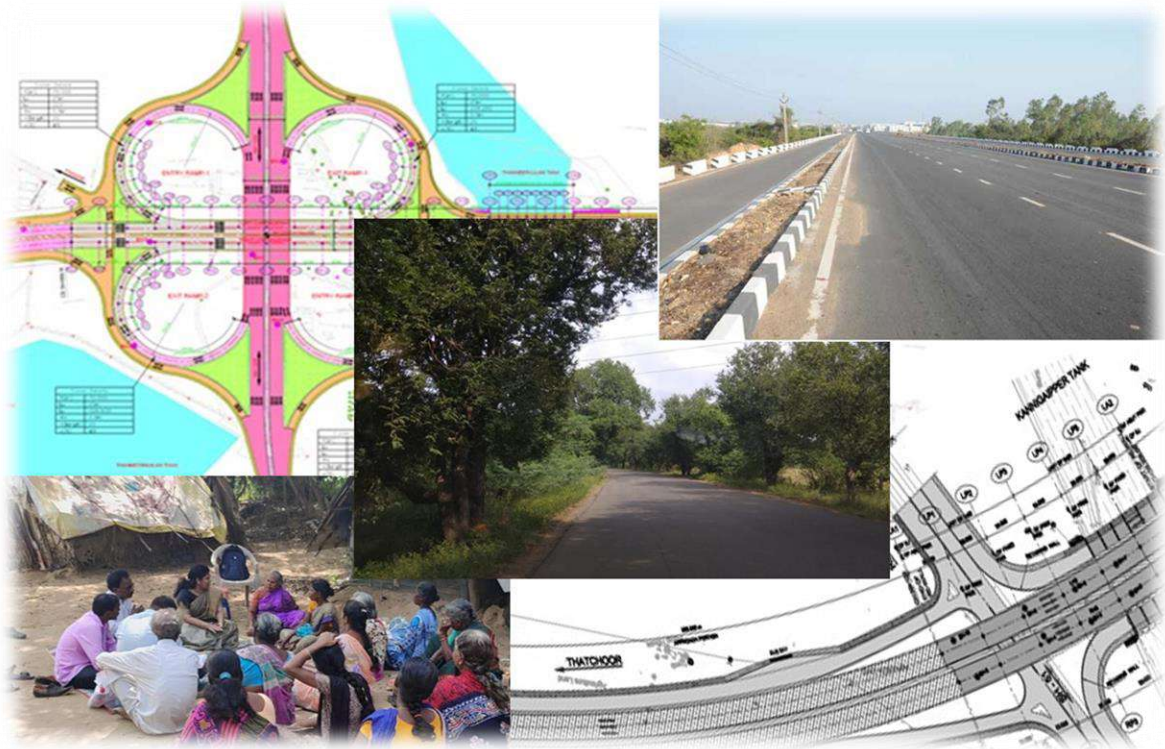


# Environmental and Social Due Diligence Report (ESDDR)



October 2020

## Chennai Peripheral Ring Road Project



**Highways Department**  
(Government of Tamil Nadu)



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## List of Abbreviations

AIIB	:	Asian Infrastructure Investment Bank
AAQ	:	Ambient Air Quality
CMA	:	Chennai Metropolitan Area
CPCB	:	Central Pollution Control Board
CPRR	:	Chennai Peripheral Ring Road
CTE	:	Consent to Establish
CTO	:	Consent to Operate
CKIC	:	Chennai-Kanyakumari Industrial Corridor
CPR	:	Common Property Resource
DRO	:	District Revenue Officer
EC	:	Environmental Clearance
EIA	:	Environmental Impact Assessment
EHS	:	Environment, Health, and Safety
EMP	:	Environmental management Plan
FGD's	:	Focus Group Discussion
GRC	:	Grievance Redressal Committee
GoTN	:	Government of Tamil Nadu
IRC	:	Indian Roads Congress
IRR	:	Inner Ring Road
JICA	:	Japan International Cooperation Agency
ISFR	:	Indian State of Forest Report
LARR	:	Land Acquisition Rehabilitation and Resettlement Act
MoEF&CC	:	Ministry of Environment, Forest and Climate Change
MoRTH	:	Ministry of Road Transport and Highways
NGOs	:	Non-Governmental Organisation
NH	:	National Highways
NOC	:	No Objection Certificate
ORR	:	Outer Ring Road
PIU	:	Project Implementation Unit
PMU	:	Project Management Unit
PUC	:	Pollution under Control
R&R	:	Resettlement and Rehabilitation
ROB	:	Rail Over Bridge
ROW	:	Right of Way
SCZMA	:	State Coastal Zone Management Authority
SEIAA	:	State Environment Impact Assessment Authority
SIA	:	Social Impact Assessment
SH	:	State Highways
TNHD	:	Tamil Nadu Highways Department
TNRIDC	:	Tamil Nadu Road Infrastructure Development Corporation
TNPCB	:	Tamil Nadu Pollution Control Board
TPP	:	Tribal Peoples Plan
VUP	:	Vehicle Under Pass

## Executive summary

1. Chennai is one of the fastest-growing metro cities in India. Over a decade Chennai has witnessed a significant increase in urban agglomeration. Due to the increase in the population, there is a growing demand for infrastructure facilities, which includes Water supply, Underground sewerage, Electricity, and Roads. The major arterial road network in CMA consists of National Highways (NH 16, NH 716, NH 48 and NH 32) as major radial roads and Inner Ring Road (IRR), Chennai Bypass and Outer Ring Road (ORR) as ring roads. However, the available road network observed to be limited concerning the growing population and hence to cater to the traffic congestion, Tamil Nadu Highways Department has chosen to develop Chennai Peripheral Ring Road (CPRR). The CPRR has 5 segments as follows

Section	CPRR Break-up	Length (km)	Current Status	Funding agency
1	Northern Port Access Road - Ennore port to Thatchur on NH 16	25.31	Review of DPR (Highway and Structure drawings)	JICA
2	Thatchur on NH 16 to Start of Thiruvallur Bypass	26.10	Draft DPR is being revised	AIIB
3	Start of Thiruvallur Bypass to Sriperumbudur on NH 48	30.10	Draft DPR is being revised	AIIB
4	Sriperumbudur on NH 48 to Singaperumal Koil on NH 32	23.80	This section is in Operation	Govt of Tamil Nadu
5	Singaperumal Koil on NH 32 to Mahabalipuram	27.471	Draft DPR has been prepared, which will be updated later (before implementation)	TBD
<b>Total</b>		<b>132.781</b>		

2. Section 1 has been proposed to be developed under the Japan International Cooperation Agency (JICA) financial assistance. Section 2 and 3 are proposed to be developed under financial assistance from the Asian Infrastructure Investment Bank (AIIB). Section 4 has been operated under the state fund and Section 5 is proposed to be developed in the later stage.

3. **Environmental and Social Due Diligence for Associated Facilities for CPRR.** As per the AIIB Environmental and Social Policy (ESP) requirements, it has been proposed to conduct an Environmental and Social Due Diligence Study for the sections 1, 4 and 5, which constitute the associated/existing facilities<sup>1</sup> to AIIB financed sections 2 and 3, accordingly this Due Diligence report has been prepared. The Due Diligence study reviews the available documents and assesses the compliance of safeguards requirement for CPRR sections 1, 4 and 5 with the respect to (i) Regulatory clearances/permissions/consents (like environmental clearance, forest clearance, etc.); (ii) analysis of alternatives; (iii) the

<sup>1</sup> Associated facilities (Associated Facilities) are activities that are not included in the description of the Project set out in the agreement governing the Project, but that the Bank determines, following consultation with the Client, are: (a) directly and materially related to the Project; (b) carried out or planned to be carried out, contemporaneously with the Project; and (c) necessary for the Project to be viable and would not be constructed or expanded if the Project did not exist.

process of identifying environmental impacts and integration of environmental management measures; (iv) public consultations and information disclosure; (v) Contractual Obligations for HSE Measures; (vi) Implementation of Environmental and Social instruments, Health, Safety and Environment (HSE) Measures; (vii) Institutional Arrangement and Grievance Redress Mechanism; (viii) Site Visit Observations and (ix) Conclusions & Recommendations etc.

**4. Environmental Due Diligence.** Based on the available Environmental and Social Safeguard reports, Public Consultation (Minutes of Meeting) MoM and Detailed Project Reports (DPRs), the environmental due diligence study for section 1, 4 and 5 has been performed. The following documents have been reviewed.

No.	Report	Year	Purpose of the reports
1.	Preparatory Study for Chennai Peripheral Ring Road Development in India by JICA	2018	Aims to collect necessary information to appraise the Project (section 1) for it to be implemented. The study provides brief background about the project including the proposed highway design, structures, project cost, implementation schedule, and procurement and construction method as well as social and environmental conditions.
2.	Environmental Impact Assessment (EIA) report for Singaperumal Koil to Sriperumbudur (SH 57)	2007	Environmental Impact Assessment report for the Detailed Project Report on Singaperumal Koil to Sriperumbudur (SH 57), which is section 4 as per CPRR
3.	Detailed Project Report (DPR) for the work of forming Peripheral Road connecting Mahabalipuram to Ennore Port (via) Singaperumal koil, Sriperumbudur, Thiruvallur, Tamaraipakkam, Periyapalayam, Puduvoyal and Kattupalli	2014	Provides highways design and proposed structure details including Culverts, Bridges (Major and Minor
4.	Environmental Impact Assessment Report for Proposed Chennai Peripheral Road	2018	The EIA has been prepared for obtaining Environmental clearance from SEIAA. It is a comprehensive report for all 5 sections. It is prepared as per the EIA guidelines 2006
5.	Volume V Environmental Impact Assessment of DPR (prepared by the DPR Consultants	2016	The report has been prepared for all five sections. However, it has been updated in 2018 to suit the EIA clearance for the project
6.	Volume IV Social Impact Assessment and Resettlement	2016	The SIA has been prepared under various packages, Separate SIA has

No.	Report	Year	Purpose of the reports
	Action Plan of DPR (prepared by the DPR Consultants)		been prepared for section 1 and combined SIA has been prepared for section 2, 3 and 5. Since the Section 4 is already completed no SIA is available
7.	Minutes of the Meeting (MoM) of the Public Consultation conducted on 10/07/2014 and 12/07/2014.	2014	As part of EIA and SIA preparation, public consultation has been arranged at key locations along the project alignment for which a MoM has been prepared
8.	Monthly Progress Reports for the month of March and April	2020	Indicated the implementation status of the various project activities

5. However, the availability of safeguard documents for section 4 is very much limited, this is because the section 4 was already under implementation under state fund by TNRIDC (a wing of Tamil Nadu Highways Department (TNHD)) for which the Environmental clearance is not required and the land acquisition is based on the TN Highway Act. The safeguard documents prepared by the DPR consultants in the year 2007 has limited information about the project.

(i) **Regulatory Requirements.** It is observed that the necessary rules, acts and other regulatory requirements has been discussed in the EIA reports. Key project related clearances are as follows

- a. Environmental Clearance has been obtained from the SEAC for the CPRR (including all sections) on 10<sup>th</sup> August 2018.
- b. For Section 1, due to the presence of the Buckingham canal (due to tidal influence), the CRZ clearance is mandatory for which clearance has been obtained on 5<sup>th</sup> August 2019.
- c. For section 4, Forest clearance has been obtained on 14<sup>th</sup> August 2014 (DFO kancheepuram vide proceedings no 7326/2011/D dt 14/08/2020) for the diversion of 20.5ha of Forest land located in Kulattur RF, Thalimangalam RF, Appur RF and Vattambakkam RF.
- d. For Section 5, there is a requirement for Forest Clearance for the forest land acquisition for 9.95 ha of land in Thirutteri RF and the Sengundram RF for which forest clearance application has been submitted to the Forest Department, however, clearance is awaited.

#### Key observations:

Rules and Regulations	Section 1	Section 4	Section 5
CRZ Clearance	Obtained <sup>2</sup>	Obtained	Obtained
Forest Clearance for forest land diversion	Not envisaged	Obtained from the Forest Department for 20.5 ha of land diversion	Clearance is in the process for diversion of 9.95ha of forest land

<sup>2</sup> The CRZ clearance has been obtained for the whole project as CPRR and hence it is applicable for all the sections



Rules and Regulations	Section 1	Section 4	Section 5
Tree cutting permission	It is proposed to transplant 81 trees. However, it is not mentioned in the monitoring reports submitted by the CSC	Permission has been obtained for felling of 1,459 trees	Not obtained. It is proposed to transplant 485 trees.
Other clearances <ul style="list-style-type: none"> <li>Consent to Establish and Operate Hot mix plant, Crushers, Batching Plant and Labour Camps</li> <li>Permission for Sand Mining from Riverbed</li> <li>Permission for Opening of New Quarry</li> <li>Permission for Withdrawal of Ground Water</li> <li>Pollution Under Control Certificate</li> <li>Employing Labour</li> <li>Registration of Workers</li> </ul>	<p>Preliminary works (designs review and other desktop works) has been initiated and hence the listed clearances are not in place.</p> <p>The appointed supervision consultant will submit the applications and do follow up activities in obtaining the same</p>	It was informed that all the necessary clearances have been obtained by the contractor. However, evidences like project monitoring reports for the same is not available	It is still in the Draft DPR stage, the construction of the road in this section shall be taken up later

- (ii) **Baseline Environmental Status.** The section 1, 4 and 5 comes under the Thiruvallur and Kanchipuram Districts. The topography of the road sections remains flat for most of the sections, the elevation ranges from 183 m amsl in the west to sea level in the east. The maximum rainfall is received during the Northeast monsoon. The annual rainfall varies between 950mm to 1214mm. Temperature ranges between 20°C to 37°C. Maximum temperature reaches around 43°C in the summer season. Section 1 is dominated by Red soil of red sandy/clay loam and for section 4 and 5, it is brown clayey soil. Ground water occurs under phreatic to semi-confined conditions in these formations and is being developed by means of dug wells. The depth of the wells ranged from 8 to 15m bgl. Ambient air quality has been monitored for all the sections, the concentration of PM<sub>2.5</sub> and PM<sub>10</sub> are observed to be high for Section 4 and 5, however other noxious parameters including Oxides of Nitrogen and Sulphur dioxide concentration is observed to be less in comparison with the NAAQ standards. Noise levels has been monitored at 8 locations covering the sections 1, 4 and 5, Out of 8 monitored locations, in the Poonjeri location (section 4), the recorded noise levels are higher than the standard. For surface water quality, the sample collected in the Buckingham canal indicates high concentration of Electric Conductivity (EC), Total Dissolved Solids (TDS), calcium, magnesium and chloride. Sections 1 and 5 are Greenfield corridors and hence the impact on the flora is observed to be very much limited as it traverses through the agriculture land and barren land. As per the road inventory information in Section 1, it is estimated to transplant 81 trees, for Section 5, it is estimated to transplant 485 trees and for section 4, nearly 1,459 trees has



been removed for widening of the corridor to 6 lane. As suggested by the SEAC, it is proposed to transplant all the trees getting affected due to the widening activities. As per the road inventory survey, 30 species of trees have been identified in the project area, among them, Tamarind trees (*Tamarindus indica*), Coconut trees (*Cocos nucifera*), Peepal tree (*F. Religiosu*), Neem tree (*Azadirachta indica*) are observed to be the dominating species. Among the faunal species, Indian grey mongoose (*Herpestes edwardsi*), Rat snake (*Ptyas mucosa*), Russels Viper (*Daboia russelii*) are commonly observed in the Mannur RF areas and surrounding agricultural areas. The common avifauna includes Crow (*Corvus splendens*), Pigeon (*Columba livia*), Cattle egret (*Bulbulcus ibis*), and the mammals includes Rabbit (*Orytolagus cuniculus*), Bat (*Pteropus madius*) and Indian palm squirrel (*Funambulus palmarum*).

**Key observations:**

Physical and Biological Environment	Section 1	Section 4	Section 5
Water quality	TDS concentration is high due to the coastal influence	TDS levels are well within the limits	TDS concentration is high due to the coastal influence
Water bodies	The presence of the Buckingham canal mandated CRZ clearance due to the tidal influence. Apart from that there are 3 surface water bodies.	There are 16 surface water bodies identified along the section 4	Information pertaining to the water bodies are not available
Ambient Air Quality (AAQ)	AAQ parameters are within the permissible limits (NAAQ Standard)	PM <sub>2.5</sub> and PM <sub>10</sub> are observed to be high.	PM <sub>2.5</sub> and PM <sub>10</sub> are observed to be high
Noise Quality	Noise levels are within the standard	Noise levels are high due to traffic	Noise levels are within the standard
Forest Area	There are no forest areas in this section	There are 4 RF located in this section namely Kulattur, Thalimangalam, Appur and Vattambakkam	There are 2 RF located in this section namely Thirutteri and Sengundram
Trees affected	81 trees have been proposed for transplantation. None of the tree species are categorised as endangered	In section 4, 1,459 trees have been removed for the construction purposes. None of the tree species are categorised as endangered	485 trees have been proposed for transplantation. None of the tree species are categorised as endangered

(iii) **Impact Assessment during Construction and Operation.** Based on the available information from EIA reports (prepared by the DPR consultant and the EIA consultant), the impact assessment section during the construction phase and operation phase has been prepared in the form of a table by indicating the magnitude of the impacts under the (i) Pollution Control, (ii) natural Environment, (iii) Social and Economic Environment.

**Key Observation**

<b>Impact Assessment</b>	<b>Section 1</b>	<b>Section 4</b>	<b>Section 5</b>
Coastal Zone	Detailed assessment of the impact on the backwater/ Buckingham Canal due to the construction activities are not done	Coastal influence is not envisaged	Coastal influence is not envisaged
Air and Noise Quality Modelling	Not performed	Not performed	Not performed
Impact on sensitive receptors	Details on the sensitive receptors including schools, temples are covered. 2 schools and 6 temples are getting affected	It is mentioned that the proposed alignment shall have impact on 4 schools, but not on religious structure	Details on the sensitive receptors including schools, temples are covered. 4 schools are getting affected
Impact on surface water bodies	Specific information on the water bodies getting affected during the project construction are not available	The proposed alignment does not impact surface water bodies (no impacts anticipated)	Specific information on the water bodies getting affected during the project construction are not available
Impact on Aquatic Biodiversity	Not performed	No impact on the surface water bodies	Not performed
Impact on Biodiversity	No forest areas	Biodiversity assessment has not been conducted for the forest areas (Kulattur, Thalimangalam, Appur and Vattambakkam)	Biodiversity assessment has not been conducted for the forest areas (Thirutteri and Sengundram)
Construction related Impacts	Not much information is available on dealing with impacts on borrow pits and quarries operation, erosion, drainage, silt run-Off and landslides		
Operation related impacts	Maintenance of road assets and dealing with community health and safety measures are not covered		
Impact on Avenue Trees	Refer key observation for baseline environmental status		
Occupational and Community health and safety	Impacts pertaining to construction traffic and operational traffic management are not elaborated	To some extent it is achieved.	Impacts pertaining to construction traffic and operational traffic management are not elaborated
Climate risks and adaptation measures	Not covered	Not covered	Not covered

(iv) **Environmental Monitoring Plan (EMoP)**. Based on the prepared EMP's, Environmental Monitoring Plan (EMoP) has been prepared. The prepared EMoP is alike

for all the sections, which details all the (i) Environmental condition indicators, (ii) Environmental management Indictors and (iii) Management and Operational Performance Indicators for effective monitoring of the EMP measures.

- (v) **Environmental Monitoring and Reporting.** Reporting system suggested for section 4 has specific formats for monitoring the EMP implementation. However, the formats are very much limited. Reporting system for sections 1 and 5 operate at two levels as:

- a. Reporting for environmental condition indicators and environmental management indicators (except tree cutting indicator)
- b. Reporting for operational performance indicators at the PIU level

- (vi) **EMP Budget.** The EMP budget for Section-1 is estimated to be Rs. 291.84 Lakhs, for Section-4 the estimation is Rs. 207.05 Lakhs and Section-5 it is Rs. 300.19 Lakhs.

6. **Social Due Diligence.** Based on the Social Impact Assessment Report/ Resettlement Action Plan (RAP), Public Consultation MoM and DPR's, the social due diligence study for section 1, 4 and 5 has been performed. However, the availability of safeguard documents for section 4 is very much limited, this is due to the section 4 is already under implementation under state fund.

- (i) **Regulatory Requirements.** The followings are the key Policy/ Acts/ Rules and regulations that are adopted in the preparation of the Entitlement Matrix from which the various compensations to the PAP's/PAH's has been estimated.

- a. The Right to Fair Compensation and Transparency in Land Acquisition Rehabilitation and Resettlement Act, 2013 (Act 30 of 2013) (LARR)
- b. The Tamil Nadu Protection of Tanks and Eviction of Encroachment Act, 2007
- c. Tamil Nadu Highways Act, (TNHA)
- d. Tamil Nadu Street Vendors (Protection of Livelihood, Regulation of Street Vending and Licensing) Scheme

#### Key Observation

Regulatory Requirements	Section 1	Section 4	Section 5
Compensation estimation for the project affected people	Entitlement Matrix prepared for the CKIC has been used as a based document in estimating the compensation to the PAP's/ PAH's	Tamil Nadu Highways Act and LARR has been used for estimating compensation to the PAP's/ PAH's	Entitlement Matrix prepared for the CKIC has been used as a base document in estimating the compensation to the PAP's/ PAH's

- (ii) **Census Survey.** To understand the magnitude of impacts with respect to the affected buildings and their assets, a census survey was carried out for Section 1 and 5. 35% of section 1 has been covered under the census survey. Socio-Economic survey was also carried out for 20% of the affected land parcels, to ascertain the loss of land, asset, livelihood and standard of living of the PAH and to identify vulnerable families who were affected due to the proposed project.

- a. **Section 1 (Ennore Port to Thatchur on NH 16).** A total of 1312 land parcels were identified that are likely to be affected due to the project. Out of which the Census Survey was carried out for 458 land parcels covering 175 land owners, 76 affected buildings and 11 Common Property Resources (CPR's including Temples, Government School and Government building). The Socio - economic survey was done for 20% of the affected land parcels. The enlistment was not only limited to PAHs but also to the affected community properties. It is estimated to acquire 255.00 ha of land (Private and Government) for 100m RoW.
- a) **Affected land Owners.** Out of 458 land parcels in the NPAR and the TPP link road, nearly 52% of the affected land were dry lands, followed by 37% of them were wet land, 8% of the land were homestead land or land converted for plots and 3% of the land were institutional land (belonging to various Trust, Corporates, Boards and private Temples). Out of the total land parcels surveyed, 76% of the land is irrigated and 16% of them were unirrigated and 8% of the land belongs to institutional land and home stead land were also unirrigated. The major crop cultivated is Paddy, which constitutes 76% and other crops are also cultivated through crop rotation process.
  - b) **Affected Assets Owners.** The asset inventory was conducted for 76 affected buildings having 85 families/PAH's. Out of which, 58 were title holders, 18 were squatters and 9 tenants. Among the 76 affected buildings, 59 structures are affected with more than 1/3rd are fully affected (Major Impacts) and 17 of them are partially affected (Minor Impacts). Nearly 69 other structures were found to be affected such as open well, bore well, EB room, pump room, motor room and septic tank.
- b. **Section 4 (Sriperumbudur to Singaperumal Koil).** As indicated earlier, widening and strengthening of this section 4 has been implemented by TNRIDC under the state fund. Social Impact Assessment (SIA) has been prepared by the DPR consultants in the year 2007. The total land acquisition for widening the section 4 is estimated to be 89.05ha in which 1071 land owners are affected. The widening proposed has direct impact on 693 structures of which 453 residential structures, 138 commercial structures and 10 residential cum commercial structures. Other structures including 33 Common utility buildings (Hospitals, movie theatres, education institutions, public toilets and government buildings), 26 religious structures, 5 tanks, 5 wells and 10 Bus shelters are affected. The Section 4 has got administrative sanction for a sum of Rs 143.28 Crores for the construction of LC 47. It is also proposed to upgrade the section 4 as an access control corridor through provision of vehicle underpasses, junction improvements and road safety measures.

- c. **Section 5 (Singaperumal Koil to Mahabalipuram).** Census survey has not been conducted for the affected land parcels, however, it is estimated to acquire 162.83 ha of land (Private and Government) for 60m RoW. To understand the magnitude of impacts with respect to the affected buildings and their assets, a census survey was carried out. The asset inventory was conducted for 150 affected buildings having 273 families/ PAH's. Out of which, 106 were title holders, 44 were squatters. Among the 150 affected buildings, 111 structures are affected with more than 1/3rd are fully affected (Major Impacts) and 39 of them will remain partially affected (Minor Impacts). Other than the residential and commercial assets, other structures were also found to be affected due to the project such as open well, bore well, EB room, pump room, motor room, genset rooms and store room. The inventory on the Common Property Resources (CPRs) shows that 11 CPRs are being affected in the Section 5. The impact on the CPRs shows that 4 worship places (3 temples and a church), 3 Government buildings, 1 pump house, 2 Bus stops and an OHT are likely to be affected.

**Key Observation**

Census Survey	Section 1	Section 4	Section 5
Socio economic and census survey	As requested by the JICA, 35% of the Census survey and 20% of Social survey has been conducted for PAP's/ PAH's	TNRIDC have conducted the survey in assistance from the Revenue Department and accordingly the PAP's/ PAH's has been enumerated	In line with World Bank requirements, 25% of the Census survey and Social survey has been conducted

- (iii) **Entitlement Matrix.** Entitlements was worked out for various affected target groups and proposed to mitigate the Title holders, Squatters, Tenants, Encroachers and workers. Based on the discussions, it is observed that the Entitlement Matrix is very much similar to the one which is used in CKIC project financed by ADB.

**Key Observation**

Entitlement Matrix	Section 1	Section 4	Section 5
Estimation of compensation (land and livelihood/ R&R assistance) as per the prevailing rules and regulations	In line with the Entitlement Matrix prepared for the CKIC, the compensation for the land as well as R&R assistance has been estimated	Tamil Nadu Highways Act and LARR has been used for estimating compensation to the PAP's/ PAH's. However R&R assistance are not worked out	In line with the Entitlement Matrix prepared for the CKIC, the compensation for the land as well as R&R assistance has been estimated

- (iv) **Institutional Arrangement.** The SIA report prepared for the Section 1 and 5, indicates that a Land Acquisition Rehabilitation and Resettlement Units (LARRU) will be constituted. Which will be headed by Special District Revenue Officers (Spl DRO) and will be supported by a Resettlement Officer (RO) for RP implementation support and Tahsildar(s) for support in land acquisition. For implementing the RAP, the TNHD will initiate the following activities:

- Establish one R&R cell within the TNHD
- Appointment of Social Manager and Environmental Manager
- Selection of NGO / Consulting firm for implementation of RAP
- Appointment of Monitoring and evaluation agency for RAP
- Orientation and Training to PIU staff, NGO and other RAP implementers

For Section 1, the RAP is being implemented by a Consulting firm (termed as RP Implementation consultants). For section 4, the land acquisition has been implemented by TNRIDC in assistance from the revenue department.

- (i) **Grievance Redressal Committee (GRC).** The proposed GRC in the CPRR is very much similar to the CKIC project setup, which will have two-levels to receive, evaluate and facilitate the resolution of displaced person concerns, complaints and grievances. The GRC will provide an opportunity to the DPs to have their grievances redressed prior to approaching the Jurisdictional LARR Authority.
- (ii) **R&R Budget.** The R&R budget for Section-1 is estimated to be Rs. 24.35 Crores, for Section-4, since the widening is already in progress within the RoW, the R&R budget has not been estimated and for Section-5 it is Rs. 24.35 Crores.

**7. Public Consultations.** Public consultations for the CPRR were held in July 2014, during the drafting of the DPR. The consultations were held once at Panchetti for Section 1, which was attended by 51 participants from 8 villages. For Section 4 consultations were conducted at Oragadam, which was attended by 25 participants from 7 villages and for Section 5, consultations have been conducted at Manamathi, which was attended by 70 participants from 19 villages. Another Public Consultation has been conducted on 10<sup>th</sup> and 12<sup>th</sup> July 2018 by the Tamil Nadu Pollution Control Board (TNPCB) at two locations namely Chengalpattu in Kanchepuram district and Thamarapakkam in Thiruvallur district for Environmental Clearance (EC) purposes. The key points discussed in the consultation is as follows

- Properties (Land and structures), likely to get affected due to the proposed CPRR
- Widening criteria adopted and alignment details
- Provision for underpass and road crossing details
- Provision for median opening for easy access from village roads
- Safety measures proposed in the CPRR
- Shifting of alignment for saving structures and private land
- Compensation for land and structures should be at par with the market price and replacement cost
- Requested for government job for a family member who is getting affected by the CPRR implementation
- Details regarding the livelihood assistance
- Project information including design, RoW, land acquisition details, PAP's information etc.

**8. Environmental and Social Corrective Action Plan (ESCAP).** Based on the Environmental and Social Due Diligence observations, a suitable Environmental and Social Corrective Action Plan in chapter 5 has been prepared. The ESCAP shall have time-bound corrective measures.

9. **Conclusion.** With respect to the approach and methodology adopted for conducting EIA and SIA/RAP are observed to be in line with MDB's policy requirements. However, the EIA and SIA/RAP documents prepared for the section 1, 4 and 5, are having non-compliances and area for improvements, which has been listed with suitable time bound corrective action plan suggested. It is observed that the regulatory requirements has been fulfilled, the proposed Institutional Mechanism and the GRM are also in line with the MDB's requirements. With exemptions to the issues discussed in the Environmental and Social corrective action plan, overall the prepared safeguard documents including the EIA and SIA/RAP across all the sections are observed to be satisfactory. Based on the monitoring reports, the implementation of EMP and RAP in section 1 is also observed to be satisfactory.



## 1 Introduction

### 1.1 Purpose of this Report

10. This environmental and social due diligence report (ESDDR) has been prepared to fulfil Asian Infrastructure Investment Bank (AIIB)'s Environmental and Social Policy requirements for associated facilities of an investment component. The scope of AIIB financing includes sections 2 and 3. Since the sections 1, 4 and 5 is considered as associated/existing facilities, it is required to conduct the environmental and social due diligence of sections 1, 4 and 5. Accordingly, this report has been prepared.

### 1.2 Project Rationale

11. Chennai Metropolitan Area (CMA) is one of the major metropolitan cities in India, the growing population and urban agglomeration has led to an increase in the infrastructure demand including road facilities. The existing road infrastructure does not suffice the purpose of handling increased road traffic/ vehicle volume on day to day basis. The major arterial road network in CMA consists of National Highways (NH 16, NH 716, NH 48 and NH 32) as major radial roads, Inner Ring Road (IRR), Chennai Bypass, and Outer Ring Road (ORR) as ring roads. The implementation of the Chennai Peripheral Ring Road (CPRR) Project is expected to contribute to the further expansion of the Radial-Ring Road Network corresponding to the growing traffic demand.

12. Tamil Nadu Highways Department (TNHD) has identified a tentative alignment for the proposed peripheral ring road. The proposed alignment along with various options was evaluated based on technical and financial viability by the Technical Sub-Committee, Technical Committee and Steering Committee. Based on the evaluation, the Chennai Peripheral Ring Road (CPRR) alignment was fixed, approved by the Steering Committee and finalized by the Principal Secretary, Highways and Minor Ports, Government of Tamil Nadu on 09.07.2014. The CPRR is proposed for a length of 133.381km by having 5 sections. The break-up is given as follows

**Table 1: Various sections under Chennai Peripheral Ring Road**

Section	CPRR Break-up	Length (km)	Funding agency
1	Northern Port Access Road - Ennore port to Thatchur on NH 16	25.31	JICA
2	Thatchur on NH 16 to Start of Thiruvallur Bypass	26.70	AIIB
3	Start of Thiruvallur Bypass to Sriperumbudur on NH 48	30.10	AIIB
4	Sriperumbudur on NH 48 to Singaperumal Koil on NH 32	23.80	Govt of Tamil Nadu
5	Singaperumal Koil on NH 32 to Mahabalipuram	27.471	TBD

Source: TNHD



Figure 1: Proposed CPRR alignment

### 1.3 Objectives of the Project

13. The key objective of the project is to address the rapidly increasing road traffic demand in the Chennai Metropolitan Area (CMA) by constructing CPRR. The Project is expected to improve the connectivity in and around Chennai City by:

- Formulating the Radial-Ring Road Network in CMA in collaboration with other ring roads such as the Inner Ring Road (IRR), the Chennai Bypass, and the Outer Ring Road (ORR) to provide alternate routes for traffic as well as to improve the redundancy of the road network, and
- Providing direct access to Ennore Port and Kattupalli Port from industrial clusters located in suburban areas of CMA to accelerate industrial and economic growth.

## 1.4 Project Status

14. Detailed Project Report (DPR) study has been conducted for the entire alignment (comprising of all 5 sections). Based on the study, suitable road designs, structural designs, environmental and social safeguard assessment reports have been prepared along with tentative project estimation.

15. Out of 5 sections, section 1 will be implemented with financial assistance from the Japan International Cooperation Agency (JICA), the DPR for that section has been scrutinised and finalised by the JICA. Construction Supervision Consultants (CSC) has been appointed and the review of the DPR including the highways design, structures are currently in progress<sup>3</sup>. The Section 2 and 3 are proposed to be implemented under financial assistance from the AIIB. The operation of Section 4 of the CPRR is managed by the TNRIDC<sup>4</sup>, which is the nodal agency for implementing the same under the state fund. It is proposed to upgrade the Section 4 as an access control corridor with an estimation of 531 crores for which a notification in local language has been published (refer **Annexure 1**).

16. An administrative sanction for the constitution of Level Crossing (LC 47) in the section 4 has been issued by the Government of Tamil Nadu (Refer **Annexure 2**). The remaining section 5 of the CPRR will be developed later on after completion of section 2 and 3.

## 1.5 Environmental and Social Due Diligence

### 1.5.1 Objectives

17. As per Environmental and Social Policy (ESP) of AIIB, the section 1,4 and 5 in the CPRR has to undergo a due diligence study with the following objectives

- To collect and review the existing safeguard documents (Environmental and Social) and other project relevant information including the proposed design, site selection, analysis of alternative, public consultations and disclosure of documents
- To review the approach taken in the preparation of the safeguard documents including the adopted regulatory requirements and the policies, environmental and social impact assessment and its mitigation measures, land acquisition (including voluntary and involuntary resettlement, economic displacement), stakeholders engagement and cultural heritage issues (if any)

<sup>3</sup> As per the Monthly Progress Report - April 2020, submitted by the CSC to TNRDC

<sup>4</sup> Tamil Nadu Road Infrastructure Development Corporation (TNRIDC) was established to formulate, undertake, implement upgrade and maintain the road infrastructure in the state of Tamil Nadu under any plan, programme, and scheme of the state as per the direction of Government of Tamil Nadu (GoTN).

- To review the NoC's/ Permissions/Clearances and other statutory requirements as applicable for the sections 1, 4 and 5 (including the Environmental clearances and Forest Clearance).
- To review the prepared Environmental and Social Management Plan and its suitability to the sites as well as inclusion of the EMP in the Bid Documents
- To review the institutional arrangement and its capacity in implementing the safeguards
- To review the GRM setup and its roles and responsibilities in addressing the grievances received from the sites.
- To review the environmental monitoring performed for the sections 1, 4 and 5.

### 1.5.2 Scope and Methodologies

18. The scope of this due diligence includes review of environmental and social management practices of Section 1, 4 and 5. The extent of due diligence is limited to the alignment only.

19. The Due Diligence study reviews the available documents and assesses the compliance of safeguards requirement for CPRR sections 1, 4 and 5 with the respect to (i) Regulatory clearances/permissions/consents (like environmental clearance, forest clearance, etc.); (ii) analysis of alternatives; (iii) the process of identifying environmental impacts and integration of environmental management measures;(iv) Social Impact assessment / Resettlement Action Plan (v) Public consultations and information disclosure; (v) Contractual Obligations for HSE Measures; (vii) Implementation of Environmental and Social instruments, Health, Safety and Environment (HSE) Measures; (vii) Institutional Arrangement; (viii) Site Visit Observations and (ix) Conclusions & Recommendations etc. The approach towards preparation of the Environmental and Social Due Diligence (ESDD) include the following work plan

20. **Task 1.** As part of preparation of detailed ESDD, a meeting has been arranged by CPRR with TNRIDC and DPR Consultant on 2<sup>nd</sup> January 2020 and a Video Conference (VC) has been arranged between CPRR team, TNRIDC, DPR Consultants on 1<sup>st</sup> April 2020 to discuss the following

- Project Alignment and its overall description
- Project Implementation status
- Status of Forest Clearance
- Environmental clearance and its conditions
- Land acquisition and Resettlement issues
- Public Consultation details; and
- Facilitation towards obtaining necessary document towards preparation of detailed ESDD for section 1, 4 and 5

21. **Task 2.** Desktop review to collect relevant information including (i) KMZ/ KML files of the proposed alignment for each sections (1, 4 and 5); (ii) information regarding justification

of alignment selections; (iii) safeguard documents including the EIA and SIA/RAP<sup>5</sup> (iv) Measures integrated in the project to address pre-construction, construction and post construction impacts including Environmental, Health and Safety; and (v) Information on current status of forest clearance.

**22. Task 3.** A site visit was undertaken by E&S Consultant along with TNRIDC officials for monitoring of Environmental & Social safeguards implementation and to review (i) environment and social management measures undertaken for safeguards implementation; (ii) Site reconnaissance to get the first hand feel of the project and key environmental and social issues including presence of any environmental sensitive areas (ecological hot spots like sanctuaries, wildlife areas, Protected areas etc.), water bodies, Avenue trees, social sensitive locations (Cultural and Religious Properties (CPR's), Schools, hospitals, Project Affected People (PAP's) and Land Acquisition status etc.) within the section 1, 4 and 5; (iii) interaction with project stakeholders (TNRIDC and CPRR) (iv) Health and safety practices adopted and, (v) monitoring and evaluation arrangements

**23. Task 4.** The ESDD study was carried out for the section 1, 4 and 5 on the basis of site visit observations and understanding project scope based on information and documents provided by TNRIDC and CPRR. The following documents were referred in order to prepare ESDD Report.

No.	Documents	Year	Purpose of the reports/ documents
1.	Preparatory Study for Chennai Peripheral Ring Road Development in India by JICA	2018	Aims to collect necessary information to appraise the Project (section 1) for it to be implemented. The study provides brief background about the project including the proposed highway design, structures, project cost, implementation schedule, procurement and construction method as well as social and environmental conditions.
2.	Environmental Impact Assessment report for Singaperumal Koil to Sriperumbudur (SH 57)	2007	Environmental Impact Assessment report for the Detailed Project Report on Singaperumal Koil to Sriperumbudur (SH 57), which is section 4 as per CPRR
3.	Detailed Project Report (DPR) for the work of forming Peripheral Road connecting Mahabalipuram to Ennore Port (via) Singaperumal koil, Sriperumbudur, Thiruvallur, Tamaraipakkam,	2014	Provides highways design and proposed structure details including Culverts, Bridges (Major and Minor)

<sup>5</sup> To review the proposed GRM, EMP, EMoP and Implementation Mechanism/ Arrangement

Environmental and Social Due Diligence for Associated  
Facilities of Chennai Peripheral Road Project

CPRR

No.	Documents	Year	Purpose of the reports/ documents
	Periyapalayam, Puduvoyal and Kattupalli		
4.	Environmental Impact Assessment (EIA) Report for Proposed Chennai Peripheral Road	2018	The EIA has been prepared for obtaining Environmental clearance from SEIAA. It is a comprehensive report for all 5 sections. It is prepared as per the EIA guidelines 2006
5.	Volume V Environmental Impact Assessment of DPR (prepared by the DPR Consultants)	2016	The report has been prepared for all five sections. However it has been updated in 2018 to suit the EIA clearance for the project
6.	Volume IV Social Impact Assessment and Resettlement Action Plan of DPR (prepared by the DPR Consultants)	2016	The SIA has been prepared under various packages, Separate SIA has been prepared for section 1 and combined SIA has been prepared for section 2, 3 and 5. Since the Section 4 is already completed no SIA is available
7.	Minutes of the Meeting (MoM) of the Public Consultation conducted on 10/07/2014 and 12/07/2014.	2014	As part of EIA and SIA preparation, public consultation has been arranged at key locations along the project alignment for which a MoM has been prepared
8.	Monthly Progress Reports for the month of March and April	2020	Indicated the implementation status of the various project activities

Source: TNHD



## 2 Facilities Description

24. This chapter details the project description for sections 1, 4 and 5 of the CPRR. The description includes the project location, the existing condition of the roads, analysis of alternatives adopted in finalising the road alignment and the proposed road interventions

### 2.1 CPRR Section 1 (Northern Port Access Road from Ennore Port to Thatchur on NH 16)

25. The CPRR Section 1 is also referred as NPAR (i.e. Ennore Port to NH 16 and Link Road). This project corridor is entirely new alignment (Greenfield Corridor) connecting the Northern Gate (km 0/000) of Ennore Port and NH 16 (km 21/100) near Thatchur, with an additional spur road connecting to the Thiruvottiyur - Ponneri - Pancheti (TPP) road. The total length of section 1 is 21.10 km (excluding the TPP link road). The TPP link road starts at km 6/200 from NPAR and ends at km 13/950 of TPP Road.

26. The NPAR crosses Buckingham Canal near Kattupalli, for which a major bridge is proposed. As the project section is developed as an access-controlled facility, entry/exit ramps from Service road to Main carriageway are proposed on both sides of the project road.

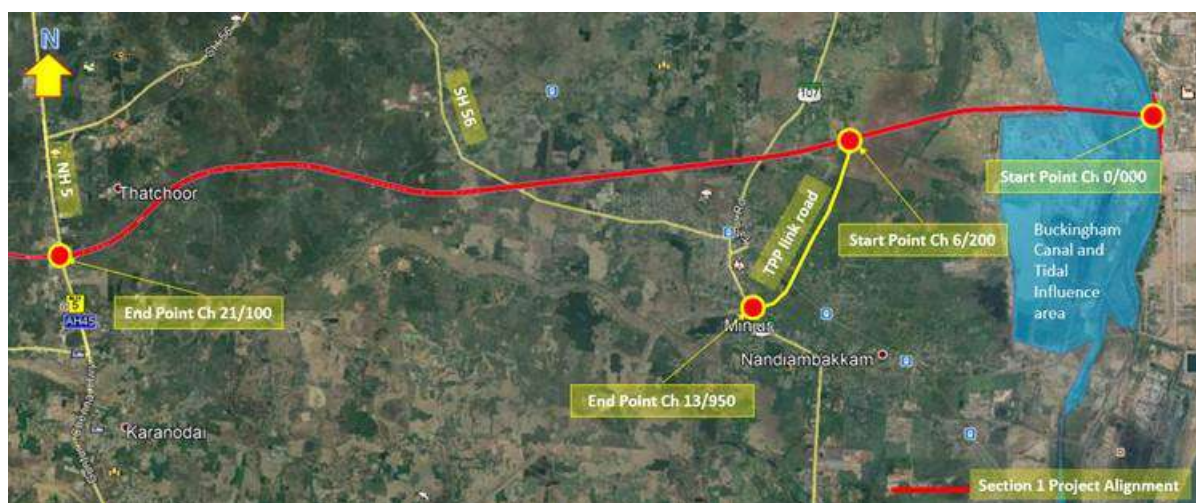


Figure 2: Section 1 Alignment Map

### 2.2 CPRR Section 4 (Sriperumbudur to Singaperumal Koil)

27. This section is also referred as State Highways 57, which connects NH 48 in Sriperumbudur to NH 32 in Singaperumal Koil. Tamil Nadu Road Infrastructure Development Corporation Ltd. (TNRIDC), is widening this stretch of SH 57 to 6 lanes with service roads. Government of Tamil Nadu has entrusted TNRIDC for constructing a ROB (LC 47) with interchange (elevated roundabout) on NH 32 at start of SH 57. Total length of this section is 23.80 km.

28. As this stretch of SH 57 is under widening to 6-lane by TNRIDC, no further widening/modifications/CD structures are proposed to avoid land acquisition. To improve the road safety, 9 vehicular underpasses and 3 light vehicular underpasses are proposed in this section within the available land. This section of the road passes entirely through Kanchipuram district covering two taluks, Chengalpattu and Sriperumpudur.





Figure 3: Section 4 Alignment Map

### 2.3 CPRR Section 5 (Singaperumal Koil on NH 32 to Mahabalipuram)

29. Section 5 starts at km 101/700 of NH 32 in Singaperumal Koil, where the Interchange-cum-ROB is under construction and ends at km 129/166 of Poonjeri Junction in Mahabalipuram. Total length of this stretch is 27.471 km in which 2.0 km is improvement of existing SH 49B (from km 11/200 to km 13/200) and balance is new alignment (Greenfield Corridor). The land use pattern observed was predominantly agricultural fields/ vacant and barren land all along the road. The project road will be 4-lane with paved shoulder carriageway with 2-lane service road on both sides. Proposed right of way is 60m. At-grade rotary intersection is proposed for Poonjeri junction where the OMR also ends at ECR.

30. There are 6 vehicular underpasses and 7 light vehicular underpasses proposed in this section. There is 1 major bridge proposed in this section. As the project section is developed as an access controlled facility, entry/exit ramps from Service road to Main carriageway are proposed on both sides of the project road. The road passes entirely through Kanchipuram district and falls under the Chengalpattu and Thirukalukundram Taluk covering around 28 settlements



Figure 4: Section 5 Alignment Map

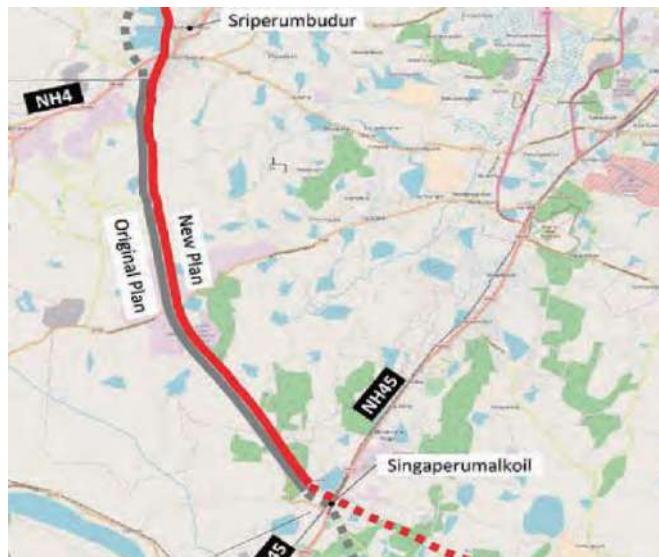
## 2.4 Analysis of Alternatives

31. The following section will highlight the alternate options explored for the CPRR alignment for section 1, 4 and 5.



- The alignment of the Main Road and the TPP Link Road, which had been prepared by NHAI independently, is also followed in the New Plan.
- The alignment of the Main Road and the TPP Link Road passes south of the Original Plan to avoid residential areas such as Puduvoyal, Ponneri, and other villages.

### Section - 1: Northern Port Access Road from Ennore Port to Thatchur on NH 16



- Improvement of the existing road is planned for this section, so there is no difference between the Original Plan and the New Plan.

### Section 4: Sriperumbudur to Singaperumal Koil



- By traversing the north of Singaperumal koil through farmlands as well as paddy fields, the New Plan avoids adverse impacts to the residential area.
- By moving the end point to the cross point of NH 49 close to Poonjeri, the New Plan avoids adverse impacts on the Mahabalipuram, which is a World Heritage site (located at a distance of 3km). The end point, originally set up as the start point, is at Thirukazhukundram Road in Mahabalipuram.

### Section 5: Singaperumal Koil on NH 32 to Mahabalipuram



## 2.5 Traffic Study

32. For the formulation of the design, the following traffic surveys were carried out for Section 1, 4 and 5.

Traffic Surveys	Section 1	Section 4	Section 5
Classified Traffic Volume Count Survey	4	4	5
Turning Movement Survey	2	3	4
Origin-Destination & Commodity movement Survey	2	15	15
Axle Load Survey	1	4	2
Pedestrian Count Survey	-	7	2
Truck Terminal survey	-	2	2

33. Analysis of the traffic survey data brings out the Annual Average Daily Traffic (AADT) of existing roads in the project area, peak hour turning movement of existing junctions, traffic characteristics and movement pattern along the project corridor, pedestrian movements in the project locations, vehicle loading characteristics and existing speed-delay characteristics on the project area and requirement of truck parking facility.

- i. **Section 1.** The AADT of NH 16 is around 50,000 PCU and Peak hour share is 5.62 to 8.50%. It is clearly observed that a significant movement of freight traffic takes place during night and early mornings. The passenger traffic movement takes place during the day time. The expected traffic, which is 16,068 PCU/day results mainly due to diverted traffic. Traffic growth rate identified by the transport demand elasticity method for most likely scenario for section 1 is given in the following table.

Year	Two Wheeler	Passenger Auto	Car/Jeep	Bus	LCV	2 & 3 Axle Trucks	MAV
2018-2023	8.43%	5.00%	8.22%	5.00%	11.79%	6.59%	5.60%
2023-2028	7.59%	5.00%	7.40%	5.00%	10.61%	5.93%	5.04%
2028-2033	6.83%	3.89%	6.66%	4.05%	9.55%	5.34%	4.53%
2033-2038	6.15%	3.50%	5.99%	3.64%	8.59%	4.81%	4.08%
2038-2043	5.53%	3.15%	5.39%	3.28%	7.73%	4.33%	3.67%

- ii. **Section 4.** The AADT of NH 48 is more than 65,000 PCU and NH 32 is more than 95,000 PCU. AADT in stretch of SH 57 from NH 32 to NH 48 is more than 24,000 PCU. Peak hour share is 5.51 to 6.47% and the peak hour is identified during morning and evening hours. It is clearly observed that a significant movement of freight traffic takes place during night and early morning. The passenger traffic movement takes place during the day time. The expected traffic, which is mainly diverted traffic was identified to be 42000 PCU/day in Section 4. Traffic growth rate identified by the transport demand elasticity method for most likely scenario for section 4 is given in the following table.

Year	Two Wheeler	Passenger Auto	Car/Jeep	Bus	LCV	2 & 3 Axle Trucks	MAV
2013-2018	9.37%	5.34%	9.14%	5.55%	13.10%	7.33%	6.22%
2018-2023	8.43%	5.00%	8.22%	5.00%	11.79%	6.59%	5.60%
2023-2028	7.59%	5.00%	7.40%	5.00%	10.61%	5.93%	5.04%
2028-2033	6.83%	3.89%	6.66%	4.05%	9.55%	5.34%	4.53%
2033-2038	6.15%	3.50%	5.99%	3.64%	8.59%	4.81%	4.08%
2038-2043	5.53%	3.15%	5.39%	3.28%	7.73%	4.33%	3.67%

iii. **Section 5.** The AADT of NH 32 is more than 95000 PCU. AADT in ECR is more than 14000 PCU. Peak hour share is 5.91 to 7.94% and the peak hour is identified during morning and evening hours. It is clearly observed that a significant movement of freight traffic takes place during night and early morning. The passenger traffic movement takes place during the day time. The expected traffic, which is mainly diverted traffic was identified to be 10000 PCU/day in Section 5. Traffic growth rate identified by the transport demand elasticity method for most likely scenario for section 5 is given in the following table.

Year	Two Wheeler	Passenger Auto	Car/Jeep	Bus	LCV	2 & 3 Axle Trucks	MAV
2013-2018	9.37%	5.34%	9.14%	5.55%	13.10%	7.33%	6.22%
2018-2023	8.43%	5.00%	8.22%	5.00%	11.79%	6.59%	5.60%
2023-2028	7.59%	5.00%	7.40%	5.00%	10.61%	5.93%	5.04%
2028-2033	6.83%	3.89%	6.66%	4.05%	9.55%	5.34%	4.53%
2033-2038	6.15%	3.50%	5.99%	3.64%	8.59%	4.81%	4.08%
2038-2043	5.53%	3.15%	5.39%	3.28%	7.73%	4.33%	3.67%

## 2.6 Proposed Design Interventions

34. The project road components are designed as an access controlled road. The design is carried out primarily based on IRC: SP: 87-2013: Manual of Specification and Standards for Six Laning of Highways through Public Private Partnership and the recommendations made by the Steering Committee of the project. The individual components of the highway are designed as per the relevant standards of the Indian Roads Congress (IRC) and MORT&H specifications. Typical Cross section proposed for the Section 1, 4 and 5 is depicted in the following figures

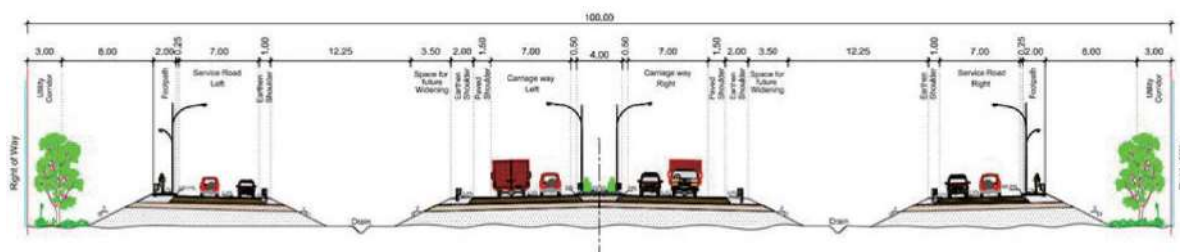


Figure 5: Typical Cross Section for Section 1 (Including TPP Link Road)

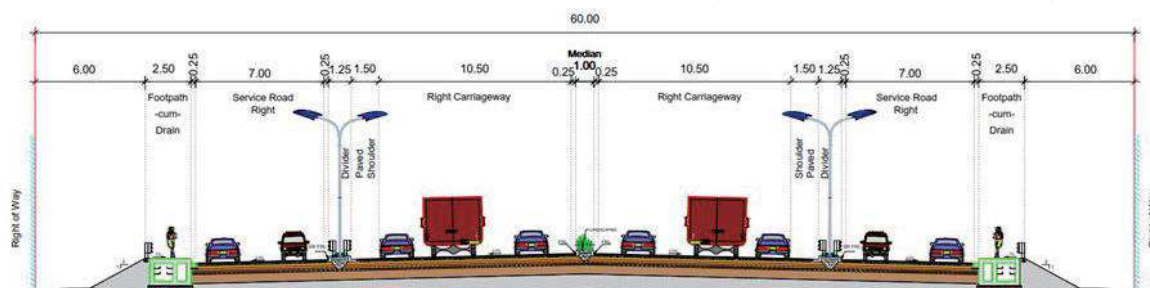


Figure 6: Typical Cross Section for Section 4

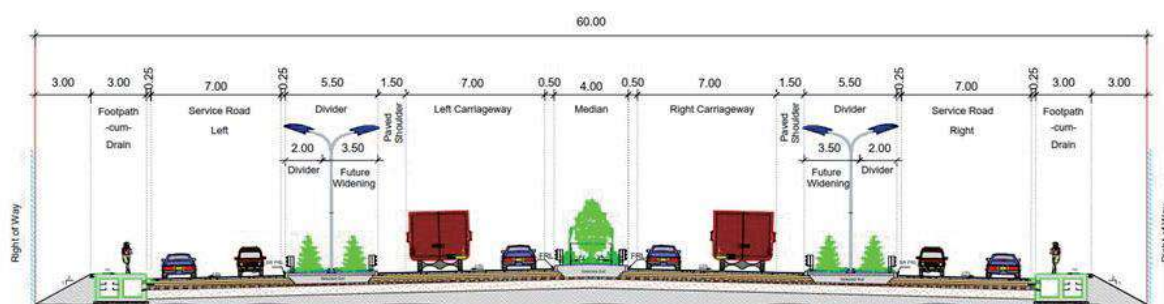


Figure 7: Typical Cross Section for Section 5

### 2.6.1 Pavement Composition

35. The sections 1, 4 and 5 has been designed to have similar pavement composition. The pavement is designed for a life of 15 years for bituminous layers and 20 years for granular layers. Flexible payment is considered for the project to minimize the initial construction cost. Guideline of IRC: 37-2012 is followed for design of new pavement and IRC: 81 - 1997 is followed for strengthening of existing pavement layers.

36. In section 4, as per the traffic loading and deflection values identified by the field surveys, 40mm BC and 50mm DBM is proposed as overlay for the existing road stretch of SH-57. In section 5, reconstruction of pavement crust is proposed for the existing road stretch SH-49B (2km length). The proposed pavement composition for sections 1, 4 and 5 is given in the following table

Description	Main Carriageway	Service Road
Bituminous Concrete	50	40
Dense Bituminous Macadam	115	100
Wet Mix Macadam	250	250
Granular Sub-base	200	200
<b>Total</b>	<b>615</b>	<b>590</b>

### 2.6.2 Vehicular Underpass

37. For sections 1, 4 and 5 underpasses are proposed at important junctions and built-up sections. Two types of underpasses are proposed as per IRC-87:2013. Number of Vehicular underpass and Light Vehicle underpass are given in the following table

- Vehicular Underpass (Vertical Clearance - 5.5m)
  - 2 vents X 12 m for SH & MDR and
  - 1 vent X 12 m for ODR & Panchayat roads
- Light Vehicular Underpass (Vertical Clearance - 4.5m)
  - 1 vent X 12 m for ODR & Panchayat roads

Project Section	Vehicular Underpass	Light Vehicular Underpass
Section 1	6	6
Section 4	9	3
Section 5	6	7

### 2.6.3 Drain facility

38. The design of surface and sub-surface drains are carried out as per the IRC: SP: 87-2013 and IRC: SP: 42-1994. As per Flood Estimation Report for Coast Region of Central Water

Commission, 25-years 24-hour rainfall in the project area is 300mm and 50 years 24-hour rainfall is 320 mm. considering the minor difference, 320mm rainfall is considered in the project for designing the drain facility. The average msl for section 1, 4 and 5 are 83m, 50m and 36m respectively.

- **Section 1**, Brick Lined Open Trapezoidal Drain has been provided in the space between main carriageway and service road. This is a brick lined open trapezoidal drain of 0.30m base width and 0.60m depth with a side slope of 1V:1H. For high embankment sections, Chute Drain has been provided.
- **Section 4**. RCC Lined Covered Rectangular Drain has been constructed by TNRIDC. The RCC drain has inner width of 1.2m and clear depth of 1.5m.
- **Section 5**. RCC Lined Covered Rectangular Drain has been proposed to provide under the footpath. As the CD structures are proposed in close interval, the length of this drain also generally will be 150m to 250m

#### 2.6.4 Major and Minor Bridges

39. Section 1 consists of an elevated bridge crossing Buckingham Canal and Korttalaiyar River from Ennore Port towards the west and another elevated bridge connecting towards Kattupalli. The bridge location is near km 0/662. It is proposed to construct 3 minor bridges at km 2/465, km 7/163 and km 2/613 (TPP link road). For section 4, there are no proposal for major or minor bridges. For Section 5, a viaduct crosses over Sengunram Tank and pond. The major bridge location is located near km 102/831. It is proposed to construct 11 minor bridges at km 106/101, km 110/311, km 110/618, km 115/266, km 115/468, km 118/058, km 118/530, km 119/981, km 121/403, km 121/953 and km 123/523.

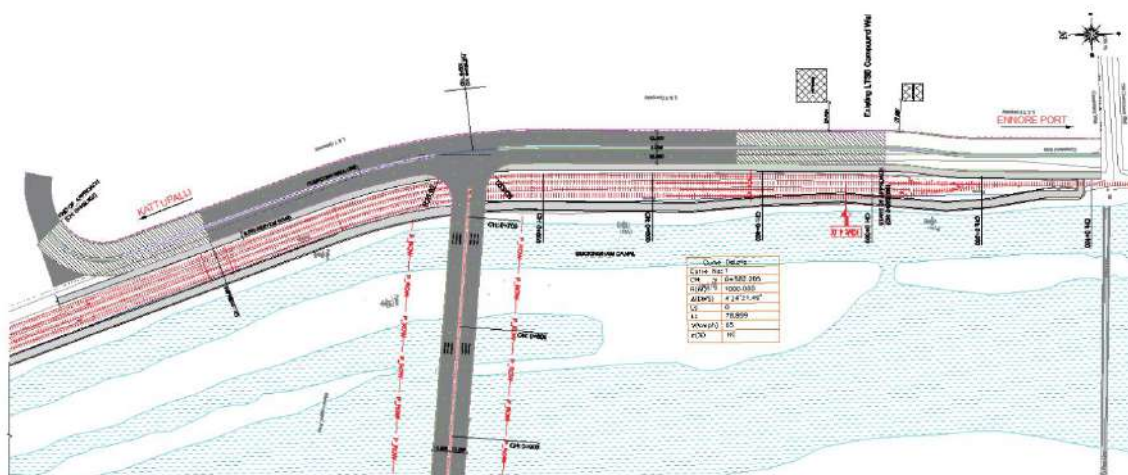


Figure 8: Major Bridge at km 0/662 in Section 1

#### 2.6.5 Interchanges

40. Section 1 has been proposed to have a cloverleaf Interchange at km 20/900, Thatchur in Thiruvallur District. The intersection shall have 4 lane with 80 kmph design speed. Section 4 do not have any intersections, for section 5, an intersection has been proposed at km 101/747, Sigaperumal Koil in Thiruvallur District. The intersection is designed to have 4 lanes (2 lanes for each direction) with design speed of 40 kmph.



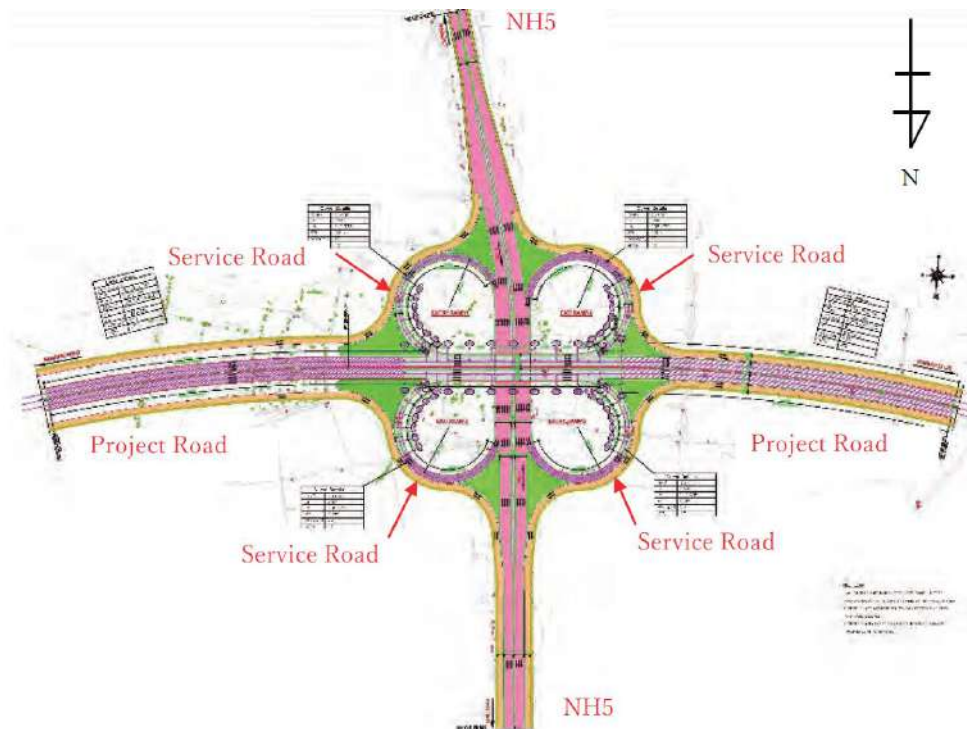


Figure 9: Cloverleaf Interchange at km 20/900 in Section 1

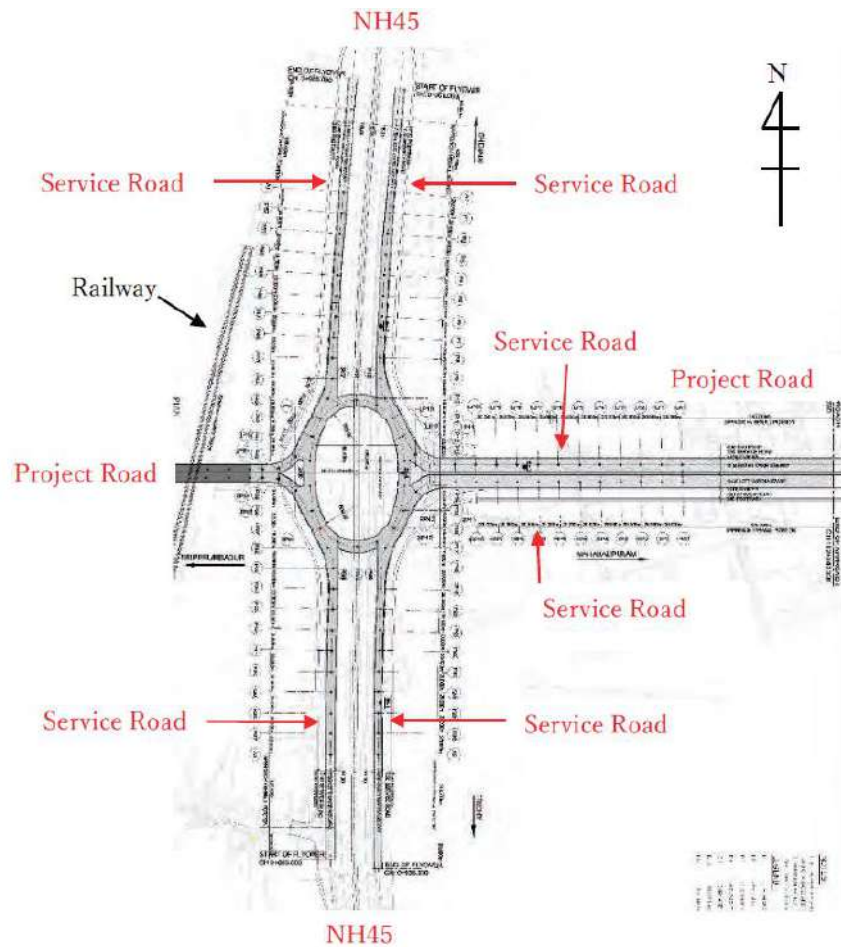


Figure 10: Interchange at km 101/747 in Section 5



### 2.6.6 Road safety measures

41. Road safety measures are common for all sections (1, 4 and 5), the safety measures include the following:

- Cautionary, mandatory and informatory signs are proposed for the elevated road and interchanges main carriageway, service road and other project facilities, depending on the situation and function they perform, in accordance with the IRC: 67-2012.
- To regulate the traffic and for the psychological awareness to the road user, edge lane marking, lane markings, chevron markings, stop line, zebra crossing are also proposed at required locations.
- The hazard markers are proposed in curved stretches at the crash barriers of structures like interchange, underpasses, bridges, etc and the object hazard markers are proposed at the start of concrete crash barrier of these structures.
- Road studs are proposed at the edge lane marking, acceleration lane, deceleration lane, weaving portion, chevron markings, entry/exit ramps, bus bays, zebra crossings, etc as per IRC:SP:87-2013.
- The semi rigid, Thrie beam type steel barrier is proposed all along the project road at central median, earthen shoulder and footpath.
- The flashing beacons are proposed for the safety purpose at the at-grade junction in underpasses, truck parking locations, entry/exit ramps and rest area locations

#### 2.6.6.1 Road accident details in Section 4

42. Road accident information for Section 4 has been collected from the Traffic Police Department, Government of Tamil Nadu and given in the following table. Though the section 4 has been provided with safety measures, significant number of fatality has been recorded.

Sl.no	Location	2018	2019	2020
1.	Sriperumbudur	51	56	12
2.	Oragadam	21	34	9

Source: Traffic Department, GoTN (Note: 2020 accident information is up to the month of May 2020)

43. From the observation it is evident that the highway section near the Sriperumbudur has been recorded with high fatality every year, this is because due to the movement of heavy vehicles in the Industrial areas including the SPICOT (major automobile manufacturing hub). The highway section on the Oragadam also records significant number of fatality, however, in comparison with Sriperumbudur, the movement of heavy vehicles is less. Lowest fatal accident has been recorded in the year 2020, this is because of the lockdown due to the ongoing COVID-19 crisis.

### 3 Environmental Due Diligence

#### 3.1 Legal and Regulatory Requirements

44. The national and state rules and regulations that are applicable for a road construction project is applicable for this CPRR as well. Some of the key regulatory requirements are given in the following table (Description of the rules and regulations are given in the **Annexure 3**). At the time of DPR preparation the funding agencies for the development of the CPRR has not been decided and hence, the policy related requirements are not captured in the safeguard documents (EIA and SIA). However as per the recent developments, the section 1 has been funded by the Japan International Cooperation Agency (JICA) and hence as per JICA policy, screening exercise has been conducted and the section 1 has been categorised as 'A'<sup>6</sup> and accordingly the policy level requirements are included in the EIA documents. For section 4, being an existing State Highways 57, the widening and strengthening of the road has already been completed by TNRIDC by adopting the prevailing rules and regulations as applicable to the project. For Section 5, all the applicable rules and regulatory requirements are mentioned in the **safeguard documents (EIA documents prepared by DPR consultants and EIA consultants)** and as per the funding agency once decided, the policy level requirements shall be updated as and when required.

**Table 2: Environmental Acts, Rules and Regulation Applicable for Section 1, 4 and 5**

Policy/ Acts/Rules	Year	Purpose	Responsible Institution	Applicability (Yes/ No)
Environmental Impact Assessment Notification and Amendments	2006, 2009, 2011, 2013 and 2014	To provide environmental clearance to new development activities following an environmental impact assessment	MoEF&CC and SEIAA	Yes, the CPRR as a whole (including 5 sections) mandates environmental clearance under category B1 and schedule 7(f) and.
Coastal Regulation Zone (CRZ)	2011 2018	Protect and manage coastal areas	State Coastal Zone Management Authority (SCZMA)- Department of Environment	Yes, Section 1 of the project corridor comes under CRZ.
Notification on use of fly ash (subsequent amendments)	2003 2009 2016	To mandate reuse of large quantities of fly ash from thermal power plants for development projects within a 300km radius.	MoEF&CC	Yes, since, Ennore Thermal power plant is located within a 300 km radius, the fly ash should be used for construction purpose. However, for the construction of Section 4, fly ash

<sup>6</sup> As per JICA Categorisation, Proposed projects are classified as Category 'A' if they are likely to have significant adverse impacts on the environment and society. Projects with complicated or unprecedented impacts that are difficult to assess, or projects with a wide range of impacts or irreversible impacts, are also classified as Category A. These impacts may affect an area broader than the sites or facilities subject to physical construction. Category A, in principle, includes projects in sensitive sectors, projects that have characteristics that are liable to cause adverse environmental impacts, and projects located in or near sensitive areas.

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Policy/ Acts/Rules	Year	Purpose	Responsible Institution	Applicability (Yes/ No)
				has not been used, this is due to the non-availability of the fly ash. For section 1, the possibilities of using fly ash is being explored
Forest (Conservation) Act	1980	To protect and manage forests, to check deforestation by restricting the conversion of forest areas into non-forest areas	Forest department, GoTN/ MoEF&CC	Yes, due to the road widening in Section 5, forest land acquisition for 9.95ha is required, for which this act is applicable.
Wildlife Protection Act (subsequent amendments)	1972 2002	To protect wild animals and birds through the creation of National Parks / Sanctuaries and it also provides more stringent sections detailing punishments, includes the penalty for offenses under the Act.	MoEF&CC (Wildlife Division)	No, there is no National Parks / Sanctuaries locations within or in the project influence area.
Biological Diversity Act	2002	Disclosure of species survey or collection activities to the National Biodiversity Authority	MoEF&CC	Yes, applicable for section 5 due to the presence of the Thirutheri and Sengundram Reserve Forest
Water (Prevention and Control of Pollution) Act (and subsequent amendments)	1974	To provide for the prevention and control of water pollution and the maintaining or restoring of wholesomeness of water.	CPCB/ TNPCCB	Yes, as per the Environmental Protection Act 1986
Air (Prevention and Control of Pollution) Act (and subsequent amendments)	1981	To provide for the prevention, control, and abatement of air pollution, and for the establishment of Boards to carry out these purposes.	CPCB/ TNPCCB	Yes, as per the Environmental Protection Act 1986
Noise Pollution (Regulation and Control) rules	2000	Noise pollution regulation and controls	CPCB/ TNPCCB	Yes, as per the Environmental Protection Act 1986
Hazardous Waste (Management& Transboundary Movement) Rules and subsequent amendments	2008 2016 2019	Storage, handling, transportation, and disposal of hazardous waste	TNPCCB	Yes, storage and handling of Hazardous waste during construction. Hazardous wastes includes concrete additives, asbestos, contaminated soils, preservative, adhesives, paint, varnish, solvents, fluorescent light

Policy/ Acts/Rules	Year	Purpose	Responsible Institution	Applicability (Yes/ No)
				tubes, and lead-acid batteries.
The municipal solid waste management rules and subsequent amendments	2000 2016	Management and handling of solid waste	TNPCB, and concern ULB's /Municipalities	Yes, for disposal of solid waste generated during construction
Environmental Clearance (EC) under EIA notification (and subsequent amendments) for new Quarry areas	2006	For new quarry operations	SEIAA, TNPCB	Yes, for new quarry operations it is mandatory to obtain EC from the SEIAA
Central Motor Vehicle Act Central Motor Vehicle Rules	1988 1989	To control vehicular air and noise pollution. To regulate the development of the transport sector, check and control vehicular air and noise pollution.	Transportation Department, GoTN	Yes, for all the vehicles used for construction purposes
The Ancient Monuments and Archaeological Sites and Remains (Amendment and Validation) Act	2010	To amend the Ancient Monuments and Archaeological Sites and Remains Act, 1958, including a declaration of regulated and prohibited areas around the monuments.	Department of Archaeology, GoTN, National Monuments authority	Yes, in case of chance-find

### 3.1.1 Compliance to Clearances/Permissions

45. It is required that the sections 1, 4 and 5 meets the requirements of appropriate national and state legislations by considering appropriate obligations and guidelines of Regulatory Authorities. The sections 1, 4 and 5 should have necessary national and state environmental clearances as well as permits and approvals for project implementation.

- (i) **Environmental Clearance.** Has been obtained for the CPRR as a whole (including Sections 1, 4 and 5), Refer **Annexure 4**. The conditions given in the Environmental clearance are being adopted in updating/ revising the DPR's. Climate change adoption measures are included in the design. Tree transplantation is proposed for the small trees which can be shifted from the RoW, Use of native species for compensatory afforestation etc. Though the EC has been obtained for the entire stretch, the given conditions are not applicable for section 4 as the construction has already been completed. The compliance status of the EC for Section 1, is being complied by the PIU with the help of CSC and contractors. The section 5 shall be taken up later on completion of section 2 and 3 and hence the condition of the EC is not applicable.
- (ii) **Coastal Regulation Zone (CRZ).** Section 1, mandated CRZ clearance from State Coastal Zone Management Authority, accordingly CRZ application along with necessary enclosures has been submitted and CRZ clearance is obtained (Refer **Annexure 5**). The conditions given in the CRZ clearance can be split into specific conditions, which includes mangroves afforestation, no construction camps in the CRZ areas and no construction activities in the Tidal influence areas and generic conditions which is applicable for other sections as well. The generic conditions include (i) Preservation of top soil, (ii) Clearing

of construction materials, (iii) Restriction on the groundwater usage for construction works, (iv) Restriction in storage of diesel etc. The compliance status of the CRZ clearance is very much similar to EC, having been reflected in the EMP to be complied with.

- (iii) **Forest Clearance.** Section 1 do not have any forest land acquisition and hence the forest clearance is not envisaged. For section 4, forest clearance has been obtained on 14<sup>th</sup> August 2014 (DFO kancheepuram vide proceedings no 7326/2011/D dt 14/08/2020) for 20.5 ha of land diversion, the forests covered under the section 4 are Kulattur RF, Thalimangalam RF, Appur RF and Vattambakkam RF. The condition given in the Forest Clearance includes providing fencing for the forest stretches to prevent accidentals entry of animals and providing informative signages/ speed limit signages along the forest stretch to prevent animal killing due to speeding vehicles. Section 5 is having forest land acquisition at Thirutheri RF from km 103/700 to 104/200 (on both sides) for a land extent of 2.56 ha and Sengundram RF from km 104/690 to km 105/950 for a land extent of 7.39 ha (Refer **Annexure 6** for the Form A “Forest Clearance Application” submitted to the Forest Department).
- (iv) **Other permission and clearances.** As indicated in the Table 2, other permissions/NOCs/clearances including (i) Consent to establish under the Water and Air (Prevention and Control of Pollution) Act (and subsequent amendments, (ii) Groundwater permission from CGWB/ PWD, (iii) Permission from TNPCB under the Hazardous Waste (Management & Transboundary Movement) Rules and subsequent amendments, (iv) Permissions for disposal of waste under the municipal solid waste management rules and subsequent amendments shall be obtained for section 1 and 5 before start of the construction works. Since the construction works are already completed for Section 4, the statutory clearances may not be required.

## 3.2 Environmental Impact Assessment

### 3.2.1 Baseline Environmental Status for Section 1, 4 and 5

46. The secondary Information given in the EIA reports<sup>7</sup> for CPRR has been taken for discussing the baseline environmental profile of sections 1, 4 and 5. The Section 1 traverses through Thiruvallur District and the Section 4 and 5 traverses through Kancheepuram District.

#### 3.2.1.1 Physical Environment

- (i) **Rainfall and Climate.** Thiruvallur district receives the rain under the influence of both southwest and northeast monsoons. Rainfall data analysis shows that the normal annual rainfall varies from 950mm to 1150mm. The period from April to June is generally hot and dry. The relative humidity varies between 65% and 85% in the mornings while in the afternoon it varies between 40 and 70%. The annual mean minimum and maximum temperature are 24.3°C and 32.9°C respectively. Kanchipuram district generally experiences hot and humid climatic conditions. The normal annual rainfall over the

<sup>7</sup> EIA reports including the EIA prepared by the DPR consultants, EIA report prepared for obtaining EC and EIA prepared for JICA financing.

district varies from 1105mm to 1214mm. The minimum and maximum temperature is 20°C & 37°C. The daytime heat is oppressive, and the temperature is as high as 43°C.

- (ii) **Geomorphological and Soil Types.** The prominent geomorphic units identified in the Thiruvallur district are 1) Alluvial Plain, 2) Old River Courses 3) Coastal plains 4) Shallow & deep buried Pediments, 5) Pediments and 6) Structural Hills. The elevation of the area ranges from 183 m amsl in the west to sea level in the east. The major part of the area is characterised by an undulating topography with innumerable depressions which are used as irrigation tanks. In Kanchipuram district, the coastal plain displays a fairly low level or gently rolling surface and only slightly elevated above the local water surfaces on rivers. There are a number of sand dunes in the coastal tract. The coastal landforms include estuarine tidal, mud flats or lagoons and salt marsh etc.
- (iii) **Soils.** In Thiruvallur district Soils in the area have been classified into i) Red soil ii) Black soil iii) Alluvial soil iv) colluvial soil. The major part is covered by Red soil of red sandy/clay loam type. In Kanchipuram district, soils have been classified into 1) clayey soil, 2) red sandy or red loamy soil 3) Red sandy brown clayey soil and 4) Alluvial soil. Of the above soils, brown clayey soil is the most predominant.
- (iv) **Hydrogeology.** The Thiruvallur district is underlain by both porous and fissured formations. The porous formations in the district include sandstones and clays. The movement of ground water in these formations is mostly restricted to shallow level. Ground water occurs under phreatic to semi-confined conditions in these formations and is being developed by means of dug wells. The depth of the wells ranges from 8 to 15m bgl. The Kanchipuram district is underlain by both sedimentary and fissured formations. The important aquifer system in the district are constituted by i) unconsolidated and semi consolidated formations and ii) weathered, fissured and fractured crystalline rocks.
- (v) **Ambient Air Quality.** For section 1, the Ambient Air Quality (AAQ) has been monitored at 4 locations namely (i) Kattupalli, (ii) Nandiyampakkam, (iii) Neithavayal and (iv) Vannipakkam. For section 4, at two locations (Poonjeri and Otteri) the AAQ monitoring has been conducted. For section 5, AAQ monitoring has been conducted at 3 locations namely Hanumanthapuram, Singaperumal Koil and Oragandam. From the analysis,
- The PM<sub>2.5</sub> ranges between 44.7 to 217.5 µg/m<sup>3</sup>. The values are within the limits for Section 1, for other sections 4 and 5, the recorded value was high in comparison with the air quality standard.
  - The PM<sub>10</sub> values was in the range 27.3 to 135.4µg/m<sup>3</sup>. The recorded values in section 1 are less in comparison with the CPCB national ambient air quality standards 2009. However, for section 4 and 5, it was recorded with high concentration.
  - The Oxides of Nitrogen (NO<sub>x</sub>) was in the range between 8.4 to 38.6 mg/l, which was less in comparison with the air quality standard.
  - The Sulphur Dioxide (SO<sub>2</sub>) concentration varies between 7.2 to 48.5 mg/l, which was very less in concentration in comparison with air quality standard.
  - The concentration of Carbon monoxide (CO) and Hydro Carbon (HC) are below detectable limits for all sections (1, 4 and 5)

(vi) **Noise Levels.** For section 1, noise levels are recorded at 3 locations namely (i) Nilapakkam, (ii) Nauvayal and (iii) Vannivakkam. For section 4, at 2 locations (Poonjeri and Otteri) the Noise levels were monitored. For section 5, Noise levels has been monitored at 3 locations namely Hanumanthapuram, Singaperumal Koil and Oragandam. From the analysis, it has been observed that night time Leq varies from 33 to 57.6 dB (A) and day time Leq varies from 44.8 to 59.6 dB (A). Out of 8 monitored locations, in the Poonjeri location (section 4), the recorded noise levels are higher than the standard. The increase in the noise levels are due to the frequent movement of vehicles.

(vii) **Surface water Quality.** Surface water samples has been collected from 3 locations representing all the sections 1, 4 and 5. For section 1 water sample has been collected from Buckingham canal, for section 4, from Sriperumbadur Lake and for section 5, the water sample has been collected from Tank located in Thangam Colony. The collected water samples are tested for its Physico- chemical parameters. From the analysis, the pH remains neutral for all the samples across all the road sections. However, the Electric conductivity (EC) and Total Dissolved Solids (TDS) have been observed with high concentration for the water sample taken from Buckingham canal (section 1), this may be due to the tidal influence. Similarly, for water quality parameters like calcium, magnesium and chloride are recorded to be high in concentration. For other sections, the surface water quality are observed to be well within the limits in comparison with IS 2296.

### 3.2.1.2 Biological Environment

(viii) **Flora.** As per the Indian State of Forest Report (ISFR), the presence of very dense forest is completely absent in the Kanchipuram district. In the comparison of the forest area with the geographic area, Thiruvallur district has a higher percentage in comparison to the Kanchipuram district. The presence of floral species in the proposed alignment (sections 1, 4 and 5) are recorded as part of the road inventory. For avenue trees, the species information and the girth size have been recorded.

**Table 3: Forest Cover in Project Districts (units in Sq.km)**

Sl.no	District	Geographical Area (GA)	Very Dense Forest	Moderately Dense Forest	Open Forest	Total	% of GA
Areas in Sq.km							
1.	Kanchipuram	4,474	0	34	209	296	6.6
2.	Thiruvallur	3,413	10	46	191	247	7.2

Source: Indian State of Forest Report (ISFR)

47. As indicated in the Chapter 2, sections 1 and 5 are Greenfield corridors and the impact on the flora is observed to be very much limited as it traverses through the agriculture land and barren land. However, in comparison with section 1, section 5 is having considerable impact on the trees. Since the section 4 has already been widened, considerable number (1,459 trees) of avenue trees has been removed. Following

48.

49. **Table 4** depicts the tree loss due to the implementation of the Section 1 and Section 5.



**Table 4: Trees within the Project Corridor**

CPR Section	Girth: 300 to 600 mm	Girth: 600 to 900 mm	Girth: 900 to 1800 mm	Girth: above 1800 mm	Total
I	125	281	22	159	587
II	180	293	17	1	491
III	897	816	181	380	2,274
IV	Sripermbudur on NH 48 to Singaperumal Koil on NH 32 (23. 80 km) already laid by TNRIDC for which 1,459 trees has been removed. As a compensatory measure 3000 trees has been planted in a ratio of 1:2. Details of the trees with respect to the girth size is not available				
V	442	957	37	9	1,445
<b>Total</b>	<b>1,644</b>	<b>2,347</b>	<b>257</b>	<b>549</b>	<b>4,797</b>

50. As suggested by the State Expert Appraisal Committee (SEAC), Tamil Nadu Highways Department (TNHD) has revisited the proposed alignment and carried out changes to minimise the loss of trees. By doing so, out of 4,797 trees that are proposed to be removed has been minimised to 980 trees, which depicts that more than 80% of the trees (3,817 trees) has been saved. In order to minimise the tree loss/ felling of trees, the impacted trees are proposed to be transplanted. The following table depicts the details.

**Table 5: Trees proposed to be Transplanted**

CPR Section	Girth: 300 to 600 mm	Girth: 600 to 900 mm	Girth: 900 to 1800 mm	Girth: above 1800 mm	Total trees saved	Trees to be transplanted
I	111	212	20	163	506	81
II	140	240	0	1	381	110
III	768	727	145	330	1,970	304
IV	Section 4 (Singaperumal Koil to Sriperumbudur road (23. 80 km)) have already laid by TNRIDC for which 1,459 trees has been removed. Details of the trees with respect to the girth size is not available.					
V	180	752	22	6	960	485
<b>Total</b>	<b>1,199</b>	<b>1,931</b>	<b>187</b>	<b>500</b>	<b>3,817</b>	<b>980</b>

51. As per the inventory survey conducted during the EIA study, the following tree species has been identified

**Table 6: Details of the Tree Species in the Project Area**

Sl.no	Name of the Species	Vernacular Name	IUCN status
1.	<i>Acacia auriculiformis</i>	Golden shower	Least Concern
2.	<i>Albizia lebbek</i>	Vakai	Least Concern
3.	<i>Annona squamosa</i>	Seethapal	Least Concern
4.	<i>Areca catechu</i> L	Pakkumara	Data Deficient
5.	<i>Artocarpus integrifolia</i>	Jack	Data Deficient
6.	<i>Azadirachta indica</i>	Veppa maram	Least Concern
7.	<i>Banhinia purpurea</i>	Mandari	Data Deficient
8.	<i>Butea monosperma</i>	Flame of the forest	Least Concern
9.	<i>Calotropis gigantea</i> R.Br.	Erukku	Least Concern
10.	<i>Carica papaya</i> L.	Pappalimaram	Data Deficient
11.	<i>Casababela thevitia</i>	Arali Psidium guajava	Least Concern
12.	<i>Cassia fistula</i> L.	konrai	Least Concern
13.	<i>Casuarina equisetifolia</i> Forst.	Cavukkumaram	Least Concern
14.	<i>Ceiba pentandra</i> L.) Gaertn	Ilavam	Least Concern
15.	<i>Citrus limonia</i>	Puvarasam	Least Concern
16.	<i>Cocos nucifera</i>	Thennai maram	Least Concern
17.	<i>Delonix regia</i> .	Gulmohar	Least Concern

Sl.no	Name of the Species	Vernacular Name	IUCN status
18.	<i>Emblica officinalis</i>	Indian gooseberry	Least Concern
19.	<i>Eucalyptus lanceolatus</i>	Thaila maram	Least Concern
20.	<i>F. Religiosu</i>	Arasa maram	Least Concern
21.	<i>Ficus benghalensis</i>	Ala maram	Least Concern
22.	<i>Jatropha oligandrus</i>	Kattamanakku	Least Concern
23.	<i>Mangifera indica</i>	Mango	Least Concern
24.	<i>Phoenix sp</i>	Palmyra	Least Concern
25.	<i>Pithecellobium dulce</i>	Kodukka puli	Data Deficient
26.	<i>Polyathia longifolia</i>	Ashoka	Least Concern
27.	<i>Pongamia glabra</i>	Poongan	Least Concern
28.	<i>Punica granatum</i>	Pomegranate	Least Concern
29.	<i>Spathodea campanulata</i>	Tulip tree	Least Concern
30.	<i>Tamarindus indica</i>	Puliya maram	Least Concern

Source: Road Inventory, CPRR

52. The identified plant species in the section 1, 4 and 5 have been classified into crops, shrubs, climbers, and herbs. The crop species include *Oryza sativa*, *Zea mays*, *Lycopersicum esculentum*, *Solanum melongena*, *Abelmoschus esculentus*, *Ixora coccinea*, *Amaranthus viridis*, *Saccharum officinarum*, *Brassica juncea*, *Capsicum annuum*, *Gossypium hirsutum*, *Momordica charantia*, *Sesamum indicum*, and *Solanum nigrum*. The identified crop species are categorised as Least Concern (LC) as per the IUCN status. The shrub species include *Calotropis gigantea*, *Euphorbia antiquorum*, *Euphorbia royleana*, *Euphorbia tirucalli*, *Punica granatum*, and *Ricinus communis*. The identified shrub species are categorised as Least Concern (LC) as per the IUCN status. The climber species includes *Cissampelos pareira*, *Cissus quadrangularis*, *Citrullus colocynthis*, *Coccinea indica*, *Cyclea burmanni*, *Cyclea peltata*, *Daemia extensa*, *Derris scandens*, and *Diplocyclos palmatus*. The identified climber species are categorised as Least Concern (LC) as per the IUCN status. The Herbs species include *Abutilon indicum*, *Acalypha indica*, *Achyranthes aspera*, *Aerva lanata*, *Ageratum conyzoides*, *Altrernanthera sessilis*, *Amaranthus spinosus*, *Ammania baccifera*, *Argemon maxicana*, *Crotons parviflora*, and *Tephrosia purpurea*. The identified Herbs species are categorised as Least Concern (LC) as per the IUCN status.

53. Trees with economic importance including *Moringa oleifera*, *Pithecellobium dulce*, *Psidium guajava*, *Artocarpus heterophyllous*, *Borassus flabellifer*, *Cocos nucifera*, *Mangifera indica*, *Phyllanthus emblica*, *Punica granatum*, and *Tamarindus indica* are also observed in the project area. None of the trees are falling under the vulnerable species or above as per the IUCN status.

(ix) **Fauna.** The project alignment (sections 1, 4 and 5) does not have environmentally sensitive/ protected areas. The nearest wildlife sanctuary (Pulicat Bird Sanctuary) is located at a distance of 13.5km radius from the Section 1 start point. The distance is far from the stipulated construction restriction zone of 10km. Hence, the construction works do not have any impact on the Pulicat Bird Sanctuary.

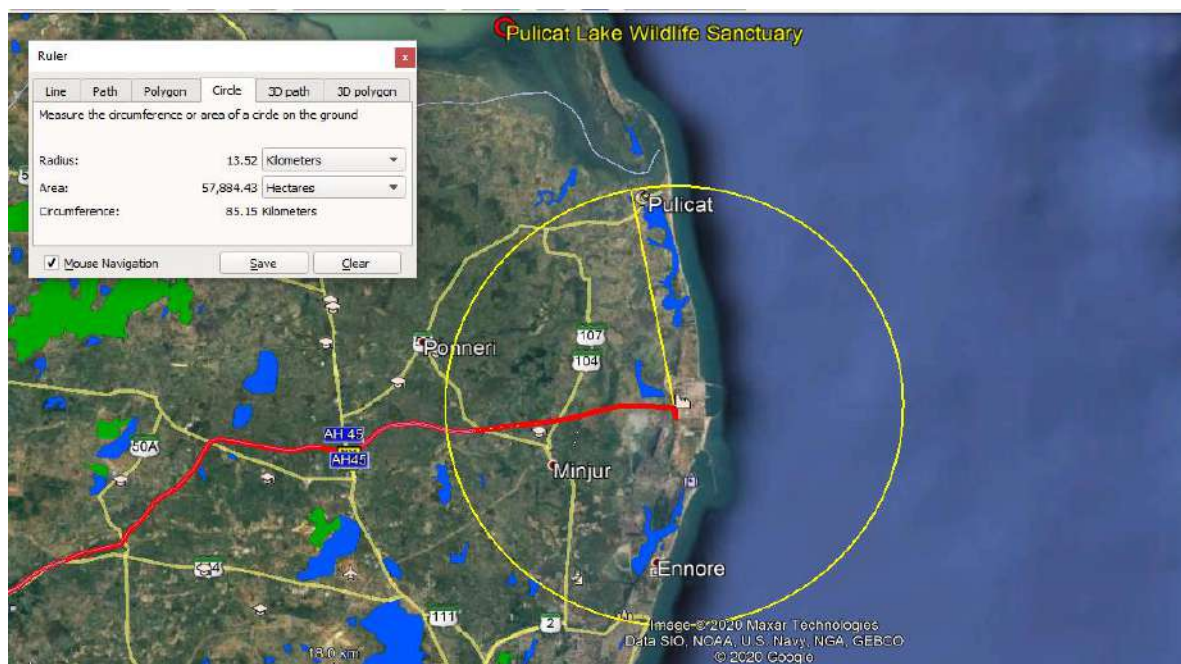


Figure 11: Presence of Pulicate Bird Sanctuary

54. As per the secondary information given in the EIA report for CPRR, the common reptiles, birds, and mammals observed in the project areas are listed in the following table.

Table 7: Faunal Species in the Project area

Sl.no	Zoological Name	Local Name	IUCN Status
<b>Reptiles</b>			
1.	<i>Bungarus caeruleus</i>	Krait	Least Concern
2.	<i>Calotes versicolor</i>	Garden lizard	Least Concern
3.	<i>Calotes calotes</i>	Green Forest Lizard	Least Concern
4.	<i>Herpestes edwardsi</i>	Indian grey mongoose	Least Concern
5.	<i>Chameleon sps</i>	Pachonthi	Least Concern
6.	<i>Dryophis sps</i>	Eye plucker	Least Concern
7.	<i>Enhydrina valakadayan</i>	Water snakes	Data Deficient
8.	<i>Ptyas mucosa</i>	Rat snake	Least Concern
9.	<i>Hemidactylus brooki</i>	House lizard	Least Concern
10.	<i>Echis carinatus</i>	Saw Scaled Viper	Least Concern
11.	<i>Naja naja</i>	Indian Cobra	Data Deficient
12.	<i>Xenochrophis piscator</i>	Checkered keelback (Water snake)	Data Deficient
13.	<i>Daboia russelii</i>	Russels Viper	Least Concern
<b>Birds</b>			
14.	<i>Alcedo meninting</i>	Wood-pecker	Least Concern
15.	<i>Bubulcus ibis</i>	Cattle egret	Least Concern
16.	<i>Columba livia</i>	Pigeon	Least Concern
17.	<i>Corvus splendens</i>	Crows	Least Concern
18.			
19.	<i>Milvus migrans</i>	Pariah kite	Least Concern
20.			
21.	<i>Passer domesticus</i>	Indian house sparrow	Least Concern
22.	<i>Pelicanus sps</i>	Water bird	Least Concern
23.	<i>Phoenicopterus roseus</i>	Poomarai	Least Concern
24.	<i>Psittacula eupatria</i>	Indian parakeet	Least Concern
<b>Mammals</b>			

Sl.no	Zoological Name	Local Name	IUCN Status
25.	<i>Bandicota indica</i>	Larger bandicoot rat	Least Concern
26.	<i>Funambulus palmarum</i>	Indian palm squirrel	Least Concern
27.	<i>Mus cervicolor</i>	Fawn-coloured mouse	
28.	<i>Mus musculus</i>	House mouse	Least Concern
29.	<i>Mus platithrix</i>	Indian brown spiny mouse	Least Concern
30.	<i>Orytolagus cuniculus</i>	Rabbit	Least Concern
31.	<i>Pteropus madius</i>	Bat	Least Concern
32.	<i>Sus Scrofa</i>	Pig	Least Concern
	<b>Fish Species</b>		
33.	<i>Mystus keletius</i>	Kelethi	Least Concern
34.	<i>Esomus danricus</i>	Flying Barb	Least Concern
35.	<i>Oreochromis mossambica</i>	Tilapia	Least Concern
36.	<i>Puntius chola</i>	Swamp Barb or Chola Barb	Least Concern
37.	<i>Channa punctatus</i>	Spotted Snakehead	Least Concern
38.	<i>Etroplus maculatus</i>	Orange Chromide	Least Concern

(x) **Aquatic Ecology.** Water samples were collected from Manamathy (section 1), Poonjeri tanks (Section 4) and Sirukundram (Section 5) representing lotic and lentic system. By using standard methods, the phytoplankton diversity has been analysed. The list of plankton present in the water samples are given in Table

Sl.no	Plankton	Manamathy	Poonjeri tanks	Sirukundram
1.	Calamus	✓	✓	✓
2.	Cyclops	✓	✓	✓
3.	Daphnia	✓	✓	✓
4.	Moina	✓	✓	✓
5.	Nauplius	✓	✓	✓
6.	Rotifer	✓	✓	✓
7.	Notonecta	✓	✓	✓
8.	Streptocephalus	✓	✓	✓
9.	Conocostrachan	✓	✓	✓
10.	Dysticus	✓	✓	✓
11.	Dragonfly nymph	✓	✓	✓
12.	Chironomous	✓	✓	✓
Shannon Weaver Index (SWI)		3.18	3.45	3.32
Status		Clear	Clear	Clear

### 3.2.1.3 Coastal Regulation Zone (CRZ)

55. Initial stretch of the Section 1 comes under the CRZ area, this is due to the tidal influence in the Buckingham canal. As per the CRZ notification 2018, clearance has been obtained from State Coastal Zone Management Authority (SCZMA). Salient feature of the CRZ area includes,

- Project alignment traverses through salt pans, which has no vegetation (including mangroves).
- Based on the secondary information (research papers/ published articles), the aquatic fauna, commonly observed in CRZ area includes 84 species of macrofauna, consisting of 2 species of schyphozoa, 24 species of polychaetes, 38 species of Crustaceans, 42 species of molluscs and 1 species of Echinodermata.



- Common bird species includes the Little Ringed Plover *Charadrius dubius* is the most dominant species (22.35%) followed by both species of Terns (Lesser Crested Tern *Thalasseus bengalensis* and Greater Crested Tern *Thalasseus bergii* (11%), Common Sandpiper *Actitis hypoleucos* (10%), Pacific Golden Plover *Pluvialis fulva* (9.55%), Caspian Tern *Hydroprogne caspia* (8.41%), Black Headed Gull *Chroicocephalus ridibundus* (8.02%), Brown Headed Gull *Chroicocephalus brunnicephalus* (6.3%), and Little Egret *Egretta garzetta* (2.63%) while other species had low relative abundance ( $\leq 1.8\%$ ). As per the IUCN status the observed bird species comes under Least Concern.

### 3.2.1.4 Thirutteri Reserved Forest and Sengundram Reserved Forest

56. From the Google imagery shown in **Figure 12** and **Figure 13**, it is found that the tree canopies follow straight lines in the Thirutteri RF and the Sengundram RF. On the other hand, vegetation on the hilly area seen in Figure looks evenly distributed. By comparing the two photos, it can be concluded that vegetation in the Thirutteri RF and the Sengundram RF is not a native vegetation but an afforested area.



Figure 12: View of Thirutteri RF (left), and Sengundram RF



Figure 13: View of Thirutteri RF (Plantation in Rows)

57. Evergreen canopy covers the hill at the back, compared to eucalyptus and other deciduous trees along the road. The distance between Section 5 and the hilly area is about 500 m. No wildlife crossing is observed around Section 5. The proposed road is not located within 10 km from the ecologically sensitive area.



**Figure 14: View of Sengundram RF, and Flora in Undulation Areas**

### **3.2.2 Impact Assessment during Construction and Operation**

58. Based on the proposed interventions as discussed in the Chapter 2 (Project Descriptions), baseline section 3.2, Volume V - Environmental Impact Assessment and Environmental Management Plan (Chapter 6 - Environmental Impact and Mitigation Enhancement and Chapter 7 - Environmental Mitigation Measures) prepared for section 1, 4 and 5, the following impact assessment matrix has been prepared.

Table 8: Environmental Impact Assessment Matrix

Sl.no	Impacts	Magnitude of the Impact		Mitigation measures suggested in the EMP	Assessment Gaps and Non-Compliances
		Construction	Operation		
Pollution Control					
1.	Air Pollution	Moderate (-ve)	Moderate (±ve)	<b>Construction Phase:</b> The operation of construction equipment and vehicles for earthworks will be the main cause of air pollution due to the emission of exhaust gases and dusts. <b>Operation Phase:</b> An increase in the number of vehicles is expected; thus, an increase in pollution load is also expected. At the same time, smoother traffic flow is expected from the Project, so a general decrease in the total pollution load in Chennai area is expected.	<ul style="list-style-type: none"><li>• Air quality modelling-based assessment has not been done for section 1, 4 and 5 during the project construction and operation.</li><li>• Information pertaining to the Impact on the sensitive receptors are not assessed for section 1 and 5.</li><li>• Source of water for containing the dust pollution is not assessed for any of the sections</li></ul>
2.	Water Pollution	Moderate (-ve)	Moderate (-ve)	<b>Construction Phase:</b> Excavation works and casting bridge pier in the drainages and rivers along the proposed intervals may cause increase in turbidity. <b>Operation Phase:</b> Soil runoff from the embankment may cause water pollution in drainages and rivers.	<ul style="list-style-type: none"><li>• Detailed study on the presence of surface water bodies and its usages to the local communities are not assessed</li><li>• Provision of silt traps in containing the surface runoff has been assessed near the drainages and rivers</li><li>• Aquatic ecology of the surface water study is not done, even for Buckingham canal (which is having the tidal influence) in the section 1</li></ul>
3.	Waste	Moderate (-ve)	Negligible	<b>Construction Phase:</b> Wastes such as removed vegetation and structures, used fuel canister, and others are expected to be generated.	<ul style="list-style-type: none"><li>• Construction and Demolishing waste handling and disposal mechanism has not been assessed for Section 1, 4 and 5</li><li>• Municipal Solid Waste (MSW) likely to be generated in the construction camp and its disposal mechanism has not been detailed.</li></ul>
4.	Soil Contamination	Moderate (-ve)	Negligible	<b>Construction Phase:</b> Fuel, oil and chemical leakage from construction sites as well as stockyards may cause soil contamination.	Soil remedial measures/ contaminate soil disposal measures are not assessed

Sl.no	Impacts	Magnitude of the Impact		Mitigation measures suggested in the EMP	Assessment Gaps and Non-Compliances
		Construction	Operation		
5.	Noise and Vibration	Moderate (-ve)	Moderate (±ve)	<p><b>Construction Phase:</b> The operation of construction equipment and vehicles mainly used for earthworks will be the main source of noise and vibration. Limited sections of the work area are located near the settlements or schools. Special care will be necessary at those locations.</p> <p><b>Operation Phase:</b> An increase in the number of vehicles in the proposed alignment may cause increase in noise and vibration, while a more efficiently distributed traffic as a result of the Project may alleviate the noise condition in the entire Chennai area</p>	Noise modelling has not been conducted, hence mitigation measures like provision for noise barriers are not assessed.
6.	Ground Subsidence	Negligible	Negligible	<p><b>Construction Phase and Operation Phase:</b> Soft soil (sand soil with N value under 5) was found at the bridge crossing Buckingham Canal. The bridge piers are designed to reach the support layer underneath the soft soil. The roadbed survey at 1km intervals for the new construction section in the DPR did not find any soft soil that requires mitigation measures. There is no negative impact of ground subsidence that requires mitigation measures, is being expected.</p>	<ul style="list-style-type: none"> <li>• Impact on the aquatic ecology during the construction of the bridges over the Buckingham canal has not been assessed.</li> <li>• The conditions given in the CRZ clearance has not been included in the design</li> </ul>
<b>Natural Environment</b>					
7.	Sanctuary	Negligible	Negligible	Section 1 is located at a distance of 13.5km from the Pulicat Bird Sanctuary as per the ESZ notification, it is more than the 10km radius and hence, it does not require clearance from NBWL. Hence, construction works do not have any impact on the Bird Sanctuary	<ul style="list-style-type: none"> <li>• Even though the bird sanctuary is located 13.5km away from the project area, mitigation measures including temporary holding of construction activities/ works during the birds breeding seasons should have been assessed.</li> </ul>
8.	Ecosystem	Moderate (-ve)	Moderate (-ve)	<b>Construction Phase.</b> In section 1, 4 and 5 there is no protected wildlife habitat in the project area or in the project influence area. However, it is estimated to remove 81 trees in	<ul style="list-style-type: none"> <li>• With exemption to Section 1, other sections including the Section 4 and 5 are having Forest areas for which the biodiversity assessment has not been</li> </ul>



Sl.no	Impacts	Magnitude of the Impact		Mitigation measures suggested in the EMP	Assessment Gaps and Non-Compliances
		Construction	Operation		
				<p>section 1 and 485 trees in section 5. For section 4, nearly 1,459 trees has been removed. The land/ habitat adjacent to the ROW may be negatively affected by runoff soil from work areas. The tree loss should be compensated in 1:10 ratio. Appropriate silt fencing has to be provided to prevent runoff soil.</p> <p><b>Operation Phase:</b> The land/ habitat next to the ROW may be negatively affected by runoff soil from the ROW. Environmental changes, such as change of land use and increased traffic volume, may negatively affect the roadside ecosystem.</p>	<p>performed. Even consultation with the forest department have not been recorded</p> <ul style="list-style-type: none"> <li>• Transplantation of trees has been suggested in the EIA (DPR EIA), however, the methodology for the same has not been included</li> </ul>
9.	Hydrological Situation	Moderate (-ve)	Moderate (-ve)	<p><b>Construction Phase:</b> Relocation of drainage as well as removal of ground water pumping facilities has to be conducted. There is no significant adverse impact expected for the hydrological situation and the water level.</p> <p><b>Construction and Operation Phase:</b> On the other hand, there are some ponds working as storage reservoirs, which are close to the proposed alignment that may be affected by the construction work as well as the road existence.</p>	<ul style="list-style-type: none"> <li>• The water catchment capacity of the ponds/ surface water bodies along the alignment has not been assessed to predict the impact during the project construction</li> <li>• Hydrological modelling studies in installing the culverts are not given in the EIA (DPR - EIA)</li> </ul>
10.	Topography and Geographical Features	Negligible	Negligible	<p>Construction materials, including filling soil, will be procured from existing and licensed providers. Negative impacts from the change of topography are not expected.</p>	<ul style="list-style-type: none"> <li>• The use of Fly ash as filling material has not been discussed/ assessed</li> </ul>
<b>Social and Economic Environment</b>					
11.	Involuntary Resettlement, Loss of Land and Asset,	High (-ve)	Negligible	<p><b>Pre-Construction Phase:</b> Private lands used for farming, residence, and commercial purpose will be acquired and will cause relocation and resettlement, which includes about 845 PAHs.</p>	<ul style="list-style-type: none"> <li>• Each sections are having varied approach for conducting the census survey and the social Survey. In section 1 35% of census survey and 20% social survey has been conducted (based on JICA requirement).</li> </ul>

Sl.no	Impacts	Magnitude of the Impact		Mitigation measures suggested in the EMP	Assessment Gaps and Non-Compliances
		Construction	Operation		
	Business Relocation			<b>Construction Phase:</b> The temporal lease of land may be necessary for the site office, stockyard, and other facilities.	For section 4, 100% survey has been conducted by the TNRIDC along with Revenue department. For section 5, only 25% of the survey (Social and Census) has been conducted as per World Bank requirement. Hence, the adopted approach is not clear
12.	Ethnic Minorities, Indigenous Peoples	Negligible	Negligible	Tamil Nadu designates homelands of the ethnic minorities and indigenous peoples. Such homelands are not located in the CMA including the project area.	Specific reports for Ethnic minorities including Indigenous people development plan (IPDP), or similar reports as per the Tamil Nadu government requirement are not available.
13.	Local Economy, Employment and Living, Livelihood	Moderate (±ve),	Moderate (+ve)	<p><b>Construction Phase:</b> Procurement of the construction materials, services, and needs for food and drinks of the workers will be generated with employment opportunities. In Section 1, there is no widening on the existing road, and impact on the commercial and service industries along the roadway occurs only at cross sections with the new road. Negative impact to the local economy, therefore, is not expected. On the other hand, the improvement of existing road in Section 5 will require relocation and setback of the existing commercial and service industries along the existing road. Such changes may cause negative impacts to the service providers and customers in the locality.</p> <p><b>Operation Phase:</b> Businesses near the road will have easier access to employment and customers in the CMA. Positive economic impact will be generated in CMA since the traffic network and the transportation of goods will be improved by Section 1, 4 and 5.</p>	<ul style="list-style-type: none"> <li>• The usage of local manpower during project construction is not assessed</li> <li>• Being an access control corridor the chances of improving the local economy during the project operation is not assessed.</li> <li>• Livelihood/ Income restoration program are not assessed</li> <li>• Mitigation measure to be adopted during the labour influx are not assessed in detail</li> </ul>
14.	Existing Public	Moderate (-ve)	Moderate (±ve)	<b>Construction Phase and Operation Phase:</b> Public facilities to be affected by Sections 1	<ul style="list-style-type: none"> <li>• Temporary assistance are not included in the SIA</li> </ul>

Sl.no	Impacts	Magnitude of the Impact		Mitigation measures suggested in the EMP	Assessment Gaps and Non-Compliances
		Construction	Operation		
	Facilities, Road and Transportation Facilities, Social Infrastructure, Social Services			and 5 include schools, temples, and graveyards. In case adequate consultation, negotiation, compensation, and assistances are not conducted, those facilities may need to stop their services in the construction phase and operation phase. <b>Operation Phase:</b> The project road will connect the local area with other parts of CMA. Improved connectivity may lead to modernization and renovation of existing social infrastructures and services.	<ul style="list-style-type: none"> <li>The section 1, 4<sup>8</sup> and 5 are proposed as access control corridors and hence the impacts likely to be faced by the local communities are not assessed</li> </ul>
15.	Split of Community	Moderate (-ve)	Moderate (±ve)	Being a new alignment, the existing roads that crosses the Section 1 shall be temporarily closed or the movement of traffic shall be restricted at the work area. During operation, access from the existing roads to Section 1 will be easy through the service road which is being developed parallelly to Section 1. Therefore, a split of community due to Section 1 is not expected. However, section 5 will require relocation and set back of the existing commercial and service industries along the road to develop an artery road in between. In such areas, crossing the ROW will become difficult compared to the present condition even with crossing facilities and service roads.	
16.	Historical Heritage, Cultural Resources	Negligible	Negligible	There are no nationally, state, or district designated historical and cultural resources located on the ROW or in nearby areas. The presence of Mahabalipuram Heritage site is located at a distance of 3km from the section 5 end point and it does not mandate any permission/ clearance from ASI.	Joint inspection with the ASI officials and the discussion outcomes should have been given in the stakeholder's consultation section for section 5.

<sup>8</sup> For section 4, the proposed access control measures are approved by the government and it shall be implemented shortly

Sl.no	Impacts	Magnitude of the Impact		Mitigation measures suggested in the EMP	Assessment Gaps and Non-Compliances
		Construction	Operation		
17.	Sanitation, Public Health, Transmittable Diseases including HIV/ AIDS	Moderate (-ve)	Negligible	<p><b>Construction Phase:</b> Stagnant water at the work areas and stockyards may become breeding spots for mosquitoes that spread diseases.</p> <p>The workers to be employed in the Project may include migrant workers. Although all the surveyed PAHs answered how to prevent infection with HIV/AIDS, there is a possibility that the number of patients of sexually transmitted diseases, including HIV, will increase.</p> <p><b>Operation Phase:</b> The project road is the outer most circular road in CMA. The completion of the project road does not generate a wider cross-border movement of the population. No significant risk of spread of diseases is expected.</p>	<ul style="list-style-type: none"> <li>• Occupation Health and Safety plan is not suggested in the EMP</li> <li>• Mitigation measure for sexual transmission diseases are not detailed explicitly</li> <li>• HIV/ AIDS awareness campaigns/ workshops are not included</li> </ul>
18.	Work Environment, Occupational Safety and Health	Moderate (-ve)	Moderate (-ve)	<p><b>Construction Phase:</b> Although Tamil Nadu has safety guidelines for construction workers, the national level standard is not yet prepared. However Occupational Health and Safety guidelines are given in the EMP</p> <p><b>Operation Phase:</b> Workers will be deployed for daily works, such as maintenance and toll station, and for periodic repair works. Those workers may be susceptible to accidents.</p>	<ul style="list-style-type: none"> <li>• Monitoring formats for the OHS have to be revised to suit site conditions</li> </ul>

### 3.2.3 Environmental Monitoring Plan (EMoP)

59. Based on the prepared EMP's, Environmental Monitoring Plan (EMoP) has been prepared. The prepared EMoP is alike for all the sections, which details all the (i) Environmental condition indicators, (ii) Environmental management Indictors and (iii) Management and Operational Performance Indicators for effective monitoring of the EMP measures. The following table illustrates the EMoP for section 1, and 5. Specific environmental monitoring measures are not included. Pre-construction stage environmental monitoring for air, noise, water (surface and groundwater) and soil are not given in the EMoP. For section 4, EMoP has been prepared, however, the implementation of the same is not traceable as there are no records available (environmental monitoring reports during section 4 construction period).

**Table 9: Environmental Monitoring Plan**

Environment Component	Project Stage	Parameters	Standards	Location	Frequency	Duration
Air Quality	Construction	PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> , NO <sub>x</sub> , CO	NAAQS	Plant site, HMP & stone crusher	Twice in a month till end of construction	Continuous 24 hours
	Construction			Stretch of the road where construction is in progress at minimum 4 locations	Once in a season till end of construction	
	Operation			Along the project road at locations of baseline monitoring	Once in a season	
Surface Water Quality	Construction	pH, temperature, DO, BOD, COD, Oil & Grease, Total Suspended Solid, turbidity, Total Hardness, Chlorine, Iron, Total Coliform	Surface Water Quality Standard as per used based classification for Surface Water as per CPCB Guidelines	At identified locations	Once in a season till end of construction	Grab Sampling
	Operation				Once in a season for 1 years	
Groundwater quality	Construction	pH, temperature, DO, BOD, COD, Oil & Grease, Total Suspended Solid, turbidity, Total Hardness,	Groundwater Quality Standard as per IS10500	Plant Construction site	Once in a season till end of construction	
	Operation			At identified locations	Once in a season for 1 year	

Environment Component	Project Stage	Parameters	Standards	Location	Frequency	Duration
		Chlorine, Iron, Total Coliform				
Noise levels	Construction	Leq dB (A) (Day and Night) Average and Peak values	Ambient Noise standard	At equipment yards and along the project road at locations of baseline monitoring	Once in a season till end of construction	Readings to be taken at 60 secs interval for every hour & then Leq to be obtained for day and night
	Operation			At the locations of baseline monitoring	Once in a season for 1 year	
Soil	Construction	Physical Parameters Texture, Grain Size; Chemical Parameter:		Near construction sites and along project road at location	Once in a season excluding the monsoon till end of construction	Composite Sample
	Operation	pH, Conductivity, Calcium, Magnesium, Sodium, Nitrogen, Absorption Ratio		At the locations of baseline monitoring	Once in a season for 1 year	
Construction site and construction camps	Construction	Monitoring of: 1. Storage Area 2. Drainage arrangement 3. Sanitation in Construction camps	As laid out in the Detailed Design for the project	At storage Area and construction camps	Quarterly in construction stage till end of construction	
Road side plantation	Pre-Construction Stage	Monitoring of felling of trees (It should be ensured that only marked trees are felled)	As laid out in the Detailed Design for the project	All along the corridor	During the felling of trees	
	Operation Stage	Survival rate of trees success of re-vegetation. The number of trees surviving during each visit should be compared with number	As laid by The concerned department	All along the corridor	Every year for initial three years during operation phase	



Environment Component	Project Stage	Parameters	Standards	Location	Frequency	Duration
		of saplings planted				

### 3.2.4 Environmental Monitoring and Reporting

60. Reporting system suggested for the sections 1 and 5 operates at two levels as:

- Reporting for environmental condition indicators and environmental management indicators (except tree cutting indicator)
- Reporting for operational performance indicators at the PIU level

61. Contractor and Engineer - in charge operate the reporting system for environmental conditions and environmental management indicators (except tree cutting). The Environmental Management Cell of PIU will operate the reporting system for environmental management tree cutting indicators and operational performance indicators. The PIU will set the targets for each activity envisaged in the EMP beforehand and all reports will be against these targets.

62. The contractor will report to the Engineer - in-charge regarding the progress of the implementation of environmental conditions and management measures as per the EMP. The Engineer- in-charge will in turn report to the PIU every quarter.

63. For section 1, the CSC was appointed in the month of February 2020, the environmental monitoring reports for the month of March and April 2020 has been shared for review with a good quality. For section 5, the implementation works are not started and it has been planned for construction after the completion of section 2 and 3.

64. For section 4, monitoring formats has been enclosed with the EIA report. However, implementation of the environmental monitoring is not traceable as there are no records/ monitoring reports available for both construction and operation phases.

### 3.2.5 EMP Budget

65. The EMP budget has been estimated under two heads and detailed in the section specific EIA.

- Environmental management measures to be abided by the Contractor under the civil cost. The management measures indicated in the civil cost includes Temporary barriers and proper signage for avoiding traffic congestion, Lead and lift for debris up to dumping area, Dust arresting measures, Dewatering during construction phase, safety measures (including road user safety and construction safety), etc., However expenses including, provision for oil interceptors, recharge pits/ rainwater harvesting structures, Deepening of pond, Compensatory plantation, enhancement of cultural properties, redevelopment of borrow areas, Institutional strengthening and Training requirements shall form part of the EMP budget.
- Monitoring of environmental attributes during project construction activity and operation activity

66. EMP budget is not available in the Consolidated EIA prepared for the SEIAA clearance (Environmental clearance). However, the EIA prepared by the DPR consultants have estimated the EMP budget for section wise. The EMP budget for Section 1 is estimated to be

Rs. 291.84 Lakhs, and Section 5 it is Rs. 300.19 Lakhs. The allocated EMP budget is not utilised for the section 1 as the construction works have just started and it is now being hampered due to the ongoing COVID-19 crisis. For section 5, the construction works are not started (DPR have to be revised and then it should be tendered, it shall take more time, likely to be taken up after completion of the section 2 and 3)). For section 4 the utilisation of EMP budget (97 lakhs as per the EIA prepared in the year 2007) is not traceable as there are no monitoring reports available.

### **3.3 Contractor's Obligation/ EMP clauses in the Bid Document**

67. For all the individual EIA's prepared for the sections 1, 4 and 5 some of the Contractors Obligations/ EMP clauses are given and it states that the Contractors shall implement all mitigation measures for which responsibility is assigned to him as stipulated in the EMP Report. Any lapse in implementing the same shall attract the penalty clause as detailed below

- (i) All lapse in obtaining clearances / permissions under statutory regulations and violations of any regulations with regard to eco-sensitive areas shall be treated as a major lapse.
- (ii) Any complaints of public, within the scope of the Contractors, formally registered with the IE, or with the TNHD complaint cell and communicated to the Contractors, which is not properly addressed within the time period intimated by the IE / PIU shall be treated as a major lapse.
- (iii) Non-conformity any of the mitigation measures stipulated in the EMP Report (other than stated above) shall be considered as a minor lapse.
- (iv) On observing any lapses, IE shall issue a notice to the Contractors, to rectify the same.
- (v) Any minor lapse for which notice was issued and not rectified, first and second reminders shall be given after one month from the original notice date and first reminder date respectively. Any minor lapse, which is not rectified, shall be treated as a major lapse from the date of issuing the second reminder.
- (vi) If a major lapse is not rectified upon receiving the notice, IE shall invoke the penalty clause, in the subsequent interim payment certificate.
- (vii) Penalty for major lapses shall be with-holding of 10% of the interim payment certificate, subject to a maximum limit of Rs. 30 lakhs
- (viii) If the lapse is not rectified within three months after withholding the payment, the amount withheld shall be forfeited

68. For section 1, the EMP clauses are given in the bid document, however, the implementation/ construction works have started recently (in the month of February 2020), unfortunately, due to the COVID-19 crisis, the works have been suspended. However based on the monitoring report submitted by the CSC, the EMP clauses are being compiled. For Section 4 as the construction works are already completed, the compliance status of the Contractors obligation toward the EMP implementation is not traceable (no record/ reports to substantiate the same). For section 5, it is still in the Draft DPR stage.

### 3.4 Findings and Areas of Concern for Environmental Safeguards

69. Based on the available documents and site conditions, it is concluded that the Environmental Impact Assessment Reports/ Environmental Safeguard documents has been prepared for Section 1 and 5 by the DPR consultants, For section 4, in the year 2007, an EIA report has been prepared along with the DPR by some another DPR consultants, based on which the road construction has been completed. The followings are the observations from the Environmental Due Diligence.

- Project categorisation is not clear for any of the CPRR road sections
- The prepared EIA document by the DPR consultants is as per the National (MoEF&CC guideline) and World Bank's requirement. However, it does not fulfil the requirements (e.g. screening and scoping of the project, which is observed to be weak).
- The Consolidated EIA (for the whole CPRR) prepared is as per the State Environment Impact Assessment Authority (SEIAA) ToR requirements. Though the report shares the information for all five sections, the section 4 is already constructed and now it is in use.
- CRZ is applicable for the Section 1 due to the presence of the Buckingham Canal, which is having Tidal influence. Accordingly CRZ clearance application has been submitted and the clearance from the State Coastal Zone Management Authority (SCZMA) has been obtained in 2019. However aquatic ecology study has not been conducted for assessing the impacts during the construction and operation stages.



Major Bridge Neithavayal Odai (CRZ area)



Section 1 start point (CRZ area)

- Section 5 ending portion (km 129/166) is close to Mahabalipuram, which is a UNESCO heritage site, however, with reference to distance, it is 3km away from the monument and hence, it does not attract the ASI rules and regulations. However, the chance finds procedure has been proposed for section 5.
- Forest land acquisition for 9.95 ha is envisaged in Section 5, accordingly Forest Clearance application has been submitted to the Forest Department for review and approval. For section 4, forest clearance has been obtained for the diversion of 20.5ha of forest land.



Section 5 - Snap shot trees in Segundram RF      Section 5 - Snap shot of trees in Thirutteri RF

- As per the Fly Ash notification, the CRR (as a whole) project should utilise the Fly Ash from the Ennore Thermal Power Station, which is located less than 80km radius from Section 5. For Section 4, the fly ash has not been utilised due to non-availability.
- The analysis of alternative sections in both the EIA reports (prepared by the DPR Consultant and EIA Consultant) do not depict the actual impacts in terms of magnitude/ scale of impacts.
- The project is not funded by the World Bank for any of the sections, however, in the policy related write-up (Legal Framework), various OP's are referred.
- Road Inventory information with respect to the location of the Sensitive receptors, water bodies, Avenue plantation, settlement sections, land use pattern along the road sections are not detailed in the Baseline sections
- Air and noise quality modelling and its impacts on the sensitive receptors during the project construction and operation has not been assessed
- The given EMP is observed to be generic without any site specific information, the inclusion of this EMP in the Bid Document will not fulfil the safeguard implementation requirements
- Climate risk adaptation measures are not included in the EIA (consolidated EIA as well as the EIA prepared by the DPR consultant).
- As per the requirement of the SEIAA, it has been mentioned that tree transplantation shall be carried out in section 1 for 81 trees and Section 5 for 485 trees, however the process/ methodology/ approach for the same is not mentioned in the EIA report. In section 4, 1,459 trees has been removed after obtaining tree cutting permission.
- The presence of social impact assessment section in the EIA (prepared by the DPR consultants) should have been given as a separate document.
- Being a Greenfield corridor for section 1 and section 5, the Recover, Reuse and Recycle options for construction materials (spoil, construction debris etc.,) are not explored.
- The project areas have water scarcity problems, hence as a part of the enhancement measures artificial recharge wells should have been proposed in the surface water bodies.
- Cumulative Impact Assessment should have been conducted to understand the positive benefits from the proposed CRR to the communities

- The estimated EMP budget includes deepening of ponds/ water bodies, transplantation of trees and other enhancement measures, however, the locations for the same have not been discussed in the EIA
- Institutional Arrangement has no relevance to the current IA/PIU setup, the CSC roles has been discussed, however, the role of the PIU Environmental officer, Forest officer, Social Safeguard officer's roles and responsibilities have not been discussed.

70. Based on the findings and area of concern, a suitable corrective action plan has been prepared (refer chapter 5 Environmental and Social Corrective Action Plan (ESCAP)) with time bound actions to be taken to close the identified gaps in the EIA reports.

## 4 Social Due Diligence

71. The SIA and RAP has been prepared for Section 1 and Section 5 by the DPR consultants. The construction activities (widening to 6 lane) in the Section 4 has already been completed by TNRIDC, the widening of existing road is proposed within available RoW in most of the sections, however for the land acquisition (anticipated near the junctions, bus bays etc.), the compensation has been estimated as per the prepared RAP (in 2007 by another DPR consultants). The RAP has been implemented by the TNRIDC in assistance from the Revenue Department. Gender action plan has not been prepared for none of the sections.

### 4.1 Legal and Regulatory Requirements

72. The applicable social acts, rules and regulations for sections 1, 4 and 5 has been depicted in the following table. These acts and rules are the tools for preparation of entitlement matrix from which the various compensations to the PAP's has been estimated.

**Table 10: Social Acts, Rules and Regulation Applicable for Section 1, 4 and 5**

Policy/ Acts/Rules	Year	Purpose	Responsible Institution	Applicability (Yes/ No)
The Right to Fair Compensation and Transparency in Land Acquisition Rehabilitation and Resettlement Act, 2013 (Act 30 of 2013) (LARR)	2013	set out rules for fair and compensation and acquisition of land	The revenue department, GoTN	Yes, this will be applicable as there will be a land acquisition for widening, geometric improvements, and realignment
The Tamil Nadu Protection of Tanks and Eviction of Encroachment Act, 2007	2007	An Act to provide measures for checking the encroachment, eviction of encroachment in tanks which are under the control and management of the Public Works Department, protection of such tanks and for matters incidental thereto.	Water Resource Department (WRD), PWD	Yes, it will be applicable for the widening of roads near the water bodies
Tamil Nadu Highways Act, (TNHA)	2001	An Act to provide for the declaration of certain highways to be State highways, restriction of ribbon development along such highways, prevention and removal of encroachment thereon, construction, maintenance and development of highways, levy of betterment charges and for matters connected therewith or incidental thereto	Tamil Nadu Highways Department, GoTN	Yes, this will be applicable as there will be a land acquisition for greenfield road, widening, geometric improvements, and realignment
Tamil Nadu Street Vendors (Protection of Livelihood, Regulation of	2015	An Act to protect the rights of urban street vendors and to regulate street vending activities and for matters	Municipal Administration and Water Supply, GoTN	Yes, this will be applicable for the widening of the roads near market/ settlement areas



Policy/ Acts/Rules	Year	Purpose	Responsible Institution	Applicability (Yes/ No)
Street Vending and Licensing) Scheme,		connected therewith or incidental thereto		
Right to Information Act	2005	An Act to provide for setting out the practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority	Public Information Officers, TNHD	Yes, this will be applicable for the public to access for information when required.

## 4.2 Census Survey

73. To understand the magnitude of impacts with respect to the affected buildings and their assets, a census survey was carried out for Section 1 and 5. 35% of section 1 has been covered under the census survey. Socio-Economic survey was carried out for 20% of the affected land parcels, to ascertain the loss of land, asset, livelihood and standard of living of the PAH and to identify vulnerable families who were affected due to the proposed project. The sample size for conducting the census survey (35%) and socio economic survey (20%) has been fixed by the JICA and the reason for the limited surveys are not explained. For section 4. Census survey and socio-economic surveys are not carried out. The PAP's are identified in assistance from the revenue department based on the proposed widening alignment plan. For section 5, only 25% of the Census survey and socio-economic surveys has been carried out as per World Bank requirement and the reason for the same is not explained in the SIA/RAP.

### 4.2.1 Section 1 (Ennore Port to Thatchur on NH 16)

74. A total of 1312 land parcels were identified that are likely to be affected due to the project. Out of which the Census Survey was carried out for 458 land parcels covering 175 land owners, 76 affected buildings and 11 Common Property Resources (CPR's including Temples, Government School and Government building). The Socio - economic survey<sup>9</sup> was done for 20% of the affected land parcels. The enlistment was not only limited to PAHs but also to the affected community properties. The abstract of the census survey and the social survey is given in the Table 11 and the inference of the census survey is discussed in the following sections.

**Table 11: Abstract of the census survey and the social survey for Section 1**

Sl.no	Project corridor	Total PAP's		Census survey			Social Survey		
		Land Parcel	Land Owners	Land parcels	%	Land Owners	Land parcels	%	Land Owners
1.	NPAR	982	448	387	39%	118	231	24%	83
2.	TPP Link Road	330	296	71	22%	57	37	11%	37
<b>Total</b>		<b>1312</b>	<b>744</b>	<b>458</b>	<b>35%</b>	<b>175</b>	<b>268</b>	<b>20%</b>	<b>120</b>

<sup>9</sup> The purpose of the socio-economic survey is to ascertain the loss of asset, livelihood and standard of living of the PAH and to identify vulnerable families who were affected due to the proposed project

#### 4.2.1.1 Outcome of Census Survey for the affected land owners

75. **Land pattern.** Out of 458 land parcels in the NPAR and the TPP link road, nearly 52% of the affected land were dry lands, followed by 37% of them were wet land and 8% of the land were homestead land or land converted for plots. 3% of the land were institutional land belonging to various Trust, Corporates, Boards and private Temples.

76. **Irrigated Land.** Out of the total land parcels (458 for NPAR and the TPP link road) surveyed, 76% of the land is irrigated and 16% of them were unirrigated and 8% of the land belongs to institutional land and home stead land were also unirrigated. The major crop cultivation is Paddy, which constitutes 76% and other crops are also cultivated through crop rotation process. The source of water is through bore well (61%) for cultivation followed by 16% open well. Nearly 20 assets are getting affected which includes pump house, bore well etc.,

77. **Impacts on Land Owners as a result of Land Acquisition.** The total land holdings of the land owners shows that 97% of them were small farmers with land holdings less than 2.5 acres and 2% of them were marginal farmers with 2.5 to 5 acres of land and 1% hold more than 5 acres of land. The Land acquisition process shall result in making 35% of the land owners as landless farmers and 59% as small farmers and 2% become marginal farmers and none of the owners remain with more than five acres of land. The awareness level of the land owners with respect to the LA process and the R&R benefits shows that 47% of them are aware of the LA process and R&R benefits and 53% of them are not aware of the same.

#### 4.2.1.2 Outcome of Census Survey for the Affected Asset Owners

78. The asset inventory was conducted for 76 affected buildings having 85 families/ PAH's. Out of which, 58 were title holders, 18 were squatters and 9 tenants. Among the 76 affected buildings, 59 structures are affected with more than 1/3rd or fully affected (Major Impacts) and 17 of them will remain with a partially affected (Minor Impacts). 11 Common Property Resources (CPRs) were observed to be affected due to the project.

**Table 12: Project Affected Household (PAHs)**

Sl.no	Tenure	NPAR	TPP link road	Total	%
1.	Owner	39	20	58	68%
2.	Encroacher	0	0	0	0%
3.	Squatter	18	0	18	21%
4.	Tenant	1	8	9	11%
<b>Total</b>		<b>57</b>	<b>28</b>	<b>85</b>	<b>100%</b>

79. **Usage of the Asset.** 68% affected buildings are of residential usage and 7% of them of commercial usage. 3% of the assets serve for residence cum commercial use and 11% accounts for the loss of partial portion with loss of compound wall, toilet, arch, fence and pump room. 11% of the assets found to be abandoned in use.

80. **Other Assets.** Nearly 69 other structures were found to be affected such as open well, bore well, EB room, pump room, motor room and septic tank. The following table depicts the number of other assets that are getting affected.

**Table 13: Type of Loss (Others Category)**

Sl.no	Other Assets	NPAR	TPP link road	Total	%
1.	Compound wall	3	20	23	33%
2.	Hand pump	0	0	0	0%
3.	Open well	1	0	1	1%
4.	Bore well	0	20	20	29%
5.	Pump house	5	0	5	7%
6.	Septic Tank	0	20	20	29%
<b>Total</b>		<b>9</b>	<b>60</b>	<b>69</b>	<b>100%</b>

81. **Title of the Affected Assets.** Patta / legal title is available for 76% (58 PAH's) of the affected structures, for the remaining 24% (18 PAH's) were observed non-title holders (Squatters).

82. **Tenants.** 9 of the tenants were likely to be displaced due to the project. (8 Residential Tenants and one commercial tenant).

83. **Trees affected within the Assets.** 33 trees are likely to be affected which lies within the affected assets. Out of which, 27 of them are fruit bearing trees and 6 of them are timber trees.

84. **Vulnerable PAHs.** 25 PAHs are eligible for special assistance. The vulnerable PAHs shall be ascertained by the appointed NGO during the implementation stage. The following table depicts the vulnerable PAH's in the section 1

Sl.no	Vulnerable Category	NPAR	TPP link road	Total	%
1.	SC/ST	22	3	25	29%
2.	Women Headed Household	2	2	4	5%
3.	BPL	20	0	20	23%
4.	Elderly	0	0	0	0%

85. **Affected Common Property Resources (CPRs).** The inventory on the Common Property Resources (CPRs) shows that 11 CPRs are being affected in the NPAR road. No CPRs found in TPP link road. The impact on the CPRs shows that 3 worship places , one school, one anganwadi cum primary school, 2 Tombs, one ration shop, a Government (community hall/ resource centre under construction) and 2 Government offices (2 VAO Office complex) are likely to be affected.



**Temple -Moolathangal**



**ICDS / Primary School- Moolathangal**

86. **Land acquisition in the Section 1.** It is estimated to acquire 255.00 ha of land (Private and Government) for 100m RoW.

#### 4.2.1.3 Outcome of Baseline Socio- Economic Survey for Affected Land and Asset Owners

87. Baseline Socio- economic survey has been conducted for 120 PAHs covering 20% of the affected land parcels. The Socio-Economic profile of the affected people includes the social condition and economic condition such as housing, income, expenditure, debts, infrastructure, gender issues, health seeking behaviour, access to facilities, education status and commercial / business activities. The following table depicts the summary of the outcome from the socio economic survey.

**Table 14: Summary of Socio Economic Survey**

Sl.no	Indicators	NPAR	TPP Link Road	Total/ Average
<b>A</b>	<b>Income</b>			
1.	Average Monthly family income	15090	16284	15458
2.	Average Numbers of earning family members	1.2	1.3	1.25
3.	Business establishment	7	0	7
<b>B</b>	<b>Housing</b>			
4.	Permanent	14	20	34
5.	Semi- Permanent	22	0	22
6.	Temporary Houses	3	0	3
7.	Others	17	0	17
8.	Owned	56	20	76
9.	Rented	1	8	9
10.	Average Affected area of the assets (sqm)	38	438	
<b>C</b>	<b>Facilities</b>			
11.	Having Separate Kitchen	77	31	108
12.	Having separate Toilet	83	35	118
13.	Having Separate Bathroom	83	35	118
14.	House Electrified	83	37	120
15.	Drinking water source	83	37	120
16.	LPG	83	37	120
17.	Average Age of the Structure			
<b>D</b>	<b>Demographic Details</b>			
18.	Family Size	4	4.1	4.1
19.	Women Headed Household	2	2	4
<b>E</b>	<b>Assets Owned</b>			
20.	Motorcycle	67	25	92
21.	Car	0	2	2
22.	Television	83	36	119
23.	Refrigerator	72	26	87
24.	Washing Machine	63	24	87
25.	Telephone - landline	9	1	10
26.	Mobile	83	36	119
27.	Cycle	67	23	90

#### 4.2.2 Section 4 (Sriperumbudur to Singaperumal Koil)

88. Widening and strengthening of this section 4 has been implemented by TNRIDC through State Fund (Government of Tamil Nadu). Social Impact Assessment (SIA) has been prepared by the DPR consultants in the year 2007. The total land acquisition for widening the section 4 is estimated to be 89.05ha in which 1071 land owners are affected. The widening proposed

has direct impact on 693 structures of which 453 residential structures, 138 commercial structures and 10 residential cum commercial structures. Other structures including 33 Common utility buildings (Hospitals, movie theatres, education institutions, public toilets and government buildings), 26 religious structures, 5 tanks, 5 wells and 10 Bus shelters are affected.

89. RAP budget<sup>10</sup> has been subdivided into three subsections

- Assistance for loss of land
- Assistance for loss of structures, Assets & Developed area within Residential/ commercial plots
- R&R Implementation

Sl.no	Item	Unit	Quantity (ha)	Unit Rate (Rs)	Amount (Crore)
<b>A</b>	<b>Compensation for land</b>				
1.	Cost of land	Sq.m	89.05	267.81	23.85
2.	Solatium @30% of the LA cost				7.15
3.	Additional Increase @12% of the LA cost				2.86
4.	Registration rate (8%) and Stamp duty (1%) Charges				2.14
	<b>Sub Total</b>				<b>36.00</b>
Sl.no	Item	Unit	Quantity (Sq.m)	Unit Rate (Rs)	Amount (Crore)
<b>B</b>	<b>Compensation for Structures</b>				
5.	Structure Compensation Kutcha	Sq.m	7793.25	1490	1.16
6.	Structure Compensation Semi-Pucca	Sq.m	8204.51	2260	1.85
7.	Structure Compensation Pucca	Sq.m	19908.05	3820	7.60
8.	Compensation for well (average 5 m)	Sq.m	2981 (meter)	2000	0.6
	<b>Sub Total</b>				<b>11.21</b>
<b>C</b>	<b>Other Assistances</b>				
9.	R&R assistance for land affected PAFs	Nos	1071	10000	1.07
10.	R&R assistance for structure affected PAFs	Nos	693	10000	0.69
	<b>Sub Total</b>				<b>1.76</b>
	<b>Grand Total (A+B+C)</b>				<b>48.98</b>

90. The implementation of the RAP (as suggested in the SIA) has been completed by TNRIDC in assistance from the Revenue department. However, the widening is incomplete at the forest land sections, where forest land acquisition is in the progress. The Section 4 has got administrative sanction for the construction of LC 47 and also it is proposed to be upgraded

<sup>10</sup> R&R assistance and other cost include the ex-gratia amount Rs 10,000/ per family

into an access control corridor by providing Vehicular underpasses, junction improvements and road safety measures.

#### 4.2.3 Section 5 (Singaperumal Koil to Mahabalipuram)

91. As a part of the DPR preparation, the SIA has been conducted for the structures that are likely to be affected due to the proposed alignment. The information of land type/ landuse, Ownership of the land, classification of the land to be acquired are not available. The survey for the same have to be initiated afresh. However, as indicated, this section shall discuss about the structures that are to be affected due to the proposed widening interventions.

92. To understand the magnitude of impacts with respect to the affected buildings and their assets, a census survey was carried out. The abstract of the census survey for section 5 is given in the following Table 15.

**Table 15: Abstract of the census survey for Section 5**

Sl.No	Description	Section 5
1	Census Survey	150
2	Socio - Economic Survey	86
3	% coverage for social survey to census survey	57%
4	CPRs	11
5	PAHs	273
6	Displaced PAHs	235
6	Major Impacts	111
7	Minor Impacts	39
8	Refusal cases	0

93. The asset inventory was conducted for 150 affected buildings having 273 families/ PAH's. Out of which, 106 were title holders, 44 were squatters. Among the 150 affected buildings, 111 structures are affected with more than 1/3rd are fully affected (Major Impacts) and 39 of them will remain partially affected (Minor Impacts). 11 Common Property Resources (CPRs) were observed to be affected due to the project.

94. **Usage of the Asset.** 22% affected buildings are of residential usage and 35% of them of commercial usage. 25% of the assets serve for residence cum commercial use and 14% accounts for the loss of partial portion with loss of compound wall, toilet, arch, fence and pump room.

Sl.No	Usage	Section 5	Percentage (%)
1	Residential	33	22
2	Commercial	53	35
3	Residential & Commercial	37	25
4	Agricultural	5	3
5	Industrial use	1	1
6	None	0	0
7	Others	21	14
<b>Total</b>		<b>150</b>	<b>100</b>



95. **Other Assets.** Other than the residential and commercial assets, other structures were also found to be affected due to the project such as open well, bore well, EB room, pump room, motor room, genset rooms and store room.

96. **Affected Common Property Resources (CPRs).** The inventory on the Common Property Resources (CPRs) shows that 11 CPRs are being affected in the Section 5. The impact on the CPRs shows that 4 worship places (3 temples and a church), 3 Government buildings, 1 pump house, 2 Bus stops and an OHT are likely to be affected.

97. **Land acquisition in the Section 5.** It is estimated to acquire 162.83 ha of land (Private and Government) for 60m RoW.

### 4.3 Entitlement Matrix

98. Entitlement Matrix (EM) has been developed for the CPRR, which summarizes the types of losses and the corresponding nature and scope of entitlements; and is in compliance with National Laws and World Bank Operation Policies (OP's). Entitlements was worked out for various affected target groups and proposed to mitigate the Title holders, Squatters, Tenants, Encroachers and workers. Based on the discussions, it is observed that the Entitlement Matrix is very much similar to the one which is used in CKIC project funded by ADB. The prepared Entitlement Matrix is given in the **Annexure 7**. The prepared Entitlement Matrix has been reviewed in line with the AIIB's Environmental and Social Standard 2: Involuntary Resettlement and observed that all the key impact categories (including impacts on Title holders (loss of land, structures, commercial and trees/ standing crops), additional assistance for women (title and no title holders), Impacts on Non-title holders (Squatters/ Encroachers), Loss of livelihood opportunities, Impact on Vulnerable DP's and unforeseen impacts are covered. However the EM has not been disclosed.

### 4.4 Resettlement Action Plan (RAP)

99. For section 1 and section 5, SIA/RAP has been prepared in line with the ADB safeguard policy, The SIA/RAP outlines the (i) type and extent of loss of assets, including land, structures, tree, crops and income; (ii) principles and legal framework applicable to mitigate these losses; (iii) entitlement matrix, (iv) implementation arrangement including monitoring and evaluation, and (iv) budget. This is in line with AIIB's ESS as well. However, public consultations are observed to be limited. The prepared RAP has not been disclosed for section 1 and section 5. The implementation of SIA/RAP for section 4 has been completed by the TNRIDC in assistance from the revenue department. Since the project has been funded by the state government, the prepared RAP is not in line with any of the MDB's safeguard policies. However appropriate national and state regulatory requirements has been adopted.

### 4.5 Institutional Arrangement

100. The Institutional Arrangement for the Implementation of the EMP and the RAP as indicated in the EIA and SIA/RAP reports are as follows

**101. Environmental Management Plan Implementation.**

- (i) Environmental and Social Safeguard Specialists (CSC), will be appointed by the TNHD for overseeing the environmental and social Safeguard compliances and they will be reporting directly to the Chief Engineer (CE), TNHD. The roles and responsibilities includes
- a. Will be responsible to confirm whether the contractor has received all Certifications in different sectors from the concerned authority to proceed with the work.
  - b. Identification of locations for setting up of Construction camps, hot mix plant, WMM plant etc.,
  - c. To ensure the smooth implementation of EMAP.
  - d. To ensure appropriate corrective and preventive action for the identified gaps in construction site in environmental aspects and to conduct regular meeting on environmental aspects
  - e. To assist the Engineer to ensure environmentally sound engineering practices. In addition, other specialists of the engineers' team may also act and report on road safety related issues
  - f. To assist in the compliance with various labour laws including the payment of minimum wages to the individual contract labourer's especially 'unskilled illiterate migrant laborers'
  - g. Will ensure the procurement of materials that are included in the Bill of Quantities relating to environmental and social mitigation costs
  - h. Will assist the HD and the Contractor in all training activities during construction period
  - i. Will assist the various Environmental monitoring activities of the Contractor
  - j. Will prepare and submit regular reports to the CE of HD

**102. Resettlement Action Plan Implementation.** To expedite land acquisition and implement the provisions of the road-project RPs, regional levels Land Acquisition Rehabilitation and Resettlement Units (LARRU) have to be constituted. These units will be headed by a Special District Revenue Officers (Spl DRO) and will be supported by a Resettlement Officer (RO) for RP implementation support and Tahsildar(s) for support in land acquisition. The implementation of the R&R provisions will be carried out by NGOs with an experience in similar development projects. The NGOs to be engaged will have proven experience in carrying out resettlement and rehabilitation activities and community development and consultations in projects of similar nature in Tamil Nadu.

**103.** The HD wing, engineer's officers, R&R cells and Social Manager will receive training prior to implementation and the capacity building will be accomplished prior to commencement of civil works. As the R&R work requires a great level of expertise, hence training and capacity building needs to be taken care. The RAP training shall be delivered in different modules for different target groups and different training needs.

## 4.6 Grievance Redressal Mechanism (GRM)

104. It is proposed to have Grievance Redressal Mechanism (GRM), which will be established at two-levels to receive, evaluate and facilitate the resolution of displaced persons concerns, complaints and grievances. The GRM will provide an opportunity to the DPs to have their grievances redressed prior to approaching the Jurisdictional LARR Authority. The GRM is aimed to provide a trusted way to voice and resolve concerns linked to the project, and is proved to be an effective way to address displaced person's concerns without allowing it to escalate resulting in delays in project implementation. The proposed GRM is in line with the AIIB's ESP requirements, however, the GRM and its mechanism/ roles and responsibility has not been disclosed (not complied as per AIIB's ESP, this is due to the limited consultations conducted at the time of DPR preparation). Hence the awareness among the public with respect to the proposed GRM is very much limited.

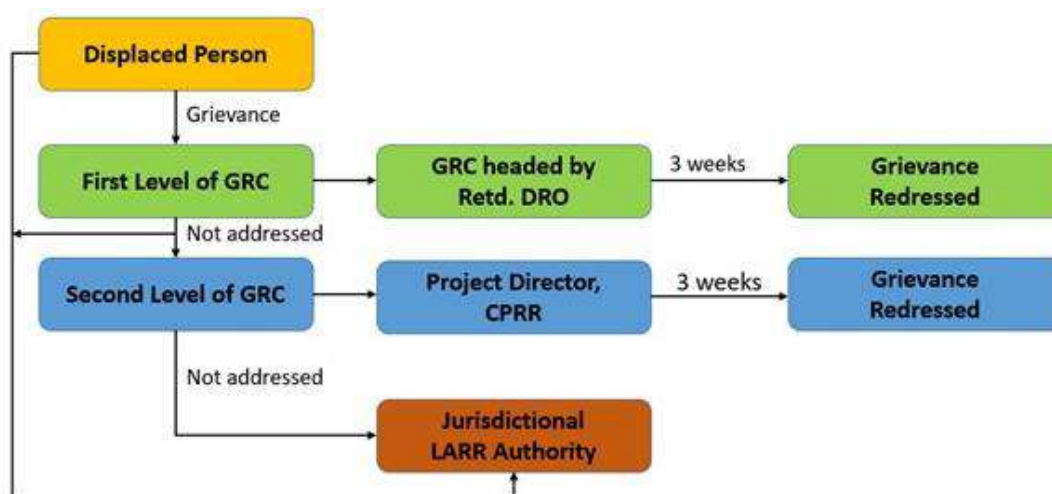


Figure 15: Grievance Redressal Committee for CPRR

## 4.7 R&R Budget

105. As per the Entitlement matrix provisions, the Resettlement and Rehabilitation (R&R) cost for the Section 1 is estimated to be Rs 1,840.6 Lakhs, by including the Management and Operation Cost it stands at Rs 2,213 lakhs (without including 10% contingency). Including the contingency, the final R&R budget is estimated to be Rs 2,435 lakhs (Rs 24.35 Crores). For section 5, the R&R cost is estimated to be 2,281 lakhs, by including the Management and Operation Cost it is estimated to be Rs 2,319 lakhs (without including 5% contingency). Including the contingency, the final R&R budget is estimated to be Rs 2,435 lakhs (Rs 24.35 Crores). However, as indicated in the section 4.2 (Census survey), the census survey and socio economic survey have not been carried out for 100% for the PAP's/ PAH's. Hence the estimated R&R budget is subject to changes, which shall be verified by the RAP implementing NGO's/ Consultants.

106. For section 4, the R&R cost is estimated to be 48.92 crores, which includes compensation for land, structures and other assistances. The prepared RAP has been implemented by the TNRIDC in assistance from the Revenue Department.

## 4.8 Public Consultations

107. Public consultations for the Project were held in July 2014, during the drafting of the DPR. The consultations were held once at Panchetti for Section 1, which was attended by 51 participants from 8 villages. For Section 4 consultations were conducted at Oragadam, which was attended by 25 participants from 7 villages and for Section 5, consultations have been conducted at Manamathi, which was attended by 70 participants from 19 villages. The following sections will detail the discussion held with the participants and their feedback on the proposed CPRR (section 1, 4 and 5).

**Table 16: Suggestions/ comments shared in the Public Consultations in 2014**

Sl.no	Suggestions/ Comments	Response from TNHD and DPR Consultants
<b>Section 1</b>		
<b>Engineering aspects</b>		
1.	Service road is essential for this section	Service road with foot path is proposed throughout the project road.
2.	Village roads needs to be linked with this new road.	Service road is proposed on both sides to provide access and underpasses are proposed for crossing the project road.
3.	At km 29/000 of NH 16, what is proposed area required for construction of Interchange? Is there any option to shift this?	Exact plan showing the Interchange with proposed RoW and affected buildings are displayed. The location cannot be shifted due to the site condition.
4.	List of survey nos. affected due to this project need to be verified	Land plan schedule is under preparation. Affected registered survey numbers will be disseminated after completion of LPS.
5.	Requested to use the already available roads under this project.	Project road will be developed with 60m right of way. Widening of existing roads requires land acquisition on both sides which will cause major social impacts on the adjoining villages.
<b>Social Aspects</b>		
6.	What is the compensation for agricultural lands?	Compensation will be made as per latest LA & Rehabilitation & Resettlement Act '2013.
7.	Market value should be considered for LA.	Compensation will be made as per latest LA & RR Act '2013.
8.	What is the compensation for the buildings affected at Vishuvakkam?	No buildings are affected at this locality, only lands are being affected and adequate compensation will be made as per latest LA & RR Act '2013.
<b>Section 4</b>		
<b>Engineering Aspects</b>		
9.	What are the likely land acquisitions in this section?	As this section is under widening to 6-laning, no further land acquisition is proposed. Minor land acquisition may be required for improvements like construction of underpasses, etc.
10.	Requested for a separate meeting at Sriperumpudur town.	Exclusive meeting will be conducted at Sriperumpudur town giving prior information.

Sl.no	Suggestions/ Comments	Response from TNHD and DPR Consultants
11.	Is there any option to reduce the proposed road width of 100 m?	Proposed right of way is 60m whereas it is reduced at this project section and stretch along Sriperumpudur lake to avoid social impact. Proposed road width is different for each section based on the traffic requirements.
12.	What type of improvement works suggested in this section?	In order to improve the safety, underpasses are proposed at built-up sections and important junction.
13.	Crossing facility is required at this section.	Vehicular underpasses are proposed wherever required in this section
14.	Bus Stop is required at Oragadam junction	Underpass is proposed at this location as part of improvement of this section
15.	Underpass is proposed at this location as part of improvement of this section	Underpass is proposed at this location as part of improvement of this section
<b>Environmental Aspects</b>		
16.	The proposed alignment can be within the Sriperumpudur lake to avoid social impact	In order to avoid impact on water body, the alignment is proposed along the bund of Sriperumpudur lake which may cause minor social impact.
17.	Irrigation supply channels should not be blocked due to road formation.	Necessary cross drainage structures are proposed on the new alignment sections. The existing structures should be maintained on existing road sections.
<b>Social Aspects</b>		
18.	Requested to implement the project without affecting public.	As this section is under widening to 6-laning, no further land acquisition is proposed. Minor land acquisition may be required for improvements for which compensation will be made as per latest LA & RR Act '2013.
19.	In village natham area, lands are registered but patta is not available. How compensation will be paid to the affected land owners?	Land ownership will be verified in natham area and procedure will be adopted in consultation with revenue department.
<b>Section 5</b>		
<b>Engineering Aspects</b>		
20.	Whether the project is a Toll road	The proposals on tolls will be finalised at the subsequent stages by the government.
21.	Whether the proposed Sub-way across railway line at Singaperumal koil will be affected by this project	No. It is proposed to modify the geometry of Railway Over Bridge under construction at Singaperumal koil.
<b>Social Aspects</b>		
22.	Representative wanted to know the number of villages is proposed to be passing through the project road.	Study team listed the name of villages through which the project road is passing through in this section.

Sl.no	Suggestions/ Comments	Response from TNHD and DPR Consultants
23.	Representatives enquired about the compensation for affected agricultural lands in the project.	Compensation will be determined as per latest LA & RR Act '2013.
24.	People also enquired about the compensation for affected wells in the agricultural lands.	Compensation will be determined as per latest LA & RR Act '2013.
25.	Representative wanted to know the strategies going to be adopted for payment of compensation to the losses.	The compensation package matrix for the losses will be prepared as per the latest LA & RR Act '2013 and disclosed by the project authority.
26.	Entire cultivation land is likely to be affected due to this project which has been the only source for livelihood. Hence requested the team to mitigate LA over cultivable lands.	Project alignment is finalised in view of minimising social and environmental impacts. Compensation will be paid for the affected land as per latest LA & RR Act '2013.
27.	Representative wanted to know whether the project affects the commercial stretches at Karanai and wanted the RS Nos. of all the likely affected areas.	It is replied that, no commercial stretches would be affected. Land plan schedule is under preparation. Affected RS Nos. will be disseminated after completion of LPS.
28.	Wanted to know is there a provision for alternate cultivable land for the loss of same.	Possibilities of providing alternate land will be evaluated and compensation packages will be determined as per latest LA & RR Act '2013

108. The conducted consultations are in line with the procedures adopted for seeking Environmental clearances from Ministry of Environmental Forest and Climate Change (MoEF&CC) and also in line with the AIIB's ESP requirements (transparency and meaningful consultation is essential for the design and implementation of a project to achieve this objectives). The feedback received from the public consultation has been examined and considered for including street lights in the service lanes, traffic calming measures in the service lanes, provision for vehicle underpass, bund protection measures for water bodies etc. However, the conducted consultations have not disclosed RAP (including the entitlement matrix) and proposed GRM.

#### 4.8.1 TNPCB Public Consultations

109. Based on the EIA notification 2006, TNPCB held public consultations on the draft EIA report submitted by TNHD for all sections in Divisional Engineers Office, Chengalpattu, Kancheepuram District on 10<sup>th</sup> July 2018, and at S.V. Rajammal Marriage Hall, Tamaraipakkam in Thiruvallur District on 12<sup>th</sup> July 2018. The outcome of the meeting is given in the **Annexure 8**. The key points discussed includes

- Properties (Land and structures), likely to get affected due to the proposed CRR
- Widening criteria adopted and alignment details
- Provision for underpass and road crossing details
- Provision for median opening for easy access from village roads
- Safety measures proposed in the CRR



- Shifting of alignment for saving structures and private land
- Compensation for land and structures should be at par with the market price
- Requested for a government job for a family member who is getting affected by the CPRR implementation
- Details regarding the livelihood assistance
- Project information including design, RoW, land acquisition details, PAP's information etc.,

#### 4.9 Findings and Areas of Concern for Social Safeguards

110. Based on the available documents and site conditions, it is concluded that the Social Impact Assessment Report/ Resettlement Action Plan (RAP) has been prepared for Section 1. 4 and 5. The following are the observations from the Social Due Diligence.

- SIA/RAP shares more/ detailed information for Section 1 in comparison with section 4 and 5
- Census survey has been conducted for 35% of the affected land parcels and socio-economic survey has been conducted for 20% of the land parcel for section 1 and 25% of census and social survey for section 5. The reasons for the limitation for the survey has not been discussed in the SIA/RAP
- The project is categorised as "S1" based on the World Banks screening requirements, though it is not funded by World Banks
- Methodology adopted for Census survey has been discussed in detail for section 1 and 5.
- Entitlement matrix prepared for the project is based on the National rules and regulations as well as World Bank's Operation Policies (OP's). However, in this project none of the sections are aided by World Bank and hence the reason for using OP's in formulating the Entitlement Matrix is not clear
- PWD schedule of rate for the year 2015 to 2016 has been utilised for estimating the structure cost, which has to be updated based on the latest PWD schedule of rates
- From the SIA/RAP, it is observed that two public consultations have been conducted in the year 2014 (during the DPR preparation) and 2018 (for obtaining Environmental clearance). The outcome of the consultations are being utilised in project designing.
- Consultation with the Women group should have been conducted in detail and the feedback along with the participant's details should have been included in the report. Based on the feedback, the safety measures should have been included in the project design
- Detail profile of the PAP's/ PAH's are not given in the RAP, the given information is observed to be very much preliminary
- Design measure considered in minimising the Land acquisition has not been discussed
- RAP Implementation mechanism has been detailed
- The GRM/ GRC structure is very much similar to the CKIC project which is funded by ADB
- Institutional Mechanism suggested for the CPRR is also very much similar to the CKIC project
- Gender related information including Gender Based violence (GBV) and Gender Mainstreaming are not discussed in the safeguard documents (either EIA/EMP or the SIA)

## 5 Environmental and Social Corrective Action Plan (ESCAP)

111. Based on the Environmental and Social Due Diligence observations, this Environmental and Social Corrective Action Plan has been prepared with timeline. For Section 4, with exemption to Occupational Health and Safety (OH&S) related impacts that are to be monitored during the Operation and Maintenance stage, other suggested **ESCAP may not be applicable for Section 4 since the construction works are already completed.**

Sl.no	Corrective Action	Responsible Agency/ Consultant	Remarks	Timeline
<b>Environmental Corrective Action Plan</b>				
1.	Project categorisation	DPR Consultant/ PIU/CPRR	The project should have been categorised as per the EIA notification 2006. However since it is planned to implement section wise, the categorisation procedure as per the funding agencies (MDB's) policy requirement should be adopted. For section 1, as per JICA's Environmental and Social Considerations it is categorised as "A". For section 4, it is already implemented and hence categorisation do not envisage. For Section 5, it is yet to be taken up for implementation and hence based on the funding agencies (MDB's) policy requirements, it has to be categorised.	At the time of DPR updation/ revision
2.	Environmental and CRZ Clearances	CSC Consultant/PIU/ CPRR	Environmental and CRZ clearances have been obtained. However, the conditions given in the clearances have to be adopted and fulfilled. This further needs to be reflected in the monitoring report about the implementation of those conditions.	15 <sup>th</sup> October 2020
3.	Clearance to be obtained by the Contractor (refer Table 2)	CSC Consultant/PIU/ CPRR	Other than Environmental clearance, CRZ and Forest clearance, the other listed NoC/ Permissions for the competent authority (Refer Table 2) to be obtained by the contractor for section 1.	30 <sup>th</sup> November 2020
4.	ASI Clearance	DPR Consultant/PIU/CPRR	Though the section 5 (ending road portion) falls short of the ASI clearance requirement, it is suggested to consult the ASI regarding the Section 5 alignment	15 <sup>th</sup> October 2020
5.	Forest Land Acquisition	DPR Consultant/PIU/CPRR	For the 9.95 ha of forest land diversion, the compensation as suggested by the Forest Department has to be paid	30 <sup>th</sup> November 2020

Sl.no	Corrective Action	Responsible Agency/ Consultant	Remarks	Timeline
6.	Fly Ash usage in the project construction	DPR Consultant/PIU	It is suggested to test the fly ash and to find its suitability for the construction works (for section 1 and 5).	15 <sup>th</sup> October 2020
7.	Analysis of Alternatives	CSC for section 1, DPR Consultant for section 5/ PIU/CPRR	The CPRR corridor alignment has been fixed based on only one option that was studied earlier, which was not updated. It is suggested to look for more options to minimise the Environmental and Social impacts. For section 1, CSC should explore various alternatives in minimising environmental and social impacts as assessed.	30 <sup>th</sup> November 2020 for section 1. At the time of DPR updation/ revision for section 5
8.	World Bank OP's	CSC for section 1, DPR Consultant for section 5/ PIU/CPRR	The CPRR is not funded by the World Bank, however the reference to the OP's are given in the EIA and SIA. Hence the policy related write-up needs to be updated as per the funding agencies (MDB's) requirements	15 <sup>th</sup> October 2020 for section 1. At the time of DPR updation/ revision for section 5
9.	Project road Inventory information	CSC for section 1, DPR Consultant for section 5/ PIU/CPRR	Project corridor inventory information pertaining to Sensitive receptors, water bodies, Avenue plantation, settlement sections, land use pattern along the road sections needs to be detailed with appropriate location details for impact assessment	15 <sup>th</sup> October 2020 for section 1. At the time of DPR updation/ revision for section 5
10.	Environmental Management Plan	CSC for section 1, DPR Consultant for section 5/ PIU/CPRR	The EMP's for the Section 1 and 5 needs to be location specific and hence the EMP have to be updated to fit into the Contract / Bid Documents. For section 1 SEMP have to be submitted by the contractor in assistance from CSC.	30 <sup>th</sup> November 2020 for section 1. At the time of DPR updation/ revision for section 5
11.	Tree Felling and Transplantation	CSC for section 1, DPR Consultant for section 5/ PIU/CPRR	Afforestation ratio of 1:10 has been adopted for compensating the loss of 1459 trees in the Section 4. It is mentioned that considerable number of trees shall be transplanted, however the EIA does not describe about the procedures to be followed, including the number of trees chosen for transplantation, tree survival status/ monitoring procedures and the stakeholders department which are involved. For section 1 consultations have to be conducted with the forest department for tree transplantation and monitoring	30 <sup>th</sup> November 2020 for section 1. At the time of DPR updation/ revision for section 5

Sl.no	Corrective Action	Responsible Agency/ Consultant	Remarks	Timeline
12.	3R's in the Project for construction materials	CSC for section 1, DPR Consultant for section 5/ PIU/CPRR	The possibilities of recovering, reusing and recycling of construction materials should have been explained in detail, by adopting the 3R's considerable natural resources would be saved. For section 1, as per the EMP requirement, the contractor should prepare a debris disposal plan in assistance from CSC and should explore all possible ways in minimising the waste by adopting 3R's	30 <sup>th</sup> November 2020 for section 1. At the time of DPR updation/ revision for section 5
13.	Environmental Enhancement measures	CSC for section 1, DPR Consultant for section 5/ PIU/CPRR	As part of the enhancement measures, rainwater harvesting recharge wells should have been explored. The assistance from the PWD shall be requested through PIU in designing the well structures. For section 1, the CSC and the contractor should inspect the site and to propose rain water harvesting wells/ recharge wells or any other enhancement measure which will be beneficial for the local communities.	30 <sup>th</sup> November 2020 for section 1. At the time of DPR updation/ revision for section 5
14.	Cumulative Impact Assessment (CIA)	CSC for section 1, DPR Consultant for section 5/ PIU/CPRR	CIA should be conducted for all sections to understand and to quantify the project benefits to the communities.	30 <sup>th</sup> November 2020 for section 1. At the time of DPR updation/ revision for section 5
15.	Institutional Arrangement for EMP	CSC for section 1, DPR Consultant for section 5/ PIU/CPRR	It is suggested to discuss with the PIU before the formulation of the Implementation Arrangement. Because the given structure is very much similar to CKIC Project	15 <sup>th</sup> October 2020 for section 1. At the time of DPR updation/ revision for section 5
16.	Disclosure of SEMR in the PIU and PMU website	CSC for section 1	As per JICA Environmental and Social Considerations, the prepared SEMR has to be disclosed in the PIU and PMU website <sup>11</sup> for section 1.	15 <sup>th</sup> October 2020
<b>Social Corrective Action Plan</b>				
17.	Social Information/ inventory	DPR Consultant for section 5/ PIU/CPRR	In comparison with the SIA/RAP prepared for section 1 and 5, it is observed that section 1 is having more information (including census and social survey outcome, consultation	At the time of DPR updation/ revision for section 5

<sup>11</sup> <https://www.tnhighways.gov.in/index.php/en/tnridc>

Sl.no	Corrective Action	Responsible Agency/ Consultant	Remarks	Timeline
			with local communities' updation of the SIA/RAP report as per the JICA requirements etc.). It is suggested to adopt similar approach for section 5 as well	
18.	Project categorisation should be based on the Funding agency requirements	DPR Consultant for section 5/ PIU/CPRR	The project has been categorised based on the world Bank OP requirements. It is suggested to adopt the funding agencies policy requirement (AIIB, ADB, JICA, NDB etc.). For Section 5 it is suggested to update the SIA/RAP as per the MDB's requirement	At the time of DPR updation/ revision for section 5
19.	Entitlement matrix	DPR Consultant for section 5/ PIU/CPRR	The given Entitlement Matrix is based on the National and World Bank (OP 4.12) requirements as suggested in the earlier comment it has to be reworked as per the funding agency requirement (AIIB, ADB, NDB etc.). For section 1, the given EM has been accepted by JICA and RAP is being implemented as per the entitlement. For section 5, the EM has to be updated as per the MDB's requirements	At the time of DPR updation/ revision for section 5
20.	Schedule of rate for structure compensation	RAP Implementation consultants for section 1, DPR Consultant for section 5/ PIU/CPRR	It is observed that 2015 to 2016 schedule of rates has been used for estimating the structure compensation. It has to be updated based on current rates.	30 <sup>th</sup> October 2020 for section 1. At the time of DPR updation/ revision for section 5
21.	Institutional mechanism for RAP Implementation	RAP Implementation consultants for section 1, DPR Consultant for section 5/ PIU/CPRR	It is suggested to discuss with the PIU before the formulation of the Institutional mechanism. Because the given structure is very much similar to CKIC Project	30 <sup>th</sup> October 2020 for section 1. At the time of DPR updation/ revision for section 5
22.	Design measures based on Public Consultations	CSC and RAP Implementation consultants for section 1, DPR Consultant for section 5/ PIU/CPRR	Though a remarks column is given for addressing the queries raised by the public, appropriate design measures have to be explained in detail. If possible, alternate options should have been explored (e.g. Provision of drinking water facilities in the bus stops, provision of Ramp facilities for bus stops for differently abled persons etc.). Hence it is suggested to conduct more consultations and based on the feedback, appropriate mitigation measures should have been suggested	30 <sup>th</sup> November 2020 for section 1. At the time of DPR updation/ revision for section 5

Sl.no	Corrective Action	Responsible Agency/ Consultant	Remarks	Timeline
23.	Gender based Consultations	RAP Implementation consultants for section 1, DPR Consultant for section 5/ PIU/CPRR	It is suggested to conduct gender based consultations and the feedback should be incorporated in the project design (e.g provision for solar street lights, CCTV's as an safety measures, enabling the GRM to handle the Gender based issues etc)	30 <sup>th</sup> November 2020 for section 1. At the time of DPR updation/ revision for section 5
24.	Gender Action Plan (GAP)	RAP Implementation consultants for section 1, DPR Consultant for section 5/ PIU/CPRR	It is suggested to include a section on the GAP, which will discuss the Gender Mainstreaming and Gender Based Violence (GBV), which shall be adopted by the contractor during the construction	15 <sup>th</sup> December 2020 for section 1. At the time of DPR updation/ revision for section 5
25.	Profile of the PAP's/ PAH's	RAP Implementation consultants for section 1, DPR Consultant for section 5/ PIU/CPRR	Details of the PAP's/ PAH's should have been improved. As discussed in the section 4.2 (Census and Socio economic survey), 100% survey has not been conducted and hence it is suggested to conduct 100% survey to collect detailed profile of the PAP's/ PAH's for section 1 and 5.	15 <sup>th</sup> December 2020 for section 1. At the time of DPR updation/ revision for section 5
26.	Land acquisition minimisation due to design measures	CSC for section 1, DPR Consultant for section 5/ PIU/CPRR	Though the corridor is proposed for widening to 6 lane, various design measures should have been explored in minimising the land acquisition (e.g. provision of toe wall for minimising the shoulders etc.,)	15 <sup>th</sup> December 2020 for section 1. At the time of DPR updation/ revision for section 5
27.	GRC/GRM	CSC for section 1, DPR Consultant for section 5/ PIU/CPRR	The suggested GRC is very much similar to the CKIC, hence it is suggested to discuss with the PIU and do the necessary modifications, for instance, maintaining grievance logs, and expanding the GRM to cover both community and workers' complaints, etc.	30 <sup>th</sup> October 2020 for section 1. At the time of DPR updation/ revision for section 5
28.	RAP Disclosure	RAP Implementation consultants for section 1, DPR Consultant for section 5/ PIU/CPRR	SIA/RAP, which is undergoing modifications/ updates by the RAP implementation consultants for section 1 has to be disclosed. Similarly the SIA/RAP for section 5 has to be disclosed at the time of DPR updation/ revision.	15 <sup>th</sup> December 2020 for section 1. At the time of DPR updation/ revision for section 5



## 5.1 Other Observations

112. Other than the Environment and Social observations, there are few design changes that needs to be incorporated in the proposed cross section based on the updated IRC Code (IRC: SP: 87-2019)

- For Section 1, the latest IRC code has been adopted, similarly Section 5 have to be updated
- For Section 1, the given cross section in the safeguard Document (EIA Report) have to be revised as per the latest suggestions/ updation.

## 6 Conclusion

113. Based on the key findings from the due diligence, it is evident that an appropriate approach, which is similar for World Bank projects has been conducted for the preparation of Environmental and social safeguard documents (including EIA and SIA/RAP). The adopted methodology is observed to be in line with the AIIB's ESP requirements.

114. **Environmental due diligence.** It is observed that the regulatory requirements including obtaining Environmental Clearance (EC) and Coastal Regulation Zone Clearance and are in place. Forest Clearance is anticipated shortly, the submitted proposal is under scrutiny. The given condition in the clearances (EC and CRZ) are being complied by the CSC and PIU for section 1. Since section 4 is already completed the regulatory requirements do not envisaged. For section 5 it shall be taken up later. However, the suggested Tree transplantation measures have to be explored to identify the best fit method, which is observed to missing in the EIA report.

115. The Environmental Assessment has been conducted for various environs including physical, biological and Socio-economic. Appropriate sampling methods are also adopted in analysing ambient air quality, noise quality, soil and water quality (both surface and groundwater). The outcome of the analysis has been assessed for predicting the environmental impacts during the project construction and operation. Public consultation have been conducted and the feedback has been utilised for design changes / modification. The approach adopted for environmental assessment is in line with AIIB's ESP requirements for category 'A' projects.

116. Based on the assessment, suitable Environmental Management Plan has been prepared for pre-construction. Construction and post construction impacts. Appropriate roles and responsibilities have also been indicated in the Institutional mechanism for implementing EMP. An EMP Budget has been prepared for the proposed Environmental Monitoring Plan (EMoP). Appropriate contractor's obligations in implementing the EMP to be included in the bid document is also included in the EIA. The EMP, EMoP, Institutional mechanism/ arrangement are observed to be in line with the AIIB ESP/ESS requirements. However, there are some gaps identified with respect to the non-conformances against policies/ regulatory requirements for which a suitable Environmental Corrective Action Plan (ECAP) has been prepared with time bound action (refer chapter 5). With exemption to these gaps, the prepared EIA for all sections are observed to be satisfactory in line with AIIB's ESF/ESS. Based on the environmental monitoring reports submitted by the CSC, the implementation status is also observed to be satisfactory,

117. **Social due diligence.** The regulatory requirements for conducting the SIA is observed to be in line with MDB's requirement. The methodology adopted for conducting the census and social survey is detailed in the SIA report, however the percentage of survey for census and social has been observed to be varying among all the sections. The prepared RAP captures various type social impacts and losses to land/ asset/ structures/commercials etc. all the identified losses are recorded and compensations as per the Entitlement Matrix (EM) provisions for Title Holders, Non-title holders, squatters, encroachers etc. has been

estimated. The EM is similar to the EM adopted for CKIC project which is funded by the ADB, hence it is in line with the MDB's requirements. However, the prepared RAP have to be updated during the project implementation.

118. The feedback received from the public consultations conducted during the DPR preparation has been utilised for providing additional measures including traffic calming measures, traffic safety in the service lane, provision of adequate street lights, provision for bus shelters etc. However during the consultations, the RAP, EM has not been disclosed. The suggested Institutional Arrangement and the GRM adopts similar approach to the CKIC project, which is an ongoing project. Hence it is also in line with the MDB's requirement.

119. Overall the prepared SIA/ RAP has been observed to fulfil the MDB's requirement. However, the Gender action plan is not prepared for any of the sections, similarly RAP and the Entitlement matrix has not been disclosed. With exemption to these gaps, the SIA/RAP is observed to be satisfactory in line with AIIB's ESF/ESS. Based on the RAP monitoring reports, the implementation status is also observed to be satisfactory.

**Annexure**

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## Annexure - 1

### Section 4 up-gradation Notification

1. சென்னை எல்லைச் சாலையின், நான்காம் பகுதியான ஸ்ரீபெரும்புதூர் முதல் சிங்கபெருமாள் கோயில் வரையுள்ள பகுதியில் வாகன சுரங்கப்பாதைகள், சாலை சந்திப்பு மேம்பாடு, சாலை பாதுகாப்பு ஆகிய பணிகள் உலக தரத்துடன் ரூபாய் 531 கோடி மதிப்பில் மேற்கொள்ளப்படும்.

மாண்புமிகு அம்மா அவர்களின் நல்லாசியுடன், துவங்கப்பட்ட சென்னை எல்லைச் சாலைத் திட்டம், தமிழ்நாடு தொலை நோக்குத் திட்டம் 2023ல் எதிர்கால போக்குவரத்து தேவைகளை பூர்த்தி செய்வதற்கும், திறனான வணிகப் போக்குவரத்து மூலம் துறைமுக இணைப்பை மேம்படுத்துவதற்காகவும் அறிவிக்கப்பட்ட முக்கிய திட்டம் ஆகும்.

இத்திட்டத்தின் நான்காம் பகுதியான ஸ்ரீபெரும்புதூர் முதல் சிங்கபெருமாள் கோயில் வரையுள்ள பகுதியில் வாகன சுரங்கப்பாதைகள், சாலை சந்திப்பு மேம்பாடு, சாலை பாதுகாப்பு ஆகிய பணிகள் உலக தரத்துடன் ரூபாய் 531 கோடி மதிப்பில் மேற்கொள்ளப்படும்.



## Annexure - 2

### Administrative Sanction for LC 47 in Section 4



#### ABSTRACT

Highways and Minor Ports Department – Chennai Peripheral Ring Road Project – Construction of ROB in lieu of existing LC No.47 in between Guduvancherry and Singaperumalkoil Railway Stations – Revised Administrative Sanction – Accorded – Orders – Issued..

#### Highways and Minor Ports (HW2) Department

G.O.(Ms) No. 160

Dated: 16.12.2019

விகாரி, கார்த்திகை 30  
திருவள்ளூர்வாரணம் 2050

Read:

1. G.O.(Ms) No.60, Highways (HW2) Department, dated 06.03.2008
2. G.O.(Ms) No.74, Highways and Minor Ports (HW2) Department, dated 09.05.2018
3. G.O.(Ms) No.79, Highways and Minor Ports (HW2) Department, dated 15.05.2018
4. From the Project Director (H), Tamil Nadu Road Sector Project-II, Chennai Kanyakumari Industrial Corridor Project (FAC), Chennai Peripheral Ring Road Project, Chennai Letter No. CPRR /AE/2018, dated 15.10.2018, 10.12.2018 and 21.02.2019

#### ORDER:

In the Government Order first read above, Government accorded Administrative Sanction for Rs.52.89 Crore for the work of construction of ROB in lieu of existing LC No.47 in between Guduvancherry and Singaperumalkoil Railway Station under Railway Works Programme.

2. In his letter fourth read above, the Project Director (H), Tamil Nadu Road Sector Project-II, Chennai Kanyakumari Industrial Corridor Project (FAC), Chennai Peripheral Ring Road Project has stated that the existing Level Crossing No.47 is very close to the NH-45 i.e., @ Km 47/8 near Singaperumalkoil, the ROB is proposed with Rotary and 4 arms on NH 45 side to cater the traffic from NH to Sriperumpudur and vice versa. But, the Competent Authority, NHAI has observed that the construction of rotary exactly over NH-45 is seen as a safety hazard for traffic at the said location and decided that the Highways Department, Tamil Nadu to construct the rotary beyond Right of Way of NH 45. Accordingly, the modified



Memorandum of Understanding for Revised proposal has been executed between the Government of Tamil Nadu and National Highways Authority of India.

3. In the Government Order second read above, Government accorded Administrative Sanction for an amount of Rs.2603.32 Crore for carrying out the LA works in Section II, III and V of CPRR Project, which also includes Land Acquisition for the work of LC No. 47. In the Government Order third read above, Government ordered that the Empowered Committee / Steering Committee formed for CKICP will be utilized for CPRR project also.

4. The Project Director (H), Tamil Nadu Road Sector Project-II, Chennai Kanyakumari Industrial Corridor Project (FAC), Chennai Peripheral Ring Road Project in his letter fourth read above has reported that the Empowered Committee Meeting for Chennai Peripheral Ring Road Project held under the Chairmanship of the Hon'ble Chief Minister on 13.08.2018 has approved the following Agenda among others.

**Approved the proposal of Project Director and accorded permission to carry out the work of Construction of ROB at LC 47 by Projects Wing of Highways Department after getting necessary Revised Administrative Sanction.**

5. The Project Director (H), Tamil Nadu Road Sector Project II, Chennai Kanyakumari Industrial Corridor Project (FAC), Chennai Peripheral Ring Road Project, Chennai has therefore requested the orders of Government to accord Revised Administrative Sanction for a sum of Rs.143.28 Crore for the Construction of ROB in lieu of existing LC No.47 in between Guduvancherry and Singaperumalkoil Railway Station and to execute the same through projects wing as approved by the Empowered Committee.

6. The Government after careful examination and based on the decision taken by the Empowered Committee for Chennai Peripheral Ring Road Project, accept the proposal of Project Director (H), Tamil Nadu Road Sector Project II, Chennai Kanyakumari Industrial Corridor Project (FAC), Chennai Peripheral Ring Road Project and accord Revised Administrative Sanction for a sum of Rs.138,27,25,000/- (Rupees One hundred and thirty eight crore twenty seven lakh and twenty five thousand only) for the Construction of Road Over Bridge in lieu of existing LC No.47 in between Guduvancherry and Singaperumalkoil Railway Station, and to execute the same through TNRIDC, as per the amendment issued in G.O.(Ms) No.150, Highways and Minor Ports Department, dated 29.11.2019, and also accord sanction for Rs.5,00,00,000/- (Rupees Five Crore only) for the financial year 2019-20. ✓

7. The expenditure sanctioned in para-6 above shall be debited under the following Head of account:-

"5054- Capital Outlay on Roads and Bridges – 80 – General – 800 – Other Expenditure – State's Expenditure - JT – Construction of Railway Over Bridge / Railway Under Bridges – 16 Major Work – 01- Major Works"

(DPC: 5054-80-800-JT-1604)

(IFHRMS: 5054-80-800-JT-41601)



8. The expenditure sanctioned in Para-6 above is an item of "New Instrument of Service". The approval of the Legislature will be obtained in due course. Pending approval of the Legislature, the expenditure may be initially met by drawal of an advance from the Contingency Fund. The Chief Engineer (Projects), Highways Department is authorized to draw and disburse the amount sanctioned in para-6 above. The Chief Engineer (Projects), Highways Department is directed to calculate the actual amount required for the period upto next supplementary estimates and apply for sanction of the same as advance from the Contingency Fund to Finance (B.G-I) Department directly in Form "A" appended to the Tamil Nadu Contingency Fund Rules, 1963 along with a copy of this order. Orders for sanction of an advance from the Contingency Fund will be issued from Finance (B.G-I) Department. He is also directed to send a draft explanatory notes for including the above expenditure in the Supplementary Estimates 2019-20 to Finance (BG-I) / (PW-I) Department without fail.

9. This order issues with the concurrence of Finance Department vide its U.O.No.62172/PW-I/2019, dated:11.12.2019 and Additional Sanction Ledger No. 2433 (Two thousand four hundred and thirty three)

**K.Manivasan,**  
**Principal Secretary to Government (FAC)**

**To**

The Project Director (H), Tamil Nadu Road Sector Project II,  
Chennai Kanyakumari Industrial Corridor Project (FAC),  
Chennai Peripheral Ring Road Project, Chennai-28.

The Director General, Highways Department, Chennai-25

The Chief Engineer (Projects), Highways Department,  
Chennai-25

The Chief Engineer (Construction and Maintenance),  
Highways Department, Chennai-25

✓ The Executive Director, Tamil Nadu Road Infrastructure Development Corporation,  
Chennai-2

The Principal Accountant General, (A&E), Chennai-18/35.

The Pay and Accounts Officer (South), Chennai-35.

**Copy to:**

The Special Personal Assistant to Hon'ble Chief Minister, Chennai-9.

The Private Secretary to Principal Secretary to Government (FAC),  
Highways and Minor Ports Department, Chennai-9.

The Finance (P.W.I) / BG-I / II) Department, Chennai-9.

C.No.14749/HW2/2018

SF/SC

**//Forwarded By Order//**

*V. Baghialareshmi*  
**Section Officer**

## **Annexure - 3**

### **Legal and Institutional Requirements**

#### **1. Key Environmental Laws and Regulations of Gol**

The Indian constitution makes environmental protection an explicit duty for every citizen by the statement, “It shall be duty of every citizen of India to protect and improve the environment including forests, lakes, rivers, wild life, and to have compassion for living creatures”. In addition, Gol has laid out various policy guidelines, acts and regulations pertaining to sustenance of environment and these have been presented in the following sections.

##### **1.1. Environment (Protection) Act, 1986**

The Environmental (Protection) Act, 1986 is the umbrella legislation providing for the protection of environment in the country. This Act provided for the Environment (Protection) Rules, which were formulated in 1986, the Environmental Impact Assessment Notification, 1994 and the Amendments thereto (up to July 2004), and various other notifications.

##### **1.2. EIA Notification, 2006**

The EIA notification dated 14<sup>th</sup> September, 2006 imposes certain restrictions and prohibitions on new projects or activities, or on the expansion or modernization of existing projects or activities based on their potential environmental impacts as indicated in the schedule to the notification, being undertaken in any part of India, unless prior environmental clearance has been accorded by the Ministry of Environment, Forests and Climate Change (MoEF&CC) or the State or Union territory Level Environment Impact Assessment Authority (SEIAA).

Item No 7(f) of the EIA notification, 2006 specifies that Expansion of National Highways greater than 100 Km involving additional right of way or land acquisition greater than 40 m on existing alignments and 60 m on re-alignments or bypasses is categorized as “A” project and requires prior environmental clearance from MoEF&CC. Whereas, all new State Highway projects; and expansion of State Highways in hilly terrain (above 1,000 m above mean sea level) and or ecologically sensitive areas falls in Category ‘B’ project and requires prior environmental clearance from SEIAA.

The project road is not attracting the provisions of EIA Notification, 2006 since it is not a National Highway or a new State Highway. Even though this project involves expansion of existing State Highway, it is not falling in hilly terrain above 1000 m above mean sea level or eco sensitive areas. Hence, the project road do not require environmental clearance from SEIAA or MoEF&CC.

##### **1.3. The Water (Prevention & Control of Pollution) Act, 1974**

This act provided for the prevention and control of water pollution and the maintaining and restoring of the wholesomeness of water. The Act resulted in the establishment of the Central and State level Pollution Control Boards whose responsibilities include managing water quality and effluent standards, as well as monitoring water quality, prosecuting offenders and issuing licenses for construction and operation of certain facilities.

The Contractor has to obtain consent to establish for construction camps from the Tamil Nadu Pollution Control Board as per the Water (Prevention and Control of Pollution) Act of 1974, since it involves discharge of waste water from construction camps.

#### **1.4. The Air (Prevention & Control of Pollution) Act, 1981**

This act provides for prevention, control and abatement of air pollution. 'Air Pollution' means the presence in the atmosphere of any 'air pollutant' which means any solid, liquid or gaseous substance (including noise) present in the atmosphere in such concentration as may be or tend to be injurious to human beings or other living creatures or plants or property or environment.

The SPCB is empowered to implement air quality standards and monitor and prosecute offenders under The Air (Prevention and Control of Pollution) Act, 1981. The Contractor has to obtain consent to establish and consent to operate for construction camps from the Tamil Nadu Pollution Control Board as per the Air (Prevention and Control of Pollution) Act of 1981, since it involves operation of Hot Mix Plants and Diesel Generator Sets.

#### **1.5. Noise Pollution (Regulation and Control) Rules, 2000**

The ambient air quality standards in respect of noise for different areas/zones are specified in the Schedule of these rules. The State Government may categorize the areas into industrial, commercial, residential or silence areas/zones for the purpose of implementation of noise standards for different areas. As per these rules, an area comprising not less than 100 meters around hospitals, educational institutions and courts may be declared as silence area/zone.

The noise levels in any area/zone shall not exceed the ambient air quality standards in respect of noise as specified in the Schedule. The State Pollution Control Board is responsible for the enforcement of noise pollution control measures and the due compliance of the ambient air quality standards in respect of noise. The proposed project in its construction and operation phases may attract the provisions of these rules if the noise level from the construction machinery and the vehicles are above the standards.

#### **1.6. The Ancient Monuments and Archaeological Sites and Remains Act, 1958 and its Amendments**

According to this Act, area within the radii of 100m and from 100m to 300m from the "protected area" are designated as "prohibited area" and "regulated area" respectively. No development activity (including building, mining, excavating, blasting) is permitted in the "protected area" and development activities likely to damage the protected property are not permitted in the "regulated area" without prior permission of the Archaeological Survey of India (ASI) if the site/remains/ monuments are protected by ASI or the State Directorate of Archeology, if these are protected by the State. No Archaeologically protected monuments are present along the project road. Hence, provisions of the said act are not applicable for the project road.

#### **1.7. Fly Ash Notification, 2007**

The notification specifies the responsibility of highway agencies for use of fly ash for road construction, if any thermal power plant is located within 300 Km from it. Since, Mettur Thermal Power Plant is located within 300 Km from the proposed project corridor, provisions of the said notification is applicable for the project.

### **1.8. The Explosives Act (& Rules), 1884 (revised in 1983)**

This Act specifies regulations regarding the use of explosives and precautionary measures while blasting and quarrying. Provisions of these rules are applicable to this project.

### **1.9. Solid Waste Management Rules, 2016**

The Solid Waste Management (SWM) Rules, 2016 establish consistent regulation governing collection, segregation, transportation, and disposal of types of solid wastes throughout India. This rule is applicable for all kind of activities which generates solid waste except industrial waste, hazardous waste, hazardous chemicals, bio medical wastes, e-waste, lead acid batteries and radio-active waste, which are covered under separate rules framed under the Environment (Protection) Act, 1986. The SWM Rules seeks to minimize the burden of on landfills for the disposal of solid waste by adopting appropriate waste segregation and treatment technologies. Provisions of this rule is applicable for the project, as waste generation from labour camp and construction camp during construction phase is anticipated.

### **1.10. Construction and Demolition Waste Management Rules, 2016**

To manage Construction and Demolition waste (C&D waste) in more effective way, the central government has made this rule to improve the collection, segregation, recycling, treatment and disposal of C&D waste in an environmentally sound manner. It emphasis on the roles and accountability of waste generators and various stakeholders, give thrust to segregation, recovery, reuse, recycle at source, address in detail the management of C&D wastes. Since, the project envisages dismantling of existing structures, clearing of site & vegetation, etc., provisions of this rule is applicable for the project.

### **1.11. Hazardous & Other Wastes (Management and Transboundary Movement) Rules, 2016**

The Hazardous Wastes (Management, Handling and Trans boundary movement) Rules, 2008 and its subsequent amendments till 2016, were created to provide ‘cradle-to grave’ or comprehensive guidance to the generators, transporters and operators of disposal facilities among others, and monitoring norms for State governments. As per the provisions of Rules, every occupier handling, or recycler recycling, hazardous wastes including facility for collection, reception, treatment, transport, storage and disposal of such wastes is required to obtain authorization from concerned State Pollution Control Board (SPCB) / Pollution Control Committee (PCC) in UT for any of the said activities. Provisions of this act is applicable to this sub project, as hazardous waste is likely to generate and disposed during the construction activities.

### **1.12. E-Waste (Management) Rules, 2016**

These rules shall apply to every manufacturer, producer, consumer, bulk consumer, collection centres, dealers, e-retailer, refurbisher, dismantler and recycler involved in manufacture, sale, transfer, purchase, collection, storage and processing of e-waste or electrical and electronic equipment listed in Schedule I of this rule, including their components, consumables, parts and spares which make the product operational.

The project is likely to generate e-waste from the equipment and machineries used in construction activity. Hence the said rule are applicable for the subject project.

Workers engaged in dismantling and handling e-waste are to be issued with proper personal protective equipment (gloves, dust mask etc.) The recoverable items are to be sold only to authorized recyclers.

### **1.13. Plastic Waste Management Rules, 2016**

These rules more effectively give thrust on plastic waste minimization, source segregation, recycling, involving waste pickers, recyclers and waste processors in collection of plastic waste fraction either from households or any other source of its generation or intermediate material recovery facility and adopt polluter's pay principle for the sustainability of the waste management system. During construction and operation stages, plastic wastes will be generated in various forms such as plastic wastes in drains, waste generated from construction camp etc., Hence provision of this rules are applicable for the project.

### **1.14. Batteries (Management and Handling) Rules, 2001**

These rules shall apply to every manufacturer, importer, re-conditioner, assembler, dealer, recycler, auctioneer, consumer and bulk consumer involved in manufacture, processing, sale, purchase and use of batteries or components thereof. Establishing construction camp may attract these kind of activities and applicable for the subject project.

### **1.15. Policies of Ministry of Environment, Forests and Climate Change, Government of India**

#### **1.15.1. National Environmental Policy, 2006**

This policy intends to mainstream environmental concerns in all developmental activities. The policy stresses on conservation of critical environmental resources, intra-generational and inter-generational equity, efficiency in environmental resource use and adoption of a precautionary approach.

#### **1.15.2. Ground Water Recharge**

Groundwater recharging structures should be constructed along the road for ground water recharge. MoEF&CC insists this while issuing environmental clearance for road projects.

## **2. Environmental Requirements of the State**

### **2.1. Tamil Nadu Forest Act 1882 and Tamil Nadu Timber Transit Rules**

No person shall move timber notified as Schedule Timber under the Tamil Nadu Forest Act, 1882 into or from or within the State by land, water or air unless such timber is accompanied by a permit issued by the Tamil Nadu Forest Department. Black wood, Red Sanders, Rosewood, Sandalwood and Teakwood are trees notified as Schedule Timber under Tamil Nadu Forest Act, 1882. Since the project envisages cutting of non-schedule trees for widening of existing at-grade road, requires permit from respective District Collectors and forest department for cutting of trees and their transportation.

### **2.2. Tamil Nadu Highways Bill, 2000**

The Tamil Nadu Highways Bill, 2000 was introduced on 13.11.2000. Objective of the bill is stated as: "To provide for the declaration of certain highways to the State Highways, restriction of ribbon development along such highways, prevention and removal of encroachment thereon, construction, maintenance and development of highways and levy of betterment charge and for matters connected therewith or incidental thereto." It provides for a legal status to the assets and premises of the highways along with functions and powers with the highways authorities to protect and maintain them. It specifically empowers highways authority towards restriction of Ribbon development, acquisition of property, prevention and removal of encroachments, restriction of heavy traffic and also the road safety. Penalties can be levied under the provisions of the bill for causing damage to highways properties and unauthorized occupation of the highway land.

### **2.3. Tamil Nadu Groundwater (Development and Management) Act, 2003**

The Tamil Nadu legislature passed the Ground Water (Development and Management) Act and the Act came into force after receiving the assent of the President in March 2003. The Act is applicable to the whole State of Tamil Nadu except the Chennai Metropolitan Area which is governed by a separate Act.

“An Act to protect groundwater resources to provide safeguards against hazards of it’s over exploitation and to ensure its planned development and proper management in the State of Tamil Nadu and for matters connected therewith or incidental thereto”.

The act empowers the government through the Tamil Nadu Groundwater Authority to develop, control, regulate and administer the groundwater in the state by ensuring its optimal and efficient utilization. The act also provides for conjunctive use of surface and groundwater. The act also provides for registration of new users of wells and also prohibition of sinking wells in notified areas without permit. It empowers the authority penalize the activities not in accordance with the act regarded as offences.

### **2.4. Tamil Nadu Aquaculture (Regulation) Act, 1995**

The act is meant for regulation of coastal aquaculture in Tamil Nadu. It is administered through the Directorate of Fisheries at state level and District committee at the district level. The act provides for issue of licenses for setting up of any new aquaculture farm or expansion of the same. Aquaculture farms setup before the existence of the act is also to be registered with the District Committee setup for the purpose. The act prohibits setting up of aquaculture farms in areas (termed as prohibited area) as:

“Wetlands including biodiversity rich areas mangrove swamps, migratory bird routes, breeding grounds, sanctuaries, national parks, biosphere reserves designated as protected areas or areas committed to community conservation or prediction forestry, place of heritage or place of worship, grey or dark areas in the map prepared by the Public Work Department (Groundwater).”

Certain minimum distances as 300m for villages with population less than 500, 500m for villages with population more than 500 and 2 km from any place of heritage. A buffer zone of 50 to 100m is to be maintained between aquaculture zone and non-aquaculture zone in case of sea-based aquafarms and 25 to 50m, in case of estuarine based farms. No aquaculture farm is envisaged to extract ground water for culture purpose. The act empowers Directorate of Fisheries to penalize the offenders of provisions of the act by cancellation of licenses and/or levying of fines.

### **2.5. Tamil Nadu State Environment Policy (Draft), 2012**

The State environment policy will strive to look at the regulatory framework, its adequacy, awareness levels among the stakeholders, recent judicial pronouncements and participation of technical institutions/industries in furthering the cause of environment. The Thrust Areas: Key Issues and Major Interventions are as follows:

- Air Quality: local pollution hot spots and status of current actions
- Water Quality: domestic and industrial pollution flow into water bodies and status of various interventions.
- Pollution abatement in rivers, lakes and water bodies.
- Waste Management: Municipal Solid Waste and status of adherence to MSW 2000 rules; bio-medical waste; plastic waste; hazardous waste; electronic waste,



- Coastal Zone Management: Impact on coastal regulation zone of various economic activities; progress on integrated coastal zone management.

## **2.6. Tamil Nadu State Water Policy, 1994**


Tamil Nadu adopted a State Water Policy in 1994 along the lines of the National Water Policy of 1987. Subsequently, the National Water Policy was revised in 2002. Some of the major aspects of the policy are the following:

- Importance of water resources in the development of the State
- Need for basin wide planning for equitable water use
- Priorities for water use in the State
- Management and development of ground water resources
- Watershed management in rainfed areas
- Increase in demand for non-agricultural uses
- Management of water quality and environmental aspects.
- Need for a hydrological database for planning and management
- Stakeholder participation in management e.g water user associations
- Need for proper pricing of water in different sector

The apex institution in the State at the policy level is the Water Resources Control and Review Council chaired by the Chief Minister. The primary agency charged with implementation of the policy is the Water Resources Organisation. The Institute of Water Studies is the nodal agency responsible for water planning while the Irrigation Management Training Institute imparts training to farmers and officials. Domestic water supply (urban and rural) schemes are executed by the Tamil Nadu Water Supply and Drainage Board (TWAD) for the entire State except Chennai Metropolitan Area where Metro Water is the implementing agency. TWAD executes capital projects which are handed over to the concerned local bodies for operation and maintenance. Industrial water pollution is regulated by the Tamil Nadu Pollution Control Board. Management of water quality and environmental aspects of rivers and water bodies is being monitored and coordinated by the Department of Environment.

Annexure - 4

Environmental Clearance for CPRR (Entire Corridor)



**THIRU A.UDHAYAN,I.F.S**  
**MEMBER SECRETARY**

**STATE LEVEL ENVIRONMENT IMPACT  
ASSESSMENT AUTHORITY – TAMIL NADU**  
3rd Floor, Panagal Maaligai,  
No.1 Jeenis Road, Saidapet,  
Chennai-15.  
Phone No.044-24359973  
Fax No. 044-24359975

**ENVIRONMENTAL CLEARANCE (EC)**

**Letter No. SEIAA/TN/F. 6474/EC/ 7(f)/ 61 /2018 dated: 10.08.2018.**

To,

The Divisional Engineer (Highways),  
Highways Department,  
Construction and Maintenance,  
Chengalpattu – 603 001


Sir,


Sub: SEIAA, TN - Environmental Clearance - Proposed project of forming Chennai  
Peripheral road connecting Poonjeri junction in Mahabalipuram to Ennore Port  
(via) Singaperumalkoil – Sriperumbudur – Thiruvallur – Tamaraipakkam –  
Periyapalayam – Puduvoval and Kattupalli covering 79 villages of Tiruvallur &  
Kancheepuram District by M/s. Highways Department, Construction and  
Maintenance, Chengalpattu, Tamil Nadu – Category “B1” and Schedule S.No.  
7(f) Highways - Issued - Regarding.

Ref: 1) Your application dated: 24.11.2017.  
2) Letter No.SEIAA-TN/F.No. 6474/SEAC – CII/6(b)/ToR -305/2017  
dated: 05.03.2018  
3) Proponent EIA Report Submitted on 02.08.2018  
4) Minutes of the 118<sup>th</sup> SEAC meeting held on 03.08.2018  
5) Proponent reply dated 09.08.2018  
6) Minutes of the 119<sup>th</sup> SEAC meeting held on 09.08.2018  
7) Minutes of the 332<sup>th</sup> SEIAA meeting held on 10.08.2018.

\*\*\*\*\*

This has reference to your application 3<sup>rd</sup> cited, the proposal is for obtaining  
Environmental Clearance to establish a construction for forming Chennai Peripheral



  
**MEMBER SECRETARY  
SEIAA-TN**

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road connecting Poonjeri junction in Mahabalipuram to Ennore Port (via) Singaperumalkoil – Sriperumbudur – Thiruvallur – Tamaraipakkam – Periyapalayam – Puduvoyal and Kattupalli project under Category B1 and Schedule S.No. 7(f) Highways under the Environment Impact Assessment Notification, 2006, as amended.

The Competent Authority and Authorized signatory furnished detailed information in Form 1 and Form 1A and liquidate enclosures are as Annexures:

**Annexure 1**

<b>Project Details</b>		
1.	Name of the Project:	Proposed project of Forming Chennai Peripheral road connecting Poonjeri junction in Mahabalipuram to Ennore Port (via) Singaperumalkoil – Sriperumbudur – Thiruvallur – Tamaraipakkam – Periyapalayam – Puduvoyal and Kattupalli covering 79 villages of Tiruvallur & Kancheepuram District.
2.	Name of Sector: Schedule No(in the EIA Notification, 2006)	7(f) Highways
	Details of activity	<p>Out of a total length of alignment of 132.871 km, length of the existing alignment is 35.4km and the length of new alignment is 97.47 km.</p> <ul style="list-style-type: none"> <li>➤ Section 1: Northern Port Access Road - Ennore Port to Thatchur on NH-5 (24.60Km)</li> <li>➤ Section 2: Thatchur on NH-5 to Start of Thiruvallur Bypass (26.40Km)</li> <li>➤ Section 3: Start of Thiruvallur Bypass to Sriperumbudur on NH-4 (30.60Km)</li> <li>➤ Section 4: Sriperumbudur on NH-4 to Singaperumalkoil on NH-45 (23.80km)</li> <li>➤ Section 5: Singaperumalkoil on NH-45 to Mahabalipuram (27.471Km)</li> </ul>



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**Part- A- SPECIFIC CONDITIONS**

1. All mandatory clearances under the applicable law including the Forest Clearance under the Forest (Conservation) Act, 1980 shall be obtained and cutting of roadside trees notified as protected forest.
2. The project proponent has to obtain CRZ clearance from State Coastal Zone Management Authority and proponent should fulfill all the conditions imposed in the CRZ clearance. Only then the Environmental Clearance accorded for set project is valid. The proponent should furnish the copy of the CRZ clearance to submit to SEIAA for record.
3. All naturally and planted trees like Tamarind, Azhinjal, pongam, Banayan should be retained.
4. All the assurance made to SEAC regarding retention, transportation of trees should be strictly adhered, removal of trees should not open thick canopy resulting in ecological alteration of the site.
5. There shall be no trespass within the Reserved Forest and reserve land during preconstruction, construction and operation phase.
6. The development shall strictly be as per the provisions of CRZ Notification 2011 in the CRZ area. The project shall not affect the coastal ecology of the area including flora and fauna.
7. The EMP Cost shall be deposited in a nationalized bank by opening separate account and head wise expense statement shall be furnished to TNPCB with a copy to SEIAA annually.
8. The structures which are subjected to vibration resulting to damage/ removal shall be identified and shall be part of Resettlement & Rehabilitation.
9. There should be no threat to biodiversity, water bodies and Forests due to the road construction activities.
10. No agriculture activities should be disturbed during the construction phase and thereafter, affecting livelihood.
11. EMP monitoring team shall be established with qualified expertise right from the preconstruction to the operation phase.



  
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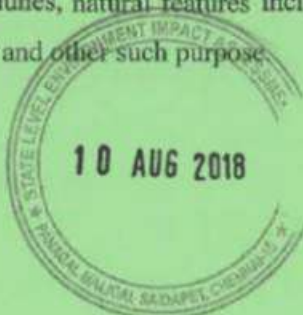
12. The construction should not disturb and impact the top soil and should not alter the chemical properties, physiology and Biological features of the soil.
13. The stream ecology of Kosasthalai river, River of Cooum, Buckingham canal, other canal systems and lakes should not be affected due to this project.
14. The construction activities and the usage in no way shall disturb the groundwater regimes and water flow patterns.
15. The water drawl for the construction and operation phase shall be from the water source ensuring adequate yield is available and with the required approval/consent from competent authority.
16. The construction activities in no way shall disturb the village social pattern, cultural systems and lifestyle patterns.
17. The construction activity should not in any way impact the ecology of Mannur forest, Sengundram Forest, Konthamangalam forest.
18. During the project phase, there should not be undue traffic, resulting in congestion and unnecessary diversion of traffic, impacting movement of villagers.
19. Common property resources (CPRs) should not way be disturbed due to the project activities and thereafter.
20. Baseline data of all major water bodies should be studied and tanks should be monitored to ensure the ecological productivity.
21. The construction activity and thereafter operations should not result in changes in the weather pattern, temperature rises and thereby leading to climate changes.
22. Every stage of the activity of the project should be informed to the Department of Forest, TNPCB, Department of Environment, Regional office of MoEF, Chennai and SEIAA – TN.
23. The Traffic movement and construction activity should not result in noise pollution disrupting/disturbing the wildlife and human existence in the area. The vehicles / machineries movement may be staggered wherever required.
24. The road construction in no way should impact the aesthetics of the natural landscape.
25. The green belt shall be developed with indigenous species and maintained for five years as committed.






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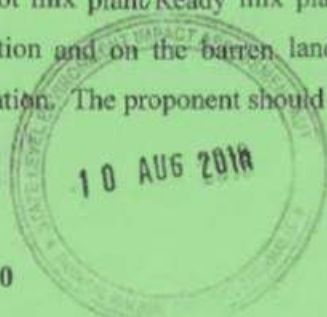
26. Wherever possible/required, bridges should be constructed to allow free movement/migration of wildlife.
27. The road should not result in man - wildlife conflicts/ animal kills due to speeding vehicles. Speed limits signage should be displayed in all the vital stretches, particularly in forest stretches and speed tracking devices shall be installed to monitor & ensure the safety speed limits.
28. Wherever possible and feasible, elevated road approach may be provided for free movement of animals, particularly nocturnal animals.
29. Adequate check posts shall be provided for monitoring safe use of the road.
30. Locations for stockyards for construction materials and labor camps shall be away from the CRZ. Movement of machinery, workforce shall be restricted around the water body and no waste from construction camps or sites shall be disposed into it.
31. Cut and fill works shall be carried out strictly in accordance with the design drawings.
32. The coastal stretches shall be protected with suitable protection measures from coastal erosion.
33. The effective barriers shall be provided along the eco-sensitive and vulnerable portions of the highway facing the sea with no habitation, and also to be protected from aesthetic and other forms of destruction.
34. The bridge elevation shall be decided based on highest flood level, analyzing Tsunami and storm surge.
35. Appropriate provisions through pipe/box culvert shall be provided to ensure free flow of tidal water. The size of opening shall be decided on the basis of the site conditions.
36. The proponent shall use the fly ash where ever possible for the proposed project to comply with the Fly Ash Notification, 1999, as amended.
37. The proponent shall have to carry out tree/mangrove plantation in consultation with Tamil Nadu Forest Department. There shall be no dressing or alteration of the sand dunes, natural features including landscape changes for beautification, recreation and other such purpose.




  
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38. There shall no ground water drawl within the CRZ areas.
39. Rehabilitation of project affected families shall be carried out as per the extant policy of the Central/ State Government, as provided under the law.
40. All entry / exit/ access points on this highway shall be appropriately designed and preferably frozen to avoid traffic congestion and pollution, defeating the very purpose of this expensive project.
41. Rain water harvesting including oil and grease trap shall be provided. Water harvesting structures shall be located at every 500m along the road. Vertical drain type rainwater harvesting structures shall be set up minimize surface runoff losses of rainwater.
42. IRC guidelines shall be followed for widening & up-gradation of road.
43. Green belt development shall be undertaken as suggested in EMP.
44. The seismic nature of the area shall be taken into account while designing the project.
45. The project proponent shall obtain necessary permission from the State Irrigation Department before drawing water from the river sources for the purpose of the proposed construction activity.
46. Longitudinal drains shall be provided all along the project road to ensure proper drainage of the area. In addition, adequate number of under passes and culverts to act as cross drainage structures shall also be provided.
47. The solid waste generated shall be used for rehabilitating the borrow areas.
48. For providing safety to the crossing animals and avoid road accidents speed breakers/rumbled strips shall be constructed at the identified locations of the animal movements. Enough hoardings and signage's shall also be put up for the public and vehicles convenience.
49. Proper signage shall be installed at appropriate locations for the convenience of the traffic movement.
50. The embankments/ slopes and the slopes left after cutting shall be provided with vegetative turning to avoid soil erosion.
51. The hot mix plant/Ready mix plant shall be located at least 500m away from habitation and on the barren land to avoid its adverse impact on the human population. The proponent should obtain consent from TNPCB for the same.




  
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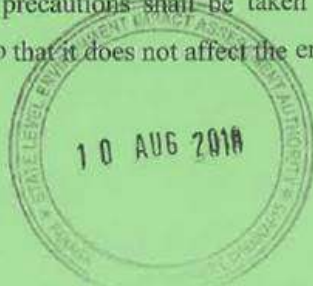
52. Noise barriers shall be provided at appropriate locations particularly in the areas where the alignment passes through inhabited areas so as to ensure that the noise levels do not exceed the prescribed standards.
53. For road safety, IRC guidelines in respect of road signages, service roads, bus bays, inter-sections, pedestrians crossings, etc. shall be strictly adhered to.
54. The responses/ commitments made to the issues raised during public hearing shall be complied with in letter and spirit. A hard copy of the action taken shall be submitted to the MoEF&CC.
55. A monitoring of the effectiveness of the pollution attenuating barriers shall be taken up after 5 years from the planting of roadside trees. The results, of the monitoring programme shall be conveyed to the concerned forest department/ State Pollution Control Board.
56. Permission from the various statutory authorities such as CRZ, TNPCB, Forest Dept., Dept. of Geology & mines, Petroleum and Explosives Safety Organization (PESO), labour, Agriculture, Archaeology Dept, etc should be obtained as applicable before the commencement of the project operation.
57. Environmental monitoring plan should be implemented scrupulously.
58. Road safety audit needs to be conducted with a view of improvising the safety and environmental aspects for the entire length of the road especially near the habitations.
59. Rehabilitation for the people for the loss of property and displacement needs to be implemented as per the recommendations of the Social Impact Assessment report.
60. Labour laws are to be followed during the construction period for the workmen deployed in the project, especially occupational safety and health aspects.
61. The Reserve Forests contain spontaneously grown trees of varying heights. Hence, necessary clearances shall be obtained from Central Empowered Committee before felling the spontaneously grown trees in the forest.
62. For the purpose of construction of proposed peripheral road, the road construction materials should be obtained only from the existing quarries with required environmental clearances.




  
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SEIAA-TN

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63. It is understood from the report that 450 structures are identified and likely to be affected with more than 1/3rd or fully affected during the census survey. It is also identified 73 CPRs (Church, temples, Government School, Government Building and a Police booth) are affected in the road stretch. The High ways department should have a re-look at their proposals and make efforts to eliminate or minimize adverse impact on such structures.
64. In sections 1 & 2 of the proposed road connecting Ennore port and Thiruvallur, the provision of service road at the junctions is not considered near the existing village roads connecting the proposed highway. Provision for service roads needs to be provided in other areas also including in the said section.
65. Solar lamps along the length of the proposed road shall be provided for the safety of the people.
66. The proponent should implement all Environment Management Measures listed in the EIA report.
67. The Project activity should not affect any water bodies such as streams, canals, lakes, ponds etc.
68. Ecological sensitive habitats like mangroves, protected and endangered species (Flora and Fauna) should not be affected.
69. The funds under the Corporate Environment Responsibility (CER), which works out to Rs. 28.82 Crores (0.25% of the Project cost – 11528 Crores) shall be utilized to address the concerns of the people as expressed during the public hearings. The amount should be deposited with District Collectors of Thiruvallur (Rs. 18.82 Crores) & Kanchipuram ( Rs. 10 Crores) to meet the above requirements
70. The EMP Cost shall be deposited in a nationalized bank by opening separate account and head wise expense statement shall be furnished to TNPCCB with a copy to SEIAA annually.
71. Appropriate measures must be taken while undertaking digging activities to avoid any likely degradation of water quality.
72. Adequate precautions shall be taken during transportation of the construction material so that it does not affect the environment adversely.



  
MEMBER SECRETARY  
SEIAA-TN



## Annexure - 5

### Coastal Regulatory Zone Clearance

**F.No.11-8/2019-IA-III**

Government of India

Ministry of Environment, Forest and Climate Change  
(IA.III Section)

Indira Paryavaran Bhawan,  
Jor Bagh Road, New Delhi-3  
Dated: 05<sup>th</sup> August, 2019

To,

The Divisional Engineer (H),  
Construction & Maintenance,  
Highways Department, Government of Tamil Nadu  
Chengalpattu - 603001

**Sub: CRZ Clearance for Development of peripheral road connecting Mahabalipuram to Ennore Port- via- Singaperumalkoil, Sriperumbudur, Thiruvallur, Thamarapakkam, Periyapalayam, Puduvoyal and Kattupalli - reg.**

Sir,

This has reference to your online proposal No. IA/TN/CRZ/87782/2018, received in this Ministry for CRZ Clearance of the above mentioned project, in accordance with the provisions of the Coastal Regulation Zone (CRZ) Notification, 2011 issued under the Environment (Protection) Act, 1986.

2. The proposal was considered by the Expert Appraisal Committee (EAC) for Infrastructure Development, Coastal Regulation Zone, Building/ Construction and Miscellaneous projects, in its meetings held on 21.05.2019 & 28.06.2019. The details of the project as per the documents submitted and presented during the aforesaid meetings are as under:

- (i) The Peripheral road will start at Ennore Port and ends Poonjeri in Mahabalipuram. The proposed road will connect four National Highways – NH-5, NH-205, NH-4 and NH-45 and eight State Highways – SH-51, SH-50A, SH-50, SH-48, SH-57, SH-49B (OMR) and SH-49 (ECR). Length of proposed peripheral road will be around 133.381 km which is split into 5 sections as under:
- Section 1: Northern Port Access Road – Ennore Port to Thatchur on NH-5 (24.60 km)
  - Section 2: Thachur on NH-5 to Start of Thiruvallur Bypass (26.40 km)
  - Section 3: Start of Thiruvallur Bypass to Sriperumbudur on NH-4 (30.60 km)
  - Section 4: Sriperumbudur on NH-4 to Singaperumalkoil on NH-45 (23.80 km)
  - Section 5: Singaperumalkoil on NH-45 to Mahabalipuram (27.471 km).

S.No.	Description	Section- 1	Section- 2	Section- 3	Section- 4	Section- 5
1.	Right of way (RoW)	100m	60m	60m	40-60m	50m
2.	Number of lanes in Main Carriageway	2 X 2-lane with paved shoulder	2 X 3-lane with paved shoulder	2 X 3-lane with paved shoulder	2 X 3-lane with paved shoulder	2 X 2-lane with paved shoulder
3	Central Median	4.00m	4.00m	4.00m	1.0m	4.00m

4.	Service Road	2 X 2-lane	2 X 2-lane	2 X 2-lane	2 X 2-lane	2 X 2-lane
5.	Footpath/Drain/Utility Corridor	2 X 2m & 2 X 3	2 X 3m	2 X 3m	2 X 2.5m	2 X 3m
6.	Width of Main Carriageway in Structures	2 X 12.5m	2 X 12.5m	2 X 12.5m	2 X 12.5m	2 X 12.5m

- (ii) *Section-1: Northern Port Access Road- Ennore Port to Thatchur on NH-5* along with the said chainage falls under Ponneri Taluk, Tiruvallur District. The North Port Access Road (NPAR) from norther gate of Ennore Port to thatchur on NH-5 (km 30/270) with connecting road to Tiruvottiyur-Ponneri-Panchetty (TPP) Road. The length of NPAR will be 21.12 km and TPP link road is 4.35 km.

- (a) Ennore- Thatchur Road:

S.No.	Chainage (km)	Classification
1	0+000 to 0+639.374	Between HTL of creek and 100 m setback line from HTL of creek
2	0+639.374 to 0+706	Between HTL of creek and 100 m setback line from HTL of creek
3	0+706 to 0+754	Creek water
4	0+754 to 0+782	Between HTL of creek and 100 m setback line from HTL of creek
5	0+782 to 1+051	Creek water
6	1+051 to 1+151	Between HTL of creek and 100 m setback line from HTL of creek
7	1+151 to 1+339	Non-CRZ
8	1+339 to 1+442	Between HTL of creek and 100 m setback line from HTL of creek
9	1+442 to 1+949	Salt Pan
10	1+949 to 2+427	Creek water
11	2+427 to 2+537	Between HTL of creek and 100 m setback line from HTL of creek
12	2+537 to 2+800	Non-CRZ

- (b) Kattupalli Ramp

S.No.	Chainage (km)	Classification
1	0+000 to 0+406.652	Between HTL of creek and 100 m setback line from HTL of creek
2	0+406.652 to 0+409.652	Non-CRZ

- (iii) The project road will cross two rivers viz. Cooum river and Kosathalai river, and a number of tanks, channels, nallahs, back water, Buckingham canal etc. Bridges are proposed for these waterway crossings. The project road requires diversion of forest land (10.23 Ha) in three reserve forests as follows: Mannur Reserve Forest (0.28 Ha); Thirutteri Reserve Forest (1.86 Ha); and Sengundram Reserve Forest (8.09 Ha).
- (iv) For widening of existing road and construction of underpass, about 0.28 Ha of forest land in Mannur RF needs to be diverted in Section-3 segment. For forming new road,



- about 9.95 Ha of forest land in Thirutteri RF and Sengundram RF needs to be diverted in Section-5 segment. Diversion of forest land are in progress.
- (v) The NPAR is start at Ennore Port and will cross Buckingham Canal which falls in CRZ area. Length of project road within CRZ area is about 2.762 km covering about 82.64 ha. A major bridge is proposed for crossing the CRZ area.
  - (vi) Total number of piers in CRZ area will be 151 piers in which 19 piers will be on the existing road along the bund of Buckingham canal.
  - (vii) The above proposed development in CRZ areas are at CRZ-1B (intertidal area), CRZ – I, CRZ III & CRZ-IV as per the CRZ Notification, 2011 and are permissible activities regulated under para 8(I), CRZ-I (ii) (g); 8(i) III CRZ-III A (j) & B (viii) of CRZ Notification, 2011.
  - (viii) There are 4797 trees falling within the project corridor of entire length of Chennai Peripheral Road. As suggested by SEAC, 2168 number of trees will be retained in the median, divider, footpath etc. and the remaining 2629 will be transplanted, dismantling of 802 buildings within proposed right of way is required.
  - (ix) The environmental clearance for this Chennai peripheral road project has been issued by SEIAA Tamil Nadu vide their letter No. SEIAA/TN/F.6474/EC/7(f)/61/2018, dated 10<sup>th</sup> August, 2018.
  - (x) While the total project cost is around Rs. 11528 Crores, which includes the land acquisition cost of Rs. 4855 Crores, the cost of the portion under CRZ areas will be Rs. 49 crores.
  - (xi) DCZMA-Thiruvallur has forwarded its recommendation vide letter No.DEE/TNPCB/GMP/DCZMA/2018 dated 05.07.2018 and TNCZMA has recommended the project for CRZ clearance vide its letter No. 19509/EC.3/2018-1 dated 14.11.2018.

3. Based on the recommendation of the Tamil Nadu Coastal Zone Management Authority issued vide its letter No. 19509/EC.3/2018-1, dated 14.11.2018 and information submitted as at para no. 2 above and information provided during the presentation before the Expert Appraisal Committee and others, the Ministry of Environment, Forest and Climate Change, in acceptance of the recommendation of the Expert Appraisal Committee (CRZ), hereby accords CRZ Clearance to the above project viz *'Development of peripheral road connecting Mahabalipuram to Ennore Port- via- Singaperumalkoil, Sriperumbudur, Thiruvallur, Thamarapakkam, Periyapalayam, Pudukkottai and Kattupalli*, under the provision of CRZ Notification, 2011 and amendments thereto and circulars issued thereon, and subject to compliance of the following specific and general conditions as under:

**PART A – SPECIFIC CONDITIONS:**

- (i) No excavated material during the construction shall be dumped in water bodies or adjacent areas. The site shall be restored to its near original condition after completion of construction of bridge.
- (ii) Temporary structures raised for construction activity shall be removed within one month of completion of construction activity.
- (iii) Mangrove afforestation shall be undertaken in consultation with the Forest Department.



- (iv) Any condition stipulated by TNCZMA vide its letter No. 19509/EC.3/2018-1 dated 14.11.2018 shall be complied with as may be applicable.
- (v) 0.25 % CER as per the Office Memorandum issued by the Ministry, dated 01.05.2018, on CER, for activities to be undertaken under CER shall be earmarked. A detailed plan of action contemplated for CER shall be submitted to the concerned agencies within six months of receipt of clearance letter.
- (vi) The CER amount to be spent exclusively for mangrove and marine biodiversity conservation and plan for the same to be submitted to the Ministry accordingly within three months.
- (vii) No groundwater shall be extracted to meet with the water requirements during the construction and/or operation phases.
- (viii) Flow of natural tidal water to mangroves should remain un-affected and thus adequate measures to be provided to maintain un-interrupted tidal water to mangroves.
- (ix) Construction camps (if any) shall be located outside the CRZ areas.
- (x) Solid wastes generated during execution of the proposed project shall be disposed of in accordance with the Solid Wastes Management Rules, 2016.
- (xi) Temporary toilets will be provided for all construction labour. Suitable toilet fixtures for water conservation shall be provided. Fixtures for showers, toilet flushing and drinking should be of low flow either by use of aerators or pressure reducing devices or sensor based control.
- (xii) Topsoil excavated during construction activities shall be stored for use in horticulture/landscape development etc. within the project site.
- (xiii) Water quality of all the creek should be monitored regularly to see the impact of construction and reclamation activities.
- (xiv) Construction materials and structures/scaffoldings erected for construction at site shall be cleared immediately after finishing construction and it shall be ensured that no construction waste, garbage and machinery or equipment are left post construction.

**PART B - GENERAL CONDITIONS:**

- (i) A copy of the clearance letter shall be uploaded on the website of the concerned State Coastal Zone Management Authority/ State Pollution Control Board. The Clearance letter shall also be displayed at the Regional Office, District Industries centre and Collector's Office/ Tehsildar's office for 30 days.
- (ii) A six-monthly monitoring report shall need to be submitted by the project proponent to the concerned regional Office of this Ministry regarding the implementation of the stipulated conditions.



- (iii) The Ministry of Environment, Forest & Climate Change or any other competent authority may stipulate any additional conditions or modify the existing ones, if necessary in the interest of environment and the same shall be complied with.
- (iv) Concealing factual data or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
- (v) The above stipulations would be enforced among others under the provisions of the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability (Insurance) Act, 1991, the EIA Notification, 2006 and the extant CRZ regulations.
- (vi) Full co-operation shall be extended to the officials from the Regional Office of MoEF&CC, during monitoring of implementation of environmental safeguards stipulated. It shall be ensured that documents/data sought pertinent is made available to the monitoring team. A complete set of all the documents submitted to MoEF&CC shall be forwarded to the concerned Regional Office of MoEF&CC.
- (vii) In the case of any change(s) in the scope of the project, the project would require a fresh appraisal by this Ministry.
- (viii) The Ministry reserves the right to add additional safeguard measures subsequently, if considered necessary, and to take action to ensure effective implementation of the suggested safeguard measures in a time bound and satisfactory manner, including revoking of the environment clearance under the provisions of the Environmental (Protection) Act, 1986, for non compliance.
- (ix) All other statutory clearances such as the approvals for storage of diesel from Chief Controller of Explosives, Fire Department, Civil Aviation Department, Forest Conservation Act, 1980 and Wildlife (Protection) Act, 1972 etc. shall be obtained, as applicable by project proponent from the respective competent authorities.
- (x) The project proponent should advertise in at least two local Newspapers widely circulated in the region, one of which shall be in the vernacular language informing that the project has been accorded CRZ Clearance and copies of clearance letters are available with the State Pollution Control Board (SPCB) and may also be seen on the website of the Ministry of Environment, Forest and Climate Change at <http://www.envfor.nic.in>. The advertisement should be made within Seven days from the date of receipt of the Clearance letter and a copy of the same should be forwarded to the concerned Regional Office of this Ministry.

4. This Clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs Union of India in Writ Petition (Civil) No.460 of 2004 as may be applicable to this project.

5. Any appeal against this clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.






6. A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zilla Parishad/Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal.
7. The proponent shall upload the status of compliance of the stipulated conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of MoEF&CC, the respective Zonal Office of CPCB and the SPCB.
8. The environmental statement for each financial year ending 31<sup>st</sup> March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of clearance conditions and shall also be sent to the respective Regional Office of the Ministry by e-mail.



(W. Bharat Singh)  
Director (CRZ)

Copy to:

1. The Principal Secretary, Environment & Forests Department (EC-3), Government of Tamil Nadu, Secretariat, Chennai - 600 009
2. The Chairman, Tamil Nadu Coastal Zone Management Authority, Environment & Forests Department (EC-3), Government of Tamil Nadu, Secretariat, Chennai - 600 009
3. The Member Secretary, Central Pollution Control Board, Parivesh Bhavan, CBD cum Office Complex, East Arjun Nagar, Delhi - 32
4. The Member Secretary, Tamil Nadu Pollution Control Board, No. 76, Anna Salai, Guindy Industrial Estate, Race View Colony, Guindy, Chennai - 600 032
5. The Member Secretary, Tamil Nadu Coastal Zone Management Authority, Department of Environment, No.1, Jeenu Road, Panagal Building, Ground Floor, Saidapet, Chennai - 600 015
6. The Additional Principal Chief Conservator of Forests (C), Ministry of Environment, Forest and Climate Change, Regional Office (SEZ), I and II Floor, Handloom Export Promotion Council, 34, Cathedral Garden Road, Nungambakkam, Chennai - 34
7. Guard File/ Record File/ Monitoring Cell.



(W. Bharat Singh)  
Director (CRZ)

## Annexure - 6

### Forest Clearance Application Form Submitted to Forest Department

#### FORM - 'A'.

Form for seeking prior approval under section 2 of the proposals  
by the State Governments and other authorities

#### PART-I

(To be filled up by user agency)

<b>1.</b>	<p><b>Project Details</b></p> <p>I. The Project is "Peripheral Road connecting Mahabalipuram to Ennore Port (via Thiruporur, Singaperumalkoil, Sriperumbudur, Thiruvallur, Chengalpattu, Thamaraiakkam, Periyapalayam, Pudukkottai and Kattupalli"</p> <p>Due to growing volume of traffic in and around the City, there is an immediate need for improvement of infrastructure facilities. Government of Tamil Nadu is in the process of identifying and implementing projects to bridge the huge gap in the demand and supply of infrastructure projects. One of the major projects included in <b>VISION 2023</b> is Chennai Peripheral Road.</p> <p>Government of Tamil Nadu desired to form Chennai Peripheral Road through Highways Department. Chennai Peripheral Road is conceptualized to provide better connectivity around the city catering future traffic requirements and provide efficient commercial transportation by enhancing port connectivity. The Proposed road will connect four National Highways-NH 45, NH 4, NH 205 and NH 5, and eight State Highways-SH 49(ECR), SH 49A (OMR), SH 49B, SH 48, SH 50, SH 50A and SH 51.</p> <p>The proposed Peripheral road will start at Ennore Port and ends at Poonjeri Junction (km 56/800 of ECR) in Mamallapuram. Length of proposed peripheral road will be around 133.381 km which is split into 5 sections.</p> <p><b><u>Section 1: Northern Port Access Road - Ennore Port to Thatchur on NH-5</u></b></p> <ul style="list-style-type: none"> <li>➤ The Section 1 covers, <ul style="list-style-type: none"> <li>✓ Northern Port Access Road from Ennore Port to km 29/000 of NH-5 near Thatchur - Length 20.90 km</li> <li>✓ A link road from NPAR to TPP Road - Length 4.21 km</li> </ul> </li> <li>➤ Length of the section is 25.11 km and is totally new formation</li> <li>➤ Configuration: 4-lane divided carriageway with 2-lane service road on both sides</li> <li>➤ Proposed RoW: 100m to accommodate future widening and pipe lines from Port to NH-5.</li> <li>➤ The project road passing through around 14 villages.</li> </ul>
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**Section 2: Thatchur on NH-5 to Start of Thiruvallur Bypass**

- The Section 2 is from km 29/000 of NH-5 near Thatchur to Start of Thiruvallur Bypass at km 50/500 of SH-57 near Othikkadu Village
- Length of the section is 26.40 km and is totally new formation
- Configuration: 6-lane plus paved shoulder carriageway with 2-lane service road on both sides
- Proposed RoW: 60m
- The project road passing through around 16 villages.

**Section 3: Start of Thiruvallur Bypass to Sriperumbudur on NH-4**

- The Section 3 is from Start of Thiruvallur Bypass to km 42/250 of NH-4 at Sriperumbudur
- Length of the section is 30.600 km in which 21.00 km new formation and 9.60 km improvement of existing SH-57 (km 26/600 to km 27/600 & km 30/300 to km 38/900)
- Configuration: 6-lane plus paved shoulder carriageway with 2-lane service road on both sides
- Proposed RoW: 60m
- Bypasses are proposed for Thiruvallur and Sriperumbudur towns and a realignment is proposed for Thodukkadu built-up area for a length of 2.85 km.
- The Thiruvallur bypass starts at km 50/500 of SH-57, crosses NH-205 at km 51/650 and SH-50 at km 16/900 and ends at km 38/900 of SH-57. Length of this bypass will be around 15.7 km.
- In order to avoid the built-up area of Sriperumbudur town, a new alignment is proposed along the Sriperumbudur tank bund from km 26/600 of SH-57 to km 42/250 of NH-4, for a length of 1.60 km

The project road passing through around 12 villages

**The Mannur Reserve Forest (RF) stretch is from Ch. 69+700 to Ch. 69+900 (existing km 31/840 to km 32/040) on left side of the project road (around 200m) and forest land to be diverted is around 0.28 Ha.**

**Section 4: Sriperumbudur on NH-4 to Singaperumalkoil on NH-45**

- The Section 4 is stretch of SH-57 from km 42/250 of NH-4 at Sriperumbudur to km 47/400 of NH-45 at Singaperumalkoil
- Length of the section is 23.800 km and is totally improvement of existing SH-57 (km 0/000 to km 23/800)
- Tamil Nadu Road Infrastructure Development Company Ltd., (TNRIDC) is

	<p>widening this stretch to 6-lane plus paved shoulder carriageway with 2-lane service road on both sides</p> <ul style="list-style-type: none"> <li>➤ Available RoW: 60m (40m in forest stretches)</li> <li>➤ Scope in Peripheral Road: Construction of nine VUPs and four LVUPs to improve the road safety, within the available land.</li> </ul> <p><b><u>Section 5: Singaperumalkoil on NH-45 to Mahabalipuram (27.471 km)</u></b></p> <ul style="list-style-type: none"> <li>➤ The Section 5 is from km 47/400 of NH-45 at Singaperumalkoil to Poonjeri junction at km 56/800 of ECR near Mahabalipuram</li> <li>➤ Length of the section is 27.471 km in which 25.471 km new formation and 2.00 km improvement of existing SH-49B (km 11/200 to km 13/200)</li> <li>➤ Configuration: 4-lane plus paved shoulder carriageway with 2-lane service road on both sides</li> <li>➤ Proposed RoW: 60m</li> <li>➤ The project road passing through around 24 villages.</li> </ul> <p><b>The Thirutteri Reserve Forest (RF) stretch is from Ch. 103+700 to Ch. 104+200 on both sides of the project road (around 500 m) and forest land to be diverted is around 2.56 Ha.</b></p> <p><b>The Sengundram Reserve Forest (RF) stretch is from Ch. 104+690 to Ch. 105+950 on both sides of the project road (around 1.26 km) and forest land to be diverted is around 7.39 Ha.</b></p> <p>The Project road is predominantly in new formation. It is proposed to improve around 35.4km length of existing roads i.e. around 2 km of SH- 49B and around 33.4 km of SH-57, as part of the project road.</p> <p>IRC guidelines are followed for formulating and designing the project. Interchanges are proposed for NH crossings - Cloverleaf interchange at NH-5, NH-205 and NH-4, and ROB with Elevated Roundabout at NH-45. Three ROBs proposed for Railway crossings. Major and Minor Bridges, and Cross Drainage Structures are proposed for Waterway crossings. Vehicular Underpasses and Pedestrian Underpasses are proposed at important junctions and built-up sections.</p>
	<p>II. Map showing the required forest land, boundary of adjoining forest on α1:50,000 scale map.</p> <p>Enclosed Separately</p>

5.	Undertaking to bear the cost of raising and maintenance of compensatory afforestation and/or penal compensatory afforestation as well as cost for protection and regeneration of Safety Zone, etc. as per the scheme prepared by the State Government.  Undertaking letter is enclosed.
6.	Details of Certificates/documents enclosed as required under the instructions <ul style="list-style-type: none"> <li>I. Forest Map in 1:50,000 Scale showing State Highway Stretch</li> <li>II. Alignment Plan</li> <li>III. Cost Benefit analysis</li> <li>IV. Undertaking to Para-5 of the form</li> </ul>

  
Signature

H. RAMESH

(Name in Block Letters)

Divisional Engineer  
HIGHWAYS (C & M)  
Chengalpattu.

Designation

Address (of User Agency)

Date: 16.02.2017

Place: CHENGALPATTU

State serial No. of proposal \_\_\_\_\_

(To be filled up by the Nodal Officer with date of receipt)



## Annexure - 7

### Entitlement Matrix

SNo	Impact Category	Entitlements		Implementation Guidelines
Section I. TITLE HOLDERS - Loss of Private Property				
1	Loss of Land (agricultural, homestead, commercial or otherwise)	a	Land will be acquired on payment of compensation as per RFCTLARR Act 2013.	Higher of (i) market value as per Indian Stamp Act, 1899 for the registration of sale deed or agreements to sell, in the area where land is situated; or (ii) average sale price for similar type of land, situated in the nearest village or nearest vicinity area, ascertained from the highest 50% of sale deeds of the preceding 3 years; or (iii) consented amount paid for PPPs or private companies <sup>17</sup> .  Plus 100% solatium and 12% interest from date of 15(2) notification to award.
		b	Agricultural land owners: (i) who are marginal farmers; and (ii) who become marginal farmers or landless due to the land acquisition for this project; will be entitled for Rs. 50,000/- as interim payment in lieu of annuity policy.	As and when GoTN issues rules regarding onetime/annuity payment towards economic rehabilitation, the difference, if any, will be paid to the affected land owner.
2	Loss of residential structure	a	<b>In addition to Compensation for land and Assistances listed above under S.No.1</b>  Cash compensation at PWD plinth area rates for structure without depreciation and with 100% solatium	For partly affected structures, the DP will have the option of claiming compensation for the entire structure, if the remaining portion is unviable.
		b	Right to salvage affected materials	
		c	One time assistance of Rs.25,000 to all households who lose a cattle shed	
		d	One time assistance of Rs.25,000 for each affected family of an artisan or self employed and who has to relocate.	

<sup>17</sup> Until GoTN notifies the rules indicating the multiplying factor for compensation, interim award will be made based on the minimum compensation as per RFCTLARR Act and the final award will be made at the earliest as soon as rules are notified arising out of the multiplying factor.

SNo	Impact Category	Entitlements		Implementation Guidelines
		e	An alternative house as per IAY specifications in rural areas and a constructed house/flat of minimum 50 sq.m. in urban areas or cash in lieu of house if opted (the cash in lieu of house will be Rs.70,000/- in line with Gol IAY standards in rural areas and Rs. 1,50,000 in case of urban areas), for those who do not have any homestead land and who have to relocate.	Stamp duty and registration charges will be borne in case of new houses or sites.  Patta will be issued in the name of the wife/women <sup>18</sup> of the household
		f	One time subsistence allowance of Rs.36,000/- for affected households who require to relocate due to the project	
		g	Shifting assistance of Rs.50,000/- for those who have to relocate	
		h	One time Resettlement Allowance of Rs.50,000/- for those who have to relocate	
3	Loss of Commercial structure		<b>In addition to Compensation for land and Assurances listed above under S.No.1</b>	
		a	Cash Compensation at PWD plinth area rates for structure without depreciation with 100% solatium	If the affected structure is not viable for continuing business, DP has the option to offer the entire structure for acquisition
		b	Right to salvage affected materials	
		c	One time grant of Rs.25,000/- for loss of trade/self employment for the business owner	If the business owner is different from the structure owner, the one time grant for loss of trade/self employment, will be paid to the business owner.
		d	One time subsistence allowance of Rs.36,000/- for affected households who require to relocate due to the project	
		e	Shifting assistance of Rs.50,000/- for those who have to relocate	
		f	One time Resettlement Allowance of Rs.50,000/- for those who have to relocate	
4	Impact to tenants (residential / commercial /agricultural)	4.1	<b>Residential</b>	
		a	1-month notice to vacate the rental premises	
		b	Rental allowance at Rs.3,000/- per month in rural areas and Rs.4,000/- per month in urban areas, for six months	
		c	Shifting assistance of Rs.10,000/-	

<sup>18</sup> In accordance with GO Ms.No.1763 of Revenue Department dated 19.11.1987



SNo	Impact Category	Entitlements		Implementation Guidelines
		4.2 a	Commercial 1-month notice to vacate the rental premises	
		b	Rental allowance at Rs.4,000/- per month in rural areas and Rs.6,000/- per month in urban areas, for six months	
		c	Shifting assistance of Rs.10,000/-	
		d	Commercial tenants will receive the one time grant of Rs.25,000/- for loss of trade/self employment provided under 3(c) above in lieu to the owner	
		4.3 a	<b>Agricultural Tenants</b> In case of agricultural tenants advance notice to harvest crops or compensation for lost crop at market value of the yield determined by the Agricultural Department	
5	Impact to trees, standing crops, other properties, perennial and non-perennial crops:	a	Three months (90 days) advance notification for the harvesting of standing crops (or) lump sum equal to the market value of the yield of the standing crop lost determined by the Agricultural Department	
b	Compensation for trees based on timber value at market price to be determined by the Forest Department for timber trees and for other trees (perennial trees) by the Horticultural Department with 100% solatium.			
c	Loss of other properties such as irrigation wells will be compensated at scheduled rates of Public Works Department (PWD) with 100% solatium.			
Section II. Additional Assistance for Women (Title and Non title holders)				
6	Loss of Land / house / shop	a	Reimbursement of stamp duty and registration charges, for purchase of property out of the compensation/R&R assistance in the name of women within 3-years from LA award/R&R award.	
Section III. NON TITLE HOLDERS - Impact to squatters / Encroachers				
7	Impact to Squatters	7.1 a	<b>Loss of House</b> Compensation at PWD plinth area rates without depreciation for structure	
		b	Right to salvage the affected	

SNo	Impact Category	Entitlements		Implementation Guidelines
			materials	
		c	House construction grant of Rs.70,000 for all those who have to relocate.  Additional house site grant of Rs.50,000 to those who do not have a house site,	
		d	One time subsistence allowance of Rs.18,000/-	
		e	Shifting assistance of Rs.10,000/-	
		7.2	Loss of shop	
		a	Compensation at PWD plinth area rates without depreciation for structure	
		b	Right to salvage the affected materials	
		c	One time rehabilitation grant of Rs.20,000 for reconstruction of affected shop	
		d	One time subsistence allowance of Rs.18,000/-	
		e	Shifting assistance of Rs.10,000/-	
		7.3	Cultivation	
		a	2-month notice to harvest standing crops or market value of compensation for standing crops	
8	Impact to Encroachers	8.1	Cultivation	Market value for the loss of standing crops will be decided by the Spl. DRO in consultation with the Agriculture or Horticulture Department.
		a	2-month notice to harvest standing crops or market value of compensation for standing crops, if notice is not given.	
		8.2	Structure	
		a	1-month notice to demolish the encroached structure	
		b	Compensation at PWD plinth area rates without depreciation for the affected portion of the structure	
<b>Section IV. Loss of Livelihood Opportunities</b>				
9	Loss of employment in non-agricultural activities or daily agricultural wages or other wage workers	a	Subsistence allowance equivalent to minimum agricultural wages for 3 months	Only agricultural labourers who are in fulltime / permanent employment of the land owner, or those affected full time employees of the business, will be eligible for this assistance. Seasonal agricultural labourers will not be entitled for this assistance.
<b>Section V. Impact to Vulnerable DPs</b>				
10	Vulnerable Households	a	Training for skill development. This assistance includes cost of training and financial assistance for travel/conveyance and food.	One adult member of the displaced household, whose livelihood is affected, will be entitled for skill development.  The LARRU with support from the

SNo	Impact Category	Entitlements		Implementation Guidelines
		b	One time assistance of Rs.5,000 for all those major impacted households	NGO will identify the number of eligible vulnerable displaced persons based on the 100% census of the displaced persons and will conduct training need assessment in consultations with the displaced persons so as to develop appropriate training programmes suitable to the skill and the region.  Suitable trainers or local resources will be identified by LARRU and NGO in consultation with local training institutes.
		c	Displaced vulnerable households will be linked to the government welfare schemes, if found eligible and not having availed the scheme benefit till date.	
Section V. Unforeseen Impacts				
Unforeseen impacts encountered during implementation will be addressed in accordance with the principles of this policy				



## Annexure - 8

## Public Consultation Meeting Organised by TNPCCB

Based on the EIA Notification 2006, TNSPCB held public consultations on the draft EIA report submitted by HMPD for all sections in Chengalpattu, Kancheepuram District on 10 July 2018, and at Thamaraiakkam in Thiruvallur District on 12 July 2018. The minutes of the meeting is given in the following table

## Public Consultation in Kanchipuram District

Sl.no	Name	Question/Suggestion	Reply
1	Mr. Sudhakar, Padur, OMR	Why is this road being planned?	This road is being constructed considering the growth of Chennai's economy and trade.
		I have my agricultural land at Manamadhi Village, will it get affected?	The land will be acquired only after paying the compensation as prescribed in the law.
2	Mr. Radhakrishnan, Sengundram Village	There is a government land available near my land. Is it possible to shift the alignment there?	A six-lane road has been planned. It is not possible to change the alignment at a particular point.
		Will I be compensated enough?	The land will be acquired only after paying the compensation as prescribed in the law.
3	Mr. Nagarajan, Sengadu, Kandanangalam	How will the compensation be fixed for the existing buildings?	Buildings will be valued and compensated as per the schedule of rates of PWD.
		Will I be compensated for the loss of trees in my plot?	Yes. The trees owned by the plot owner will be compensated.
4	Mr. Jayakumar, (Maya Appliances Pvt Limited) Sirukundram	There are 1,000 people working in my factory. Is it possible to change the alignment so that my factory is not disturbed?	A six-lane road has been planned. It is not possible to change the alignment at a particular point.
5	Mr. Seenivasan, Sengundram	There is a government land available near my land. Is it possible to shift the alignment there?	A six-lane road has been planned. It is not possible to change the alignment at a particular point.
6	Mr. Devarajan, Sriperambudur	In this place, nearly 400 houses will be affected. If this road is fully-designed as elevated, it will solve our problem.	Along the Sriperambudur Lake, a 2-km shore elevated bridge has been planned.
7	Mr. Babu, Sriperambudur	At Veerasami Pillai Street, 100 houses will be affected. If this road is fully-designed as elevated, it will solve our problem.	Along the Sriperambudur Lake, a 2-km shore elevated bridge has been planned.
8	Mr. Sudhakar, Padur, OMR	My land is grama Natham. Will I be compensated?	The land will be acquired only after paying the compensation as prescribed in the law.
		Where should I go to know the details of the project?	To know the details of the project, the HMPD Office may be approached.
9	Mr. Baskar, Thiruporur	My Patta land is getting affected due to this project. Is it	A six-lane road has been planned. It is not possible to change the alignment at a particular point.

Sl.no	Name	Question/Suggestion	Reply
		possible to change the alignment?	
10	Mr. Vetrimaran, Thiruporur, Manamadhi	Approximately 50 houses will get affected, so is it possible to change the alignment?	A six-lane road has been planned. It is not possible to change the alignment at a particular point.
11	Mr. Elumalai and Mrs. Suguna, Royal Silks	Will the government bare the charges of shifting the electric connection of my agricultural lands?	Matters regarding this issue will be decided later.
		How will I access my land that is on the other side of the road?	Road Over Bridges will be constructed at specific intervals to cross the road.

### Public Consultation in Thiruvallur District

Sl.no	Name	Question/Suggestion	Reply
1	Mr. Kannan, Pungamedu, Minjur	A link road has been planned through the residence; hence, the environment will get affected. Kindly change the alignment.	We already received this request of changing the alignment of the Link Road from the public. Hence, HMPD is finding an alternate alignment. Pollution will not happen.
2	Mr. Arumugam, Bharathi Nagar, Minjur	There is a lot of unauthorized settlement near the lake. Required action must be taken to vacate them.	Required action will be taken to vacate them.
3	Mr. Duraivasu, Puttur	Along the proposed corridor, there are few species like the green snake, monitor lizard, and rat snake. Also, there are ancient markings on stones - please work without disturbing them.	There are no ancient stone markings at the site. These endangered species and animals will not be affected.
4	Mr. Adhisheshan, Pungamedu, Minjur	Why has this road been planned as a 400-ft road? It is requested to change the alignment to shift to government lands.	Considering the growth of Chennai, this road has been planned and this road will be shortened to 150 ft when it is passing through the Minjur residential areas.
5	Mr. Sampath, Thamaraiyakkam	Without extending the existing roads, why is this new road being planned?	Extending the existing road will affect the existing residence and will damage the environment to a greater extent. Hence, a new road has been planned.
		Damaging the agricultural lands and cutting the existing trees are affecting the environment. How are you going to compensate for it?	We prepared plans to mitigate the environmental and social impacts.
6	Mr. Kannan, Athaiyakkavunur	We need clear information about the agricultural lands that are going to be affected.	To know the details of the project, you may approach the HMPD Office.
		I understand that small farmers getting affected by this project will get alternate land. But I want to know how will the water wells be compensated?	Land that is to be acquired and water bodies in these lands will be compensated as per the law.
7	Mr. Sadhisana Ramanujar Dasan	Why is this 5-km road being made? Is it possible to change the alignment?	This road will link the TPP and the NPAR roads. Due to this, the villages will be linked to the city. Also, considering the growth of



Sl.no	Name	Question/Suggestion	Reply
			Chennai's economy and trade, this road is being made. It is not possible to change the alignment.
8	Mr. Venugopal	Due to this project, our water sources and agricultural lands are getting affected. Is it possible to change the alignment?	A six-lane road has been planned. It is not possible to change the alignment at a particular point.
		It is kindly requested to share the details of the extent of land that will be acquired in detail.	To know the details of the project, you may approach the HMPD office.
9	Mr. Ramalingam, Natham Village, Ponneri	Due to this road at Natham Village, at survey no. 91 to 112, the existing borewells are getting affected. Hence, it is kindly requested to shift the alignment.	Care will be taken to avoid the borewell.
10	Mr. Kuppan, Punnampakkam	1) I need ten times compensation for the land. 2) Also, a government job must be given to one family member of the affected agriculturalist. 3) Also, we need an undertaking from the government saying that we will not acquire land nearby for any other purpose. 4) Acquire government land, not the lands that are used for agriculture. 5) Also, provide compensation before acquiring the land.	The land will be acquired only after paying the compensation as prescribed in the law. The compensation will be paid as per prescribed rules and laws.
11	Mr. Elangovan, Putlur	In my village, there are more government lands (55 acres) than agricultural lands. Why not shift the alignment there?	A six-lane road has been planned. It is not possible to change the alignment at a particular point.
		When are you acquiring my land, and will you provide an equivalent government land in exchange?	The land will be acquired only after paying the compensation as prescribed in the law. The compensation will be paid as per prescribed rules and law.
12	Mr. Sasikumar, Minjur	Where should I go to know the details of the project?	To know the details of the project, you may approach the HMPD Office.
13	Mr. Sureshkumar, Vishnuvakkam	There is a lot of government land available near my land. Instead of choosing that, why is our private land being targeted?	A six-lane road has been planned. It is not possible to change the alignment at a particular point.
		What is the compensation for our livelihood?	Care will be taken so that livelihood is not lost.
		Where should I go to know the details of the project?	To know the details of the project, you may approach the HMPD office.
14	Mr. Devendran, Punnambakkam	Environmental and social impacts are affecting us. Kindly change the alignment.	A six-lane road has been planned. It is not possible to change the alignment at a particular point.
15	Mr. Palani, Ammanambakkam	Will this project be made without affecting agriculture and our jobs?	This project will be executed without affecting the agriculture and job opportunities.
		Instead of the Revenue Department paying us the compensation as cash,	For the land that is being acquired, compensation will be made as per prescribed rules and laws.

Sl.no	Name	Question/Suggestion	Reply
		can we get alternate land or jobs as compensation?	
16	Mr. Vivekanandhan, Nandhiyambakkam Village	There is a government land available near my land. Is it possible to shift the alignment there?	A six-lane road has been planned. It is not possible to change the alignment at a particular point.
		Where should I go to know the details of the project?	To know the details of the project, you may approach the HMPD Office.
17	Mrs. Sujatha, Pungambedu	There is a government land available near my land. Is it possible to shift the alignment there?	We have already received this request of changing the alignment of the Link Road from the public. Hence, HMPD is finding an alternate alignment.
18	Mr. Jayakumar, Putlur	Please give details on the extent of lands that will be acquired.	To know the details of the project, you may approach the HMPD Office.
		What is the compensation for loss of our livelihood?	This road will be made without affecting the livelihood.
		Please give us the compensation details.	To know the details of the project, you may approach HMPD Office.
19	Mr. Gunashekaran, Eranavakkam	There is a lot of government land available near my land. Instead of choosing that, why is our private land being targeted?	A six-lane road has been planned. It is not possible to change the alignment at a particular point.
20	Mrs. Kesavammal, Pungambedu	There will be more environmental impact, and our livelihood will get affected. Hence, alternate alignment is requested.	We have already received this request of changing the alignment of the Link road from the public. Hence, HMPD is finding an alternate alignment. Care will be taken so that environmental and social impacts are reduced.
21	Mr. Gokulraj-NGO	There will be more environmental impact, and our livelihood will get affected. Hence, alternate alignment is requested.	Care will be taken so that environmental and social impacts are reduced.
22	Mr. Vijayaragavan	Without extending the existing roads, why is this new road been planned?	Extending the existing road will affect the existing residence and will damage the environment to a greater extent. Hence, a new road has been planned.

Source : [http://www.environmentclearance.nic.in/writereaddata/FormB/EC/Public\\_Hearing/20072018CDTZ15DIAnnexure\\_DocumentofPublicHearing.pdf](http://www.environmentclearance.nic.in/writereaddata/FormB/EC/Public_Hearing/20072018CDTZ15DIAnnexure_DocumentofPublicHearing.pdf)



Annexure - 9

Forest clearance for Section 4 (including tree cutting permission)

<b>TAMIL NADU FOREST DEPARTMENT</b>	
From	To
Thiru. K. Soundarapandian, I.F.S., District Forest Officer, Chengalpattu Forest Division, 5.9 Varadharaja Pannai, Vandavasi Road, Kancheepuram.	✓ The Executive Director, Tamilnadu Road Infrastructure Development Corporation, 4 <sup>th</sup> Floor, LLA Building, 735, Annasalai, Chennai - 2.
Ref.D/7326/11 Dt.28.06.2013	
Sir,	
R. I. D. C	Sub: Forests - Kancheepuram District - Oragadam Industrial Corridor Project widening of - Vandalur - Walajabad Road k.m.30/4 - 63/8 and Singaperumal Koil - Sriperumbudur Road k.m.0/0- 24/6 - Diversion of Forest Land under section 2 of the Forests Conservation Act 1980 in Appur and Vattampakkam Reserved Forests - Stage 1 approval accorded by Government of India - payment of NPV and CA - Regarding.
Ref:	1.Chief Conservator of Forests, (Central) Government of India, Ministry of Environment and Forests, Region Office, Southern Zone, Bangalore- 54 No.F.No.4-TNC932/2013-BAN/E&F/3 dated. 21.5.2013.  2. Chief Conservator of Forests, (Central) Government of India, Ministry of Environment and Forests, Region Office, Southern Zone, Bangalore- 54 No.F.No.4-TNC932/2013-BAN/E&F/2 dated. 21.5.2013.
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In the references cited Government of India, Ministry of E&F, Southern Region, as conveyed Central Governments in Principle (Stage-1) approval under section -2 of the FC Act 1980 for Diversion of 13.69 hec. of Forest Land in Appur and Vattampakkam RF for widening Singaperumal Koil - Sriperumbudur Road and 7.12 hec. of Forests Land in Vattampakkam RF for widening Vandalur - Walajabad Road of Tambaram Range for a period of 20 years subject to the conditions stipulated in the Government of India letters 1 <sup>st</sup> and 2 <sup>nd</sup> cited above.	

Under condition No.2 regarding demarcation of the common boundary of the proposed Forest area and remaining area of the Vattampakkam RF has to be carried out by erecting cement concrete pillars at an interval of 20 metres at the cost of User Agency.

Under condition No.3 the Non-forest land over an area of 27.38 hec. and 14.24 hec. identified in S.No.341/9 and 341/09 of Zamin Pallavaram Village of Alandur Taluk for compensatory Afforestation should be transferred and mutated in favour of Forest Department.

Regarding payment of NPV, CA, Tree value maintenance of CA plantations, Chainlink fencing, ten times of Tree planting, etc. for both the roads the above to be remitted is furnished below.

Section 4

a) Singaperumal Koil - Sriperumbudur Road

1	NPV 13.69x4,38,000/Ha.	59,96,220 ✓
2	Tree Value	27,63,558
3	CA 27.38x1,73,000/Ha	47,36,740 ✓
4	Maintenance of CA plantations 27.38x7000x5	9,58,300 ✓
5	Fencing with Chainlink for CA Land 1413mtx1690Rmt	23,87,970 ✓
6	Ten times of Tree planting as for Hon'ble High Court Order 1286No.x10xRs.1410 each	52,72,600
		2,21,15,388 (or) 2,21,15,400

b) Vandalur - Walajabad Road

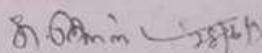
	NPV 7.12x4,38,000/Ha.	31,18,560 ✓
	Tree Value	18,12,825
	CA 14.24x1,73,000/Ha	24,63,520 ✓
	Maintenance of CA plantations 14.24x7000x5	4,98,400 ✓
	Fencing with Chainlink for CA Land 1414mt. x 1690Rmt	23,89,660 ✓
	Ten times of Tree planting as for Hon'ble High Court Order 482No.x10xRs.1410 each	19,76,200
		1,22,59,165

I request you to make necessary payments as noted above. The payment may be deposited either in SB A/c.No. SBo.1025227 CAF Tamil Nadu, Corporation Bank, CGO Complex, Lodi Road, New Delhi - 110 003 (RTGS/IFSC No.CORP 000037) or in SB A/c. No.344902010105 433-Tamilnadu CAMPA, Union Bank of India, Sundar Nagar, New Delhi - 110 003 (RTGS/IFSC No.V13I 0534498). In this regard kind attention is invited to condition No.7 of Govt. of India, wherein it has been requested to furnish the details of deposition of Funds like DD.No. Amount, Bank in which drawn & deposited etc.

Under condition No.8 it has been requested to furnish an undertaking that Avenue plantation shall be taken up on both sides of the road at the cost of user agency. I therefore, request you to ~~the~~ furnish this undertaking urgently so as to send a compliance report to the Government of India early.

I request early compliance.

Yours faithfully,

  
District Forest Officer,

Copy submitted to the Principal Chief Conservator of Forests, (TS3/50783 & 50784/2013)

Copy submitted to Conservator of Forests, Chennai (Ref.No.D/5727/12)

Copy to Forest Range Officer, Tambaram.

Copy to file No.D/7327/11