Suspended Solids (TSS)	100 mg/l
	Oil & Grease	10 mg/l
	BOD (3 days at 27 <sup>o</sup> C)	30 mg/l
	Chemical Oxygen Demand (COD)	250mg/l
	Total Dissolved Solids(TDS)	2100mg/l

3. The mine should ensure segregation of Acid Mine Discharges (AMD) from abandoned mines, coal stocks, coal handling facilities, washeries & coal waste tips etc. and should adopt adequate treatment to achieve prescribed standards for the AMD as stipulated at S.No.2 prior to disposal. The plan of action for segregation of AMD, technology of the proposed treatment and mode of disposal should be submitted to Board.

4. The mine shall comply with ambient air quality standards of PM<sub>10</sub>(Particulate Matter size less than 10µm) - 100 µg/ m<sup>3</sup>; PM<sub>2.5</sub>(Particulate Matter size less than 2.5 µm) - 60 µg/ m<sup>3</sup>; SO<sub>2</sub> - 80 µg/ m<sup>3</sup>; NO<sub>x</sub> - 80 µg/m<sup>3</sup>, outside the factory premises at the periphery of the industry.

Standards for other parameters as mentioned in the National Ambient Air Quality Standards CPCB Notification No.B-29016/20/90/PCI-I, dated 18.11.2009

**Noise Levels:** Day time - (6 AM to 10 PM) - 75 dB (A)  
Night time - (10 PM to 6 AM) - 70 dB (A).

5. The mine has paid CFO fee of Rs. 9,00,000/- for a period upto 28.02.2024.
6. The mine shall pay balance consent fee annually as per rates notified in G.O.Ms.No.22. The payment of annual consent fee shall be made at the concerned RO for every financial year (i.e., April to March) within the stipulated time period i.e., 1st quarter of every financial year (April to June) is mandatory for the industry / project, failing which, the validity of the Consent Order automatically stands cancelled and operation industry / project without valid consent attracts penal action under the provision of Water Act, Air Act & Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016.
7. The mine either paying annual fee or total fee for Consented period, shall pay the balance fee as per the revised rates as applicable from time to time.
8. The mine shall not produce beyond the permitted capacity as mentioned in this order, without obtaining prior CFE & CFO of the Board. The mining capacity of the coal also shall not be increased more than IBM approved capacity.
9. The mine shall maintain separate water meters for recording water consumption for various purposes and also maintain daily records.
10. The mine shall provide fixed water sprinklers along the permanent haul roads of the mine within three months.
11. The mine shall maintain the water spraying system properly by adopting preventive maintenance schedule to avoid fugitive dust emissions.
12. The mine shall carryout water spraying on haul roads to avoid fugitive dust emissions due to vehicular movement.
13. The mine shall develop and maintain greenbelt as per norms.
14. The mine shall commission one CAAQM station within six months and connect to the TSPCB server as per CPCB directions, as committed.
15. The mine shall install 3 fixed AAQM stations in core area for conducting AAQ monitoring and submit reports to the RO, Kothagudem.
16. The mine shall clean the roads regularly by procuring mechanical sweeping machine within five months to avoid fugitive emissions as committed.
17. The Mine shall maintain water mist sprayers at coal bunkers to control fugitive emissions.
18. The mine shall take effective measures such as covering coal transport vehicles with tarpaulins, mechanical sweeping of roads, etc to avoid fugitive emissions.
19. The mine shall use atleast 25% of fly ash on volume to volume basis of the total materials used for external dump of overburden and same percentage in upper benches of back filling of open cast mines, as per Fly Ash Notification.
20. The mine shall comply with MOE&F Notification No.GSR.02 (E), dt. 02.01.2014 for supply of coal with Ash content not exceeding 34% to coal based Thermal Power plants.
21. The mine should comply with standards applicable to coal mining for core zone as per GSR 742 (E) dates 25<sup>th</sup> September 2000 issued by MOEF&CC and also comply with National Ambient Air Quality Standards (NAAQS) in the buffer zone.



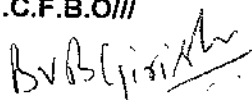
22. The personnel working in dusty areas should wear protective / respiratory devices and they should also be provided with adequate training and information on safety and health aspects.
23. Blasting should be sequential in such a manner as to achieve minimum vibration.
24. The mine shall comply with the following for controlling air pollution.
  - To avoid the dust generation from the drilling operations, wet-drilling should be done.
  - Use of appropriate explosives for controlled blasting and avoid overcharging the blast holes.
  - The volume of dust rising from dumps by the action of wind should be controlled significantly by planting grasses on slopes and plants on dumps soon after their formation.
  - To overcome the problems of dust generation from mine haul roads, the following steps should be adopted.
    - Black topping of permanent roads like routes to coal handling plant, permanent internal roads etc.
    - Water spraying on haul roads and permanent transport routes at required frequencies. Provision should be made for procurement of six water sprinklers for this purpose.
    - Avenue plantation along roads should be adopted.
  - Effective dust suppression measures are proposed to be taken up at pit head coal handling plant (CHP). The crusher house should be enclosed to the extent possible and dust suppression arrangement should be provided at suitable locations in the CHP. All the conveyors, screens, crusher etc., should be provided with covers to avoid fugitive dust during operation. Some of the measures proposed to be adopted at CHP in order to control dust emission include:
    - Height of fall to be minimized at all coal transfer points.
    - Internal lining of chutes and bins should be done to take care of abrasion & dust.
25. Dumping of overburden, if done, shall use the retreating pyramid bench formation with concurrent, physical and biological reclamation. Dumps should be contoured and provided with relief control and stabilized. Dump tops should be compacted, leveled and be properly drained.
26. Soil binding and nitrogen fixing plants should plant in the Mining Lease Area. Biological reclamation should be done in two phase the first phase should be plant appropriate quick growing grass and shrubs and the second phase should grow slower native shrubs and trees.
27. Ground water table levels should be monitored every season. Any lowering of the ground water table in comparison to the previous season should be reported to the Board immediately. Discarded pits should be allowed to fill with water.
28. Vehicles should be well maintained and engine idling should be minimized. Vehicle cabs should be made dust-proof.
29. All waste material should be accommodated within the Mining Lease Area.
30. The natural drainage of water should be maintained. Dump sites should not cross any streams, water flow from the Mining Lease Area, even during the monsoon, should be free of suspended matter and conform to prescribed water quality standards.
31. Check dams and filter beds should be constructed to protect from streams runoffs.
32. The mine shall comply with the directions issued by the Board from time to time.

33. The applicant should submit Environment statement in Form V before 30<sup>th</sup> September of every year as per Rule No.14 of E(P) Rules, 1986 & amendments thereof.
34. All the rules & regulations notified by Ministry of Law and Justice, Government of India regarding Public Liability Insurance Act, 1991, should be followed.
35. The conditions stipulated in this order are without any prejudice to rights and contentions of this Board in any Hon'ble court of Law.

Sd/-  
**MEMBER SECRETARY**

To  
**M/s. Singareni Collieries Company Ltd.,  
Koyagudem Open Cast – II, Koyagudem (V),  
Tekulapalli (M), Bhadradi Kothagudem District**

///T.C.F.B.O///



✓ **SENIOR ENVIRONMENTAL ENGINEER (FAC)**

**KOC-II AIR Quality Monitoring****Summary of monthly Micro-Meteorological data generated in KOC-II mine area**

Month	Wind Speed (m/s)			Temperature (°C)			Relative Humidity (%)			Rainfall (mm)	
	Mean	Max	Calm %	Mean	Max	Min	Mean	Max	Min	Total	Hourly highest
<b>April, 2024</b>	1.51	7.0	11.50	31.1	40.3	22.6	52.7	98.3	8.5	0.5	0.5
<b>May, 2024</b>	1.43	9.0	8.42	37.4	43.5	21.4	44.1	93.2	9.4	10.0	10.0
<b>June, 2024</b>	1.1	8.0	16.39	32.0	44.6	24.8	64.6	99.9	25.6	185.8	12.5
<b>July, 2024</b>	0.8	6.0	21.1	27.6	38.8	23.3	57.4	99.6	5.9	240.5	18.0
<b>August, 2024</b>	1.1	6.5	14.25	27.1	35.6	23.0	81.9	99.6	22.4	410.5	15.0
<b>September, 2024</b>	1.6	9.0	20.28	28.8	37.7	24.2	65.6	97.3	33.2	178.9	18.1

**Summary of Micro-Meteorological data generated for the entire study period  
(April - September 2024)**

S.No	Parameter (s)	Min	Max	Mean
1.	Temperature (°C)	21.4	44.6	30.0
2.	Wind Speed (m/s)	% calm 14.37	9.0	1.1
3.	Relative Humidity (%)	5.9	99.9	61.0
4.	Predominant Wind direction for the study period	South West (SW)		
5.	Total Rainfall (mm)	1026.2		

### Air Monitoring Locations

Station Code	Name of the Stations	Latitude	Longitude
<b>CORE ZONE</b>			
CA5	Koyagudem OC-II PO Office	N 17°37' 29.4"	E 80°29' 09.9"
CA6	Pit Head CHP KOC-II	N 17°37' 26.0"	E 80°29' 29.9"
CA7	Sub Station KOC-II	N 17°39' 25.2"	E 80°29' 26.1"
CA8	Base Workshop, KOC-II	N 17°39' 53.0"	E 80°28' 21.5"
<b>BUFFER ZONE</b>			
BA5	Bodu Village	N 17°40' 35.0"	E 80°26' 32.4"
BA6	Petramchilaka Village	N 17°37' 58.7"	E 80°27' 39.2"
BA7	Kistaram Village	N 17°39' 41.6"	E 80°30' 11.4"
BA8	Latchigudem Village	N 17°38' 49.0"	E 80°30' 15.4"

#### Ambient Air Qualities at Koyagudem OC-II PO Office (CA5)

**Area** : KOC-II Mine **Nature of Area** : Core Zone  
**Period of Monitoring** : April 2024 - September 2024 **Sampling Duration** : 24hrs period

S.No.	Date of Sampling	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )
<b>Coal mine standards, GSR 742(E), Dated 25.09.2000</b>		<b>250</b>	<b>-</b>	<b>120</b>	<b>120</b>
1.	04.04.2024	86	29.2	9.2	14.7
2.	19.04.2024	71	22.8	10.2	15.1
3.	04.05.2024	88	23.8	10.8	14.8
4.	20.05.2024	68	22.3	10.3	14.7
5.	05.06.2024	65	21.1	9.5	15.5
6.	20.06.2024	68	21.6	9.6	14.9
7.	05.07.2024	59	21.8	10.3	15.5
8.	20.07.2024	61	22.8	10.5	15.2
9.	05.08.2024	68	21.5	10.3	14.7
10.	21.08.2024	66	21.3	10.1	14.8
11.	04.09.2024	65	22.1	10.3	15.9
12.	19.09.2024	171	42.5	11.9	16.2
<b>MIN</b>		<b>59</b>	<b>21.1</b>	<b>9.2</b>	<b>14.7</b>
<b>MAX</b>		<b>171</b>	<b>42.5</b>	<b>11.9</b>	<b>16.2</b>
<b>AVERAGE</b>		<b>78</b>	<b>24.4</b>	<b>10.3</b>	<b>15.2</b>
<b>PERCENTILE</b>		<b>153</b>	<b>39.6</b>	<b>11.7</b>	<b>16.1</b>



**Ambient Air Qualities at Pit Head CHP KOC-II (CA6)**

Area : KOC-II Mine Nature of Area : Core Zone  
 Period of : April 2024 - September 2024 Sampling Duration : 24hrs period  
 Monitoring : September 2024

S.No.	Date of Sampling	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )
<b>Coal mine standards, GSR 742(E),Dated 25.09.2000</b>		<b>250</b>	<b>-</b>	<b>120</b>	<b>120</b>
1.	04.04.2024	168	45.3	11.5	16.1
2.	19.04.2024	159	39.5	12.2	17.8
3.	04.05.2024	148	35.7	11.3	16.2
4.	20.05.2024	135	35.6	11.1	15.8
5.	05.06.2024	162	45.2	11.6	16.6
6.	20.06.2024	159	35.4	11.4	16.4
7.	05.07.2024	144	33.2	12.5	18.6
8.	20.07.2024	136	33.1	12.7	17.7
9.	05.08.2024	141	36.5	13.1	18.6
10.	21.08.2024	151	38.9	11.7	18.5
11.	04.09.2024	141	35.3	12.4	17.4
12.	19.09.2024	153	38.5	11.8	17.6
<b>MIN</b>		<b>135</b>	<b>33.1</b>	<b>11.1</b>	<b>15.8</b>
<b>MAX</b>		<b>168</b>	<b>45.3</b>	<b>13.1</b>	<b>18.6</b>
<b>AVERAGE</b>		<b>150</b>	<b>37.7</b>	<b>11.9</b>	<b>17.3</b>
<b>PERCENTILE</b>		<b>167</b>	<b>45.3</b>	<b>13.0</b>	<b>18.6</b>

- No standard was specified for PM2.5in core zone

**Ambient Air Quality at at Sub Station KOC-II (CA7)**

Area : KOC-II Mine Nature of Area : Core Zone  
 Period of : April 2024 - September 2024 Sampling Duration : 24hrs period  
 Monitoring : September 2024

S.No.	Date of Sampling	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )
<b>Coal mine standards, GSR 742(E),Dated 25.09.2000</b>		<b>250</b>	<b>-</b>	<b>120</b>	<b>120</b>
1.	04.04.2024	149	43.2	11.2	15.5
2.	19.04.2024	151	38.9	11.6	17.6
3.	04.05.2024	135	37.9	11.2	15.5
4.	20.05.2024	129	32.5	10.9	15.3
5.	05.06.2024	148	39.4	11.8	16.4
6.	20.06.2024	145	33.8	11.9	16.1
7.	05.07.2024	132	32.5	13.1	19.8
8.	20.07.2024	141	34.5	12.9	19.5
9.	05.08.2024	155	41.2	12.5	20.1
10.	21.08.2024	142	35.1	10.9	16.7
11.	04.09.2024	162	38.4	11.3	17.8
12.	19.09.2024	169	39.6	12.1	16.8
<b>MIN</b>		<b>129</b>	<b>32.5</b>	<b>10.9</b>	<b>15.3</b>
<b>MAX</b>		<b>169</b>	<b>43.2</b>	<b>13.1</b>	<b>20.1</b>
<b>AVERAGE</b>		<b>147</b>	<b>37.3</b>	<b>11.8</b>	<b>17.3</b>
<b>PERCENTILE</b>		<b>167</b>	<b>42.8</b>	<b>13.1</b>	<b>20.0</b>

**Ambient Air Quality at Base Workshop, KOC-II (CA8)**

Area : KOC-II Mine Nature of Area : Core Zone  
 Period of : April 2024 - September 2024 Sampling Duration : 24hrs period  
 Monitoring : September 2024

S.No.	Date of Sampling	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )
<b>Coal mine standards, GSR 742(E),Dated 25.09.2000</b>		<b>250</b>	<b>-</b>	<b>120</b>	<b>120</b>
1.	04.04.2024	151	46.1	11.6	15.3
2.	19.04.2024	149	34.2	11.1	16.9
3.	04.05.2024	154	40.2	11.1	16.1
4.	20.05.2024	148	36.2	10.5	15.7
5.	05.06.2024	151	41.6	10.9	15.9
6.	20.06.2024	158	36.1	11.2	16.3
7.	05.07.2024	141	32.7	12.3	17.7
8.	20.07.2024	139	32.8	12.1	17.4
9.	05.08.2024	146	38.3	11.7	17.1
10.	21.08.2024	136	31.3	11.5	15.9
11.	04.09.2024	135	34.2	10.6	16.5
12.	19.09.2024	139	35.3	10.8	16.2
<b>MIN</b>		<b>135</b>	<b>31.3</b>	<b>10.5</b>	<b>15.3</b>
<b>MAX</b>		<b>158</b>	<b>46.1</b>	<b>12.3</b>	<b>17.7</b>
<b>AVERAGE</b>		<b>146</b>	<b>36.6</b>	<b>11.3</b>	<b>16.4</b>
<b>PERCENTILE</b>		<b>157</b>	<b>45.1</b>	<b>12.3</b>	<b>17.6</b>

**Ambient Air Quality at Bodu Village (BA5)**

Area : KOC-II Mine Nature of Area : Buffer Zone  
 Period of : April 2024 - September 2024 Sampling Duration : 24hrs period  
 Monitoring : September 2024

S.No.	Date of Sampling	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )
<b>NAAQ Standards, CPCB, Dated 18.11.2009</b>		<b>100</b>	<b>60</b>	<b>80</b>	<b>80</b>
1.	05.04.2024	60	20.5	9.5	14.4
2.	20.04.2024	62	21.2	9.6	14.9
3.	06.05.2024	68	21.9	9.4	14.7
4.	21.05.2024	64	21.2	9.7	14.4
5.	06.06.2024	65	21.6	9.9	14.6
6.	21.06.2024	64	21.5	9.6	14.9
7.	06.07.2024	68	22.3	9.5	15.1
8.	22.07.2024	62	21.4	9.2	14.8
9.	06.08.2024	66	21.6	9.4	14.6
10.	22.08.2024	71	22.2	9.6	14.5
11.	05.09.2024	73	22.7	9.5	14.3
12.	20.09.2024	77	22.3	9.4	14.5
<b>MIN</b>		<b>60</b>	<b>20.5</b>	<b>9.2</b>	<b>14.3</b>
<b>MAX</b>		<b>77</b>	<b>22.7</b>	<b>9.9</b>	<b>15.1</b>
<b>AVERAGE</b>		<b>67</b>	<b>21.7</b>	<b>9.5</b>	<b>14.6</b>
<b>PERCENTILE</b>		<b>76</b>	<b>22.6</b>	<b>9.9</b>	<b>15.1</b>

**Ambient Air Quality at Petramchilaka Village (BA6)**

Area : KOC-II Mine Nature of Area : Buffer Zone  
 Period of : April 2024 - September 2024 Sampling Duration : 24hrs period  
 Monitoring : September 2024

S.No.	Date of Sampling	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )
<b>NAAQ Standards, CPCB, Dated 18.11.2009</b>		<b>100</b>	<b>60</b>	<b>80</b>	<b>80</b>
1.	05.04.2024	77	23.8	10.5	15.1
2.	20.04.2024	74	23.1	10.8	15.4
3.	06.05.2024	62	21.5	10.4	15.2
4.	21.05.2024	58	20.3	10.1	14.9
5.	06.06.2024	75	22.8	10.5	15.2
6.	21.06.2024	73	22.3	10.3	15.4
7.	06.07.2024	68	22.3	9.5	15.1
8.	22.07.2024	59	20.3	10.5	15.4
9.	06.08.2024	62	21.1	10.8	15.2
10.	22.08.2024	65	20.7	10.5	14.8
11.	05.09.2024	62	21.4	10.7	15.5
12.	20.09.2024	68	22.2	10.5	15.6
<b>MIN</b>		<b>58</b>	<b>20.3</b>	<b>9.5</b>	<b>14.8</b>
<b>MAX</b>		<b>77</b>	<b>23.8</b>	<b>10.8</b>	<b>15.6</b>
<b>AVERAGE</b>		<b>67</b>	<b>21.8</b>	<b>10.4</b>	<b>15.2</b>
<b>PERCENTILE</b>		<b>77</b>	<b>23.6</b>	<b>10.8</b>	<b>15.6</b>

**Ambient Air Quality at Kistaram Village (BA7)**

Area : KOC-II Mine Nature of Area : Buffer Zone  
 Period of : April 2024 - September 2024 Sampling Duration : 24hrs period  
 Monitoring : September 2024

S.No.	Date of Sampling	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )
<b>NAAQ Standards, CPCB, Dated 18.11.2009</b>		<b>100</b>	<b>60</b>	<b>80</b>	<b>80</b>
1.	05.04.2024	61	21.1	9.7	14.5
2.	20.04.2024	65	20.9	10.2	14.7
3.	06.05.2024	55	20.8	9.9	14.3
4.	21.05.2024	53	20.1	9.4	14.5
5.	06.06.2024	58	21.7	9.7	14.8
6.	21.06.2024	62	20.7	10.1	14.7
7.	06.07.2024	55	19.3	11.1	15.3
8.	22.07.2024	57	20.1	10.8	15.8
9.	06.08.2024	58	20.3	11.2	15.6
10.	22.08.2024	56	20.3	10.6	15.2
11.	05.09.2024	55	20.2	10.8	15.4
12.	20.09.2024	58	20.3	10.7	15.3
<b>MIN</b>		<b>53</b>	<b>19.3</b>	<b>9.4</b>	<b>14.3</b>
<b>MAX</b>		<b>65</b>	<b>21.7</b>	<b>11.2</b>	<b>15.8</b>
<b>AVERAGE</b>		<b>58</b>	<b>20.5</b>	<b>10.4</b>	<b>15.0</b>
<b>PERCENTILE</b>		<b>64</b>	<b>21.6</b>	<b>11.2</b>	<b>15.8</b>

### Ambient Air Quality at Latchigudem Village (BA8)

Area : KOC-II Mine Nature of Area : Buffer Zone  
 Period of Monitoring : April 2024 - September 2024  
 Sampling Duration : 24hrs period

S.No.	Date of Sampling	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )
<b>NAAQ Standards, CPCB, Dated 18.11.2009</b>		<b>100</b>	<b>60</b>	<b>80</b>	<b>80</b>
1.	05.04.2024	56	20.2	9.4	14.3
2.	20.04.2024	52	19.2	9.3	14.1
3.	06.05.2024	49	18.3	8.7	13.9
4.	21.05.2024	45	19.2	8.9	14.1
5.	06.06.2024	42	19.2	9.1	14.3
6.	21.06.2024	48	19.4	8.6	14.5
7.	06.07.2024	45	18.5	9.1	14.7
8.	22.07.2024	48	19.1	9.3	14.9
9.	06.08.2024	51	19.8	9.4	14.8
10.	22.08.2024	51	19.8	9.2	14.6
11.	05.09.2024	49	19.5	9.5	14.7
12.	20.09.2024	52	20.1	9.2	14.4
<b>MIN</b>		<b>42</b>	<b>18.3</b>	<b>8.6</b>	<b>13.9</b>
<b>MAX</b>		<b>56</b>	<b>20.2</b>	<b>9.5</b>	<b>14.9</b>
<b>AVERAGE</b>		<b>49</b>	<b>19.4</b>	<b>9.1</b>	<b>14.4</b>
<b>PERCENTILE</b>		<b>55</b>	<b>20.2</b>	<b>9.5</b>	<b>14.9</b>



**Summary of Ambient Air Quality Data Monitoring of KOC-II Mine, Yellandu area  
(April 2024 - September 2024)**

Location code	Name of the locations	PM <sub>10</sub> (µg/m <sup>3</sup> )			PM <sub>2.5</sub> (µg/m <sup>3</sup> )			SO <sub>2</sub> (µg/m <sup>3</sup> )			NO <sub>2</sub> (µg/m <sup>3</sup> )		
<b>Coal mine standards, GSR 742(E), Dated 25.09.2000</b>		<b>250</b>			<b>-</b>			<b>120</b>			<b>120</b>		
<b>Core Zone</b>		<b>Min</b>	<b>Max</b>	<b>Avg</b>	<b>Min</b>	<b>Max</b>	<b>Avg</b>	<b>Min</b>	<b>Max</b>	<b>Avg</b>	<b>Min</b>	<b>Max</b>	<b>Avg</b>
CA5	Koyagudem OC-II PO Office	59	171	78	21.1	42.5	24.4	9.2	11.9	10.3	14.7	16.2	15.2
CA6	Pit Head CHP KOC-II	135	168	150	33.1	45.3	37.7	11.1	13.1	11.9	15.8	18.6	17.3
CA7	Sub Station KOC-II	129	169	146.5	32.5	43.2	37	10.9	13.1	11.8	15.3	20.1	17.3
CA8	Base Workshop, KOC-II	135	158	146	31.3	46.1	36.6	10.5	12.3	11.3	15.3	17.7	16.4

-No standard was specified for PM<sub>2.5</sub> in core

**Summary of Ambient Air Quality Data Monitoring of KOC-II Mine, Yellandu area  
(April 2024 - September 2024)**

Location code	Name of the locations	PM <sub>10</sub> (µg/m <sup>3</sup> )			PM <sub>2.5</sub> (µg/m <sup>3</sup> )			SO <sub>2</sub> (µg/m <sup>3</sup> )			NO <sub>2</sub> (µg/m <sup>3</sup> )		
<b>NAAQ Standards, CPCB, Dated 18.11.2009</b>		<b>100</b>			<b>60</b>			<b>80</b>			<b>80</b>		
<b>Buffer Zone</b>		<b>Min</b>	<b>Max</b>	<b>Avg</b>	<b>Min</b>	<b>Max</b>	<b>Avg</b>	<b>Min</b>	<b>Max</b>	<b>Avg</b>	<b>Min</b>	<b>Max</b>	<b>Avg</b>
BA5	Bodu Village	60	77	67	20.5	22.7	21.7	9.2	9.9	9.5	14.3	15.1	14.6
BA6	Petramchilaka Village	58	77	67	20.3	23.8	21.8	9.5	10.8	10.4	14.8	15.6	15.2
BA7	Kistaram Village	53	65	58	19.3	21.7	20.5	9.4	11.2	10.4	14.3	15.8	15.0
BA8	Latchigudem Village	42	56	49	18.3	20.2	19.4	8.6	9.5	9.1	13.9	14.9	14.4

**KOC-II Noise Quality Monitoring**  
**Noise Monitoring Locations**

S.No	Station code	Station Name	Latitude	Longitude
<b>Core Zone</b>				
1	CN 3	Koyagudem OCP-II Site Office & Base Workshop	N17°39'56.1"	E 80°28'19.9"
2	CN 4	Koyagudem OCP-II Pit head CHP	N 17°37' 26.0"	E 80°29' 29.9"
<b>Buffer Zone</b>				
3	BN3	Koyagudem Village	N 17°58' 65.4"	E 80°50' 46.9"
4	BN4	Petramchelaka Village	N 17°37' 58.7"	E 80°27'39.2"

**Noise Levels of KOC-II Mine, Yellandu Area**

Code	Name of the Location	Standard limits of Noise		April 1st Fortnight			April 2nd Fortnight		
				Date of monitoring	Noise levels in dB (A)		Date of monitoring	Noise levels In dB (A)	
		Day Time	Night time	Date of Sampling	Leq Day	Leq Night	Date of Sampling	Leq Day	Leq Night
<b>Core Zone</b>									
CN3	Koyagudem OCP-II Site Office & Base Workshop	75	70	06.04.2024	66.2	54.1	20.04.2024	62.7	51.5
CN4	Koyagudem OCP-II Pit head CHP	75	70	06.04.2024	63.7	49.8	20.04.2024	64.5	54.2
<b>Buffer Zone</b>									
BN3	Koyagudem Village	55	45	07.04.2024	37.9	34.3	22.04.2024	36.5	34.6
BN4	Petramchelaka Village	55	45	07.04.2024	38.5	33.7	22.04.2024	42.9	35.8

Code	Name of the Location	Standard limits of Noise		May 1 <sup>st</sup> Fortnight			May 2 <sup>nd</sup> Fortnight		
				Date of monitoring	Noise levels in dB (A)		Date of monitoring	Noise levels in dB (A)	
		Day Time	Night time	Date of Sampling	Leq Day	Leq Night	Date of Sampling	Leq Day	Leq Night
<b>Core Zone</b>									
CN3	Koyagudem OCP-II Site Office & Base Workshop	75	70	06.05.2024	62.5	53.4	21.05.2024	59.8	49.6
CN4	Koyagudem OCP-II Pit Head CHP	75	70	06.05.2024	62.9	54.2	21.05.2024	63.6	52.4
<b>Buffer Zone</b>									
BN3	Koyagudem Village	55	45	07.05.2024	39.9	34.1	22.05.2024	38.3	32.8
BN4	Petramchelaka Village	55	45	07.05.2024	42.3	35.9	22.05.2024	42.8	34.5

Code	Name of the Location	Standard limits of Noise		June 1st Fortnight			June 2nd Fortnight		
				Date of monitoring	Noise levels In dB (A)		Date of monitoring	Noise levels In dB (A)	
		Day Time	Night Time	Date of Sampling	Leq Day	Leq Night	Date of Sampling	Leq Day	Leq Night
<b>Core Zone</b>									
CN3	Koyagudem OCP-II Site Office & Base Workshop	75	70	06.06.2024	66.8	53.6	21.06.2024	64.8	51.6
CN4	Koyagudem OCP-II Pit head CHP	75	70	06.06.2024	65.2	53.7	21.06.2024	65.8	54.7
<b>Buffer Zone</b>									
BN3	Koyagudem Village	55	45	07.06.2024	39.5	34.7	22.06.2024	36.8	34.5
BN4	Petramchelaka Village	55	45	07.06.2024	42.2	36.1	22.06.2024	42.4	35.2

Code	Name of the Location	Standard limits of Noise		July 1st Fortnight			July 2nd Fortnight		
				Date of monitoring	Noise levels in dB (A)		Date of monitoring	Noise levels In dB (A)	
		Day Time	Night time	Date of Sampling	Leq Day	Leq Night	Date of Sampling	Leq Day	Leq Night
<b>Core Zone</b>									
CN3	Koyagudem OCP-II Site Office & Base Workshop	75	70	06.07.2024	68.1	49.5	22.07.2024	64.3	48.4
CN4	Koyagudem OCP-II Pit head CHP	75	70	06.07.2024	62.8	48.6	22.07.2024	62.8	49.2
<b>Buffer Zone</b>									
BN3	Koyagudem Village	55	45	08.07.2024	40.2	33.7	23.07.2024	39.4	32.7
BN4	Petramchelaka Village	55	45	08.07.2024	39.9	34.2	23.07.2024	41.7	34.5

Code	Name of the Location	Standard limits of Noise		August 1 <sup>st</sup> Fortnight			August 2 <sup>nd</sup> Fortnight		
				Date of monitoring	Noise levels in dB (A)		Date of monitoring	Noise levels in dB (A)	
		Day Time	Night time	Date of Sampling	Leq Day	Leq Night	Date of Sampling	Leq Day	Leq Night
<b>Core Zone</b>									
CN3	Koyagudem OCP-II Site Office & Base Workshop	75	70	06.08.2024	65.2	52.7	20.08.2024	63.5	49.8
CN4	Koyagudem OCP-II Pit Head CHP	75	70	06.08.2024	62.5	51.8	20.08.2024	64.2	50.2
<b>Buffer Zone</b>									
BN3	Koyagudem Village	55	45	05.08.2024	38.9	33.7	21.08.2024	39.2	32.8
BN4	Petramchelaka Village	55	45	05.08.2024	42.5	35.4	21.08.2024	43.1	35.2

Code	Name of the Location	Standard limits of Noise		September 1 <sup>st</sup> Fortnight			September 2 <sup>nd</sup> Fortnight		
				Date of monitoring	Noise levels in dB (A)		Date of monitoring	Noise levels in dB (A)	
		Day Time	Night time	Date of Sampling	Leq Day	Leq Night	Date of Sampling	Leq Day	Leq Night
<b>Core Zone</b>									
CN3	Koyagudem OCP-II Site Office & Base Workshop	75	70	05.09.2024	61.5	48.6	20.09.2024	63.1	49.6
CN4	Koyagudem OCP-II Pit Head CHP	75	70	05.09.2024	65.2	50.3	20.09.2024	62.7	48.9
<b>Buffer Zone</b>									
BN3	Koyagudem Village	55	45	06.09.2024	38.4	32.2	21.09.2024	37.9	32.5
BN4	Petramchelaka Village	55	45	06.09.2024	40.1	34.7	21.09.2024	40.9	33.1





## KOC-II Effluents Monitoring Report

### Effluents sampling locations

Sl.No.	Sample code	Name of the Location	Latitude	Longitude
1.	EW4	Koyagudem OC-II Mine Discharge	N 17°39'58.1"	E 80°28'27.3"
2.	EW5	Koyagudem OC-II Base Workshop ETP Outlet	N 17° 37' 33.0"	E 80° 29' 01.0"
3.	EW6	Koyagudem OC-II OB Dump Surface Runoff	N 17° 37' 30.4"	E 80° 29' 02.4"

- (1) Project Name : Post Project Environmental Monitoring in SCCL Mining areas
- (2) Area : KOC-II Mine
- (3) Sampling Location & Code : Koyagudem OC-II Mine Discharge (EW4)
- (4) Nature of the Component : Effluents
- (5) Period of Monitoring : April 2024 – September 2024

### Characteristics of Effluents – Koyagudem OC-II Mine Discharge (EW4)

S.No.	Date of Sampling	pH	TSS at 105°C	TDS at 180°C	COD	BOD	Oil & Grease
Unit		--	mg/L	mg/L	mg/L	mg/l	mg/L
Test Method		4500-H+B	2540-D	2540-C	5220-D	IS 3025	5520-B
<b>MoEF GSR 742 (E) and GSR 801(E) Effluent Standards for coal mines</b>		<b>5.5 to 9.0</b>	<b>100</b>	<b>--</b>	<b>250</b>	<b>30</b>	<b>10</b>
1.	06.04.2024	8.1	16	584	23	3.2	<1
2.	24.04.2024	7.8	18	592	27	3.6	<1
3.	06.05.2024	8.5	11	475	24	3.4	<1
4.	24.05.2024	7.3	13	467	20	3.0	<1
5.	06.06.2024	8.1	12	472	16	2.4	<1
6.	24.06.2024	7.7	10	453	17	2.6	<1
7.	06.07.2024	7.4	14	458	14	2.6	<1
8.	24.07.2024	7.2	17	479	36	7.4	2.7
9.	06.08.2024	7.4	09	451	22	3.2	<1
10.	24.08.2024	7.7	06	432	21	3.0	<1
11.	06.09.2024	7.8	09	459	17	2.6	<1
12.	24.09.2024	7.6	08	471	21	3.0	<1

- (1) Project Name : Post Project Environmental Monitoring in SCCL Mining areas
- (2) Area : KOC-II Mine
- (3) Sampling Location & Code : Koyagudem OC-II Base Workshop ETP Outlet (EW5)
- (4) Nature of the Component : Effluents
- (5) Period of Monitoring : April 2024 – September 2024

**Characteristics of Effluents – Koyagudem OC-II Base Workshop ETP Outlet (EW5)**

S.No.	Date of Sampling	pH	TSS at 105°C	TDS at 180°C	COD	BOD	Oil & Grease
	Unit	--	mg/L	mg/L	mg/L	mg/l	mg/L
	Test Method	4500-H+B	2540-D	2540-C	5220-D	IS 3025	5520-B
	<b>MoEF GSR 742 (E) and GSR 801(E) Effluent Standards for coal mines</b>	<b>5.5 to 9.0</b>	<b>100</b>	<b>--</b>	<b>250</b>	<b>30</b>	<b>10</b>
1.	06.04.2024	7.9	12	639	27	3.8	3.2
2.	24.04.2024	7.9	20	606	25	3.4	3.3
3.	06.05.2024	8.1	08	496	20	3.0	2.4
4.	24.05.2024	7.9	11	489	23	3.4	2.2
5.	06.06.2024	7.8	15	431	21	3.0	2.7
6.	24.06.2024	7.5	13	449	19	2.8	2.7
7.	06.07.2024	7.4	09	469	16	2.6	2.5
8.	24.07.2024	7.3	14	469	39	7.8	2.2
9.	06.08.2024	7.6	10	484	17	2.6	1.7
10.	24.08.2024	7.4	07	469	18	2.8	1.1
11.	06.09.2024	7.6	11	473	15	2.6	1.8
12.	24.09.2024	7.5	12	489	17	2.6	1.2

- (1) Project Name : Post Project Environmental Monitoring in SCCL Mining areas
- (2) Area : KOC-II Mine
- (3) Sampling Location & Code : Koyagudem OC-II OB Dump surface runoff (EW6)
- (4) Nature of the Component : Effluents
- (5) Period of Monitoring : April 2024 – September 2024

**Characteristics of Effluents – Koyagudem OC-II OB Dump Surface Runoff (EW6)**

S.No.	Date of Sampling	pH	TSS at 105°C	TDS at 180°C	COD	BOD	Oil & Grease
	Unit	--	mg/L	mg/L	mg/L	mg/l	mg/L
	Test Method	4500-H+B	2540-D	2540-C	5220-D	IS 3025	5520-B
	MoEF GSR 742 (E) and GSR 801(E) Effluent Standards for coal mines	5.5 to 9.0	100	--	250	30	10
1.	06.04.2024	7.9	18	709	26	3.6	<1
2.	24.04.2024	7.6	14	657	21	3.0	<1
3.	06.05.2024	7.5	12	507	22	3.2	<1
4.	24.05.2024	7.4	09	517	19	2.8	<1
5.	06.06.2024	7.9	08	503	18	2.6	<1
6.	24.06.2024	7.6	06	491	23	3.2	<1
7.	06.07.2024	7.3	07	472	21	3.0	<1
8.	24.07.2024	7.4	15	516	44	8.6	2.5
9.	06.08.2024	7.3	08	456	19	2.8	<1
10.	24.08.2024	7.3	10	323	16	2.6	<1
11.	06.09.2024	7.4	14	469	19	2.8	<1
12.	24.09.2024	7.2	17	478	18	2.8	<1



पॉलिसी अनुसूची/ Policy Schedule-Public Liability Insurance Act	
पॉलिसी संख्या / <b>Policy Number:</b> <b>55020049241000034</b>	व्यवसाय स्रोत/ <i>Business Source:</i> 550200
जारीकर्ता कार्यालय/ <b>Issuing Office</b> कार्यालय कोड/ <i>Office Code:</i> 550200 कार्यालय पता/ <i>Office Address:</i> HYDERABAD <b>BUSINESS OFFICE II CSR Plaza,D No. 6-3-347/9/4,,2nd Floor,Dwarakapuri Colony,Punjagutta, - 500082.</b> राज्य कोड/ <b>State Code:</b> 36 , Telangana जीएसटीएन/ <b>GSTIN:</b> 36AAACN9967E6ZZ संपर्क संख्या/ <i>Contact Number:</i> 40 23401398 मोबाइल संख्या / <i>Mobile Number:</i> 0	विक्रय चैनल विवरण/ <b>Sales Channel Details</b> कोड/ <i>Code:</i> 550200 नाम/ <i>Name:</i> Hyderabad Division II संपर्क संख्या/ <i>Contact Number:</i> सह दलाल कोड / <i>Co Broker Code:</i>
<b>Customer Care Toll Free Number:</b> <b>1800 345 0330</b> <b>email:customer.support@nic.co.in</b>	

ग्राहक का नाम/Customer Name: MS THE SINGARENI COLLIERIES CO LTD	ग्राहक आईडी/ Customer ID: 9510115064	पैन/ PAN: AAAC8873F
पता/ Address: CORPORATE FINANCE & ACCOUNTS DEPARTMENT, PO. KOTHAGUDEM COLLIERIES, BHADRACHALAM ROAD RLY STN(S C RLY), BHADRADRI KOTHAGUDEM DISTRICT, TELANGANA, शहर/City: KOTHAGUDEM, जिला/District: KHAMMAM, राज्य/State: TELANGANA, पिन/ PIN: 507101. सेल/Cell: 1111111111	फोन/ Phone: 1111111111	ई-मेल/ E-Mail: fad_crp@scclmines.com

पॉलिसी प्रभावी समय घंटे को <b>Policy Effective from 00:00 hours, on 30/04/2024</b> की मध्य रात्रि तक प्रभावी/ <b>to midnight of 29/04/2025 .</b>			
प्रीमियम /Premium	₹ 65,610.42	कवर नोट संख्या तथा तिथि/ Cover Note Number and Date	NA
सीजीएसटी/CGST	₹ 5,905.00	प्रस्ताव संख्या और तिथि /Proposal Number and Date	8800240506182484 दिनांक/Dt. 06/05/2024
एसजीएसटी/यूटीजीएसटी SGST/UTGST	₹ 5,905.00		
आईजीएसटी/GST	₹ 0.00		
कम:जीएसटी_टीडीएस / Less:GST_TDS	₹ 0.00		
वसूली योग्य स्टाम्प शुल्क / Recoverable Stamp Duty	₹ 0.00	रसीद संख्या और तिथि/ Receipt Number and Date	550200812410000167 दिनांक/Dt. 23/04/2024
कुल राशि/ <b>Total Amount*</b>	₹ 1,43,035.00	पिछली पॉलिसी संख्या तथा समाप्ति तिथि/ Previous Policy Number and Expiry Date	NA
(रूपए /Rupees One Lakh Forty Three Thousand Thirty Five केवल/Only.)			
* पर्यावरण राहत कोष /*Environment Relief Fund: ₹ 65,609.58			

**Insurance Details:**

<b>Policy Effective from 00:00 hours, on 30/04/2024 to midnight of 29/04/2025</b>	
PLI act Premium	29,126.37
Service tax	0.00
Recoverable stamp duty	0.00
ERF premium	29,126.37
<b>Total amount</b>	<b>58,252.74</b>

Retroactive date:	30/04/2023
Description of risk	PLI ACT POLICY -HAZAROUDS SUBSTANCES HANDLED & GROUP SUCH AS EXPLOSIVES, OIL, LUBRICANTS, GASES, TIMBER AND OTHER HAZARDOUS MATERIAL.
Paid up capital/Market Value of Asset/stock:	1,00,00,000.00
Liability:Any one accident(AOA):	5,00,00,000.00
Any one year(AOY):	15,00,00,000.00



पॉलिसी अनुसूची/ Policy Schedule-Public Liability Insurance Act	
पॉलिसी संख्या / <b>Policy Number:</b> <b>55020049241000034</b>	व्यवसाय स्रोत/ <i>Business Source:</i> 550200
जारीकर्ता कार्यालय/ <b>Issuing Office</b> कार्यालय कोड/ <i>Office Code:</i> 550200 कार्यालय पता/ <i>Office Address:</i> HYDERABAD <b>BUSINESS OFFICE II CSR Plaza,D No. 6-3-347/9/4,,2nd Floor,Dwarakapuri Colony,Punjagutta, - 500082.</b> राज्य कोड/ <b>State Code:</b> 36 , Telangana जीएसटीएन/ <b>GSTIN:</b> 36AAACN9967E6ZZ संपर्क संख्या/ <i>Contact Number:</i> 40 23401398 मोबाइल संख्या / <i>Mobile Number:</i> 0	विक्रय चैनल विवरण/ <b>Sales Channel Details</b> कोड/ <i>Code:</i> 550200 नाम/ <i>Name:</i> Hyderabad Division II संपर्क संख्या/ <i>Contact Number:</i> सह दलाल कोड / <i>Co Broker Code:</i>
	<b>Customer Care Toll Free Number:</b> <b>1800 345 0330</b> <b>email:customer.support@nic.co.in</b>
Ratio of AOA:AOY:	1:3
Sum Insured:	5,00,00,000.00
Annual turn over:	3,46,35,72,00,000.00



Clauses	As per Annexure.I
टिप्पणियां/ <b>Remarks:</b> PUBLIC LIABILITY INSURANCE ( ACT) POLICY	
VARIOUS TRANSPORT & STORAGE LOCATIONS OF SCCL ( ALL AREAS ) LIKE : KOTHAGUDEM, YELLANDU, MANUGURU, RAMAGUNDAM -I, RG-II, RG-III, BHOOPALPALLI, BELLAMPALLI, MANDAMARRI, SRIRAMPUR & CORPORATE , TELANGANA STATE.	
NUMBER OF WORKMEN EMPLOYEES :43672	
ESTIMATED ANNUAL TURNOVER PROPOSED : RS.346357200000/-	
AOA: 5 CRORES AOY : 15 CRORES ( 1:3) PAID UP CAPITAL >RS.1733.20 CRORES	

जिसकी गवाही में दिन/ माह /वर्ष को उपरोक्त उल्लिखित कार्यालय पते पर अधोहस्ताक्षरी को विधिवत अधिकृत किया जा रहा है उसके हाथ निर्धारित किए जाएं। यह अनुसूची, संलग्न पॉलिसी, खण्ड, पृष्ठांकन और पॉलिसी शब्दों, जो कंपनी वेबसाइट <https://nationalinsurance.nic.co.in> पर उपलब्ध है, को एक अनुबंध के रूप में एक साथ पढ़ा जाए तथा कोई भी शब्द या अभिव्यक्ति जिसके लिए यह विशिष्ट अर्थ पॉलिसी या अनुसूची के किसी भी हिस्से में संलग्न किया गया हो, एक ही अर्थ वहन करेगा चाहे जहाँ भी उल्लिखित हो। यह आश्वासन दिया जाता है कि प्रीमियम चेक की अस्वीकृति के मामले में, यह दस्तावेज स्वतः आरंभ से ही निरस्त मानी जाएगी । **IN WITNESS WHEREOF, the undersigned being duly authorized hereunto set his/ her hand at the office address mentioned above, this 06/May/2024.** This schedule, the attached policy, the clauses, the endorsements and policy wordings as available in the website <https://nationalinsurance.nic.co.in> shall be read together as one contract and any word or expression to which the specific meaning has been attached in any part of this policy or of the schedule shall bear the same meaning wherever it may appear. It is warranted that **IN CASE OF DISHONOUR OF THE PREMIUM CHEQUE, THIS DOCUMENT STANDS AUTOMATICALLY CANCELLED 'AB-INITIO'**

इंश्योरेन्सईडियालिमिटेड ओम्बड्समैन का विवरण/Ombudsman Details: Office of the Insurance Ombudsman,6-2-46, 1st floor, ""Moin Court"", Lane Opp. Saleem Function Palace, A. C. Guard s, Lakdi-Ka-Pool, Hyderabad - 500 004. Tel.: 040 - 23312122  
Email: bimalokpal.hvderabad @cioins.co.in

स्टॉप ड्यूटी  
**Stamp  
Duty:**  
(₹ 0.50)

कृते नेशनल इंश्योरेन्स कंपनी लिमिटेड/  
**For and on behalf of National  
Insurance Company Limited**  
अधिकृत हस्ताक्षरकर्ता/ **Authorized Signatory**

## टैक्स इनवॉयस/TAX INVOICE

इनवॉयस क्र.सं./Invoice Serial No: 30602L4PE0000034

इनवॉयस तिथि/Invoice Date: 06/05/2024

## आपूर्तिकर्ता का विवरण/Details of Supplier:

नेशनल इन्श्योरेंस कंपनी लिमिटेड/National Insurance Company Limited.,  
HYDERABAD BUSINESS OFFICE II CSR Plaza,D No. 6-3-347/9/4,,2nd Floor,Dwarakapuri Colony,Punjagutta, - 500082  
राज्य/State : 36 , Telangana  
जीएसटीआएन नंबर/  
GSTIN No : 36AAACN9967E6ZZ

## प्राप्तकर्ता का विवरण/Details Of Receiver : MS THE SINGARENI COLLIERIES CO LTD

पता/Address : CORPORATE FINANCE & ACCOUNTS DEPARTMENT, PO. KOTHAGUEM COLLIERIES, BHADRACHALAM ROAD RLY STN(S C RLY),  
BHADRADRI KOTHAGUEM DISTRICT, TELANGANA  
शहर/City : KOTHAGUEM,  
ज़िला/District: KHAMMAM,  
राज्य/State: TELANGANA,  
पिन/PIN: 507101.

आपूर्ति का स्थान/Place Of  
Supply State : Telangana  
राज्य कोड/State Code : 36  
जीएसटीआईएन नंबर/GSTIN No : 36AAACT8873F1Z1

सैक कोड/SAC Code	सेवा का विवरण/ Description of Service	कुल/Total(₹)	ड्यूटी/ Disco unt	टैक्स योग्य/ मूल्य/ Taxable Value(₹)	सीजीएसटी की राशि/ CGST		एसजीएसटी/यूटीजीएसटी /SGST/UTGST		आईजीएसटी/IGST		Kerala Flood Cess
					दर/ Rate	राशि/Amount(₹)	दर/ Rate	राशि/ Amount(₹)	दर/ Rate	राशि/ Amount(₹)	राशि/ Amount(₹)
997139	Other non-life insurance services (excluding reinsurance services)	65,610	0%	65,610	9%	5,905	9%	5,905	0%	0	0
<b>TOTAL</b>		<b>65,610</b>		<b>65,610</b>		<b>5,905</b>		<b>5,905</b>		<b>0</b>	<b>0</b>

कुल इनवॉयस मूल्य (अंकों में )Total Invoice Value (In figures) : ₹ 1,43,035

कुल इनवॉयस मूल्य (शब्दों में)Total Invoice Value (In words) : रूपए/Rupees One Lakh Forty Three Thousand Thirty Five केवल/Only.

रिवर्स चार्ज के अधीन टैक्स की राशि/ Amount of Tax Subject to Reverse Charge : No

## E.&amp;.O.E

कृते नेशनल इन्श्योरेंस कंपनी लिमिटेड/  
For and on behalf of National Insurance Company  
Limited

अधिकृत हस्ताक्षरकर्ता/ Authorized Signatory

