EXECUTIVE SUMMARY OF

COMPREHENSIVE MARINE ENVIRONMENTAL IMPACT ASSESSMENT STUDY FOR CAPTIVE JETTY, CONVEYOR CORRIDOR WITH STORAGE AND BACKUP FACILITIES AND APPROACH ROAD FOR RAIGAD CEMENT BULK TERMINAL IN VILLAGE SHAHBAJ AND SHAHPUR, ALIBAG TALUK, MAHARASHTRA

PROJECT CODE: 606121718

For

ADANI CEMENTATION LIMITED

AHMEDABAD

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EIA CONSULTANT

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EXECUTIVE SUMMARY

E.1. Introduction

Adani Cementation Limited (ACL), Ahmedabad is wholly owned subsidiary of Adani Enterprises Limited (AEL) created on 6th December 2016, Adani has grown to become a global integrated infrastructure player with businesses in key industry verticals - Resources, Logistics, Energy and Agro. Adani group has rich and extensive experience of liaison with government agencies, import, funding etc. With this track record of the organization in tying up finances, flow of funds will not pose any problem for implementation of the proposed project of its cement division. Adani Cementation Ltd., (ACL) has been formed for development of a number of Cement Projects carrying for Integrated Cement Plant, Grinding Units, Bulk Terminals and Limestone Mine.

ACL has the opportunity to reduce the gap in supply and to compete with current producers to increase the market share in these areas through its low cost of production and reduced transport cost.

ACL had proposed to construct Captive Jetty, Conveyor Corridor with Storage & Backup Facilities of 5 Million MTPA capacity and Approach Road for CBT at Village Shahbaj and Shahpur of Alibag Taluk in Raigad district, Maharashtra. The proposed Jetty and its associated facilities is classified as Category 'A' Project under category 7(e) as per Environment Impact Assessment (EIA) Notification dated 14th September 2006, MoEF&CC. This necessitates environment clearance from MoEF&CC.

As per the CRZ Notification 2011, Section 1 (i) & (ii) and its subsequent amendments, setting up/expansion of any industry, operations or processes and manufacture or handling within 500 m on the landward side along the sea front from the High Tide Line (HTL) and land area between HTL to 100 m or width of the creek whichever is less on the landward side along the tidal influenced water bodies that are connected to the sea and the distance up to which salinity concentration of 5 parts per thousand (ppt) measured during the driest period of the year requires prior CRZ clearance before commencing onsite activities.

As per Coastal Regulation Zone Notification, 2011 the project area falls under CRZ – IA (Mangroves and 50m Buffer from Mangroves), CRZ – III (Rural) and CRZ – IVB (Creek). The development of captive jetty, Conveyor with its associated storage as well as backup facilities and approach road are permissible activity as per CRZ Notification 2011, Section 3 (i) (a).

The EIA report is being submitted for obtaining EC and CRZ clearance to proposed project. The baseline data on Marine environment have been collected during pre-monsoon (March – April 2018) and post monsoon (September – October 2018). This report comprises of baseline data on Seawater, seabed sediment quality and Marine ecology and biodiversity.

E.2. Project Description

Location: The proposed jetty falls ~500 m northwest to the CBT and southern bank of Amba river at Shahpur village, Alibag Taluk, Raigad district, Maharashtra. Pen is the nearest town located at a distance of 8 km from the proposed project site. The proposed CBT site is adjacent to the backyard / stackyard of PNP and lies on the western side of the PNP Maritime Services

Pvt. Ltd. operating a multipurpose port. At present PNP handles coal, steel coils and fine cement; totaling to a volume of ~4 MTPA.
The proposed project location is well connected by road and rail. It is accessible by road and is 80 km south of Mumbai. The Pen – Alibag National Highway NH-166a passes at approximately 1.5 km on south from the proposed location. The nearest railway station is Pen station located approximately 8 km northeast of the proposed location. The nearest major port is in Mumbai at a distance of 28 km northwest of the proposed location. The nearest airport is in Mumbai at 80 km northwest of the proposed location.

Raigad district can be divided into three characteristic zones based on topographic features viz. coastal zone, central zone and hilly zone. Though the district forms part of Konkan plains, the topographic set-up is very uneven and rugged. The coastline is characterized by alternative bluffs and curved bays having narrow hinterlands. The central region of district has many plateaus and hills rising from valleys. The eastern part is rugged and merging with the Sahyadri's existing in north-south direction. The eastern horizon is marked by Sahyadri hills with good forest cover.

The soils in the district are formed from the deccan trap which is predominating rock formation with small out crops of Laterite at a few places in the oladpur Taluk and Matheran hill. The soils are grouped as Forest, Varkas, Rice, Khar or Saline, Coastal Alluvium and Laterite as per the location and topographical situation.

The proposed Captive jetty, conveyor corridor, Back-up facility and bulk terminal will have potential to handle up to 5.0 MTPA of Cement, Fly ash, slag, Clinker, Coal & AFR.

Some of the facilities like conveyor belt, loading system, firefighting facilities, storage area, approach road will be provided.

- Four number of barge berth having total length of 620 m and 35 m wide having mechanized handling system
- Development of CBT unit in non-CRZ area
- Captive Jetty (with related utilities and Amenities), plant approach road and the right of way of conveyor between jetty and bulk terminal in CRZ area as per the CRZ notification
- Approx. 535 m of conveyor connecting from jetty to CBT unit area
- Dredging in berth pocket area
- Unloading mechanism at jetty: self-discharging vessel/ mechanized unloading
- Support Back up Infrastructure for operations and maintenance of the proposed facility (Water, Power, Buildings, utilities and amenities including Fire Fighting, safety and security systems and environment protection measures).
- • Backup area development
- Incremental Supporting Infrastructure

Proposed berthing facilities are likely to handle various cargo. As understood upon completion of dredging, depth in the channel will in range of (-) 5.3 m, barges/ small bulk carriers will be the main size of vessels. The average vessel size for the proposed facility is around 2000 DWT to 8,000 DWT.

Cost of the Project: The estimated cost for the proposed project is about 171.6 Crores

E.3. Description of environment

The marine environment of the project region has been studied for the evaluation of baseline information as per the norms stipulated in the EIA notification 2006. The baseline data on marine environment have been collected during pre-monsoon period in March - April 2018 and post monsoon in September – October 2018

Water quality: Water samples were collected from 10 locations to understand the quality of water in the project region. Water quality parameters such as DO, BOD and nutrients indicate range pertaining to river waters. Levels of heavy metals also indicate the water in the study area is free from pollution.

Sediment quality: Sediments in the project region is dominated by clay. The heavy metal concentration in the sediment showed low values in the study area. It indicates that there is no accumulation of pollutants in the sediment samples. The proposed site is free from any sediment pollution.

Phytoplankton: The average primary productivity in the study area was 426 mgC/m^3/day in pre-monsoon and during post monsoon 402 mgC/m^3/day was observed and number of phytoplankton taxa recorded during two seasons varied from 16 to 34 species.

Zooplankton: Zooplankton population analysis at various stations showed that their numerical abundance during two seasons varied from 65693 to 109834 nos./100 m^3. The species composition fluctuated from 15 to 25 species.

Benthos: The numerical abundance of the subtidal benthic fauna during two seasons varied between 360 and 1056 nos./m^2. The intertidal faunal population mainly consisted of polychaete worms, crustaceans and molluscon.

E.4. Impact assessment and mitigation measures

The proposed project is the construction of CBT and captive jetty at Shahbaj and Shahpur village, Alibag Taluk in Raigad district, Maharashtra. This impact assessment is the anticipated impacts due to the activities during construction and operation phases of the Jetty will have moderate and marginal impacts on marine environment. The magnitude of adverse impact will be minimum if appropriate mitigation measures are implemented. Overall, there are no negative impacts on historic/ cultural heritage. Nevertheless, the proposed project would bring positive impact on land use, people, their living and the economic development of the state.

Sl. No.	Activity	Impact	Mitigation
1	Construction of jetty	construction of piles may cause obstruction for the flow of tidal currents and movement of sediments	The clean, efficient and aesthetic construction techniques have to be adopted at offshore for the construction of piles. The technique adopted should not stir up the bed material in the water body.
2	Seaweed and seagrass	There are no seaweeds and seagrass found or reported in the area.	-
3	Mangroves	Dense mangroves are seen immediately on the eastern and western side of the project region within 1 km distance, along the intertidal region.	It is suggested to take up an afforestation measures with the forest department on the suitable location near to the proposed Jetty in the intertidal region
4	Corals	There are no corals observed in the Amba river more particularly in project region.	Hence, there is no question of impact on corals
5	Turtles	There are no turtle nesting ground along the Amba river.	-
6	Endangered species	There are no specific endangered species in the Amba river.	-
7	Fisheries and fishermen	The low intensity of fishing operation using stake net, cast and gill nets in the area harvest insignificant fish catch.	The fishing activity is seen only from the Amba river confluence with Arabian sea. Therefore, there will not be any impact for fishermen or the fishing boats moving in this region

E.5. Post project monitoring

Post project monitoring will be undertaken to find the variation in baseline environment in the project area. Main pollutant/ parameters which likely to alter during construction and operational period will be monitored. The monitoring plan for the proposed project is given below.

Purpose	Parameters	No. of stations	Frequency during dredging period	Frequency during the initial 2 years	Frequency during the period after 2 years
Seawater & Sediment quality					
To monitor impacts on seawater and sediment quality	Turbidity, nutrients and heavy metals in water and sediment	4	Quarterly	Half yearly	Every year
Marine ecology					
To determine	Measurements of	4	Quarterly	Half yearly	Every year

Purpose	Parameters	No. of stations	Frequency during dredging period	Frequency during the initial 2 years	Frequency during the period after 2 years
whether the habitat and community structure, have been altered	various parameters: primary production, phytoplankton, zooplankton, benthos, bacteria, in the marine environment				
Intertidal Benthos					
To determine the composition and distribution of major groups of inter tidal fauna	Benthic faunal composition in the water and sediment of the port basin and channel.	3	Quarterly	Half yearly	Every year

E.6. Additional studies

Disaster Management Plan including the onsite & offsite emergency plan has also been prepared and included in the report. Necessary safety procedures should be followed to minimize the impact of risk involved during the operational stage.

As project area is located near to coastal lines, the area is also vulnerable to natural disasters. Although, these are rare events, Coordination with national agencies and Govt. bodies will be the key to manage such events. Necessary facilities for emergency management will be provided to the workers. Emergency facilities includes Lifesaving jackets, ropes, Assembly points, Evacuation Route, and Medical Facilities. An Emergency Disaster Management Cell should be formed to deal with emergency situations.

The environmental impact of an oil spill can be minimised by good management and planning, and by the response actions put into effect by the Combat Agency. Such actions will largely depend on several factors:

- the type of oil(s) involved;
- the size of the spill;
- the location of the spill;
- the prevailing sea and weather conditions at the spill site; and
- the environmental sensitivity of the coastline/site impacted

E.7. Project benefits

Development of proposed project will have direct benefit for the local people immensely in terms of continuous economic benefits. Improvements in Physical Infrastructure, Social Infrastructure, Employment Potential and Other Tangible Benefits through CSR activities are the key benefits expected from the project.

E.8. Environmental Management Plan

The proposed activities will have the impacts on the environment and hence a proper Environmental Management Plan is necessary. This Environment Management Plan addresses the management of environmental impacts and implementation of the mitigation measures associated with the project. The impacts include potential effects to the water quality, sediment quality, pelagic and benthic producer habitats and the ecosystem integrity. The Environment Management Plan has been prepared with the guidelines on proper locations of the marine facilities, appropriate design, regulation of boats movements, and preservation of nearshore ecology and protection of social life.

Information with respect to any untoward incidences during the construction and operation of the Jetty shall be communicated to local Gram Panchayat, local village workers, employees and other project-related individuals. Environmental issues should be communicated to the concerned Govt. agencies such as State Pollution Control Board (SPCB), Forest and Environment Department, District Collector etc.

Environmental monitoring and compliance report shall be submitted to the concerned authority as stipulated in the Environmental / CRZ Clearance approval. Rs. 2.5 Crore and Rs. 1.0 has been estimated as Capital Budget and Annual Budget for EMP.

E10.9. Conclusion

The baseline study carried out for the study area indicates that all the physical, chemical and biological characteristics of the project area are well within the permissible limits. Based on this environmental assessment, the possible impacts during both construction and post-project phase are anticipated and the necessary adequate control measures are formulated to meet the statutory compliances. With minimal negative impacts, the project will leads to reduction in supply gap of cement, commercial business opportunities, Employment opportunities, and infrastructural development. The implementation of suggested mitigation measures and environment management plan will ensure to keep the anticipated impacts to minimum so that the project will be completed without any significant change in baseline environment status.