SREE KARTIKEYA KAMESHWARI INDUSTRIES

E-12, M.I.D.C., CHINCHOLI INDUSTRIAL AREA, SOLAPUR, MAHARSHTRA - 413255

Date: 10.11.2020

To,
The Member Secretary
(EAC- Violation),
MoEFCC, Indira Paryavaran Bhavan,
1st Floor, Vayu Wing, Jor Bagh Road,
New Delhi – 110 003

Sub. : Regarding **Additional Details Sought(ADS)** in respect of Proposed Bulk Drugs and Intermediates Manufacturing Unit by **Sree Kartikeya Kameshwari Industries(SKKI);** Plot No. E-12,Chincholi MIDC, Tal.: Mohol, Dist.: Solapur, Maharashtra State. **(Proposal No. IA/MH/IND2/110313/2018)**

Ref. : 1. Online EIA Report submitted on 14.10.2019
2. Minutes of 33rd EAC Meeting held on 18.05.2020 to 19.05.2020

Dear Sir,

This has reference to consideration of the case of Proposed Bulk Drugs and Intermediates Manufacturing unit by **Sree Kartikeya Kameshwari Industries,** Plot No. E-12, Chincholi MIDC, Tal: Mohol, Dist.: Solapur, MS. The same was taken up in 33rd EAC Meeting for grant of Environmental Clearance. During the meeting, certain additional details (ADS) were sought by Hon. Committee Members. Accordingly; we, hereunder, are presenting a pointwise compliance / clarification for same–

Point No. 1: Please submit the certificate from concerned Chief Wildlife Warden for the distance from GIB Sanctuary ESZ to proposed Industry along with authenticated map.

Clarification:
The distance of MIDC Plot No. E-12 of Sree Kartikeya Kameshwari Industries from GIB Sanctuary ESZ is 2.11 Km. Further, the distance of said Industrial Plot from actual PA of the GIB Sanctuary (Patch No. 97 Point-T) is 2.40 Km. A certification along with authenticated map issued by the concerned authority is presented at **Annexure – I** attached herewith.

Point No. 2: Status of wildlife clearance and copy of minutes of meeting.

Clarification:
On **03.02.2017**,SKKI applied to DCF; Solapur (MS) for obtaining Wildlife Clearance from NBWL as the ESZ of GIB Sanctuary was not notified then by MoEFCC. The application was accepted by DCF and was under processing. However, in due course, the ESZ of GIB Sanctuary was duly notified by MoEFCC through the Notification No. S.O. 654 (E) dated **11.02.2020**. Accordingly, the Industrial Plot (E-12) now is situated outside the notified ESZ which is clarified from the certificate presented towards requirement under Point No. 1 above (Please refer **Annexure-I**).

From information namely – (1) Provisions in the MoEFCC Notification on GIB ESZ (Pg.No. 432 & 597;Patch No. 97; Point No. 60),(2) Present status of GIB ESZ and (3) *SKKI Industry Plot being outside the ESZ*; now there is no requirement of obtaining Wildlife Clearance from NBWL for the SKKI project under consideration. A copy of MoEFCC Notification with concerned details w.r.t. GIB Sanctuary is enclosed at **Annexure-II** for ready reference.

Point No.3: Details of inventory of chemicals including hazardous chemicals presently and also at any time along with per day usage shall be submitted. Also submit the detailed safety measures and SOP being implemented during transportation, storage and handling of hazardous chemicals.

Clarification:
Details of inventory of chemicals including the hazardous chemicals; their daily usage and maximum storage on site at any given instance are given in following Table.

Table No. 1 Details of Raw Materials & Storage Inventory for 5 Days

Sr. No.	Name of Raw Materials	Quantity (MT/M)	Quantity (MT/D)	Max. Storage Qty. on Site (MT) (Equivalent to 5 Days Consumption)	Storage Details
1	1-Methyl-3-Methyl-3-Phenyl Butanote	23.1	0.77	4	MS Drum
2	Methylene Dichloride	92.4	3.08	15	MS Tank
3	4-ChloroButanoyl Chloride	17.3	0.57	3	MS Drum
4	Aluminium Chloride	27.72	0.92	5	HDPE Bag
5	Hydrochloric Acid	63.29	2.11	11	PPFRP Tank
6	Ethyl Alcohol	5.0	0.17	1	MS Drum
7	Sodium Hydroxide	22.65	0.76	4	HDPE Bag
8	Toluene	155.23	5.17	26	MS Tank
9	Potassium Permanganate	23.1	0.77	4	HDPE Drum
10	Sodium Metabisulphite	1.95	0.07	0.5	HDPE Bag
11	Methanol	73.7	2.46	12	MS Tank
12	Sodium Bicarbonate	1.95	0.07	0.5	HDPE Bag
13	Beta Picoline	216	7.2	36	MS Tank
14	Gamma Picoline	29.4	0.98	5	MS Tank
15	Sulfuric Acid	260.25	8.68	40	MS Tank
16	Nitric Acid	534.52	17.82	90	Aluminium Tank
17	Ammonia	88.5	2.95	15	MS cylinders
18	3-Cyano Pyridine	105	3.5	18	MS Drums
19	Lutidine	22.5	0.75	4	MS Tank

Details of Safety Measures & SOP to be implemented during transportation, storage and handling of hazardous chemicals are presented at **Annexure-III..** Brief details w.r.t. same have already been included in the EIA Report.

Point No.4: Details regarding safety measures for storing hazardous chemicals and during operational phase and also submit detailed onsite and offsite emergency plan whenever any accident occurs.

Clarification:
Details regarding safety measures for storing hazardous chemicals and during operational phase are attached at **Annexure-IV**

Point No.5: Application along with Wildlife Conservation Plan (WCP) for Conservation of Schedule-I species in the study area of the project shall be submitted to the Chief Wildlife Warden (CWW) for approval.

Clarification:
The application for WCP for Conservation of Schedule-I Species is already submitted to CWW on 27.02.2020. A copy of same with acknowledgement of submission is presented at **Annexure-V.**

Point No.8: Air quality prediction modeling with and without control measures during construction phase. Stack details of different stacks, i.e. boiler, condensate/solvent recovery unit, and DG set with emission rates of PM10, PM2.5, SO2, NOX, CO and VOCs should be given. How the calibration of VOCs monitoring instrument is done, kindly provide the details.

Clarification:

a. Results of Air Quality prediction modeling during construction phase have been given at **Annexure-VI**.

b. Details of stacks to be provided to various units in the Industry (Boiler, TFH, DG Set. & Scrubber (vapors & fumes) are provided in following table. Also, PM_{10}, $PM_{2.5}$, SO_2, NOx, CO and VOCs **emission rates** are given in the said table.

Table No. 2Fuel Burning Sources, Emission Rates &Stack Details

Sr. No.	Description	Specifications		
		Steam Boiler	**TFH**	**D.G.Sets** (2Nos.)
1	Capacity	5 TPH	8 Lakh Kcal/Hr	250 KVA
2	Fuel	Imported Coal	Imported Coal	HSD
3	Fuel Qty.	30 TPD	5 TPD	60 Ltr/Hr
4	CV of Fuel	4300 Kcal/Kg	4300 Kcal/Kg	10,500 Kcal/Lit
5	Ash (%)	6-8%	6-8%	0.01%
6	Sulphur (%)	0.1-0.2%	0.1-0.2%	1%
7	MOC	M.S.	M.S.	M.S.

Sr. No.	Description	Specifications		
		Steam Boiler	TFH	D.G.Sets (2Nos.)
8	Shape	Round	Round	Round
9	Height (AGL)	30 M	18 M	3 M
10	Pollutants in stack gases	PM_{10}, $PM_{2.5}$, SO_2, NOx	PM_{10}, $PM_{2.5}$, SO_2, NOx	SO_2
11	APC Equipment	MDC followed by Bag Filter	MDC followed by Bag Filter	--
12	Emission Rates	PM_{10}:0.44gm/ sec $PM_{2.5}$:0.11 gm/ sec SO_2:1.38 gm / sec NOx: 0.9 mg/ Kg	PM_{10}:0.071 gm/ sec $PM_{2.5}$:0.017 gm/ sec SO_2:0.22 gm / sec NOx: 0.9 mg / Kg	--

Table No. 3 Scrubber Details

Sr. No.	Scrubber to Reactor	Process Emission	Dia.	Ht.	Packing Material	Regeneration	Media	Disposal of Media
1	Column 1	Nitric Acid	400 mm	21.5 M	Ceramic saddles	Water Wash	Water	By-product
2	Column 2							
3	Column 3							

c. VOC Monitoring and Calibration method for the Instrument –
For monitoring of VOCs during primary data collection; Portable Handheld VOC Monitor of make Mini RAE 3000 was used. It is manufactured by RAE Systems Inc., 3775 North 1st Street, San Jose, CA 95134, USA. The instrument comes with PID sensors, 10.6eV lamp, Li-Ion Wireless Monitor and works on Principle of Photo Ionization Detectors (PID).A Standard Two-Point Calibration method is adopted for the instruments' calibration. More details about same and information on the instrument are presented in **Annexure- VII**.

Point No. 7: Capital cost of the project shall be revised considering land cost and various other components in the project site since as informed by PP the present mentioned has included the common ETP cost.

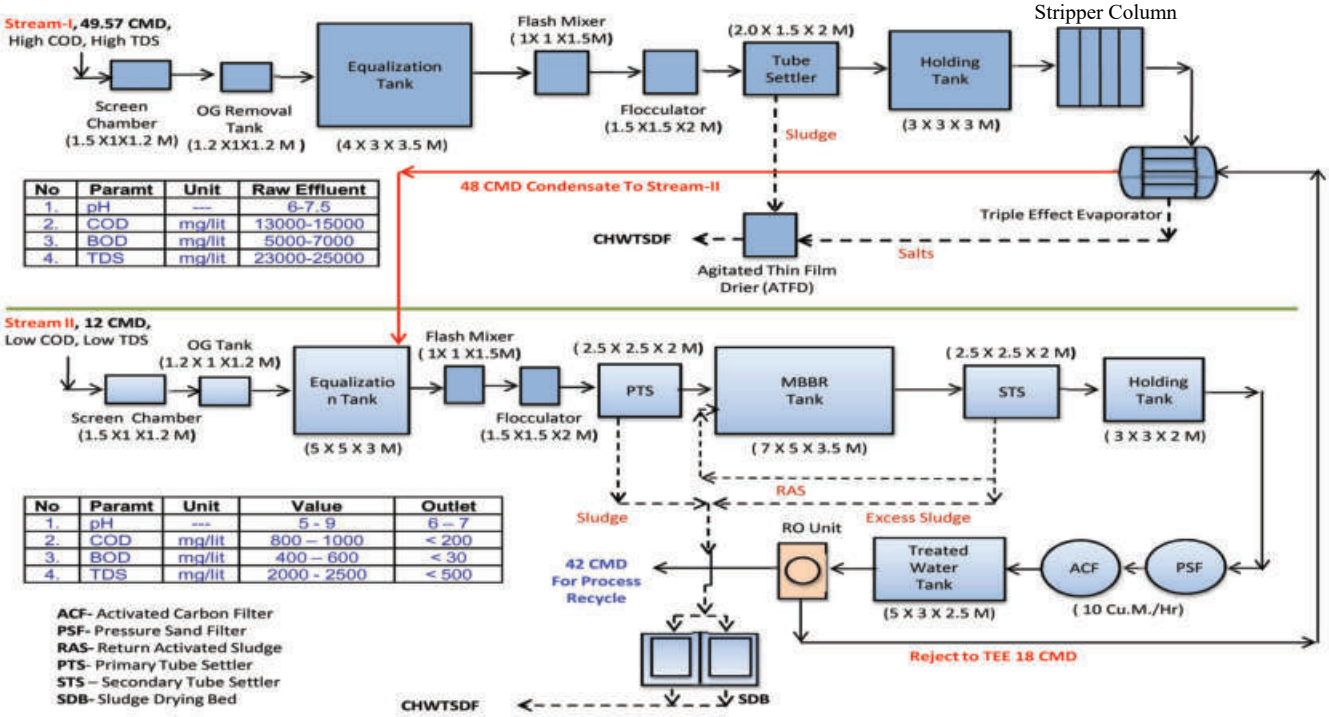
Clarification:
The revised Capital Cost of SKKI Project is **Rs.9.5Cr.** which includes cost of land, building, plant & machinery.

Point No.8: Details of ETP operation and actual characteristics of Low and High organic load streams along with the characteristics of final treated effluent and skilled manpower dedicated for the operation of the same. Provide the monitoring data of effluent (Raw and Treated) collection system.

Clarifications:

Proposed effluent treatment planning for SKKI Plant is a **ZLD Scheme**. There under, effluents resulting from various operations in the Industry have been segregated under Stream –I (High COD & High TDS) and Stream-II (Low COD & Low TDS).A flow diagram is presented below along with characteristics of both the above streams as well as those of treated effluent –

Figure No. 1 ETP Scheme



No	Paramt	Unit	Raw Effluent
1.	pH	---	6-7.5
2.	COD	mg/lit	13000-15000
3.	BOD	mg/lit	5000-7000
4.	TDS	mg/lit	23000-25000

No	Paramt	Unit	Value	Outlet
1.	pH	---	5 - 9	6 – 7
2.	COD	mg/lit	800 – 1000	< 200
3.	BOD	mg/lit	400 – 600	< 30
4.	TDS	mg/lit	2000 - 2500	< 500

For operation & maintenance of ETP based on above planning; dedicated, qualified and skilled manpower shall be deployed in the Industry. The same will comprise of –(1) an Environmental Engineer (BE/ME), (2) Two Chemists (M.Sc.), (3) Two Operators (DME), and (4) Two Fitters (ITI). In addition; the EMC shall comprises of a Safety Officer, Two Lab Analysts and support staff of 2 persons (in all 12 persons).

The effluent handling system shall comprise of dedicated collection and pumping arrangements comprising of tanks, piping and pumps having MOC as FRP, SS, HDPE etc. Further, digital "Flow Meters" and "OCMS" (Online Continuous Monitoring System) shall also be installed for monitoring of effluent flow rates and characteristics. The actual characteristics of effluent stated above have been taken from a similar plant in operation else where as this SKKI is a new establishment project.

Point No. 9: Baseline study report related to odour monitoring at the project site and in the study area.

Clarification:
Elaborate presentation on values & reasons of high VOCs concentrations in the MIDC area and their lower values in the study area along with the concerned effects and impacts was submitted through previous reply to ADS raised during 27th EAC Meeting (01.11.2019). In fact, the VOCs are also prominent contributors to odour in an area. Most commonly reported odour producing compounds are hydrogen sulfide (rotten egg odour) and ammonia (sharp pungent odour). Carbon disulfide, mercaptans, product of decomposition of proteins (especially of animal origin), phenols and some petroleum hydrocarbons are other common odorants. Most offensive odour are created by the anaerobic decay of wet organic matter such as flesh, manure, feed or silage. The odour originating from live stock manure are a result of a broad range of over 168 odour-producing compounds. Warm temperatures enhance anaerobic decay and foul odour production (CPCB Guidelines for Odour Pollution, Dr. B. Sengupta, MS; CPCB, 2008).

Odour sources are classified as- (1) Point Sources: confined to emissions from vents, stacks and exhausts (like those in various industries), (2) Area Sources: unconfined like swine operations, large livestock operations, poultry farms, tanneries, slaughterhouses, food and meat processing industries, and bone mills. Agricultural activities like decaying of vegetation, production and application of compost and STPs, ETPs, solid waste landfill sites and composting, household manure spreading, settling lagoons, a cattle feedlot etc. contribute to odour pollution, (3) Building Sources: These may be like hog confinement, chicken and pig sheds etc., and (4)Fugitive Sources :Emissions here are of fugitive nature like odour emissions from soil bed or bio-filter surface.

As far as the proposed SKKI project location is concerned; same is in the Chincholi MIDC (a notified Industrial area) in Solapur. In the said MIDC area, there are about 20 big and medium scale chemical plants which comprise of Bulk Drugs &Intermediate manufacturing units, Specialty Chemicals producing plants and other similar type of units. In all these industries; various solvents are used which comprise of the major raw materials. The solvents are either used as extractants or go in to products. As such, the industries are required to store substantial quantities of solvents on site and for same dedicated solvent storage tanks are provided. Thus, storage; handling and utilization of the solvents are prominent activities under manufacturing during which there are direct & indirect release of VOCs which contribute to odour prominently. Especially; loading & unloading of solvents in storage areas, charging of same in reactors, release of fugitive emission during processes, discharging of products; mother liquors and residues from reactors, MEEs, distillation towers etc. are the main sources and causes of VOCs emissions in to atmosphere and in turn lead to odour problems from the industries.

Since a large number of chemical industries contributing such VOCs are concentrated in a particular area of the Chincholi MIDC; the air quality monitored there shows high concentrations of VOCs than those observed at other locations in the study area which comprise of rural habitations. Moreover; the Plot No. E-12 of SKKI *(where actual onsite*

AAQ monitoring was conducted) is adjacent to three big chemical plants namely – (1) Balaji Specialities Pvt. Ltd.(Plot No. E-8/1), and (2) Balaji Amines Ltd.; Unit III (Plot No. E-7) on Eastside,and (3) OC Specialities Pvt. Ltd. (Plot No. E-18) on South. Further some prominent drugs and chemicals manufacturing plants are also in immediate vicinity of the Kartikeya Industries Plot which are namely – (1) MVL industries (Plot No. F-13) on North, (2) Max Touch Pharma (Plot No. E-4/1) on North-East, and (3)HPCL Bottling Plant (Plot No. F-5) on North-West.Refer satellite image enclosed at **Annexure- VIII.**

The range of VOC concentrations observed in 'Study Area' is from 32.69 µg/ M^3 (min) to 95.16 µg/ M^3 (max).Out of this; if MIDC is separately considered then it is having VOC concentrations of 85.55 µg/ M^3 (min) to 95.16 µg/ M^3 (max). In rest of the Study Area, which is having mostly rural habitations, the VOC concentrations recoded are 32.69 µg/ M^3 (min) to 76.53 µg/ M^3 (max).However, there is no limit as such for the VOCs. Various impacts due to VOCs are enlisted below-

- The VOCs are known to pose a threat of adverse air quality and health effects.
- Hydrocarbons in volatile organic compounds react with nitrogen oxides to produce ozone, which can cause atmospheric photochemical smog, acid rain and haze and cause harm to human health and plant growth.
- Key signs or symptoms associated with exposure to VOCs include irritation, nose and throat discomfort, headache, allergic skin reaction, nausea, vomiting, nose bleeding, fatigue, dizziness etc. As with other pollutants, the extent and nature of the health effect will depend on many factors including level of exposure and length of time exposed.

During 3 months' presence (February, March& April 2018) in the Study Area (other than the MIDC) for – (1)monitoring of **AAQ**, (2) surveys conducted on **Socio-Economy** for data collection w.r.t. **SIA,** and (3) field visits for study of **Ecology & Bio-diversity**, no specific incidences were observed w.r.t. any odour related problems nor adverse effects due to the VOCs as stated above were recorded. Especially, no occurrence of smog and haze associated with impaired air quality and lowered visibilities were noted. Also, from the reference of secondary data, no any episodes w.r.t. incidences that could be directly or indirectly attributed to VOCs and odour related problems were reported.

As per feed-backs taken from some big industries in the Chincholi MIDC area and through interaction with MPCB officials who periodically monitor the ambient and work zone air qualities in the MIDC area; it is learnt that there are FES and solvent recovery plants in almost all medium and big scale industries. MPCB has also made it compulsory to strictly adhere to incorporation of AAQM data (including VOCs) and information w.r.t. compliance with the CREP norms for chemical plants (especially solvents handling, storages and recovery methods) in the 6-Monthly Compliance Reports in respect of EC &Consent conditions being submitted to MoEFCC; Nagpur Regional Office.

The "Kartikeya Kameshwari Industry" also shall intensively monitor the VOC concentrations (for a period of 1.5 years after commissioning) in its premises (for individual effect) as well as at three strategic locations in the MIDC area around its plot as per wind data (for cumulative effect) as per the directions given by Hon. Committee Members during the EAC on 01.11.2019.

Point No. 10 : Proof of Credible action initiated.

Clarification:
In the year 2017, the SKKI industry had started implementing construction on its Plot No. E-12 in Chincholi MIDC without obtaining prior Environmental Clearance from MoEFCC. This was a case of violation of MoEFCC EIA Notification dated 14.09.2006. In view of this, MS; EAC (Ind.-2)MoEFCC had written to Principal Secretary, Environment Department, Govt. of Maharashtra, Mumbai through his letters dated **25.01.2018** and **09.03.2018** to take action against industry as per provisions of the EPA, 1986 while marking copies to MS, MPCB, Mumbai. Subsequently, in continuation of above two letters from MoEFCC, the industry also submitted request letters dated **23.05.2018, 24.10.2019 &16.01.2020**for initiation of legal action against its unit as per the directions in the MoEFCC letters of January and March 2018. In spite of correspondence with the Environment Department Mumbai, number of personnel visits and phone calls were also made to all the concerned officers in the Department & MPCB requesting them for expeditious action in the matter under consideration.

Despite directions from MoEFCC to Environmental Department through the two letters and continuous efforts from the PP with a request for initiation of legal action against SKKI industry, nothing positive has happened so far. It is understood that the PS; Environment Department; Mumbai shall issue a letter to MS; MPCB for the needful action in SKKI case within couple of weeks. All the letters stated above have been appended at **Annexure – IX** for reference.

Point No. 11: Revised damage cost assessment and proposed activities therein as suggested by the Committee specifically during construction and the consumables like water, cement, etc. were found to be very much on the lower side and impacts due to total excavation and top soil handling and transport etc. needs to be considered and damage to be assessed and remediation accordingly. Damage assessment shall also consider the short fall in RWH system to be in place for the total plot area considering the annual rainfall besides roof RWH system for the already built up area.

Clarification:
As directed by Hon. Committee members during the meeting on 18.05.2020, separate and dedicated Chapter-13 has been prepared entitled - *Assessment of Ecological Damage, Remediation Plan, Natural & Community Resources Augmentation Plans*. There under, a revised damage cost assessment and details of allied activities during construction are provided along with information about construction materials and consumables like water, bricks, sand, cement etc. Further, details w.r.t impacts and damage due to total excavation, top soil handling and transport, short fall in RWH system for total plot as well as their remediation plan with costs are also provided. The Chapter – 13 has been presented at **Annexure – X.**

Point No. 12 : Details regarding total built up area already constructed (%) shall be revised based on the total built up area rather than on Plot area and accordingly damage assessment to be revised.

Clarification:
Total construction carried out at site is **5,717.78Sq.M**.which is the minimum built-up area required as per MIDC rules for issue of BCC towards complying with condition that at least 20% of the Total Plot Area should be provided to cover FSI sanctioned for the particular project in the MIDC. Accordingly, 5717.78Sq.M construction carried out on site comes to**24%** of Total Plot Area of **24,050 Sq.M.** However, if one looks at the total built up area under the entire project which is **9,417.23 Sq.M.** then the actual constructed built-up area presently on site works out to be 61% of Total Approved Built up area under the entire industrial project. The damage assessment has been done for all the activities carried out at site while providing built up area of 5,717.78 Sq.M. that has actually been provided on site and requires consideration during obtaining EC under Violation.

Point No. 13: Activity wise EMP capital cost and recurring cost to be submitted, but not include the CER cost in EMP capital cost.

Clarification:

Sr. No.	Description	Cost Component (Rs. Lakhs)	
		Capital	O & M/Year
1	ETP for 2 Effluent Streams (Strong & Weak)with Primary, Secondary & Tertiary treatments comprising of TS, RO, MEE, ACF & PSF, Solvent Recovery System and allied Infrastructure	155	30
2	Cost towards APC equipment : MDC followed by Bag Filters, Stacks, Scrubbers	50	5
3	Cost towards Noise Pollution control	5	2
4	Green Belt Development& RWH	25	5
5	Environmental Monitoring & Management	25	7
6	Occupational Health & Safety	15	5
	Total	**Rs. 275**	**Rs. 54**

Point No. 14: Submit activity wise CER cost with phases based on the revised capital cost.

Clarification:

No	CSR Activity	Details	Total Amount
1	Arrangement of Drinking water	Installation of RO Dispenser in 3 villages for safe drinking water units with Filtration, RO Module & Storage Tank (1 Unit/ Village; 1000 Lit/Hr). 3 Units x Rs. 2.5 Lakhs = Rs. 7.5 Lakhs	**Rs. 7.5 Lakhs**
2	Contribution for GIB Conservation.	Fund will be given to Wildlife Conservation Board Maharashtra state for Conservation of critically endangered bird Great Indian Bustered.	**Rs. 5 Lakhs**
3	Non – Conventional Energy Utilization Promotion	Erection and commissioning of Photovoltaic Roof top Solar Panels for Electricity Generation : Comprising of System of 5 KW (2 Sets) with Solar Panels, structural frame work, wiring etc. complete on ZP School/ Grampanchayt Building in Two Villages. 5 KW X 2 Systems X Rs. 1 Lakh / KWH = Rs. 10 Lakh	**Rs. 10 Lakhs**
4		Providing Solar Street lights in 3 villages consisting of 1 MS Pole, 18-20 W LED Lamps, Battery, solar Panel, wiring etc. 30 Solar street Lights x Rs. 0.3 Lakhs = Rs. 9 Lakhs	**Rs. 9 Lakhs**
		Total 3% of Capital Investment of Rs.9.5 Cr	**Rs. 31.5 Lakhs**

Point No. 15 : Copy of water allocation by Industrial Estate.

Clarification:
The SKKI Industry was allotted Fresh Water supply by the Chincholi MIDC @ 25 M^3/ Ha / Day. Thus, with a Plot allotment of 2.405 Ha; total water allotted at the time of Agreement (October 2010) was **60.12 M^3/Day**. Thereafter, the PP made a request to the MIDC Authority for increase in the quantity of daily water supply which was accepted by the MIDC officials who took a review of the requirement and sanctioned additional quota of **120 M^3/Day** subject to payment of **Rs.21,02,622/-**as per the enclosed order at **Annexure-XI.** The PP has made a payment of said amount for which the receipt has been presented in the same Annexure. Thus, now the Industry has been granted a permission of Fresh Water utilization of **180.12 M^3/Day** by MIDC.

Point No. 16 : Detailed Green belt plan already developed and to be developed with type of species.

Clarification:
The Industry has planned to implement Green Belt on an area of 0.88 Ha which comes to 36% of Total Plot Area of 2.405 Ha. There under, 1205 trees shall be planted on site. There is no GB as such developed on site as on date. However, the same shall be taken in hand immediately after grant of Environmental Clearance. Details w.r.t Green Belt Plan are provided at **Annexure – XII** for ready reference.

17. Point No. 17 : Details of exposure specific health status evaluation of worker.

Clarification:
Relevant information about exposure specific health status evaluation of workers has been presented at **Annexure – XIII.** Same may please be referred.

18. Point No. 18
Worst case scenario related to Air &Water in case of Reaction & Reactor Failure be given.

Clarification:
Fail safe designs for all process reactors will be adopted. There under, measures like rupture disc, safety valve, alarms, primary & secondary condensers will be provided. Please refer **Annexure-XIV** wherein product-wise information about impacts of reaction & reactor failures is presented while giving details like type of reactions, working conditions, safety measures etc. From the same, it could be seen that there are no any chances of accidents resulting due to reactor failure leading to consequences like explosion, blast, shock wave, fire puddle etc. Nevertheless, following steps would be taken for reaction &reactor failures leading to impacts on Air & Water –

1. In case of reaction failure, there could be formation of undesired products, by-products, co-products, off-specification products etc. resulting into undesirable process emissions and effluents. The control measures for emissions namely scrubbers and condensers provided to reactors would take care of all possible emissions that could result other than the expected ones from conventionally planned reactions for desired products.
2. The effluent handling and treatment scheme, to achieve ZLD under planned manufacturing schedule &scenario, contemplates segregation of effluents into Strong Stream (Stream-I; High COD & High TDS) and Weak Stream (Stream-II; Low COD & Low TDS). The main concern in case of reaction failure would be in respect of effluents getting generated from process operations. The treatment under Stream-I will comprise of screening, O&G removal, equalization, neutralization followed by clarification in tube settler and finally concentration (in MEE) leading to separation of solids (organic residue and inorganic salts) and liquid (condensate).Through this configuration of treatment and infrastructure there under; deviations w.r.t. quality & quantity of effluents resulting from any variations in the process would be taken care of. Reactor washings will also be forwarded to ETP. The end products of this treatment scheme namely MEE residue would

go to CHWTSDF and the condensate would go for further polishing in Stream – II followed by its full recycle in process thereby achieving ZLD.

3. The off-specification material in reactors formed due to reaction failure would be directly forwarded to CHWTSDF for its treatment and disposal. Mother liquor from reactor will also be collected and forwarded to CHWTSDF through dedicated drums/ carboys.

Due to above operational procedure, the failure of reaction will not impose any prominent adverse impact either on air or water.

We hope the details presented above are in accordance with your requirements. Kindly grant EC to our proposal at the earliest.

Thanking you.

Yours faithfully

SREE KARTIKEYA KAMESHWARI INDUSTRIES

Encl.: As Above

(Managing Director)

Annexure – I

CWW Distance Certificate from GIB Sanctuary to ESZ

महाराष्ट्र शासन

वनविभाग

उपवनसंरक्षक, सोलापूर वनविभाग, सोलापूर यांचे कार्यालय

"वनभवन" विजापूर रोड,सोलापूर,413 004.

दूरध्वनी क्रमांक. 0217/2345096, 2305982 ई-मेल forestofficesolapur@gmail.com फॅक्स नं.0217/2345096.

जा.क्र.ब/कक्ष,13/मोजणी/ 602 /2020-21 सोलापूर ,413 004 दिनांक: 09 /07/2020

प्रति,

Shree Kartikeya Kameshwari Industries,
E-12 MIDC,Chincholi Solapur.

विषय :- Regarding the distance of Project site of Shree Kartikeya Kameshwari Industries- located at Plot No.E-12(Gat No 1,4,57 & 58 of Village Chincholikati),MIDC Chincholi,Tal.Mohol Dist-Solapur from the nearest boundary of ESZ & PA of GIB sanctuary,Solapur.

संदर्भ :- आपलेकडील पत्र दिनांक 05/06/2020.

उपरोक्त संदर्भिय पत्रान्वये Shree Kartikeya Kameshwari Industries यांच्या चिंचोली एमआयडीसी येथिल प्लॉट नं E-12 मधील प्रस्तावित Bulk Drug & Intermediates Manufacturing Plant कामी माळढोक पक्षी अभयारण्या पासुनचे हवाई अंतर मिळणेबाबत विनंती केली आहे.

Shree Kartikeya Kameshwari Industries यांच्या चिंचोली एमआयडीसी येथिल प्लॉट नंबर E-12 चे माळढोक पक्षी अभयारण्यापासुनचे हवाई अंतर (Google earth) वरुन खालीलप्रमाणे आहे.

Sr.no	Distance from	Distance To	Areal Distance In Km	Remark
1.	Protected Area (PA) of GIB Sanctuary - (Patch No.97 Point - T)	Sree Kartikeya Kameshwari Industries,Plot No.E-12 MIDC Chincholi, Tal.Mohol Dist-Solapur	2.40 Km	Google Map Attached
2.	Eco Sensitive Zone (ESZ) of GIB Sanctury - (Patch No. 97 - Point No.60)		2.11 Km	

सोबत-वरीलप्रमाणे.

उपवनसंरक्षक
सोलापूर वनविभाग सोलापूर


M/s. Shree Kartikeya Kameshwari Industries
Long - 17°46'15.90"N, Lat - 75°48'2.34"E
Distance from Project Site to GIB W.L.S
2.11 Km
2.40 KM
Distance from Project site to GIB W.L.S
Google Earth

Annexure – II

MoEFCC Notification w.r.t. ESZ of GIB Sanctuary

List of Proposals Submitted Online by User Agencies

Help

Using this report, you can view details of proposals . Click on Proposal no to view detail of FORM-A part I. Click on to print

(home.aspx)

Proposal Year : -All Years-

State : Maharashtra

Category : Industry

Status of the Proposal : -Select All-

Enter value for Search : Kartikey

SEARCH

Note :-All areas are in Hectares(ha.)

Sno.	Proposal No.	State Name	Proposal Name	Category	User Agency Name	Area (ha.)	Proposal Status	Proposal received on Wildlife Warden	View Report of Part-I & II	View TimeLine Details
1	FP/MH/IND/1250/2017	Maharashtra	Sree Kartikeya Kameshwari Industries	Industry	SHREE KARTIKEYA KAMESHWARI INDUSTRIES	0	DFO	31 Jan 2017	(admin/useragency_report_w.aspx?pid=FP/MH/IND/1250/2017)	(Timeline_W.aspx?pid=FP/MH/IND/1250/2017)

रजिस्ट्री सं. डी.एल.- 33004/99 REGD. NO. D. L.-33004/99

भारत का राजपत्र
The Gazette of India

सी.जी.-डी.एल.-अ.-13022020-216108
CG-DL-E-13022020-216108

असाधारण
EXTRAORDINARY
भाग II—खण्ड 3—उप-खण्ड (ii)
PART II—Section 3—Sub-section (ii)

प्राधिकार से प्रकाशित
PUBLISHED BY AUTHORITY

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पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय

अधिसूचना

नई दिल्ली, 11 फरवरी, 2020

का.आ. 654(अ).—प्रारूप अधिसूचना भारत के राजपत्र, असाधारण, भारत सरकार के पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय की अधिसूचना सं. का.आ. 300(अ), तारीख 14 जनवरी, 2019, द्वारा प्रकाशित की गई थी जिसमें ऐसे सभी व्यक्तियों से, जिनकी उससे प्रभावित होने की संभावना थी, उस तारीख से, जिसको उक्त अधिसूचना को अन्तर्विष्ट करने वाली राजपत्र की प्रतियां जनता को उपलब्ध करा दी गई थीं, साठ दिन की अवधि के भीतर आक्षेप और सुझाव आमंत्रित किए गए थे;

और, उक्त प्रारूप अधिसूचना अन्तर्विष्ट करने वाली राजपत्र की प्रतियां जनता को तारीख 14 जनवरी, 2019, को उपलब्ध करा दी गई थीं;

और, उक्त प्रारूप अधिसूचना के प्रत्युतर में व्यक्तियों और पणधारियों से प्राप्त आक्षेपों और सुझावों पर मंत्रालय में विचार किया गया था;

और, ग्रेट इंडियन बस्टर्ड वन्यजीव अभयारण्य महाराष्ट्र राज्य में अहमदनगर और सोलापुर जिलों के जंक्शन में स्थित है। वन्यजीव अभयारण्य का ऐतिहासिक, आर्थिक और औषधीय महत्व हैं और यह 366.72 वर्ग किलोमीटर क्षेत्रफल में फैला हुआ है। ग्रेट इंडियन बस्टर्ड वन्यजीव अभयारण्य महाराष्ट्र राज्य सरकार की अधिसूचना संख्या डब्ल्यूएलपी. 0614/सी. आर. 111/एफ-1, तारीख 09 मार्च, 2016 को अधिसूचित किया गया था;

और, अभयारण्य में मुख्य वनस्पति रंचिमनी (*एन्ड्रोग्रैफिस इचियोइड्स एल.*), अदुलसा (*जस्टिसिया एडहोटोडा एल.*), पीटपापडा (*जस्टिसिया प्रोकुमबेन्स एल.*), अशोक (*पोलीलथिया लोंगिफोलिया सोनन. थ्वाइटेस*), सतविन (*अलस्टोनिया स्कॉलरिसिस एल. आर. बीआर.*), पिवली कनहेर (*कैस्केबेला थेवेटिया एल. लिपोल्ड*), सांखी (*कैथरानथस पिसिलस मरे जी. डॉन*), विलयाति-वकुंडी (*क्रिप्टोस्टेगिया ग्रैंडिफ्लोरा रॉक्सब. एक्स आर. बी.आर.*),

MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

NOTIFICATION

New Delhi, the 11th February, 2020

S.O. 654(E).—WHEREAS, a draft notification was published in the Gazette of India, Extraordinary, *vide* notification of the Government of India in the Ministry of Environment, Forest and Climate Change number S.O. 300(E), dated the 14th January, 2019, inviting objections and suggestions from all persons likely to be affected thereby within the period of sixty days from the date on which copies of the Gazette containing the said notification were made available to the public;

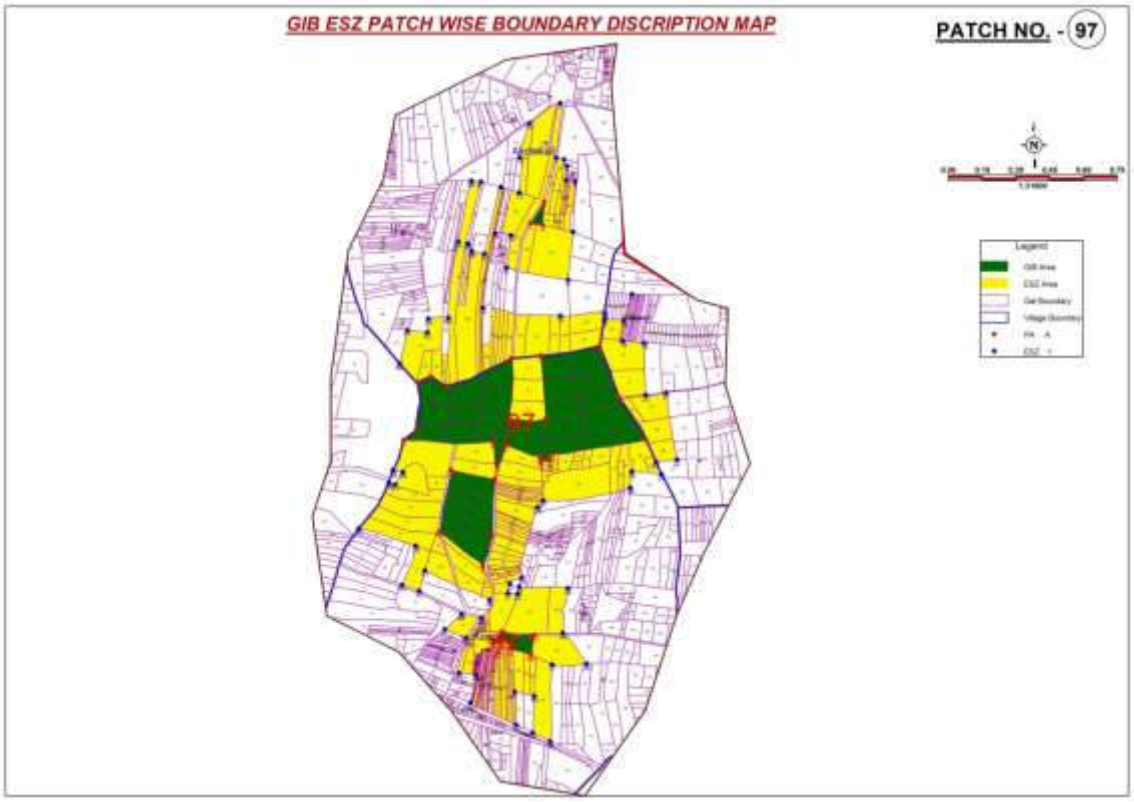
AND WHEREAS, copies of the Gazette containing the said draft notification were made available to the public on the 14th January, 2019;

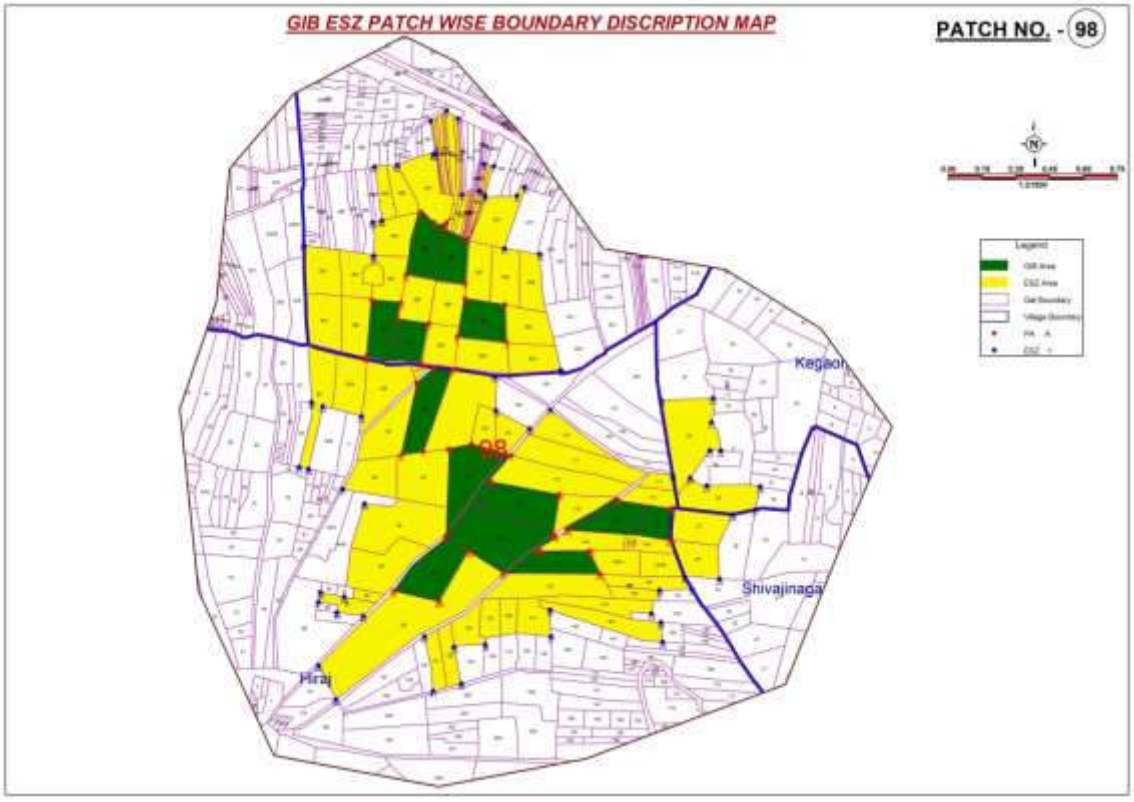
AND WHEREAS, objections and suggestions received from persons and stakeholders in response to the aforesaid draft notification were duly considered in the Ministry;

AND WHEREAS, the Great Indian Bustard Wildlife Sanctuary is located at the junction of Ahmadnagar and Solapur Districts in the State of Maharashtra. The Wildlife Sanctuary has historical, economic and medicinal values and spread over an area of 366.72 square kilometres. The Great Indian Bustard Wildlife Sanctuary was notified *vide* notification of the State Government of Maharashtra number WLP. 0614/C.R.111/F-1, dated the 9th March, 2016;

AND WHEREAS, the major flora recorded from the sanctuary are ranchimani (*Andrographis echioides* L.), adulasa (*Justicia adhatoda* L.), (*Justicia diffusa* Willd.), pitpapada (*Justicia procumbens* L.), ashok (*Polyalthia longifolia* Sonn. Thwaites), satvin (*Alstonia scholaris* L. R. Br.), piwali kanher (*Cascabela thevetia* L. Lippold), sangkhi (*Catharanthus pusillus* Murray G.Don), vilyati-vakundi (*Cryptostegia grandiflora* Roxb. ex R.Br.), kanher (*Nerium oleander* L.), chafa (*Plumeria alba* L.), bherli-mad (*Caryota urens* L.), shindi (*Phoenix sylvestris* L. Roxb.), badakvel (*Aristolochia bracteolata* Lam.), mandar (*Calotropis gigantea* L. Dryand.), kandil phul (*Ceropegia bulbosa* Roxb.), kavali (*Cryptolepis dubia* Burm.f. M.R.Almeida), harandodi (*Dregea volubilis* L.f. Benth. ex Hook.f.), dudhani (*Oxystelma esculentum* L. f. Sm.*),* shatavari (*Asparagus racemosus* Willd.*),* sadodi (*Cyanthillium cinereum* L. H.Rob.), dahan (*Tricholepis amplexicaulis* C.B.Clarke), ekdandi (*Tridax procumbens* L. L.), shankeshrvar (*Xanthium strumarium* L.), chirchitta (*Bidens biternata* Lour. Merr. & Sherff*),* medhshingi (*Dolichandrone falcata* Wall. ex DC. Seem.), chota kalpa (*Trichodesma indicum* L. Lehm.), gulmohar (*Delonix regia* Hook.Raf.), ram babul (*Parkinsonia aculeata* L.), piwala gulmohar (*Peltophorum pterocarpum* DC. K.Heyne), kena (*Commelina benghalensis* L.), chandvel (*Convolvulus arvensis* L.), vishnukrant (*Evolvulus alsinoides* L. L.), sivalingi (*Diplocyclos palmatus*L. C.Jeffrey.), dodaka (*Luffa acutangula* L. Roxb.), ratanjoti (*Jatropha gossypifolia* L.), lal shevra (*Alysicarpus tetragonolobus* Edgew.), palas (*Butea monosperma* Lam. Taub.), Tur (*Cajanus cajan* L. Millsp.), shankha Pushpa (*Clitoria ternatea* L.), godhadi (*Indigofera cordifolia* Roth), karanj (*Pongamia pinnata* L. Pierre), ghodegui (*Lavandula bipinnata* Roth Kuntze), dipmal (*Leonotis nepetifolia* L. R.Br.), tamba (*Leucas aspera* Willd. Link), arkar, arati (*Mimosa hamata* Willd.), vedi babul (*Prosopis juliflora* Sw. DC.), khair (*Acacia catechu* L.f. Willd.), chendu phul (*Parkia biglandulosa* Wight & Arn.), vilayati chinch (*Pithecellobium dulce* Roxb.Benth.), nilgiri (*Eucalyptus globulus* Labill.), peru (*Psidium guajava* L. Jamb), jambhal (*Syzygium cumini* L. Skeels), punarnava (*Boerhavia diffusa* L.), safed til (*Sesamum indicum* L.), bhui-til (*Sesamum laciniatum* Klein ex Willd.), pandharphali (*Flueggea leucopyrus* Willd.), lavala (*Cyperus difformis* L.), velu (*Dendrocalamus strictus* roxb. Nees*),* marvel (*Dichanthium foveolatum* Delile Roberty), lonigawat (*Dinebra retroflexa* Vahl Panz.), (*Portulaca tuberosa* Roxb.), dalimb (*Punica granatum* L.), bor (*Ziziphus jujuba* Mill.), chanya-bor (*Ziziphus nummularia* Burm.f. Wight & Arn.), (*Spermacoce ocymoides* Burm.f.), bel (*Aegle marmelos* L. Corrêa), kavath (*Limonia acidissima* Groff), chandan (*Santalum album* L.), ashwagandha (*Withania somnifera* L. Dunal), Indian fagonia (*Fagonia indica* Burm.f.), sarata (*Tribulus terrestris* L.), and the like;

	Taluka Mohol, To the East Gat No. 523, 522, 519, 518/A, 518/B, 518/D, 513, 515 in village Darfal bibi of Taluka Mohol surround the Eco-sensitive Zone.
96	The Eco-sensitive Zone is surrounded clockwise from the North by Gat No. 116, 115, 114, 113, 111, 110, Road , 84, 87, 88, 89, 92, 91, 90, 82, 81, 79, 74, 72, in Village Narotewadi of Taluka North Solapur, in the East by Gat No. 302, 301, 304, 305, 306, 307, 381, Road, 389, 386, 431, 432, 464, 462, 461, 460, 459, 458, 457, 456, 471, 466, 473, road, 476, 477, road, 492, 479, 484, 205, 208, 209, 210, 211, Road, 166, Road, 164 in village Mardi of Taluka North Solapur, in the South by Gat No. 123, Road, 145, 116, 254, 154, 155, 136, 137, 138, 139, 140, 141, 131, 130, Road, 108, 119, 99, 91, 97, V.B. Akolekathi, 113 in Village Karamba of Taluka North Solapur and to the West and North West by Gat No. 223, 214, 215, 216, 217, 206, Road, 139, 138, 137, 136/B, 132, 133/A, road, 107, 108, 109, 110, 111, 118/B, 100 in Village Akolekati of Taluka North Solapur and Gat No. 314, 309, road, 241, 247, 248, 251, 252, 254, Road, 203, 264, 266, 268, road, 270 Gavthan, 230, 203, 202, 201, Road, 182, 183, 187, 186, 174, 163, 162, 157, 155, 151, 152, 145, 153/2, 154, 162 in Village Nannaj of Taluka North Solapur.
97	The Eco-sensitive Zone is surrounded clockwise in the North by Gat No. 325, 319, 320, 309, 308, 299, 300, 306, 302, 304, 303, 301, 298, 294, 284-A, 284-B, 285, 292, 291, 293, road, Gavthan, road, 228, 229, 218, 214, 242, 227, 252, 251, 255, 260, road, 273, 272, 271, 270, 269, 275, 276, in village Akolekati of Taluka North Solapur and Gat No. 79, 77, 43, road, 44, 38, 236, 237, 233 in village Karamba of Taluka North Solapur to the East. Gat No. 182, 199, 200, 204, 205, 206, 158, 157, 156, 155, 154, 145, 143, 142, 139/A, 138, 137, 4, 220, 219, 218, 217, 223, Road, 274, 273, 309, 308, 307, 306, Road, 304, 301, Road, 482, 501, 502, 503, 504, 46, 515, road, 26, 27, 25, road, 29, 20, Road, 19, road, 86, 85, 84, 83 in Village Kondi of Taluka North Solapur and V.B. and 95 in village Kondi, Taluka North Solapur. surround it to the South. To the West Village Boundary of Chincholikati borders the Eco-sensitive Zone.
98	The Eco-sensitive Zone is surrounded in the North by Gat No. 394, 393, 392, 391, 390, 391, 389, 388, 385, 426, 427, 425, 424, 423, 431, 430, Raod, 438, 439, 450, 451, 452, 453, 454, 455, 456, 464, 465, 380, 379, 378, 377, 376, 370, 348, 351, 352 in village Kondi, Taluka North Solapur.To the East Gat no. 105 to 110 in Hiraj and Gat No. 34, 31, 30, 27, 28, 21, 19 In village Kegaon, Taluka North Solapur. surround the Eco-sensitive Zone.To the South and West Gat no. 151, 152, 155, 159, 161, 162, 163, 140, 139, 137, 136, 133, Road, 130, Road, 121, Road, 87, 88, 90, 91, 94/B, Road, 71, 70/B, 68, 67 in village Hiraj, Taluka North Solapur. surround the Eco-sensitive Zone.
99	The Eco-sensitive Zone is surrounded clockwise in the North by road, GaT NO. 1050, 1054, 1055, 1024, 1064, 1072, 1076, 993, road, 946, 925, road, 95, 894, 836, 835, road, 819, 818, 847, 846, 850, 856, 878, 879, 969, 967, 965, 959 to 963 and 994 in village Kurul Taluka MoholDist-Solapur.
100	The Eco-sensitive Zone is surrounded clockwise in the North by Gat no. 139, 138, 137, 142, 143, 144, 160, 162, 161, 163, road, 5, 2, 1, 3, road, 91, 89, 87, 88, 81, 78 in village Parameshwar Pimpri of Taluka Mohol, Gat no. 120, 121, 161, 160, 158, 3, 4, 5, 20, 28, 27, 34, 33, 32, 31, 276, 274, 273, 272, 271,


GIB ESZ PATCH WISE BOUNDARY DISCRIPTION MAP
PATCH NO. - 97


GIB ESZ PATCH WISE BOUNDARY DISCRIPTION MAP
PATCH NO. - 98
Kegaon
Shivajinaga

Annexure – III

Safety Measures & SOP during Transportation, Storage & Handling of Hazardous Chemicals

Safety Measures & Standard Operating Procedures (SOPs) for Transportation, Storage & Handling of Hazardous Chemicals –

A. Purpose :

To provide procedure for unloading & loading of chemicals / acid / alkali carboys, solvents in tankers and drums.

B. Scope

Applicable to activities related to documentation, weighing and safety while unloading and loading of acid / alkali carboys, solvents in tankers and drums.

C. Responsibility

a. Stores: Stores should check the documents of material, container condition and unload the materials in designated areas.
b. Quality Assurance (QA): QA should give clearance for any discrepancy like damaged containers or leakage observed while receipt of material.
c. Quality Control (QC): QC should sample, analyze and release the material.
d. Engineering: Engineering should rectify problems, if any, in unloading & loading facility like scissor lift platform or solvent transfer pump not working properly etc.
e. Safety: Safety should ensure the safe handling of containers and should guide if any leakage container is received.
f. Security: inspection of incoming tankers and trucks. To instruct drivers and allow vehicle to come inside at designated area.

1. HEALTH, SAFETY & ENVIRONMENT

- Check the MSDS of the material.
- Use appropriate Personal Protective Equipment (PPE) while handling the material
- Use earthing and bonding while sampling and unloading of solvent tankers.

2. PROCEDURE

On arrival of a vehicle carrying raw material at the security gate, security personnel should inform the stores personal about the same. Stores personnel should instruct the security to send the transporter to the stores office along with all documents. Stores personnel should examine the documents available with the transporter and if the material is acceptable, indicate the same on top of the challan by signing. Security should inspect the incoming vehicle i.e. tankers / vehicle and fill the check list. The materials to be stored in dedicated areas should be directly unloaded at the dedicated areas.

2.1 Stores should check the delivery challan for following details:

- Item Name
- Batch No. / Lot No.
- Quantity
- Name of the supplier and manufacturer
- Number of containers
- Purchase order no.

2.2 Stores should check that the material is received from an approved Manufacturer and the quantity is as per purchase order / purchase requisition and give clearance to the security to take the lorry in side.

2.3 On arrival of the solvent in tanker, Stores should check for intactness of the manufacturer's seal of the tanker. In case of solvent drums; acid / alkali / nitrile carbuoys, Stores should check the vehicle for clean lines, spillage etc. If any discrepancy is observed, bring it to the notice of QA for further action.

2.4 Check cabin / Roof top and other locations indicated in annexure STC-42/A4 of vehicle for any obvious material like cans, stones, wooden logs etc. If found any of these articles; it must be removed before sending the tanker for weighing.

2.5. FOR CORROSIVE / TOXIC CARBOYS UNLOADING

- Stores should perform all the activities in respect of unloading of acid / alkali / other chemicals carboys.
- Unload the carboys in their designated areas like corrosive material stores.
- Ensure that none of the carboys are leaking. (If any leakage in carboys, inform to safety and QA Dept. as per SOP.
- Safety shoes, safety goggles and acid / alkali proof gloves should be used while handling the chemicals.
- Face shield and PVC aprons, safety shoes should be used while handling of materials / chemicals.
- Suitable vapour mask should be used while handling acid / alkali, organic vapours.
- Quantity in –Yn+1 carboys should be verified by weighing where 'n' is the number of carboys in a consignment.
- Record the receipt details in the check list. Follow SOP for storage of materials in Quarantine area.

2.6 FOR TANKER UNLOADING

- Check cabin / Roof top and other locations of vehicle for any obvious material like cans, stones, wooden logs etc. If found any of these articles, it must be removed before sending the tanker for weighing.
- The tanker should be weighed for gross weight on Weigh Bridge of an external agency / own weigh bridge in presence of stores officer and security guard. After weighing of tanker, give clearance to the security to take the tanker inside the factory.
- Security personnel should check the tanker as per checklist for incoming tanker.
- Stores should ask to park the tanker in its designated area and provide earthing to tanker, fill the checklist of receipt of material.
- Quality Control should check the intactness (seals of manufacturer) of the tanker before sampling.
- Tanker should be sampled by QC as per SOP before unloading.
- Ensure that tank level should be filled as per capacity of tank (Ltr.) with respect to solvent quality to be unloaded in tank (%).

2.7 SAMPLING OF SOLVENT RECEIVED IN TANKER

Before sampling of tanker, following points should be ensured by QC person:

- Prior to sampling, ensure that the solvent is received in a dedicated tanker or in cleaned tanker. Get the cleanliness / dedicated tanker certificate from the transporter.
- Tanker is weighed for Gross Weight.
- Vehicle parked in tanker parking area.
- Ignition key removed and stoppers fixed to wheels.
- All seals of the Upper lid and Bottom Valve of the tanker are intact.
- Continuity of earthing wires and earthing plate should be checked by earth integrating monitor. It should be connected by crocodile clips.
- Tanker outlet bonded to SS Bucket kept below tanker outlet valve and SS bucket is earthed.
- Adequate personnel protective equipment used (i.e. face shield, goggle etc.)
- Foam I DCP /CO_2, fire extinguisher kept near tanker.
- After sampling, check that the upper lid and bottom valve of the tanker are closed properly.
- Give instruction to driver that he should not leave the tanker till next instruction.

2.8 UNLOADING OF SOLVENT RECEIVED IN TANKER

- Stores should be performing all the activities in respect of unloading of solvent tankers in to the designated storage tanks.
- Check the intactness, cleanliness and colour codes of solvent line and hosepipe.
- Ensure that the material is released by QC before starting the unloading activity.
- Tanker should be unloaded in dedicated solvent storage tank. QC should affix 'Approved Label' on consignment card which is available on status plate underground storage tank.
- Ensure that tanker unloading checklist is compile and cross checked by stores / production / safety person before starting the tanker unloading activity.
- Ensure earthing and bonding as per checklist. Do not disturb the tanker battery terminals while unloading is carried out.
- Before starting unloading of tanker ensure following points:
  a. Vehicle is parked properly in its designated area.
  b. Ignition key of tanker is removed, battery switched off and stoppers kept for tanker wheels. Tanker key kept in tanker key box.
  c. Dedicated SS hosepipe is affixed to tanker outlet and solvent storage tanks inlet.
  d. Earthing and bonding done as per Annexure check list; i.e. bonding between tanker Outlet to storage tank inlet and earthing between tanker body to earthing strip.
  e. Continuity of earthing wire and earthing plate is checked with the help of earthing integrity monitor.

f. Adequate personnel protective equipment's worn by operator. Face shield, apron, hand gloves etc.
g. Fire extinguisher kept in accessible area near tanker.
h. Keep valve 'ON' for unloading the solvent in solvent storage tank.
i. Start the pump (if required) for unloading solvent from tanker to storage tank.
j. After completion of unloading of solvent, collect residual solvent in SS bucket and drop it in disposal drum.
k. After unloading of entire quantity of solvent from tanker, close the tanker outlet valve and tank inlet valve.
l. Disconnect the hose pipes used for tanker unloading from tanker outlet and storage tank inlet. Cover both ends of hose pipe by polythene bag and tie with fastener.
m. Remove earthing crocodile clamp slowly and remove tanker from storage area.
n. After all the material, has been unloaded in the storage tank, the tanker should be weighed for tare weight in presence of stores officer and security guard to confirm the receipt quantity is as per the delivery challan.
o. Check cabin / Roof top and other locations indicated in checklist of vehicle for any obvious material like cans, stones, wooden logs etc. If found any of these articles it must be removed before sending the tanker for weighing.
p. After weighing, if any short quantity is observed beyond acceptable limit (±0.5% of net quantity), Physical Inventory document should be raised for short quantity and same should be sent along with weigh slip to accounts department for payment adjustment.
q. If earlier stock is available in storage tank then start re-circulation pump. Re-circulate the solvent for about 10 min. to get homogeneous mixing with earlier stock.

2.9 FOR DRUM UNLOADING

- Stores should perform all the activities in respect of unloading of solvent drums into the designated area.
- Unload the Drums in its designated area i.e. either in D.P. Stores or in Drum Shed.
- Ensure that none of the drums are leaking (If any leakage observed inform to safety department).
- Use unloading bay for drum unloading. Do not use forklift for drum unloading.
- Upon receipt of consignment ensure that all drums are covered properly during storage --/n+1 drum are checked for the quantity by using clean and calibrated dipstick where 'n' is the number of drums in a consignment.
- Record the receipt details in the checklist.
- Follow SOP for storage of materials in Quarantine area.

2.10 PROCEDURE FOR LOADING OF SOLVENT TANKER

- On arrival of the empty tanker, Stores officer / production officer along with security guard should check the vehicle for its clean lines, spillage etc. if any discrepancy is observed bring it to the notice to Department head for further action.

- Check cabin / Roof top and other location of vehicle for any obvious material like cans, stones, wooden logs etc. If found any of these articles it must be removed before sending the tanker for weighing.
- Store officer / production officer should perform all the activities in respects of loading solvent tanker into dedicated clean tanker.
- Weight the tanker for tare weight on Weight Bridge in presence of Stores Officer and Security Guard.
- After weighing of tanker, give clearance to security to take tanker inside the factory premises.
- Check cleanliness of tanker and color codes of solvent lines of storage tank.
- Ensure that tanker loading check list is compiled and cross checked by production / safety person before start the tanker loading activity.
- Ensure earthing and bonding as per checklist.
- Switch off battery and do not disturb battery terminal of tanker while loading is carried out Keep tanker key in tanker key box.
- Before start loading activity ensure the following points -
  a. Tanker loading solvent line assembly connects in between the storage tank outlet valve to the tanker upper valve with proper support.
  b. Ensure that incoming valve of storage tank should be closed.
  c. Follow check list for loading of tanker. If any check point of answer is 'NO' then do not start loading activity.
  d. Ensure that tanker outlet valve is properly closed.
- Start the pump (If required) for loading of solvent from storage tank to tanker.
- After completion of loading of solvent collects residual solvent from line in SS Bucket and drop it in disposal drums.
- Disconnect the loading solvent line removes earthing and bonding crocodile clamp slowly and remove tanker from that area.
- After all the material has been loaded in tanker, tanker should be weighed for gross weight in presence of Stores officer I production officer and security guard to confirm the net quantity to prepare dispatch document.

2.11 FOR CORROSIVE / TOXIC CARBUOY LOADING

- Stores should perform all the activities in respect of loading of acid / alkali / other chemicals carboys.
- Load the carboys from its designated area i.e. corrosive material stores.
- Ensure that none of the carboys are leaking (If any leakage in carboys, inform to safety and department head).
- Safety shoes, safety goggles and acid / alkali proof gloves should be used while handling the acids / alkalis and other chemicals carboys.
- Face shield and PVC aprons, safety shoes should be used while handling of material.
- Suitable vapour mask should be used while handling acid / alkali, organic vapours.
- Load water reactive materials from its dedicated area and ensure that there is no any water contamination.

2.12 FOR DRUM LOADING

- Stores should perform all the activities in respect of loading of solvent drums from its designated area i.e. either in D. P. Stores or in Drum Shed. Ensure that none of the drums are leaking. (If any leakage observed inform to safety department).
- Use scissor lift for drum loading, do not use forklift for drum loading.

2.13 Safety measures to be provided during Transportation of Hazardous chemicals

- Regular inspection of vehicle for safe transport.
- Provision of necessary fire extinguishers, PPEs, antidotes, emergency kits, spark arrester for safe transportation of hazardous goods.
- HAZCHEM will also be lettered in the vernacular for better understanding by the public at large.
- Provision of documents and information to the driver about the chemical being transported, associated hazards and safety precautions to be taken during the journey
- Regular training and mock drills of drivers and cleaners to be carried out.

Annexure – IV

Safety measures for Storing Hazardous Chemicals & during Operational Phase

Safety Measures for Storing Hazardous Chemicals and that during Operational Phase

A. Classification of Chemicals

Primary hazard identification is based on the properties of chemicals being used under proposed project. The classification is as follows.

Table No. 1 Safety Measures to be observed w.r.t. Hazardous Chemicals during Transportation, Storage and Onsite Usage

Sr. No	Group of Chemicals	Chemicals	Handling Recommendation	Spill Prevention	Emergency Recommendations	Storage
1	Flammable Liquids	➢ 2,6-Lutidine ➢ Methanol ➢ 4-Picoline ➢ Niacin	1. Control of electrostatic charges. 2. Non-sparking tools. 3. Containment 4. Inertisation. 5. Spill control material 6. Eye/skin/ breathing PPE 7. Fire safety training.	1. Contain spill. 2. Prevent mixing with water sources. 3. Refer TREM card. 4. Arrest Leak by closing the valve if is safe to do so. 5. Contact local police/ supplier	1. Take vehicle to safe area without endangering life. 2. Place warning signs around the vehicle. 3. Prevent crowd approach to the vehicle. 4. Contact local police/supplier 5. Assist emergency team as per the need.	1. Ventilated place 2. Containment 3. Leak detectors 4. Absence of oxidizers 5. Fire protection system 6. Non sparking tools 7. FLP fixtures as per IS 8. Hot work permits system. 9. Spill control material. 10.Flame arrester for storage tanks.
2	Reactive Chemicals	➢ Gaseous Ammonia ➢ Aluminium Chloride ➢ Sodium Hydroxide ➢ Sulphuric Acid ➢ Liquid Ammonia	1. Refer MSDS before handling 2. Avoid incompatible materials around handling area. 3. Ensure inertisation 4. Make available compatible fire extinguishers 5. Avoid shocks/drops and rolling while handling containers 6. Ensure inertisation while charging in to reactors.	1. Contain spill. 2. Prevent mixing with water /moisture 3. Refer TREM card. 4. Arrest leak by closing the valve if is safe to do so. 5. Contact local police/supplier	1. Take vehicle to safe area without endangering life 2. Place warning signs around the vehicle. 3. Prevent crowd approach to the vehicle. 4. Contact local police. 5. Assist emergency team as per the need.	1. Refer MSDS for compatibility before storage. 2. Store air reactive materials under nitrogen. 3. Store water reactive materials away from water/moisture/Aqueous solutions. 4. Use visible sign boards for warning about hazards and cautions for responders 5. Make available compatible fire extinguishers. 6. Do not store the materials in flammables storage area. 7. Avoid shocks/drops & rolling while handling containers. 8. Ensure water layer above Raney/Ni catalyst all the times.

B. Storage of the Chemicals

- Bulk chemical storage is a prime aspect for chemical industry in terms of safety considerations. Bulk and liquid raw material will be stored in the horizontal / vertical tanks. Smaller quantities will be stored in warehouse in the form of drums or bags. Dedicated area onsite will be allotted for warehouse.
- For bulk chemicals, storage tanks will be built as per the chemical requirements, inventory storage and required standards.

C. Mitigation Measures for Control of Spills and Leakages –

a. The tanks will be kept above ground level and painted with anti-corrosive paint. The tanks will be placed on the PCC platform. Following measures will be followed -

1. Clear distance between each tank will be minimum of half the tank diameter.
2. Dyke wall will be provided to the tanks. Double valve will be provided for dispensing of material.
3. Drainage arrangement inside the dyke will be designed for collection of leakage and recycle to the tanks or manually collecting in drums.
4. The tank farm layout & location will follow the rules of Petroleum Act 2003.
5. All the necessary statutory licenses and approvals needed for the Class A flammable liquids will be obtained.
6. Stainless steel pump with mechanical seal will be provided to the tank for transfer of solvents. Dedicate transfer line from storage tank to the day tank will be provided to the pump with pressure gauze.
7. The tanks will be provided with flame arrestor, breathing valve and vent condenser.
8. Automatic sprinkler system will be installed on each tank for cooling of tanks externally and eliminate the possibility of further aggravation of the situation.
9. Provisions will be made to the facility for earthing the static charge generation during loading and unloading of tankers.
10. Metal wire Jump-over connections will be provided on transfer lines for flange connections.
11. The tanks will be properly connected to the earth pit.
12. The area will be marked with sign boards.
13. Day tanks will be provided in the manufacturing plants to keep the inventory to the minimum required and thus reduce potential risk.
14. As per the factories act, the tanks will be frequently tested to its thickness and integrity by competent person.
15. Fire hydrant piping will be laid around the tank farm and will be designed as per the IS and other applicable standards.
16. Trained fire fighters will be provided for the site.
17. The area will be marked with red zone where necked flames, hot work will be strictly avoided.
18. Work permit system will be implemented for carrying out any hot or cold work near the tank storage area as well as all over the factory.
19. Spill kits, sand buckets will be provided. Spillage control procedure will be provided on site.
20. The area will provided with 24 hr security and kept in lock and key. Eye and body shower will be provided just outside the storage.

b. All the tanks will be designed and fabricated as per the relevant Indian and International applicable codes.
c. The tank layout and tank-farm layout vis-vis factory layout will be as per the applicable Petroleum Rules 2003, for the storage of *Class A* Flammable chemicals.
d. The necessary approvals from the CCE (Chief Controller of Explosive) will be obtained.

The areas are segregated as per properties of the chemicals and storage safety measures are suggested as follows -

D. For Acid Storages

Storage of Acids

Sr. No.	Name of Chemical	Container	Tank Dia. X Ht.	Capacity of Each Tank	Total Capacity
1	Sulphuric Acid	Storage Tank	2.5 X 4.5	22.0 M^3	30 MT
2	70% Nitric acid	Storage Tank (Horizontal)	7.0 X1.5	12.36 M^3	36 MT
3	30 to36% Hydrochloric Acid	Storage Tank	2.2 X 4.0	15.2 M^3	15 MT

Mitigation Measures

Following mitigation measures are suggested to minimize possibility of major leak from HCL and other acid storage tanks. These are applicable and relevant for all acid storage tanks.
When selecting the location of acid storage tanks, the following consideration will be given to the distance of the proposed tank farm from-

- The site boundary
- Roadways
- Occupied buildings

The tanks are aboveground and will be installed on the foundation (and on the supports for horizontal tanks). These will normally be of concrete with the required load bearing strength and thickness.

- **Dyke wall design**

a. The dyke walls and floor will be constructed of materials resistant to the acid being stored.
b. The bund will have sufficient capacity to contain the largest predictable spillage. A bund capacity of 110% of the capacity of the largest storage vessel within the bund will normally be sufficient. Consideration will be given to the provision of individual dyke walls for each acid tank to prevent damage to other tanks if a leak occurs. Chemicals which react with the acid will not share the same bund.
c. The dyke walls will have sufficient strength to contain an acid spill.
d. Rainwater will not be allowed to accumulate in the bund.
e. Provision will be made for the removal of bund contents (e.g. acid spills or rainwater).

- **Vents & Overflow lines of the storage tank**

a. Atmospheric tanks will have separate vent and overflow lines.
b. The overflow will be sized to prevent any pressure build up within the tank in the event of an overfill. The overflow diameter will be equal to or greater than the inlet diameter.
c. To prevent fuming, a dip leg and small water lute will be used.
d. To prevent release of fumes into the atmosphere, vent lines of bulk acid tanks will be feed into a scrubber unit. The scrubber will be designed to cope with the fumes given off and

the pressures generated during the filling of the tank. The scrubber will be so designed that HCL fumes escaping will be within the norms set by the statutory authorities.

e. The options can be of water, sodium hydroxide solution, dilute acid solution or suitable reaction media will be used as the scrubbing medium. Provision will be made to monitor the pH of the scrubbing solutions.

- **Piping**

a. While designing the piping and piping routing it is advisable to have minimum flange joints. The line will be so routed to avoid walkways and joints over the walk ways.
b. All pipe lines of acid, particularly of HDPE MOC, (used for HCL solutions) will be protected against foreseeable impact from vehicles or mobile plant.

- **Use of Personal Protective Equipment (PPE) and other measures-**

a. All personnel working in this area will use recommended PPEs.
b. PPEs will be individually issued and will be made available at the location.
c. Masks and SCBA sets will be made readily available.
d. Operators and maintenance staff will be trained to use PPEs
e. Strict supervision will be done as per recommended.

E. Ammonia Cylinder Safety Measures

Storage Details of Ammonia

Sr. No	Name of Chemical	Nature	Container	Capacity of Each Cylinder	Qty.	No of Cylinders
1	Ammonia Cylinders	Toxic Gas	Cylinder	100 kg	50 MT	500

- **Basic safety measures for dealing with Ammonia leak:**

a. Ammonia gas sensors will be installed at selected location with alarm system.
b. Adequate number of eye washes will be installed on the basis of ammonia is used &handled.
c. Approved, Self-Contained Breathing Apparatuses (SCBA) will be made available.
d. Safety equipment will be inspected and maintained in accordance with the manufacturer's instructions.
e. Emergency kits will be made available which can seal off most leaking areas of ammonia containers. Only trained personnel familiar with this equipment will use these kits.

- **Safety measures for safe handling of cylinders:**

a. Ammonia cylinder pressure is 7.77 bar at 21 ^{0}C and 10 bar at 30 ^{0}C. Maximum withdrawal rate recommended is 1.3 lbs/hr
b. Bulk cylinder stores will be located outdoor, preferably in a secure cage protected from sunlight.
c. Indoors storage will not be recommended.
d. Cylinders will be stored in an upright position.
e. Cylinders will be placed in a dry, well-ventilated area.
f. Cylinders will be placed in a location where they will not be subject to mechanical or physical damage, heat, or electrical circuits to prevent possible explosion or fire.
g. Gas cylinders will not be located where they may block stairs, exits, and ladders or walk ways.

- **Transport with Vehicles**

If a vehicle is required to transport cylinders, then it will be done as follows-

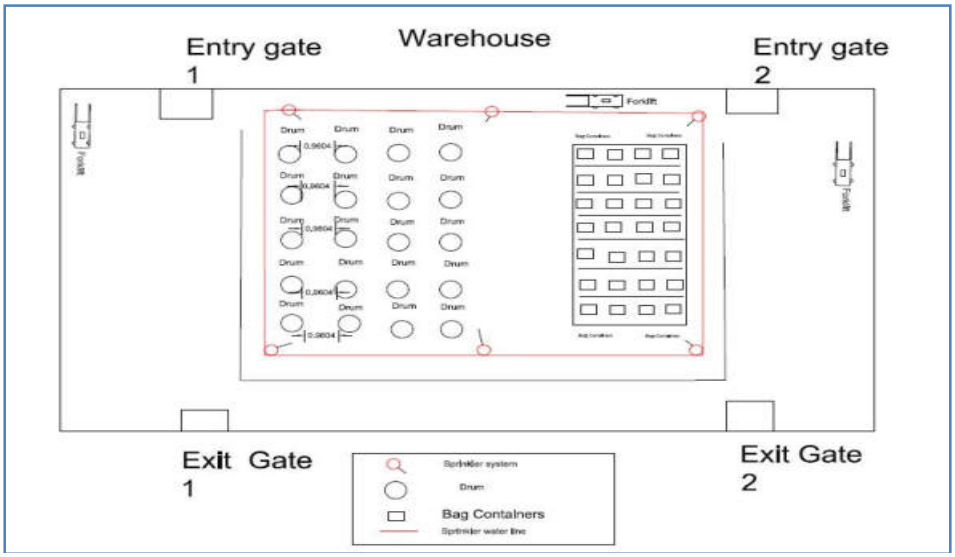
a. Gas cylinders will only be transported on an open back truck.
b. Cylinders will be prevented from rolling.

F. Warehouse Safety

Raw materials required in smaller quantities are mainly in form of solid as well as liquids. It would be stored in the warehouse. These chemicals would be stored in drums as well as bags. In warehouse, fire hazards could occur if there are spillages / leakages. Safety measures to be adopted in warehouse areas are as follows –

1. The facility will have standard work permit system for carrying out any maintenance work, hot or cold near the storage of flammable liquids. Ensuring that this is implemented strictly.
2. In the design of storage of warehouse ensuring implementation of following 5 principles will reduce the possibility of accidents to the minimum.
   a. **Ventilation-** Good ventilation means vapours given off from a spill, leak, or release, will be rapidly dispersed. A good standard of ventilation is required in buildings or rooms used for storing flammable liquids, to disperse the vapours from any small releases. The ventilation arrangements need to take into account the heavy nature of the vapours and to ensure adequate air movement at high and low levels. Five air changes per hour are normally sufficient to ensure vapour levels in the store are kept to a low level. For small buildings, the simplest method of ensuring adequate ventilation is to provide fixed, permanent openings
   b. **Ignition-** Ignition sources will be removed from the storage area, by flame proof electrical fittings, no sparking by ensuring permit system during maintenance work, Declaration of ***No Smoking*** and ***No Naked Flame*** area will be followed.
   c. **Containment -** Use of proper containers, providing spill kit, proper drainage of spillage to safe place, collection and recycle ,Containers will be stored in at ground level (singly or in stacks). This enables leaks or releases to be quickly seen, and allows for any vapours to be dispersed effectively by natural ventilation.
   d. **Exchange -** Substituting with less flammable liquid.
   e. **Separation:** Flammable liquids will be stored well away from other processes and general storage areas. If necessary the storage will be separated by a physical barrier, wall or partition.

Warehouse Layout with Sprinkler System



G. Handling of the Chemicals

- As the manufacturing process involves number of chemicals, their handling is most important factor during which workers are directly exposed. The mitigation measures are as follows-

➢ **For Sulphuric Acid**

- Sufficient ventilation will be provided with suitable respiratory equipment. If the chemical is ingested, medical advice will be immediately provided.
- Skin and eye contact will be prevented.

➢ **For Hydrochloric Acid**

- Sufficient ventilation will be provided, suitable respiratory equipment will be provided.
- If ingested, medical advice will be immediately provided.
- Contact with skin and eyes will be prevented.

➢ **For Methanol**

- All equipment containing material will be grounded.
- Sufficient ventilation will be provided with suitable respiratory equipment.
- If ingested, medical advice will be immediately provided.
- Skin and eye contact will be avoided.

➢ **For Methylene Dichloride**

- Protective clothing, footwear will be provided.
- PPE such as chemical splash goggles and safety gloves will be provided.
- Work will be carried out in a well-ventilated area (preferably in an environment with a fume extraction system).
- Methylene dichloride is highly volatile and will be stored in a cool, dry area in tightly closed, labelled containers. This chemical needs to be kept away from metals, light and any source of heat or ignition.
- Good work practices and proper maintenance procedures will be followed.
- Ideally, all work with methylene dichloride will be conducted in a chemical fume hood or in another type of appropriate exhaust ventilation.
- Appropriate PPEs such as safety glasses with side shields, splash-proof goggles, and/or chemical-resistant aprons, coveralls, lab coats and gloves will be provided.
- Eating, drinking, smoking and the storage of food will be prohibited in areas where methylene dichloride is stored or used.
- Methylene dichloride will be collected with halogenated solvents. It will be recovered through safe handling procedure and sent back to the supplier / original manufacturer.

Annexure – V

Wildlife Conservation Plan

Wildlife Conservation Plan (WCP)
For Schedule – I Species

(As Per Wildlife Protection Act, 1972)

In the Study Area

of

SREE KARTIKEYA KAMESHWARI INDUSTRIES

Plot No. E-12, Chincholi MIDC,
Tal.: Mohol, Dist.: Solapur

PREPARED BY

Equinox Environments (India) Pvt. Ltd.

EQUINOX ENVIRONMENTS (I) PVT. LTD.

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An ISO 9001 : 2015 & QCI - NABET Accredited Organization

February - 2020

SREE KARTIKEYA KAMESHWARI INDUSTRIES

E-12, M.I.D.C., CHINCHOLI INDUSTRIAL AREA, SOLAPUR, MAHARSHTRA - 413255

Date: 20.02.2020

To,
Chief Wildlife Warden (CWW),
Govt. of Maharashtra,
Van Bhawan,
Police Gym Khana,Ramgiri Road,
Nagpur – 440 001

22/02/2020
आवक लिपिक
प्रधान मुख्य वनसंरक्षक
महाराष्ट्र राज्य, नागपूर

Sub.	:	Regarding preparation and submission of **Wildlife Conservation Plan (WCP)** for **Schedule-I** species in the study area of **Sree Kartikeya Kameshwari Industries (SKKI)**, Plot No. E - 12 at Chincholi MIDC, Taluka Mohol, District Solapur, Maharashtra
Ref.	:	Terms of Reference (ToRs) dt. (14.06.2018) issued by MoEFCC vide letter *F.No.23-130/2018-IA-III (V)* to Sree Kartikeya Kameshwari Industries for preparation of EIA report

Respected Sir,

The management of Sree Kartikeya Kameshwari Industries have planned to establish an industry for manufacturing of bulk drugs and intermediates. The promoters have vast experience in this field and are well aware of the manufacturing processes w.r.t. the various products.

Under above circumstances, industry has applied for grant of EC to its ambitious project. According to a stipulation in the overall context of Environmental Impact Assessment (EIA) Notification No. S.O.1533(E) dated 14.09.2006 and amendments thereto issued by the Ministry of Environment, Forest and Climate Change (MoEFCC); New Delhi, the Authority considered our project and granted TORs for preparation of EIA (Environmental Impact Assessment) report vide letter under *Ref.No.1* above. Therein one condition has been imposed towards submission of Wildlife Conservation Plan (WCP) for Schedule I species found in the study area (region within 10 km radius distance around the industry) of our project. During the preparation of an EIA report in respect of our expansion project by the 'QCI-NABET Accredited consultant organization (ACO)' – Equinox Environment India Pvt. Ltd. (EEIPL) – comprehensive survey was conducted during 10th and 11th January 2017 under study of Ecology and Biodiversity in the study area. The observations and findings noted by

the scientists of EEIPL, information collected from local residents as well as data in various government records (gazetteer, census) revealed presence of certain Schedule I species in the study area. This fact was included in our EIA report and the ToRs and EAC of MOEFCC given directions to submit Wildlife Conservation Plan (as per guidelines in the TORs) which is a pre-requisite for grant of EC to our project.

Sir, in light of above directions from the MOEFCC, New Delhi, Govt of India and as per the requirements of TORs, our consultant – EEIPL – have prepared the WCP which is being submitted for your approval and further necessary action. Please do the needful and grant an accord to the WCP so that our proposed project could get EC from the ministry at the earliest and we could give the contribution in the development of Indian economy.

Thanking You.

Yours Faithfully,

(Partner)

Sree Kartikeya Kameshwari Industries

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Chapter -1

Introduction

1.1 Preamble

The Wildlife Protection Act, 1972 is an Act of the Parliament of India enacted for protection of plants and animal species. Before 1972, India only had five designated national parks. Among other reforms, the Act established schedules of protected plant and animal species; hunting or harvesting these species was largely outlawed. The Act provides for the protection of wild animals, birds and plants; and for matters connected therewith or ancillary or incidental thereto. It extends to the whole of India, except the State of Jammu and Kashmir which has its own wildlife act. It has six schedules which give varying degrees of protection. Schedule I and Part II of Schedule II provide absolute protection and offences under these are prescribed the highest penalties. Schedule III and Schedule IV Species are also protected, but the penalties are much lower. Schedule V includes the animals which may be hunted. The plants in Schedule VI are prohibited from cultivation and planting.

As per the Environmental Impact Assessment (EIA) Notification No. S. O. 1533 (E) dated 14.09.2006 and amendments therein to issued by the Ministry of Environment, Forest and Climate Change (MoEFCC); New Delhi and according to the Standards Terms of Reference (TORs) issued by MoEFCC, New Delhi for preparation of EIA Reports for projects/ activities requiring environmental clearance, it is mandatory to prepare and submit "Wildlife Conservation Plan (WCP)" for conservation of Schedule I fauna, if exist in the study area (10 Km radius distance from an industrial project site).

1.2 Background

'Environmental Impact Assessment (EIA) is the process of evaluating likely environmental impacts, both positive and negative, of a new or expansion project by taking into account natural, social and economic aspects. It also comprises of suggesting possible mitigation measures, for the negative impacts, before implementation of the project. The main objectives of an EIA report are -

- To describe a pre-project baseline condition with respect to Environmental Indicators.
- To identify possible sources of pollution and their environmental impacts including identifying risks associated with setting up of a new / expansion project and suggesting appropriate mitigation measures for alleviating adverse impacts to the extent possible.
- To suggest environmental / risk management plans for implementing the mitigation measures.

For imposing certain restrictions and prohibitions on new projects or activities or on expansion/modernization of existing projects/ activities based on their potential Environment Impacts as indicated in the schedule to the notification published by Ministry of Environment, Forest and Climate Change (MoEFCC); New Delhi vide notification SO-1533(E) dated 14th Sept. 2006 require prior Environmental Clearance (EC) before starting activity on site. Here, the environmental impact assessment studies carried out and report prepared is duly assessed by the State/ Center authority for grant of EC for project.

The management of 'Sree Kartikeya Kameshwari Industries (SKKI)' has decided to establish an industry for manufacturing of bulk drugs and intermediates, a proposed unit to come up in a notified industrial area. As per 2006 notification, it is listed under schedule 5(f) and comes under Category B. The Great Indian Bustard Sanctuary is located within 5 Km of the project area. Hence, the category of the industrial unit has been classified as A instead of B. In light of same, the SKKI establishment project attracts condition of procurement of EC.

1.3 The Project & Project Proponents (PP)

The SKKI unit would be designed in a versatile fashion by adopting latest process techniques as well as with state-of-the art machinery. The total capital investment towards proposed bulk drugs and intermediates manufacturing unit is Rs. 5.28 Crores. The names and designation of SKKI promoters are as under -

Table 1.1 Project Investment Details

Sr. No.	Industrial Unit	Capital Investment
1.	Sree Kartikeya Kameshwari Industries, Solapur	**Rs. 5.28 Crores**

Table 1.2 Promoters of Company

No.	Name	Designation
1	Mr. Ashok Chandak	Chief Executive Officer and Managing Director
2	Mr. Chetan Chandak	Director (Technical)
3	Mr. Manish Chandak	Assistant Director (Technical)

The Indian Pharmaceutical Industry has witnessed a robust growth over the past few years moving on from a turnover of approx. US $ 1 billion in 1990 to over US $30 billion in 2015 of which the export turnover is approximately US $ 15 billion. The country now ranks 3rd world wide by volume of production and 14th by value, thereby accounting for around 10% of world's production by volume and 1.5% by value. Globally, it ranks 4th in terms of generic production and 17th in terms of export value of bulk actives and dosage forms. Indian exports are destined to more than 200 countries around the globe including highly regulated markets of US, West Europe, Japan and Australia.

The pharmaceutical industry comprises of pharmaceutical formulations, drugs and basic chemicals' manufacturing. The Indian pharmaceutical industry is providing employment to millions of people and offering essential drugs at affordable prices to the vast population of the sub - continent. Bulk drugs have become a part of our life for sustaining many of our day-to-day activities, preventing and controlling diseases. The drugs manufacturing sector in India is well established and has recorded a steady growth in the overall Indian industrial scenario. The bulk drugs and allied industries have been amongst the fastest growing segments of the Indian industry.

According to a stipulation in the overall context of Environmental Impact Assessment (EIA) Notification No. S. O. 1533 (E) dated 14.09.2006 and amendments thereto issued by the

Ministry of Environment, Forest and Climate Change (MoEFCC); New Delhi, the Industry is required to prepare WCP and submit same to competent authority. WCP report has been prepared by incorporating required information with regards to the project as mentioned in the standard Terms of Reference (ToRs) vide letter F. No. 23-130/2018-IA-III (V) issued on 14 June 2018 to SSKI.

Following table reflects the details about products and by- product manufactured / to be manufactured under the project –

Table 1.3 Lists of Products & By-products in the Integrated Project Complex

Sr. No.	Name of Product	Quantity MT/Day	Quantity MT/Yr	Uses
1	Methyl 2-(4-(4-chlorobutanoyl)phenyl)-2-methylpropanoate	0.5	180	Used in anti-allergic drugs
2	Nicotinic Acid Methyl Ester/Ethyl Ester	0.5	180	Used in Anti-allergic drugs
3	Pyridine-3-Carboxyamide (Niacin Amide)	3.5	1260	Used as Vitamin B3, Cattle feed, and in Cosmetics
4	3-Pyridine Carboxylic Acid (NIACIN)	7.68	2764.8	Used as Vitamin B3, Cattle Feed, in Cosmetics
5	4-Pyridine Carboxylic Acid (ISONIACIN)	0.51	183.6	Used in Anti-allergic drugs
6	2,3 Lutidine & 3,5 Lutidine	0.5	180	Used in Anti-ulcer drugs
	Total	**13.19**	**4748.4**	

1.4 The Place

The proposed project would be located on Plot No.E-12 at Chincholi MIDC in Taluka Mohol of Solapur district. The total land acquired by the industry is 24050 Sq. M. (2.4 Ha) Out of this total land area, the built-up area of proposed unit is 9417.23 Sq. M. (0.94 Ha).

Chapter II

Methodology

2.1 Study Area

The 10 Km study area around the proposed project site, forms part of both Mohol and North Solapur Tehsils of Solapur district. This region is a part of micro level division, of Deccan Plateau in Indian peninsula. Climate of the district is typically dry during major part of the year, with an average annual rainfall of around 584 mm. The project area comes under rain shadow region and thus receives low annual rainfall. The soils in the district are grouped into black cotton soil, grey soil and reddish soil. The topography of the study area is dominated by Deccan trap plains and gently undulating lands.

Fig. 2.1 Location Map of Project Site & Study Area

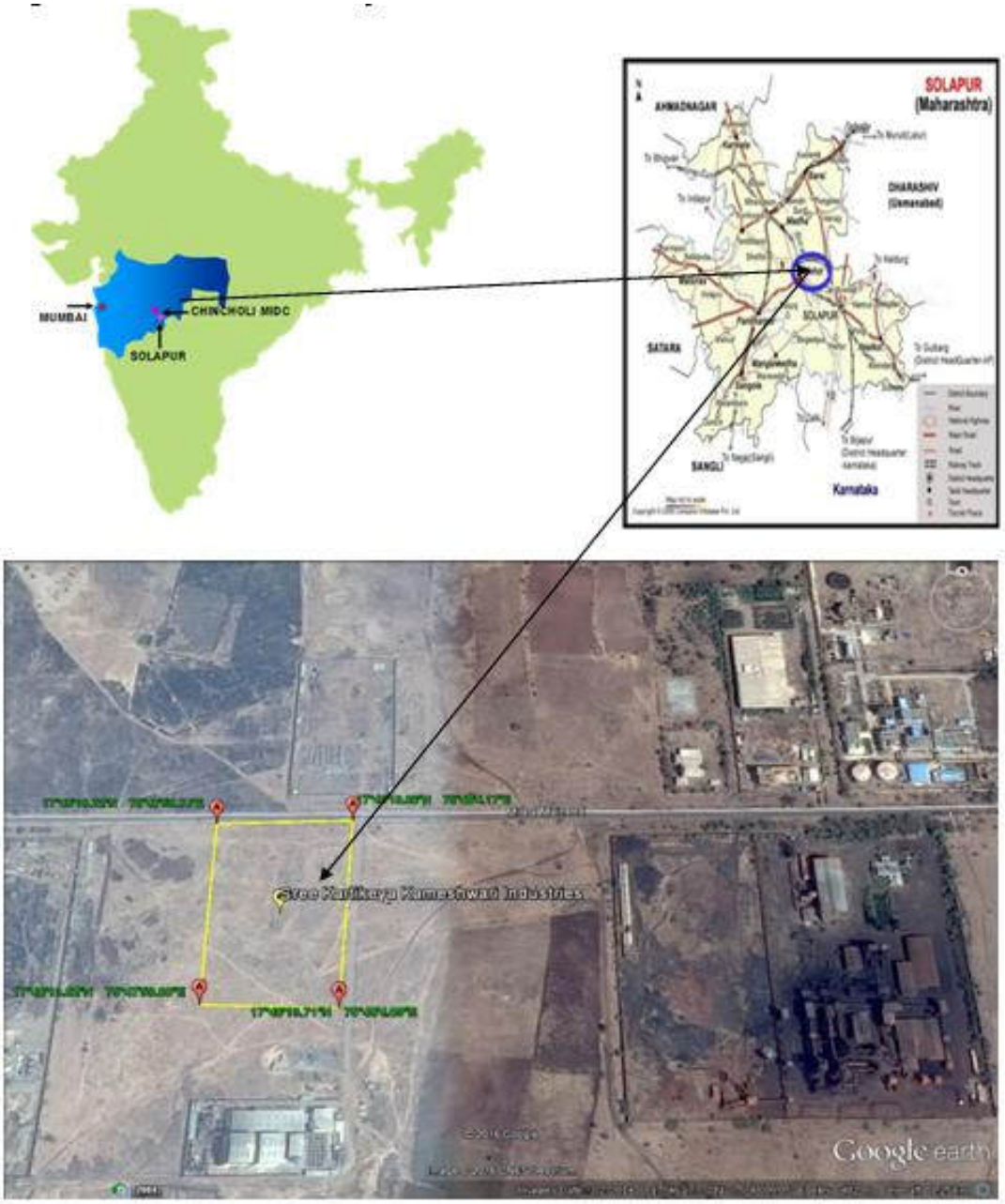


Figure 2.2 Topographical Map

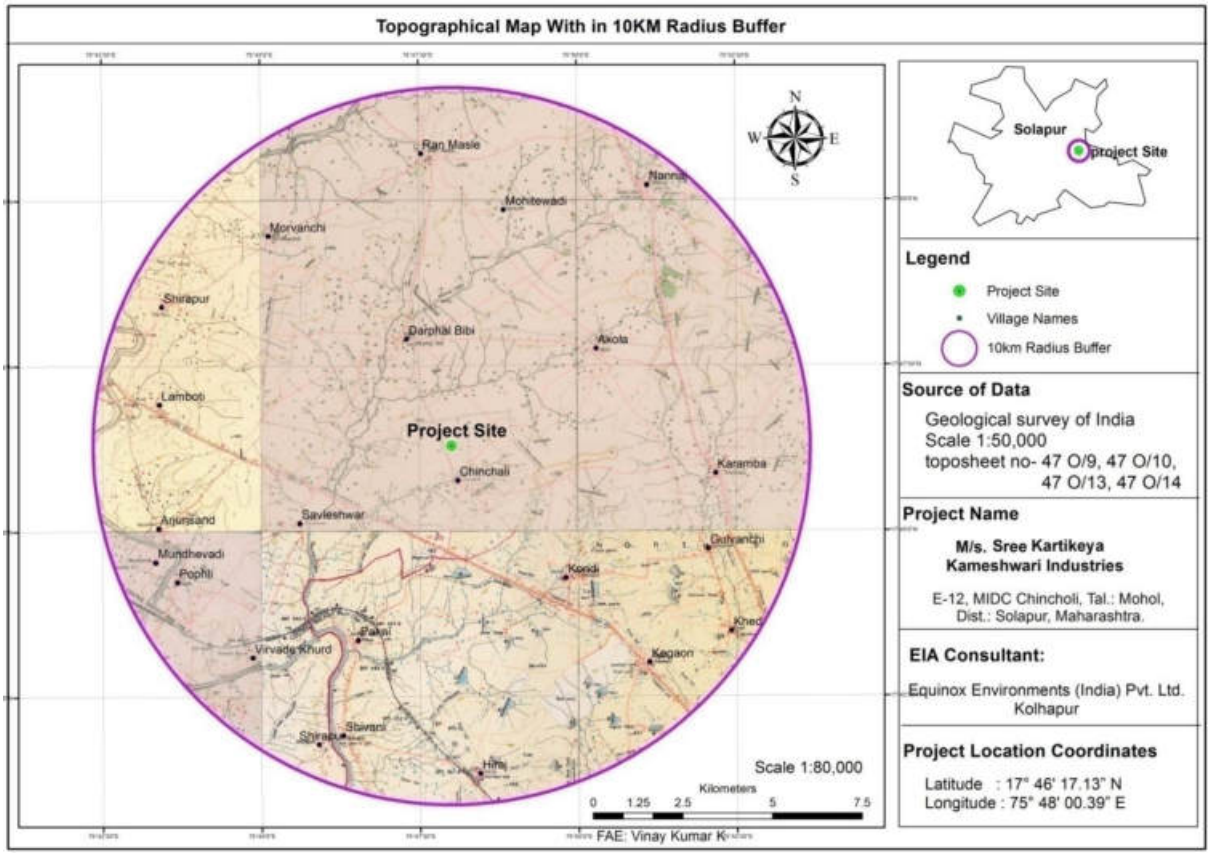


Figure 2.3 Google Image Showing Study Area

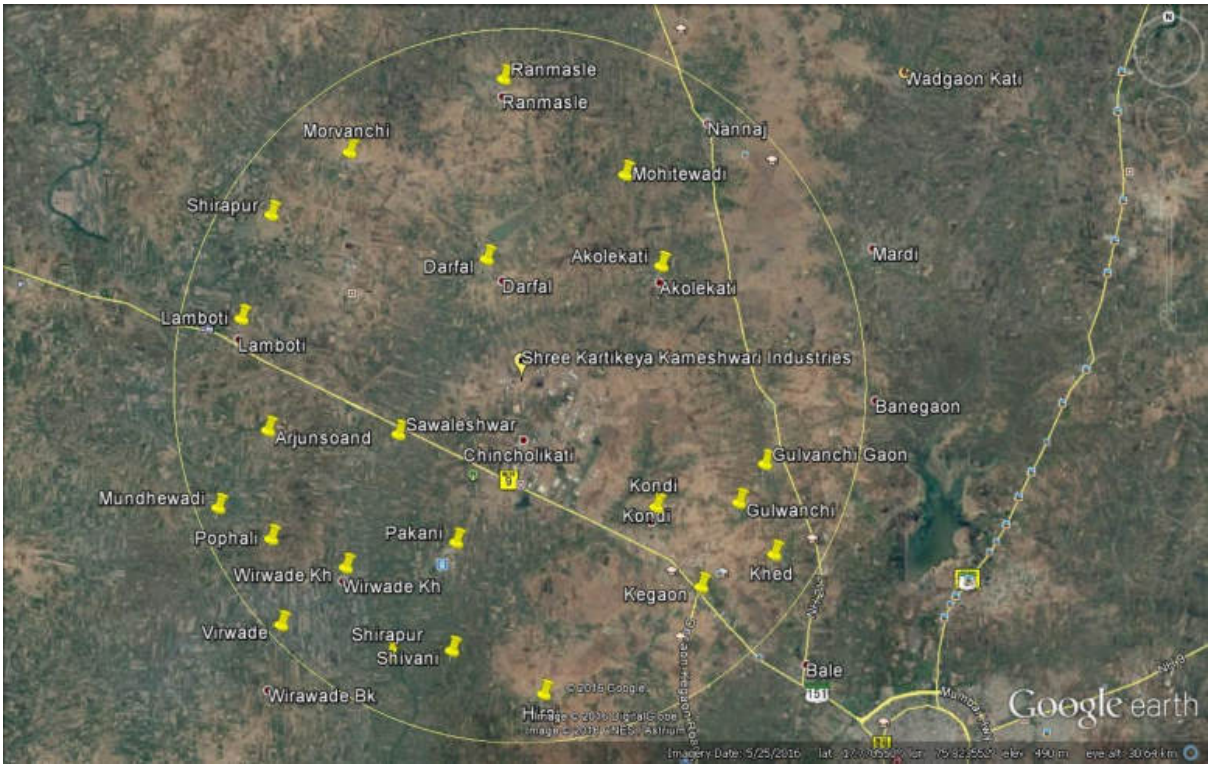


Figure 2.4 Satellite Image

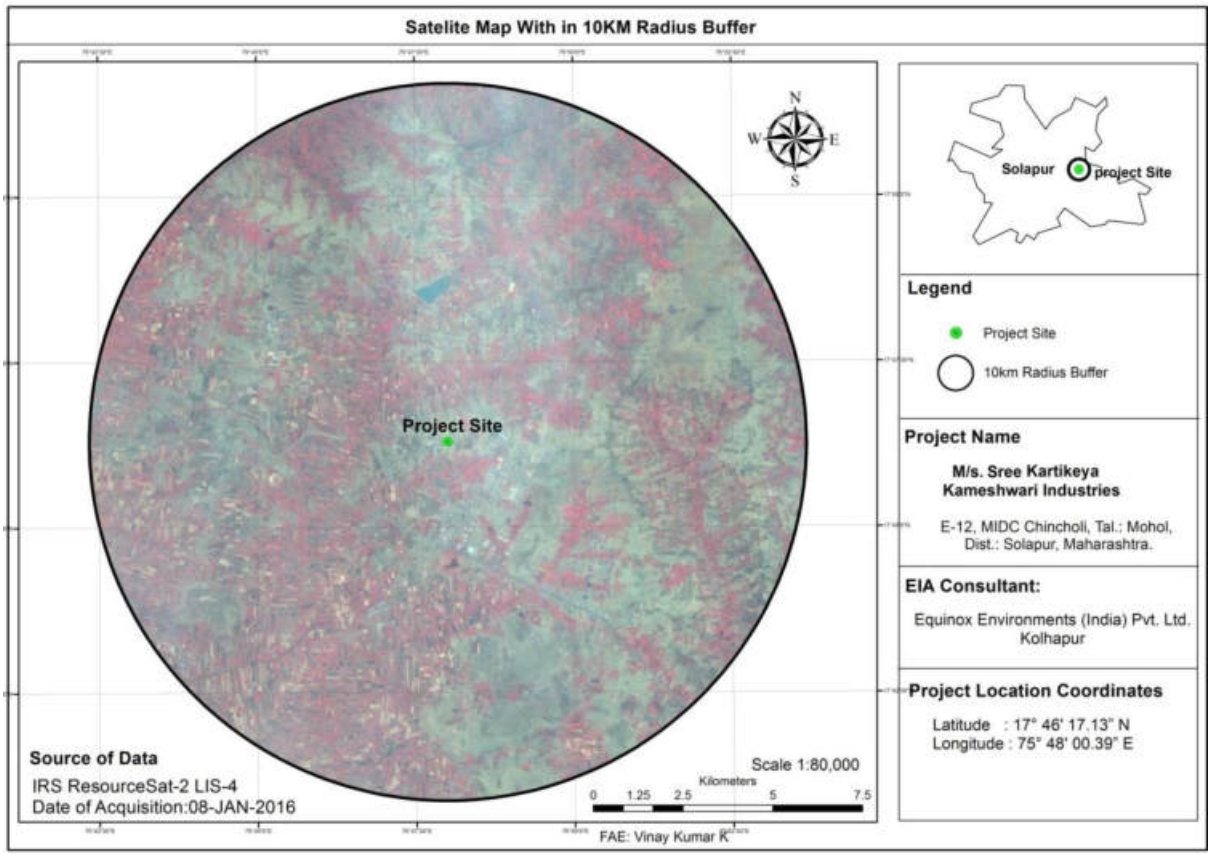


Fig. 2.5 Land Use Classification Map of Project Site & Study Area

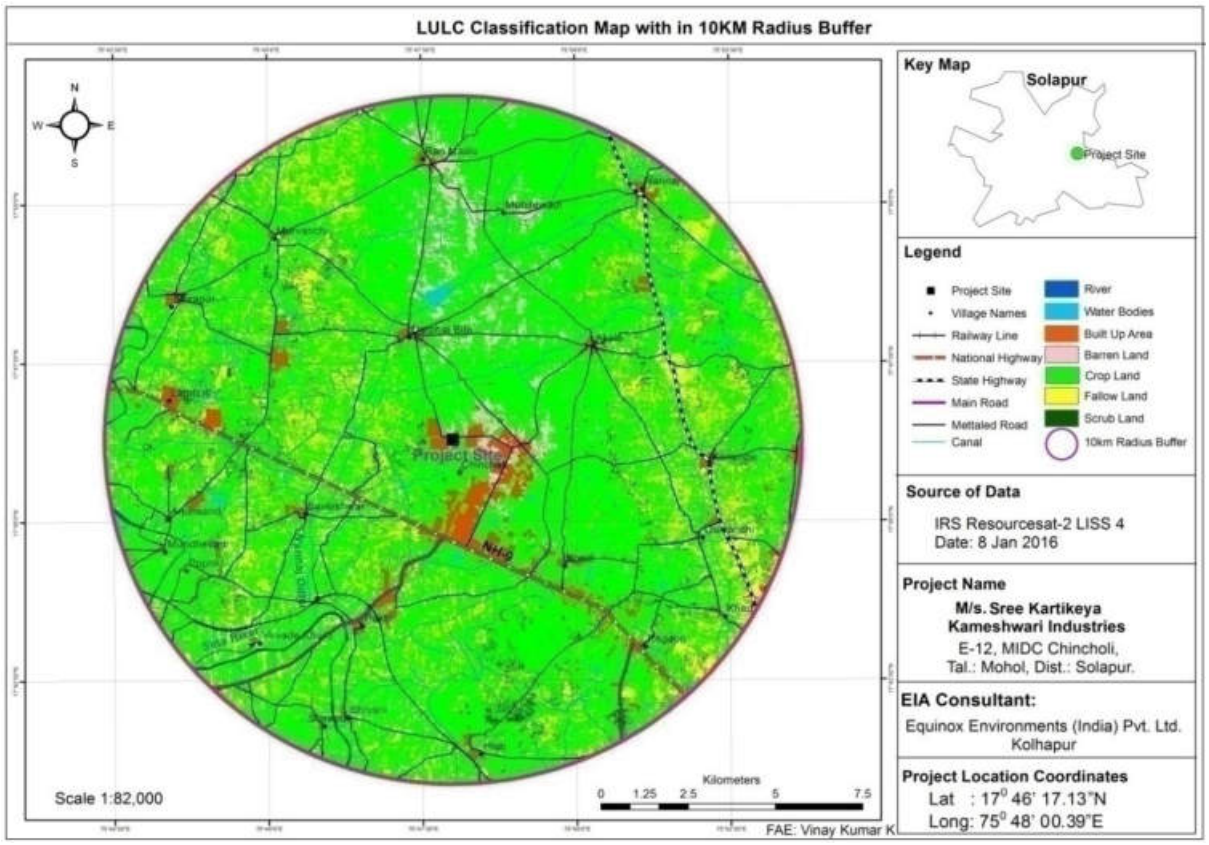
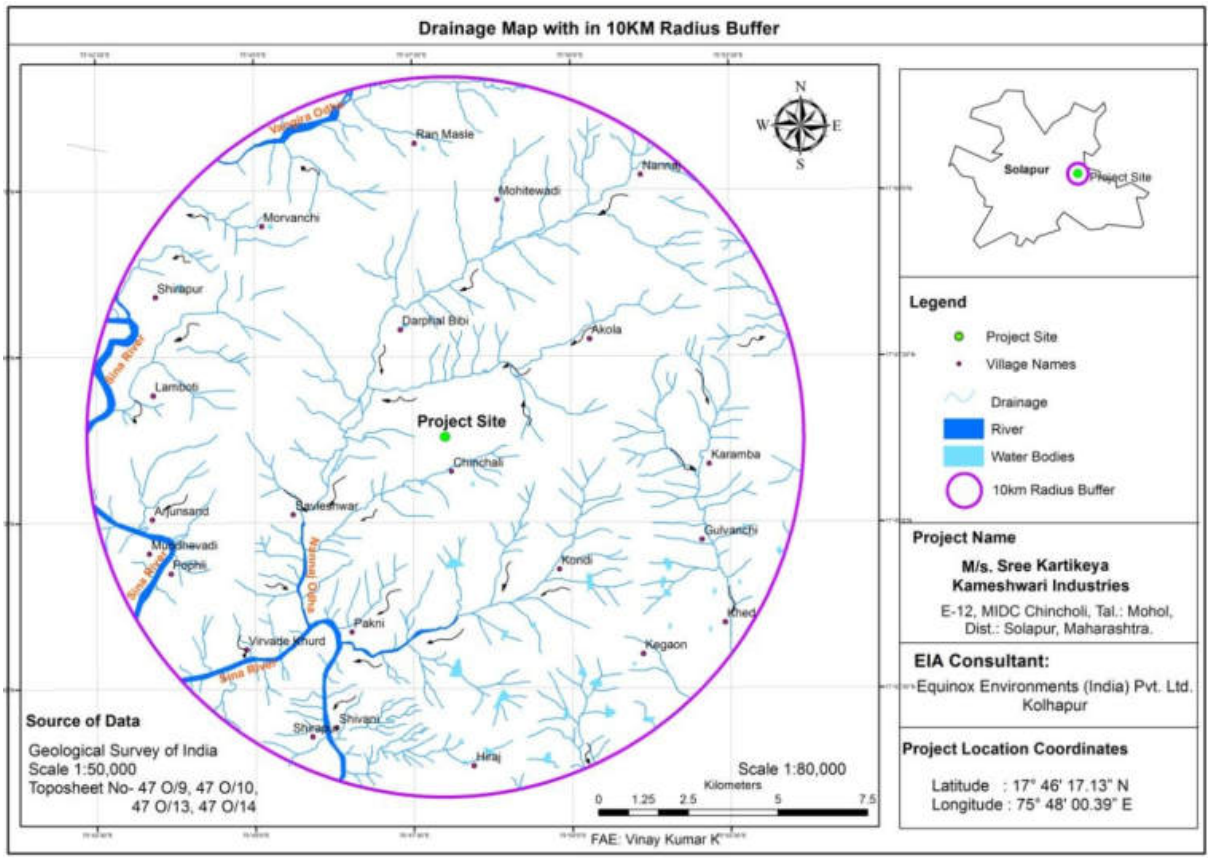


Table 2.1 Supervised Classification of the Satellite Image

Sr. No.	Classes	Area in Ha.	Percentage (%)
1	Crop land	23,212.10	73.89
2	Fallow Land	4,798.83	15.28
3	Buildup Area	1,100.38	3.50
4	Scrub/Shrubs	1,030.90	3.28
5	Barren Land	1,033.17	3.29
6	Water bodies	114.98	0.37
7	River	125.14	0.40
	Total	31,415.50	100.00

Fig. 2.6 Drainage Map of Study Area



Out of the total 25 villages existing within10 km radius, 7 villages were selected for this EB study, i.e 5 villages within 5 km radius and 2 villages between 5 and 10 km radius as shown in Table 2.2.

Table 2.2 Villages Visited for Ecology & Biodiversity Study within 5 Km Radius & between 5 to 10 Km Radius of the Project Site

Sr. No.	Name of the Village
Villages within 5 Km radius	
1.	Chincholikati
2.	Darfal (Bibi)
3.	Kondi
4.	Pakani
5.	Akolekati
Villages from 5 Km to 10 Km radius	
6.	Nannaj
7.	Shivani (Shirapur)

2.2 Ecology

For EB field study Topo sheet (47 O9, 47 O10, 47 O13, 47 O14), IRS Resource Sat-2 LISS-IV satellite imagery (08/01/2016) and LULC maps based on them are used. Similarly relevant data from district Census (2011), District Gazetteer, district forest report and relevant literature were referred. In ecology study ground truthing was done by confirming the LULC maps to learn status of major macro and micro habitats in the study area. These terrestrial habitats included forest areas, scrub, grassland, and fallows and in wetland habitats streams, rivers and tanks those were identified in the vicinity of the study villages for habitat and biodiversity study. Field survey was conducted from early morning till late evening for two days on 10th and 11th January 2017.

2.3 Biodiversity

In biodiversity study random sampling method for flora, and opportunistic sighting method for fauna (Larsen and Viana, 2016) were followed. In general visual observations and estimation method was used for qualitative study of the biota. Avifauna and fish were focused being good indicators of local environmental change. Similarly in flora, mainly major tree species were recorded for their identification and species dominance. Binoculars of Minolta (7X50-7O) and Olympus (8-16X40-5.2O) make were used for bird observations by referring guides by Salim Ali (1996) and Grimmet et al. (2005). Extensive photo documentation was done for habitats and biodiversity records using Canon camera (Power-shot SX50IS. Line transects method (Sale and Berkmuller, 1988), and standard point count method (Altmann, 1974) was followed in bird survey and data thus generated is used to estimate diversity and status of bird species.

2.4 Questionnaire Survey

In questionnaire survey SIA methodology was adopted by administering a structured close ended interview schedule, comprising of 21 ecology and biodiversity related multiple option questions in Marathi in local population. By design, in the stratified random sampling, about 50% of the respondents were above 50 years of age in the total sample size of 70 respondents interviewed from the 7 villages. This method was adopted in order to get perception of the local elders about the past and present environmental scenarios, and changes in local ecology and biodiversity, particularly near the industry. During field study direct and indirect environmental impacts of industry and developmental activities on local ecology and biodiversity are photo documented. Due to time constraint, the field study reflects only winter season data limited to day time observations at selected study sites only.

Chapter III

Findings

3.1 Biodiversity Observed and Reported from the Study Area

The biodiversity of the study area is good and represents the dry semi arid region. Traditionally these dry open areas, with mixed scrub and grasslands, are used by diverse taxa as their natural habitats. Similarly mosaic of mix agriculture fields and horticulture as artificial habitat are long time supporting the diverse local fauna, which coexisted with the agriculture practices in the region. As per the Zoological Survey of India (ZSI, 1989) a total 148 Avifaunal species were recorded in Solapur district. Moreover, floral biodiversity of Solapur district is comprised of 83 tree species, 50 shrub species, 4 climbers, and 19 grasses. As per the State Forest Department the faunal diversity of the region is represented by 12 mammalian species, 12 reptile species and 45 avifaunal species.

The Great Indian Bustard (GIB) Wildlife Sanctuary (established in 1979, also known as the Jawaharlal Nehru Bustard Sanctuary of Maharashtra) and its Eco Sensitive Zone (ESZ) forms part of the study area.(Plate No. 3.1) Large part of the study area serves as the natural grassland habitats, known to be traditional winter migratory grounds particularly for the rare bird Great Indian Bustard (GIB) (Ardeotisnigriceps), a Schedule-I species [The Wildlife (Protection) Act, 1972] and rated as Critically Endangered species status by the World Conservation Union (IUCN, 2017). Thus, this grassland habitat is protected as Nanaj GIB Sanctuary by the State Government. The grassland habitat of GIB and the Wildlife Sanctuary area are in the 10 Km radius of the study area (Plate No. 3.2), where the nearest distance is 2.4 Km on the East side (Plate No. 3.3). Part of the 10 km study area fall in the GIB WLS.

Common grass species reported are *Apluda mutica, Chrysopogon fulvus, Cymbopogon martini, Dicanthium annalatum, Heteropogon contortus, Ischaemum afrum* and *Setaria pumila.* The road leading from village Kondi to Darfal was unmetalled. On both sides of the road mixed habitat of scrub and grasses with patches of agricultural crops like jowar (*Sorghum bicolour*) and onion (*Allium carpa*) were common. This scrub predominantly is *Acacia nilotica* and *Prosopis juliflora* species. Patches of degraded land, due to tree cutting and soil excavations, were also commonly noticed, along either side of road. A total 12 bird species were observed near a water tank in village Kondi of which 3 were wetland birds. The original grassland habitat in and around this area was found to be degraded due to stone quarrying and crushing activities.

A hovering female common Kestrel (*Anas crecca*), which is a winter visitor, was observed in this area. On road leading from Kondi to Darfal, at the border of Chincholi MIDC there is water tank, in which true migratory wetland birds namely common Teal (*Anas crecca*), northern Shoveler (*Anas clypeata*), black-winged Stilt (*Himantopus himantopus*) and little Grebe (*Tachybaptus ruficollis)* were observed. Darfal Minor Irrigation (MI) tank is located at a distance of about 5 Km on north from project site. This area is mostly surrounded by agriculture land with scattered scrub of *Acacia nilotica* and grassland. Ten species of birds were observed in and around this area in short time. Along both sides of river Sina near

village Pakani there is dominance of scrub of *Acacia nilotica*. Due to good rainfall in the semi arid region this year, river Sina was found to be full with water. Five local birds were observed in the area. At Nannaj, Agave spaces locally called Ghaipaat i.e. Engelm (*Agave sisalana, Perr)* was seen as forest department plantations on boundary of GIB Sanctuary in the area. Observations were made from the watch tower in the sanctuary and several spots on either side of the road between villages Nannaj and Mardi. Avifaunal observations were recorded during this opportunistic road survey. Trenches are made by the Forest Dept to avoid cattle intrusion in GIB sanctuary all along on either side of the road. Plantations of grapes (*Vitis vinifera)*, pomegranate (*Punica granatum)* and Papaya (*Carica papaya)* were common in villages near the GIB Sanctuary. Birds namely desert Wheatear (*Oenanthe deserti*), Eurasian collared Dove (*Streptopelia tranquebarica*), rose-ringed Parakeet (*Psittacula krameri*), ashy-crowned Sparrow Lark (*Eremopterix griseus*), laughing Dove (*Stigmatopelia senegalensis*), blue rock Pigeon (*Columba livia)*, red-wattled Lapwing (*Vanellus indicus*) and grey Francolin (*Francolinus pondicerianus*) were observed in the GIB Sanctuary. In general diverse bird fauna observed during the study, indicated relative rich avian biodiversity in the study area made of a mosaic of terrestrial and aquatic ecology representing natural and manmade habitats. The list of fauna and flora species observed during the field study is given in Annexure I and II and representative images are given in (Figure 3.4)

According to most (60%) of the respondents, in the past, dominant habitats in the area were grassland and scrub which have been degraded over a period of past 20 years mainly due to tree cutting as a result of agricultural expansion and industrialization. This response was stronger in villages Darfal and Nannaj, who complained about increased tree cutting as fuelwood sent to industries located in Chincholi MIDC. This was also observed during field visit to these sites. Major crops grown in the area, according to respondents, are Jowar (*Sorghum vulgare)*, Sugarcane (*Saccharum officinarum)*, Wheat (*Triticum sativum)*, pigeon pea (*Cajanus cajan)*, Maize (*Zea mays)*, millet (*Pennisettum glaucum)*, vegetables and cotton (*Gossypium hirsutum).* The respondents from village Chincholikati complained about decreased crop production and even experienced smell of chemicals in their crops due to mixing of pollutants from the neighbouring chemical industries. In horticulture, major fruits grown included grapes (*Vitis vinifera)*, pomegranate (*Punica granatum)*, sapodila (*Manilkara zapota)*, banana (*Musa acuminate)*, papya (*Carica papaya)* and gauva (*Psidium gaujava)*.

Major common tree species in the area, as per the respondents, are Pimpal (*Ficus religiosa)*, Neem (*Azadirachta indica)*, Wad (*Ficus benghalensis)*, Babhul (*Acacia nilotica)*, Vedi Babhul (*Prosopis juliflora),* Shewga (*Moringa oleifera),* Umbar *(Ficus racemosa)*, Subabul (*Leucaena leucocephala)* and Gulmohar (*Delonix regia)*.

Traditionally the grassland habitats provided forage to wild herbivores primarily Black Buck *(Antilope cervicapra)*, Indian Hare *(Lepus nigricollis)* and Indian Gazella (*Gazella gazelle)* population which have gone down drastically due to human activities like farming, industrialization and increase in human settlements in the area. However, according to locals, there is existence of wild herbivore population which supports sizable wild predator species

such as Indian Wolf (*Canis lupus),* Jackal (*Canis aureus)* and Indian fox *(Vulpus benghalenis)* which now predates on livestock mainly goat and sheep. According to majority respondents the presence of major local wildlife in the region, is Indian Wolf (*Canis lupus)*, Jackal (*Canis aureus),* Bonnet Macaque (*Macaca radiate)*, Indian Palm Squirrel *(Funambulus palmarum)*, Black Buck *(Antilope cervicapra)*, Wild Boar (*Sus scrofa)*, Langur (*Presbytis entellus)* and flying fox (*Pteropus giganteus).* The locals also confirmed occurrence of birds like Indian Peafowl (*Pavo cristatus)*, Great Indian Bustard (*Ardeotis nigriceps)*, House Sparrow (*Passer domesticus)*, Grey Francolin (*Francolinus pondicedranius)*, Rock bush Quail (*Perdicula argoondah),* Black Kite (*Milvus migrans)* and the common local birds close to habitations. In reptiles, locals mentioned presence of snakes such as Indian Rat Snake *(Ptyas mucosa)*, Spectacled Cobra *(Naja naja*, Common Indian Krait *(Bungares caeruleus)*, Russel's Viper (*Daboia russelii)*, and Saw-scaled Viper *(Echis carinatus)* and Garden Lizard (*Calotes versicolor)* as commonly found in the region. However, besides the poisonous snakes, for which they had to be concerned about, locals were not much knowledgeable about the rich local wild vertebrate diversity. The respondents agreed about presence of different frog species but could only mention bull frog (*Hoplobatracus tigerinus)* in the area. In fish diversity also only few (15 %) respondents were aware of the presence of locally found fish species, that too edible species like maral (*Channa marulius)*, catla (*Catla catla)* and rohu (*Labeo rohita)* as they were available locally in Darfal MI tank. As expected there was less information about invertebrate diversity. However, presence of different species of spiders, butterflies, scorpions and crabs in their locality was confirmed by the respondents. Importantly, majority (60%) of the respondents, particularly the seniors who had seen environmental conditions, land use and biodiversity in the past, confirmed direct decline in biodiversity in the area today. This change was attributed to factors namely water scarcity (70%), industrialization (40%) and agriculture expansion (35%). The list of fauna reported by the respondents from the study area is given in Annexure III.

Plate No. 3.1 Google Image of GIB WLS

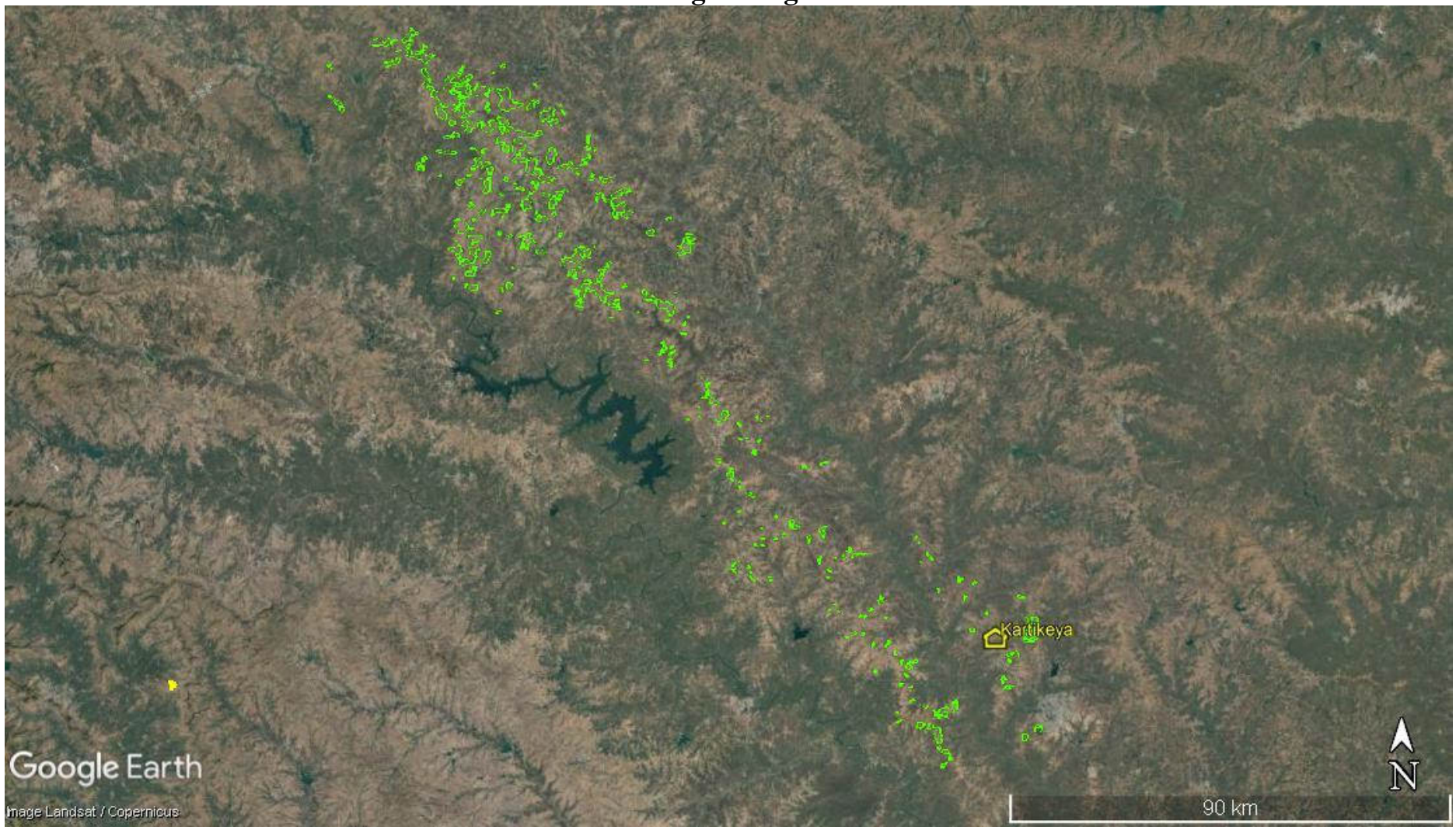


Plate No. 3.2 Google image of 10 km Study area and GIB WLS

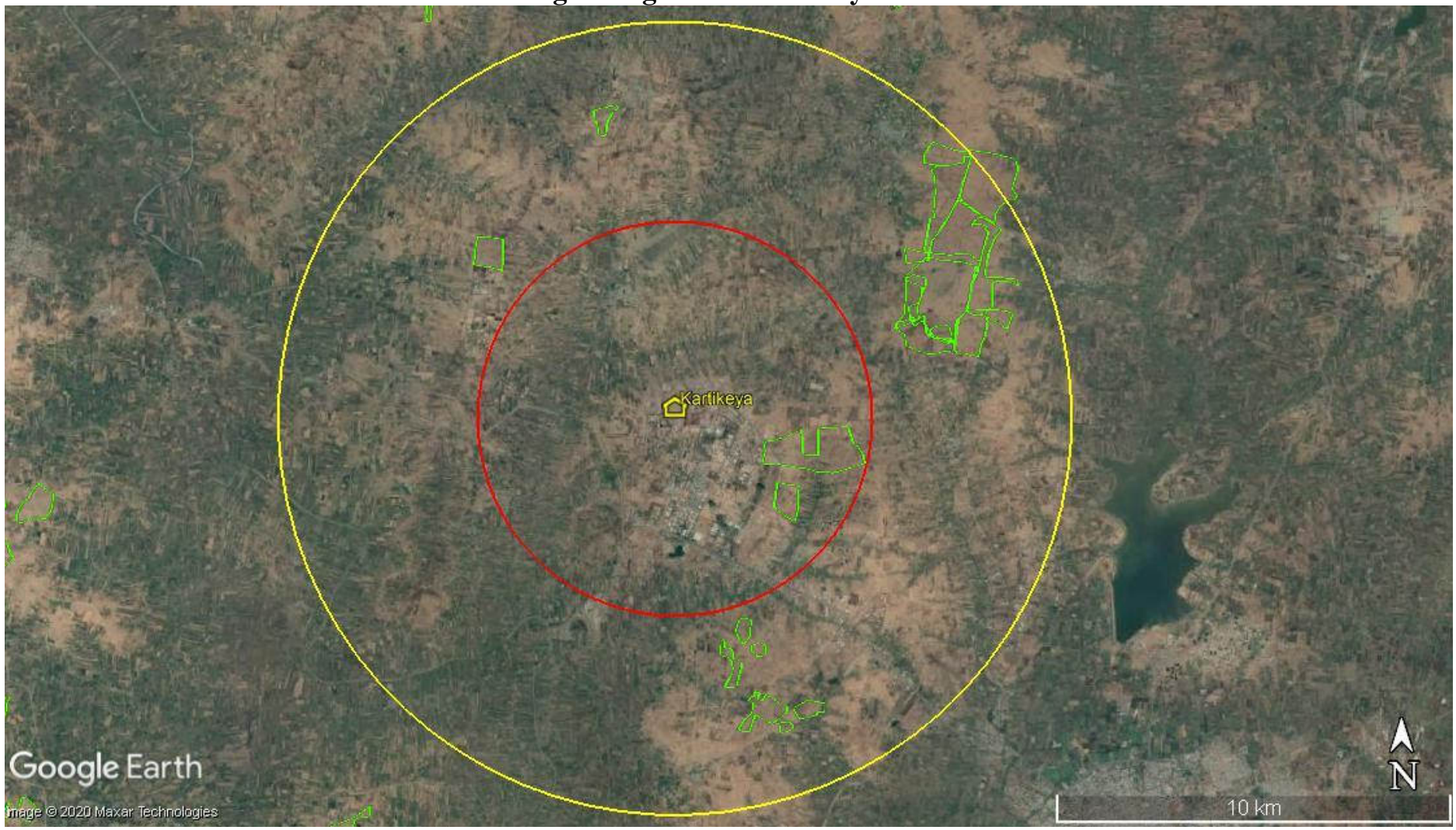


Plate No. 3.3 Distance between GIB WLS and Project Site

Plate No. 3.4

Biodiversity in the Study Area

Common Teal (Anas crecca) & Northern Shoveler (Anas clypeata) water tank,Chincholi MIDC

Flock of Northern Shoveler (Anas clypeata) spotted in a water tank near Chincholi MIDC

Grey Heron (Ardea cinerea) spotted in water tank near village Kondi

Common Kestrel (Falco tinnunculus) spotted near village kondi

Plate No. 3.5

Terrestrial Habitats in the Study Area

Grassland Habitat in GIB Sanctuary

Grassland with Open Scrub in GIB Sanctuary

Jowar (*Sorghum bicolour*) Near Village Darfal

Wheat (*Triticum aestivum*) Near Village Chincholikati

Plate No. 3.6

Wetland Habitats in the Study Area

Water Tank Near Village Kondi

Water Tank Near Chincholi MIDC

Water Tank Near Village Darfal

River Sina Near Village Pakani

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3.2 Supportive Habitats in the Study Area

The entire area is primarily open land which has been a combination of traditional grassland, scrubs, fallow lands with a mosaic of rain fed and irrigated croplands. There are two major streams one from Nannaj and the other Vangira nala. River Sina also flows through the study area. There is one minor irrigation tank at Darfal village and three village ponds at Kondi, Morwanchi and Pakani respectively. The Land Use and Land cover interpretation from satellite imagery (acquired in 2016) (Figure 3.6) revealed the present landuse status of the study area, as cropland (73.89%), fallow land (15.28%), built-up area (3.50 %), grassland with open scrub (3.27%), barren land (3.29%), and water bodies (0.77%) comprising of river and water tanks. In the study area, the dry open areas with scrub and grasslands have been traditionally used by biodiversity as natural habitats, and to some extent the mosaic of rain fed agriculture which have coexisted for some time and also supported the diverse fauna adapted to the local agro climatic conditions. (Figure 3.5 & 3.6)

3.3 Schedule I Species from the study area

Following Schedule –I species are observed and reported from the study area

Table 3.1 Schedule I Species in Study Area

Sr.No.	Scientific Name	Common Name
1	*Ardeotis nigriceps*	Great Indian Bustard
2	*Gazella gazella*	Indian Gazelle
3	*Milvus migrans*	Black Kite
4	*Canis lupus*	Indian wolf
5	*Antilope cervicapra*	Black Buck
6	*Pavo cristatus*	Indian peafowl

Chapter IV
Conservation Plan

The Proposed project is expected not to cause any impacts to the habitats of the study area or to the local species therein. Despite this, industry will contribute to conservation of the biodiversity in study area. Various on-site and off-site measures are proposed for conservation of the Schedule – I species as well as other biodiversity and supportive habitats in the study area. No any land from any protected area is being used nor will be used for the proposed project. Also, to avoid contamination of habitats and impact on biodiversity due to the industrial activities, an Environment Management Plan (EMP) is prepared by industry which would be implemented under expansion project. The same shall be monitored regularly by Regional Office of MoEFCC at Nagpur. Besides this, few areas where industry can contribute towards biodiversity conservation are also presented here. The details of the onsite EMP measures, biodiversity and habitats conservation plans and CER activities supportive to the same are given below.

4.1 On-site Measures under Conservation Plan

4.1.1 Environmental Management Plan (EMP)

With the knowledge of baseline conditions and impacts predicted, the monitoring program will serve as an indicator for any deterioration in environmental conditions due to operation of the project. This will enable in taking up suitable steps, in time, to safeguard the environment. Monitoring is an important tool for control of pollution since the efficiency of control measures can only be determined by monitoring.

In industrial complex, monitoring of various environmental parameters will be carried out on a regular basis to ascertain the following:

- State of pollution within the plant and in its vicinity;
- Examine the efficiency of pollution control systems installed in the plant;
- Generate data for predictive or corrective purpose in respect of pollution;
- To assess environmental impacts

The environmental monitoring for the proposed project is important to assess the performance of pollution control equipment to be installed in the project complex. The sampling and analysis of environmental attributes including selecting the monitoring locations will be as per the guidelines of the CPCB / State Pollution Control Board. Accordingly, environmental monitoring will be conducted on regular basis by industry to assess the pollution levels in the plant as well in the surrounding area with following objectives:

- To verify impacts predicated due to the proposed project.
- To identify trends with time in the levels of parameters.
- To check or assess efficiency of various pollution controlling measures.
- To ensure that new parameters, other than those identified in the impact assessment study, do not become critical through commissioning of the proposed project.
- Establish database for future impact assessment studies for proposed project.

Recycling and reuse of industrial waste not only reduces the waste generation but also can be an economic gain to the industry. For, expansion activities, the management of industry will take all the necessary steps to control and mitigate the environmental pollution in the designing stage itself. Moreover, while implementing the project, the management will follow guidelines issued by CPCB. EMP is prepared based on the existing environmental status of the project location and the anticipated impacts of the project activities on environment.

During operational stage, continuous air emissions from boilers, wastewater disposal, non-hazardous waste such as ash, chemicals used in processing, used oily wastes are expected. The attributes which merit regular monitoring based on the environmental setting and nature of project activities are listed below:

- Source emissions and ambient air quality;
- Groundwater levels and ground water quality;
- Water and wastewater quality (water quality, effluent & sewage quality etc.);
- Solid and hazardous waste characterization (fly ash, bottom ash, oily wastes, ETP sludge, used and waste oil);
- Soil quality;
- Noise levels (equipment and machinery noise levels, occupational exposures and ambient noise levels)
- Ecological preservation and afforestation.

a. Air Pollution Management

In the proposed project, One boiler of 5 TPH and Thermic fluid heater (TFH) of 8 Lakh Kcal/Hr would be installed under proposed unit for requirement of steam for manufacturing activity.Coal (imported)would be used as fuels for boiler, TFH. D.G. Sets (2 Nos.) of 250KVA shall beinstalled under proposed unit and the same shall be used during power failure There would be process emissions in the form Nitric acid would be emitted during manufacturing. The same would be treated with installation of scrubbers. Production blocks would be provided with scrubbers. The sources of fugitive emissions identified under proposed SKKI's bulk drugs and intermediates manufacturing are as process operations, related miscellaneous operations, material storage, equipment leaks and fuel yard.

- Regular self-monitoring of the stack emissions, AAQ, work zone air quality would be done by the industry through approved labs to check and control dust levels / concentrations at certain places so that same could be kept always below the stipulated norms.
- Efficiencies of dust control equipment in the industry shall be monitored regularly (at least once a month) under performance evaluation.
- Inlet and outlet of pollution control equipment shall be provided with all necessary sampling arrangements as per guidelines of CPCB would be fitted and properly operated.
- In case of power failure, alternate electric source shall be provided which shall be sufficient to operate the APC equipment.

b. Water Management

The total water requirement under proposed activity would be to the tune of 208.68M3/Day. Out of this,120.3M3/Day would be fresh water, 42 M3/Day would be treated water from ETP, 43.38 M3/Day would be Recycled Process Water after Distillation and 3 M3/Day treated water from STP. In all about44% of recycled water would be used for industrial purpose thereby reducing fresh water consumption.

Total effluent would be generated from the various operations & processes from existing activities. The domestic effluent from proposed activities of SKKI would be4M3/Day. The same would be treated in proposed Sewage Treatment Plant (STP) and the treated effluent shall be reused for flushing in toilets. Effluent generated from proposed activities would be segregated in two different streams, viz. Stream – I (High COD&High TDS) and Stream – II (Low COD& Low TDS) and will be treated.

c. Effluent Treatment

The **Stream I** effluent generated would be to the tune of 49.57M^3 / Day. Same comprise of effluent from manufacturing operations viz. process effluent and washing. This effluent will be treated in an ETP comprising of Screen Chamber, OG Removal Tank, Equalization Tank, Flash Mixer,Flocculator,Tube Settler, Holding Tank followed by Triple Effect Evaporator (TEE) and Agitated Thin Film Dryer (ATFD). The condensate from TEE to the tune of 48M^3 / Day would be forwarded to **Stream II** for treatment. Further salts from TEE would be forwarded to authorized reprocessor.

The **Stream II** effluents generated would be to the tune of 12 M^3 / Day, MEE condensate from **Stream I**of 48M^3 / Day.**Stream II** effluent shall be contributed by DM back wash, boiler blow down, and cooling blow down. The same will be treated Screen Chamber, OG Removal Tank, Equalization Tank, Flash Mixer,Flocculator, Primary Tube Settler (PTS), MBBR Tank, Secondary Tube Settler(STS),Holding Tank, Filter Feed Tank, Sand and Carbon Filters and R.O. Unit & Sludge dewatering equipment. The treated water from stream II of 42M^3 / Day would be recycled back for cooling make up.The RO reject 18 M^3 / Daywillbe sent to MEE in Stream-I treatment thereby achieving **Zero Liquid Discharge (ZLD)**.

d. Noise Level Management

There would be no major noise generating sources in the proposed unit of SKKI other than the boiler, reactors, compressors, MEE treatment Plant and D.G. Set. Noise pollution from boiler area and compressor area would be in the range of 70 dB to 80 dB. Among these, prominent source of noise would be the boiler house. Insulation helps in limiting noise levels. The workers entering the plant would be protected by earmuffs, which would give the reduction of 30 dB (A). The D.G. Sets (2 Nos.) of 250 KVA each would also be considered

as one of the major sources of noise generation. However, this is not continuous source. Only in case of power failure, D.G. Sets would be operated. Isolated and sound insulating structural arrangements would be provided to D.G. sets. Moreover, as per Noise Pollution (Regulation and Control) (Amendment) Rules, 2010 it would be enclosed in a canopy. Also, a silencer would be provided to it as noise pollution control equipment. Following protocol shall be observed by the Industry –

- Provision and use of earmuffs in high noise area.
- Providing separate sitting and control room for workers.
- Changing of shifts and exposure time to high noise area would be reduced.
- Development of green belt

e. Solid Waste Management

Agreement is executed for utilization of ash with the brick manufacturers in accordance with MoEF Notification S.O. 763 (E) dated 14.09.1999 amendments dated 27.08.2003 and 03.11.2009. The entire quantity of hazardous waste is handled and disposed as per Hazardous Waste (Management, Handling and Transboundary Movement) Rules 2010. The hazardous waste generated from manufacturing operations would be stored in a leachate proof tank which shall be stored in a leachate proof yard to be provided on site.

f. Green Belt (GB) Development

As per standard TOR, clause 5(g) A.7.ix the required Green Belt (GB) should be on 33% of total land area of the factory, with not less than 1,500 trees per ha, giving details of species, width of plantation, planning schedule etc. should be included. The GB shall be around the periphery of project boundary and a scheme for greening of the roads used for the project shall also be incorporated. The total plot area of SKKI is 24,050 M2 (2.4 Ha). An area of 9,417.23M2 would be an actual area on which the industrial activities would be carried out. The proposed green belt development would be 8813M2 i.e. 36% of the total plot area.

The CPCB (2000), MoEFCC guidelines reveals that Green Belt is to be developed for environmental protection and as a mitigation measure from diverse pollutants to safeguard health of workers, population in the plant vicinity and biodiversity in study area. Impacts due to noise generation and particulate emissions can be abated by plantation of green belt. Under proposed Activity, augmentation of appropriate green belt shall be done in phase wise manner. Native and fast-growing species shall be selected for green belt development. Also,

plantation of fruit bearing trees is not desirable on industrial premise to avoid possible harmful contamination and bioaccumulation of chemicals in fruits and vegetables.

4.2 Offsite Measures under Conservation Plan

4.2.1 Funding to Forest Department

Industry will discuss with forest department officials and get an understanding of the existing habitat improvement and wildlife management activities being conducted in the study area. In consultation with the forest department, industry will give monetary contribution to the forest department for existing habitat improvement and wildlife management activities.

4.2.2 Environmental Workshops &Awareness Campaigns

Environment workshops and awareness campaigns will be undertaken for industry employees and local villagers in adjoining villages regarding protected species in the area and their importance in environment as well as about their behavior, habitat, ecology, breeding/nesting seasons, threats to habitats and species, laws regarding protection of species etc. Awareness programs shall also be arranged on other sustainable and eco-friendly environmental practices like organic farming, cane trash manure, drip irrigation. This will also motivate the locals and the industry employees alike to protect ecology and biodiversity in and around their own villages. External experts will also be engaged for coordinating the workshops and seminars. It is planned to conduct one workshop per year. Each workshop would be for 1 day. One external expert shall be engaged for coordinating the workshop. The main themes that the workshops would focus are -

- Forest habitat protection and improvement
- Wildlife laws and their implementation
- Protected species in the area, their distribution, habitat, threats and conservation measures
- Human animal conflicts and management measures especially about precautions to be taken to avoid and first aid and care to be taken in case of snake bites, venomous snake species in the area etc.

The workshops would involve interactive sessions, film and video shows, poster presentation on forestry and biodiversity management. Case studies, success stories for forest management in India and abroad would also be discussed. The workshops would be conducted in adjoining villages and also within the Company premises. Awareness generation campaigns will include preparation and circulation of brochures in local language, film show and display of posters.

4.2.3 Contribution for Anti-venom &Ambulance Facility

During Questionnaire survey on ecology and biodiversity in the study area, it was reported that there is presence of venomous snakes like Spectacled Cobra, Russell's Viper & Saw Scaled Viper and snake bite cases happen mostly during farming activities. In light of this information, industry has planned to contribute with the local Public Health Centers for making availability of anti-venom and ambulance facility in such cases.

4.2.4 Reporting Injured Animals to DCF Office

In an event of information / observation of injured wild animal in the area, industry will inform the concerned wildlife department for its treatment and protection for which industry will extend financial assistance to department.

4.2.5 Provision & Development of Waterholes

Provision will be made for development of Waterholes and small ponds for wildlife for ensuring safe places of drinking water as availability of safe places of drinking water is very important for the local wildlife.

Chapter V

Budget Allocation & Implementation Schedule

5.1 Budget Allocation

Budget allocation for the activities proposed under this conservation plan is described hereunder. The cost towards activities under biodiversity and habitat conservation, supportive CER activities (out of those that are defined in the EIA Report) and capital as well as O & M cost towards EMP aspects under the proposed expansion project would be as follows –

Table 5.1 Proposed Conservation Activities

No	Conservation Activities	Amount
1	Contribution in natural habitat Conservation Funds of State Wildlife Department	Rs. 10.00 Lakhs
2	Environmental Workshops & Awareness Campaigns	Rs. 10.00 Lakhs
3	Contribution for Anti-venom and Ambulance facility	
4	Reporting injured animals to the DCF office	
5	Provision and development of Waterholes	
	Total	**Rs. 20.00 Lakhs**

Number of CER activities are proposed in the EIA report. Out of those, certain activities have been stated below that are directly helpful for Biodiversity Conservation in the study area by minimizing direct & indirect impacts and pressure on the local environmental resources.

Table 5.2 Proposed CER Activities for Biodiversity Conservation

No	CER Activity	Details	Total Amount
1.	Contribution for GIB Conservation.	Fund will be given to Wildlife Conservation Board Maharashtra state for Conservation of critically endangered bird Great Indian Bustered.	**Rs. 12 Lakhs**

The capital as well as O & M cost towards environmental aspects under proposed activities would be as follows

Table 5.3 Capital as well as O & M Cost of EMP (Existing & Proposed)

Sr. No.	Description	Cost Component (Rs. Lakhs)	
		Capital	**O & M/Year**
1	Capital cost of ETP comprising of RO, MEE, Guard tank forstandby storage of effluent,Solvent Recovery System and allied Infrastructure	155	27
2	Cost towards APC equipment, MDC followed by Bag Filters, Stacks, Scrubbers	50	5
3	Cost towards Noise Level Management	5	2
4	Green Belt Development	15	2
5	Environmental Monitoring & Management	--	7
6	Occupational Health & Safety	5	2
	Total	**230**	**45**

1.2 Implementation Schedule

Table 5.4 Implementation Schedule for Conservation Activities

Sr. No.	Conservation Activity	Costing in Rs. Lakhs			
		2021-22	2022-23	2023-24	**Total**
1	Contribution to State Wildlife Department	5.00	5.00	--	10.00
2	Environmental Workshops &Awareness Campaigns	--	5.00	5.00	10.00
3	Contribution for Anti-venom and Ambulance facility				
4	Reporting injured animals to the DCF office				
5	Provision and development of Waterholes				
	Total	5.00	10.00	5.00	**20.00**

Table 5.5 Implementation Schedule for CER Activities

No	CER Activity	Investment			Year of Completion
		Year 2020	**Year 2021**	**Year 2022**	
1.	Conservation awareness campaign for the ecology and biodiversity	Rs.2 Lakhs	Rs.5 Lakhs	Rs.5 Lakhs	2022

References

1. Anonymous (2012), Flora and fauna of Solapur District, Department of Forest, Solapur, Maharashtra State.
2. Anonymous, Corporate Environment Responsibility (01.05.2018) [F.No.22-65/2017-IA.III], Guidelines for CER, Ministry of Environment, Forest and Climate Change (MoEF&CC), New Delhi.
3. Anonymous (2000), Guidelines for Developing Greenbelts, Central Pollution Control Board (CPCB), Programme Objective Series: PROBES/75/1999-2000.
4. IUCN, (2017), IUCN Red List of Threatened Species, Available at www. Iucbredlist.org.
5. Larsen T.H. and Viana Leonardo (2016), Core Standardized Methods (For Rapid Biological Field Assessment), Conservation International.
6. Anonymous, (1972), The Wildlife (protection) Act, 1972, India. Chapter VII, Schedule lists.
7. Daniel J. C., (2002), The Book Of Indian Reptiles And Amphibians, Bombay Natural History Society, Oxford University Press
8. Grimmett R., Inskip C. and Inskip T. (2011), Birds of Indian Subcontinent, Oxford University Press, New Delhi.
9. Prater S.H., (1980), The Book Of Indian Mammals, Bombay Natural History Society
10. Ali Salim, (1996), The Book of Indian Birds, Oxford University Press, Oxford

Annexure – I: List of Fauna observed during field survey

Sr. No.	Scientific Name	Common Name
1.	*Vanellus indicus*	Red Wattled Lapwing
2.	*Anas zonorhyncha*	Indian Spot-Billed Duck
3.	*Stigmatopelia chinensis*	Laughing Dove
4.	*Sturnia pagodarum*	Brahminy Starling
5.	*Merops orientalis*	Green Bee-Eater
6.	*Pastor roseus*	Rosy Starling
7.	*Leptocoma zeylonica*	Purple-Rumped Sunbird
8.	*Dicrurus macrocercus*	Black Drongo
9.	*Pavo cristatus*	Indian Peafowl
10.	*Amandava amandava*	Red Avadavat
11.	*Anthus rufulus*	Paddyfield Pipit
12.	*Eremopterix griseus*	Ashy-Crowned Sparrow Lark
13.	*Turdoides caudata*	Common Babbler
14.	*Ciconia episcopus*	Wooly-Necked Stork
15.	*Clamator jacobinus*	Jacobin Cuckoo
16.	*Upupa epops*	Common Hoopoe
17.	*Centropus (sinensis) parroti*	Southern Coucal
18.	*Lanius vittatus*	Bay Backed Shrike
19.	*Streptopelia tranquebarica*	Eurasian Collared Dove
20.	*Saxiola caprata*	Pied Bushchat
21.	*Psittacula krameri*	Rose-Ringed Parakeet
22.	*Ploceus philippinus*	Baya Weaver
23.	*Pycnonotus cafer*	Red Vented Bulbul
24.	*Columba livia*	Common Pigeon
25.	*Vanellus indicus*	Yellow Wattled Lapwing
26.	*Francolinus gularis*	Grey Francolin
27.	*Coturnix coturnix*	Common Quail
28.	*Threskiornis*	Black Headed Ibis
29.	*Pseudipis papillosa*	Red Naped Ibis
30.	*Porphyrio porphyrio*	Purple Swamphen
31.	*Mycteria leucocephala*	Painted Stork
32.	*Ardea cinerea*	Grey Heron
33.	*Platalea leucorodia*	Eurasian Spoonbill
34.	*Egretta garzetta*	Little Egret
35.	*Phalacrocorax niger*	Little Cormorant
36.	*Alauda gulgula*	Oriental Skylark
37.	*Cecropis daurica*	Red Rumped Swallow
38.	*Sterna aurantia*	River Tern
39.	*Dicaeum erythrorhynchos*	Pale-Billed Flowerpecker
40.	*Motacilla maderaspatensis*	White-Browed Wagtail
41.	*Ptyonoprogne concolor*	Dusky Crag Martin
42.	*Halcyon smyrnensis*	White-throated Kingfisher
43.	*Eremopterix griseus*	Ashy-crowned Sparrowlark

Feeding Guild: C-Carnivore; F-Frugivore; G-Granivore; I-Insectivore; N-Nectarivore; O-Omnivore; P-Piscivore Status: R-Resident; RM-Resident Migrant; M- Migrant IUCN Category: LC-Least Concern, NR-Near Threatened, V-Vulnerable

Annexure – II: List of Flora observed during survey

Sr. No.	Scientific Name	Common Name
Tree		
1.	*Ziziphus mauritiana*	Bor
2.	*Prosopis julifora*	Vedi Babhul
3.	*Acacia nilotica*	Babhul
4.	*Ficus benghalensis*	Vad
5.	*Ficus religiosa*	Pimpal
6.	*Ficus racemosa*	Umbar
7.	*Tamarindus indica*	Chinch
8.	*Tectona grandis*	Saag
9.	*Pongamia pinnata*	Karanj
10.	*Moringa oleifera*	Shewga
11.	*Azadirachta indica*	Kadulimb
12.	*Butea monosperma*	Palas
13.	*Cassia siamea*	Kashid
14.	*Mangifera indica*	Amba
Shrub		
15.	*Lantana camara*	Ghaneri
16.	*Agave sisalana*	Ghaypaat
17.	*Datura fastuosa*	Dhotra
18.	*Opuntia elatior*	Niwdung
19.	*Caesalpinia crista*	Tantani
20.	*Aloe vera*	Korphad
21.	*Calotropis gigantea*	Rui
22.	*Capparis decidua*	Nepti
23.	*Murraya koenigii*	Kadhipatta
24.	*Ipomoea fistulosa*	Besharam
Herb		
25.	*Parthenium hysterophorus*	Congress grass
Grass		
26.	*Celosia cristata*	Kurdu
27.	*Heteropogon contortus*	Kusali gawat
28.	*Aristida funiculata*	Padhari kusal
29.	*Cymbopogon martini*	Rosha
30.	*Dicanthium annulatum*	Marvel

Annexure – III: List of fauna commonly reported by the respondents during survey

Sr. No.	Scientific Name	Common Name
Mammals		
1.	*Canis lupus*	Indian Wolf
2.	*Canis aureus*	Jackal
3.	*Antilope cervicapra*	Black Buck
4.	*Lepus nigricollis*	Indian Hare
5.	*Gazella gazella*	Indian Gazelle
6.	*Hyaena hyaena*	Hyena
7.	*Macaca radiata*	Bonnet Macaque
8.	*Pteropus giganteus*	Flying Fox
9.	*Funambulus palmarum*	Indian Palm Squirrel
10.	*Sus scrofa*	Indian Boar
11.	*Presbytis entellus*	Langur
Reptiles		
12.	*Ptyas mucosa*	Indian Rat Snake
13.	*Naja naja*	Spectacled Cobra
14.	*Bungares caeruleus*	Common Indian Krait
15.	*Echis carinatus*	Saw-scaled Viper
16.	*Daboia russelii*	Russel's Viper
17.	*Calotes versicolor*	Garden lizard
Amphibians		
18.	*Hoplobatracus tigerinus*	Indian Bull Frog
Fish		
19.	*Channa marulius*	Maral
20.	*Catla catla*	Catla
21.	*Labeo rohita*	Rohu
Birds		
22.	*Pavo cristatus*	Indian peafowl
23.	*Ardeotis nigriceps*	Great Indian Bustard
24.	*Passer domesticus*	House Sparrow
25.	*Francolinus pondicedranius*	Grey Francolin
26.	*Perdicula argoondah*	Rock Bush Quail
27.	*Milvus migrans*	Black Kite

LC: Least Concern, NT: Near Threatened, VU: Vulnerable, EN: Endangered, NL: Not listed

Annexure – VI

Air Quality Prediction Modeling during Construction Phase

Sree Kartikeya Kameshwari Industries, Chincholi MIDC, Solapur

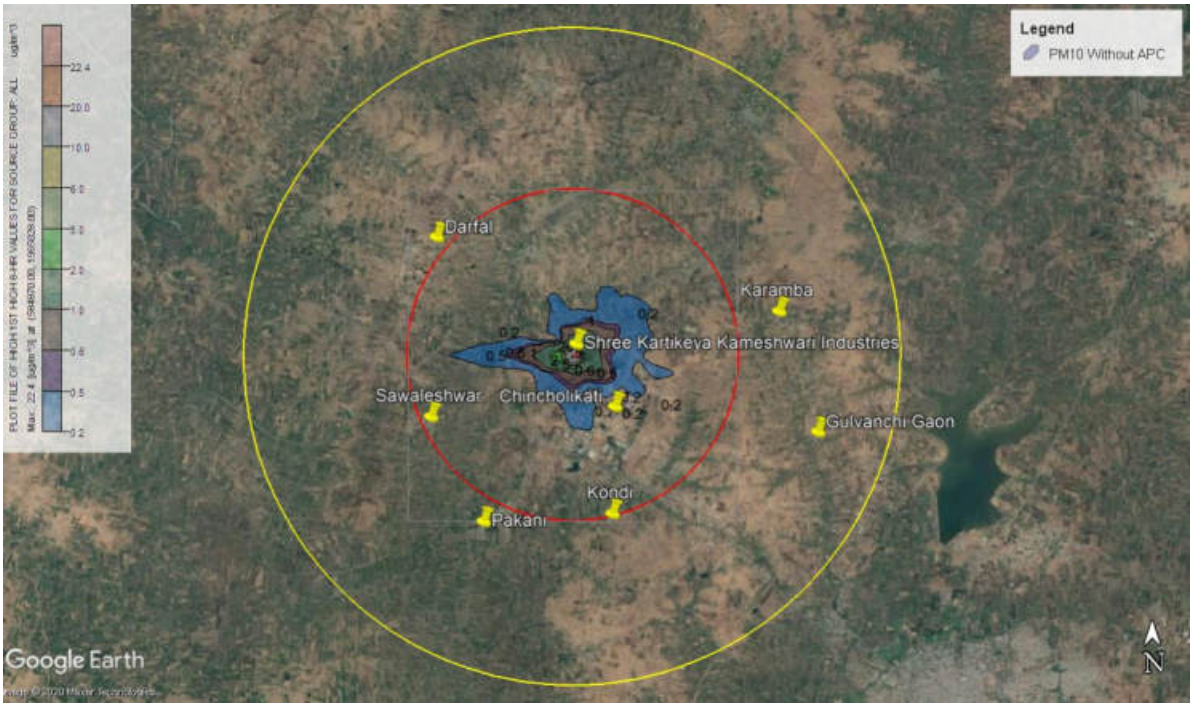
❖ **Air Quality Prediction Modelling during Construction Phase**

Inputs to the Software (Project Status, Emission Factor, Wind Directions & Speeds)

a. Construction Area- 3,822 Sq.M.
b. Construction Period - January through April 2017
c. Emission Factor for TSP - 1.2 MT/Acre/Month (Ref.: Air Emissions Factors and Quantification: AP-42: Compilation of Air Emissions Factors by USEPA, 1998; (https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emissions-factors).
d. PM_{10} considered as 40% of TSP & $PM_{2.5}$ as 25% PM_{10}
e. Windrose

A. Predictions for Emissions during Construction under Worst Case Scenario (Without Air Pollution Control Measures).

Figure No. - 1 Isopleths of PM_{10} (8 Hrs Max. Conc. in µg/M^3)

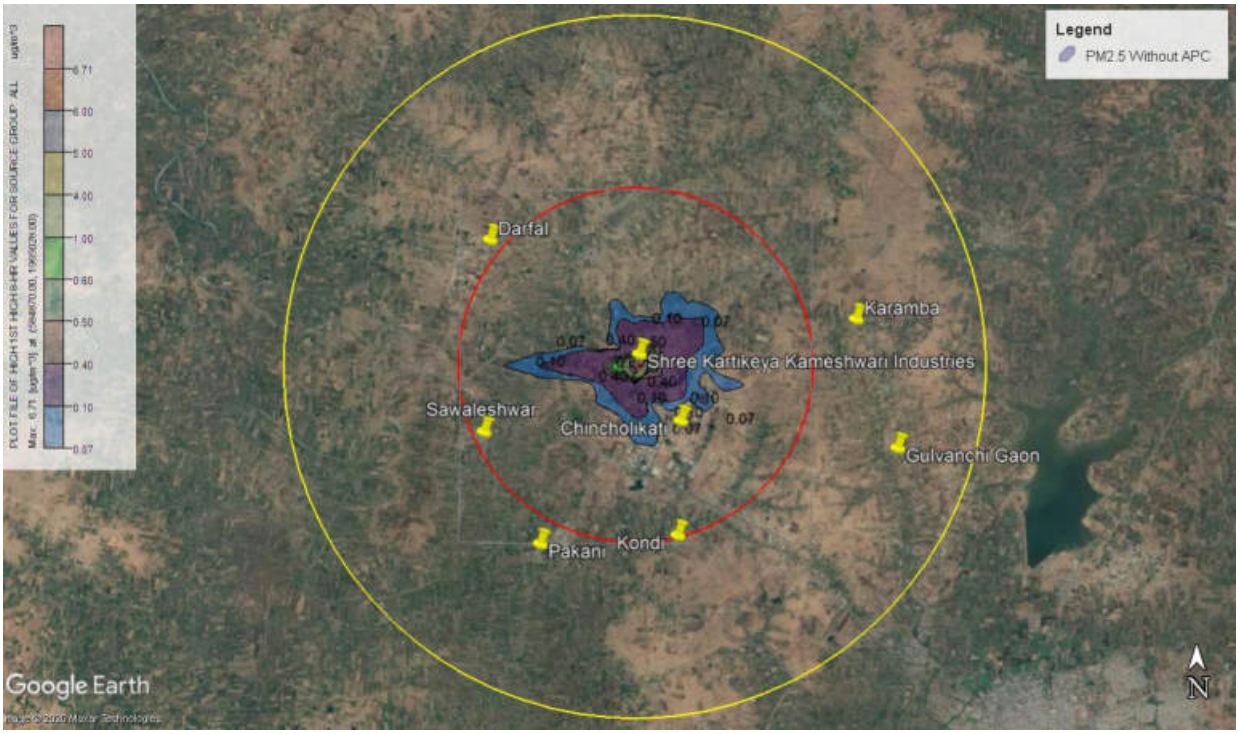


Note : Maximum Concentration of PM_{10} is 22.4 µg/M^3 at Site and same is lower than prescribed standard of 100 µg/M^3

Table No.- 1 GLC with Incremental Increase in PM_{10} Values (µg/M^3)

Sr. No.	Location	Baseline PM_{10} Conc. (µg /M^3)	Incremental PM_{10} GLC (µg /M^3)	Total PM_{10} Predictive GLC (µg /M^3)	% Incremental	Remark
A	B	C	D	E=(C+D)	F= (D/E) x 100	G
1	Industrial Site	57.27	22.4	79.67	28.1	Total PM_{10} Predictive GLC lower than standard 100 µg/M^3

Figure No.- 2 Isopleths of $PM_{2.5}$ (8 Hrs Max Conc. in µg/M^3)



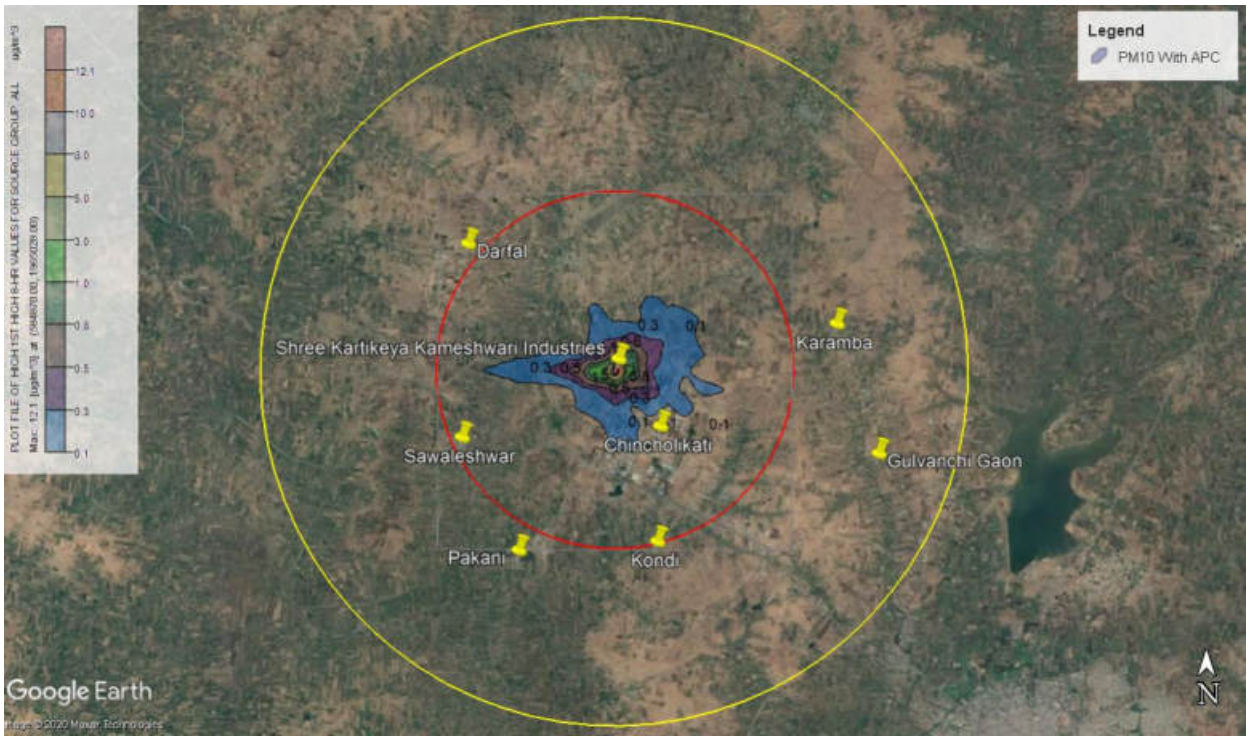
Note: Maximum concentration of PM $_{2.5}$ is 6.71 µg/M^3 at Site and same is lower than prescribed standard of 60µg/m^3

Table No.- 2 GLC with Incremental Increase in $PM_{2.5}$ Values (µg/M^3)

Sr. No.	Location	Baseline PM 2.5 Conc. (µg/M^3)	Incremental PM2.5 GLC (µg /M^3)	Total $PM_{2.5}$ Predictive GLC (µg /M^3)	% Incremental	Remark
A	**B**	**C**	**D**	**E=(C+D)**	**F= (D/E) x 100**	**G**
1	Industrial Site	16.4	6.71	23.11	29.03	Total $PM_{2.5}$ Predictive GLC lower than standard 60 µg/M^3

B. Predictions for Emissions during Construction (With Air Pollution Control Measures)

Figure No.-3 Isopleths of PM_{10} (8 Hrs Max. Conc. in µg/M^3)

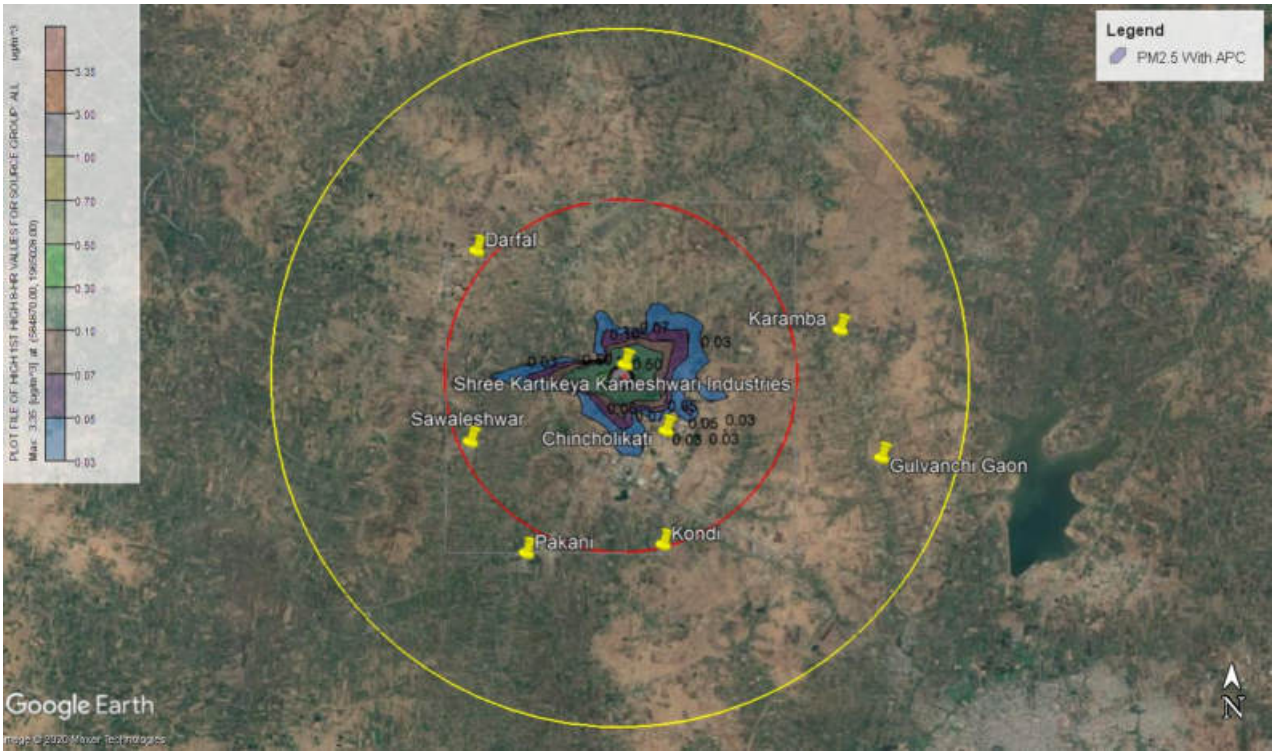


Note : Maximum Concentration of PM_{10} is 12.1 µg/M^3 at Site and same is lower than prescribed standard of 100 µg/m^3

Table No. - 3 GLC with Incremental Increase in PM_{10} Values (µg/M^3)

Sr. No.	Location	Baseline PM_{10} Conc. (µg /M^3)	Incremental PM_{10} GLC (µg /M^3)	Total PM_{10} Predictive GLC (µg /M^3)	% Incremental	Remark
A	**B**	**C**	**D**	**E=(C+D)**	**F= (D/E) x 100**	**G**
1.	Industrial Site	57.27	12.1	69.37	17.44	Total PM_{10} Predictive GLC lower than standard 100 µg/M^3

Figure No.- 4 Isopleths of $PM_{2.5}$ (8 Hrs Max Conc. in µg/M^3)



Note : Maximum Concentration of PM $_{2.5}$ is 3.35 µg/M^3 at site and is lower than prescribed standard 60 µg/M^3

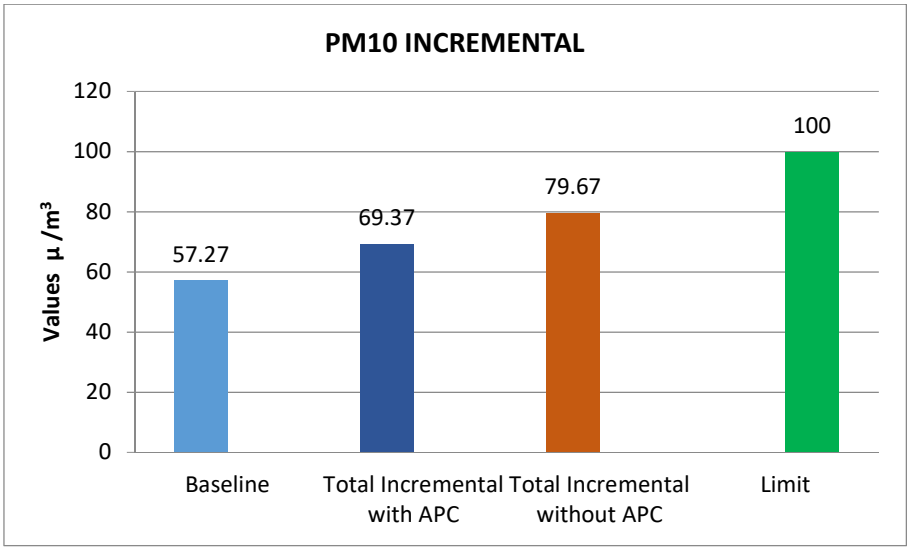
Table No.- 4 GLC with Incremental Increase in $PM_{2.5}$ Values (µg/M^3)

Sr. No.	**Location**	**Baseline PM 2.5 Conc. (µg/M^3)**	**Incremental PM2.5 GLC (µg /M^3)**	**Total $PM_{2.5}$ Predictive GLC (µg /M^3)**	**% Incremental**	**Remark**
A	**B**	**C**	**D**	**E=(C+D)**	**F= (D/E) x 100**	**G**
1	Industrial Site	16.4	3.35	19.75	16.96	Total $PM_{2.5}$ Predictive GLC lower than standard 60 µg/M^3

C. Presentation of GLC at a Glance

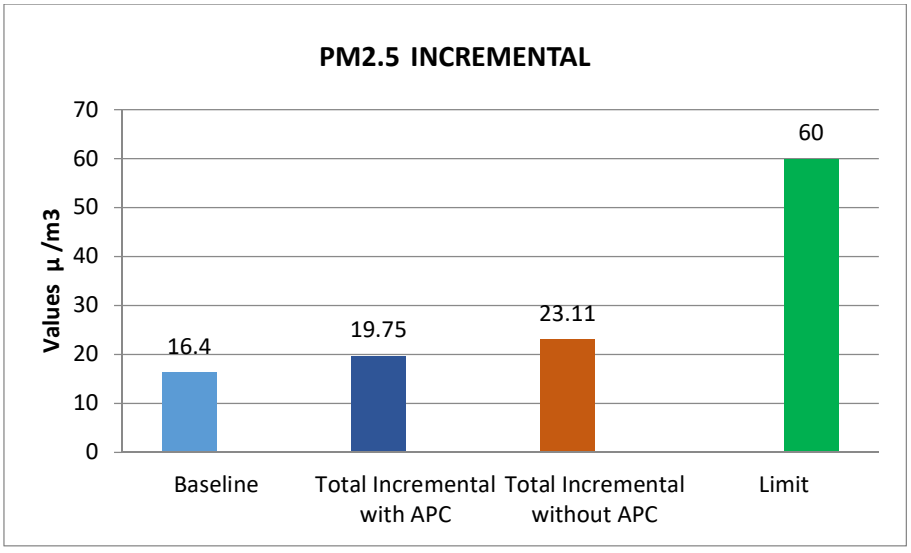
a. PM_{10} Ground level concentrations during construction period are presented below

Figure No. - 5



b. $PM_{2.5}$ Ground level concentrations during construction period are presented below

Figure No. - 6



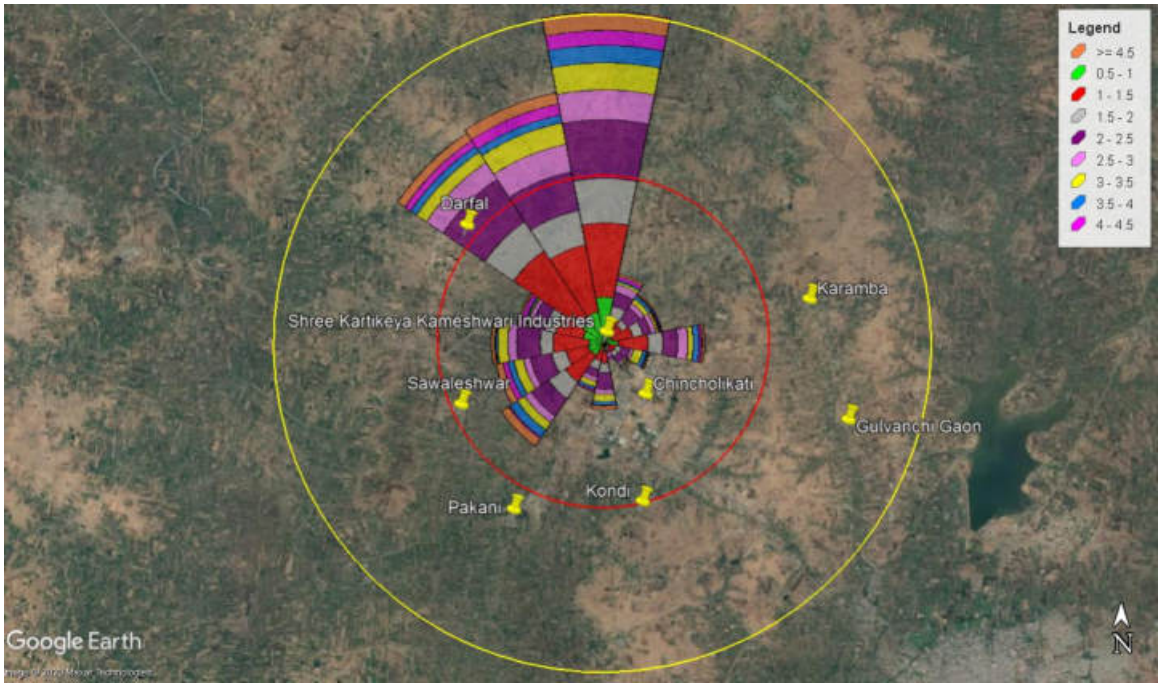
D. Interpretation of Impacts:-

From the Air Quality Prediction Modelling done during construction phase at Sree Kartikeya Kameshwari Site located in Chincholi MIDC Solapur, following observations are recorded-

1. The PM_{10} Concentration in Worst Case Scenario i.e. without any Air Pollution Control Measures is 22.4 µg/M^3 which when added to baseline of 57.27 µg/M^3 become 79.67 µg/M^3. This is lower than the standard of 100µg/M^3.
2. Similarly, the $PM_{2.5}$ Concentration without Air Pollution Control Measures show a value of 6.71µg/M^3 which when added to baseline of 16.4 µg/M^3 gives eventual concentration of 23.11 µg/M^3.
3. When the Air Quality Prediction Modelling is done during the construction phase while adopting Air Pollution Control Measures as sprinkling & spraying of water on the construction area, the PM_{10} and $PM_{2.5}$ Concentrations become 12.1 µg/M^3 and 3.35 µg/M^3.These are reduced by 46% and 50% for PM_{10} and $PM_{2.5}$ respectively from those recorded for Air Quality Modelling done without adopting any Air Pollution Control Measures. The eventual Concentrations of 69.37 µg/M^3 and 19.75 µg/M^3 respectively for PM_{10} and $PM_{2.5}$ are lesser than the stipulated limits for individual parameters.
4. The particulates did not have any significant impact on nearby villages which could be seen from concentration counters of the model run output.

E. Windrose Diagram

Figure No. - 6 Wind Rose for Monitoring Period January through April 2017



Annexure – VII

Calibration of VOC Monitoring Instrument

Standard Two-Point Calibration (Zero & Span, Optional Bump)

- **Entering Calibration**
  1. Press and hold [MODE] and [N/-] until you see the Password screen.
  2. In Basic User Level, you do not need a password to perform calibrations. Instead of inputting a password, enter calibration by pressing [MODE].
     Note: If you inadvertently press [Y/+] and change any of the numbers, simply press [MODE] and you will be directed to the calibration menu.

     The Calibration screen is now visible with Zero Calibration highlighted.
     These are your options:
     - Press [Y/+] to select the highlighted calibration (Zero Calib or Span Calib).
     - Press [MODE] to exit calibration and return to the main display and resume measurement.
     - Press [N/-] to toggle the highlighted calibration type.

A. Zero (Fresh Air) Calibration

This procedure determines the zero point of the sensor calibration curve. To perform a fresh air calibration, use the calibration adapter to connect the instrument to a “fresh” air source such as from a cylinder or Tedlar bag (optional accessory). The “fresh” air is clean, dry air without organic impurities and an oxygen value of 20.9%. If such an air cylinder is not available, any clean ambient air without detectable contaminants or a charcoal filter can be used.

At the Zero Calibration menu, you can proceed to perform a Zero calibration or bypass Zero calibration and perform a Span calibration. You may also go back to the initial Calibration menu if you want to exit calibration.

- Press [Y/+] to start calibration.
- Press [MODE] to quit and return to the main calibration display.

If you have pressed [Y/+] to enter Zero calibration, then you will see this message:

1. Turn on your Zero calibration gas.
2. Press [Y/+] to start calibration.

Note: At this point, you may press [MODE] if you decide that you do not want to initiate calibration. This will take you directly to the Calibration menu, highlighted for Span calibration.

3. Zero calibration starts a 30-second countdown and displays this message:

Zeroing...
During the zeroing process, the instrument performs the Zero calibration automatically and does not require any action on your part.

Note: To abort the zeroing process at any time and proceed to Span calibration, press [N/-] at any time while zeroing is being performed. You will see a confirmation message that says “Zero aborted!” and then the Span calibration menu appears.

When Zero calibration is complete, you see this message:
Zeroing is done!
Reading = 0.0 ppm

The instrument will then show the Calibration menu on its display, with Span Calib highlighted.

B. **Span Calibration**

This procedure determines the second point of the sensor calibration curve for the sensor. A cylinder of standard reference gas (span gas) fitted with a 500 cc/min. flow-limiting regulator or a flow-matching regulator is the simplest way to perform this procedure. Choose the 500 cc/min. regulator only if the flow rate matches or slightly exceeds the flow rate of the instrument pump. Alternatively, the span gas can first be filled into a Tedlar bag or delivered through a demand-flow regulator. Connect the calibration adapter to the inlet port of the instrument, and connect the tubing to the regulator or Tedlar bag.

Another alternative is to use a regulator with >500 cc/min flow but allow the excess flow to escape through a T or an open tube. In the latter method, the span gas flows out through an open tube slightly wider than the probe, and the probe is inserted into the calibration tube.

At the Span Calibration menu, you perform a Span calibration. You may also go back to the Zero calibration menu or to the initial Calibration menu if you want to exit calibration.

- Press [Y/+] to enter Span calibration.
- Press [N/-] to skip Span calibration and return to Zero calibration.
- Press [MODE] to exit Span calibration and return to the top calibration menu.

If you have pressed [Y/+] to enter Span calibration, then you will see the name of your Span gas (the default is isobutylene) and the span value in parts per million (ppm). You will also see this message that prompts you:

1. Turn on your span calibration gas.
2. Press [Y/+] to initiate calibration.
   Note: You may press [MODE] if you decide that you do not want to initiate calibration. This will abort the span calibration and take you directly to the Calibration menu for Zero calibration.
3. Span calibration starts and displays this message:

Calibrating...
During the Span calibration process, there is a 30-second countdown and the instrument performs the Span calibration automatically. It requires no actions on your part.

Note: If you want to abort the Span calibration process, press [N/-] at any time during the process. You will see a confirmation message that says “Span is aborted!” and then the Zero calibration menu appears. You can then proceed to perform a Zero calibration, perform a Span calibration, or exit to the topmost Calibration menu.

When Span calibration is complete, you see a message similar to this (the value is an example only):

Span 1 is done!
Reading = 100.0 ppm

The instrument then exits Span calibration and shows the Zero calibration menu on its display.

Note: The reading should be very close to the span gas value.

Exiting Two-Point Calibration In Basic User Level

When you are done performing calibrations, press [MODE], which corresponds with “Back” on the display. You will see the following message:

Updating settings… The instrument updates its settings and then returns to the main display.
It begins or resumes monitoring.

Annexure – VIII

Google Image of SKKI & adjoining industries

Google Image of SreeKartikeyaKameshwari Industries and Other Adjoining Industries

Annexure – IX

Letters regarding Credible Action

Gmail

equinox projects <equinoxprojects09@gmail.com>

Initiation of legal action against our proposed project M/s. Sree Kartikeya Kameshwari Industries atPlot No. E-12, Chincholi MIDC, Taluka : Mohol, District : Solapur, Maharashtra.

1 message

Projects Dept. <projects@equinoxenvi.com> Thu, Oct 24, 2019 at 12:37 PM
To: psec.env@maharashtra.gov.in

Date : 24.102019

To,
The Principle Secretary,
Department of Environment (DoE), Government of Maharashtra,
Mantralaya, Madam Cama Road,
Mumbai – 32 (Maharashtra)

Sub.: Initiation of legal action against our proposed project **M/s. Sree Kartikeya Kameshwari Industries** at Plot No. E-12, Chincholi MIDC, Taluka : Mohol, District : Solapur, Maharashtra.

Ref.: 1. Ministry letter vide No. J-11011/96/2016-IA II (I) & dated 25.01.2018

2. Ministry letter vide J-11011/96/2016-IA II (I) dated 09.03.2018

Copies enclosed at **Annexure -I**

Dear Sir,

This has reference to directions issued by Ministry to Dept. of Environment (DoE); Govt. of Maharashtra vide letters mentioned under reference. These directions were issued in light of our declaration towards start of construction on site during 27thEAC of Industry-2, meeting held on 29.08.2017 at Delhi w.r.t our EIA submitted to Ministry for grant of EC. Here, it was informed that only 20% construction work was done on site in light of MIDC rules to procure BCC. A reply was also submitted by us vide letter dated 23.05.2018. Copy enclosed at **Annexure -II**

Subsequently, as per directions in 32nd EAC of Industry-2 meeting, application in Form-1 submitted to Ministry's Expert Appraisal Committee (EAC) for Violation on 17.03.2018. Accordingly, Ministry considered our case in 8th EAC meeting for grant of ToRs. The ToRs were issued to SKKI by MoEFCC; New Delhi vide letter No- F. No. 23-130/2018-IA-III (V) dated 20.07.2018. Thereafter, as per the directions Public Hearing was conducted on 29.01.2019 and final EIA was submitted to Ministry on 14.10.2019. Also, as per requirement stated by MS of Violation Committee, Regional Officer of MoEFCC visited Industrial site once again for re-inspection of project status on 28.09.2019 and has presented his report to the Ministry. A copy of said report enclosed at **Annexure – III.**

Sir, our proposal shall being considered for grant of EC at Ministry on 1st November 2019, during which legal action initiation orders are mandate. Accordingly, we hereby request you to initiate legal action as directed in above letters at earliest.

Please do the needful.

Thanking you.

Yours faithfully,

For- M/s Sree Kartikeya Kameshwari Industries

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Sree Kartikeya Kameshwari Industries - Letter to DoE.pdf
3892K

SREE KARTIKEYA KAMESHWARI INDUSTRIES

E-12, M.I.D.C., CHINCHOLI INDUSTRIAL AREA, SOLAPUR, MAHARSHTRA – 413255

Ref.: No.

Date: 24.10.2019

To,
The Principle Secretary,
Department of Environment (DoE), Government of Maharashtra,
Mantralaya, Madam Cama Road,
Mumbai – 32 (Maharashtra)

Sub.: Initiation of legal action against our proposed project **M/s. Sree Kartikeya Kameshwari Industries** at Plot No. E-12, Chincholi MIDC, Taluka : Mohol, District : Solapur, Maharashtra.

Ref.: 1. Ministry letter vide No. J-11011/96/2016-IA II (I) & dated 25.01.2018

2. Ministry letter vide J-11011/96/2016-IA II (I) dated 09.03.2018

Copies enclosed at Annexure -I

Dear Sir,

This has reference to directions issued by Ministry to Dept. of Environment (DoE); Govt. of Maharashtra vide letters mentioned under reference. These directions were issued in light of our declaration towards start of construction on site during 27thEAC of Industry-2, meeting held on 29.08.2017 at Delhi w.r.t our EIA submitted to Ministry for grant of EC. Here, it was informed that only 20% construction work was done on site in light of MIDC rules to procure BCC. A reply was also submitted by us vide letter dated 23.05.2018. Copy enclosed at **Annexure -II**

Subsequently, as per directions in 32nd EAC of Industry-2 meeting, application in Form-1 submitted to Ministry's Expert Appraisal Committee (EAC) for Violation on 17.03.2018. Accordingly, Ministry considered our case in 8th EAC meeting for grant of ToRs. The ToRs were issued to SKKI by MoEFCC; New Delhi vide letter No- F. No. 23-130/2018-IA-III (V) dated 20.07.2018. Thereafter, as per the directions Public Hearing was conducted on 29.01.2019 and final EIA was submitted to Ministry on 14.10.2019. Also, as per requirement stated by MS of Violation Committee, Regional Officer of MoEFCC visited Industrial site once again for re-inspection of project status on 28.09.2019 and has presented his report to the Ministry. A copy of said report enclosed at **Annexure – III.**

Sir, our proposal shall being considered for grant of EC at Ministry on 1st November 2019, during which legal action initiation orders are mandate. Accordingly, we hereby request you to initiate legal action as directed in above letters at earliest.

Please do the needful.

Thanking you.

Yours faithfully,

Chetan Chandak

SREE KARTIKEYA KAMESHWARI INDUSTRIES

Annexure I

Letter from MoEFCC to DoE; GOM dated 25.01.2018 & 09.03.2018

F. No. J-11011/96/2016-IAII(I)
Government of India
Ministry of Environment, Forest and Climate Change
(IA Division)

Indira Paryavaran Bhawan
Jor Bagh Road, N Delhi - 3
Dated: 25th January, 2018

To

The Principal Secretary,
Department of Environment, Government of Maharashtra,
Mantralaya, Madam Cama Road,
Mumbai - 32(Maharashtra)

Sub: Bulk Drugs and Intermediates Manufacturing Unit of M/s Shree Kartikeya Kameshwari Industries at Plot No. E-12, Chincholi MIDC, Taluka Mohol, District Solapur (Maharashtra) - violation of the EIA Notification - reg.

Sir,

This has reference to the online proposal No. IA/MH/IND2/50510/2016 dated 17th July, 2017 for environmental clearance (EC) to the project for setting up Bulk Drug manufacturing plant of capacity 395.62 TPM by M/s Shree Kartikeya Kameshwari Industries in a total area of 2.4 ha at Plot No. E-12, Chincholi, MIDC, Taluka Mohol, District Solapur (Maharashtra).

2. The Expert Appraisal Committee (Industry-2), while considering the proposal in its meeting held on 28-29 August, 2017, observed that construction activities were already undertaken at the project site without obtaining prior environmental clearance and thus involved violation of the EIA Notification, 2006. The Committee asked for a status report in this regard from the Regional Office of this Ministry at Nagpur, to ascertain the violation of the said Notification, if any, for further consideration of the project.

3. During site visit undertaken by the Regional Office on 2nd November, 2017, it was observed that civil structures relating to boiler house (with dust collector and stack), MEE and distillation column foundation, raw material storage tanks, etc. were already completed. Even, Maharashtra Industrial Development Corporation has also confirmed construction of built up area of 5717.78 sqm in the total project area of 2.4 ha.

4. The EAC in its meeting held on 20-22 December, 2017 has confirmed the case to be of violation of the EIA Notification, and asked the Ministry to take action as per the statutory provisions/norms in this regard.

5. In view of the above, it is requested to take action for violation of the EIA Notification, 2006 as per provisions of the Environment (Protection) Act, 1986.

This issues with approval of the competent authority

25/1/2018
(S. K. Srivastava)
Scientist E

Copy to:-

1. The Additional Principal Chief Conservator of Forests, Regional Office (WCZ), Ministry of Environment, Forest and Climate Change, **Nagpur** (Maharashtra)
2. The Member Secretary, Maharashtra Pollution Control Board, Kalpataru Point, 3rd and 4th floor, Opp. Cine Planet, Sion Circle, **Mumbai** – 22
3. **M/s Shree Kartikeya Kameshwari Industries**, Plot No. E-12, Chincholi MIDC, Taluka Mohol, District **Solapur** (Maharashtra)

F. No. J-11011/96/2016-IA II(I)
Government of India
Ministry of Environment, Forest and Climate Change
(IA Division)

Indira Paryavaran Bhawan
Jor Bagh Road, N Delhi - 3
Dated: 9th March, 2018

To,

The Principal Secretary,
Environment Department, Government of Maharashtra,
15th Floor, New Administrative Building,
Mantralaya, **Mumbai** (Maharashtra) -32

Sub: Bulk Drugs and Intermediates Manufacturing Unit by M/s Shree Kartikeya Kameshwari Industries at Plot No. E-12, Chincholi MIDC, Taluka Mohol, District Solapur (Maharashtra) - Directions under section 5 of E P Act, 1986 - reg.

Whereas, M/s Shree Kartikeya Kameshwari Industries has submitted a proposal for grant of environmental clearance (EC) to the project for setting up Bulk Drug manufacturing plant of capacity 395.62 TPM in a total area of 2.4 ha at Plot No. E-12, Chincholi, MIDC, Taluka Mohol, District Solapur (Maharashtra).

And whereas, the Expert Appraisal Committee (Industry-2) in the Ministry, while considering the proposal in its meeting held on 28-29 August, 2017, observed that construction activities were already undertaken at the project site without obtaining prior environmental clearance and thus involved violation of the EIA Notification, 2006 under the Environment (Protection) Act, 1986.

And whereas, as asked by the EAC, site visit was undertaken by the Regional Office of the MInistry on 2nd November, 2017, wherein it was observed that civil structures relating to boiler house (with dust collector and stack), Multiple effect evaporator and distillation column foundation, raw material storage tanks, etc. were already completed. Even, Maharashtra Industrial Development Corporation has also confirmed construction of built up area of 5717.78 sqm in the total project area of 2.4 ha.

And whereas, the EAC in its meeting held in December, 2017 has confirmed that the matter involves violation of the EIA Notification, 2006, and asked the Ministry to take action as per the statutory provisions/norms in this regard.

Now, therefore, in exercise of the power conferred upon u/s 5 of the Environment (Protection) Act, 1986, you are hereby requested to direct all concerned for immediate closure of the project related activities.

This issues with approval of the competent authority.

9/3/2018
(S. K. Srivastava)
Scientist E

Copy to:-

1. The APCCF, Ministry of Environment, Forest and Climate Change, Regional Office (WCZ), Ground Floor, East Wing, New Secretariat Building, Civil Lines, **Nagpur**-440001 (Maharashtra)

Annexure II

Compliance Letter to DoE; GOM dated 23.05.2018

SREE KARTIKEYA KAMESHWARI INDUSTRIES

E-12, M.I.D.C., CHINCHOLI INDUSTRIAL AREA, SOLAPUR, MAHARSHTRA - 413255

Ref. No. Date: 23.05.2018

To,
The Principal Secretary,
Environment Department, Government of Maharashtra,
15th Floor, New Administration Building,
Mantralaya, Mumbai (Maharashtra)-32

Sub: Bulk Drugs and Intermediates Manufacturing Unit by M/s Sree Kartikeya Kameshwari Industries at Plot No. E-12, Chincholi MIDC, Taluka Mohol. District Solapur (Maharashtra)- Directions under section 5 of E P Act, 1986- reg.

Ref.: 1. Letter No. EC-580/RON/2017-NGP/3505 dated 10.04.2018
2. Letter no. J-11011/96/2016-IA-II(I) dated 09.03.2018 issued by MoEFCC; New Delhi.

Dear Sir,

This has reference to letter issued by MoEFCC; New Delhi to Department of Environment, Govt. of Maharashtra. The same is w.r.t Bulk drugs and Intermediates manufacturing unit by **M/s Sree Kartikeya Kameshwari Industries (SKKI)** at Plot No. E-12, Chincholi MIDC, Tal.: Mohol. Dist.: Solapur.

In light of above matter we would like to inform you as follows-

1. As per the provisions of "EIA Notification No. S.O. 1533 (E)" dated 14.09.2006, amended there at; the project of SKKI comes under item No. 5(f) and *Category (B) activity*. But since the boundary of Great Indian Bustard (GIB) Sanctuary is located within 5 km (at 2.4 Km) from project site the category of the project has been classified as, **A** instead of **B**. Thereunder, it is necessary to obtain an 'Environmental Clearance for our Proposed Bulk Drugs and Intermediates Manufacturing Plant from the 'Ministry of Environment Forest and Climate Change (MoEFCC); New Delhi.

2. Accordingly, we have submitted an application in Form-1 format for grant of ToR on **04.03.2016** to MoEFCC; New Delhi online. Subsequently, our case was considered in 8th Expert Appraisal Committee (EAC) meeting held on **26.05.2016** and TORs vide its letter no. F. No. J-11011/96/2016-IA II (I) dated **15.07.2016** were issued for preparation of EIA report. Further, EIA report was prepared as per ToRs granted and was submitted on online to MOEFCC on **17.07.2017**.

3. Thereafter, our EIA was considered in the 27th EAC meeting held on **29.08.2017**. During meeting it was informed by us that we had started construction on site in light of pressure from MIDC towards revoking of plot. The circumstances under which construction was started is presented as follows-

a) The proponents of SKKI procured the land in the MIDC Chincholi on **05.04.2010**. The land acquired by the industry is 24050 Sq.M (2.4 Ha). **Annexure –I** may be

referred for the MIDC Plot Possession letter, An Agreement between SKKI and MIDC on 20.10.2010. As mentioned in agreement at clause no 2 (d), the Industry shall commence construction on site within 60 months from date of possession. Refer **Annexure –II** for copy of Agreement between SKKI and MIDC.

b) Also, as per MIDC notice vide letter क्र. म.औ.वि.म./विदी व कामकाज/१५८/२०१८ dated **07.09.2012** the industry has to commence at least 20% construction on site in line with approved building plans. Refer copy of MIDC notice enclosed at **Annexure –III.**

c) But as the due date of **05.04.2015** for commencement of construction activity on site was approaching nearer, SKKI applied for extension of time on **08.09.2015** by paying Rs. 5.11,700/- for expansion till **04.04.2016**.and second extension of time till **04.04.2017** by paying penalty of Rs. 11,06,300/-. Refer **Annexure –IV** for copy of First extension letter, Second extension letter and MIDC Rule.

d) The construction on site of 5717.78 Sq.M. (20% of Total Plot Area; Min. stipulation as per MIDC guidelines) was started on **06.09.2016 which was after grant of ToRs by MoEFCC and during preparation of EIA report**. The MIDC Officials Inspected site and issued Certificate of Construction Completion for an Area of 20% of the Total Plot Area. Refer **Annexure –V** for Building Completion Certificate. While doing construction of certain project components on site, SKKI had one and the only purpose in mind which was to show some action, from their side, to MIDC so that the officials did not take back our plot as per provisions in the lease deed. Once the purpose was served, SKKI stopped everything and have maintained stand still status on the site; till date.

4. In 27th EAC meeting the committee directed to submit the RO; MoEFCC, Nagpur certified status report of construction activity done on site.
5. Subsequently, RO; MoEFCC visited our industry on 02.11.2017 for inspection of construction activity completed on site. Refer **Annexure –VI** for copy of RO; MoEFCC Nagpur report. In report the observations of RO were as follows-

   "MIDC vide letter dated 27.04.2017 issued building completion certificate and certified that construction of built up area of 5717.78 Sq.M. has been completed as on 24.04.2017

   No production activity was observed during site inspection. It was observed that only civil construction has been initiated in the production buildings. No equipments such as reactor, centrifuge, dryer, etc. were observed at the site.

6. After submission of RO report to MoEFCC; our case was once again considered in 32nd EAC meeting held on 21.12.2017. During same, it was confirmed by Ministry that the matter involves violation of EIA notification 2006.

SREE KARTIKEYA KAMESHWARI INDUSTRIES

E-12, M.I.D.C., CHINCHOLI INDUSTRIAL AREA, SOLAPUR, MAHARSHTRA - 413255

In light of fact presented above, we hereby would like to inform you that even after the visit of RO; MoEFCC, the status of our project activity as on today is maintained same. The action of starting construction on site was only and only to safe guard our project land from MIDC's revoking procedure.

Thanking You.

Yours faithfully,

Mr. Chetan Chandak
Partner.
M/s. Sree Kartikeya Kameshwari Industries, Solapur.

Annexure III

R.O. MoEFCC; Nagpur visit Report dated 28.09.2019

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

Regional Office (WCZ)
Ground Floor, East Wing
New Secretariat Building
Civil Lines, Nagpur - 440001
E-mail: apcefcentral-ngp-mef@gov.in

F.No:EC-580/RON/2017-NGP/ 5766

Date: 01.10.2019

To,

The Scientist 'F'
Member Secretary
IA Division (EAC-Violation Committee)
Ministry of Environment, Forest & Climate Change
Indira Paryavaran Bhawan,
Aliganj, Jorbagh Road,
New Delhi-110003

Sub: Setting up of Bulk Drugs and Intermediates manufacturing (395.62 MTPM) Unit at plot no. E-12, Chincholi MIDC, Taluka Mohol, Solapur District, Maharashtra by M/s. Shree Kartikeya Kameshwari Industries-reg

Ref:

1. MoEF&CC letter no. J-11011/96/2016-IA II(I) dated 15.07.2016
2. Minutes of 27th meeting of Expert Appraisal Committee (Industry-II) held on 28-29th August 2017
3. Regional Office, Nagpur letter no. EC-580/RON/2017-NGP dated 16.11.2017
4. The Member Secretary (EAC-Violation Committee) EDS dated 14.08.2019

Sir,

I am directed to invite your kind attention on the above subject and letters under reference. The Member Secretary (EAC-Violation Committee) vide EDS dated 14.08.2019 asked the project to submit latest site inspection report by Regional Office, Nagpur.

Upon receiving the request from project proponent, the undersigned carried out the site inspection of the project site on 28.09.2019 and made following observations:

a. No additional buildings were constructed after 02.11.2017.
b. No production activity was observed during site inspection.

Detailed site inspection report is enclosed as **Annexure-A**.

This issues with the approval of DDGF (Central), Regional Office, MoEF&CC, Nagpur.

A. Suresh Kr 01/10/19
Suresh Kumar Adapa
Scientist 'D'

Encl: as above

Copy to:

1. Director RO HQ, Ministry of Environment, Forest & Climate Change, Government of India, 1st Floor Agni Wing, Indira Paryavaran Bhawan, Jorbagh Road, New Delhi-110 003

1/9

2. Additional Director (Monitoring Cell), Ministry of Environment, Forest & Climate Change, Indira Paryavaran Bhawan, Aliganj, Jorbagh Road, New Delhi-110003
3. M/s. Shree Kartikeya Kameshwari Industries, E-12, MIDC, Chincholi, Taluka Mohol, Solapur District, Maharashtra-413255
4. Guard file

A. Suresh Kumar
01/10/19

Suresh Kumar Adapa
Scientist 'D'

Annexure-A

Inspection Report

1. M/s. Shree Kartikeya Kameshwari Industries (SKKI) submitted application for environmental clearance for setting up of Bulk Drugs and Intermediates manufacturing (395.62 MTPM) unit at the above location vide dated 04.03.2016.
2. MoEF&CC granted terms of reference for the project vide letter no. J-11011/96/2016-IA II(I) dated 15.07.2016.
3. EAC (Industry-II) during 27th meeting held on 28-29th August 2017 discussed the proposal for grant of environmental clearance.
4. EAC, after deliberations on the limited issue of construction already undertaken at the project site, decided for a status report in this regard from the Regional Office of this Ministry at Nagpur.
5. Regional Office Nagpur carried out the site inspection on 02.11.2017 and made following observations:
    a. Boiler house has been constructed with dust collector and stack. Small quantity of coal was seen at the boiler house.
    b. MEE foundation and outer structure has been completed.
    c. Distillation column foundation and outer structure (in production Block-A) has been completed
    d. Civil structure only with 2 slabs has been constructed in production block-C.
    e. Civil structure with 2 slabs and 2 rooms have been constructed in production block-B
    f. 11 no.s of raw material storage tanks have been installed.
    g. Civil structure with ground floor has been completed for the P.C.C. room.
    h. Watchman cabin and 3 no.s of sheds have been provided at the site.
    i. Fire fighting system has been provided.
    j. No production activity was observed during site inspection. It was observed that only civil construction has been initiated in the production buildings. No equipment such as reactor, centrifuge, dryer, etc. were observed at the site.
6. Regional Office submitted the site inspection report to Ministry vide letter dated 16.11.2017.
7. The EAC in its meeting held on 20-22 December,2017 has confirmed the case to be of violation of EIA Notification, and asked the Ministry to take action as per statutory provisions/norms in this regard.
8. Subsequently, Ministry vide letters dated 25.01.2018 requested the Environment Department, Government of Maharashtra to take action against the project proponent under provisions of Environment (Protection) Act, 1986 for violation of EC Notification, 2006.

3/9

9. The proposal was considered by EAC (Violation Committee) in the meeting held on 14.06.2018 as per the provisions of MoEF&CC Notification date d14.03.2017, confirmed the case to be violation of the EIA Notification, 2006 and recommended for issuing of Standard Terms Standard Term of Reference along with the following specific Term of Reference for undertaking EIA and preparation of Environment Management Plan (EMP). Committee also asked the project proponent to conduct public hearing as per EIA Notification, 2006.

10. Ministry granted Standard & Specific Terms of Reference vide letter dated 20.07.2018.

11. MPCB conducted public hearing on 29.01.2019 at Jaykumar Patil Udyog Bhawan, Solapur Industries Association Building, Chincholi MIDC, Mohol, Solapur.

12. The Member Secretary, EAC (Violation Committee) raised vide EDS (Essential Data Sought) dated 14.08.2019 asked the project to obtain the latest inspection report of the project site. Accordingly project submitted request to Regional Office for carrying out of site inspection.

13. Regional Office, Nagpur carried out the site inspection on 28.09.2019. Photographs of the project site as on the date of site inspection are enclosed as **Annexure-1**.

14. During the site inspection following observations have been made:

    a. No additional buildings were constructed after 02.11.2017.

    b. No production activity was observed during site inspection.

A. Suresh Kumar 01/10/19

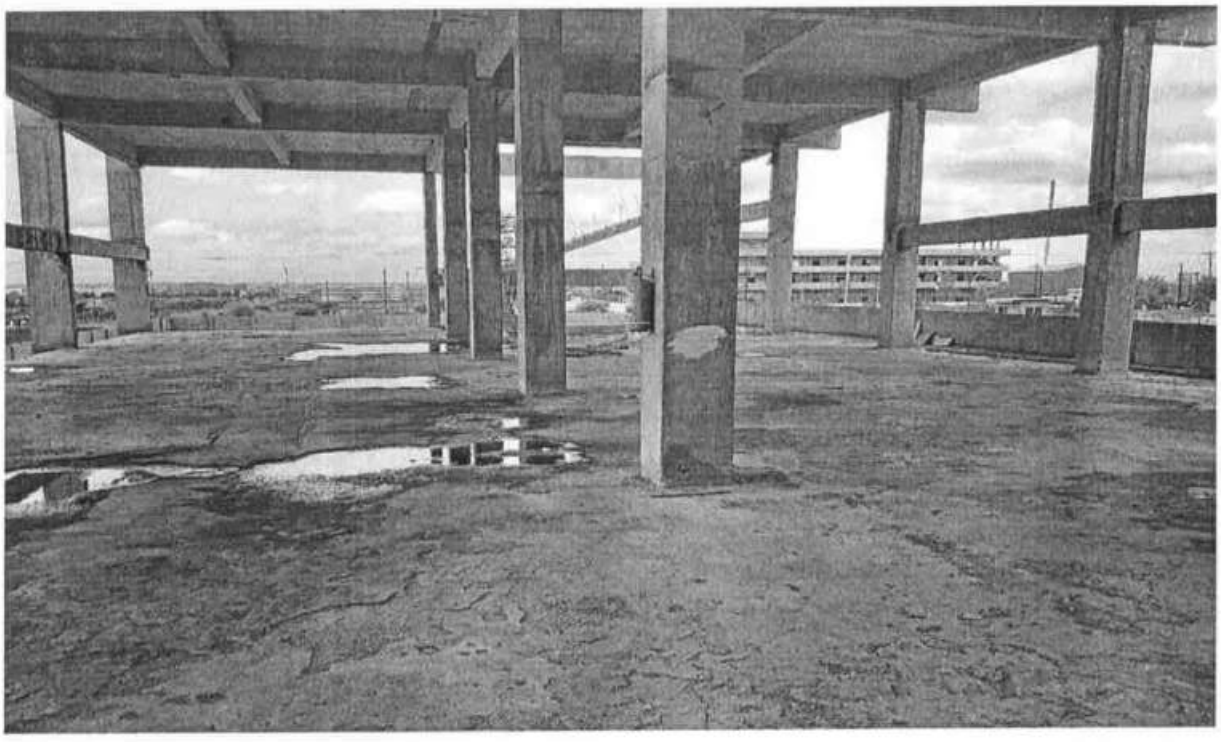
Scientist'D'

SURESH KUMAR ADAPA
वैज्ञानिक 'डी'
SCIENTIST 'D'
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
Ministry of Environment, Forest & Climate Change
क्षेत्रीय कार्यालय (पश्चिम मध्य क्षेत्र)
Regional Office (WCZ)
नागपुर / Nagpur-440001

4/9

Annexure-1

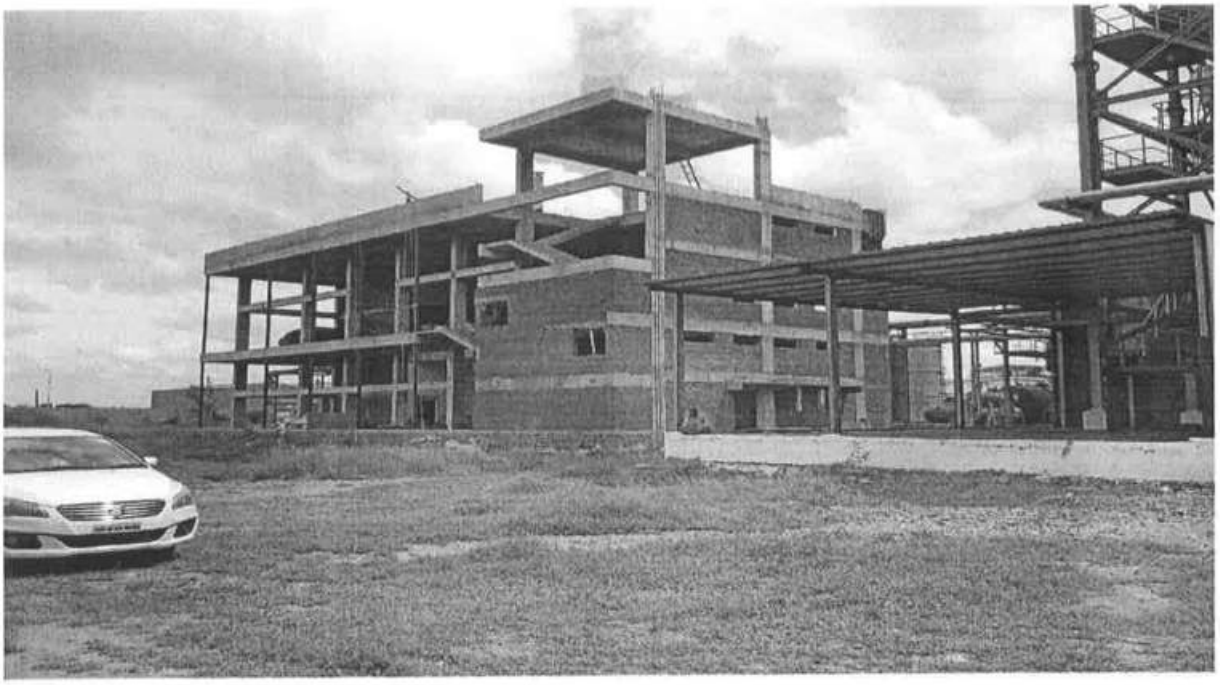
Photographs of the project site



Production Block-B

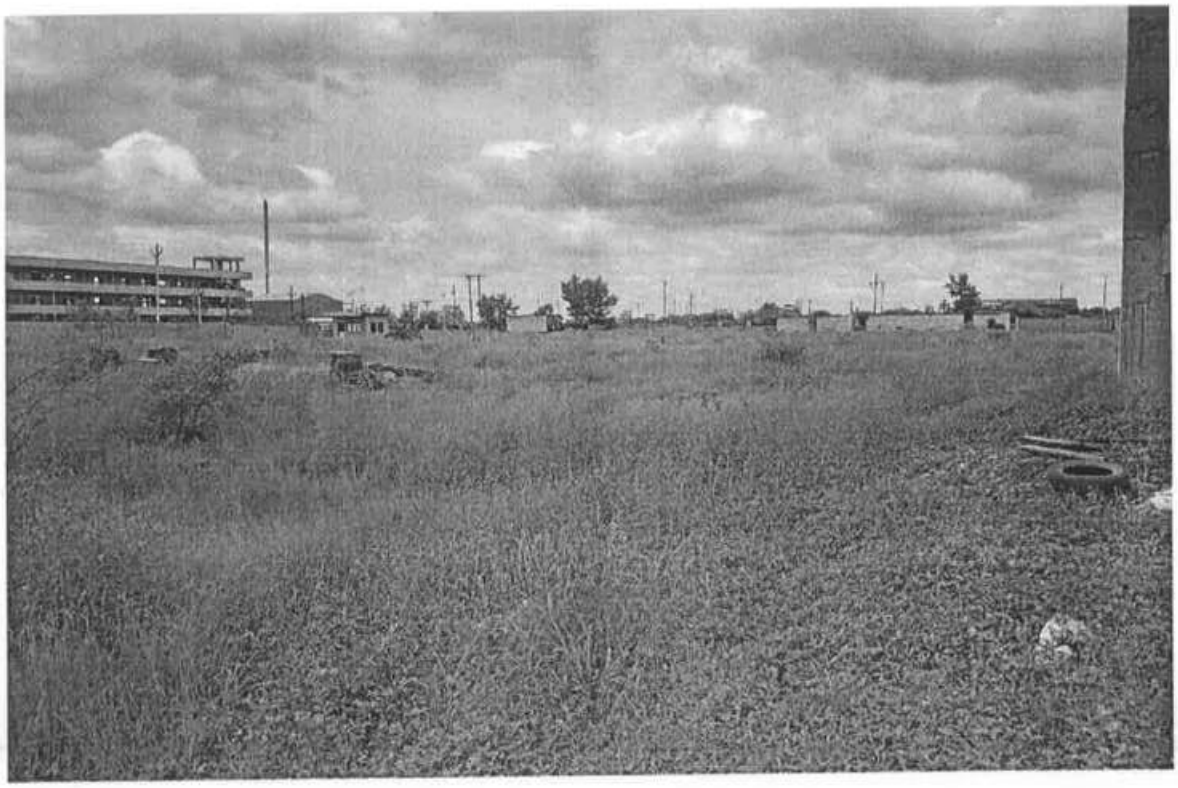
Production Block-B

Production Block 'A' & Distillation Column foundation



Production Block 'C'

Boiler House



Annexure – X

Assessment of Ecological Damage, Remediation Plan, Natural & Community Resources Augmentation Plans

Compliance Points by EAC (Violation) in 33rd Meeting –

1. Revised damage cost assessment and proposed activities therein as suggested by the Committee specifically during construction
2. And the consumables like water, cement, etc. were found to be very much on the lower side
3. And impacts due to total excavation and top soil handling and transport, etc. needs to be considered and damage to be assessed and remediation accordingly.
4. DamageassessmentshallalsoconsidertheshortfallinRWHsystemtobeinplace for the total plot area considering the annual rainfall besides roof RWH system for the already built up area.

Chapter 13
Assessment of Ecological Damage, Remediation Plan, Natural and Community Resources Augmentation Plans

13.1 STATUS OF PROJECT

The Bulk Drugs and Intermediates manufacturing industries always face problems with respect to selection of list of drugs to be proposed for manufacturing. This is because the national and international drug market is very fragile. This is in the sense that due to pricing war, a product cost wise feasible today may become unaffordable may be one month later due to its production economics. Accordingly, with a thorough study of entire National & International market the management of Sree Kartikeya Kameshwari Industries (SKKI) planned to establish a pharmaceutical unit. In light of availability of land and other infrastructure, the management of SKKI decided to implement their dream project in Chincholi MIDC area of Solapur district. Thereafter, **t**he proponents of **Sree Kartikeya Kameshwari Industries (SKKI)** procured the land in MIDC Chincholi on 05.04.2010. The land acquired by the industry is 24050 Sq. M. (2.4 Ha).**Appendix -A** may be referred for the MIDC plot allotment letter.

13.2 DEVELOPMENTS AND ACTIONS UNDER VIOLATION

The developments that took place subsequent to allotment of plot to SKKI are as follows-

1. An agreement was signed between SKKI and MIDC on **20.10.2010**. As mentioned in agreement at clause no 2 (d), the Industry shall commence construction on site within 60 months from date of possession. **Appendix-N** may be referred for agreement between SKKI and MIDC. Also, as per MIDC notice vide letter क्र. म.औविम/विधीव कामकाज/१५९/२०१२ dated **07.09.2012** the industry has to commence at least 20% construction on site in line with approved building plans. Refer copy of MIDC notice enclosed at **Appendix-O**. But as the due date of **05.04.2015** for commencement of construction activity on site was approaching nearer, SKKI applied for extension of time on 08.09.2015 by paying Rs. 5,11,700/- for expansion till **04.04.2016.** Refer **Appendix-P** for copy of First extension letter.
2. After execution of agreement with MIDC, SKKI applied for Consent to Establish (CTE) from Maharashtra Pollution Control Board (MPCB) on **06.05.2015.**
3. Thereafter, CTE was granted by the MPCB on **13.07.2015.**

4. Simultaneously, steps were taken by SKKI towards procurement of Environmental Clearance.
5. Meanwhile, it was observed that GIB sanctuary was located near the MIDC and in light of EIA Notification by MOEFCC as well as Supreme Court order dated 04.12.2006, the project appraisal was to be done by MoEFCC. After detailed deliberation with Ministry and Deputy Conservator of Forests, Solapur, **Form-1 application** was submitted to MoEFCC portal on **04.03.2016.** Subsequently, ToRs were issued on **15.07.2016**.
6. Till this period no any construction activity was started on site by SKKI as per stipulations in EIA Notifications.
7. The work of EIA assignment could not be started immediately after grant of ToRs since as per the MoEFCC directions primary data collection during monsoon months (June-July-August-September 2016) was not permitted. Here, 3 months delay was caused for collection of primary data required for EIA. From **October 2016 to December 2016** EIA monitoring was conducted and EIA report was being prepared.
8. Meantime, once again SKKI convinced the MIDC personnel for extension of time till **04.04.2017.** The second extension for construction was granted up to 04.04.2017 by paying penalty of Rs. 11,06,300/-. Refer **Appendix-Q** for copy of second extension letter and refer copy of MIDC Rule at **Appendix-R**.
9. Now, MIDC rule states that *once a plot has applied for extension twice for completion of construction activity and obtaining building completion certificate, there is no third extension that can be given and MIDC has the authority to take hold of the plot itself.* The second extension time period was going to lapse within 30 days. Under above circumstances, SKKI was caught in a 'Now or Never' situation which forced them to take steps towards start of project construction on the site. To show to the MIDC authorities about substantial progress on ground, they constructed compound wall, administrative building, structural framework of a production block, a boiler room and some allied infrastructure.
10. *SKKI convinced the MIDC authorities by taking above steps that they would soon implement the entire project on site. Immediately after visit of the MIDC staff for inspection and verification of the project status on ground, SKKI stopped all the activities of construction at once and till date the status has been maintained as it is.*
11. While doing construction of certain project components on site, SKKI had one and the only purpose in mind which was to show some action, from their side, to MIDC so that the officials did not take back our plot as per provisions in the lease deed. Once the purpose was served, SKKI stopped everything and have maintained stand still status on the site; till date.

Details of constructed area are given in following table -

Table 13.1 Construction Area Details

Sr. No.	Description	Area in Sq. M.
1.	Production Block- A	1804.05
2.	Production Block -B	1293.75
3.	Production Block -C	1097.70
4.	Raw Material Block	296.17
5.	ETP (MEE)	695.25
6.	Boiler House	473.92

Sr. No.	Description	Area in Sq. M.
7.	P.C.C. Room	41.25
8.	Watchman Cabin	15.69
•	**Total Build-up Area (Constructed)**	**5717.78**
•	**Total Plot Area**	**24050**

The construction implemented on site at present is about 20% of total construction to be carried out under the entire project infrastructure.

Refer **Appendix-S** for plot layout showing the constructed area on the industrial site and Building Completion Certificate.

12. Final EIA report was prepared as per ToRs granted and was submitted on online to MOEFCC on **17.07.2017**.
13. Thereafter, our EIA was considered in the 27th EAC meeting held on **29.08.2017**. During meeting it was informed by SKKI that industry had started construction on site in light of pressure from MIDC towards revoking of plot. In that meeting, the committee directed to submit the RO; MoEFCC, Nagpur certified status report of construction activity done on site. Refer **Appendix-T** for copy Minutes of 27th EAC meeting.
14. Subsequently, RO; MoEFCC visited SKKI industry on 02.11.2017 for inspection of construction activity completed on site. Refer **Appendix-U** for copy of RO; MoEFCC Nagpur report. Following is observation in RO report regarding construction status of SKKI.

    "*MIDC vide letter dated 27.04.2017 issued building completion certificate and certified that construction of built up area of 5717.78 Sq. M. has been completed as on 24.04.2017*
    No production activity was observed during site inspection. It was observed that only civil construction has been initiated in the production buildings. No equipments such as reactor, centrifuge, dryer, etc. were observed at the site.

15. After submission of RO report to MoEFCC; SKKI proposal was once again considered in 32nd EAC meeting held on **21.12.2017.** During same, it was confirmed by Ministry that the matter involves violation of EIA notification 2006. Refer **Appendix-V** for copy Minutes of 32nd EAC meeting.
16. MoEFCC issued directions to Department of Environment (DOE); Government of Maharashtra on 25.01.2018 to take action for violation of EIA Notification.Refer **Appendix-W** for Copy of Letter dated 25.01.2018
17. MoEFCC requested Department of Environment (DOE); Government of Maharashtra (GOM)on 09.03.2018 to direct all concerned for immediate closure of project activities. **Appendix-X** for Copy of Letter dated 09.03.2018.
18. Online Form –I was submitted to MoEFCC under Violation on 17.03.2018**.**
19. SKKI submitted compliance letter to DoE; GOM (with copy to RO, Nagpur) on 23.05.2018 informing that-**No Activities** are **done on Site**, **Status Maintained** as on date of RO, MOEFCC, Nagpur visit. **Appendix-X** for Copy of Compliance Letter submitted to DOE; GOM.
20. Case was considered in 8th EAC meeting for projects related to Violation of EIA notification, 2006 on 14.06.2018 for grant of ToRs. TORs were issued to SKKI by

MoEFCC; New Delhi vide letter No- F. No. 23-130/2018-IA-III (V) dated **20.07.2018.**

13.3ACIIVITIES CARRIED OUT DURING CONSTRUCTION PHASE

Ref.: (1) Figure No. 1 for Plot Layout with Block Plan, (2) Figure No. 2 Satellite Image for locations of GIB Sanctuary & industrial Plot, (3) AAQ Reports for Monitoring done during construction phase, and (4)Photographs showing construction activities on the Industrial Plot.

1. The baseline data collection & monitoring was conducted in Study Area (including the industrial site on Plot No. E-12) in **Oct.-Nov.-Dec. 2016.**
2. Actual onsite construction done on the Chincholi MIDC Plot No. E-12 from **January 2017 to April 2017**.
3. Two Kuccha Internal Roads in the plot constructed for activities under construction – One from Gate on East to West (shorter road) and the other from North to South (longer road) intersecting shorter one.
4. Storage of sand, aggregates, bricks & excavated earth was done on a temporary plot in North – West corner of the Plot.
5. Major construction activities were conducted on southern plot boundary where A, C, D, E, F & G blocks have been built and MS structural frame erected on plot size of 92 M x 36 M. Only the Block B is situated near East plot boundary on area of 15 M X 34 M.
6. Overall construction w.r.t. built up area of 5,717.78 Sq.M. has been done to obtain BC Certificate from MIDC. This is out of permissible Floor Area of 12,025 Sq.M. on a Plot Area of 24,050 Sq.M. with FSI utilization of 0.23.
7. As per MIDC's Development Control (DC) Rules vide Circular No. MIDC/Vidhi & Kamkaj / 159/2012 dated 07.09.2012; it is binding on the Industry to construct at least 20% of the total Built-up area (as per approved FSI) and get BCC. In present SKKI case; the construction area completion comes to 23%.
8. On site monitoring for air quality was conducted in **Jan.-Feb.- March 2017**, at 3 strategic locations, for AQ data during construction activities.
9. All construction work and allied activities on the industrial Plot in MIDC were carried out in day time shift only from 9 am to 6 pm with Sunday as weekly off.

All the construction materials like cement, bricks, sand and steel were brought to the site from local shops and suppliers. The details of construction materials used is given in following table-

Table 13.2 Details of Construction Materials Consumed

Sr. No.	Material	Quantity
1	Cement	9,844 Bags (50 Kg Each)
2	Sand	443 Brass (1255 Cu.M.)
3	Stone (1/2",3/4" & 1" Aggregates)	332 Brass (940Cu.M.)
4	Bricks	1,84,575 Nos.
5	Steel Reinforcement (MS & TS)	86 MT
6	Structural Steel	50 MT
7	Paints (Red Oxide & Oil Paints)	4,430Lits.
8	Oils & Lubricants	1 MT
9	Miscellaneous materials like hardeners, water proofing chemicals, epoxy chemicals, welding rods, oxygen and acetylene gas cylinders, etc.	2 MT Lump sum / Lot

The details regarding impacts due to construction activities on environment of the study area can be considered short term. The activities during erection of plant and civil structures could prominently affect the environment of area surrounding the site. The impacts as well as mitigation measures for the same are described in following paragraphs.

13.4 NEED OF THE STUDY

The specific ToRs granted to the project (under provisions of MoEFCC Notification vide S.O. 804 (E) dated 14.03.2017 regarding conducting EIA study for obtaining environmental clearance to the project considering violation of EIA Notification 2006 and its subsequent amendments) recommended the following:

- Assessment of damage to be done with respect to - air, water, noise, land, ecology and other environmental attributes.
- A remediation plan and natural & community resources augmentation plan to be prepared corresponding to the ecological damage assessed and economic benefits derived due to violation.

13.5 OBJECTIVE OF THE STUDY

The objective of Damage Assessment Report (DAR) and Natural & Community Resource Augmentation Plan (NCRAP) includes study of effects which are caused by change in the environment due to the project activities and to identify the corrective measures to compensate or replace those resources such as land, biota, air, water and others in order to mitigate the adverse effect on such resources. The damage is assured based on negative changes brought on the various environmental aspects due to project under violation.

However, as an industrial activity does pose threat to the environment due to construction of new unit and its operation, a remediation plan is necessary. Also, a Natural and Community Resource Augmentation Plan (NCRAP) is required to pay for the ecological damage as well as economic benefits derived at the cost of the

environment and the local community. Both of these, with respect to violation unit, have been elaborated in the subsequent sections.

As per the TORs, following studies were carried out with respect to the violation activities conducted within premises of the existing plant.

- Ecological / Environmental Damage Assessment.
- Remediation Plan.
- Natural and Community Resources Augmentation Plan.

13.6 ECOLOGICAL DAMAGE ASSESSMENT AND REMEDIATION PLAN

The assessment of environmental damage caused due to an industrial activity under violation of the regulatory framework needs to be measured or quantified across different aspects viz. biotic and abiotic environment and social environment. The environmental damage assessment has been studied for following parameters:

- Air Environment
- Noise Environment
- Water Environment
- Land Environment
- Ecological Environment
- Socio-economic Environment

Table 13.3Damage Assessment and Remediation Plan (During Construction Phases)

Sr. No.	Component / Aspect& Parameters	Causes of Impact / Pollution	Probable Impacts & Mitigation Measures	Damage Caused & its Cost	Remediation Plan (RP)	RP Cost Consideration	Total RP Amount (Rs.)
A	**Air Env.**						
1	**Air Pollution (Ambient Air)** Dust (SPM) PM_{10} $PM_{2.5}$ SO_2 NO_X VOCs	Air Emission from vehicular movement, land clearing, site development, drilling, excavation and land levelling**,** debris removal & other construction activities carried out on the MIDC Plot having Area of 4,900 Sq.M. (40% of total premises of **12,249 Sq.M.;** Refer Figure No. ---). The activities carried out included - • Site preparation including levelling • Top soil removal & Excavation for foundations & plinth through drilling, breakers and scrapers. • Storage of sand,	• Fugitive dust emissions due to construction activities carried out during January tho' April 2017.The actual construction activity was limited on an area of 92 M X 36 M & 15 M X 34 M i.e. 3,822 Sq.M. (out of total Plot Area of 24,050 Sq.M.). This Construction Area of 3,822 Sq.M. and peripheral premises of 2,600 Sq.M. around construction materials storage area aggregating to**6,422 Sq.M.** was the prominent sources from where dust & fugitive emissions were generated. • Vehicular emission in the form of PM, SO_2 & NOx due to transportation of construction materials from source to site. (Refer	• Damage due to **Fugitive Emissions** of **Dust Particulates** during construction has been worked out based on - **Air Emissions Factors and Quantification**: **AP-42: Compilation of Air Emissions Factors** by **USEPA, 1998** (https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emissions-factors). Accordingly; it has been specified that for building construction activity, TSP @ 1.2 MT/Acre/Month of activity is to be taken. With this rate, Fugitive dust emissions generated from **Sree**	• Dust suppression and water sprinkling system installation at the construction site and surrounding. • Regular wetting of loose construction materials at site. • Providing wind breakers at construction site area. • Barricades made out of MS Sheets fixed to frame of MS Tubes fitted on MS Channel Section Poles were installed for covering up of open front construction area. The barricading was erected for a perimeter of 75R.Mt. with height of 4 M. Thus, total vertical barricade surface	• Dust suppression and water sprinkling system consisted of- 1. Water Sprinkler Nozzles 20 Nos. @ Rs. 1,000 / No. 2. Twin Filtration System; 1 No. @ Rs. 15,000 / No. 3. Pump; 1 No. @ Rs. 10,000 / No. 4. Water distribution Pipeline with fixtures &fittings - 200 RMT @	**Rs. 20,000** **Rs. 15,000** **Rs. 10,000** **Rs. 33,000**

Sr. No.	Component / Aspect& Parameters	Causes of Impact / Pollution	Probable Impacts & Mitigation Measures	Damage Caused & its Cost	Remediation Plan (RP)	RP Cost Consideration	Total RP Amount (Rs.)
		aggregates & excavated earth in depots at storage area with temporary marked space on site with individual stacks of size - 20 X 10 X 3 M (ht). Total storage area = 100 X 30 M = 3,000Sq.M. • BB & Stone Masonry, PCC & RCC works at site for foundations, columns, beams and walls including concrete making from cement, sand and aggregates and casting of same • Plinth construction & filling work. • Fabrication & Erection of MS Steel Sections for Structural Steel Works in Plant comprising of	**Appendix-I** for detailed calculations of impacts due to pollutants released during transportation) Dust generation & gaseous emissions causing impacts – • On workers within the industrial plot premises & surroundings due to particulate pollution leading to health effects as - Respiratory problems, coughing & difficult or painful breathing, irritation of eyes, high SO_2& NO_X can lead to lung disorders such as wheezing and shortness of breath. • On trees &plants in premises with obstruction in photosynthesis & evapo-transpiration due to deposition of dust on surface of leaves. • The baseline concentrations observed on site are PM_{10}- 57.5 ug/m^3 and $PM_{2.5}$- 15.2 ug/m^3. The increased concentrations of various	**Kartikeya Kameshwari Industries (SKKI)** construction work site were - 1.2 MT/Acre/Month X 1.6 Acres (6,422Sq.M.; Construction & Materials' Storage Area) X 4 Months (Jan. - April 2017 for Construction activity) = 7.7 MT. This is Qty. of Total Suspended Particulates (TSP). • Taking PM_{10} as 40% of total; eventual Qty. of same worked out to be 3 MT. Hence, Damage Cost = 3,000 Kg X Rs. 340/Kg = **Rs. 10,20,000/-** • Now, taking $PM_{2.5}$ as 25% of PM_{10}; the Qty. is 0.75 MT Hence, Damage Cost = 750 Kg X Rs.524/Kg = **Rs.3,93,000/-**	area was – 75 M X 4 M = 300Sq.M. • As per wind directions during Construction Period of Jan-April 2017; Dust and other Pollutants released from the activities in and around the Industry site travelled to downwind areas in **3 Villages** namely – Chincholikati (0.75 Km; S), Pakni (4 Km; S) and Sawaleshwar (4.5 Km; SW). On downwind direction of the Project Site; no GIB Sanctuary villages are located • In above 3 Villages Plantation of **900 Trees** is proposed (About 300Nos./ Village). Here indigenous & evergreen tree	Rs. 165 / RM 5. Total Area of MS Framed Barricade - 300 Sq. M. @ Rs. 1000 / Sq. M. • 1500 Trees X Rs. 750 /No = Rs.11,25,000/ -	**Rs. 3,00,000** **Rs. 11,25,000**

Sr. No.	Component / Aspect& Parameters	Causes of Impact / Pollution	Probable Impacts & Mitigation Measures	Damage Caused & its Cost	Remediation Plan (RP)	RP Cost Consideration	Total RP Amount (Rs.)
		Columns, Beams, Frames etc, involving welding, gas cuttings, riveting etc. • Movement of Heavy Construction & Earth work machinery & equipment like JCB, Tractors, Concrete Mixers etc. • Operations involving Panting & Coloring work for MS fabrication Structure, RCC & Masonry Works, Equipment & Machinery by using Varnishes, Thinners, Red Oxide, Enamel Paints and Oil Bound Paints releasing VOCs. • Operation of one 50 KVA DG set put on site for power	air pollutants in fugitive emissions at certain areas during construction activities are PM_{10}-65.8 ug/m^3, $PM_{2.5}$–20.5 ug/m^3[The AAQ monitoring was done on industrial plot at 3 locations namely A1 (Upwind; East side), A2 (Downwind; South side) and A3 (Downwind; North West corner) revealed slight increase in concentrations of particulates (PM_{10}& $PM_{2.5}$)]. These particulates in turn might have got transferred towards south and southwest to Chincholikati, Pakni and Savleshwar villages which were on downwind w.r.t. the industrial plot. • Despite increased AAQ Concentrations during construction work period; the same are well below the NAAQ Standards for PM_{10}-100 ug/m^3 and $PM_{2.5}$ - 60	• Damage due to **Emissions from Construction Materials Transportation Vehicles** (As derived in **Appendix-I**)– **Rs. 6,791.70; Say Rs. 6,800/-**	species with appropriate canopies & proper leaves (shapes & sizes) for dust and other gaseous pollutants' control to be planed. • 900 Trees X Rs. 750 /No = Rs.6,75,000/- • Thick Plantation proposed along Roadside, Open areas, and on Hillocks.		

Sr. No.	Component / Aspect& Parameters	Causes of Impact / Pollution	Probable Impacts & Mitigation Measures	Damage Caused & its Cost	Remediation Plan (RP)	RP Cost Consideration	Total RP Amount (Rs.)
		failure situations during construction (main power connection of 10 HP was taken from MSEB) : It was run on HSD (10 liters/Hr.) and had a stack of 6 M above GL. • Automobiles for transportation of construction materials consuming HSD & other fuels. •	ug/m^3. **Mitigation Measures:** • Materials required for construction were stored only within the designated area. This prohibited littering & waste generation. • Earth work, excavation, back filling etc. were done under controlled conditions of- materials handling, transportation, laying & compaction including implementation in discrete manner & schedules. • At certain strategic & most dust prone areas- like kuccha roads on which transportation of construction materials on site happened, premises around construction materials storage area – were regularly sprinkled with water to curb dust emissions. fugitive dust emission was controlled by				

Sr. No.	Component / Aspect& Parameters	Causes of Impact / Pollution	Probable Impacts & Mitigation Measures	Damage Caused & its Cost	Remediation Plan (RP)	RP Cost Consideration	Total RP Amount (Rs.)
			spraying & sprinkling water thrice a day (in morning before start of work; in the afternoon during lunch break and at about 4 pm. Plus, location specific spraying was conducted as and when the need was there including regular sprinkling of water on open spaces, kuccha roads, heaps of earthen filling material. • SO_2& NO_X at single location did not increase as the vehicles and machines were mobile. • Regular servicing of equipment, machineries and vehicles was ensured. • PPEs (Goggles & Masks) to staff and workers were provided during construction. • Certain green belt has already been implemented around the construction work premises. • At some strategic places; provision of Barricades was				

Sr. No.	Component / Aspect& Parameters	Causes of Impact / Pollution	Probable Impacts & Mitigation Measures	Damage Caused & its Cost	Remediation Plan (RP)	RP Cost Consideration	Total RP Amount (Rs.)
			made to control dust.				
	Air Env. Total			**Damage Cost Rs.14,19,800**			**Rem. Cost Rs.15,03,000**
B	**Water Env.**						
1	Deterioration of Water quality, depletion of water quantity, and aesthetics of water body. Work carried out for 120 **Days during January - April 2017** **50 No.** of **Workers** were involved.	• Consumption of fresh water by construction workers for drinking & domestic purposes. • Consumption of fresh water during construction work. • Daily water requirement for construction& domestic activities was met from MIDC water supply scheme. • Surface Runoff from the Industrial Plot & seepages. • Generation of domestic waste water during construction phase. • Leachate from temporary waste	• Depletion of natural resource • Contamination of adjacent soils and nearby water body. • **Water Utilization:** 1. Domestic: 50 Nos. of workers were engaged on site in general shift (9 am to 6 pm). The daily water requirement was - 50 Nos. X 45 LPCD = 2250 LPD (i.e. 2.25 M^3 /Day) 2. Sprinkling for dust suppression: For spraying & sprinkling of water to arrest dust suspension & fugitive emissions; about 10 Cu.M. / day of water was required (1 Tanker of 10 M^3needed). 3. Water requirement for actual construction work	Total water consumed during construction phase (Domestic + Construction) = 3,270 M^3 Its cost is = 3,270 M^3 × Rs.10/ M^3 = **Rs. 32,700/-**	**Water Conservation:** 1. Roof-top Rainwater Harvesting (RWH) and Ground water Recharge at School Building / Gram Panchyat office in 1 village (Akolakati) of the Study Area. 2. 1 Village X 1 Building = 1 RWH Sites. 3. Configuration at the Site - 1 Bore Well (Recharge Structure), 1 RWH infrastructure of PVC Pipes, HDPE Filters, Valves etc. Thus, 1 Set @ Rs 1.50 Lakhs per Site.	• 1 RWH Sites X Rs. 1.5 = **Rs.1.5 Lakhs**.	**Rs.1,50,000**

Sr. No.	Component / Aspect& Parameters	Causes of Impact / Pollution	Probable Impacts & Mitigation Measures	Damage Caused & its Cost	Remediation Plan (RP)	RP Cost Consideration	Total RP Amount (Rs.)
		dumps on site.	at site was 5Cu.M./Day. 4. Water required for curing of concrete and masonry works was around 10Cu.M./ Day. • Thus, total water required during construction activity was = **27.25 Cu.M. / Day**. • Total No. of days for construction were 120 (4 Months). So total water consumed during construction was – 27.25 CMD×120 Days = 3270M³ • **Effluent Generation:** • Domestic Effluent (Sewage)–Two Prefab & Precast Toilet Units (Avishkar Make) were erected separate for ladies & gents. Each unit cluster had one Bath Room & One WC with built in 2,800 Lit capacity horizontal Septic Tank (1.2 M Ø X 2.5 M), 500 Lit OH Water Tank, U-PVC piping & valves. **Sewage generation** was				

Sr. No.	Component / Aspect& Parameters	Causes of Impact / Pollution	Probable Impacts & Mitigation Measures	Damage Caused & its Cost	Remediation Plan (RP)	RP Cost Consideration	Total RP Amount (Rs.)
			about **1.8Cu.M. /Day.** This got treated in Septic Tank and soak pit followed by the discharge let to plantation of green belt. For 120 days work period; total domestic effluent of 216Cu.M. got generated. • Curing discharges**:** Around **10Cu.M./Day** of water was discharged after curing of RCC & masonry structures. The same got disposed off through absorption in the plot soil. This was virtually clean& clear water with no chemical contaminants. Considering size of the plot; quantity of curing water discharged on the plot and quality of the water, it was highly unlikely that the water could form a stream leading the discharge outside plot boundaries & joining surface drain in the MIDC area. In fact, the curing discharge got absorbed by				

Sr. No.	Component / Aspect& Parameters	Causes of Impact / Pollution	Probable Impacts & Mitigation Measures	Damage Caused & its Cost	Remediation Plan (RP)	RP Cost Consideration	Total RP Amount (Rs.)
			open land and same helped control dust suspension. **Mitigation Measures:** • The construction activity was done during pre-monsoon period i.e. January- April therefore no any surface runoff has contaminated the nearby nallah. • Proper and adequate **segregation of construction area** and appropriate drainages were identified to minimize runoff.. • **Stone pitching on the slopes and construction of concrete drains** for surface runoff water is done to minimize soil erosion. • **Temporary sheds, Mobile toilets** as well as **water tank** were provided for the workers during construction. • **No groundwater was used** for construction activities, hence no impact on ground				

Sr. No.	Component / Aspect& Parameters	Causes of Impact / Pollution	Probable Impacts & Mitigation Measures	Damage Caused & its Cost	Remediation Plan (RP)	RP Cost Consideration	Total RP Amount (Rs.)
			water resource.				
2	Surface Water Damage (run off) Loss of Rainwater due to non-harvesting of the runoff and its beneficial usage of recharge to ground for improvement of water table	Failure to intercept, collect and utilize the rain water from rain fall occurring on the open industrial plot premises owing to which the runoff discharge got wasted without being utilized positively for any domestic or industrial purposes after its harvesting or being recharged to ground.	• The runoff discharges if arrested, could have resulted in to substantial accumulation of fresh water at the industrial site and the thus harvested rain water could have been used for any positive purposed in the industry including making recharge to ground water. **Mitigation Measures :** Appropriate Land / Surface harvesting measure like counter bunding and Recharge Pits to be provided in a decentralized manner in the industrial premises.	• Open Space Run off calculations resulting from Total Plot Area; 24,050 Sq. M. X 545 mm (Av. Annual Rainfall) = 13,107.25 Cu.M. • As per type of soil, its permeability, surface treatment to land, about 30% of the runoff loss occurred through Percolation &Evaporation. Thus, the quantity of runoff lost was – 30% of 13,107 M^3 = 3,932 M^3 • Net Runoff quantity resulting in to Surface Water Damage was – 13,107 M^3 - 3,932 M^3 = 9,175M^3 • Damage Cost derived – 9,175 M^3× Rs. 10/ M^3 = **Rs. 91,750**	• Rain water harvesting & collection Tank to be provided in industrial premises (similar to Farm Pond with HDPE lining) with Capacity of 3,00,000 Liters • Provision of a new STP (Capacity: 5 M^3/day)	RWH Tank : 3,00,000 Lit X X Rs. 3 / Lit = Rs. 9,00,000/- 5 CMD STP @ Rs. 5 Lakhs /Unit.	**Rs. 9,00,000** **Rs. 5,00,000**
	Water Env. Total			**Damage Cost Rs.1,24,450**			**Rem. Cost Rs.15,50,000**

Sr. No.	Component / Aspect& Parameters	Causes of Impact / Pollution	Probable Impacts & Mitigation Measures	Damage Caused & its Cost	Remediation Plan (RP)	RP Cost Consideration	Total RP Amount (Rs.)
C	**Noise Env.**						
	Noise Nuisance and Disturbance	• Construction activities & equipment like dozers, scrapers, concrete mixers, cranes, pumps, compressor, pneumatic tools, cutters, vibrators etc. • Movement of Transportation vehicles • Operation of D.G sets	• Noise generation and increase in noise level • Adversely affects the quality of life of occupants and nearby residents. • Constant exposure to high noise levels can result in damage of ear drums and loss of hearing of workers. • Increased blood pressure levels, cardio-vascular disease and stress related heart problems. • During construction it was not a continuous source and hence did not pose a health risk or damage peoples' sense of hearing. • The plot was in MIDC area as such no noise sensitive areas like hospital, courts, schools etc. requiring silence zones were nearby. • Periodic noise monitoring done on the actual site during construction revealed noise levels to be		• Supply of PPE to the workers and the staff involved in construction and operational activities • Development of green belt in and around the plant site to attenuate the noise level	• Total No. of construction workers involved was 50. PPEs in the form of Helmet, Boots, hand gloves and ear muffs @ Rs. Rs. 1000/- per Person. • Development of Green Belt in and around the plant (Cost Covered in Biological Environment)	**Rs. 50,000**

Sr. No.	Component / Aspect& Parameters	Causes of Impact / Pollution	Probable Impacts & Mitigation Measures	Damage Caused & its Cost	Remediation Plan (RP)	RP Cost Consideration	Total RP Amount (Rs.)
			in the range of 55-68dBA. • Noise levels monitored on adjacent Plot Nos.E-8/1 and E-17 (10 to 30 M away from the Industry Plot No. E-12) were found to be in the range of 50 to 58 dBA. **Mitigation Measures:** • Proper **acoustic enclosure** for noise generating and vibrating machinery was done during construction. • PPEs such as ear plugs, ear-muffs etc. were provided to workers. • Onsite worker was not exposed for more than 8 hours to high noise generating sources during construction. • After completion of construction activity adequate greenbelt would be developed so as to curb noise during operation phase. • There was no any use of major continuous noise generating equipment as no				

Sr. No.	Component / Aspect& Parameters	Causes of Impact / Pollution	Probable Impacts & Mitigation Measures	Damage Caused & its Cost	Remediation Plan (RP)	RP Cost Consideration	Total RP Amount (Rs.)
			any deeper excavations were done. • Work activities were carried out during daytime in General Shift only (9 am to 6 pm).				
	Noise Env. Total			------			**Rem. Cost Rs.50,000**
D	**Land Env.**						
	Soil Quality, Topography, Subsoil conditions & effect on ground water	• Substratum excavated during construction of foundations. • Improper storage of excavated soil &excavated materials, metal scrap, used containers of paints, oils & lubricants etc. which was of solid &hazardous nature (wastes). • Contaminated discharges (containing oils, lubricants, fuels, paints etc.) from	• Loss of soil quality (texture, fertility and productivity). Effects on soil micro as well as macro flora thereby disturbing the nutritive composition of soil leading to soil degradation. • Increase in nuisance value • Effect on plant growth • Positive benefits in the form of land levelling • Bad aesthetics due to littering of waste and other used materials. • Overflow of drains due to chocking with soil during rainy season.	• Major construction activities were conducted on Southern Plot boundary where A, C, D, E, F & G Blocks have been built and MS Structural Frame erected on plot size of **92 M x 36 M (3312 Sq.M.).** Only the Block B is situated near East Plot boundary on area of **15 M X 34 M (510 Sq. M.).** Thus, total work area was **3,822 Sq.M.** • Excavation carried out in above Area for	• Providing water sprinkler arrangement for dust suppression • Providing leachate arresting arrangements around the inert materials disposal land fill area • Providing land scaping and shelter belt plantation for isolation and dust suppression.	• Dust suppression and water sprinkling system consisting of Water Sprinkler Nozzles, Twin Filtration System;. Pump; Water distribution Pipeline with fixtures & fittings. • The Cost of	------

Sr. No.	Component / Aspect& Parameters	Causes of Impact / Pollution	Probable Impacts & Mitigation Measures	Damage Caused & its Cost	Remediation Plan (RP)	RP Cost Consideration	Total RP Amount (Rs.)
		Industrial Plot flowing on nearby land • Surface runoff from such lands to adjacent streams and open lands. • Uncontrolled discharge of water used during construction (land erosion & scouring) • Change in surface runoff pattern due to changes in Plot topography & alteration of drainage pattern in area. • Liquid waste generation during construction.	• Waste generated was in the form of – (1) Metal scrap to the tune of 10 MT., (2) Demolition waste of about 8Cu.M. (2 Trolleys @ 4 Cu.M. / Trolley), (3) Waste cloth & papers, cardboard & wooden packing materials, papers, empty cement bags, etc. to the tune of 5 MT. • The type of top soil on industry plot was "clayey silt" for a thickness of about 0.3 M with 50 to 100 microns grain size and coefficient of permeability as 5 X 10^{-4} cm/sec). The sub soil (underground) strata was soft murum up to 1 M depth with particle size of 30 to 60 mm &underneath hard murum of about 2 M depth with particle size of 60 to 150 mm. The coefficient of permeability of this subsoil strata was found to be 5 X 10^{-2} cm/sec. Ground water	column footings and foundations, up to a depth of about 1.5 M. Hence, Soil Qty from Excavation =3,822 Sq.M. X 1.5 M = 5,733 M^3. 5,733 M^3X Rs. 50 / M^3 = **Rs.2,86,650 /-** The excess excavated soil. After refilling in plinth & foundation pits, trenches etc. was disposed off by dumping at low lying area in plot.		above is taken under Air Environment Landscaping. • Providing Landscaping & Land Development works on the Industrial Plot L.S. • Cost of Plantation has been taken in Green Belt under Biological Environment..	**Rs. 3,00,000**

Sr. No.	Component / Aspect& Parameters	Causes of Impact / Pollution	Probable Impacts & Mitigation Measures	Damage Caused & its Cost	Remediation Plan (RP)	RP Cost Consideration	Total RP Amount (Rs.)
			table near the industrial plot during Jan. - April 2017 was found to be about 5 M below surface as per observation in a nearby open well. The discharge @ **10 Cu.M./ Day resulted out of curing** operations was the only water finding access to soil & subsoil strata as stated in impacts on "Water Environment" above. This discharge again was not at a particular place but occurred in a decentralized manner as per locations of concrete & masonry construction works spread across 3,822 Sq.M. area on the plot. This decentralized discharge pattern never resulted in to stream of water flowing over the site causing scouring and erosion and leading to premises out of the industrial plot. • In fact, the curing water discharges which were				

Sr. No.	Component / Aspect& Parameters	Causes of Impact / Pollution	Probable Impacts & Mitigation Measures	Damage Caused & its Cost	Remediation Plan (RP)	RP Cost Consideration	Total RP Amount (Rs.)
			clean & clear, resulted in to infiltration in top soil at various locations which in turn percolated down the subsoil strata. The depth of infiltration of curing water, in turn, depended on number of factors namely – (a) porosity of surface & subsurface strata (40 to 50%) indicating degree of compaction and thus affecting expanse of infiltration of the curing discharge, (b) moisture content of soils (10 to 20%) leading to degree of saturation and thus offering resistance to water percolation, (c) ambient temperatures (38 to 42^0C) causing evaporation thereby affecting water retention in soils and infiltration, and (d) coefficient of permeability (5 X 10^{-4} to 5 X 10^{-2} cm/sec) affecting rate of infiltration.				

Sr. No.	Component / Aspect& Parameters	Causes of Impact / Pollution	Probable Impacts & Mitigation Measures	Damage Caused & its Cost	Remediation Plan (RP)	RP Cost Consideration	Total RP Amount (Rs.)
			• The curing water discharge of 10 Cu,M./ day got spread on an area of 3,822 Sq. M. which gave an application rate of 2.6 Lit / Sq.M.- day [10,000 Lit. / 3,822Sq.M.] Taking the higher rate for coefficient of permeability to the tune of 5 X 10^{-2} cm/sec; the maximum depth of infiltration of the curing discharge in 1 hour was –18 Cm [3600 Sec. X 0.005 Cm/Sec]. Considering the factors namely - soil porosity, soil moisture and ambient temperature; the maximum depth of curing water infiltration could not go beyond 36 Cm in 2 hours or so. In this period the entire discharge quantity completely got absorbed in surface & sub-surface soil strata and eventually got evaporated in to atmosphere due to high ambient temperatures.				

Sr. No.	Component / Aspect& Parameters	Causes of Impact / Pollution	Probable Impacts & Mitigation Measures	Damage Caused & its Cost	Remediation Plan (RP)	RP Cost Consideration	Total RP Amount (Rs.)
			Thus, no water could reach the ground water table at a depth of 5 M and thus there were no chances of its contamination. **Mitigation Measures :** • The area where soil could get affected was the construction material storage depots. Here, only physical storage of inert materials like. sand, basalt aggregates, burnt bricks & murum fill was temporarily stored on land surface without altering the soil and underneath strata. Cement storage was done in MS container put on site with proper lock & key arrangements.3 temporary sheds made out of MS props, trusses &sheets were erected on site for making temporary site office and storage of tools & tackles of the construction labours. After construction of ground floor in RCC				

Sr. No.	Component / Aspect& Parameters	Causes of Impact / Pollution	Probable Impacts & Mitigation Measures	Damage Caused & its Cost	Remediation Plan (RP)	RP Cost Consideration	Total RP Amount (Rs.)
			framed structure; the entire arrangements of cement storage& site office. were shifted there by vacating the pre-occupied areas. • The construction wastes like – used cement bags, metal scrap, broken brick bats and excess fill material out of excavation were deposed off through recycle (scrap recyclers) and reuse (plinth filling & levelling). Thus the solid waste did not have direct or indirect impact on any environmental aspects. • Proper maintenance of vehi**cles**& machinery used was done to avoid oil & fuel leakages. • Excess excavated soil was used as filler in land leveling in the plot premises. • No change in Land use took place as the construction activity was limited within the industrial plot in				

Sr. No.	Component / Aspect& Parameters	Causes of Impact / Pollution	Probable Impacts & Mitigation Measures	Damage Caused & its Cost	Remediation Plan (RP)	RP Cost Consideration	Total RP Amount (Rs.)
			Chincholi MIDC where the predefined land use is notified industrial area. Also, no any change occurred w.r.t. site drainage pattern.				
	Land Env. Total			**Damage Cost Rs. 2,86,650**			**Rem. Cost Rs.3,00,000**
E	**Biological Env.**						
	Biodiversity and Habitats (Destruction/ Removal / Contamination / Fragmentation), Effects on Terrestrial as well as Aquatic Flora, Fauna and Avifauna.	• Site Clearance • Cutting of existing trees/ shrubs/herbs/grass • Dust emissions • Noise generation • Influx of onsite workers • Flood lights, high masts installation for night work etc. • Effluent & other discharges from activities on the site	• Impact on Habitat loss of fauna specially to reptile and avi-fauna. • Impact on Nocturnal Animals & Birds • Impact on Nesting & Roosting Sites • Loss of shrubs/herbs/ grass • Improper aesthetic atmosphere. • The plot was in notified industrial area of MIDC and the land use type was industrial only. There was	------	• No loss of vegetation as the industry is located on a Plot in Chincholi MIDC Area. • Also, there was no habitat loss due to industrial location in a notified area. • It is proposed to undertake 1000 Trees Plantation in two villages of Study Area	1,000 Trees X Rs. 750/- Tree = Rs.7.50 Lakhs	**Rs. 7,50,000**

Sr. No.	Component / Aspect& Parameters	Causes of Impact / Pollution	Probable Impacts & Mitigation Measures	Damage Caused & its Cost	Remediation Plan (RP)	RP Cost Consideration	Total RP Amount (Rs.)
			no any tree cutting or vegetation clearing required as the MIDC handed over vacant & clear plot. Thus, no clearing of vegetation or other similar actions affecting ecological aspects were required. • Due to confined work status; no effects on avifauna like restlessness, disturbance etc. was found. • Impact on nocturnal animals and birds due to flood lights & high masts did not occur as no such gadgets were provided on site. • Impact on nesting and roosting sites in surrounding area due to construction activities (interference of people, improper sanitation practices by labour) was not prominent as the site was in industrial premises only.				

Sr. No.	Component / Aspect& Parameters	Causes of Impact / Pollution	Probable Impacts & Mitigation Measures	Damage Caused & its Cost	Remediation Plan (RP)	RP Cost Consideration	Total RP Amount (Rs.)
			• The main point of concern was the nearness of MIDC village of Chincholi to the "Great Indian Bustard (GIB)" Sanctuary. The nearest sanctuary villages namely Kondi was at a distance of 2.3 Km from the plot boundary on East side. It was observed that no any impact of construction work had occurred on the GIB sanctuary village through habitat removal contamination and fragmentation. **Mitigation Measures:** • All activities during construction work on site were limited within the industrial plot only. • No night time works were carried out. General Shift (9 am to 6 pm) schedule was maintained. Only watch & ward staff was on site during night time.				

Sr. No.	Component / Aspect& Parameters	Causes of Impact / Pollution	Probable Impacts & Mitigation Measures	Damage Caused & its Cost	Remediation Plan (RP)	RP Cost Consideration	Total RP Amount (Rs.)
			• Due to care for air, water & noise aspects; no specific impacts of construction (dust emissions, noise, night time lighting, influx of workers, domestic effluent & water discharges) occurred on EB in surrounding area. • Implementation of Green Belt of 33% of Total Plot Area.				
	Biological Env Total			------			**Rem. Cost Rs.7,50,000**
F	**Solid & HW**						
	Solid Wastes generation due to Workers employed during construction period on Site and Wastes due to actual construction activities.	• Generation of solid wastes from day to day activities of workers & staff on site of construction. • Dumping of solid wastes generated during construction	• Contamination of soil and damage to soil quality due to spread of solid wastes generated from construction workers and during construction activity. • Leaching of organic and inorganic contents from solid wastes and contamination of ground water	Damage cost due to non-provision of collection / treatment system during construction phase - • Solid Waste due to 50 numbers of construction workers during 120 days of construction. SW Generation = 50 X 0.20 Kg/day X 120	• Providing colored separate Bins as per guidelines for storage	Total 15 Bins X Rs. 5,000/- per Bin	**Rs.75,000**

Sr. No.	Component / Aspect& Parameters	Causes of Impact / Pollution	Probable Impacts & Mitigation Measures	Damage Caused & its Cost	Remediation Plan (RP)	RP Cost Consideration	Total RP Amount (Rs.)
			• Contamination of surface water due to surface runoff-during rainy season • Odour nuisance in the surrounding area • Nuisance of Mosquito, Rodents & Stray Animals causing health impact. • Waste generated was in the form of – (1) Metal scrap to the tune of 5 MT., (2) Construction waste of about 10Cu.M. (3) Waste cloth & papers, cardboard & wooden packing materials, papers, empty cement bags, etc. to the tune of 1MT. **Mitigation Measures :** • Proper collection & disposal system • Segregation of organics & inorganics from collected solid wastes • Treatment of organic wastes via compositing / vermi- composting • Handling of inorganics to	Days = 1,200Kg. Cost : 1,200 Kg X Rs.10 = **Rs. 12,000/-** • Construction waste generated was about 10 Cu.M. (3 Trolleys @ 4 Cu.M. / Trolley), Cost :3 Trolleys X Rs.1,000 = **Rs. 3,000/-**			

Sr. No.	Component / Aspect& Parameters	Causes of Impact / Pollution	Probable Impacts & Mitigation Measures	Damage Caused & its Cost	Remediation Plan (RP)	RP Cost Consideration	Total RP Amount (Rs.)
			authorized recyclers. • Construction wastes were collected immediately after generation and taken away for filling in low lying areas on plot which were rolled, compacted, watered and levelled eventually.				
	Solid & HW Total			**Damage Cost Rs.15,000**			**Rem. Cost Rs.75,000**
G	**Socio-Economy**						
	• Social & Economic Status • Occupational Health and Amenities- Health aspects of the construction workers and facilities regarding hygiene and sanitation	Construction and allied activities at the Industrial Plot	• Increase in traffic on the MIDC road due to transportation of trucks and trailers (max 3 per day) carrying construction materials (cement, sand, aggregates, steel, bricks etc.), equipment & machinery and components thereof to the MIDC Plot of Industry as well as taking away	------	• Providing first-aid kit to the construction site • Health check-up camp for the workers and employees	• Rs. 50,000/- [LS] • Rs. 50,000/- [LS]	**Rs. 50,000** **Rs. 50,000**

Sr. No.	Component / Aspect& Parameters	Causes of Impact / Pollution	Probable Impacts & Mitigation Measures	Damage Caused & its Cost	Remediation Plan (RP)	RP Cost Consideration	Total RP Amount (Rs.)
	• Costs, disadvantages& inconvenience as well as benefits to people and adverse effect on economy of the region.		wastes, scraps and similar other materials of no use outside the industrial premises for disposal. • Primary & Secondary employment generation during construction period. **Mitigation Measures :** • Secured facilities to the construction workers • Security &Safety Staff of Industry undertook traffic management so that no accidents happened. Site being in MIDC Area, there was not much inconvenience to local people due to vehicles carrying construction materials. • Local people were given preference for employment during construction activity. About 30 labors were hired from surrounding villages. • Provision of PPEs, training and awareness among the workers.				

Sr. No.	Component / Aspect& Parameters	Causes of Impact / Pollution	Probable Impacts & Mitigation Measures	Damage Caused & its Cost	Remediation Plan (RP)	RP Cost Consideration	Total RP Amount (Rs.)
	Socio-Economy Total			-------			**Rem. Cost Rs. 1,00,000**
H	**Energy Consumption**						
	Energy consumed during Construction phase.	• Loss of energy • Consumption of energy due to construction activities. • Use of fuel (HSD) for energy generation in DG Set at Site • Generation of emission (particulate matter and gases)&Increase in pollution level.	• Impact on power utilization from MSEB Grid. • Impact on health (workers and nearby habitat) **Mitigation measures** • DG was encased in noise proof canopy and provided with adequate stack height.	50 KWH X 8 Hours/Day X 120 Days = 48,000 KW 48,000 KW X Rs. 6 /- = **Rs.2,88,000/-**	Installation of 5 KW Solar Photovoltaic Power Generation System at Industry	5 KW System @ Rs. 1,00,000 per KW	**Rs. 5,00,000**
	Energy Consumption			**Damage Cost Rs.2,88,000**			**Rem. Cost Rs.5,00,000**
	Grand Total A to H			**Damage Cost Rs.21,33,900**			**Rem. Cost Rs.48,28,000**

Appendix - I

A. Presentation on Air Pollution Aspect due to Transportation of Construction Materials happened under Violation during Project Construction of SKKI from January to April 2017 (Construction Phase)

1. It was required to undertake transportation of following Construction Materials from Market in Solapur District to SKKI Plot in Chincholi MIDC of Solapur City. In following table, at a glance status of transportation undertaken, infrastructure required thereunder, distance of travel and pollution caused due to the vehicles employed is presented –

Table 13.4 Facts& Figures about the Construction Implemented on SKKI Site under Violation Project

No.	Description
1	Built up Area (Part area) of SKKI Industrial Construction (as certified by MIDC) under Violation Project: 5,717.78 Sq.M. i.e. 5,717.78 X 10.76 = 61,523.3; Say **61,525 Sq.Ft.**
2	Consumption Rates / Sq. Ft. of Built Up Area for various Construction Materials are presented below. The same are for construction completed in all respect (finished items) and certified by concerned regulatory authorities. It means the rates are for a structure completed from *Foundation to Flooring* which shall comprise of RCC Framed Structure, Brick Masonry Walling, Plastering (Internal & External), Internal Wall Coating (Putty or PP), Flooring, Water Proofing, Doors & Windows, Painting etc. Thus, the **Utilization Rates** are for **100% Completed Construction Work -** a. **Cement**: 0.4 Bag / Sq. Ft. b. **Sand :** 1.8 Cu. Ft. / Sq. Ft. c. **Aggregates**(1/2", 3/4" & 1") **:** 1.35 Cu. Ft. / Sq. Ft. d. **Steel** (MS & TS) : 3.5 Kg / Sq. Ft. e. **Bricks** (9" Burnt Bricks): 9 Nos. / Sq. Ft. f. **Paint**s : 0. 18 Liter / Sq. Ft.
3	From condition of construction actually done on Site (at the Industrial Plot in MIDC), it can be observed that out of Permissible Floor Area of 12,025 Sq. M.; only 5,717.78 Sq.M. has been taken under construction. And on this part area also; all the construction items have not been fully implemented. It can be seen that only RCC framed structure with columns, beams & slabs erected for 3 production blocks and certain fabrication work is done for boiler house, utilities etc. Thus, overall construction w.r.t. built up area of 5,717.78 Sq.M. has been done to obtain BC Certificate from MIDC. This area of 5,717.78 Sq.M.is out of permissible Floor Area of 12,025 Sq.M. on a Plot Area of 24,050 Sq.M. with FSI utilization of 0.23.
4	From status of actual construction on site; it is seen that the overall structures implemented so far are only 40% completed and accordingly the construction materials' utilization rates are taken in following table.

Table 13.5 Consumption of Construction Materials for Partly Implemented Project on Site

Sr. No.	Description of Material	Part Consumption Rate	Consumption Calculations	Qty. of Materials
1	Cement	0.16Bag /Sq.Ft.	61,525 Sq.Ft. X 0.16=9,844 Bags (50 Kg Each)	9,844 Bags
2	Sand	0.72 Cu. Ft / Sq. Ft.	61,525 Sq. Ft. X 0.72 = 44,298 Cu. Ft.	44,298 Cu. Ft (443 Brass)
3	Aggregates (1/2",3/4" & 1")	0.54 Cu. Ft / Sq. Ft.	61,525 Sq. Ft. X 0.54 = 33,223.5 Cu. Ft.	33,223 Cu. Ft. (332 Brass)
4	Bricks	3 Nos. / Sq. Ft.	61,525 Sq. Ft. X 3 = 1,84,575 Nos.	1,84,575 Nos
5	Steel (MS & TS)	1.4 Kg / Sq.Ft.	61,525 Sq. Ft. X 1.4 = 86,135 Kg.	86,135 Kg. (86 MT)
6	Structural Steel for Fabrication	Lot	------	50 MT
7	Paints	0.072 Liter / Sq. Ft.	61,525 Sq. Ft. X 0.072 = 4,429.8 Lit..	4,430 Liters
8	Oils & Lubricants	Lot	-----	1 MT
9	Miscellaneous materials like hardeners, water proofing chemicals, epoxy chemicals, welding rods, oxygen and acetylene gas cylinders, etc.	Lot	----	2 MT

Table 13.6 Details of Construction Materials' Transportation from Market to Project Site in Chincholi MIDC, Solapur

Sr. No..	Description	Qty. of Materials Handled (MT)	Vehicles Used	Overall Distance of Travel	Remarks
1	Cement	9,844 Bags	29 Trips of Trucks (No. of Vehicles)	725 KM (**25 Km / Trip** from Solapur city to Site in Chincholi MIDC)	Truck with LF of 340 Bags /Trip used for Cement transportation
2	Sand	443 Brass	167 Trips of Trucks (No. of	3,340 Km (**20 Km / Trip**	Truck (Dumper) with LF of 2.65 Brass /Trip

Sr. No..	Description	Qty. of Materials Handled (MT)	Vehicles Used	Overall Distance of Travel	Remarks
			Vehicles)	from Begampur Village to Site in Chincholi MIDC.	used for Sand transportation
3	Aggregates (1/2",3/4" & 1")	332 Brass	111 Trips of Trucks. (No. of Vehicles)	1,665 Km (**15 Km / Trip** from Stone at Mohol Site in Chincholi MIDC.	Truck (Dumper) with LF of 3 Brass /Trip used for Aggregates transportation
4	Steel (MS & TS) & Structural Steel	86 MT + 50 MT = 136 MT	14 Trips of Trucks. (No. of Vehicles)	225 Km (**25 Km / Trip** from Solapur city to Site in Chincholi MIDC)	Truck with LF of 10 MT/Trip used for Steel transportation
5	Bricks (9" Burnt)	1,84,575 Nos.	37 Trips of Trucks. (No. of Vehicles)	1,110 Km (**30 Km / Trip** from Kiln toSite in Chincholi)	Truck with LF of 5,000 Nos. /Trip used for Bricks transportation
6	Paints, Oils & Lubricants as well as Miscellaneous Materials	4,430 Lit, 3 MT	2 Trips of Trucks. (No. of Vehicles)	50 Km (**25 Km / Trip** from Solapur city to Site in Chincholi MIDC).	Truck with LF of 5 MT /Trip used for transportation.

Emissions of pollutants through fuel burning in vehicles on road were quantified based on the number of vehicles and distance travelled by them during transportation of construction materials during **period** of about**4 Months**.

Pollutants' Emission Quantification has been done for different vehicle types by using following Formula (Ref.: Atmospheric Environment; Science Direct, ELSEVIER; Emissions from India's transport sector: Statewise synthesis, T.V. Ramachandra[a,b], Shwetmala[a], 2009, PP. 1-8 (a. Energy Research Group (CES), Centre for Ecological Sciences, Indian Institute of Science, Bangalore, Karnataka-560 012, India& b. Centre for Infrastructure, Transport and Urban Planning (CiSTUP), Indian Institute of Science, Bangalore 560 012, India)

$$E_i = \Sigma(Veh_j \; XD_j) \; xE_{i;j;km},$$

Where, E_i=Emission of Compound (i); Veh_j=Number of vehicles per Type (j); D_j=Distance Travelled per different Vehicle Type (j); $E_{i,j,km}$=Emission of Compound (i) from Vehicle type (j) per driven Kilometer.

a. Emissions of **Particulate Matter** through Fuel burning in the Transportation Vehicles -

$\mathbf{E_{PM}} = \Sigma$ {(29Cement Trucks) X 25 Km) X 0.28 gm/Km} +{(167 Sand Trucks) X 20 Km) X 0.28 gm/Km}+ {(111Aggregates Trucks) X 15 Km) X 0.28 gm/Km}+ {(14Steel Trucks) X 25 Km) X 0.28 gm/Km} + {(37Bricks Trucks) X 30 Km) X 0.28 gm/Km} + {(2Paints & Miscellaneous Materials Trucks) X 25 Km) X 0.28 gm/Km}

$\mathbf{E_{PM}} = \Sigma$ {203 gm Cement Trucks} + {935.2 gm Sand Trucks} + {466.2 gm Aggregates Trucks} + {98gm Steel Trucks} + {310.8 gm Bricks Trucks} + {14 gm Paints & Miscellaneous Trucks} =2027.2 gm, i.e. **2.1Kg**

b. Emissions of $\mathbf{SO_2}$through Fuel burning in the Transportation Vehicles -

$\mathbf{E_{SO2}} = \Sigma$ {(29Cement Trucks) X 25 Km) X 1.42 gm/Km} +{(167 Sand Trucks) X 20 Km) X 1.42 gm/Km} + {(111 Aggregates Trucks) X 15 Km) X 1.42 gm/Km} + {(14 Steel Trucks) X 25 Km) X 1.42 gm/Km} + {(37Bricks Trucks) X 30 Km) X 1.42 gm/Km} + {(2Paints & Miscellaneous Materials Trucks) X 25 Km) X 1.42 gm/Km}

$\mathbf{E_{SO2}} = \Sigma$ {1029.5 gm Cement Trucks} + {4742.8 gm Sand Trucks} + {2364.3gm Aggregates Trucks} + {497 gm Steel Trucks} + {1576.2 gm Bricks Trucks} + {71 gm Paints & Miscellaneous Trucks} =10,280.8 gm i.e. **10.30 Kg**

c. Emissions of **NOx** through Fuel burning in the Transportation Vehicle -

$\mathbf{E_{NOx}} = \Sigma$ {(29Cement Trucks) X 25 Km) X 6.3 gm/Km} +{(167 Sand Trucks) X 20 Km) X 6.3 gm/Km} + {(111 Aggregates Trucks) X 15 Km) X 6.3 gm/Km} + {(14 Steel Trucks) X 25 Km) X 6.3 gm/Km} + {(37Bricks Trucks) X 30 Km) X 6.3 gm/Km} + {(2Paints & Miscellaneous Materials Trucks) X 25 Km) X 6.3 gm/Km}

$\mathbf{E_{NOx}} = \Sigma$ {4567.5 gm Cement Trucks} + {21042 gm Sand Trucks} + {10489.5gm Aggregates Trucks} + {2205 gm Steel Trucks} + {6993 gm Bricks Trucks} + {315 gm Paints & Miscellaneous Trucks} =45612 gm i.e. **45.6 Kg**

Table No. 13.7Environmental Damage Cost Calculations

Sr. No.	Type of Pollutants (Emissions)	Qty. of Pollutants	Rate of Damage	Environmental Damage Cost
1	Particulate Matter	2.1 Kg	Rs. 340/Kg	Rs. 714.60
2	SO_2	10.3 Kg	Rs. 165 / Kg	Rs. 1,699.50
3	NOx	45.6 Kg	Rs. 96 / Kg	Rs. 4,377.6
			Total	**Rs. 6,791.70**

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13.6.1 Implementation Details and Costing of Remediation Plan

Table 13.8 Remediation Plan & Budgetary Provisions for 3 Years

Sr. No.	Environmental Component	Activities Proposed	Budgetary Provision			Total in (Rs. Lakhs)
			1st Year	2nd Year	3rd Year	
1	Air Environment a. Ambient Air b. Air Pollution	Dust Suppression and water sprinkling.	Rs.78,000	---	----	Rs.78,000
		Provision of Barricades	Rs.3,00,000	---	----	Rs. 3,00,000
		Plantation in 4 Villages Tilwani, Sajani, Mangaonwadi & Mangaon	Rs.3,75,000	Rs.3,75,000	Rs.3,75,000	Rs.11,25,000
	Total (1)		Rs.7,53,000	Rs.3,75,000	Rs.3,75,000	**Rs.15,03,000**
2	Water Environment	Water Conservation through Roof-top RWH & GWR at Gram Panchyat Office/School Bldg. in Akolakati village.	Rs.1,50,000	----	----	Rs.1,50,000
		RWH Tank to be provided in the industrial premises.	----	------	Rs.9,00,000	Rs.9,00,000
		STP Provision	Rs.5,00,000	-----	------	Rs.5,00,000
	Total (2)		Rs.6,50,000	-----	Rs.9,00,000	**Rs.15,50,000**
3	Noise Environment	Supply of PPEs to Staff & Workers	Rs.50,000	-----	-----	Rs.50,000
	Total (3)		Rs.50,000	-----	**-----**	**Rs.50,000**
4	Land Environment	Landscape and Land development Works	-----	Rs.1,50,000	Rs.1,50,000	Rs.3,00,000
	Total (4)		------	Rs.1,50,000	Rs.1,50,000	**Rs.3,00,000**
5	Biological Environment (Ecology)	Green Belt Development	Rs.3,75,000	Rs.3,75,000	-----	Rs.7,50,000
	Total (5)		Rs.3,75,000	Rs.3,75,000	-----	**Rs.7,50,000**
6	Solid and Hazardous Waste	Provision of colored bins	Rs.75,000	-----	-----	Rs.75,000
	Total (6)		Rs.75,000	-----	-----	**Rs.75,000**
7	Socio-economy	First aid kit and health check up	Rs.50,000	Rs.25,000	Rs.25,000	Rs.1,00,000
	Total (7)		Rs.50,000	Rs.25,000	Rs.25,000	**Rs.1,00,000**
8	Energy Consumption	Installation of 5 KW Solar Photovoltaic Power Generation System at Industry	----	-----	Rs.5,00,000	Rs.5,00,000
	Total (8)		**-----**	**------**	Rs.5,00,000	**Rs.5,00,000**
		GRAND TOTAL	**Rs.19,53,000**	**Rs.9,25,000**	**Rs.19,50,000**	**Rs.48,28,000**

13.7 NATURAL & COMMUNITY RESOURCES AUGUMENTATION PLAN (NCRAP)

A. Implementation & Costing of Natural Resources Augmentation Plan

Table 13.9 Natural Resources Augmentation Plan & Budgetary Provisions for 3 Years

No.	Description	Cost	2022-2023	2023-2024	2024-2025
1	• Plantation of indigenous & evergreen tree species with appropriate canopies & proper leaves (shapes & sizes) for dust and other gaseous pollutants' control as well as noise attenuation in 2 **Study Area villages.** • The trees shall be planted along road sides (avenue plantation), in the premises of Public Buildings (shelter belt plantation) as well as on community lands (mass plantation) at 2 villages. Cost of Plantation Program in above villages shall be – 2 Villages X 500 Trees/ Village X Rs. 750/- per Tree = **Rs. 7.50 Lakhs**	**Rs. 7.50 Lakh**	**Rs. 3.75 Lakh**	**Rs. 3.75 Lakh**	------
2	• Providing Solar Photovoltaic Street Lights comprising of MS Pole, Solar Panel, LED lamp, Battery, wiring etc. complete • The Street Lights shall be provided in 2 Villages. • Cost of Lighting Program in above villages shall be – 2 Villages X 10 Street Lights / Village X Rs. 30,000/- per No.= **Rs.6 Lakhs**	**Rs. 6 Lakh**	-----	**Rs. 3 Lakh**	**Rs. 3 Lakh**
3	• Providing Safe Drinking Water Units comprising of Filtration, RO Module with Coin Dispenser & Storage Tank, electrical panel etc. complete (Dispensing Capacity of 500 Lit/Hr.) • 2 Units shall be provided in 2 Villages. • Cost- 2 Units X Rs. 2.5 Lakhs = Rs. 5 Lakhs	**Rs. 5 Lakh**	**Rs. 2.5 Lakh**	**Rs. 2.5 Lakh**	------
	Total	**Rs. 18.50 Lakh**	**Rs. 6.25 Lakh**	**Rs. 9.25 Lakh**	**Rs. 3 Lakh**

B. Implementation & Costing of Community Resources Augmentation Plan

Table 13.10 Community Resources Augmentation Plan & Budgetary Provisions for 3 Years

No.	Description	Cost	2022-2023	2023-2024	2024-2025
1	Providing Sanitation facilities in 1 Villages Comprising of community Toilet Unit (1 No. / Village); The Unit consisting of 6 Seats (3 ladies & 3 Gents), with 500 Litre water tank, Septic tank, Piping etc. complete. 1 Units X Rs. 10 Lakhs / Unit = Rs. 10 Lakhs	**Rs. 10 Lakh**	**Rs. 10 Lakh**	**-----**	------
2	Medical check-up camp in nearby areas for villagers	**Rs. 2 Lakh**	-----	**Rs. 1 Lakh**	**Rs. 1 Lakh**
3	Awareness camps for GIB Sanctuary Conservation	**Rs. 2 Lakh**	**Rs. 1 Lakh**	**Rs. 1 Lakh**	**-----**
	Total	**Rs. 14 Lakh**	**Rs. 11 Lakh**	**Rs. 2 Lakh**	**Rs. 1 Lakh**

C. Summary of Remediation Plan, Natural Resources & Community Resources Augmentation Plan

Table 13.11Summary of Cost & Implementation Schedules

Sr. No.	Description	Cost in Rs. Lakhs			
		Total Cost	**2022-23**	**2023-24**	**2024-25**
1	Remediation Plan	**48.28**	19.53	9.25	19.50
2	Natural Resources Augmentation Plan	**18.50**	6.25	9.25	3.00
3	Community Resources Augmentation Plan inclusive of Economic Benefit derived out of Violation	**14.00**	11.00	2.00	1.00
	Total Cost	**Rs.80.78**	**Rs.36.78**	**Rs.20.50**	**Rs.23.50**
	Expenditure Pattern	*100%*	*46%*	*25%*	*29%*

13.8 CONCLUSION

- Subsequent to taking over of MIDC Plot by SKKI in the Year 2010. As per MIDC notice vide letter क्र. म.औविम/विधीव कामकाज/१५९/२०१२ dated **07.09.2012** the industry had to commence at least 20% construction on site in line with approved building plans. SKKI obtained 2 extension from MIDC for commencement of construction activities on site. However, to save the Plot and money invested so far SKKI had to undertake actual construction on site from January 2017 and till April 2017 completed the work with minimum Built up area requirement fulfilled on site.
- The implementation of construction stated above, however, was done without obtaining prior Environmental Clearance (EC) from MoEFCC. This was nothing but 'Violation' and all protocol under same for obtaining EC has been observed.
- The environmental damage done during the period of Violation is estimated and quantified with respect to environmental attributes concerned and remediation plan with budgetary estimate is carried out. Similarly, the Natural and Community Resources Augmentation Plan with budgetary provisions are also prepared as per TORs granted for violation. The details are given in tables presented in earlier sections. A crux of same is as follows -
  - **Remediation Plan** budget is estimated to be **Rs.48.28 Lakhs**
  - **Natural Resources Augmentation Plan** budget is **Rs.18.50 Lakhs**
  - **Community Resources Augmentation Plan** budget is **Rs.14 Lakhs**
  - **Total of Budget** towards Remediation Plan, Natural and Community Resources Augmentation Plan is worked out to be of **Rs. 80.78 Lakhs.**
- A humble request is being made to Hon. Members of the EAC (Violation) to grant Environmental Clearance on the basis of above data & details being submitted.

Annexure – XI

Copy of Payment receipt of Sanctioned Water Supply

महाराष्ट्र औद्योगिक विकास महामंडळ

(महाराष्ट्र शासन अंगिकृत)

जा.क्र. काअसां/तांशा/बी-६६०९२ /२०२०,
कार्यकारी अभियंता यांचे कार्यालय,
म.औ.वि. महामंडळ विभाग सांगली,
उद्योगभवन, विश्रामबाग, सांगली.
दिनांक :- 17 JUL 2020

प्रति,
मे. श्री. कार्तिकेय कामेश्वरी इंडस्ट्रिज,
भूखंड क्र. ई-१२, म.औ.वि.म., चिंचोली औद्योगिक क्षेत्र,
ता. मोहोळ, जि. सोलापूर.

विषय :- चिंचोली औद्योगिक क्षेत्र...
भूखंड क्र.ई-१२ साठी ५० मी.मी. व्यासाची वाढीव नळजोडणी मंजूर करणेबाबत.

संदर्भ :- १) आपले उप अभियंता, म.औ.वि.म., उपविभाग सोलापूर यांना केलेला अर्ज दि. ३०.०६.२०२०

आपण संदर्भिय पत्रानुसार ५० मी.मी. व्यासाची नळजोडणी मिळण्या विषयी विनंती केली होती. त्यानुसार ५० मी.मी. व्यासाच्या नळजोडणीसाठीच्या अटी व शर्ती खालील प्रमाणे देण्यात येत आहेत.

१) पाणी पुरवठा नळजोडणी बाबत खालीलप्रमाणे रक्कम भरावी लागेल.

अ)	भांडवली अंशदान (Capital contribution) ५९.८७५ घमी x रू: ३१,९००/- प्रती घमी (विनापरतीचे)	रू. १९,१०,०१३/-
ब)	सुरक्षा अनामत रक्कम: १२०घमी/ दिन x ९० दिवस x रू. २२.२५(पाण्याचा सद्याचा दर) वजा पूर्वीची जमा सुरक्षा अनामत रक्कम	रू. २,४०,३००/- (-) रू. ४९,१९५/-
क)	नळजोडणी शुल्क : (SGST+CGST सह) (रू.५००+४५+४५)	रू. ५९०/-
ड)	करारनामा व नोंदणी शुल्क (SGST+CGST सह) (रू.५७५+५२+५२)	रू. ६७९/-
इ)	जुनी नळजोडणी खंडीत करणे शुल्क (२००+१८+१८)	रू. २३६/-
	एकूण रक्कम	रू. २१,०२,६२३/-

वरील रकमेचा ड्राफ्ट कार्यकारी अभियंता म.औ.वि.म. विभाग सांगली यांचे नावे काढून या कार्यालयास अथवा उपविभाग कार्यालय सोलापूर येथे जमा करावा.

२) ५० मीमी व्यासाच्या जळ जोडणीला लागणारे सर्व साहित्य नॉन रिटर्न व्हाल्व, गेट व्हाल्व-२नग व लागणारी ५० मीमी व्यासाची पाईप इ. आणावी व ती बसविण्याचे काम आपण परवानाधारक प्लंबरकडून, उपअभियंता म.औ.वि.म., उपविभाग सोलापूर यांचे प्रतिनिधीच्या समक्ष करावयाचे आहे.

३) ५० मीमी व्यासाचे २ जलमापक शासकीय तपासणी केंद्रामधून तपासुन प्रमाणित करून घेण्यात यावीत.

४) ५० मीमी व्यासाच्या नळजोडणीसाठी १२० घमी/दिन कोटा मंजूर करण्यात आला असून सदर कोटयापेक्षा आपला पाणीवापर जास्त झाल्यास वाढीव भांडवली अंशदान व अनामत रक्कम भरणे बंधनकारक राहील.

वरील नमूद केलेल्या बाबींची पूर्तता केल्यानंतर तसे या कार्यालयास कळविण्यात यावे. त्यानंतर करारनामा व नळजोडणी प्रक्रीया करण्यात येईल याची कृपया नोंद घ्यावी.

आपला विश्वासू

Bhosale

(आर. के. भोसले)
कार्यकारी अभियंता,
म.औ.वि.महामंडळ विभाग, सांगली.

प्रत : उपअभियंता मऔविम, उपविभाग सोलापूर यांचे माहितीसाठी.

Annexure – XII

Green Belt Plan

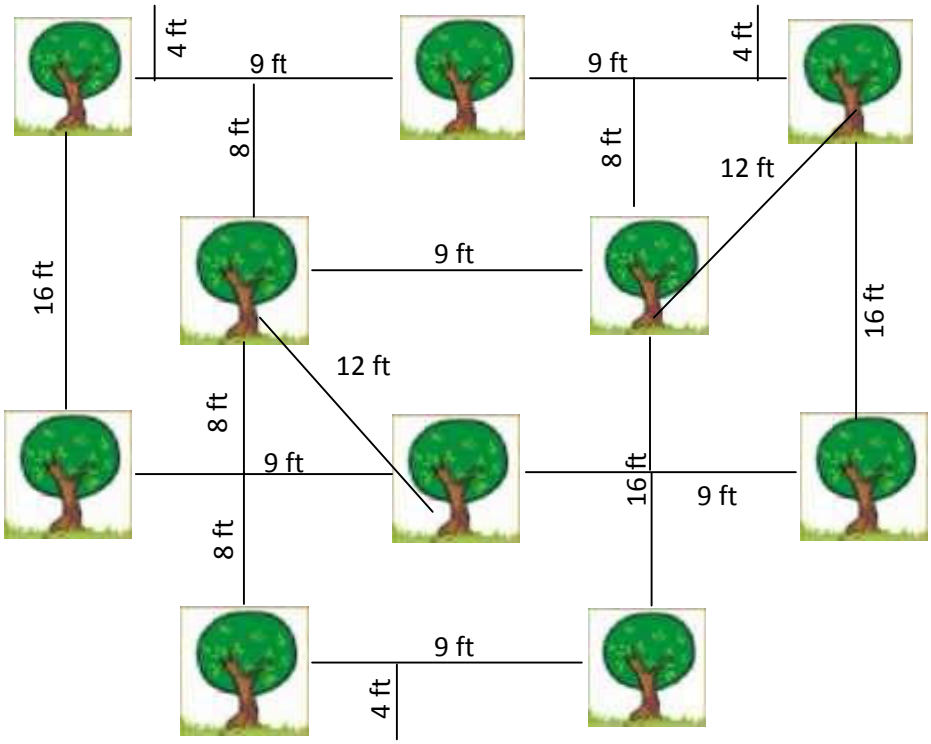
Proposed Tree Plantation

A comprehensive 'Green Belt Development Program' would be implemented in a phase wise manner under the proposed project development.

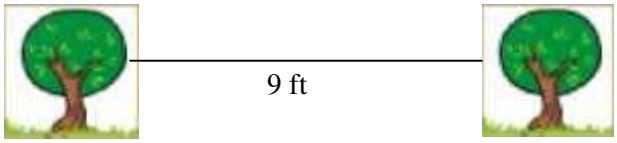
Features of proposed green belt development program -

- A thick barrier of trees would be created along the entire periphery of the plot.
- Trees would be planted in the project's premises along the internal roads and open plot.
- Indigenous, fast growing,evergreen and semi evergreen tree species would be planted.
- As per the recommendations by Central Pollution Control Board (CPCB) and Ministry of Environment & Forests (MoEFCC) and the ToR given to the project, the green belt development plan has been designed.

For shelter belt and mass plantation, trees with 50 to 90 Sq. Ft. canopies with distance of 9 feet between two trees and 8 feet between two adjacent rows would be planted.



Moreover, plantation along the internal roads would be done in single row on either side of the road. Here the distance between adjacent trees is considered as 9 ftwith 8 feet width and area covered by a single tree is taken as 50 to 90 Sq.Ft.



Total GB area is 8,025sq. m. with minimum plantation of 1,205trees.Based on the above facts and figures, the green belt development plan has been designed and presented in following Table 1.

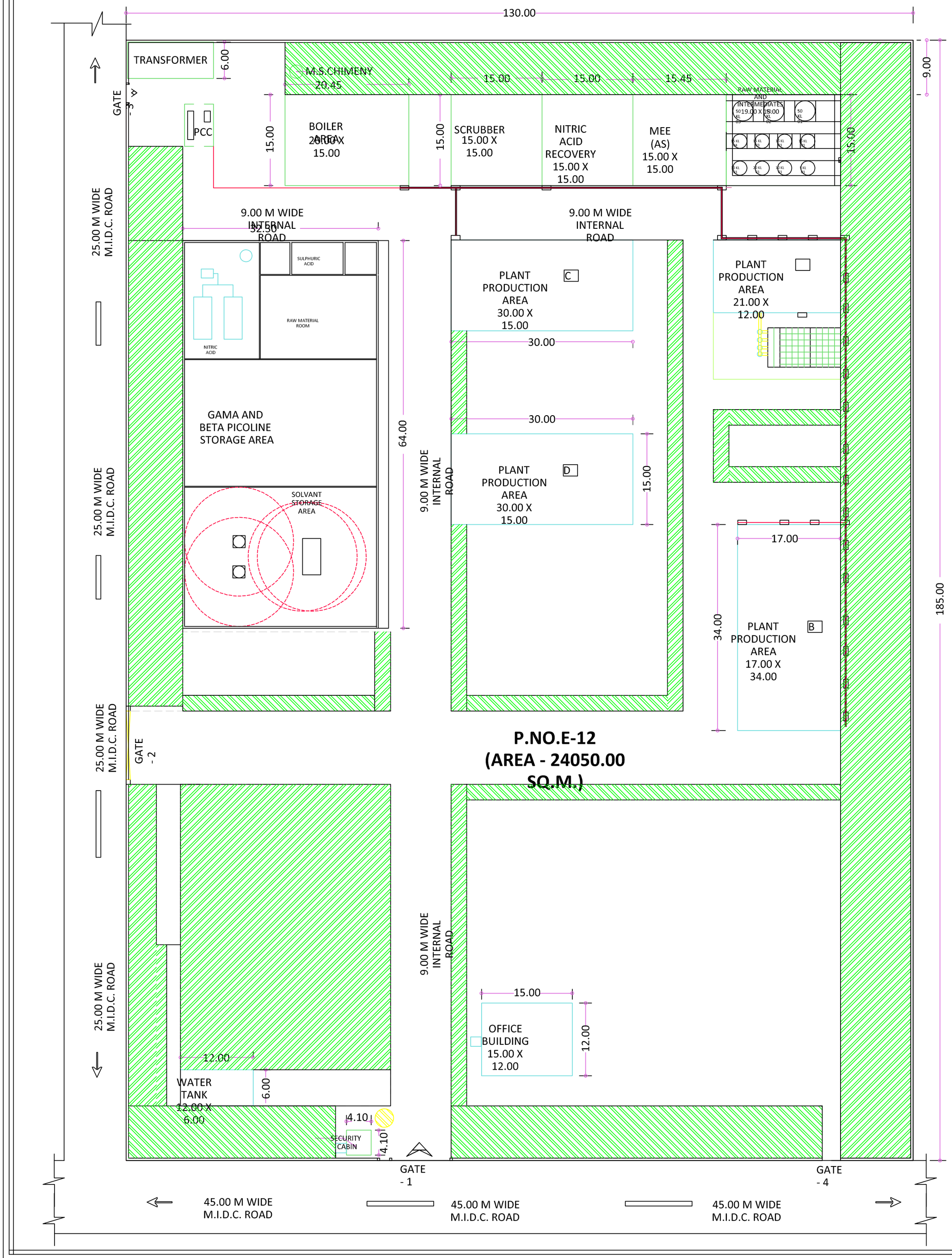
Table 1Green Belt (GB) Design Details

Type of Plantation	Location on Plot	GB Length (M)	GB Width (M)	GB Area (Sq. M)	No. of Tree Rows	Trees / Row	Total Trees	Trees	Characteristics
		A	B	C = A*B	D = B/2.5 (2.5= Dist. Bet. 2 Rows)	E = A/2.7 (2.7= Dist. Bet. 2 trees)	F = D*E		
Shelter Belt along Compound Wall	North	115	7.5	862.5	3	43	129	Neem, Shisav, Karanj, Wilayati Chinch, Apta, Mahogani, Ran Bibba, Nandruk, Kadamb	Trees with round &oblong canopy, native, evergreen, pollution resistant, fast growing, high dust settling index
	East	155	7.5	1162.5	3	57	171		
	South	115	7.5	862.5	3	43	129		
	West	185	7.5	1387.5	3	69	207		
Mass Plantation	At North East Corner	50	30	1500	12	19	236	Khair, Saag, Bel, Shivan,Palas, Limbara,	Tree with round &oblong canopy, native, evergreen, pollution resistance
Avenue Plantation	Along Roadside	900	2.5	2250	1	333	333	Bakul, Bahava, Tamhan, Ashoka, Saptaparni	Tree species with conical, columnar canopy, ornamental, fast growing, pollution resistance will be planted as avenue plantation
Total				**8,025**			**1205**		

GB area required as per ToR = 7,937 sq.mt. Actual GB area provision = 8,025 sq.mt.

Table No. 2 No. of trees to be planted

Sr. No.	Name of the plant	Common Name	Quantity	Characteristics & Ecological Importance
1	*Azadirachtaindica*	Neem	76	Native, evergreen, fast growing, tolerant
2	*Dalbergia sissoo*	Shisav, Shisham	70	Native, evergreen, tolerant
3	*Mimusopselengi*	Bakul	66	Native, ornamental, host plant for bees and butterflies.
4	*Pongamiapinnata*	Karanj	70	Pollution tolerant
5	*Acacia Catechu*	Khair	41	Native and pollution resistant
6	*Tectonagrandis*	Saag	39	Native and pollution resistant
7	*Neolamarckiacadamba*	Kadamb	70	Native, evergreen, fast growing, pollution tolerant
8	*Cassia fistula*	Bahava	66	Native, ornamental, host plant for bees and butterflies.
9	*Gmelina arborea*	Shivan	39	Native and pollution resistant
10	*Pithecellobium dulce*	Wilayati Chinch	70	Native, ornamental, host plant for bees and butterflies.
11	*Alstoniascholaris*	Saptaparni	66	Native, evergreen, higher dust settling index
12	*Swieteniamahogani*	Mahogani	70	Native, evergreen, higher dust settling index
13	*Aegle marmelos*	Bel	39	Native and pollution resistant
14	*Holigarnagrahamii*	Ran Bibba	70	Native and pollution resistant
15	*Ficus macrocarpa*	Nandruk	70	Native and pollution resistant
16	*Melia azedarach*	Limbara	39	Native and pollution resistant
17	*Bauhinia racemosa*	Apta	70	Native and pollution resistant
18	*Butea monosperma*	Palas	39	Native, Evergreen tree,
19	*Lagerstroemia speciosa*	Tamhan	69	Native, State flower of Maharashtra
20	*Polyalthialongifolia*	Ashoka	66	Air pollution absorbing species
Total			**1205**	



Type of Plantation	Location on Plot	GB Length (M)	GB Width (M)	GB Area (Sq. M)	No. of Tree Rows	Trees / Row	Total Trees	Trees	Characteristics
		A	B	C = A*B	D = B/2.5 (2.5= Dist. Bet. 2 Rows)	E = A/2.7 (2.7= Dist. Bet. 2 trees)	F = D*E		
Shelter Belt along Compound Wall	North	115	7.5	862.5	3	43	129	Neem, Shisav, Karanj, Umbar, Pimparani Saptaparni, Apta, Mahogani, Bel, Ran Bibba, Nandruk, Kadamb, Limbara	Trees with round & oblong canopy, native, evergreen, Air pollutant absorbing, fast growing, high dust settling index
	East	155	7.5	1162.5	3	57	171		
	South	115	7.5	862.5	3	43	129		
	West	185	7.5	1387.5	3	69	207		
Mass Plantation	At North East Corner	50	30	1500	12	19	236	Khair, Saag, Bel, Bahava, Shivan, Nandruk, Umbar, Limbara, Kadamb	Tree with round & oblong canopy, native, evergreen, Air pollutant absorbing.
Avenue Plantation	Along Roadside	900	2.5	2250	1	333	333	Bakul, Bahava, Tamhan, Ashoka, Saptaparni	Tree species with conical, columnar canopy, ornamental, fast growing, Air pollutant absorbing will be planted as avenue plantation.
	Total			8,025			1205		

TOTAL PLOT AREA	24050.00 SQ.M.
BULIT-UP AREA	9417.23 SQ.M.
GREEN BELT AREA	8813.00 SQ.M.
OPEN SPACE	5819.77 SQ.M.

N

M/s.SHREE KARTIKEYA KAMESHWARI INDUSTRIES

Annexure – XIII

Exposure Specific Health Status Evaluation of Worker

1. Health Check-up of Workers

- Industry shall under take pre-employment health check up followed by periodical health checkup every year with special attention to occupational health hazards & shall be conducted for all the employees.
- The following parameters shall be the part of pre-employment & annual periodical medical check-up.
- The company will outsource all the tests with the local hospitals.
- Occupational health monitoring and medical fitness evaluation presented in table 2 and table 3 respectively.

Table 2: Details of Occupational Health Monitoring

No	Chemical	Target organs	Parameters for occupational Health monitoring	Frequency
1	Hydrochloric acid	• Skin • Respiratory system.	Pre-placement medical check-up of function and integrity of eyes, skin and lungs.	Pre-placement & Annual
2	Ammonia	• Skin,eye • Respiratory	Pre-placement medical check-up of function and integrity of eyes, skin and lungs.	Pre-placement & Annual
5	Methanol	• Skin-dermatitis • Liver Optic atrophy • Blindness	Pre-placement medical check-up	Pre-placement & Annual
6	Nitric Acid	• Skin,eye • Respiratory	Pre-placement medical check-up of function and integrity of eyes, skin	Pre-placement & Annual
7	H_2SO_4	• Skin-dermatitis, • Eye • Respiratory	Pre-placement medical check-up	Pre-placement & Annual
8	Aluminium Chloride	• Skin-dermatitis	Pre-placement medical check-up	Pre-placement & Annual
9	Sodium Hydroxide	• Skin-dermatitis	Pre-placement medical check-up	Pre-placement & Annual

Table 3. Medical fitness evaluation

Employee Name :	Male/Female	Date:
Employee Code No:	Age :	Dept:
Physical Examination:		
Body mass index :	Height :	Weight:

Blood Picture :		
1) Group :	Rh:	
2) Investigation : 2.1) Hemoglobin: 2.2) Total WBC Count: 2.3) Total RBC Count: 2.4) Differential Count: 2.4.1)Neutrophils: 2.4.2)Eosinophils: 2.4.3)Basophils: 2.4.4)Lymphocytes: 2.4.5)Monocytes: 2.5)ESR: 2.6)P.C.V:		
3) Urine analysis: 3.1)Appearance: 3.2)Color: 3.3)Reaction: 3.4)Glucose: 3.5)Proteins:		
4) Eye sight: 4.1)Right eye: 4.2)Left eye: 4.3)Anycolor blindness:		
5) Chest X-ray review:		
6) General health condition: 6.1)Presence of any contagious diseases: 6.1.1)Tuberculosis: 6.1.2)Skin disease: (or open lesions) 6.1.3)Any other:		

Remarks: The person examined is in Normal health condition and is not a carrier of any contagious diseases.

The person request to be treated for following

Physician Signature:

Date:

Sign:

Annexure – XIV

Impacts of Reaction & Reactor failures on Air & Water

No	Product	Stages		Temp.	Batch Size (Kg)	Reactor Failure & Reaction Failure Impacts	Safety Measures
1	Methyl 2- (4- (4-chlorobutanoyl) phenyl)-2-methylpropanoate	I	Friedal Craft Acylation	-5^0C to 0^0C	195	The manufacturing process involves 4 stages. The temperature range for the reaction is -5^0C to 45^0C at atmospheric pressure. **Reactor Failure:** If temperature and pressure increase in the reactor due to operational failures, there may be chance of runaway reactions to occur. However, reactions involved in product formation of SKKI will not cause any runaway reaction. 1. Air Impact: There may be chances of liberation of acidic fumes through leakages of pipes, seals, flanges etc. due to presence of **Hydrochloric Acid** in the reactor. The maximum emission concentrations will be limited to work zone area only (i.e. within the plant itself) as it will be for short time period and non-frequent in nature. 2. Water Impact : Due to reactor failure, the batch will not produce desired product, leading to generation of unreacted mass which will be stored separately and disposed off gradually. The effluent generated after washing	• Reactors are equipped with rupture disc and safety valve to counter any event of pressure build-up. This pressure will be released in a safety dump tank located at safe distance from reaction area. • The reactors are also equipped with primary condenser to arrest evaporation of reaction mass and condense back the vapors into the reactor. In event of any higher evaporation secondary condenser is provided as support to primary condenser

No	Product	Stages		Temp.	Batch Size (Kg)	Reactor Failure & Reaction Failure Impacts	Safety Measures
		II	Hydrolysis with Caustic lye	25^0C to 30^0C		of reactor may have acidic pH, high COD (60,000 to 70,000 mg/L), high BOD (30,000 to 40,000 mg/L). **Reaction Failure :** If the reaction fails then because of presence of hydrochloric acid in the reactor, it gets occupied by acidic fumes. **195 Kg of undesired product mass** will generate which will be stored in separate drums and disposed off gradually. During the washing of reactor acidic fumes shall liberate and the effluent generated after washing will have high COD and BOD. 1. Air Impact : There may be chances of emissions of acidic fumes during reactor washing. The maximum emission concentrations will be limited to workzone area (i.e. within plant) as it is for short time period and non-frequent.	
		III	Oxidation with Potassium Permanganate	30^0C to 45^0C			
		IV	Reaction with Methanol and Hydrochloric Acid	20^0C to 25^0C			
2	Nicotinic Acid Methyl ester	I	Esterification Reaction followed by Ammonia neutralization	75^0C	270	The temperature of 75^0C is required for necessary reactions to occur. Moreover, they are at atmospheric pressure. Nicotinic Acid is esterified by methanol or ethanol to yield Nicotinic Acid Methanol/Ethanol Ester. **Sulphuric Acid** is used as catalyst	

No	Product	Stages		Temp.	Batch Size (Kg)	Reactor Failure & Reaction Failure Impacts	Safety Measures
						which plays dual role as to speed up the reaction and to improve yield. The resultant reaction mass is then neutralized using Ammonia to dissolve the excess sulfuric to yield the final product. **Reactor Failure:** 1. Air Impact: There may be chances of liberation of acidic fumes through leakages of pipes, seals, flanges etc. due to presence of **Sulphuric Acid** in the reactor after reactor failure. The maximum emission concentrations will be limited to work zone area only (i.e. within the plant itself) as it will be for short time period and non-frequent in nature. 2. Water Impact: Due to reactor failure, the batch will not produce desired product, leading to generation of unreacted mass which will be stored separately and disposed off gradually. The effluent generated after washing of reactor may have acidic pH, high COD (60,000 to 70,000 mg/L), high BOD (30,000 to 40,000 mg/L).	

No	Product	Stages		Temp.	Batch Size (Kg)	Reactor Failure & Reaction Failure Impacts	Safety Measures
						Reaction Failure : If the reaction fails then because of presence of hydrochloric acid in the reactor, it gets occupied by acidic fumes. **270 Kg of undesired product** mass will generate which will be stored in separate drums and disposed off gradually. During the washing of reactor acidic fumes shall liberate and the effluent generated after washing will have high COD and BOD. 1. Air Impact : There may be chances of emissions of acidic fumes during reactor washing. The maximum emission concentrations will be limited to workzone area (i.e. within plant) as it is for short time period and non-frequent.	
3	Niacinamide		Aqueous Hydrolysis	100^0C	500	It is simple hydrolysis reaction in which 3-Cynopyridine and water will be added to reactor. Maintaining reflux condition for 3 hrs after addition of caustic soda and distilling out water under vacuum. There is very less probability for any accidents will occur due to reactor failure and reaction failure	A) Primary and secondary condensers are provided to distillation column to condense vapors. B) Emergency dump tank is connected to the vent of secondary condenser in case of any higher boil-up
4	Niacin / Isoniacin	I	Picolene sulfate	75^0C	2560	The manufacturing process involves 4 stages. The temperature range for	A) Reactors are connected to

No	Product	Stages		Temp.	Batch Size (Kg)	Reactor Failure & Reaction Failure Impacts	Safety Measures
		II	Oxidation with Nitric Acid	190^0C		the reaction is 75^0C to 190^0C at atmospheric pressure. **Reactor Failure:** If temperature and pressure increase in the reactor due to operational failures, there may be chance of runaway reactions to occur. However, reactions involved in product formation of SKKI will not cause any runaway reaction. 1. Air Impact: There may be chances of liberation of acidic fumes through leakages of pipes, seals, flanges etc. due to presence of **Nitric Acid** in the reactor. The maximum emission concentrations will be limited to work zone area only (i.e. within the plant itself) as it will be for short time period and non-frequent in nature. 2. Water Impact : Due to reactor failure, the batch will not produce desired product, leading to generation of unreacted mass which will be stored separately and disposed off gradually. The effluent generated after washing of reactor may have acidic pH, high COD (60,000 to 70,000 mg/L), high BOD (30,000 to 40,000 mg/L)	condensers followed by scrubber, so no channce of any pressure build-up. B) Condensers followed by Scrubbers are provided to absorb any fumes liberated. In event of any large quantity of fumes released, triple effect scrubbers are employed
		III	Neutralisation with liq. Ammonia	50^0C			

No	Product	Stages		Temp.	Batch Size (Kg)	Reactor Failure & Reaction Failure Impacts	Safety Measures
						Reaction Failure : If the reaction fails then because of presence of nitric acid in the reactor, it gets occupied by acidic fumes. **2560 Kg of undesired product mass** will generate which will be stored in separate drums and disposed off gradually. During the washing of reactor acidic fumes shall liberate and the effluent generated after washing will have high COD and BOD. 1. Air Impact: There may be chances of emissions of acidic fumes during reactor washing. The maximum emission concentrations will be limited to work zone area (i.e. within plant) as it is for short time period and non-frequent.	
5	3,5 Lutidine / 2, 3 Lutidine	I	Distillation of crude	140^0C	1245	There is no reaction involved as it is only purification of crude by distillation. There may be failure of column occur which can lead to loss of light volatile component in the air and contribute to the VOC in work zone.	A) Primary and secondary condensers are provided to distillation column to condense vapors. B) Emergency dump tank is connected to the vent of secondary condenser in case of any higher boil-up