1. INTRODUCTION

Chennai Port is one among the twelve major ports in the country and the third oldest port. Chennai Port is an emerging hub port in the East Coast of India.

1.1 Port History:

The little fishing village called Chenna Patnam, which was founded in 1639, became prominent during the early part of the 18th Century when the East India Company was active on the East Coast. In the absence of the Harbour, the Company ships were anchored about quarter mile offshore and the cargo to and from the ships were transported through small lighters called Masula boats. As the loss of cargo while transporting through Masula boats was high, it was proposed to build a pier to berth larger crafts and an Iron screw pile pier was built in 1861 to a length of 1,100 ft., perpendicular to the shore during November 1881, due to violent cyclone over half a mile of breakwater was breached and equipment's and human lives lost. Though there was a demand for relocating the entrance, the restoration was resumed in 1885.

Port of Chennai (Madras) until the year 1875, was simply an open roadstead on open sandy coast swept by storms and occasional monsoons.

Sir Francis Spring, the Chairman of Madras Port Trust in 1904 created a new North-Eastern Entrance after closing the original Eastern Entrance to control the siltation of the channel in front of the basin. Subsequently Quays were constructed at different periods (i.e) South Quay-I in 1913, the five West Quay berths in 1916 to 1920, North Quay in 1931 and South Quay II in 1936 in the Inner Harbour which was later, christened as Dr. Ambedkar Dock.

The official inauguration of the wet dock was done on 6th November 1964 by Shri. Lal Bahadur Shastri, the Prime Minister of India. The dock was christened Jawahar Dock in memory of Shri. Jawaharlal Nehru, India's first Prime Minister.

The Bharathi Dock was originally constructed as an outer Harbour to handle vessels upto (-) 16.2 M draft. An Oil jetty to handle Crude Oil imported by the Manali Oil Refinery (presently Chennai Petroleum Corporation Ltd) was constructed initially during the year 1970. An Iron Ore berth was constructed in the same dock in 1974 for exporting Iron Ore to

Japan and other Far East countries. Subsequently one more oil jetty was constructed during the year 1985 to meet the additional demand for crude/products.

In 1970s the Madras Port Trust started handling containers in Inner Harbour and as the container traffic was increasing, a Container Terminal of 380 M length was constructed at Bharathi Dock during the year 1983 as a first full-fledged Container Hub of the Country with Container Storage Yard of 51,000 sq.m and a Container Freight Station of 6000 sq.m. area. The terminal was provided with two shore cranes and other shore facilities required for Container Terminal.

Subsequently the terminal was further extended by 220 M during the year 1991 with additional two shore cranes and other matching infrastructural facilities. As the container traffic was constantly increasing the terminal was further extended by 285 M, during July 2002. This Container Terminal of 885 M total berth length with backup area was privatized under concessional agreement with M/s. Chennai Container Terminal Private Ltd., on BOT basis for 30 years from November 2001.

Consequent to the renaming of the city of Madras as Chennai with effect from 30.9.1996, the Madras Port Trust has been renamed as Chennai Port Trust.

With the number of car manufacturing companies located around Chennai, potential exists for large-scale car exports through pure car carriers (PCC) shipment. In fact shippers have already started from July, 2000 onwards.

The general layout of the Chennai port is shown in Figure 1.1

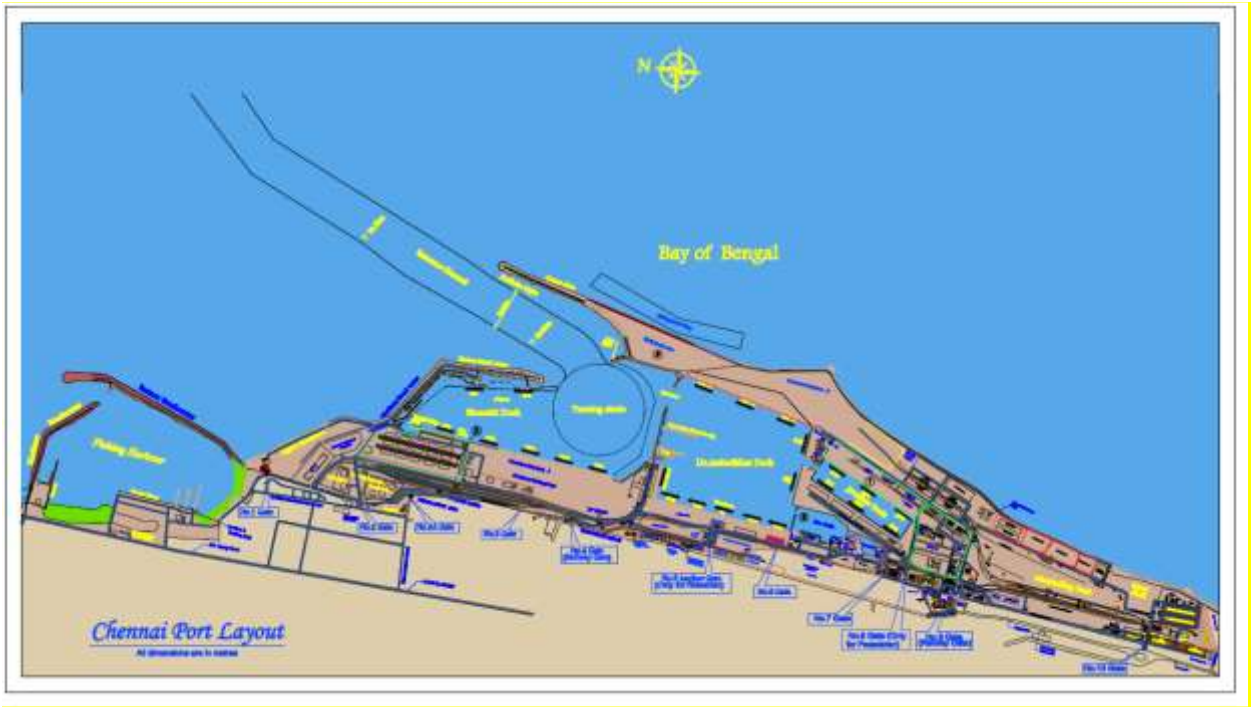


Fig: 1.1 General Layout of Chennai Port

1.2 PORT INFRASTRUCTURE & OPERATIONS

The port with three Docks, 24 berths and draft ranging from 12m to 16.5m has become a hub port for Containers, Cars and Project Cargo in the East Coast. The long term plan for Chennai Port envisages that the Port will mainly handle 4C's i.e. Containers, Cars, Cruise and Clean Cargo. Port has land area of about 285 hectares with storage capacity of 1.6 million Sq.m (Covered 116769 Sq.m and open 1515259 Sq.m).

The Chennai port is having Terminal Shunting Yard and running its own Railway operations inside the harbour. The port is having railway lines running up to 68 kms and handles about 25% of the total volume of the cargo with 12 nos. of 700 HP & 2 nos. 1400 HP Diesel Locos. The Chennai Port is also having an internal road network of 27.5 km. The berth facilities in Chennai Port listed in the Table-1.1.

Table-1.1: Existing Berth Facilities in Chennai Port

S.No	Berth	Type	Scheduled Depth (Mts)	Length (Mts)
DR. Ambedkar Dock				
1	North Quay	General	8.50	198.0
2	West Quay 1	General/Other Liquid Bulk	11.0	170.6
3	West Quay 2	General	12.0	170.6
4	Centre Berth	General	12.0	170.6
5	West Quay 3	General	12.0	170.6
6	West Quay 4	Passenger/Fertilizer	11.0	170.6
7	South Quay 1	Fertilizer/General	9.5	246.0
8	South Quay 2	Fertilizer/General	9.5	179.0
Second Container Terminal (SCB)				
9	SCB1	Containers	15.5	820.0
10	SCB2	Containers	15.5	
11	SCB3	Containers	15.5	
Jawahar Dock (JD)				
12	JD1	Food grains/General	13.0	218.33
13	JD2	Coal/Other/Liquid Bulk	14.0	218.33
14	JD3	Food grains/General	13.0	218.33
15	JD4	Other ores/Coal	11.0	218.33
16	JD5	Food grains/General	13.0	218.33
17	JD6	Other ores / Coal	11.0	218.33
Bharathi Dock (BD)				
18	BD1	Oil	16.0	355.65
19	BD2	Ore	17.4	382.00
20	BD3	Oil	17.4	307.50
Container Terminal (CT)				
21	CT 1	Containers	13.40	200
22	CT 2	Containers	13.40	200
23	CT 3	Containers	13.40	200
24	CT 4	Containers	13.40	285

Chennai port is also having following infrastructure –

Table-1.2: List of Infrastructure

S.No	Description	Quantity (Nos.)
1	Dredgers	1
2	Tugs	7
3	Pilot launches	2
4	Mooring Launches	2
5	Multi-purpose harbor vessel	1
6	Oil recovery vessel	1
7	Shore Electric cranes	10
8	Mobile cranes (Capacity – 10 Tons)	3
9	Fork Lifts (Capacity – 3Tons – 10nos, 10 Tons – 3 Nos, 15 Tons – 5nos, 25 Tons – 2 nos.)	20
10	Pay Loaders (Capacity – 3 Tons)	2
11	Diesel Electric Locomotive (Capacity – 700HP – 2Nos & 1400 HP – 2Nos.)	10

1.3 PURPOSE OF THE PROJECT

Chennai Port Trust as a part up gradation of existing facilities proposed proposes for development / improvement of 7 infrastructure facilities as a single Environmental clearance as per directive received from Ministry of Shipping. This step will cover the requirement of ports for new / up gradation of existing facilities for next ten years.

1.4 PROPOSED PROJECT DESCRIPTION

The proposal presented is for the following activities

i. Improvement to the existing Jawahar dock (East) Berths of handling bulk cargoes –Modernization

ii. Improvement to the existing Bharathi Dock II Berth for handling bulk cargoes – Modernization

iii. Relocation of existing Sand Trap and Capital Dredging –change in location

iv. Development of Multi level car parking facility (5000 cars) –New

v. Development of coastal Terminal (1 MTPA) at northern sheltering arm at east of Bharathi Dock turning circle –New

vi. Development of Dry dock Facility in the Boat Basin/Timber Pond area –New

vii. Development of Storage Sheds and Tank Farms as per the Land use plan of the Chennai Port – New

1.5 PROJECT LOCATION & SITE DESCRIPTION

The proposed project is located at Chennai Port Trust, Chennai, India. Chennai Port, the third oldest port among the 12 major ports, is an emerging hub port in the East Coast of India. This gateway port for all cargo has completed 128 years of glorious service to the nation's maritime trade.

In 1983, the port heralded the country's first dedicated container terminal facility commissioned by the then prime minister Smt.Indira Gandhi on 18th December 1983. The Port privatized this terminal and is operated by Chennai Container Terminal Private Limited. Having the capability of handling fourth generation vessels, the terminal is ranked in the top 100 container ports in the world.

In tune with the international maritime developments, the port developed the Outer Harbour, named Bharathi Dock for handling Petroleum in 1972 and for mechanized handling of Iron Ore in 1974. The Iron ore terminal is equipped with Mechanized ore handling plant, one of the three such facility in the country, with a capacity of handling 8 million tonnes. The Chennai port's share of Iron ore export from India is 12%. The dedicated facility for oil led to the development of oil refinery in the hinterland. This oil terminal is capable of handling Suezmax vessels.

Figure: 1.2 Location Map

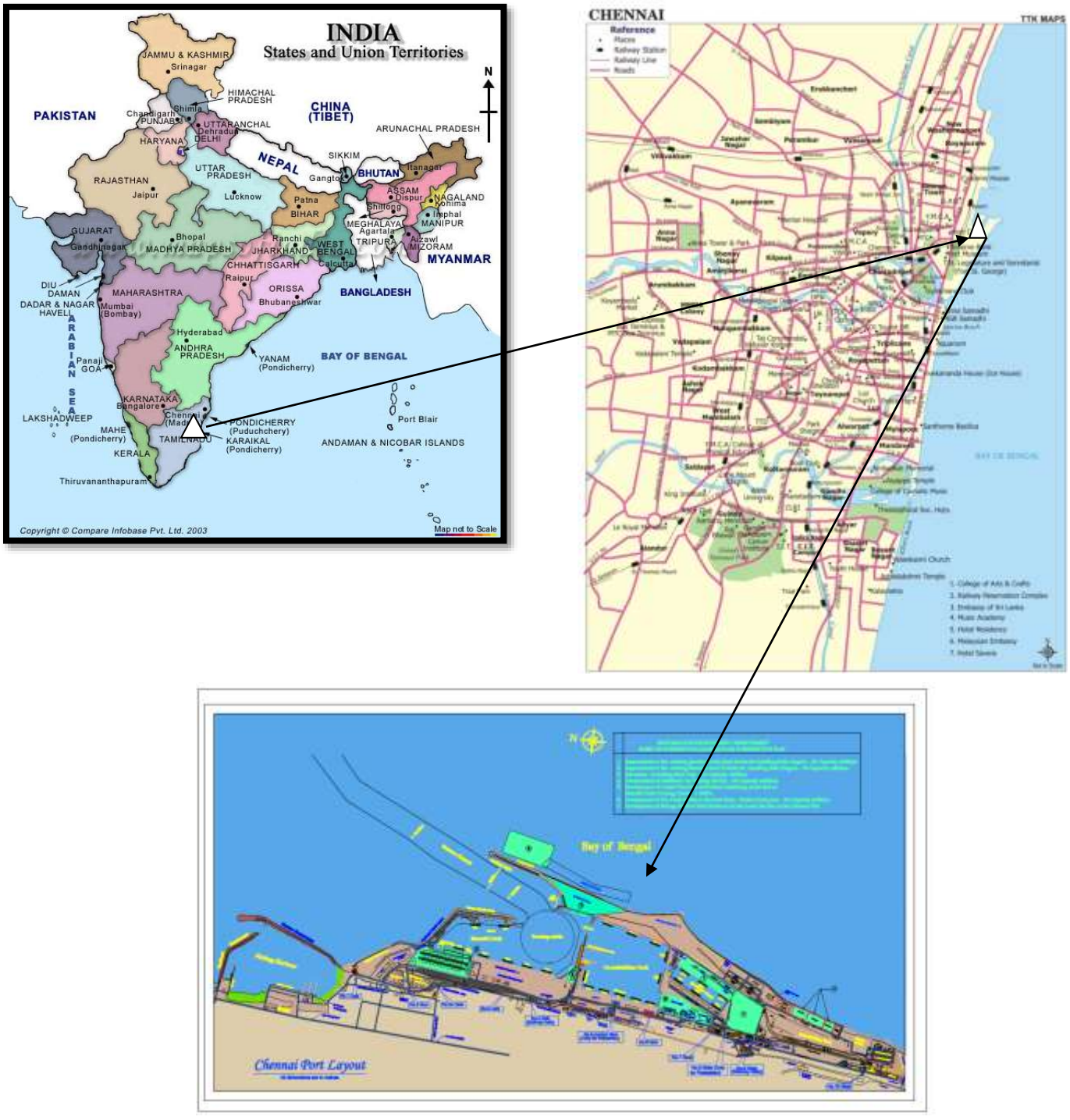
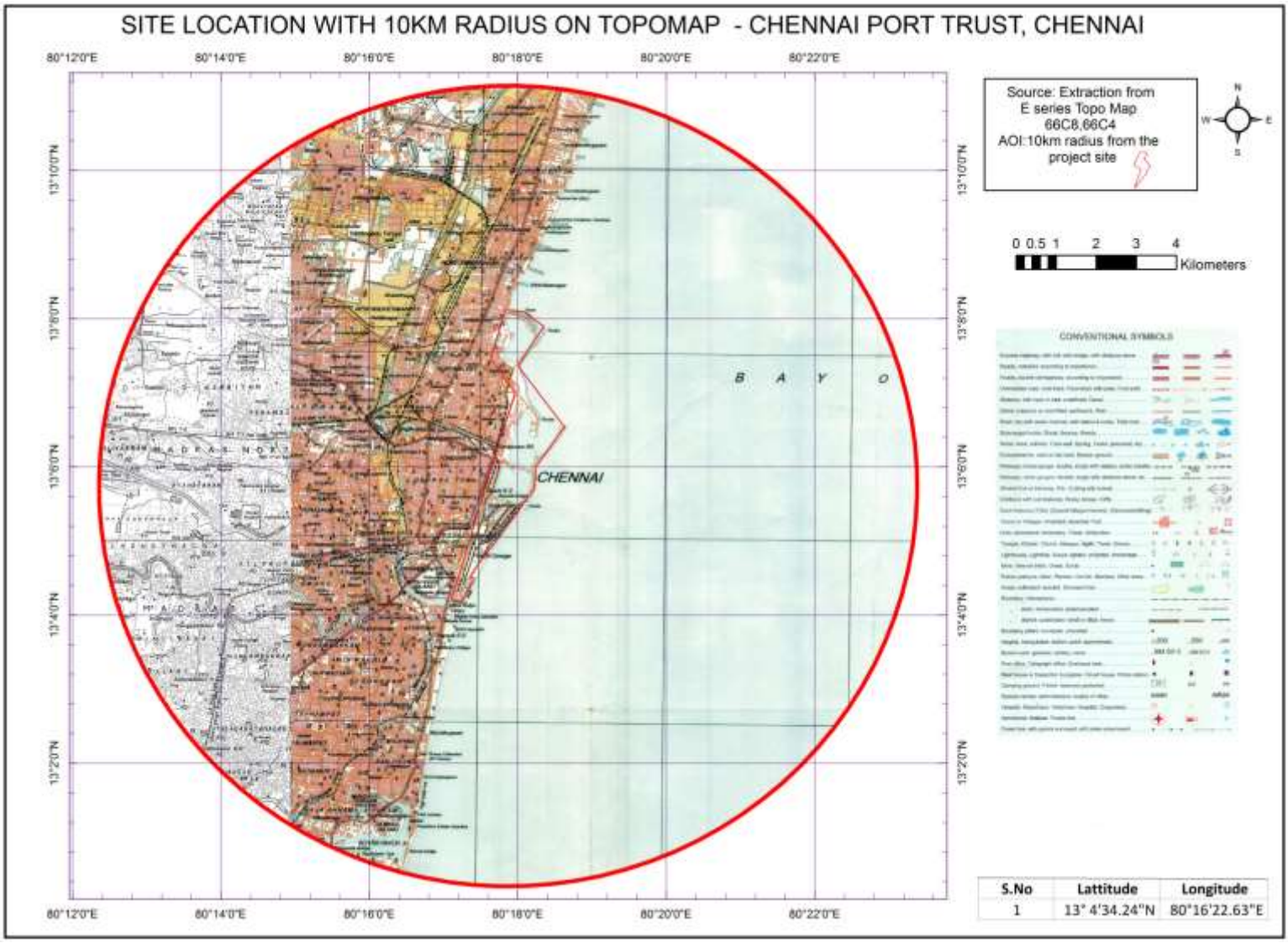


Figure: 1.3 TOPO MAP



1.5.1 SITE CONNECTIVITY

1.5.1.1 Highway/Roads Connectivity

The Golden Quadrilateral Road Project being implemented by NHAI connects Chennai to Kolkata on the East by NH-5 and Mumbai via Bangalore on the west by NH-4 and Thoothukudi in south by NH-45. Chennai is well connected to other major cities by national highways. The Golden Quadrilateral is connected up to Poonamallee outside Chennai city Limits.

The last stretch of 15-20 km from North, West and South to the Chennai Port through Chennai city are clogged and regulated with traffic restrictions. Thus the goods penetration in the hinterland is set off against the shorter but complex city transit.

Heavy vehicles cannot enter by most of the city roads in the day time. These vehicles either wait outside the city or take different route which is lengthier than normal route. Since Chennai port is situated at the eastern end of the metropolis of Chennai, cargo has to cross major part of city traffic to reach the port. To overcome the above problems and to expedite the movement of cargo, a four lane elevated link road from southern gate of Chennai Port (i.e. Gate No. 10) to Maduravoyal leading to the NH4 was formulated and the project is under implementation.

As regard, Northern side, presently the traffic movement from the Ennore Expressway to Gate No.1 of Chennai Port is through the entry to the fisheries harbour which is very narrow and creates traffic hold up causing inconvenience. Therefore this road is also proposed to be upgraded under Ennore-Manali Road Improvement Project (EMRIP) with Chennai Port Trust (ChPT) participating in the same through an equity stake. The project envisages improvement of about 30 km road network in North Chennai with the objective of establishing efficient road connectivity from Chennai and Ennore ports to NH network.

1.5.1.2 Rail Link

Chennai Port is well connected with the National Railway Network. The port is linked to southern railway network via Chennai Beach Railway Siding which connects Chennai Port to southern parts of Tamil Nadu and via Royapuram Siding which connects Southern Railway Trunk line to Kolkata, New Delhi, Bangalore, Coimbatore etc.

1.5.1.3 Airways

Chennai International Airport at 16.25Kms from the proposed project site.

1.6 LEGAL CASES:

There are no litigations pending against the project and/or land in which the project is proposed to be set up. However, there is a court case pending in Hon'ble Supreme Court regarding handling of Coal.

Brief about the case:

High Court of Madras vide its Order in May, 2011, imposed a ban on handling dusty cargoes including Coal at Chennai Port from October 2011. The Port has suffered a loss of cargo of about 18 Million Tonnes comprising of Iron Ore and Coal.

As no reply was provided to the Port in a Review Petition, the Port filed an appeal in the Supreme Court against the Order of the Hon'ble High Court of Madras. While considering the plea of the Port, the Hon'ble Supreme Court constituted the Empowered Committee in April 2012 and directed the Committee to examine the stand of the Chennai Port as per their affidavit.

The Empowered Committee formed a Technical Sub-Committee to look into the issues raised by the ChPT in the affidavit and directed to submit a factual report on or before Jan. 2014. The Technical Sub-Committee submitted its report suggesting improvements of Air Quality in and around Chennai Port.

Based on the report of Tech. Sub-Committee, the Empowered Committee in its report submitted in June 2014, pointed out that there is no scope for retaining the operation of dusty cargo in Chennai Port.

Port filed an additional affidavit reiterating its efforts to handle these cargoes in an environmentally sustainable manner based on international best practices. The Government of Tamil Nadu also placed its request to permit handling of coal at Chennai Port, in an environmentally friendly manner.

While hearing of Special Leave Petition on 31.3.2015, the Hon'ble Supreme Court directed ChPT to submit a fresh proposal would ensure that it is converted into a facility conforming to the norms for operation of a Green Port supported by necessary Technical Scheme for creation of such a Port.

A report prepared by M/s. Alia Consulting Solutions Pvt Ltd., on dust free handling of Coal and other dusty cargos at Chennai Port, submitted to Honorable Supreme Court on 04.07.2015. On 22.07.2015, Honorable Supreme Court adjourned the case by 4 weeks' time allowing to the respondents to file their affidavit. The case came-up for hearing on 02.09.2015 & 04.11.2015. The technical sub-committee visited Goa, Visakhapatnam and Gangavaram Ports on 14.3.16 & 15.3.16 and Chennai port has arranged for their visit. The technical sub-committee met on 19.03.2016 with stakeholders and heard then views on the proposal of Chennai Port Trust on the comments to TSC as submitted to empowered committee. The Empowered committee met on 12.07.2016 and 28.07.2016 and discussed the report of TSC and action plan of Chennai Port trust. The recommendation of Empowered Committee is awaited. On receipt of the recommendation, further action will be taken for development of Jawahar Dock (East) berths and BD II as Coal Terminals.

1.7 REQUIREMENT FOR AN ENVIRONEMTNAL IMPACT ASSESSMENT (EIA):

The proposed project falls under category A, item 7(e) of Schedule to the EIA Notification, 2006 and therefore will require an Environmental Clearance from the Ministry of Environment, Forests & Climate Change (MoEF & CC) at the Central

Government level. The project will also require a Coastal Regulation Zone (CRZ) clearance under the CRZ Notification, 2011.

This document has been prepared for the purpose of Environmental clearance and submitted to the MoEF & CC for appraisal and to obtain Environmental Clearance.

1.7.1 Study area for EIA

In line with the Standard Terms of Reference (ToR) and additional ToRs prescribed by the MoEF, the study area for this EIA study is a zone comprising a 10km radius around the proposed project.

1.7.2 Methodology for the Study

The methodology that has been adopted for conducting the EIA study is described in the following steps:

a) Scoping Study

A site reconnaissance survey was conducted to identify key environmental and social issues that need to be covered by the EIA and the sampling locations on the basis of:

- Predominant wind directions in the study area;
- Existing topography, drainage pattern and location of surface water bodies e.g. ponds, canals, rivers and Sea
- Location of villages, towns and sensitive areas; and
- Areas which represent baseline condition

These field observations were used to:

- Setting up ambient air quality monitoring stations;
- Identify sampling stations for surface, ground and marine water;
- Study hydrodynamics and thermal variations;
- Identify extent of various impacts on community / natural resources; and
- Identify monitoring requirements and mitigation measures

b) Environmental Baseline Data Collection

Environmental and social baseline data has been collected through primary monitoring and surveys, and supplemented by secondary information obtained through literature reviews. The baseline studies included the following:

- Reconnaissance surveys of the project site and surrounding area within 10 km radius around the project site (the study area) to ascertain prevailing features of the biophysical and social environments.
- Primary environmental baseline data collection within the *study* area from March'2016 to May'2016. Baseline data was collected for micrometeorology, ambient air quality, water (surface, marine and groundwater) quality, soil characteristics, ambient noise quality, traffic volume counts, ecology (terrestrial and marine) and socio-economics.
- Collection of information on geology, meteorological conditions, water and ecological resources, socio-economic status etc. from available and recent secondary sources.

c) Impact Assessment

All key activities that constitute the project were identified together with potential sources of impact associated with each of those activities. Mitigation measures or management controls to be applied to eliminate or minimize adverse impacts were then identified. Mitigation measures include those that can be incorporated in the design phase, and/or implemented during the construction and operational phases. The significance of impacts were assessed prior to mitigation and then re-assessed following application of mitigation measures. Impacts were graded (high, medium, low, and insignificant) taking account of the potential for non-compliance with regulations and standards.

d) Environmental Management Plan

The Environmental Management Plan (EMP) has been developed to include mitigation measures which are recommended to minimise the adverse environmental and social impacts. The plan includes an organisational structure to ensure that competent resources are available and responsible for the implementation of the EMP. These resources will also

be responsible for monitoring and reporting of environmental parameters and assess the efficacy of the mitigation measures throughout the project life-cycle. The EMP also includes some issues-specific management plans.

1.7.3 Limitations

This EIA report has been prepared based on the MoEF guidelines and Terms of Reference (ToR) issued by MoEF vide Lr. F.No: 10-127/2007-IA.III Dt: 05.02.2016

1.8 Chapters and Structure of this Report

This EIA Report is presented as per the following structure

- Chapter 1 Introduction;
- Chapter 2 Project Description;
- Chapter 3 Analysis of Alternatives;
- Chapter 4 Description of Environment;
- Chapter 5 Anticipated Environmental Impacts and Mitigation Measures;
- Chapter 6 Environmental Monitoring Programme;
- Chapter 7 Additional Studies;
- Chapter 8 Project Benefits;
- Chapter 9 Environmental Management Plan;
- Chapter 10 Statutory Compliances
- Chapter 11 Conclusions; and Remarks
- Chapter 12 Disclosure of Consultants Engaged.

COMPLIANCE TO THE TERMS OF REFERENCE:

ToR F.No: 10-127/2007-IA.III Dt: 05.02.2016

S.No	Condition	Compliance
Additional ToR		
1	Importance and benefits of the project	The importance & benefits of the projects are given at chapter – 8 of the EIA report.
2	A separate chapter on status of	Chennai Port is perusing with Regional

	compliance of Environmental Conditions granted by State/Centre to be provided. As per circular dated 30th May, 2012 issued by MoEF, a certified report by Regional Office, MoEF&CC on status of compliance of conditions on existing unit to be provided in EIA-EMP report.	office of the MoEF&CC, GoI to get certified compliance of EC conditions.
3	The EIA would also clearly demarcate between the pre 1994 and post 1994 activities and give status of compliance on all earlier E.C's availed.	Attached as **Annexure - II**
4	Copy of consent to establish and consent to operate for the existing facilities.	Attached as **Annexure – III**
5	Submit a copy of layout superimposed on the HTL/LTL map demarcated by an authorised agency on 1: 4000 scale	Copy of layout superimposed on the HTL/LTL map demarcated by Anna University, an authorised agency of MoEF&CC on 1:4000 scales is attached as **Annexure –IV**
6	Various Ports facilities with capacities for the existing as well as proposed project	Various port facilities of existing and proposed project of Chennai Port are given in chapter – 2
7	List of cargo to be handled along with mode of transportation	Details of cargo handled at Chennai Port are given in Chapter – 2. The cargo Handled at Port will be transported by rail & road.
8	Layout plan of existing Port and Proposed Port	Attached As **Annexure -V**
9	Details of air pollution control measures to be taken as well as cost to be incurred	Mentioned in Chapter - 9 Environmental Management Plan
10	Total water consumption and its source.	Total water requirement of the project is

	Waste water management plan	70.865KLD, source of water is CMWWSB. Waste water is connected to CMWWSB drain and user charges were paid regularly. Water balance chart provided is given in chapter – 2 for the proposed activities.
11	Details of Environmental Monitoring Plan	Included in chapter -6
12	The EIA would include an impact on the Guindy National Park. A map of the national park with relation to the project duly certified by the Chief Wild life Warden shall be submitted	Impact on Guindy National Park due to proposed project is mentioned in Chapter - 7 and the certified map by Chief Wild Life Warden is in process and will be attached as **Annexure -VI** The ambient air pollution loads near guindy National Park is majorly due to the automobile pollution due to the traffic density near the park and not due to existing or proposed port activities which is nearly 9.1Km away from the park. Moreover the windrose diagrams also depict that the wind direction during maximum period in any given year is towards NE direction whereas the park is towards NW direction and in between the park and the port they are n-number of high-rise buildings which acts as a hindrance/curtain/barrier for any particulate pollutants. As proposed project is modernisation of existing facilities and only 1 MTPA was increase in cargo handling capacity. The

		additional cargo will be clean cargo hence fugitive emissions were not envisaged. Hence there is negligible impact on Guindy National Park due to existing or proposed activities of the Chennai Port.
13	The ambient air quality in the existing coal handling terminal shall be done for at least 3 locations in the terminal area for the entire period of EIA	Complied
14	The impact of the multi car parking and its relation and status with regards the CRZ notification will be provided in the EIA	The proposed project comes under Chennai Port Limits and building bylaws will be as per guidelines by Ministry of Shipping. The proposed facility is for export of cars only.
15	The EIA will include a comprehensive mention to the impacts of allowing the long term accumulation of sand and other dredged material on disposal areas	CPT
16	Disaster Management Plan for the above terminal	Attached as **Annexure - VII**
17	Layout plan of existing and proposed Green belt	Attached as **Annexure - VIII**
18	Status of court cases pending against the project.	Mentioned in chapter –I – Introduction
19	Recommendation of the SCZMA	CRZ Application will be submitted to DCZMA and it is under process.
20	A tabular chart with index for point wise compliance of above ToRs	Included in EIA report
21	Public hearing to be conducted and issues	Noted

	raised and commitments made by the project proponent on the same should be included in EIA/EMP report in the form of tabular chart with financial budget for complying with the commitments made.	
Standard ToR		
1	Reasons for selecting the site with details of alternate sites examined/ rejected/ selected on merit with comparative statement and reason/basis for selection. The examination should justify site suitability in terms of environmental angle, resources sustainability associated with selected site as compared to rejected sites. The analysis should include parameters considered along with weightage criteria for short-listing selected site	The proposed projects are well within the existing Chennai Port Trust. These projects are proposed to further enhance the capacity of port & its allied facilities. The detailed analysis and suitability of the location for these projects has been given in Chapter -3 of the EIA Report.
2	Details of the land use break-up for the proposed project. Details of land use around 10 km radius of the project site. Examine and submit detail of land use around 10km radius of the project site and map of the project area and 10km area from boundary of the proposed/existing project area, delineating project areas notified under the wild life (protection) Act, 1972/critically polluted areas as identified by the CPCB from time to time/notified eco-sensitive areas/interstate boundaries and international boundaries.	The land use of the project area is port area, as proposed activities are well within the Chennai Port area. The details of land use of the study area i.e,10 Km radius is given in chapter -4, Guindy National Park is at a distance of 9.1 km. No other notified eco-sensitive areas, Interstate boundaries & International boundaries are existing within 10km radius

	Analysis should be made based on latest satellite imagery for land use with raw images.	
3	Submit the present land use and permission required for any conversion such as forest, agriculture etc. land acquisition status, rehabilitation of communities/villages and present status of such activities.	There is no change in the land use of the proposed projects. The forest land or agricultural land is not involved hence; no conversion of the land use is involved.
4	Examine and submit the water bodies including the seasonal ones within the corridor of impacts along with their status, volumetric capacity, quality likely impacts on them due to the project.	The proposed project is adjacent to the sea. Two rivers Adyar and Cooum are passing through Chennai before merging into Bay of Bengal. The impact of the projects on these water bodies are given in chapter -5, Anticipated Environmental Impact under water environment section:
5	Submit a copy of the contour plan with slopes, quality likely impacts on them due to the project.	A detailed Topography study of the Chennai Port Trust within 10km radius is mentioned in Chapter -2
6	Submit the details of terrain, level with respect to MSL, filling required, source of filling materials and transportation details etc	The land surface is almost flat like a pancake with elevation from sea level to up to 3-5 m MSL. The filling material for ground improvement is catered from nearby authorised quarries, and transportation will be through covered trucks.
7	Examine road/rail connectivity to the project site and impact on the existing traffic network due to the proposed project/activities. A detailed traffic and	Project site is well connected to rail & road network. NHAI connects to Kolkata on the East by NH-5 and Mumbai via Bangalore on the west by NH-4 &

	transportation study should be made for existing and projected passenger and cargo traffic.	Thoothukudi in south by NH-45. The cargo from the port area is transported through it and also by the railway network. Details of cargo handled at the Chennai Port is given in Chapter -2
8	Submit details regarding R&R involved in the project	No R&R is involved as the project activities are within the existing land of Chennai Port Trust.
9	Submit a copy of layout superimposed on the HTL/LTL map demarcated by an authorised agency on 1:4000 scale along with the recommendation of the SCZMA.	Copy of layout superimposed on the HTL/LTL map demarcated by Anna University, an authorised agency of MoEF&CC on 1:4000 scale is attached as **Annexure-IV**
10	Submit the status of shoreline change at the project site.	Refer chapter – 7 –Additional Studies
11	Details of the layout plan including details of channel, breakwaters, dredging, disposal and reclamation	Site Layout (Master Plan) is attached as **Annexure –V** <u>Relocation of existing Sand trap and Dredging</u>: Based on the report of CWPRS, the optimum size for the sand trap is 250m x 500m dredged to a depth of (-) 18 to (-) 22 m below CD. The quantity of sand to be dredged is 5, 00,000m3. <u>Development of Coastal Terminal at northern sheltering arm at east of Bharathi Dock turning circle</u>: The alongside of the Terminal and the adjacent areas to be dredged to (-) 9m CD to accommodate Coastal Shipping vessels

		having drafts up to 8.0m. The quantity of sand to be dredged is 5,43,100m^3 Total Capital dredging envisaged is 5,43,100Cum.
12	Details of handling of each cargo, storage, transport along with spillage control, dust preventive measures	Details of cargo handled at Chennai Port Trust are given in Chapter -2. Storage –closed/open Transport –road/rail/sea Spillage control - Water sprinklers, wind barriers are practiced for control of fugitive dust. Organised movement of vehicles Covering of dusty cargo during movement by road/rail No overloading of cargo Green belt development
13	Submit the details of fishing activity and likely impacts on the fishing activity due to the project.	As the proposed activity is within the Chennai port premises, effect on fishing activity is negligible. Impact of construction activities on marine life has been given at Chapter – 5
14	Details of oil spill contingency plan	Details of oil spill contingency plan have been given at chapter – 7 in additional studies of the EIA report
15	Details of bathymetry study	Chapter -7
16	Details of ship tranquillity study	Channel and break water are not being modified and the existing route for inbound and outbound ships will be used. And hence ship tranquillity study is not

		required.
17	Examine the details of water requirement, impact on competitive user, treatment details, use of treated waste water. Prepare a water balance chart	Total water requirement of the projects is 70.865KLD. Water balance chart provided is given in chapter – 2 for the proposed activities.
18	Details of rainwater harvesting and utilization of rain water	All the port buildings outside the operational area and the storage sheds and office buildings inside the Port operational area have rain water harvesting structures. However, there is no rain water harvesting system proposed in the upcoming infrastructure facilities. As of now Chennai port is having 121 no's of RWH pits.
19	Examine details of solid waste generation treatment and its disposal	Solid waste from office, operational area etc is being disposed through Chennai Corporation to the dumping yard whereas, waste oil, lubricants are being disposed through authorized recyclers. The same arrangement will be continued.
20	Details of desalination plant and the study for outfall and intake	There is no need for desalination plant because of plenty of water available in the Chennai Port area.
21	Examine baseline environmental quality along with projected incremental load due to the proposed project/activities.	The baseline data of the project is given in chapter -4
22	The air quality monitoring should be carried out according to the notification issued on 16th November, 2009	The air quality monitoring at 10 locations were carried out for one season i.e., March ' 2016 to May' 2016 and same is given in Chapter -4

23	Examine separately the details for construction and operation phases both for Environmental Management Plan and Environmental Monitoring Plan with cost and parameters.	The details of Environmental Management Plan and Environmental Monitoring are given separately for construction & Operation phases with cost & parameters. Chapter – 9 (Environmental Management Plan) & Chapter -6 (Environmental Monitoring Plan)
24	Submit details of a comprehensive Risk Assessment and Disaster Management Plan including emergency evacuation during natural and man-made disasters	Risk Assessment (Crisis Management) &Disaster Management Plan is attached as Annexure -VI
25	Submit details of the tress to be cut including their species and whether it also involves any protected or endangered species. Measures taken to reduce the number of the trees to be removed should be explained in details. Submit the details of compensatory plantation. Explore the possibilities of relocating the existing trees.	No tree cutting is involved in this project as it is the development and improvement of 7 Infrastructure Facilities at Chennai Port. No mangroves present in this area.
26	Examine the details of afforestation measures indicating land and financial outlay. Landscape plan, green belts and open spaces may be described. A thick green belt should be planned all around the nearest settlement to mitigate noise and vibrations. The identification of species/plants should be made based on the botanical studies.	As the proposed activity is within developed port limits, existing green belt will be maintained. The green belt will be developed as per the layout attached as annexure VIII Native tree species as per CPCB guidelines will be planted.
27	A detailed draft EIA/EMP report should be prepared in accordance with the above	The EIA/EMP report has been prepared in accordance with ToR prescribed by

	additional ToR and should be submitted to the Ministry in accordance with the Notification	MoEF& CC on dt: 05.02.2016 & as per additional ToR recommended by EAC in its minutes of meeting.
28	Any further clarification on carrying out the above studies including anticipated impacts due to the project and mitigative measure, project proponent can refer to the model ToR available on Ministry website "http://moef.nic.in/Manual/Port and harbour	The EIA report is prepared as per approved ToR granted by MoEF&CC.

1.9 Acknowledgements

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