

PRE FEASIBILITY REPORT

**Proposed Expansion of Molasses Based Distillery unit
from 45 KLPD to 90 KLPD**

**M/S. LOKNETE SUNDERRAOJI SOLANKE
SAHAKARI SAKHAR KARKHANA
LIMITED**

Sundernagar, village: Telgaon, Tal. Dharur, Dist. Beed,
Maharashtra 431131

Prepared By



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October 2018

1.0 INTRODUCTION

1.1 Identification of project and project proponent

M/s. Loknete Sunderraoji Solanke Sahakari Sakhar Karkhana Limited is a cooperative sugar mill, located at Sundernagar, village: Telgaon, Tal. Dharur, Dist. Beed. The factory is registered under the Government of Maharashtra Co-operative Societies Act Registration no. BHR/MGN/PRG/(A)24(S)89 dated 9.11.1989. It started its cane crushing in the year 1992-93. Its initial cane crushing capacity was 2500 TCD. Now, in due course of time it has enhanced its cane crushing capacity from 2500 to 5000 TCD. Gradually the factory established a distillery of 45 KLPD capacity in the year 2010 and cogeneration unit of 22 MW in the year 2013. It is one of the progressive sugar factories in Maharashtra.

Recently, Government of India announced a policy to promote ethanol production. Therefore, the management has decided to enhance the capacity of existing distillery unit from 45 KLPD to 90 KLPD.

1.2 Project Setting

For any industrial project availability of raw material, water, power as well as adequate land is considered as key elements. In case of the proposed expansion, the management checked the above factors and planned to set up the proposed activity within the existing industrial premises. The site meets the guidelines prescribed by Ministry of Environment, Forest and Climate Change (MoEFCC) for setting of an industry. It is located 0.600 km from Majalgaon-Telgaon-Dharur road. Nearest settlement area is village Telgaon which is at 2km towards north of the site.

Geographical Coordinates of the distillery site are as follows.

- 1) 18°58'28.07"N & 76°10'12.23"E
- 2) 18°58'29.79"N & 76°10'24.08"E
- 3) 18°58'17.83"N & 76°10'22.94"E
- 4) 18°58'20.32"N & 76°10'10.73"E

It is 490 m above mean sea level.

1.3 Highlights of the Project

Table 1.1: Project Highlights

1	Name of the Proponent	M/s. Loknete Sunderraoji Solanke Sahakari Sakhar Karkhana Limited
2	Project	Enhancement of existing molasses distillery unit capacity from 45 to 90 KLPD
3	Location of the project	Within existing distillery premises located at Sundernagar, village: Telgaon, Tal. Dharur, Dist. Beed, Maharashtra 431131
4	Land	Total land of existing distillery unit = 30 acres Land required for proposed distillery unit ~5.00 acre (including greenbelt), etc.

- No need of acquisition of additional land as the proposed project will be set up in existing distillery premises only
5. **Product**
 - i) Rectified Spirit: 90KLPD OR
 - ii) ENA: 45 KLPD OR
 - iii) Ethanol: 90 KLPD
 - iv) Fusal oil: 360 L/day
 6. **Operation days per annum** Throughout year
 7. **Main Raw Material** Molasses
 - In case of B heavy: 280 TPD
 - In case of C heavy: 340 TPD

Fuel: coal of 75.00 TPD (Max) will be used as a fuel to incinerate concentrated spent wash of 180 m³ or 223.2 tons

Power: 2080KWhr

Power Source: Captive – installing STG of 3.00 MW and state electricity board when captive power will not be available
 8. **Water Requirement** **Distillery unit**
 - 897 m³/day (**Source:** Kundalika reservoir –permission from Majalgaon Irrigation Division is available for 0.33 million cubic meter per annum)
 9. **ZLD scheme**

For spent wash: Multi-effect evaporation followed by incineration

For spent lees, condensate of MEE and other effluent – Condensate polishing unit – treated water will be reused for molasses dilution or cooling tower make and for watering greenbelt plants
 10. **Nearest water bodies**

Lonwal micro reservoir at 0.50 km towards south west

Kundalika river at 3.5km towards west of the site

Kundalika dam is at 5.00 km towards south west
 11. **Nearest sanctuary/national park**

Naygaon Peacock Sanctuary at Patoda taluka in Beed is approx 100 km from the site
 12. **Manpower** Approx 50 (in addition to existing 60)
 13. **Total Project Cost** Rs. 9361.00 lakhs
 14. **Capital expenses for Environment** Rs. 3104.00 Lakhs

management

1.4 Need of project and its importance to the country and region

As an agro based industry, Sugar industry in India is dependent on monsoon. Its financial viability drastically gets affected due to weather conditions as well as market. Therefore, it is forced to explore the alternative products from the available resources so as improve its financial stability. Molasses based distillery is one of such an alternative. The management has decided to start production of B heavy molasses from 2019-20 onwards to produce ethanol. Hence, molasses availability is going to increase. In addition there are few sugar mills in 100 km radius of the factory, which do not have distillery. So, this molasses will be available for proposed distillery. Considering all these aspects. the management of the factory has planned to enhance the capacity of existing 45 KLPD molasses based distillery to 90 KLPD.

In India, mainly three types of alcohol are popularly produced, i.e. rectified spirit (RS), extra neutral alcohol (ENA) and anhydrous alcohol (AA). Of these, RS is used for large number of industrial, scientific, laboratory, medical and many other applications. Thus demand for the same is immense and it is ever increasing. ENA is used for making liquors and other alcoholic beverages. AA is a fuel alcohol; it is used for blending with petrol in the ratio of maximum 26:7.

Table 1.2: Expected cane availability for next five years

Sr. No	Season	Sugarcane area(Ha.)	Yield (MT)	Sugarcane production (Qt)	Expected crushing (T)	Molasses generation
1	2018-19	18,225	70	1,27,58,000	10,50,000	68,250 (6.5 %)
2	2019-20	18,497	65	1,20,23,000	9,50,000	61,750 (6.5%)
3	2020-21	18,868	70	1,32,07,000	10,00,000	65,000 (6.5 %)
4	2021-22	18,210	75	1,36,56,700	10,50,000	68,250 (6.5 %)
5	2022-23	17,378	80	1,39,02,100	11,00,000	71,500 (6.5%)

Expected average molasses production (B heavy type) is around 71,500 MT/annum. The proposed distillery unit will require B heavy molasses of around 92,400 TPA. Therefore, required molasses of approx. 20,900 T will be procured from nearby sugar mills.

The distillery unit will be producing, RS/ENA which are very significant for other industries, medical services, etc. Ethanol is used to blend with petrol, thus able to save valuable foreign exchange on import of fossil fuel.

1.5 Steam and Power

Steam required for the proposed distillery of 90 KLPD will be maximum 25.78TPH i.e. 522.70 TPD. Breakup of the same is given in the following table.

Table 1.3: Steam requirement for 90 KLPD RS/ENA/AA Plant				
Sr No	Section	Steam Requirement		
		Kg/Lit	TPD	TPH
1	Existing Distillation (Wash to ENA - 50 KLPD @ 3.5 bar g)	3.2	160.0	6.67
2	Existing MSDH (RS to AA 45 KLPD @ 3.5 bar g)	0.55	24.75	1.031
3	New Distillation (Wash to RS - 48 KLPD @ 3.5 bar g)	2.4	115.2	4.8
4	New MSDH (RS to AA 45 KLPD @ 3.5 bar g)	0.55	24.75	1.031
5	New RSW Evaporation (90 KLPD @ 1.5 bar g)	2.2	198.0	8.25
6	Deaerator & SCAPH		96.00	4.00
		Total	522.70	25.78

Estimated power requirement for the proposed unit will be 2008 KWh (80% of full capacity requirement) for distillery, MEE and ancillary unit in addition to that minor requirement will be for office, street lights etc. Details of the power requirement and power generation is given in the following table.

Table 1.4: Power Requirement				
Sr No	Section	Operating Power		
		Operating KWH	Connected KWH	
1	Existing 50 KL Fermentation, Distillation (wash to ENA) & MSDH Section with utilities	785	1315	
2	New Fermentation, Wash to RS distillation, Dehydration with utilities	785	1315	
3	New RSW Evaporation for 90 KLPD TS	440	760	
4	Incineration Boiler Estimated power consumption	500	800	
Total		2510		
Total Consumption		2008		
Boiler capacity		32	TPH	
Turbine capacity		3	MW	
Spent wash @ 52%w/w per day		290 TPD	19 TPH	
Coal Consumption per day		75 TPD	12 TPH	

For this, the factory has planned to install new 32 TPH incineration boiler. Steam produced by this boiler will be fed to 3.00 MW steam turbine generator (STG). Exhaust steam from turbine will be used in the distillery as well as MEE. Power produced by this unit will be utilized for captive purpose. In absence of captive power, it will be procured from state electricity board.

1.6 Import vs. Indigenous Production

The processes of manufacturing for RS, ENA and ethanol are well set. These processes are simple and straight and the technology for the same is available indigenously. The technologies for pollution control/disposal are also available indigenously.

1.7 Export Possibility

The finished goods from proposed distillery viz. Rectified Spirit (RS), Extra Neutral Alcohol (ENA) and Anhydrous Alcohol (AA or fuel ethanol) are having excellent potential of export.

1.8 Domestic /Export Markets

Domestic market for RS and ENA are Pune, Mumbai, Hyderabad, Bangalore, entire state of Maharashtra and its neighboring states such as Karnataka, Gujarat, Goa, Andhra, Telangana as well as the other states of the country. For fuel ethanol, petro-chemical industries are the major buyers.

1.9 Employment Generation

Proposed expansion activity will provide direct employment to 50 persons of which will be for 35 skilled and remaining for semi-skilled. The project is having good potential to provide indirect employment.

2.0 PROJECT DESCRIPTION

2.1 Type of project

Proposed project is expansion of existing molasses based distillery of 45 KLPD to 90 KLPD. In the existing unit, spent wash disposal is done through bio-methanation, followed by MEE followed by composting. But, in case of proposed expansion, the raw spent wash having 12% solids of 900 m³/day will be sent to multi-effect evaporation unit. Here, its volume will be reduced maximum upto 180 m³/day having 60% solids. Concentrated spent wash will be incinerated in the furnace of the boiler. Coal will be used as a fuel for boiler.

Thus, in the project involves installation of new 32 TPH incineration boiler with ESP as air pollution control equipment, new MEE, new stack, installation of new STG of 3 MW. Existing lagoons will be utilized and if required its capacity will be altered suitably so as to meet the requirement.

In the case of proposed project, distillery is placed in 5 (g) - as 'A' category as per EIA Notification, 2006 (as amended till the date). It will be appraised at central level.

2.2 Location with coordinates

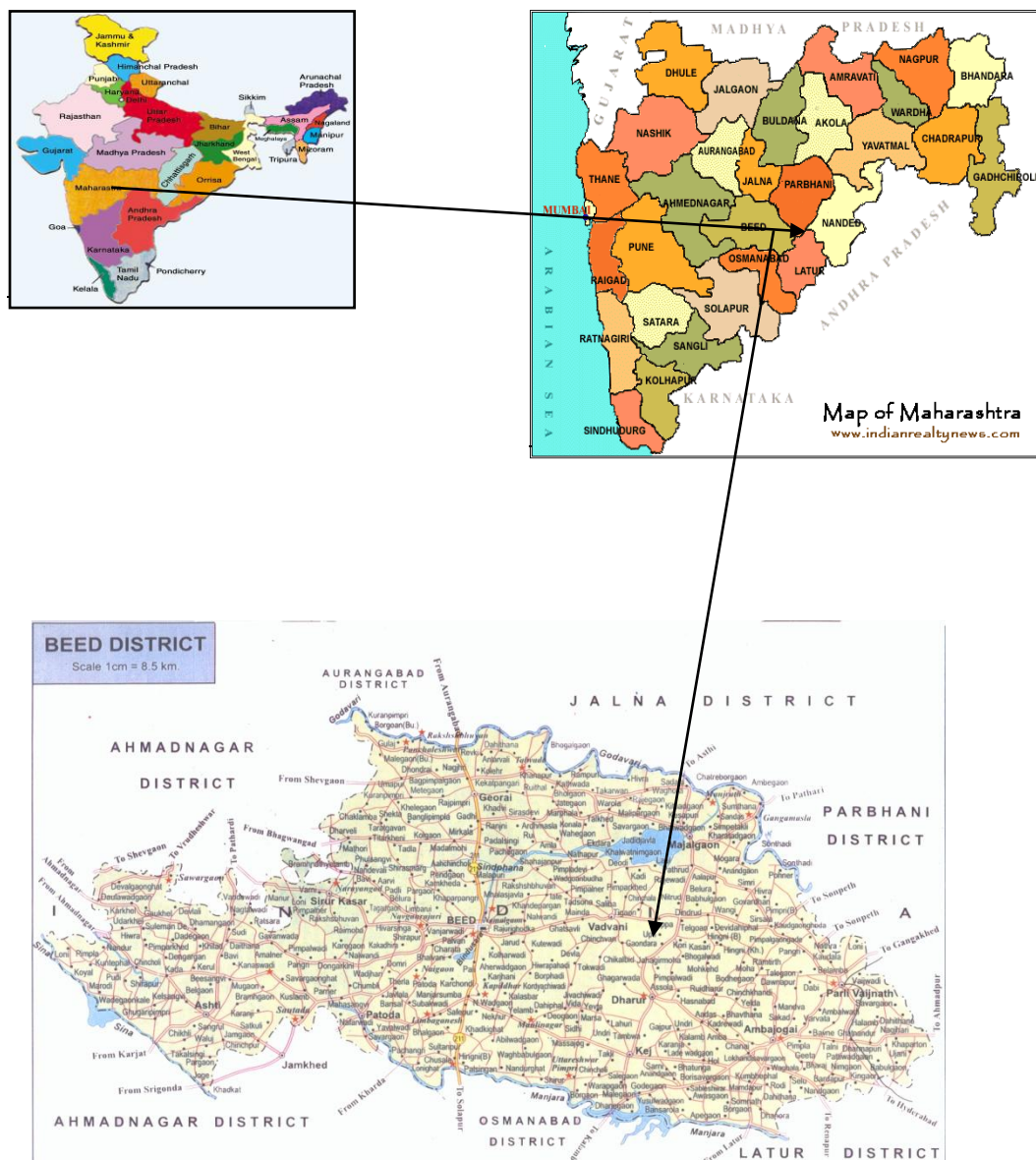


Figure 2.1: Location Map

Project coordinates:

- 1) 18°58'28.07"N & 76°10'12.23"E
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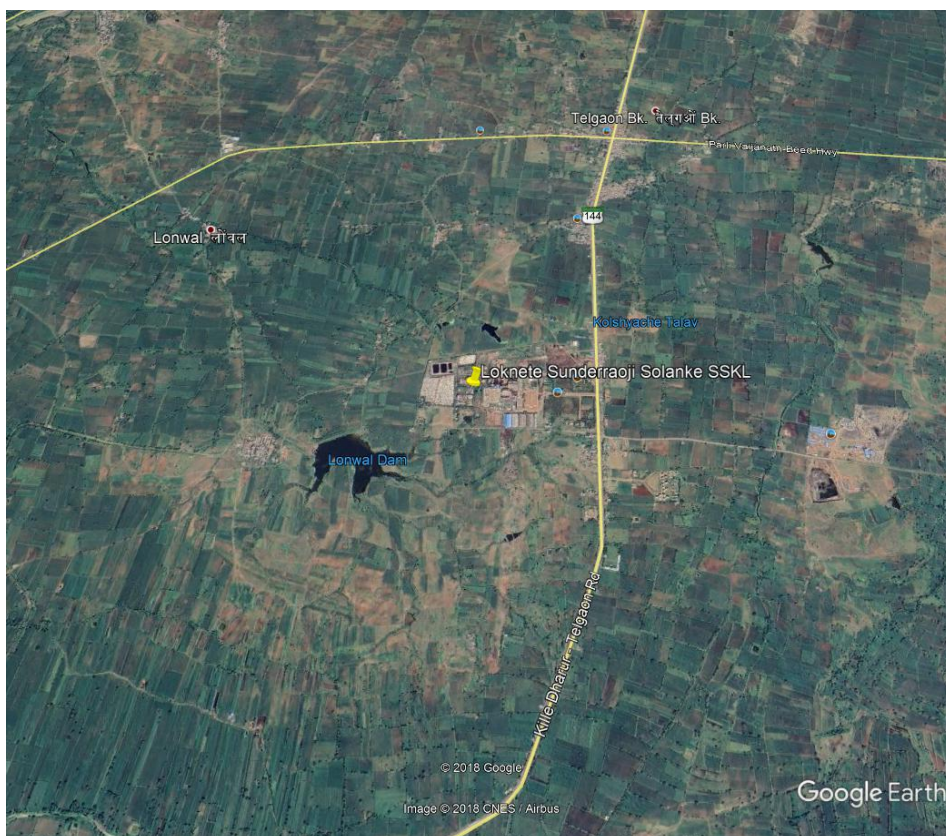


Figure 2.2: Satellite Image of the project site

2.3 Details of alternative site consider and basis of selecting the proposed site

Alternative sites for the proposed project are not considered, because of the following reasons.

- The present site fulfills the industrial site selection criteria of MoEFCC/CPCB/MPCB i.e. site is >500 m away from high flood line (HFL) of nearest river (Kundalika), it is >500 m away from nearest state highway & railway line. There is no protected area such as sanctuary, national park, biosphere reserve within 10km radius of the proposed site. There is no defense installation, recreation site, etc. within 25 km radius of the site.
- Availability of raw material: The basic raw material for the proposed project will be molasses. It will be mainly supplied by existing sugar mill.
- Availability of infrastructure/facilities: Proposed site is well connected by state/national highways as well as railway. Reasonably good infrastructure, support facilities and labor etc. are available in the vicinity.

2.4 Size or magnitude of operation

Capacity enhancement of molasses based distillery from 45 to 90 KLPD.

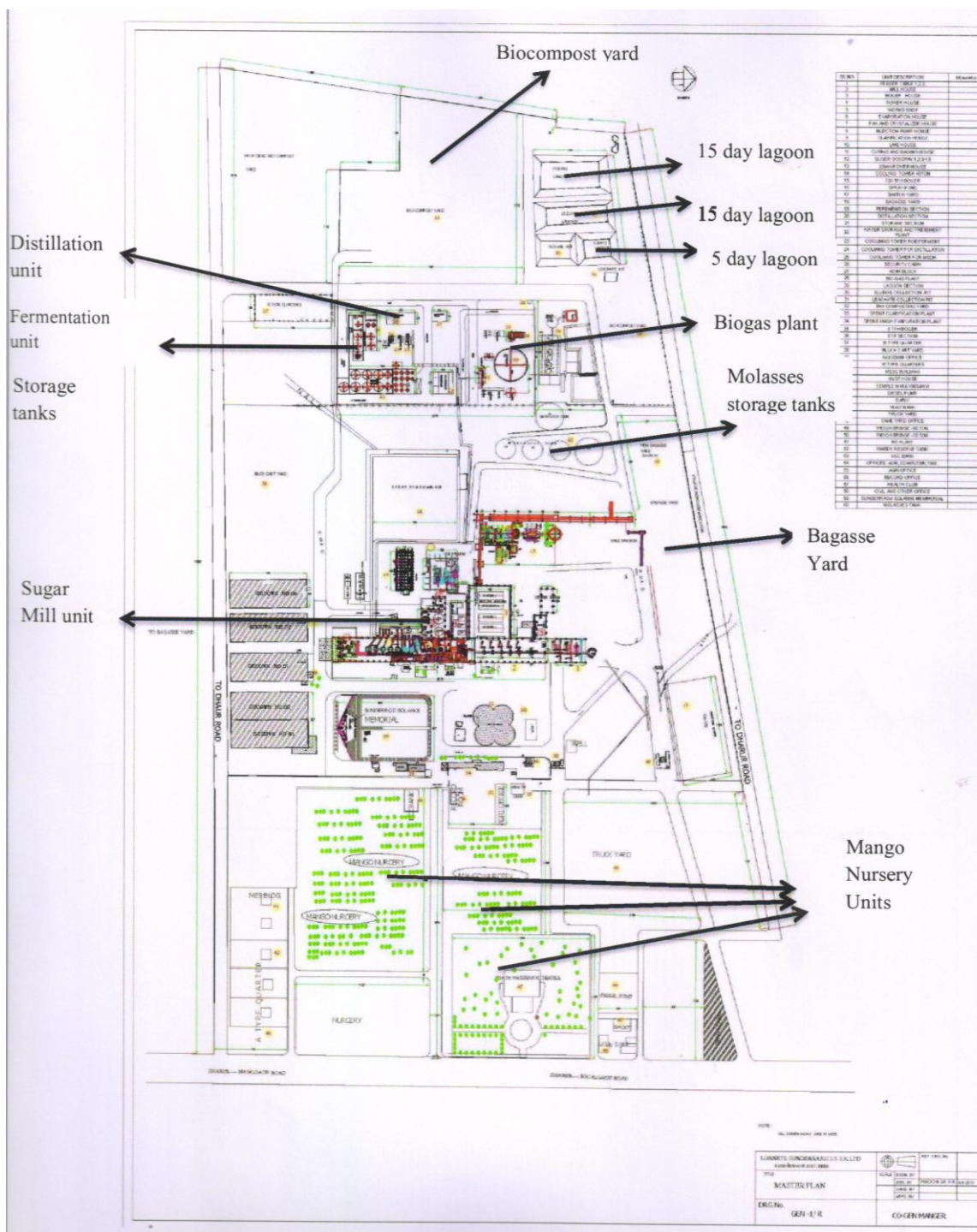


Figure 2.3: Project Layout – Master Plan

2.5 Project description with process details

Process: Distillery

The factory has decided to adopt the latest technology to achieve Zero Liquid Discharge (ZLD) for the proposed expansion i.e. 90 KLPD unit. The peculiarities of manufacturing process are as follows:

Manufacturing Process

The production process involves the following stages

1. Fermentation
2. Distillation

- **Fermentation-** Molasses is the chief raw material used for production of alcohol. Molasses contains about 50% total sugars, of which 30 to 33% are cane sugar and the rest are reducing sugar. During the fermentation, yeast strains of the species *Saccharomyces cerevisiae*, a living microorganism belonging to class fungi converts sugar present in the molasses in to alcohol. The continuous fermentation process involves addition of fresh nutrients medium either continuously or intermittent withdrawal of portion of nutrient for recovery of fermentation products. In continuous process fermenter is in constant usage with little shut down and after initial inoculation of yeast culture, further inoculation is not necessary.
- **Distillation-** After fermentation the next stage in the manufacturing process is to separate alcohol from fermented wash and to concentrate it to 95%. This is called Rectified Spirit (RS). For this purpose, distillation method is employed. After separation of alcohol, the remaining part is the effluent of the process i.e. spentwash and spent lees.
- **Manufacture Extra Neutral Alcohol (ENA)**
 ENA is prepared by wash to ENA. After fermentation the next stage in the manufacturing process is to separate alcohol from fermented wash and to concentrate it to 95%. This is called Rectified Spirit (RS) & by diluting rectified spirit with soft water for the removal of impurities like higher alcohols, aldehydes and methyl alcohol. This process is done in the ENA column.
- **Anhydrous Alcohol (AA)**
 Anhydrous alcohol is an important product required by industry. As per IS specification, it is nearly 100% pure or water free alcohol. Alcohol as manufactured by Indian distilleries is rectified spirit, which is 94.68% alcohol. Molecular Sieves process will be adopted for dehydration of alcohol.

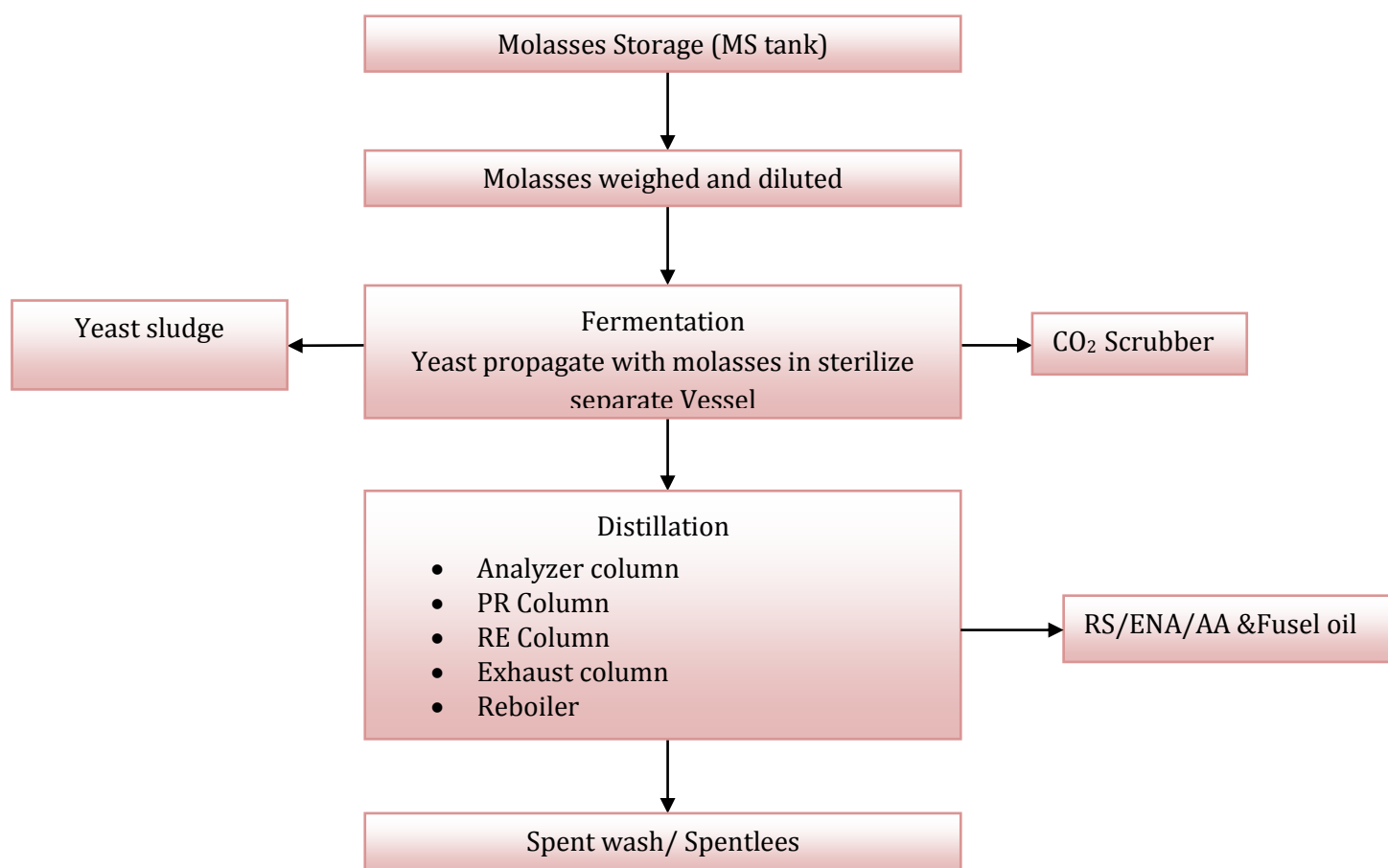


Figure 2.4: Schematic of RS/ENA/AA Manufacturing Process

2.6 Raw Materials for Finished Products

It is estimated that the proposed unit will require 92,400 Tons of B heavy molasses per annum (considering maximum 330 days of operation). Considering the existing cane crushing capacity of ~12.00 lakhs ton per season, it is estimated to have 71,500 TPA of B heavy molasses from own source. Remaining of 20,900 tons of molasses will be procured from nearby sugar mills. Sugar factories namely NSL Sugar, Tal. Majalgaon, Beed; Yogeshwari Sugar, Limba, Tal. Pathri, District Parbhani, Samruddhi Sugar, Ghansavangi, Taluka, Ambad, district Jalna, Mohotadevi Narsinha Sugar, Parbbhani, Mohotadevi Sugars, Pathardi, dist. Ahmednagar; Shambhu Mahadev Sugars, Kalamb, Dist. Osmanabad. It reflects that the factory will easily get additional molasses in order to operate the distillery at proposed capacity.

Product wise raw material consumption is given below.

Table 2.1: Availability of raw materials, finished goods/ product and mode of transport

Raw materials	Estimated quantity	Source market	Final product	Estimated quantity KL/day	Source market	Transport mode
Distillery						
Molasses	280 TPD (for B Heavy) and 340 TPD for C heavy	Own factory B Heavy 71,500 TPA Remaining molasses of ~ 20,900 will be procured from nearby sugar mills of Maharashtra, India	Rectified spirit + Impure spirit (5%) OR ENA + Impure spirit (6 %) OR Fuel Alcohol + Impure spirit (5%)	90 KLPD 45 KLPD 90 KLPD	Maharashtra India	Surface transport through Tanker
Nutrients N, P (daily)	50 Kg	Pune, Ahmednagar, Mumbai or Nagpur	-	-	-	By road - Truck Tempo
Turkey Red Oil (TRO) (daily)	400 Kg/day	Pune, Ahmednagar, Mumbai or Nagpur	-	-	-	By road - Truck Tempo

2.7 Resource optimization / recycle and reuse envisaged in the project

Distillery project is an effort for efficient use of available molasses. Steam will be used twice – once for power generation and the exhaust steam will be used in distillery. Condensate water and other mild polluted water will be recycled/reused after treatment in CPU, that will reduce the freshwater requirement.

2.8 Water Requirement and Its source

Necessary water requirement for the proposed project will be met from Kundalika dam. Water will be required for domestic, process and utility purpose. Daily fresh water requirement for the proposed project will be as follows.

Table 2.2: Water Balance: Distillery unit

Input material	Basis	Quantity
Cane molasses type	Fermentable sugar	Cane molasses required
Cane molasses	% w/w	TPD
	42	186-187
Steam required	Tone per hour(TPH)	
Wash to AA mode-distillation + MSDH + RSW evaporation	15	
Water requirement	Treated water requirement without recycle of stream in m3/day	Treated water requirement with recycle of stream (at steady state plant operation) m3/day
Process requirement	400-410	70-80
Soft water	450-460	450-460
Purifier column dilution water	140-150	100-110
Total treated water requirement	990-1020	620-650
	Cooling water requirement	
Fermentation	700	
Distillation & evaporation	8000	
Dehydration	600	
Make up water requirement (@2.5%)	232 cu.m	
Total fresh water requirement considering recycle-recirculation	650+232 = 882cum per day + Domestic (drinking requirement) of 15 cu.m = 897 cu.m.	

2.9 Power & Fuel requirement and Its source

Estimated power requirement for the proposed unit will be 2008 KWh (80% of full capacity requirement) for distillery, MEE and ancillary unit in addition to that minor requirement will be for office, street lights etc.

Fuel: In case of the proposed project, coal will be used as main fuel to fire concentrated spent wash. It will be sourced from Wardha-Chandrapur coal block which is nearer or from any other major coal blocks. Estimated coal requirement will be maximum 75 TPD and spent wash available for incineration (@ 60% solids) will be 224 TPD.

2.10 Waste generation & disposal scheme

Quantities of waste to be generated & scheme for their disposal are given in following chart:

2.10.1 Liquid waste

Distillery Unit

It is estimated that, the project after expansion i.e. at 90 KLPD capacity will produce 900 m3 of spent wash (@10L per L of alcohol). This raw spent wash having 12% solids will be sent to multi-effect evaporation unit. Its volume will get reduced due to evaporation of water and increase in the solid concentration. Spent wash with max. 60% solids is usually incinerated. Considering this, the concentrated spent wash (@60% solids) will have 180 m3 volume which will be 224 tons in weight.

Concentrated spent wash is burnt into incineration boiler with coal in a ratio of 70:30.

Spent wash storage lagoons

In the existing unit, spent wash storage lagoon of five days capacity (two in number) and one lagoon of maximum 30 days capacity has been provided. In the proposed expansion, lagoons will be modified in size to maintain the capacities i.e. five and thirty day.

2.10.2 Solid waste

The proposed activity will generate solid waste in the form of sludge from fermentation and CPU unit which is biodegradable. Ash generated from coal will be sent to brick manufacturing unit as per the ash disposal guidelines. The quantity and disposal technique is given briefly in the following table.

Table 2.3: Solid waste Generation and Disposal

#	Waste	Quantity TPA	Upshot
1	Yeast sludge (dry)	175-200	Mixed into soil due to organic nature
2	Ash – total (considering coal and spentwash)	27,126	Sold to brick manufacturing units
3	Distillery CPU Sludge	150-170	Mixed into soil due to organic nature
4	Spent oil from DG	2-5 KL	Spent oil is burnt in boiler

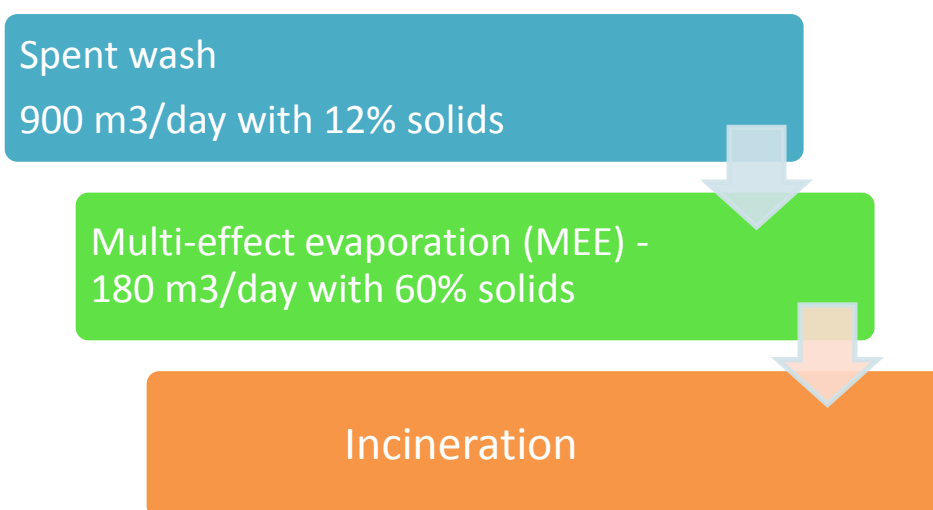


Figure 2.5: Flow diagram of spentwash disposal scheme

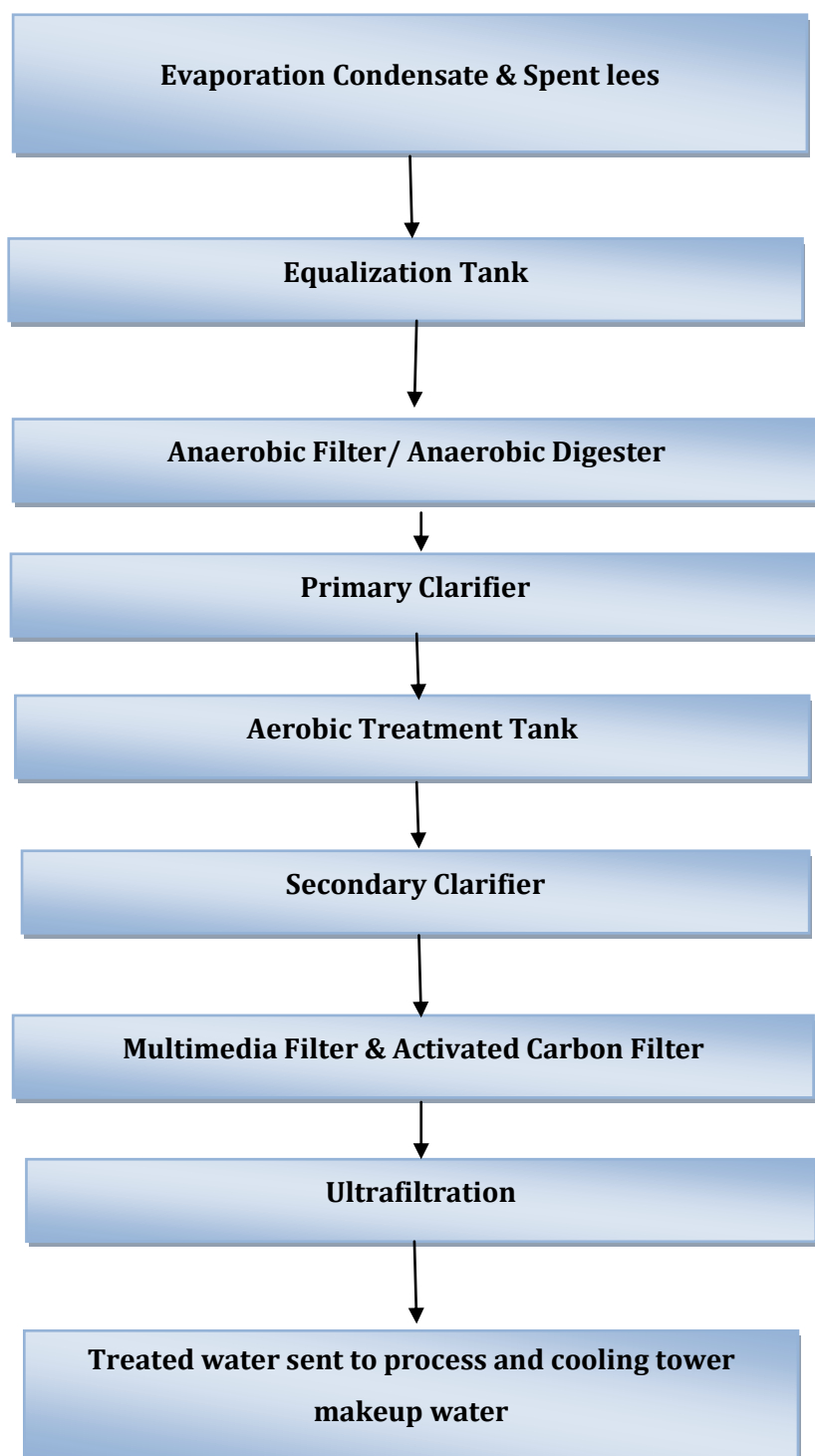


Figure 2.6: Process flow diagram of CPU

2.10.3 Air Emission & Control

For the proposed project, ESP will be installed as an air pollution control device for the new incineration boiler. It will be connected to a stack of 72 m height (proposed at initial stage). Coal and ash will be handled mechanically through closed conveyors to control fugitive dust. Dust suppression and pulse jet bag filters will be installed to control dust during loading and transfer of coal. Separate parking will be provided. Coal yard will be covered. Wind breaks will be developed for ash storage area. Ash will be transported in covered vehicles to brick manufacturing unit. Greenbelt of 2 acres is proposed for the expansion project.

Two DG sets are available in the existing unit for cooling towers. These are having adequate stack height and acoustic enclosures.

2.10.4 Noise Control

Steam turbine generator will be a major noise source from the existing project. Apart from that, noise is anticipated from pumps, motor drives, utilities etc. The plant and equipment will be specified and designed with a view to minimize noise pollution. The major noise producing equipment will be provided with soundproof devices and silencers. DG set will be provided with acoustic enclosures. Ear Plugs and ear muffs will be provided to the workers in utility section. Greenbelt will be developed on 2.00 acres of land.

2.10.5 Health and Safety Measures

The factory is committed to the Health and Safety of its all employees. It strives to provide hygienic & safe work place and continually improve the effectiveness of health & safety system.

To meet these objectives the factory will;

- Comply all relevant laws, regulation, statutory provisions & codes of practice
- Continually assess Risks & Hazards so as to evolve establish & upgrade hazard control measures, emergency preparedness, & risks mitigation and correct the deficiency identified in timely manner
- Ensure safe handling, storage, use and disposal of all substance & materials which are classified as hazardous to health & environment
- Create awareness amongst employees by providing appropriate training, motivation information's so as to create individual sense of duty, responsibility & participations and an institutionalize culture of continually improvement in safety, health & environment matters
- Make HOD responsible to communicate the safety policy to all concerned in his department
- Make supervisors responsible or implementation of the safety precautions, use of safety devices, & the safety of the people
- Empower employees at all levels to be responsible & accountable for their personal health & safety
- Fire protection system shall be provided in accordance to the LPA's regulations. The firefighting system will consist of a hydrant network
- Factory has already a fire protection system including electric driven pump, one diesel engine pump, and one jockey pump, etc.

- Portable fire extinguishers shall be provided in strategic locations in new unit.

2.11 Schematic representation of the feasibility drawing which give information of EIA purpose

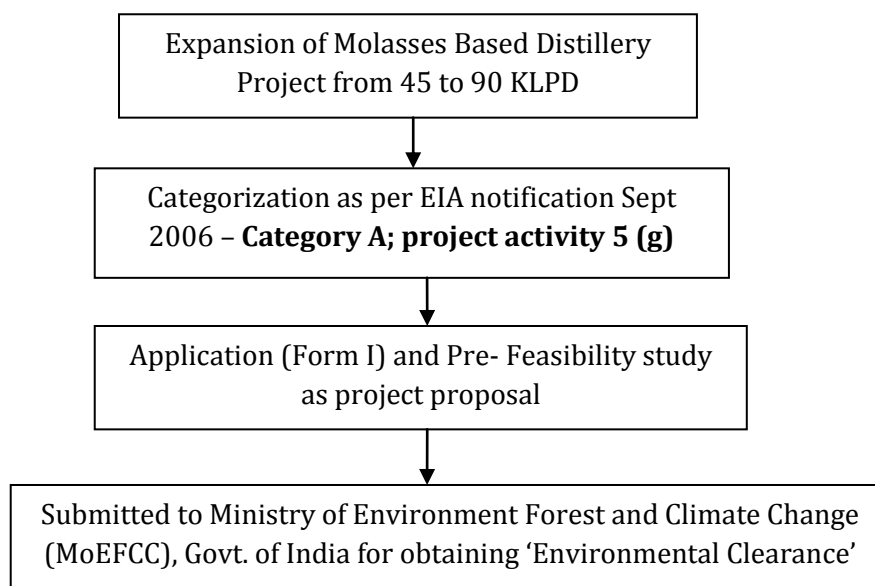


Figure 2.6: Procedure of Environmental Clearance

3.0 SITE ANALYSIS

3.1 Connectivity

The site is well connected by road, railway as well as air network. It is approx 05 km away from Majalgaon-Telgaon-Dharur road. It is approx 20 km from Kalyan-Ahmednagar-Nirmal National highway (NH 222). Nearest railway station to the site is Parali which is approx 45 km from the site. Nearest air port is Aurangabad which is 180 km from the site. The port (sea port) of Mumbai is (approx. 500 km) from the site.

3.2 Land form, land use and ownership

The distillery unit of the factory is having 30 acres of land. The land is flat, open and already under the possession of the industry. So out of available land, a provision of approx. 3 acre is for the proposed distillery and ancillary units thereof such as boiler, MEE, stack, ESP, etc. and two acres is proposed for greenbelt development. This new unit will be established partly on existing compost yard which is approx 8 acres in size.

3.3 Topography

The terrain is almost flat, but surrounded by hills from all side. The geographical coordinates of the area are –

- 1) 18°58'28.07"N & 76°10'12.23"E
- 2) 18°58'29.79"N & 76°10'24.08"E
- 3) 18°58'17.83"N & 76°10'22.94"E

4) 18°58'20.32"N & 76°10'10.73"E

It is 490 m above mean sea level.

3.4 Salient Features

The proposed project requires no additional land. Therefore, no social issues are involved. There won't be any change in the land use pattern since the land is under the possession of the industry. There is no sanctuary, bio-sphere reserve or national park in the 10km radius area. **The land surrounding to the project site is either fallow land or used for agricultural purpose. Nearest water bodies to the site are –**

- Lonwal micro reservoir at 0.50 km towards south west
- Kundalika river at 3.5km towards west of the site
- Kundalika dam is at 5.00 km towards south west

Table 3.1: Salient features of the project location

Roads	Majalgaon-Telgaon-Dharur road is approx. 0.5 km from the site National Highway 222 is approx. 20km from the site
Nearest Settlement	Telgaon approx 2 km from the project site towards north
Railway Station	Parali railway station approx. 45km from the site.
Air Port	Aurangabad airport is approx. 180 km from the site.
River	Kundalika river at 3.5km towards west of the site
Schools/Colleges	Zilla Parishad school is available near the factory site for primary education . School, high schools and college is available at Telgaon which is approx 2km from the site
Medical and health care centers	Civil hospital is available in Telgaon
Banks	Vijaya Bank at factory site other banks such as Bank of India,
Market places	Telgaon, Majalgaon are nearest market place at approx. 2 km and 20 km from the project site
Protected Area/ Sanctuaries/NP	None within 25km radius Naygaon Peacock Sanctuary at Patoda taluka in Beed is approx 100 km from the site
CRZ applicability	Not applicable

Seismicity	Seismic Zone- II
Note: All the above mentioned distances are the aerial distance from the project site.	

3.5 Existing Infrastructure

The nearest residential area to the factory is at a distance of 2 km towards north. There is an agricultural and fallow land in the surrounding area of the site. Within 10 km Influence Zone, there is no Tropical Forest, Biosphere Reserve, National Park, Wild Life sanctuary. Naygaon Peacock Sanctuary at Patoda taluka in Beed is approx 100 km from the site.

Table 3.2: Existing Infrastructure

Infrastructure	Features
Land	Existing land of distillery is 30 acre; of which land proposed – for distillery 3.00 + greenbelt on 2.00 acres = TOTAL 5.00 acres
Water	Requirement 897 cum/day; Source: Kundalika Dam
Power	Captive (2.08 MW) from 3.0 MW - STG set
Road	Majalgaon-Telgaon-Dharur road is approx. 0.5 km from the site National Highway 222 is approx. 20km from the site
Fuel	from coal and spent wash
Steam generator (boilers)	New boiler will be installed

3.5.1 Raw Material: Molasses

The distillery unit depends on the availability of raw material i.e. molasses. Following table 3.3 describes the last five year molasses production of the factory.

Table 3.3: Production & crushing performance for last five years

Sr. No	Particulars	Year				
		2013-14	2014-15	2015-16	2016-17	2017-18
1	Gross operation days	140	150	88	36	156
2	Cane crushed (MT)	462938.013	605195.522	373744.418	8956.812	733515.163
3	Sugar production (qtls)	453200	586600	351000	72600	719450
4	Sugar recovery (%)	9.82	9.68	9.40	8.15	9.82
5	Bagasse generation cane (%)	29.04	29.35	28.51	28.28	28.04
6	Molasses (MT)	19,180.000	25,305.000	15,590.000	3,700.000	32,950.000

3.5.2 Irrigation and transportation facilities

The factory is located in the vicinity of Kundalika river and dam (approx. 3.0 & 5.0 km from project site). Irrigation is done through well, bore well, and river water.

Another important factor is proximity of National Highway (NH-222) and also network of state and local roads in the operational area.

3.5.3 Fuel

coal (Indian) and spent wash will be used as fuel.

3.5.4 Water

The water requirement for proposed project will be around 897 m³/day. Water conservation will be achieved by recycling of water. Water from the well will be used for all plant and fire-fighting purposes, diesel driven pump (capacity as per TAC recommendation) along with one electrical pump will be installed for supply to all fire hydrants and sprinklers.

3.5.5 Power

The power requirement for the proposed project is ~2.080 MW, which will be met from TG set of 3.00 MW.

3.6 Soil classification

The soils occurring in the district are classified in the four categories namely lateritic black soil (Kali), reddish brown soil (Mal), coarse shallow reddish black soil (Koral), medium light brownish black soil (Barad). In general the soils are very fertile and suitable for growing cereal and pulses. The black soil contains high alumina and carbonates of calcium and magnesium with variable amounts of potash, low nitrogen and phosphorus. The red soil is less common and is suitable for cultivation under a heavy and consistent rainfall.

3.7 Social Infrastructure available

Infrastructure such as school, colleges, market, banks, hospitals, public transport, road, drinking water, electricity, post, telecommunication, cinema halls, radio, etc are easily available to the local people.

The present project is proposed by one of the leading and progressive sugar industry from central Maharashtra. The sugar factory has already initiated several activities for the development of the region. Some of the prime activities are as follows.

- The factory is providing medical aid to the employees and their dependents
- It provides primary school educational facilities to the children of workers
- It helps member farmers by supplying organic and chemical fertilizers, press-mud and the developed cane seeds approved by VSI. The factory also arranges field demonstration to educate the farmers in sugarcane cultivation through application of scientific methods
- It provides drip irrigation facilities to the sugarcane growers on subsidized basis
- It provides insurance policy facilities to workers
- To facilitate better transport of sugarcane, the factory has undertaken major program to construct roads in its area of operation
- Regular tree plantation with development being done every year through the separate tree plantation cell in their campus and surrounding area. For nearby schools, hospitals free of cost plants are provided.

4.0 PLANNING BRIEF

4.1 Planning concept

A project is proposed by one of a leading cooperative sugar mill from Beed district. Due to availability of, dequate amount of molasses (B heavy type) from its own sugar industry, expansion of distillery is proposed.

4.2 Facilities for Transport

Majalgaon-Telgaon-Dharur road is just 0.50 Km and NH 222 is approx 20 km from the site. Public transportation is available in the vicinity. State transport (ST) buses ply on schedule and connect almost all the villages of the command area.

4.3 Town and country planning / Development authority classification

The project is located at taluka Dharur, village Telgaon (Bk). Grampanchayat is the local authority.

4.4 Population projection

No major population flux is projected because the proposed distillery. It will employ candidates from local areas. Only for exceptional posts, it may employ candidates from other areas. In that case existing colony have the facilities to accommodate the additional man power for the new activity.

4.5 Land use Planning

Total land available for the proposed project is 30 acre. Out of which proposed distillery (and its ancillary unit) will be installed in 3 acre and 2 acres of land has been allocated for green belt development.

4.6 Assessment of infrastructure demand (Physical & Social)

The basic infrastructure such as roads, electricity, transportation, drinking water supply, health centers and hospitals, school, colleges, sanitation facilities are available in the vicinity. The proposed project is not going to exert any unbearable load on any of these resources. In fact, it will generate employment for the local people there by raising their standard of living.

4.7 Amenities/ Facilities

Following amenities/facilities are available at the factory

- Guest house facility
- Petrol pump
- Separate dedicated parking facility for goods vehicle and personal vehicles at site
- Provision of street light within premises as well as on approach road
- Security check post and round the clock security persons on duty
- Fire extinguishing facilities
- Housing colony for employees
- Drinking water and power supply to housing colony
- Diesel generator as a backup facility
- Fresh water and wastewater treatment plants

5.0 PROPOSED INFRASTRUCTURE

5.1 Industrial Area

The proposed project will be carried out in the area owned by the factory only. The total allocated land for the proposed project is 5.00 acres.

5.2 Residential Area

The residential colony is in place (for existing sugar unit). It has capacity to accommodate 150 families. Since, most of the employees of the sugar mill are local, the housing facility is occupied by less than 50% of its capacity. Therefore, new residential colony is not proposed for the distillery project.

5.3 Greenbelt Area

Greenbelt area proposed is 2.0 acres

5.4 Social infrastructure

The physical infrastructures such as land, roads, power, water, transportation etc are easily available for the proposed unit. Raw material and filler material are also available with factory adequately. Very minor influx of population is anticipated due to the project. Available social infrastructure such as schools, colleges, market, medical facilities, etc. is adequate to support the probable minor population increase.

5.5 Connectivity

The proposed project site is well connected to State and national highway and excellent zilla parishad road infrastructure exists.

5.6 Drinking water management

The factory has installed water treatment plant to supply drinking water to factory as well as housing colony.

5.7 Industrial waste management

The wastewater generated from industrial activity will be treated in Condensate Polishing Unit (CPU) and will be reused in the distillery or sent to irrigation. Thus, due to proper treatment of effluent, recycling and zero liquid discharge, the issue of wastewater is envisaged to be insignificant.

5.8 Power Requirement and Source

Power requirement will be 2.080 MW. It will be sourced from captive power generator.

5.9 Rehabilitation and Resettlement (R & R) Plan

There will be no any issue of rehabilitation and resettlement (R & R) for the proposed project, since the required land is available with the factory.

5.10 Project Scheduled & Cost Estimates

Table 5.1: Project scheduled & cost estimate

1.	Date of start of construction (Anticipatory)	March 2019
2.	Date of completion (Anticipatory)	Jan 2020
3.	Proposed Project cost	Rs. 9361.00 lakhs
4.	EMP cost	Rs. 3104.00 lakhs

6 Analysis of proposal (Final Recommendations)

I) Benefits

- This industry will produce RS, ENA and Anhydrous Alcohol (fuel ethanol) which are useful products for the country, which will earn & save foreign exchange in the potable alcohol cadre as well blending in petrol.
- Compatible Architecture will be adopted and No Prime Agriculture Land will be put to this industrial use. Trees will be maintained and not razed down. No Rehabilitation is involved.
- Sludge from ETP is organic in nature, hence used as soil enriching material
- The problematic liquid waste materials will be disposed by incineration process

- Wastewater viz. spentlees, process condensate will be reused in process and for gardening in campus only (after treatment)
- The process is straight line and the technology even for the pollution control/disposal are available indigenously
- The aggregate effect of the project is likely to boost the local economy
- Direct employment opportunities for local youths. The farmers will get proper price to their sugarcane

II) Conclusion

- a) Distillery expansion is very necessary for effective utilization of molasses
- b) The local people and sugarcane growers are strongly willing for the project and have already given consent to the management to develop and execute the proposed project.
- c) The project site is suitable from general MoEFCC expectations.
- d) Water, power, raw material, filler material and market is assured and found available with ease.
- e) Full precautions will be taken for pollution control, resource conservation and environmental protection.
- f) All the units are agro-based and hence promote sustainable development.