PRE FEASIBILITY REPORT

FOR

RANAVAV LIMESTONE MINE

AREA=12.14HECT.

SURVEY NO.78/5, NEAR VILLAGE - RANAVAV, TALUKA-RANAVAV, DISTRICT–PORBANDAR, (GUJARAT)

PROPOSED PRODUCTION:-128,000 TPA OF LIMESTONE

PROJECT COST:-30.00 LACS

Details of Area

TotalArea-12.14ha,

Near Village-Ranavav, Taluka-Ranavav,

Distt.-Porbandar, (Gujarat)

Applicant

Shri Udaysinh M. Jethwa

At.&P.O.-Ranavav, District-

Porbandar (Gujarat)

E-mail–yoganandim@yahoo.com

PRE- FEASIBILITY REPORT

1. EXECUTIVE SUMMARY

Particulars	Details
Location	Ranavav Limestone Mining Lease Area, Near Village–Ranavav, Taluka–Ranavav, District–Porbandar, Gujarat)
Latitude	$21^0$41'39.00" to $21^0$41'56.77"N
Longitude	$69^0$45'33.06" to $69^0$45'45.25"E.
Toposheet No.	41 G/14
Total Mining area	12.14 hectare
Mineable Reserves	24,27,632MT
Capacity	Proposedproduction–1,28,000TPA
Life of Mine	18.96 years
Ultimate depth of mining	41 mRL
Estimated project cost	30.00Lac.
EMP Cost	1.50 Lac/annum
Power Requirement	No electricity is required.
Fuel Requirement	0.5KLD
DG Set	No DG S et required.
Highest and Lowest Elevation	S.N: 1. Particulars: Highest Elevation(mRL): 48 S.N: 2. Particulars: Lowest Elevation(mRL): 45.1
Lan duse	Govt. waste land.
Nearest Habitation/Town	Ranavav about 2.1 km from Mining lease SW direction.
Nearest Airport	Porbandar(11.7km)
Nearest Highway	NH – 8B about 2.6 km towards SE direction from lease area. SH – 95 about 13.4 km towards West direction from lease area. SH – 27 about 0.05 km towards East direction from lease area.
Nearest Railway Station	The nearest rail head is at Ranavav at a distance of about 3.4 km from ML area.
Power Supply	Ranavava about 2.1 km from Mining lease SW direction.
Nearest Human Habitation	Ranavava about 2.1 km from Mining lease SW direction.
Nearest Dispensary and Govt. Hospital	Ranavava about 2.1 km from Mining lease SW direction.
Educational Facility	Ranavava about 2.1 km from Mining lease SW direction.
Water Demand and Supply	5.00KLD
Nearest Tourist Places	None within the study area
Defense Installations	None within the study area
Archeological Features	None within the study area
Ecological Sensitive Zones	"Barda Wildlife Sanctuary" located at 3.0 km towards N direction.
Nearest Streams /Rivers/ Water Bodies (from mine boundary)	Khambhala Reservoir: ~3.8 km in NNW direction Water Body (Salt: 5.5 k towards SSW direction Minsar River: ~12.7 km towards East direction Dhangawa Stream: ~3.7 km towards NNW direction Chhapravala Nes water body: ~9.3 km towards NNW direction Dai River: ~14.2 km towards NE direction
Seismic Zone	Seismic zone–III.

2. INTRODUCTIONOFPROJECT/BACKGROUNDINFORMATION

The Proposed Ranavav Limestone mine near Ranavav Taluka – Ranavav, Dist. – Porbandar has been granted to Shri Udaysinh M. Jethwa. The Lease area is nearly 12.14Hect. The capacity of production has anticipated to be1,28,000 TPA.

Refer Annexure No. II: Copy of List of other ML held by the Company.

The mining lease area for mineral limestone located at near village–Ranavav, Taluka–Ranavav & District–Porbandar of Gujarat State, having an area of 12.14 hectares (SurveyNo.78/5) was granted in favour of Shri Udaysinh M. Jethwa, vide order No.MCR-1572(J-39) 5706 CHH dated 23.09.1974 for 20 years. Lease agreement was signed and executed on 18.02.1975. Ranavav Limestone Mine is a captive mine of Shri Udaysinh M. Jethwa.

Refer AnnexureNo.III: Copy of Mining Lease Grant Order.

Refer Annexure No. IV: Copy of Mining Lease Deed.

The Mining Plan with progressive Mine Closure Plan of 12.14 hectares area was approved under the Rules 22 of MCR, 1960 & 23B of MCDR,1988 for the Renewal by IBM, Udaipur vide letter no. 682 (23) (479) / 2006 MCCM (N) UDP dt. 03.11.2006. The Mining operations commenced in Oct.,2008 at this mine. Hence, the approved mining plan as on 22.03.2000.

As per approved Mining Plan mine was planned to produce about 6,40,000 tonnes of sized limestone in five year period. Against this company has produced 81,315 tonnes of sized limestone up to March, 2015. Now in the proposed S.O. Mit is planned to produce about 1,28,000 tonnes of sized limestone. Anticipated life of mine will be about 18.96 years.

Refer Annexure No.V: Copy of Jamabandi Details.

CTO is granted by GPCB to mine up to 12000 MT per month of chemical grade limestone,

Refer Annexure No. VI: Copy of Consent to Operate.

Shri Deva bhai Bhutiya is the Nominated Owner of the Company R/o Gatral Bhuwan, Satyam Park, Rajivnagar, Porbandar, District–Porbandar, (Gujarat) is the Power of Attorney Holder.

Refer Annexure No.VII: Copy of Nominated Owner & ID Proof & Address Proof

Refer Annexure No. VIII: Power of Attorney & ID Proof & Address Proof.

The mining lease area is 12.14 hectare covering part of GT sheet no.41 G/14, near Village –Ranavav, Taluka–Ranavav, District–Porbandar, (Gujarat).

2.1 Identification of the project and project Proponent

Name of the Project Mine	:	Ranavav Limestone
Location	:	s.n.78/5,NearVillage–Ranavav,Taluka–Porbandar, District–Porbandar,
Gujarat Proposed Production	:	1,28,000 TPA.
Mining Lease Area	:	12.14hectare (Govt. Waste Land)

Applicant	Address
Shri Udaysinh M. Jethwa,	Village Post – Ranavav, Taluka – Ranavav & Distt.- Porbandar Gujarat

2.2 Brief description of the nature of the project:

Mining of Limestone is proposed in the mining area 12.14 hectare (Govt. Waste Land),near village – Ranavav, Taluka – Ranavav, District – Porbandar, Gujarat. Mining will be carried out by manual opencast method. Loading of material will be manually in the dumper/tippers. Proposed production is 1,28,000 TPA.

2.3 Need for the project and its importance to the country and or region:

The basic objective of the project is to effective utilization of mineral in the country or region. Limestone is the world's most commonly used mineral in Soda Ash Industries, in the cement manufacturing etc. Limestone will helps in the economic growth of the country or region.

2.4 Demands-supply gap:

There is large demand of limestone for Soda Ash industries & in cement manufacturing.

2.5 Imports vs. indigenous production

There will be no import for the project. There will be indigenous inputs in the entire mining activity.

2.6 Export possibility

The chemical grade limestone is used in Soda Ash Industries. No export is feasible. The mineral will be used in Soda Ash industries & in cement manufacturing.

2.7 Domestic/export markets

There is demand of limestone for Soda Ash industries & in cement manufacturing

2.8 Employment generation (director in direct due to the project)

Project will create direct & indirect employment opportunities within the surrounding region. Unit will use good faith efforts to employ local people from the nearby villages depending upon the availability of skilled & un-skilled man-power

surrounding the project site.

In operation phase, the proposed project would require significant workforce of non-technical and technical persons. About 36 people will get direct employment and 10 - 15 people will also be affected indirectly and employed with allied and related industries, such as transportation, maintenance, etc.

EMPLOYMENT POTENTIAL

S. No.	Particulars	No.
1	Managerial & Supervisory personnel	
	Mines manager(AsperMMR,1961)	01
	Mining Engineer(AsperMCDR,1988)	01
	Geologist (Part time)	01
	Mining mate /Supervisor	01
	Blaster	01
	Total	05
2	Skilled	
	Tractor/dumper driver	02
3	Semi-skilled	
	Helpers	02
	Clerk cum store keeper	01
	Total	03
4	Unskilled	
	Average daily production of Limestone is 94 tonnes. The general statics of the area shows OMS 4 tonnes. Therefore, daily workers requirement keeping provision of additional workers for sorting shall be as under	
	Worker for production of limestone	09
	Miscellaneous job	2
	Total	11
	Grant Total	21

3.1 PROJECTDESCRIPTION

3.2 Type of project including interlinked and inter dependent projects:

The proposed project is mining unit of Limestone in the mining lease area of 12.14 hectare situated at Near village – Ranavav, Taluka – Porbandar, District – Porbandar, Gujarat. It is proposed to produce 1,28,000 TPA of Limestone.

No Interlinked or Interdependent project. Product from this mine will be used in Soda Ash Industry

3.2 Location (Location map & Key plan is attached as Plate no. I &II respectively).

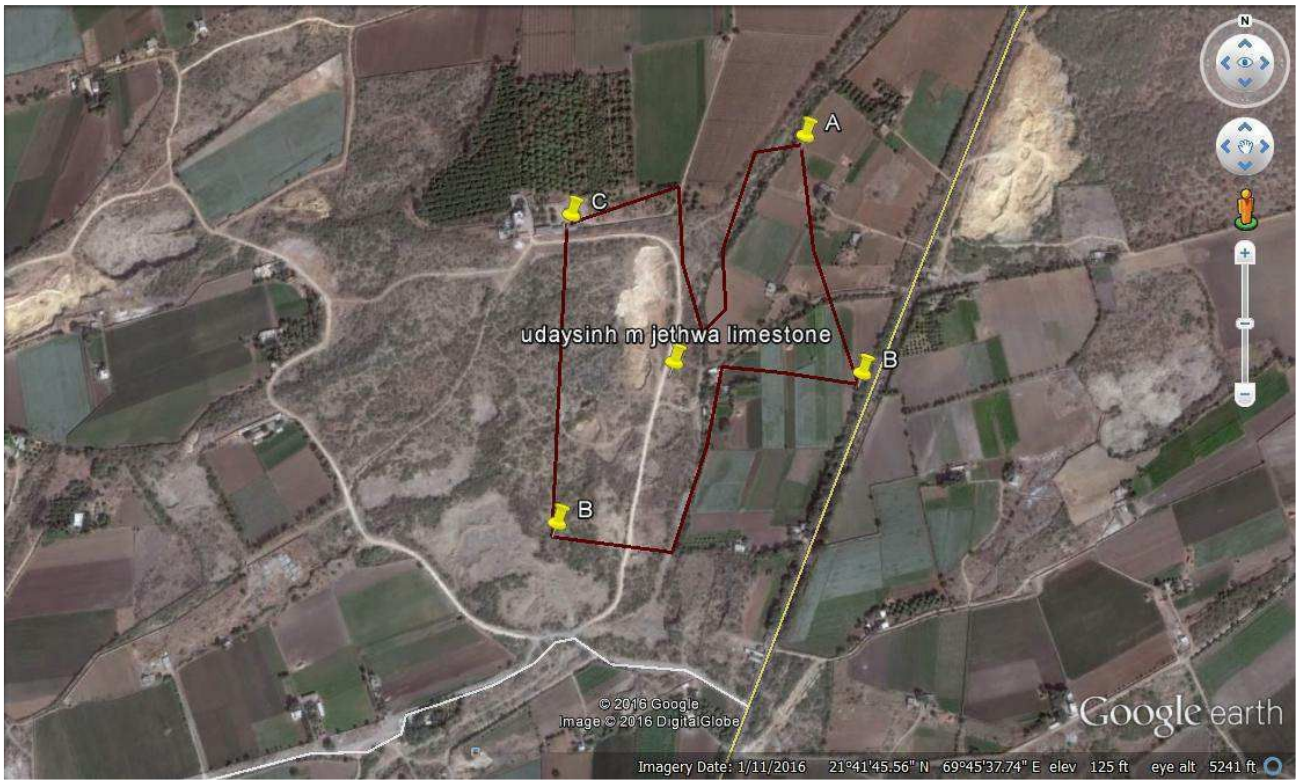
State : Gujarat

District : Porbandar

Taluka : Ranavav

Near Village : Ranavav

The entire project area is 12.14hectares. (Govt. waste Land)Google Image of the mining lease area–



TOPOSHEETNO.WITHLATITUDEANDLONGITUDE

The mining lease area forms apart of Survey of India Topo-sheet no. 41 G/14.

The mining lease area is situated between Latitudes$20^0$57'59.86" to $20^0$57'45.80"N & Longitudes $70^0$31'07.09"to$70^0$31'15.41"E. The Mining lease area is about 2.1 km from the Ranavav village in south West direction. The mining area is locate data distance of about 25km from Soda ash plant at Ranavav. It is about 1km from village Ranavav and liked by rough road. A tar road is passing 100m north of the area linked with Porbandar via Sonaria, Navadra, indroi & Pandya, which joins Coastal Highway no.6 (Porbandar–

Kodinar (NH8D) at Sonaria – Badalpur across road.SH-26 from Talal to Porbandar is about 7.5 km (aerial) in NE direction.

The road distance from this mine too there near by places in km area sunder–

Location	Distance(km)
Junagardh	95
Porbandar	15

The highest and lowest elevation of the mining area is–

S. No.	Particulars	Elevation(mRL)
1.	Highest	48
2.	Lowest	45

3.3 Details of Alternate Site Considered and the Basis of Selecting the Proposed Site, Particularly the Environmental Considerations Gone Into Should Be Highlighted:

Mining is site specific project hence no alternate site is considered.

3.4 Size/Magnitude of Operation

It is proposed to produce1,28,000 TPA Limestone from the mining area of 12.14 hectares by opencast manual method .

3.5 Project description with process details:

It is a mining project of limestone from the mining area of 12.14hectare, situated at near village–Ranavav, Taluka–Porbandar, District–Porbandar,(Gujarat). Proposed production is 1,28,000 TPA. The material produced here will be used in Soda Ash Plant, etc. The method of mining will be opencast manual.

Taking in to consideration shape and nature of deposit and the targeted production the mine will continue to be worked by manual open cast method of mining. Attempts have been made to design and exploit the deposit with minimum damage to environment and optimal utilization of limestone for Soda Ash industry. Geological parameters of the ore body and the Geo-

Technical field observations made there of it is opted to work by manual mode and the method is by open cast with bench system is adopted to work the deposit.

During the course of proposed mining in ensuring five year period, following design parameters are envisaged.-

1. Thickness of limestone ranges from 3.6m to 4.14m. full thickness of proved limestone (up to 41.0 mRL) shall be excavated.
2. It is to be excavated by forming benches of maximum of 2.0m height. Upper benches are to be kept about 6m advance of subsequent lower bench to facilitate the movement of trucks for lifting the sized limestone production from the mine.
3. Bench slope will be maintained at 60° from the vertical. Existing approach road will be maintained at 1:10 gradient.
4. Deposit is not much hard, only mild blasting is required for imparting shattering effects for which vertical holes of 32mm dia. and 1.5m. depth shall be drilled by Jack hammer, manually in a pattern of 1m x 1.30m (burden & spacing).
5. Sizing of limestone is to be carried out by manual means and shall be stacked sufficiently away from working face.
6. Sized Limestone will be loaded manually into the trucks and then transported to the Soda Ash Plant.
7. The under sized limestone/ fine generation shall be temporarily stacked over worked out quarry floor.

Equipment & Machineries:

The List of Equipment & Machineries using in the mine operation.

S. No.	Type of Machine	No.
1	AirCompressor,makeAtlasCopco,450cfm	01
2	Handheld Jack Hammer	02
3	AshokLeylandtippers10toncapacity	02
4	Tractor,45HP,withwatertanker/sprinkler	01

Drilling machines

Daily ROM Production	94tonnes
Height of bench	1.5m
Burden of hole	1.0m
Spacing of hole	1.3m
Vol. of rock to be broken per hole	1.95cum
Tones per hole	2.93tonnes

No. of holes required per day	94/2.93 =32holes
Length of hole(Inclined)	1.6m
Lengthofincluding10%subgradedrilling	1.76m
Meters to be drilled per day	32 x 1.76=57m
Capacity of one Jack hammer per shift	50-60m
No. of drills required.	2

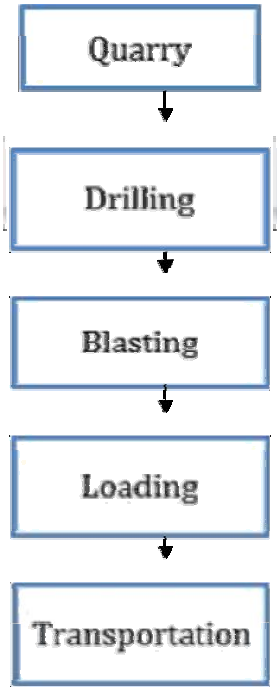
Broad Blasting Parameters

Daily ROM Production	94tonnes
Height of bench	1.5m
Burden of hole	1.0m
Spacing of hole	1.3m
Drill hole dia.	32mm
Vol. Of rock to be broken per hole	1.95cum
Tones per hole	2.93tonnes
Powder factor	6t/kg of explosive
Explosive per day	94/6=16kg
Explosive per hole	2.93/6=0.488kg
High explosive	25%(0.122kg)
ANFO	75%(0.366kg)

Storage of Explosive : For storage of explosive an explosive magazine to store 100kg.of explosive,200 detonator sand about 250mt. safety fuse has to be constructed. now lessee has to take adequate action to set up an explosive magazine with the approval of competent authorities.

Individual bench slope will be 60^0. In the first five year, about 2000 saplings will be covered plantation in the lease area. On the above techno- , the conceptual mining plan has been drawn keeping52° ultimate pits lope angle. The mineral excavated from mine by drilling and blasting will be loaded into dumper than transport to destination.

Flow Chart showing the Quarry operation:



3.6 Raw material required along with estimated quantity, likely source, marketing area of final products, mode of transport of raw material and finished product:

Raw material i.e. under sized limestone (-25mm) size will be treated as sub grade material will be produced by opencast manual method of mining, proposed production is 1,28,000 TPA;itwillbetransportedtousersbyusing10MTcapacitydumper/tippers.

Year	Undersized(-25mm)limestone in tonnes
2013-14	1686
2014-15	1688
2015-16	1690
2016-17	1684
Total	6748

3.7 Resource optimization/recycling and reuse envisaged in the project, if any, should be briefly out lined.

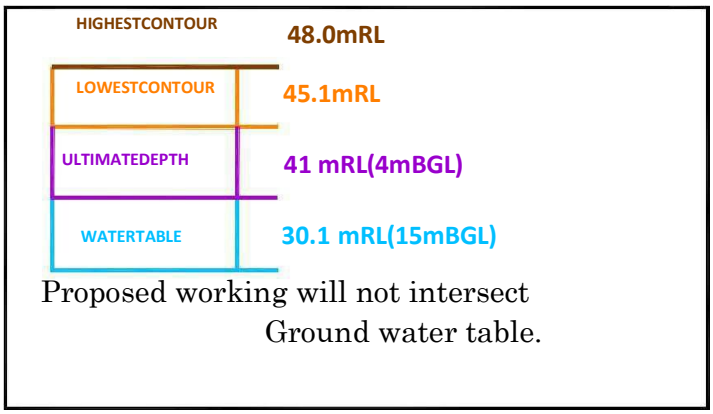
Not applicable.

3.8 **Availability of water its source, energy/power requirement and** source

The total water requirement for the project is estimated 5.0 KLD. Water for mining operation (dust suppression) and for domestic & drinking purpose will be supplied from PHED supply & Hand pump/Tube well situated nearby village through water tankers.

S. No.	Purpose	Total Requirement (KLD)
1	Dust suppression	3.00
2	Drinking & Sanitation	1.00
3	Greenbelt	1.00
Total		5.00

Ground Water Table



No electricity is required. Fuel (HSD) will be obtained from authorized public fuel station & about 0.5KLD H.S.D. will be used in machineries & transport equipment during mining.

3.9 Quantityofwastestobegenerated(liquidandsolid)andschemeforthei rmanagement/disposal:

There sources from the mining lease area have been assessed on the basis of thickness of material in the proved & probable resources category. Remaining possible resources category are classified under UNFC code.

Reserves:-

	Category	Code	Quantity(t)
Total Resource	(A+B)		
Reserve(A)	Proved	(111)	1,42,544
	Probable	(121)	Nil
		(122)	Nil
Remaining Resources (B)	Feasibility Mineral Resources	(211)	1,24,213
	Pre-Feasibility Mineral Resources	(221)	Nil
		(222)	Nil
	Remaining Measures Mineral Resources	(331)	Nil
	Remaining Indicated Mineral Resources	(332)	Nil
	Inferred Mineral Resources	(333)	Nil
	Reconnaissance Mineral Resources	(334)	Nil

Mineable Reserve & Life of Mine:-

Recovery

Thepercentagerecoveryof+25mm–100mmisasfollows:

Chemical grade limestone lump size (+25mm) = 89%

Limestone fines / undersize (-25mm) = 6%

Mining Loss = 5%

Reserves as per UNFC	Code	In-situ in tones	Recoverable (Sized)	Sub grade	Rejects
Proved	111	1,42,544	1,26,865	8,553	Nil
Probable	121	Nil	Nil	Nil	Nil
	122	Nil	Nil	Nil	Nil

Life of Mine= 24,27,632/1,28,000=18.96 Years

Year wise production in plan period

Year	Total Vol. of ROM (cum)	Total ROM (intones)[(A x IBD)=B]	*Vol. of undersized Limestone (cum)(Ax 0.06)	**Production of sized Limeston e tones(Bx0	Grade of Mineral
2013-14	18732	28098	1686	25007	Chemical Grade
2014-15	18756	28135	1688	25040	Chemical Grade
2015-16	18774	28161	1690	25063	Chemical Grade
2016-17	18716	28074	1684	24985	Chemical Grade
Total	74978	112468	6748	100095	Chemical Grade

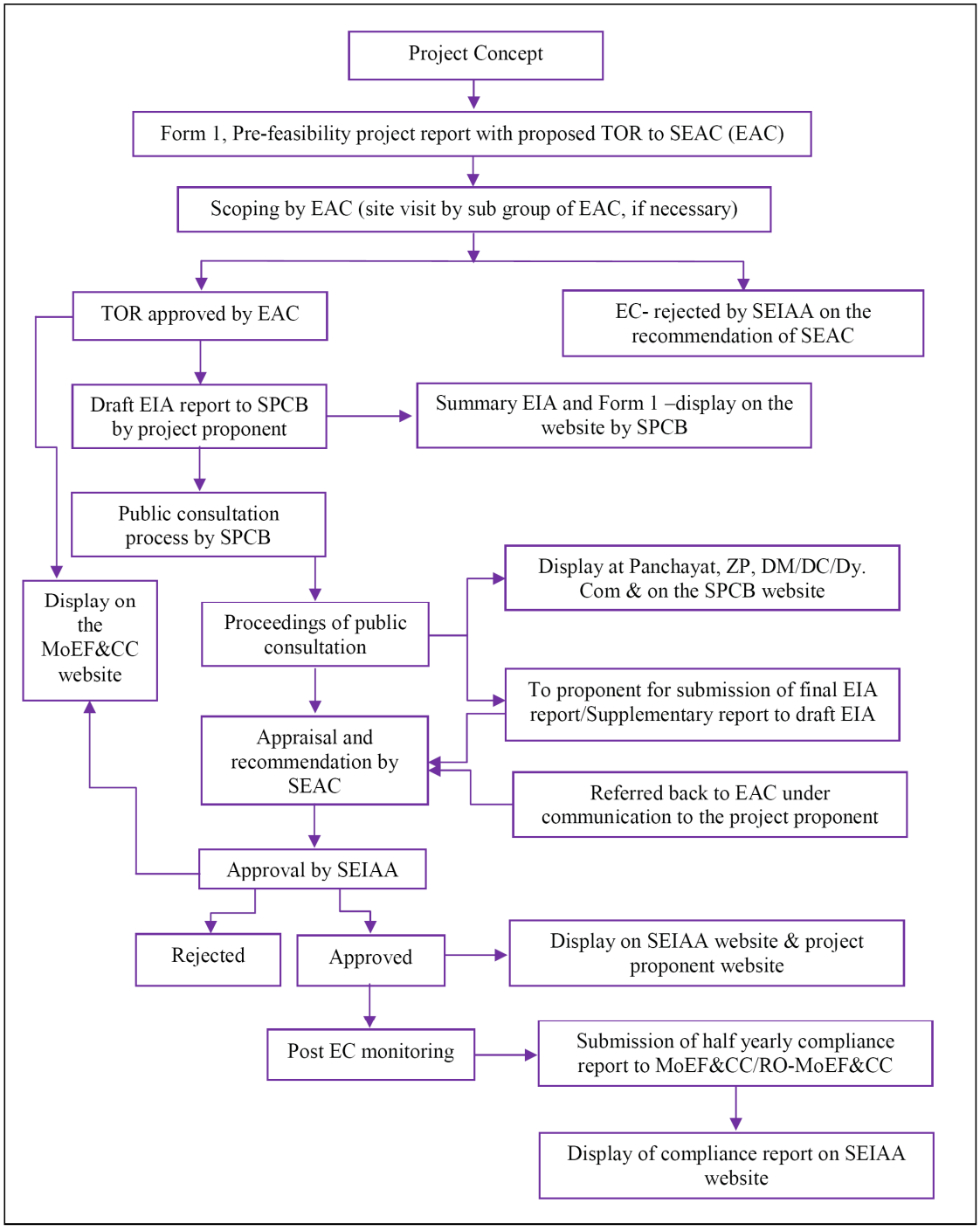
Note:-*Recovery 06%, ** Recovery 89% & mining loss 5%,(In situ B.D.=1.50 tonnes (cum)

Mining in next five years will be mainly in the area already degraded. The additional area to be degraded will be approximately 0.05663 hectare. The top soil about 1475 cum will be removed during third to fifth year. This soil will be temporarily stacked at designated place used to lay over backfilled area by the end of fifth year. Once soil is laid, the area will be either used for agriculture or plantation.

Disposal of Waste

The undersized limestone shall be rescreened to recover the fraction of +25mm size for plant utilization as lime kiln and below 25mm to be stacked. If company could sell this material undersized to other cement plant as sweetener so no place for stacking shall be required. About 3654 cum of undersized limestone was generated during plan period. This has been stacked on the pit floor near southern lease boundary. Undersized limestone will be stacked on the pit floor, in continuation of existing stack.

3.9 Schematicrepresentationsofthefeasibilitydrawingwhichgiveinformationof EIA purpose:



4.0 SITEANALYSIS

4.1 Connectivity Details from Project Site:

<table>
<tr><td>S. No.</td><td>Particulars</td><td colspan="3">Details</td></tr>
<tr><td>1.</td><td>Road Connectivity</td><td colspan="3">The mining area is located at a distance of about 20 km from Soda ash plant & /cement plant at Porbandar 15 km & Ranavav is about 2.1 km pucca road. A tar road is passing 20 m south of the area linked with Ranavav hwy SH27 which joins National Hwy (Porbandar NH-8B at Ranavav road. SH-27 is about 0.05 km towards East, The road distance from this mine to other nearby places in km are as under (aerial) in NW direction. The road distance from this mine to other nearby place in km areas under–</td></tr>
<tr><td></td><td></td><td>Location</td><td>Distance(km)</td><td></td></tr>
<tr><td></td><td></td><td>Ranavav</td><td>2.1</td><td></td></tr>
<tr><td></td><td></td><td>Porbandar</td><td>15</td><td></td></tr>
<tr><td></td><td></td><td>VXL Ltd Plant Porbandar</td><td>17</td><td></td></tr>
<tr><td>2.</td><td>Nearest Highway</td><td colspan="3">NH – 8B about 2.6 km towards SE direction from lease area.
SH – 95 about 13.4 km towards West direction from lease area.
SH – 27 about 0.05 km towards East direction from lease area</td></tr>
<tr><td>3.</td><td>Nearest Railway Station</td><td colspan="3">The nearest railhead is at Ranavav at a distance of about 3.4 km from ML area.</td></tr>
<tr><td>4.</td><td>Nearest Airport</td><td colspan="3">The nearest civilian airport for regular commercial flights is at Porbandar road distance from the mining lease area is around 11.7 km.</td></tr>
</table>

4.2 Land form, land use and land ownership

The mining lease area is generally flat. The highest elevation of the lease area is 48mRL and lowest elevation is 45.1 mRL.

Type of Land	Area in Hectares
Govt. Waste Land	12.14
Total	12.14

4.3 Topography

The mining lease area of 12.14 hectare falls within Latitudes $21^0$41'39.00" to $21^0$41'56.77" N & Longitudes $69^0$45'33.06" to $69^0$45'45.25"E. Topographical (Surface) Plan has been prepared on a scale of 1:1000 and contours have been shown at an interval of 1.0mts. The general natural drainage of the area is from East to West direction. The highest elevation of the lease area is 48mRL and lowest elevation is 45.1 mRL. The ultimate depth of mining will be up to 41mRL. No other perennial Nallah/water bodies existing the core area.

4.4 Existing Land use Pattern

The mining lease area is Govt. Waste Land (12.14hectare). There is no village or hutments with in the mining lease area. Existing land use pattern is given as below:

Present Land Use Pattern (Hects.)

S.No.	Land use Category	Pre Operation
1	Top Soil Dump	--
2	Waste Dump(External)	--
3	Excavation(Voids Only)	3.2707
4	Road & Built Up Area	0.2836
5	Township Area	--
6	Afforestation	0.0950
7	Reclamation(Backfilled)	--
8	Mineral Storage	--
9	Processing(Crushing)	--
10	Undisturbed Area	8.4907
11	**Total**	**12.1400**

4.5 Existing Infrastructure:

There is existing infrastructure is available in the mining lease area. All necessary infrastructures will be developed before mining operation commenced. Site services as per Mines Rules 1956 will be developed. First-Aid station with all necessary medical facilities, Toilets as per the provisions of Mines Rules will be developed. Regular medical checkup of the mine employees will be carried out as per the provisions of Mines Rules 1956.

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4.6 Soil classification:

Porbandar city has pretty much similar soil as whole Porbandar district. It is Deep- Medium black coastal alluvium. It is because proximity of sea and long shore line and also because of the Girnar mountain ridge. Because of many fault lines in proximity Porbandar is in seismically active zone.

4.7 Regional geology & local geology:

(a) Regional geology:-

The sedimentary limestone is the most common and important rock type exposed in the coastal belt of Saurashtra region. The Northen land mass bears Igneous Deccan Trap rocks and Intrusive. Stratigraphy of Saurashtra region in Gujarat is as follow:

Regional geology of Saurashtra(Kathiawar)

(Source: Geology of India & Burma – M.S. Krishnan page – 435)

QUATERNARY	
Holocene	Blown sand, soils, Alluvium, Fluvio- marine deposits
Pleistocene	Porbandar Limestone – Oolitic Miliolite Limestone
TERTIARY	
Pliocene (?)	Dwarka beds – clays, silts, cherty limestone
Pliocene	Piram beds- conglomerates, grit and clays with mammalian fossils of Siwalika age; exposed on the east coast and Piram Island
Mio- Pliocene	Gogha Beds – Thin bedded grits and sandstone exposed on the east coast
Lower Pliocene	Gaj beds- variegated clays, marls, impure limestone
Critacio Eocene	Deccan traps
MESOZOIC	
Mid Cretaceous	Light coloured and variegated sandstones
Cenomanian to Albian	Wadhwan sandstone – light sandstones with marine intercalations
Necomian	Dark gary marls with some plant remains Ptilophyllum, Araucarites, Cladophlebis etc.

Regional RockType:-

The Deccan trap of upper Cretaceous age covers entire Saurashtra region. The Sedimentary rocks (limestone) are outer fringes bordering Arabian sea.

Ranavav limestone deposit is a part of Porbandar limestone of Pleistocene Age occurring along coastal belt of Porbandar region. The limestone deposition of the coastal area begin from few km to 40 km towards in and often extending more depending upon the pale geographically condition as in the case of miliotic limestone up to Rajkot and even Drangadra in Surendranagar District. Along the coast, the limestone deposition occurs from Dwarka to Bhavnagar via, Porbandar, Mangrol, Una, Jafrabad, Talaja and Mahuwa.

Regional RockType:-

The Deccan traps are extrusive rocks occurring as undulating terrain. Some of the Igneous rocks occurring in "Gir Forest" area are intrusive ultra basic rocks, containing mineral like greenish Nepheline, Augite & Hornblende.

The miliolitic limestone is unconformably lying on Gaj formation, which are older than miliolitic limestone. The Gaj limestone is hard, compact and contained silicified fossils. The Gaj clay is associated with Gaj limestone. The economically important miliolitic limestone is compact to semi compact aggregates of miliolamicro organism shells. Current bedding is more due to shallow water deposition. The limestone thickness varies from thin layer upto 20-30 m and more.

a) **Local geology:-**

In the entire area limestone is extensively in low height elongated mounds/elevated ground with patches of thin soil cover and surrounded by soil covered cultivated fields. The limestone shows variation in CaO constituents in compact and semi-compact limestone. The compact type shows micro crystalline due to enrichment of calcium which commonly occurs near to surface followed by semi compact type. Below the semi compact good cement grade limestone is available with somewhat more silica content. The compact and semi compact type limestone of chemical grade is suitable for the Soda Ash manufacturing. Cement grade limestone of $CaCo_3$ content less than 90% and SiO_2 more than 5.5% is not suitable for the Plant. This may be utilized for Cement manufacturing at later date.

Physical & Chemical properties:

Colour : White buff to light brown

Streak : White tocreamish

white Luster : Earthy

Cleavage : Nil

The limestones of this deposit are of two types, i.e. chemical grade and cement grade. The chemical grade and cement grade limestone categorization is based on CaO and SiO_2 variation depending on enrichment due to leaching of SiO_2 by solution activities. Normally, the cement grade limestone occurs below the chemical grade limestone of semi compact type. In bottom the Gaj clay is lying there, as a departure from above at two places.

Litho logy:

The entire area is mostly exposed by Miliolitic formation and rarely cover of a layer of soil attaining a maximum thickness of about 15-30 cms.

The local stratigraphic sequence observed in the area is as follows:

Age	Formation		Thickness	Rocktype
Recent	Soil		0.15–0.30m	Dark grey to brownish, thin impersistent layer o ftop soil (very rare occurrence)
Pleistocene	Milioite Limestone	Chemical grade L. St.	1.0–3.0m	Medium grained, light grey to light brownish grey, high grade limestone grading into impure limestone and calcareous clay
		Cement grade L. St.	1.0-2.0m	Friable and granular, low Cao and high SiO_2

Limestone of the area is a porous rock containing minute empty spaces and is also severely affected by the solution effect of percolating water resulting in innumerable minute cavities and voids within the otherwise massive rock. It shows prominent dune type current bedding with bedding dips ranging between 5° to 10° towards the south- east in general.

4.8 Climatic Details

Porbandar has a tropical wet and dry climate, with three distinct seasons observed, a mild winter from November to February, a hot summer from March to June, and a monsoon from July to October. The Arabian Sea and the Gulf of Cambay are also influential factors affecting the climate and weather of Porbandar. Porbandar faces adverse climatic conditions in the summer months with the temperature ranging from 28° Celsius to 38° Celsius. In the winter months, the temperature ranges from 10° Celsius to 25° Celsius. The city is drained by the south-west monsoon from June to September. It records a rainfall of 1000 to 1200 mm annually. Various factors such as its close proximity to the sea influence the weather of Porbandar. The latent winds from the sea affect the climatic conditions in the region. Highest rainfall in a calendar year was recorded back in 1983 and it was 2800 mm.

4.9 Social Infrastructure

- The infrastructure like toilets, first aid stations etc. will be developed at mine site.
- The nearest village is Ranavav, health & educational facilities (in the form of schools) are available there. Medical facilities, Primary Health Centre are there in the area, imparting
- Services, for advance medical facilities. In each village one health worker has been appointed by the Govt. to provide primary health facilities.
- Village people are availing drinking water facilities generally from the
- Hand pump, open well and tube well.
- Communication services like post office and telephones are available in the
- nearby village. Some of the villagers are having mobile phones.
- An occupational health unit will be organized and the proposed measures
- will be adopted:

- Pre & Periodical Medical Checkup program for all the workers.
- Compulsory medical checkup program and first-aid box with necessary equipment will be provided.
- Training for workers regarding occupational hazards.
- Safety equipment i.e. dusts mask, safety shoes, gloves etc.

5.0 PLANNINGBRIEF

5.1 Planning concept

It is propose to produce 1,28,000 TPA of Limestone mineral from the mining lease area. It is situated in Porbandar District of Gujarat.

5.2 Population projection

Man power requirement for mining is estimated to be 21 Nos. Most of the

employees will be recruited from neighboring village depending upon the availability of skilled & unskilled people. Migration of highly educated and skilled person will take place but it will be on temporary basis. So there will no permanent migration of people, hence there will be no population projection.

5.3 Land use Planning:

LAND:STAGEWISELANDUSEANDRECLAMATIONAREA(Ha.)

S. No.	Land use Category	Pre Operational Phase	Operational Phase	Post Operational Phase
1	Top Soil Dump	--	--	--
2	Waste Dump(External)	--	--	--
3	Excavation(Voids Only)	3.2707	4.7566	4.7566*
4	Road & Built Up Area	0.2836	--	--
5	Township Area	--	--	--
6	Afforestation	0.0950	0.5836	0.5831
7	Reclamation(Backfilled)	--	0.25	0.25
8	Mineral Storage	--	--	--
9	Processing(Crushing)	--	--	--
10	Undisturbed Area	8.4907	7.1103	7.1103
11	Total	12.1400	12.1400	12.1400

*About2.7561hectareareawillbeusedaswaterstorage.

POSTMINING LANDUSE OF CORE ZONE WITH ENVIRONMENT MANAGEMENT

S. No.	Description	Land Use(InHa.)				
		Plantation	Water Body	Public Use	Undisturbed	Total
1	Top Soil Dump	--	--	--	--	--
2	External Waste Dump	--	--	--	--	--
3	(a)Excavation(Voids)	--	2.7561	--	--	2.7561
	(b)Excavation(backfilled)	0.25	--	--	--	0.2500
4	Road	--	--	--	--	--
5	BuiltUpArea	--	--	--	--	--
6	TownshipArea	--	--	--	--	--
7	Afforestation	0.5836	--	--	--	0.5836
8	MineralStorage	--	--	--	--	--
9	UndisturbedArea	1.1103	--	--	--	1.1103
	Total	1.9439	2.7561	--	--	12.1400

5.4 Assessment of infrastructure demand(physical and social).

Temporary office and stores will be provided in the mining lease area. Specified first-aid box with all necessary facilities will be maintained at the site office and the rest shelter as per Mines Act-1952. Medical facilities, Primary Health Centre are there in the area, imparting services, for advance medical facilities. Communication services like post office and telephones are available in the nearby village. Some of the villagers are having mobile phones.

5.5 Facilities provided:

5.5.1. Infrastructure

Additional facilities will be made as per the requirement. Arrangements for safe and healthy working conditions. Provision of Drinking water from nearby villages or through tankers in dry period.

5.5.2 Landscaping and greenbelt development

It is proposed to plant total no. 2000 saplings in first five year. Year wise plantation is shown on the conceptual plan.

Requirements for Plants for Afforestation and Reclamation

Year	On Backfilled Area		Along the Lease boundary		Undisturbed Area		Total	
	Area(Ha.)	No. of Trees	Area (Ha.)	No. of Trees	Area (Ha.)	No. of Trees	Area (Ha.)	No. of Trees
I	--	--	0.1200	120	0.2500	250	0.3700	370
II	0.0600	60	0.1200	120	0.2500	250	0.4300	430
III	0.0600	60	0.1200	120	0.2500	250	0.4300	430
IV	0.0600	60	0.1200	120	0.2500	250	0.4300	430
V	0.0700	70	0.1036	160	0.1103	110	0.2839	340
Total	0.2500	250	0.5836	640	1.1103	1110	1.9439	2000

A number of species will be planted suitable to climate conditions this area of like Neem, Gulmohar, Mango, Karanj etc. In addition, forest officials will be consulted for other suitable species. The afforested area will be encircled by a boundary of local thorny bushes to protect it from cattle's and regular watering thrice/twice a week (except monsoon) and maturing as required will be done.

Protection of Plants:

Following measures are proposed for protection of plants. The expected rate survival is assumed at 80%. To improve the survival rate in the adverse climate condition necessary consultation would be taken from the Forest department. Proposed plantation area shall be fenced properly for improving the survival rate. Plantation will be carried out in the applied lease area in phased manner. department. Proposed plantation area shall be fenced properly for improving the survival rate. Plantation will be carried out in the applied lease area in phased manner.

5.5.3 Health and safety system

During the opencast working, and allied activities, all the precautionary measures shall be taken into account as per Reg. 106, 181, 182 & 183 of MMR 1961 and Rules 31, 35, 37, 38 & 39 of MCDR 1988 for safety and security.

Following Safety & Security measures will be enforced;

Moving front of the quarry shall have temporary fencing.

Permanent fencing will be provided where quarry has reached the ultimate pit limit.

- Mine entrance will have a permanent check post and record shall be maintained of all persons / vehicles entering the mine area.
- Round the clock security arrangement shall be provided to prevent inadvertent entry of persons.
- Mitigation measures will be taken in respect to non - compliance.

Inspection of regular operation of Pollution Control Equipment.

- Review of the safety practices being followed and additional safety measures if necessary.
- Identification of the unsafe conditions/ practices preventing in the shops for elimination of hazard, if any.
- Arrangement of training to develop safety awareness among all staffs of the works.
- Preparation of safety codes/ manuals of operations and will be distributed to workers.

5.5.4 Disaster Management and risk assessment

In spite of following all the precautionary measures and following all safety rules, regulations and procedures, in mining accidents cannot be ruled out

completely. The company will formulate a Disaster Management Plan with the approval of DGMS. Following are the accidents which can take place in mechanised opencast mining and measures proposed to be taken.

- Fall of human beings or fall of machines from benches/ dumps/haul roads.
- Due to drilling / blasting and handling of explosives.
- Fire & Explosion in machinery
- Emergency situation due to social reason such as public unrest, terrorism etc.

Preventive Measures:

- Possibility of accidental disaster is also not ruled out. Therefore, all the statutory
- precautions shall be undertaken into account for quick evacuation as per Mines Act, 1952, Mines Rules, 1955, reg. Of MMR, 1961 and Rules of MCDR, 1988.

- All provisions of MMR 1961, conditions imposed in permission for drilling and
- blasting and conditions of explosive license will be followed.

- Fire fighting equipment in the machinery/ workshop/ office will be maintained.
- Persons will be trained in the use of fire fighting equipment and mock rehearsal will be conducted.

- Training of security personnel.
- Procedures as laid down in Disaster Management Plan to be followed.

Training;

Persons will be trained in the following:

- Knowledge of Chemicals and use of protective equipment
- Procedures for reporting emergencies.
- Location and use of fire fighting equipment
- Knowledge of alarm system and siren
- Evacuation procedures.

- Training in first aid as per Mines Rules 1955 Emergency

Equipment & Facilities:

- Mobiles.
- Fire fighting equipments
- Emergency medical supplies
- Other protective equipment's i.e. goggles, helmet, face shield, hand gloves, safety belts, barricade tape.

First Aid station as per the provisions of Mines Rules 1955.

6. PROPOSEDINFRASTRUCTURE

S. No.	Details	
1	Mining Lease Area	12.14 hectares.
2	Residential Area	Not Applicable
3	Connectivity	The mining area is located at a distance of about 2.1 km from Village. NH – 8B about 2.6 km towards SE direction from lease area. SH – 95 about 13.4 km towards West direction from lease area. SH – 27 about 0.05 km towards East direction from lease area. The nearest railhead is at Ranavav at a distance of about 3.4 km from ML area. The nearest civilian airport for regular commercial flights is at Porbandar at road distance from the mining lease area is around 11.7 km.
4	Green Belt	In the operational phase about 2000 saplings will be planted. Plantation will be done along the lease boundary, on backfilled area etc.
5	Social Infrastructure	Physical & Social Infrastructure will be provided, and if necessary other facilities will also be provided by the Lessee.
6	Water Management	5.00 KLD, Source: PHED supply & Hand pump / tube wells by water tankers.
7	Sewerage System	Domestic Effluent treated in soak pits and overflow used for plantation
8	Industrial Waste Management	N.A.

Location	Distance(km)
Ranavav	2.1
Porbandar	15

9	Solid Waste Management	The undersized limestone shall be rescreened to recover the fraction of +25mm size for plant utilization as lime kiln and below 25mm to be stacked. If company could sell this material undersized to other cement plant as sweetener so no place for stacking shall be required. About 3654 cum of undersized limestone was generated during plan period. This has been stacked on the pit floor near southern lease boundary. Undersized limestone will be stacked on the pit floor, in continuation of existing stack.
4	Green Belt	In the operational phase about 2000 saplings will be planted. Plantation will be done along the lease boundary, on backfilled area etc.

7. REHABILITATION&RESETTLEMENTPLAN

There is no human settlement within the applied area. No human settlement will be disturbed due to the mining activity. So, no Rehabilitation and Resettlement is proposed..

8. PROJECTSCHEDULE

8.1 Proposed schedule and approval for implementation

The proposed project shall be established after getting the Environmental Clearance from SEAC, Gujarat.

8.2 Project cost estimation

Estimated Project Cost for the proposed project is Rs. 30.00 Lacs.

(A) Capital investment/- Site Facilities	= Rs.	1,50,000/-
Approach road	= Rs.	1,00,000/-
Machinery & Tools	= Rs.	10,00,000/-
Financial Assurance	= Rs.	1,00,000/-

Social fund & activities	= Rs.	1,00,000/-
EMP Fund	= Rs.	1,20,000/-
Miscellaneous	= Rs.	1,00,000/-
Total cost	= Rs.	17,00,000/-

(B) Operational cost-

The mineral will be mined from the mining lease area, the cost of per ton mining will be app. Rs. 375/- per ton.

8.3 ECONOMICVIABILITY

TheanticipatedcostofminingisRs.375/- pertoncost.Thelimestoneisusedatourownsodaashplantlocatedat Ranavav.Hencethep rojectwillbeviable.

9. ANALYSISOFPROPOSAL

- Project will create direct & indirect employment opportunities within the surrounding region. Unit will use good faith efforts to employ local people from the nearby villages depending upon the availability of skilled & un-skilled man-power surrounding the project site.
- In the proposed project would require significant workforce of non- technical and technical persons. Migration of highly education and skilled experience will result in increase of literacy in the surrounding villages.
- In addition, the proposed project shall enhance the prospects of employment.
- Assessment of the potential socioeconomic benefits during mining focused primarily on work force requirements, acquisition of supplies, and the temporary increased demand for services related to the mining project like food, housing, communications, law enforcement, medical care, local transportation etc. Due to these, additional revenue to local suppliers for required products and

services related to the construction and operation phases of the project will generate.

- Thus, mining activities will provide numerous new, although temporary, work opportunities for both skilled and unskilled labor, as well as contribute significantly to the local economy.
- Additional government revenue expected from royalty, taxes, duties and other fees.
- An added benefit to the proposed project will result in considerable growth of stimulating the industrial and commercial activities in the state. Small and medium scale industries may be further developed as a consequence.

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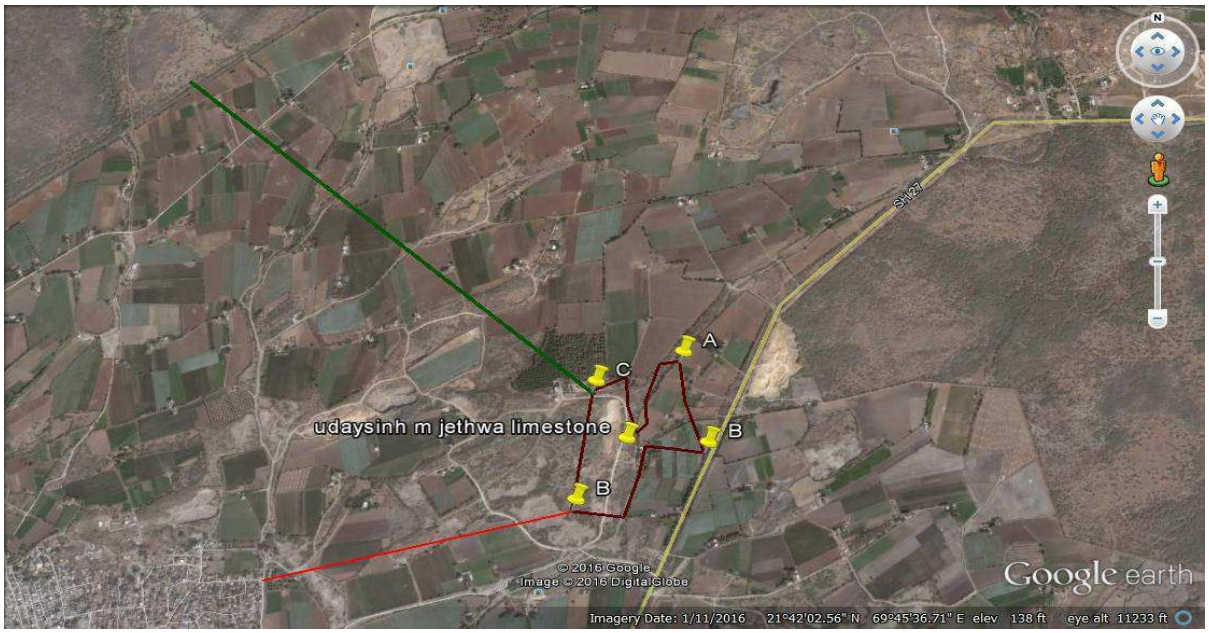
ARIEL VIEW A SETELLIE IMAGE OF HUMAN HABITATION & BARDA FOREST STUDY AREA



Name Of Lease Holder	Shri Udaysinh M. Jethwa Ltd.
Location & Address	SurveyNo.78/5,N/V. Ranavav, Taluka –Ranavav, District-Porbandar,(Gujarat)
Name Of Mineral To Mine	Lime Stone