1.0 EXECUTIVE SUMMARY

M/s. Paradise Healthcare is located at Plot no. 201/5, GIDC Estate Panoli, Bharuch, Gujarat. M/s Paradise Healthcare has taken over M/s. Swastik Industries.(GIDC transfer letter is attached as an additional attachment.) The unit is having CCA: AWH-84997 for manufacturing of Inorganic products and has proposed EC application for manufacturing of bulk drugs & intermidiates.

The unit will engage in manufacturing of bulk drugs & intermidiates and production capacity will be 20 MT/Month. As per EIA notification 2006, the proposed project is falling under category 5(f).

The details of products are given below table.

TABLE 1: LIST OF PRODUCTS WITH THEIR PRODUCTION CAPACITY

Sr. No.	List of Products	CAS No.	Existing Capacity CCA AWH 84997 MT/M	Proposed Production MT/M	Total Production MT/M
1.	Copper Sulphate, Potassium Sulphate, Sodium Nitrate, Ferrous Sulphate		**500**	**- 500**	**0**
I	**ANTIEMETIC**		**0**	**1**	**1**
1	Aprepitant and/or its intermediatesAND/OR	170729-80-3			
	Chemical name : (2R)-(1R)-3,5-bis(trifluoromethylphenyl)ethoxy)-(3S)-(4-fluoro)phenyl-4-(3-(5-oxo-1H,4H-1,2,4-triazole)methyl-morpholine.	170729-80-3			
	Intermediate :				
a	(2R,3S)-2-[(1R)-1-[3,5-Bis(trifluoromethyl)phenyl)ethoxy]-3-(4-fluorophenyl)morpholine	171338-27-5			
b	(2R)-4-Benzyl-2-[(1R)-1-[3,5-bis(trifluoromethyl)phenyl]ethoxy]morpholin-3-one	287930-75-0			
c	(R)-1-[3,5-Bis(trifluoromethyl)phenyl]ethanol	127852-28-2			
d	2-(2-Chloro-1-iminoethyl)hydrazinecarboxylic acid methyl ester	155742-64-6			

e	[2R-[2aR*),3a]-2-[1-[3,5-Bis(trifluoromethyl)phenyl]ethoxy]-3-(4-fluorophenyl)morpholine	170729-79-0			
f	N-[4-[2-(2-Amino-4,7-dihydro-4-oxo-H-pyrrolo[2,3-d]pyrimidin-5-yl)ethyl]benzoyl]-L-glutamic acid 1,5-diethyl ester	146943-43-3			
g	(2R,3S)-2-[(1R)-1-[3,5-Bis(trifluoromethyl)phenyl]ethoxy]-3-(4-fluorophenyl)morpholine 4-methylbenzenesulfonate	200000-59-5			
h	(R)-2-Methyl-CBS-oxazaborolidine	112022-83-0			
2	fosaprepitant and/or its intermediatesAND/OR	172673-20-0			
	Chemical Name : [3-[[(2R,3S)-2-[(1R)-1-[3,5-Bis(trifluoromethyl)phenyl]ethoxy]-3-(4-fluorophenyl)-4-morpholinyl]methyl]-2,5-dihydro-5-oxo-1H-1,2,4-triazol-1-yl]phosphonic acid, Fosaprepitant	172673-20-0			
3	fosaprepitantdimeglumine and/or its intermediatesAND/OR	265121-04-8			
	Chemical Name : D-Glucitol, 1-deoxy-1-(methylamino)-, (3-(((2R,3S)-2-((1R)-1-(3,5-bis(trifluoromethyl)phenyl)ethoxy)-3-(4-fluorophenyl)-4-morpholinyl)methyl)-2,5-dihydro-5-	265121-04-8			

	oxo-1H-1,2,4-triazol-1-yl)phosphonate.				
II	**ANTI HYPERTENSION**		**0**	**2**	**2**
1	AzilsartanMedoxomil and/or its intermediatesAND/OR	863031-21-4			
	Chemical Name : 1-[[2'-(2,5-Dihydro-5-oxo-1,2,4-oxadiazol-3-yl)[1,1'-biphenyl]-4-yl]methyl]-2-ethoxy-1H-benzimidazole-7-carboxylic acid (5-methyl-2-oxo-1,3-dioxol-4-yl)methyl ester	863031-21-4			
	Intermediate :				
A	Methyl 1-[(2'-cyanobiphenyl-4-yl)methyl]-2-ethoxy-1H-benzimidazole-7-carboxylate	139481-44-0			
B	1-[[2'-(2,5-Dihydro-5-oxo-1,2,4-oxadiazol-3-yl)[1,1'-biphenyl]-4-yl]methyl]-2-ethoxy-1H-benzimidazole-7-carboxylic acid ethyl ester	1403474-70-3			
C	Methyl 2-ethoxybenzimidazole-7-carboxylate	150058-27-8			
D	4-(Hydroxymethyl)-5-methyl-1,3-dioxol-2-one	91526-18-0			
2	TELMISARTAN	863031-21-4			
3	Perindopril Erbumine and/or its intermediatesAND/OR	107133-36-8			

	Chemical Name : 1-[2-(1-Ethoxycarbonylbutylamino)propanoyl]-2,3,3a,4,5,6,7,7a-octahydroindole-2-carboxylic acid 2-methyl-2-propanamine (1:1)	107133-36-8			
4	Perindopril Arginine and/or its intermediatesAND/OR	612548-45-5			
	Chemical Name : (2S)-2-Amino-5-carbamimidamidopentanoic acid - (2S,3aS,7aS)-1-[(2S)-2-{[(2S)-1-ethoxy-1-oxo-2-pentanyl]amino}propanoyl]octahydro-1H-indole-2-carboxylic acid				
III	**ANTI COAGULANT**		**0**	**1**	**1**
1	Dabigatran EtexilateMesylate and/or its intermediatesAND/OR	872728-81-9			
	Chemical Name : Ethyl N-[(2-{[(4-{N-[(hexyloxy)carbonyl]carbamimidoyl}phenyl)amino]methyl}-1-methyl-1H-benzimidazol-5-yl)carbonyl]-N-2-pyridinyl-β-alaninate methane sulfonate.	872728-81-9			
	Intermediate :				
A	Ethyl - [[3-amino-4-(methylamino) benzoyl]-[pyridin-2-yl-beta-amino] propanoate	212332-56-0			
B	2-[(4-cyanophenyl)amino]acetic acid	42288-26-6			

C	3-[[[2-[[(4-Cyanophenyl)amino]methyl]-1-methyl-1H-benzimidazol-5-yl]carbonyl]pyridin-2-ylamino]propionic acid ethyl ester	211915-84-3			
D	N-[[2-[[[4-(Aminoiminomethyl)phenyl]amino]methyl]-1-methyl-1H-benzimidazol-5-yl]carbonyl]-N-2-pyridinyl-beta-alanine ethyl ester	429658-95-7			
E	Ethyl 3-(((2-(((4-((((hexyloxy) carbonyl) amino) iminomethyl) phenyl) amino)\methyl)-1-methyl-1H-benzimidazol-5-yl)\carbonyl)(pyridin-2-yl)amino) propanoate	219115-06-9			
2	Rivaroxaban and/or its intermediatesAND/OR	366789-02-8			
	Chemical Name : 5-Chlor-N-({(5S)-2-oxo-3-[4-(3-oxo-4-morpholinyl)phenyl]-1,3-oxazolidin-5-yl}methyl)-2-thiophencarboxamid	366789-02-8			
	Intermediates :				
A	(S)-2-Oxiranylmethyl-Isoindole-1,3-Dione				
IV	**ANTIRETROVIRAL -**		**0**	**0.5**	**0.5**
1	Darunavir and/or its intermediatesAND/OR	206361-99-1			

	Chemical Name: (3R,3aS,6aR)-Hexahydrofuro[2,3-b]furan-3-yl [(2S,3R)-4-{[(4-aminophenyl)sulfonyl](isobutyl)amino}-3-hydroxy-1-phenyl-2-butanyl]carbamate	206361-99-1			
	Intermediate :				
A	[3r,3as, 6ar]-hydroxyhexahydrofluoro [2,3-b] furnylsuccinimidly carbonate	253265-97-3			
B	Tert butyl [(1s,2r)-1-benzyl-2-hydroy-3-[isobutyl[(4-nitrophenyl) sulfonyl} propyl} carbamate	191226-98-9			
V	**ANTI EPILEPTIC/ ANTI CONVULSANT**		**0**	**2**	**2**
1	Lacosamide and/or its intermediatesAND/OR	175481-38-6			
	Chemical Name : (R)-2-acetamido-N-benzyl-3-methoxypropionamide	175481-38-6			
2	Riluzole and/or its intermediatesAND/OR	1744-22-5			
	Chemical Name : 2-Amino-6-(trifluoromethoxy)benzothiazole	1744-22-5			
VI	**ANTI DIABETICS**		**0**	**2**	**2**
1	Linagliptin and/or its intermediatesAND/OR	668270-12-0			
	Chemical name : (R)-8-(3-amino-piperidin-1-yl)-7-but-2-ynyl-3-methyl-1-(4-methyl-quinazolin-2-ylmethyl)-3,7-dihydro-purine-2,6-dione	668270-12-0			

VII	**ANALGESIC**		**0**	**3**	**3**
1	Lornoxicam and/or its intermediatesand/OR	70374-39-9			
	Chemical Name : 6-chloro-4-hydroxy-2-methyl-n-(2-pyridyl)-2h-thieno[2,3-e]-1,2-thieazine-3- carboxamide-1,1-dioxide.	70374-39-9			
	Intermediate:				
A	6-chloro-4- hydroxy-2-methyl-3-methoxycrbonyl-2h-thieno[2,3e]-1,2-thiazine-1,1-dioxide	70415-50-8			
B	3- amino-2-thiophene carboxylic acid methyl ester	22288-78-4			
C	Methyl-5-chloro-3-chlorosulfonyl-2-thiophene carboxylate	126910-68-7			
D	5-chloro-3-sulfonglamino methyl acetate-Thiophene 2-carboxylic acid methyl ester	906522-87-0			
E	6-chloro-4-hydroxy-3-methoxycarbonyl-2H-thieno[2,3-e]-1,2-thiazine-1,1-dioxide	70374-51-5			
F	5-chloro-3-(methylamino)sulfamoyl-2-carboxylic acid methyl ester	70374-37-7			
G	5-Chloro-3-[N-(methoxycarbonylmethyl)-N-methylsulfamoyl]-thiophene-2-carboxylic acid methyl ester	70374-38-8			
VIII	**ALZHEMIERS - 2 MT**		**0**	**2**	**2**

1	Memantine and/or its intermediatesAND/OR	41100-52-1			
	Chemical Name : 3,5-Dimethyl-1-aminoadamantane Hydrochloride	41100-52-1			
	Intermediates				
A	1,3 Dimethyl Adamentane	702-79-4			
B	1-Bromo-3,5-Dimethyl Adamentane	941-37-7			
C	AcetamidoMemantine	19982-08-2			
D	Memantine Free Base	19982-08-2			
IX	**OVERACTIVE BLADDER SYNDROME**		**0**	**0.5**	**0.5**
1	Mirabegron and/or its intermediatesAND/OR	223673-61-8			
	Chemical Name : 2-Amino-N-[4-[2-[[(2R)-2-hydroxy-2-phenylethyl]amino]ethyl]phenyl]-4-thiazoleacetamide	223673-61-8			
2	Trospium Chloride /or its intermediatesAND/OR	10405-02-4			
	Chemical Name : 8-alpha-benziloyloxy-6,10-ethano-5-azoniaspiro(4.5)decanechloride;Benzilic acid, ester with 3a-hydroxyspiro[1aH,5aH-nortropane-8,1'-pyrrolidinium] chloride (8CI),				
X	**ANTAGONIST**		**0**	**0.5**	**0.5**
1	Palonosetron Hydrochloride and/or its intermediatesAND/OR	135729-62-3			
	Chemical Name :				

	(3aS)-2-(3S)-1-Azabicyclo[2.2.2]oct-3-yl-2,3,3a,4,5,6-hexahydro-1H-benz[de]isoquinolin-1-one monohydrochloride, Palonosetron hydrochloride.	135729-62-3			
	Intermediate :				
A	5,6,7,8-Tetrahydronaphthalene-1-carboxylic acid	4242-18-6			
B	(S)-(-)-1,2,3,4-Tetrahedro-naphthoic acid	85977-52-2			
C	(R)-1,2,3,4-Tetrahedro-naphthoic acid	23357-47-3			
D	(S)-3-Aminoquinuclidine dihydrochloride	119904-90-4			
E	(R)-3-Aminoquinuclidine dihydrochloride	123535-14-1			
2	Ticagrelor and/or its intermediatesAND/OR	274693-27-5			
	Chemical Name : (1S,2S,3R,5S)-3-[7-[[(1R,2S)-2-(3,4-difluorophenyl)cyclopropyl]amino]-5-propylsulfanyltriazolo[4,5-d]pyrimidin-3-yl]-5-(2-hydroxyethoxy)cyclopentane-1,2-diol	274693-27-5			
XI	**PROSTATIC HYPERTROPHY**		**0**	**0.5**	**0.5**
1	Silodosin and/or its intermediatesAND/OR	160970-54-7			

	Chemical Name : 1-(3-Hydroxypropyl)-5-[(2R)-2-[[2-[2-(2,2,2-trifluoroethoxy)phenoxy]ethyl]amino]propyl]-2,3-dihydro-1H-indole-7-carboxamide	160970-54-7			
	Intermediates :				
A	1-[3-(Benzoyloxy)propyl]-2,3-dihydro-5-[(2R)-2-[[2-[2-(2,2,2-trifluoroethoxy)phenoxy] ethyl]amino]propyl]-1H-indole-7-carbonitrile	885340-11-4			
B	1H-Indole-7-carbonitrile, 2,3-dihydro-1-(3-hydroxypropyl)-5-[(2R)-2-[[2-[2-(2,2,2-trifluoroethoxy)ph enoxy]ethyl]amino]propyl]	885340-13-6			
C	2-(2-(2,2,2-trifluoroethoxy)-phenoxy)-ethyl methanesulfonate	160969-03-9			
XII	**ANTI FUNGAL**		**0**	**0.5**	**0.5**
1	Tavaborole and/or its intermediatesAND/OR	174671-46-9			
	Chewmical Name : 5-Fluoro-1,3-dihydro-2,1-benzoxaborol-1-ol; AN 2690; 5-Fluoro-1,3-dihydro-1-hydroxy-2,1-benzoxaborole	174671-46-9			
XIII	**ONCOLOGY**		**0**	**0.2**	**0.2**
1	Oxaliplatin and/or its intermediatesAND/OR	63121-00-6			
	Chemical Name :				

	Oxalato(trans-(-)-1,2-cyclohexanediamine)platinum(II).				
2	Cisplatin and/or its intermediatesAND/OR	15663-27-1			
	Chemical Name : cis-Diaminedichloroplatinum(II)				
XIV	**ACNE**		**0**	**0.3**	**0.3**
1	ADAPALANE	106685-40-9			
XV	**ANTIPNEUMOCYSTIC**		**0**	**0.3**	**0.3**
1	ATOVAQUONE	95233-18-4			
XVI	**PRESERVATIVE - INTERMEDIATE**		**0**	**3**	**3**
1	IodopropynylButylcarbamate	55406-53-6			
XVII	**ANTI-PSYCHOTIC DRUG**		**0**	**0.7**	**0.7**
1	Quetiapin Fumarate	111917-72-2			

COST OF PROJECT

The expected cost of project is Rs. 2.5 Crore. The plot had been purchased by M/s. Paradise Healthcare.

LAND

The total plot area of the unit is 1307sq.m. The green belt area will be 300 sq.m.

FUEL CONSUMPTION

After expansion, the proposed unit will use 2100 Kg/Day of Agro waste / Briquette or 900 m^3/Day of Natural gas as fuel. Unit will also use diesel 40 Ltr/Hr for D.G.Set.

WATER CONSUMPTION

The unit is using 5.5 KL/day water as per existing CCA. 4 KL/day water is used for the industrial purpose and 1.5 KL/day is used for domestic purpose.

After expansion, the unit will use 28.5 KL/day water for proposed project. 26 KL/day water will be used for the industrial purpose and 2.5 KL/day will be used for domestic purpose.

WASTE WATER GENERATION

After expansion, the total waste water generation will be 9.5 KL/day. The industrial waste water generation will be 8KL/day and domestic waste water generation will be 1.5 KL/day. Unit will send its High COD effluent into MEE plant (4 KL/Day) and Low COD effluent into M/s. PETL-CETP after treatment (4 KL/Day).

GASEOUS EMISSION

There is flue gas emission from one stack attached to boiler (0.3 Ton/Hr.).There is no process emission from existing project.

After Expansion, there will be flue gas emission from one stack attached to boiler (1.2 Ton/Hr) and one stack of D.G. Set (125 KVA). There will be process emission from vents attached to the reactors.

HAZARDOUS WASTE MANAGEMENT

The hazardous waste generation from existing unit is Used oil (0.01 MT/year), Empty barrel/container/ liners contaminated with hazardous chemicals/waste (10 MT/Year).

After expansion, the hazardous waste generation from proposed project will be Used oil (1.01 MT/year), ETP waste (60 MT/year), spent carbon (24MT/year), distillation reside (10 MT/year), Empty barrel/container/ liners contaminated with hazardous

chemicals/waste (20 MT/Month) and Date expired/ off-specification product (5MT/Month).

2.0 INTRODUCTION

2.1 The Project

M/s. Paradise Healthcare is engage for manufacturing of bulk drugs & intermidiates in Nandesari GIDC, Vadodara. Now, unit want to establish another plant in Panoli at Plot no. 201/5, GIDC Panoli, Bharuch, Gujarat.

The list of products is provided in table 1.

2.2 PROJECT PROPONENT

TABLE2: CONTACT DETAILS OF THE PARTNERS

Sr. No.	Name of Partner	Address	Contact details
1	Mr. Kaushik A. Patel	8, shantinagar society, NrBhadarcolani, Lunawada- 389230. Dist.: Mahisagar. Gujarat. India.	Mobile:+91 8690548458 / +91 9723818628 Email ID:info@paradisehealthcare.in
2	Mr. Hitesh B Sagpariya	Shyam AP Park, Street No.2, Nr Big Bazaar. 150 FT Ring Road. Rajkot- 360005. Dist. Rajkot. Gujarat. India.	Mobile:+91 8690548458 /9601190800 Email ID: info@paradisehealthcare.in

The partners of the company have good experience in handling the production management, financial management and all the allied areas.

2.3 NATURE OF PROJECT

The unit will engage in manufacturing of bulk drugs intermidiates. The production capacity will be 20 MT/Month.

As per EIA notification 2006, the proposed project is falling under category 5(f).

2.4 MARKET FEASIBILITY

The pharmaceutical industry in India is expanding at rate of 14% per annum. The share of Pharma industry in export has crossed almost 35% of value. This is likely to further increase in coming years. With this background in mind there will be good scope of drug intermediate sector also. The product selection in present project can fulfill requirement of several bulk drugs. The promoters will not have any problem in marketing their products

3.0 PROJECT DESCRIPTION

3.1 Type of project

The unit will engage in manufacturing of bulk drugs intermidiates and production capacity will be 20 MT/Month. As per EIA notification 2006, the proposed project is falling under category 5(f).

3.2 Project location

The proposed project site is located at plot no. Plot no. 201/5, GIDC Panoli, Bharuch in the state of Gujarat. It is approximately 20 km distance from Dist. Bharuch. The approximate geographical positioning of the project site is at Latitude: 21°34'23.8" N, Longitude: 72°59'51.4"E. The salient features of the location of the project site are presented in below Table.

TABLE3: SALIENT FEATURES OF THE PROJECT SITE

Particular	Details	Distance from Site
Villages	Sanjali	0.488 Km E
Approx. Geographical positioning	Latitude: Longitude:	21°34'23.8"N 72°59'51.4"E
Nearest City	Ankleshwar Bharuch	6 Km NE 16 Km NE
Nearest Railway line/ Railway station	Panoli	0.96 Km N
Domestic Airport	Surat	55 Km S
International Airport	Ahmedabad	180 Km N

FIGURE -1: SATELLITE IMAGE OF THE PROJECT SITE


Cheminova India
PARADISE HEALTHCARE
Tema India Ltd
Canal

3.3 SITE SELECTION

The project proponent did not consider any other alternative site for proposed project.

3.4 NEIGHBORING INDUSTRIES

The industry is proposed to be located in an area, which is already industrialized. The industries in the vicinity of the proposed project are given in the blow table.

TABLE4: NEARBY INDUSTRIES IN THE VICINITY

Sr. No.	Direction	Plot No	Industries Name
1.	S	242	Cheminova Ind. Pvt. Ltd.
2.	N	--	GIDC Road
3.	E	201/17	Pavan Putra Built cone
4.	W	201/4	Narmada Traders

3.5 SIZE OF PROJECT

The unit will manufacture bulk drugs intermidiates and production capacity will be 20 MT/Month. The expected cost of proposed expansion of project is Rs. 2.5 Crore. Environment Protection and safety systems have also been considered in planning the Cost Projection. Green belt development, provision of fire extinguishers etc. are also calculated. The below table shows the break-up of the proposed project cost.

TABLE 5: CAPITAL COST PROJECTION

Sr. No.	Purpose	Total (Rs. In Lacs)
1.	Land	---
2.	Building	100
3.	Plant and Machinery	129
4.	Q.A. Lab set up	6
5.	Env. Protection & Safety	15
a)	Effluent treatment Plant	6
b)	Air pollution control & Hazardous waste management	3
c)	Safety Equipment (PPE, fire extinguishers, Ventilation, etc.)	3
d)	Green belt development	3
	Total	**250 Lacs**

3.6 PROCESS TECHNOLOGY

The proposed products are “bulk drugs intermidiates”. Process details like process description, chemical reactions and mass balance for each product are as annexure V.

3.7 RAW-MATERIALS

The proposed products are bulk drugs intermediates and the required raw materials will be purchased from the local/ Indian market. Details of raw-material consumption are given in annexure IV.

3.8 RESOURCE OPTIMIZATION/RECYCLING AND REUSE

3.8.1 Solvent Recovery

There will be recover ≥96% solvent and unit will follow solvent guideline.

3.9 RESOURCE REQUIREMENTS

3.9.1 Land

The plot has been purchased by M/s. Paradise Healthcare from GIDC. The total plot area of the unit is Area 1307 sq. mtr.

3.9.2 Building

The new building will be constructed. And the approximate requirement of construction materials is given in below table.

TABLE 6: APPROXIMATE REQUIREMENT OF CONSTRUCTION MATERIALS

Sr.No.	Construction material	Proposed Quantity
1.	Bricks	114700 Lacs no.
2.	TMT Steel	29.35 MT
3.	Kapchi	7545 CFT
4.	Cement	1875 Bags
5.	Sand	10770 CFT

3.9.3 Power and Fuel

TABLE 7: POWER AND FUEL REQUIREMENT

Sr. No	Types of Fuel and Energy	Consumption Rate	Source of suppliers
FUEL			
Existing As Per CCA AWH -84997			
1.	Natural gas **Or** Agrowaste/ Briquette for Boiler	300 m^3/Day **Or** 700 Kg/Day	
Proposed As Per Expansion			
1.	Natural gas **Or** Agrowaste/ Briquette for Boiler	900 m^3/Day **Or** 2100 Kg/Day	Vitality Bio Coal
2.	Diesel for D.G. set	40 L/Hr	Local supplier
ENERGY			
Existing As Per CCA AWH – 84997			
1.	Electricity	60 KVA	Daxin Gujarat Vij Company Ltd.
PROPOSED AS PER EXPANSION			
1.	Electricity	250 KVA	Daxin Gujarat Vij Company Ltd.

3.9.4 Water

The category wise bifurcation of the water requirement is given in blow Table. The source of water will be from GIDC water supply scheme.

TABLE 8: WATER CONSUMPTION

Sr. No.	Category	Existing Water Consumption As per CCA no. AWH-84997(KL/Day)	Proposed Water Consumption (KL/Day)	Total Water Consumption (KL/Day)
1.	**Domestic**			
1.1		1.5	1.0	2.5
2.	**Industrial**			
2.1	Process	2.5	10	12.5
2.2	Washing	0.0	1.0	1.0
2.3	Cooling	0.0	5.0	5.0
2.4	Boiler	1.0	5.0	6
3.	Others (Gardening)	0.5	1.0	1.5
	Total (Industrial)	**4**	**22**	**26**
Total (Domestic + Industrial)		**5.5**	**23**	**28.5**

3.9.5 Manpower

The manpower required for the project as well as during the construction/ commissioning activities will be employed from the local area.

TABLE 9: MAN POWER REQUIREMENT

Phase of Project	Type of Labor	No. of Workers
During construction	Contractual	10
During commissioning	Contractual	5
During operations	Managerial	4
	Skilled	4
	Un-skilled	15

3.10 MITIGATION MEASURES & EMP

Based on overall manufacturing & operation activities, the mitigation measures have been proposed by the company for the control of the anticipated pollution load.

3.10.1 Wastewater Management

3.10.1.1 Wastewater Generation

The category-wise bifurcation of the anticipated wastewater generation details is given in the below Table.

TABLE 10 : WASTE WATER GENERATION

Sr. No.	Category	Existing Waste Water Generation (KL/Day)	Proposed Waste Water Generation (KL/Day)
1.	**Domestic**		
1.1		1.2	1.5
2.	**Industrial**		
2.1	Process	0	6.0
2.2	Washing	0	1.0
2.3	Cooling	0	0.5
2.4	Boiler	0	0.5
3	Others (Gardening)	0	00
	Total (Industrial)	**0.0**	**8.00***
Total (Domestic + Industrial)		**1.2**	**9.50**

***Unit will send its low COD effluent into PETL-Common Effluent Treatment Plant(4 KL/Day) for further treatment. High COD effluent will be treated into MEE(4 KL/Day).**

FIGURE: 3 EXISTING WATER BALANCE DIAGRAM

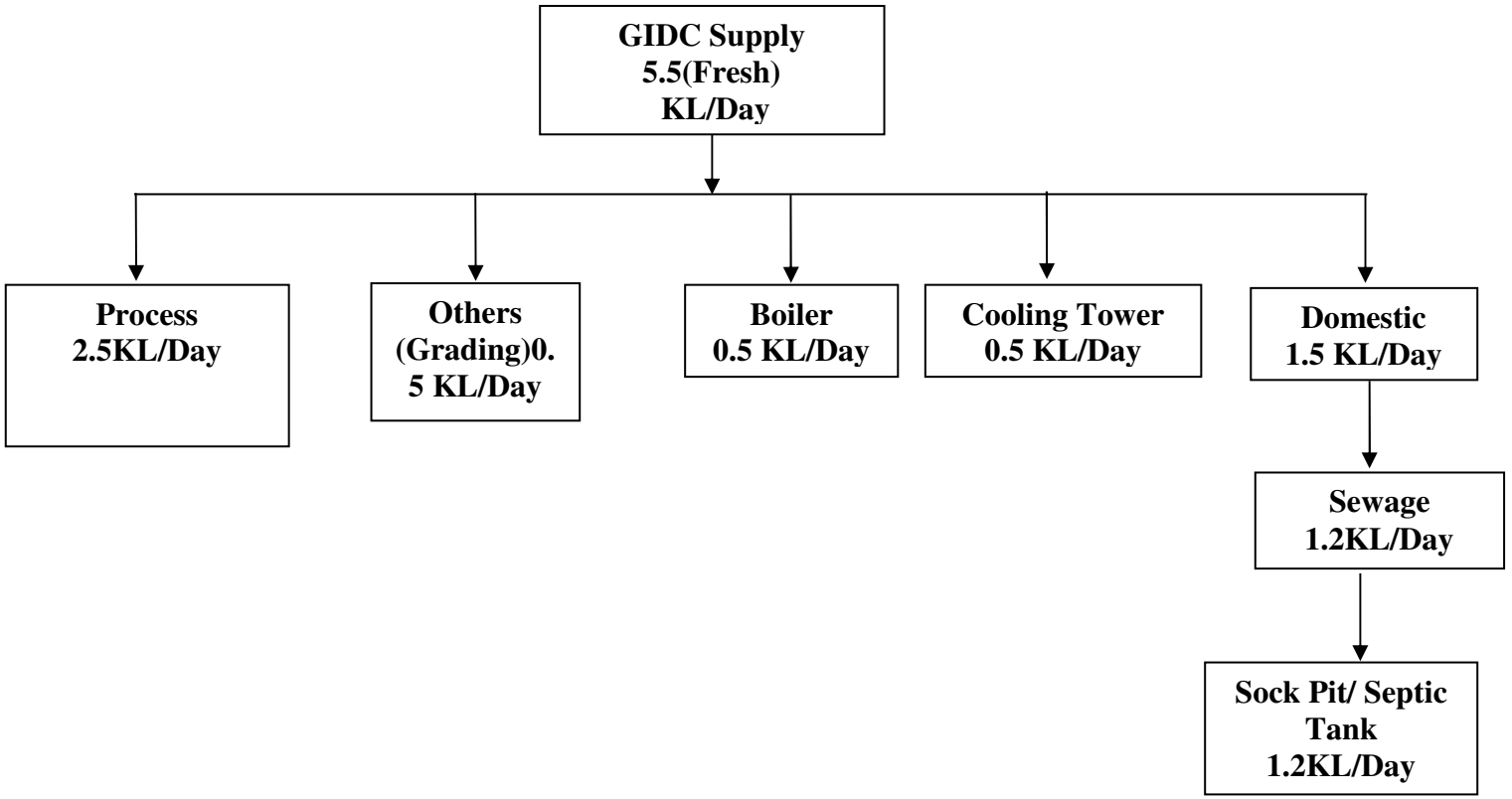
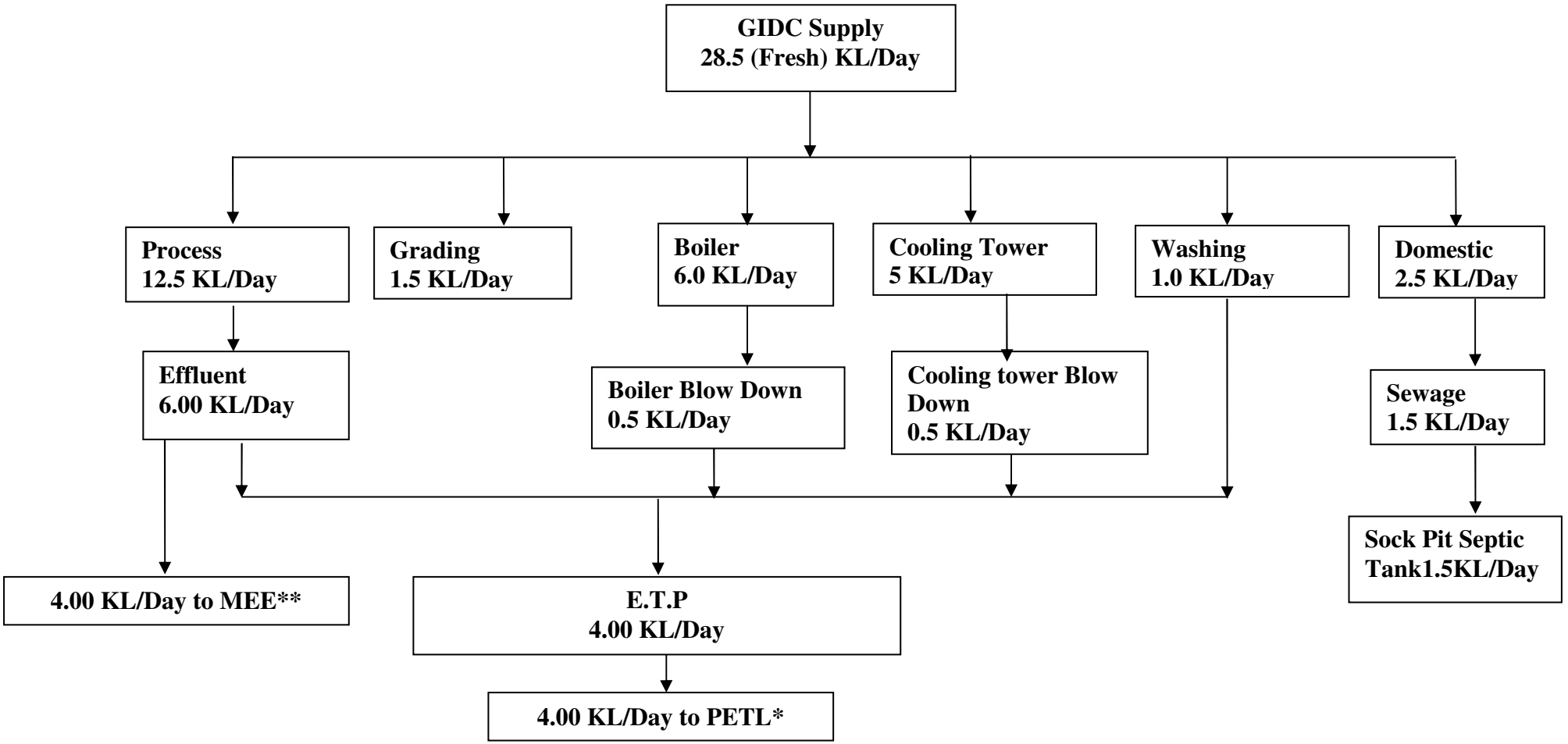


FIGURE: 4 PROPOSED WATER BALANCE DIAGRAM



- *** Unit will send its low COD effluent into PETL-Common Effluent Treatment Plant for further treatment.**
- **** High COD effluent will be treated into MEE directly.**

3.10.1.2 Wastewater Characteristics

Industrial wastewater will be generated from process, washing, cooling tower and boiler. The expected characteristics of industrial wastewater will be provided later on.

3.10.1.3 Wastewater Treatment & Disposal

During the production, two types of steam will be generated.

1) Low COD containing steam which will be sent into PETL after treatment.
2) High COD containing steam which will be sent into MEE.

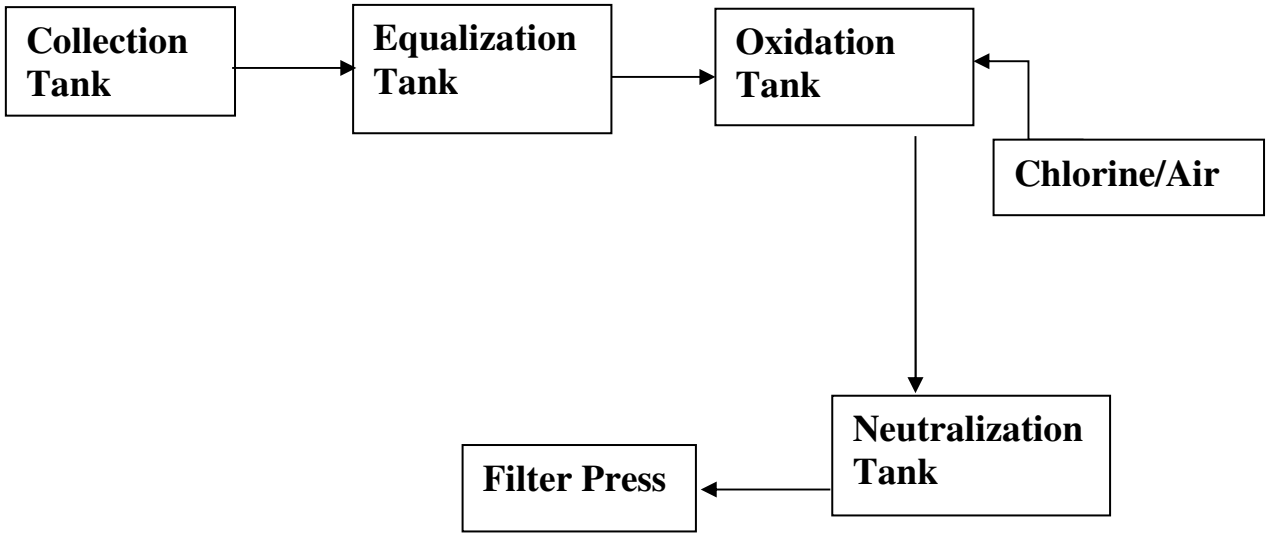
The raw effluent from all the sections will be collected in to the collection sump. The equalization tank with adequate residence time is to be provided for equalizing the organic as well as hydraulic load. There will be two compartments in the equalization tank so as to have the ease of operation and saving the chemical consumption. Then passing of chlorine gas or air for reducing COD in activation tank. The effluent will be checked for the pH and it will be neutralized with the chemicals. Then neutralized effluent will be sent to CETP, Panoli for further treatment which contains low COD.

- Unit will send High COD steam directly into MEE.

LIST OF ETP UNIT

Sr. No.	Name of unit	Quantity	Capacity
1.	Effluent Collection Tank	1	10KL
2.	Equalization Tank	1	5KL
3.	Oxidation Tank	1	5 KL
4.	Neutralization Tank	1	10 KL
5.	Filter Press	1.	-
6.	Sludge drying area	--	10 m^2

FLOW DIAGRAM OF PROPOSED ETP



3.10.2 Gaseous emissions & control

3.10.2.1 Flue gas emissions

There will be flue gas emission from one boiler and one hot air generator. Natural gas will be used as fuel in one boiler and hot air generator. The fuel consumption detail and air pollution control measures are covered in below table.

TABLE 12: FLUE GAS EMISSIONS

Sr. No.	Stack Attached To	Stack Height (m)	Type of Fuel	Air Pollution Control Measures	Parameter	Permissible Limit
Existing Flue Gas Emission As per CCA No. AWH-84997						
1.	Boiler (IBR) (0.3 TPH)	15	Natural gas/ Agro waste **Or** Briquette	--	PM SO_2 NO_X	150 mg/ Nm^3 100 ppm 50 ppm
Proposed Flue Gas Emission						
1.	Boiler (1.2 T/Hr)	31	Natural gas/Bio Mass	Cyclone Dust Collector	PM SO_2 NO_X	150 mg/ Nm^3 100 ppm 50 ppm
2.	D.G. Set (125 KVA)	11	Diesel	--	PM SO_2 NO_X	150 mg/ Nm^3 100 ppm 50 ppm
Flue Gas Emission After Expansion						
1.	Boiler (1.2 T/Hr)	31	Natural gas/Bio Mass	Cyclone Dust Collector	PM SO_2 NO_X	150 mg/ Nm^3 100 ppm 50 ppm
2.	D.G. Set (125 KVA)	11	Diesel	--	PM SO_2 NO_X	150 mg/ Nm^3 100 ppm 50 ppm

***Unit will dismantle 0.3 TPH Boiler.**

3.10.2.2 Process emissions

The process emissions from the proposed manufacturing activities are given in below Table.

TABLE 13: PROCESS EMISSIONS

Sr. No.	Stack Attached To	Type of Emission	Permissible Limit	Stack Height	APCM
Existing Process Emission As per CCA No. AWH-84997					
There is no any process emission.					
Proposed Process Emission					
1.	Reaction vessel	VOC HBr HCl	----- 20 mg/Nm^3 20 mg/Nm^3	11 m	Water Scrubber followed by alkali scrubber & carbon tower
2.	Reaction vessel	NH_3	175 mg/Nm^3	11m	Acid scrubber

3.10.3 Hazardous/ Non-hazardous waste management

The following type of hazardous waste will be generated from the operational activities. All the waste will be stored separately in a designated storage area.

TABLE 14: DETAILS OF HAZARDOUS WASTE

Sr. No.	Type of Waste	Category	Quantity			Method of Disposal
			Quantity as per CCA NO. AWH-73326	Proposed Quantity	Total quantity	
1.	Empty barrel/container/ liners contaminated with hazardous chemicals/waste	33.3	10 MT/Year	10 MT/Year	20 MT/Year	Collection, Storage, Transportation, Disposal by selling to registered – refiners
2.	Used Spent Oil	5.1	0.01 MT/Year	1 MT/Year	1.01 MT/Year	Collection, Storage, Transportation, Disposal at TSDF.
3.	Spent Carbon	28.2	0	24MT/Year	24 MT/Year	Collection, Storage, Transportation, Disposal at Co processing or incinerator
4.	Distillation Residue	1.4	0	10 MT/Year	10 MT/Year	Collection, Storage, Transportation,

						Disposal at Co processing or incinerator
6.	ETP sludge	34.3	0	60 MT/Year	60 MT/Year	Collection, Storage, Transportation, Disposal by selling to registered – Reprocessor.
7.	Date expired Product or off specification product	28.3	0	5 MT/Year	5 MT/Year	Collection, storage, transportation & disposal at TSDF Site

In addition to the provision of above, the unit will ensure proper management for hazardous waste as below:

- Transportation of hazardous waste to the TSDF Site will be governed as per the guidelines and accompanied with Form-9.
- Annual returns of the disposal of wastes in Form-4 and Form-13 will be submitted regularly to the local office of the GPCB.

3.10.4 Noise Control & Odour

Ear plugs will be provided to the operating personnel in boiler room.

The following steps will be taken for odour control.

- Raw-material feeding will be carried out by pumps.
- All reactions will be taken in closed reactor system.
- Roof top ventilation will be provided in the entire plant area.
- Regular monitoring will be done of piping and fittings for checking of any Leakages.

3.10.5 Storage, Handling and Transport of Hazardous Chemicals

The storage and mode of transport of chemicals will be done as per detailed MSDS and chemical hazards guide (NIOSH) for the hazardous chemicals.

Few chemical to be used in the proposed activities are listed as 'Hazardous Chemicals' as per the Schedule-1 of the MSIHC Rules, as amended in 2000.

3.10.6 Health and Safety measure

Few chemical to be used in the proposed activities are listed as 'Hazardous Chemicals' as per the Schedule-1 of the MSIHC Rules, as amended in 2000.

Physical hazards may manifest as fires, explosions, excessive temperatures, or the release of large volumes of gas or toxic or flammable gases or vapors. According to Schedule 2 & 3 of MSIHC Rules,

Below mentioned is the summary proposed safety measures to be taken at site for control of anticipated hazards.

4.0 SITE ANALYSIS

4.1 Connectivity

The project site is located at Plot no. 201/5, GIDC Panoli, Bharuch, Gujarat. The site is 16 km away from Bharuch District. The land and Infrastructure is already available. The raw material is easily available through the easy transport via road connectivity. The district headquarter has railway station.

4.2 Land use and land ownership

The project site is in the GIDC Estate, Panoli, Bharuch, Gujarat, which is made for this type of industries. The land is plot no.201/5, GIDC Panoli, Bharuch, Gujarat.. The total plot area of the unit is 1307 sq. m.

Land ownership is with project proponents.

4.3 Existing Land use

The project site is located at plot no. 201/5, GIDC Panoli, Bharuch, Gujarat.. The plot is notified by GIDC for industrial purpose.

4.4 Existing Infrastructure

The project is located in a well-developed industrial zone, which have all essential facilities such as well-connected road network with ease of transportation, arrangement for supply of water and power to industries, effluent disposal facilities etc. Infrastructure is made available through Government approved authorized agencies.

4.5 SOIL CLASSIFICATION

The soils of the district are derived from the Deccan trap which is main rock formation of the district. The soil of the district can be classified as light, medium and heavy according to depth, texture and location. There is sandy loam to loamy in texture, brownish black in color.

4.6 CLIMATE DATA

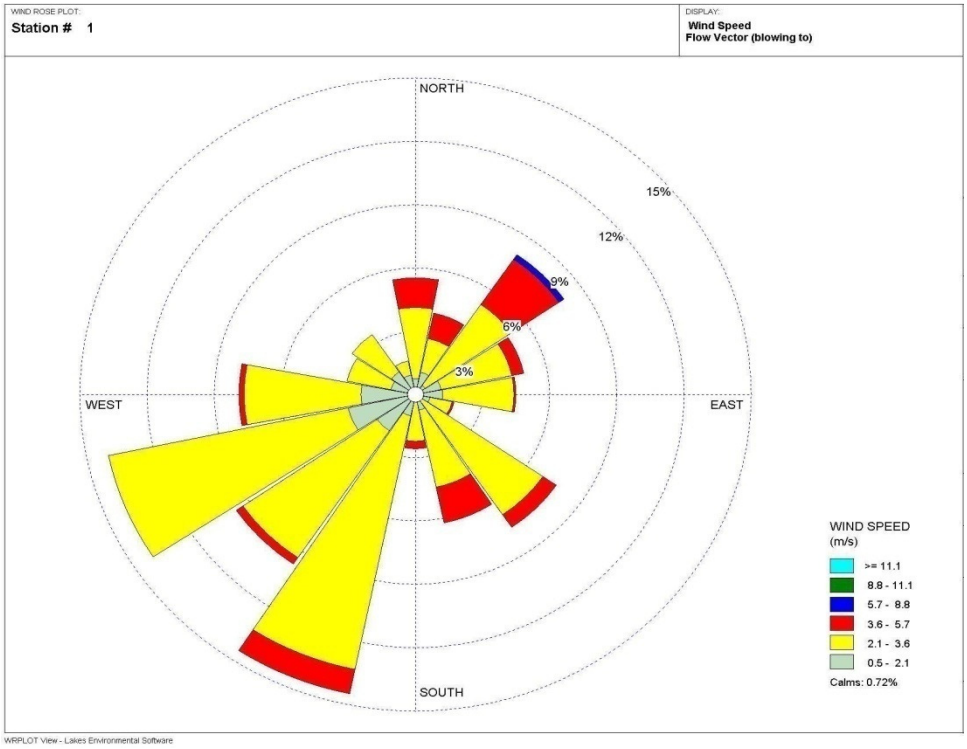
Based on the meteorological data, wind rose have been prepared for the summer season period between the OCTOBER 2016 to DECEMBER 2016. The wind rose diagram prepared from same data is shown at Figure 3.

TABLE 14: METEOROLOGICAL DATA

(Data from Indian Meteorological Department, Ahmadabad, Station:-Vadodara)

Month	--	**Temp. (°C)**	**Relative Humidity (%)**	**Wind Speed km/hr**
October-16	Min.	23	28	0
	Max.	35	94	13
	Average	29	61	6.5
November-16	Min.	20	24	0
	Max.	34	51	10
	Average	27	37.5	5
December-16	Min.	17	23	0
	Max.	32	52	11
	Average	24.5	37.5	5.5

FIGURE 3: WIND ROSE DIAGRAM FOR PERIOD OF OCTOBER-2016 TO DECEMBER-2016



Observation: It was observed that wind is blowing mainly towards the SW direction from NE. average wind speed was 2.38 m/s with calm winds recorded to be 10.6%.

4.7 SOCIAL INFRASTRUCTURE

Population density and sex ratio of Bharuch District was reported 238 persons/sq.km and 920 females per 1000 males respectively in 2011 census report. Total literacy of Bharuch District was found 81.51 %.The basic amenities like primary and secondary education schools, community health workers, primary health sub centre, private practitioners, primary health centre, maternity and child welfare, dispensaries, T.B clinic, family welfare centre, hospital, drinking water, transportation facilities, electricity , telephone etc. are available.

5.0 PLANNING BRIEF

5.1 PLANNING CONCEPT

Panoli is largely an industrial area dominated by large scale industries, especially chemical Plants. Government agencies provide many basic facilities like uninterrupted water supply, power and road network.

5.2 POPULATION PROJECTION

As per provisional reports of Census India, Population of Bharuch District in 2011 is 1,551,019. Population of male and female are 805,707 and 713,676 respectively. The sex ratio of Bharuch city is 920 females per 1000 males.

In education section, total literates in Vadodara District are 2,893,080 of which 1,614,087 are males while 1,278,993 are females. Average literacy rate of Vadodara district is 78.92%.

5.3 LAND USE PLANNING

The proposed project is in the established GIDC industrial area. This is not a prime agriculture land.

5.4 ASSESSMENT OF INFRASTRUCTURE DEMAND

The M/s. Paradise Healthcare will get water from GIDC water supply scheme. So there will be no additional stress on ground water resources and there will be no adverse effect on the ground water resources available in the nearby area.

The unit has proposed additional 190 KVA connected load form DGVCL. The transportation facilities will also expect to improve due to increase in the movement of workers and raw material and finished products.

5.5 AMENITIES/FACILITIES

The available basic amenities are as under:

Education Facilities:

All the villages have a minimum of one primary school.

Medical Facilities:

All the surrounding villages have medical facilities.

Drinking water Facilities & Power Supply:

All the villages have potable water supply and in 100% area the drinking water is supplied through taps, wells and tube wells. All the villages have power supply facilities in the study region.

Post, Telegraph & Telephone facilities

The information collected clearly indicates that the infrastructural facilities are provided by respective government agencies for the development of this area. For communication purpose, post office and phones are available in most of the villages.

Transport Facilities:

Bus services are available in all the villages of the study region within 5 km area and are the most preferable mode of transport in the region. Auto-rickshaw is also used as transport facility. Villages are connected with paved roads. All the surrounding area is covered with 108 emergency facilities.

6.0 PROPOSED INFRASTRUCTURE

6.1 PROCESSING AREA

The process area will cover plant area like Plant, Intermediate Block, ETP and utilities, solvent recovery plant.

6.2 NON PROCESSING AREA

The non process area will cover Electrical panel room, Warehouse-solid & liquid, Security cabin, surrounding area-utility & main, Admin Block, Scrap yard, open area and all roads and passages, Parking area etc. The non process area covered by unit at ground level will be around 262 sq. m.

6.3 GREEN BELT

Out of the total land area of 1307 sq. meter approximately 300 sq. meter (23 %) will be utilized for green belt development.

6.4 SOCIAL INFRASTRUCTURE

The availability of basic amenities is covered as under:

Training & Education: All the employees will be trained and educated periodically about the hazardous nature of chemicals used in the process. Also, training for firefighting, work permit system, first aid, safe handling of hazardous chemicals and integrating safety, in all activities.

Medical facility: Pre-employment medical checkup at the time of employment. In order to safe guard the health of the employees, all the employees undergo periodic health checkup.

Drinking water: There will be provision of Aqua Guard/R.O. at different places to provide purified water for drinking purpose.

Catering Service: The unit will provide basic food facility for workers.

Telegraph & Post: There will be provision of telephone, fax & internet facility.

Power supply: There will be total connected load of 250 KVA from DGVCL.

6.5 CONNECTIVITY

Ankleshwar estate is well connected by rail and road to rest of country.

6.6 DRINKING WATER MANAGEMENT

Average daily water consumption of unit will be 2.5 KL/Day for domestic purpose. The entire water requirement will be meeting through GIDC water supply system.

6.7 SEWAGE SYSTEM

The sewage will be treated in soak pit.

6.8 INDUSTRIAL WASTE MANAGEMENT

The hazardous waste like ETP waste, Spent Oil and Discarded containers will be generated from the proposed activity**.**The hazardous waste management and disposal is shown in Table 14.

6.9 SOLID WASTE MANAGEMENT

The record of hazardous and non-Hazardous waste solid waste like torn personal protective equipments and broken glassware etc. will be mentioned.

6.10 POWER REQUIREMENT & SUPPLY

The unit will use total 250 KVA electricity connected load from DGVCL.

7.0 REHABILITATION AND RESETTLEMENT(R &R) PLAN

The proposed project is located in Plot No. 201/5, Panoli GIDC, Panoli, Dist: Bharuch, State: Gujarat. There will be no any human settlement affected by proposed project. So, there is no requirement of any R & R Plan.

8.0 COST ESTIMATES

8.1 ESTIMATED PROJECT COST

Project cost for proposed expansion will be Rs. 250 Lacks. Details for estimated project cost are covered in above Table no 7.

9.0 ANALYSIS OF PROPOSAL

All the manpower is utilized from local region around Ankleshwar. Company shall also try to provide indirect employment opportunities by availing local contract services during transportation during operational phase.

The company intends to donate 5% of the profit to agencies like NGOs or social welfare societies for projects carried out in nearby village for their welfare and upliftment.