भारतीय राष्ट्रीय राजमार्ग प्राधिकरण
(पोत परिवहन, सड़क परिवहन और राजमार्ग मंत्रालय)
National Highways Authority of India
(Ministry of Shipping, Road Transport and Highways)
जी-5 एवं 6, सेक्टर-10, द्वारका, नई दिल्ली-110 075
G-5 & 6, Sector-10, Dwarka, New Delhi-110075

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फैक्स / Fax : 91-11-25093507 / 25093514
एक्स. / Extn. 2223 / 2318 / 2468 / 2553

संदर्भ सं.1013/1/2k/Env./ 653

सी. आर. अनुभाग द्वारा प्राप्त किया
Received by CR Section
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
Ministry of Environment, Forests & Climate Change
भारत सरकार/Govt. of India
इन्दिरा पर्यावरण भवन/Indira Paryavaran Bhawan
जोरबाग रोड,अलीगंज/Jorbagh Road, Aliganj
नई दिल्ली/New Delhi-110003

दिनांक: 09.08.2018

The Director, IA-III (Infra-1)
वन, पर्यावरण एवं जलवायु परिवर्तन मंत्रालय,
इंदिरा पर्यावरण भवन, अलीगंज,
जोर बाग मार्ग, नई दिल्ली – 110 003

विषय: Satellite Town Ring Road (STRR) Phase-II in Bengaluru from Km 82.200 to Km 138.000 of newly declared National Highway NH-948A under Bharatmala Pariyojana in the State of Karnataka. **(F. No. 10-34/2018-IA.III)- Phase-II**

महोदय,

The above-mentioned project was considered by EAC during its 191st meeting held on 25.06.2018. EAC deferred the project due to highly sensitivity of the area from ecologically point of view and decided for site visit by the sub-committee. Copy of Minutes enclosed.

Accordingly, sub-committee was constituted by the EAC for site visit. The visit was carried out by the committee on 23rd and 24th July, 2018. During the site visit, the ecology sensitivity of Thalli Reserved Forest was discussed.

It is, therefore, proposed that project length of Phase-II is likely to be increased by 2-kms and the length be decreased by 2-kms in Phase-III, to exclude the proposed project of Phase-III from the purview of eco-sensitive zone of Thalli Reserved Forest as it is extended part of Cauvery North Wildlife Sanctuary. Hence, the revised chainage of Phase-II is Ch. 82+200 to Ch. 140+000 (Increase in length by 2 km) i.e. length of the project will be 57.8 Kms instead of earlier proposed length of 55.8 kms. Form-I, Project Brief, Check-list, KML File are modified and uploaded in the portal The hard copy will be submitted after acceptance of the same by MoEF&CC.

It is, therefore, requested to grant approval on the proposed amended TOR at the earliest so that NHAI may submit forest/wildlife proposal for forest, SBWL and NBWL clearance.

धन्यवाद,

भवदीय,
बी. मुखोपाध्याय
बी. मुखोपाध्याय
महाप्रबंधक(पर्यावरण)-II

संलग्नक – यथोपरि

Satellite Town Ring Road (STRR) - Phase-II

Development of Satellite Town Ring Road (STRR) Phase-II newly declared National Highway NH-948A from Ramanagara to Peddamadhagondapalli (km 82.200 to km 140.000) 57.80 km in district Ramanagara and Bangalore Urban in Karnataka and District Krishnagiri in Tamil Nadu by M/s National Highways Authority of India.

SALIENT FEATURES

- The Satellite Town Ring Road (STRR) of Bangalore (Newly declared NH 948A) is proposed 6 lane highway having a total length of 179.969 Km in the states Karnataka and Tamil Nadu. The Project will be taken in 3 Phases viz,

  Phase-I (From Ch. 0+00 to Ch. 82+200) in the state of Karnataka.

  Phase-II (From Ch. 82+200 to Ch. 140+000), in the state of Karnataka and Tamil Nadu.

  Phase-III (From Ch. 140+000 to Ch. 179+969) in the state of Tamil Nadu.

- This application is for the proposed Phase-II of STRR, which starts at Ch. 82+200 at Cross point of SH-3-(Km 52.700) near Kailancha Village in Ramanagara taluk in Ramanagara district (Karnataka) and ends at Ch. 140+000 in Peddamadhagondapalli of Krishnagiri District near Karnataka/TN Border.

- The Land use pattern within 10 km on either side of project area is predominantly agricultural followed by forests and barren area. The proposed road traverses approx. 4.684 Km through Bannerghatta National Park (BNP). An elevated corridor is proposed through Bannerghatta National Park. Viaduct section would start from Design Ch. 113+350 to Ch. 119+980 (Total length - 6.63 km). The proposed road also falling in 10Km ESZ of Bannerghatta National Park and Cauvery North Wildlife Sanctuary.

- There are 16 Major Settlements along the alignment, namely, Chikkenahalli, Anajawadi, Chikka Madhawadi, Alisab Doddi, Aralalusandra, Varager Halli, Chathra, Dodda, Maralawadi, Banavasi, T. Maniyambal, Indalavadi, Thimmasandra, Vanakanahalli, Menasiganahalli, Muttur.

- The proposed right of way for the Greenfield alignment is considered as 70m throughout the corridor however, the proposed ROW is considered as 28.5 m in Bannerghatta National Park.

- The Original STRR of the Govt. of Karnataka was taken and modified by NHAI under Bharatmala Program, which was concurred by State Govt. of Karnataka vide their letter no. *PWD 518 CNH 2017 dated 27.10.2017* and Govt. of Tamil Nadu vide their letter no. *14787/HV1/2017-2, dated 24.01.2018*

- The proposed land acquisition for the alignment is approx. 503.84 ha

- The proposed road will have 2 nos. of Major Bridges, 6 nos. of Minor Bridges, 104 nos. of Culverts, 14 nos. of Vehicular Underpasses, 3 nos. of Interchanges.

- Safety measures shall be provided as per NHAI Safety Manual and IRC: SP 88, IRC: SP: 55 and MoRTH guidelines in this regard.

- The details of water body around the proposed project is as follows: River Akravati crossing at Ch.90+280 and River Suvarnamukhi crossing at 92+980. Dry stream crossing at design Chainage (Ch.90+300), Canal at (Ch.105+150), Canal at (Ch. 105+400), Canal at (Ch.105+700), Canal at (Ch.106+200), Canal at (Ch.106+400), Nalla dry at (Ch.107+800), Nalla dry at (Ch.118+300)

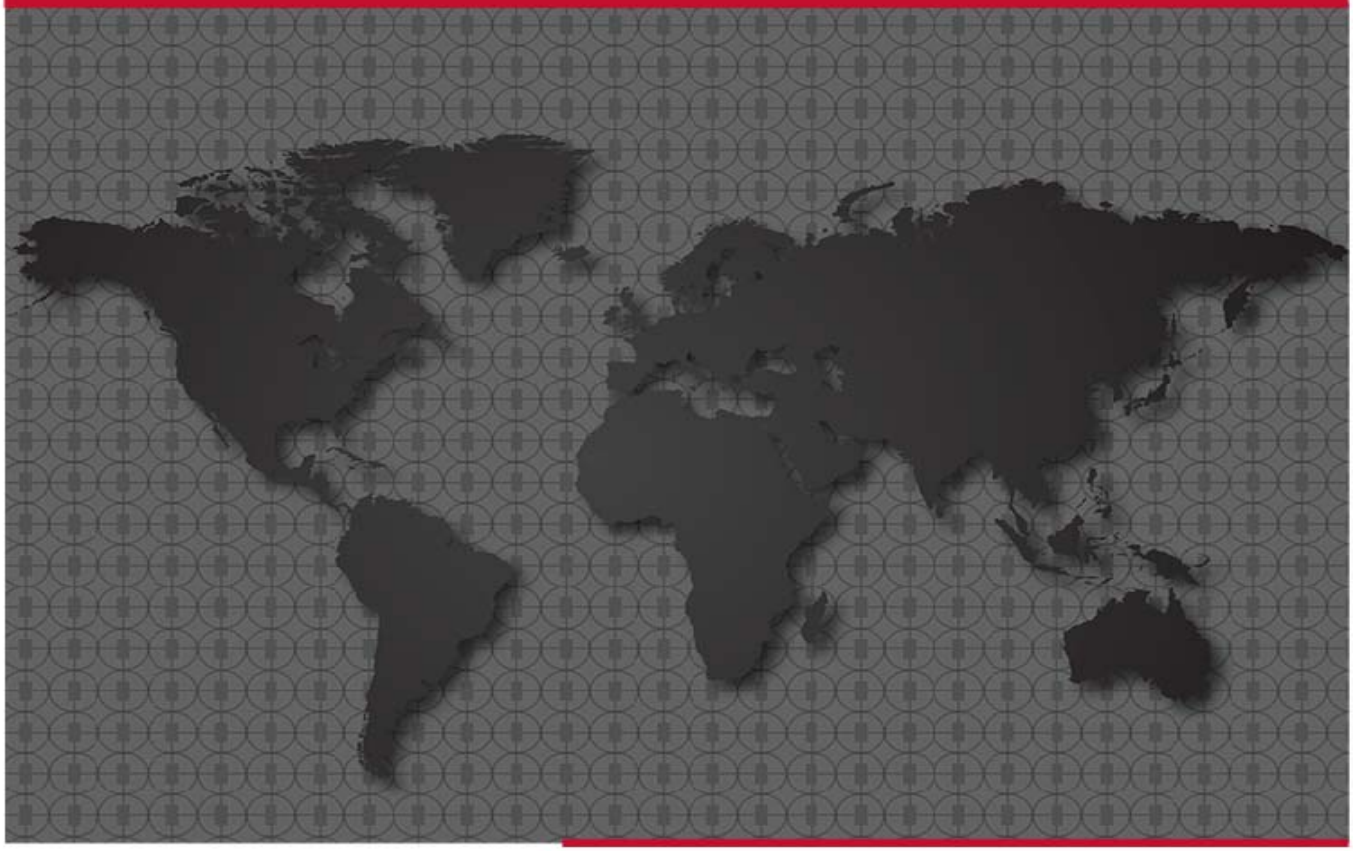
- As per initial assessment, it is anticipated that on an average about 150 to 200 trees are likely to be affected per km. The detailed assessment of actual trees to be affected (tree inventories) on the finalized alignment will be undertaken during detailed EIA Study and the preparation of Forest Clearance proposals as per FC (Act) 1980, and the subsequent amendments thereafter.

- Efforts will be made to minimize the trees loss by restricting tree cutting within formation width. Avenue plantation shall be carried out as per IRC SP: 21:2009 on available ROW apart from

statutory requirements.

- Materials requirement are aggregate (18.46 Lakh Cum), Bitumen (0.30 Lakh Ton.), Earth (84.85 Lakh Cum.) Sand (6.31 Lakh Cum), Steel (0.57 Tonnes), and Cement (1.56 Lakh ton).
- Fly ash will be used in the project depending upon their availability as per existing fly as notification.
- The total requirement of water for construction is estimated to 170 KLD for 2 years.
- The total estimated cost of the project is INR.1764 Crores (Approx.)

Louis Berger



APPLICATION FOR PRIOR ENVIRONMENTAL CLEARANCE

UNDER ENVIRONMENT (PROTECTION) ACT, 1986

August- 2018

louisberger.com

Form-I
&
Approved Terms of Reference (TOR)
As per EIA Notification 2006 and its amendment thereafter

DPR for Development of Economic Corridors, Inter Corridors, Feeder Routes to improve the efficiency of freight movement in India
Under
Bharatmala Pariyojana - Lot 3/ Andhra Pradesh, Karnataka, Goa & Kerala /Package 1

(**Name of Corridor:** Satellite Town Ring Road (STRR)
From Design Ch. 82+200 to Ch. 140+000)

APPENDIX I
(See paragraph – 6)
FORM I

I. Basic information

S.No.	Item	Details
1.	Name of the Project/s	Consultancy Services for preparation of DPR for Development of Economic Corridors, Inner Corridors, Feeder Routes and Coastal Roads to Improve the Efficiency of Freight Movement in India - Lot 3/Andhra Pradesh, Karnataka, Goa & Kerala /Package 1 The Satellite Town Ring road (STRR) of Bangalore (New National Highway- NH 948A) is having a total length of 179+969 Km. The Project will be taken in 3 Phases: - Phase-I: From Ch. 0+00 to Ch. 82+200 - Phase-II: From Ch. 82+200 to Ch. 140+000 - Phase-III: From Ch. 140+000 to Ch. 179+969 This application is for Phase-II of project, which starts from Ch. 82+200 at Cross point of existing SH-3-Km 52.700 near Kailancha Village in Ramanagara district (Karnataka) and end at Ch. 140+000 in Denkanikottai taluk of Krishnagiri District (near KNT/TN Border).
2.	S No. in the Schedule	7(f)
3.	Proposed Capacity/ Area/Length/ Tonnage/ to be handled/ Command Area/Lease Area/ Number of Wells to be Drilled.	Length: 57.80 Km
4.	New /Expansion/Modification	New Greenfield alignment
5.	Existing Capacity /Area, etc.	NA
6.	Category of Project i.e. 'A' or 'B'	"A"
7.	Does It Attract the General Condition? If yes please specify	Yes, The proposed road is falling within the Bannerghatta National Park (BNP) and ESZ of BNP and Cauvery North Wildlife Sanctuary, Protected areas notified under the wildlife (Protection) Act, 1972.

S.No.	Item	Details
8.	Does It Attract the Specific Condition? If yes please specify	No
9.	Location	The proposed road starts from Ch. 82+200 (Crossing at SH-3 at its Existing Ch. 52+700) near at Kailancha village at Ramanagara Taluk in Ramanagara district and end at Ch. 140+000 at Karnataka/TN Border. (Project Map enclosed as Annexure-I).
	Plot/Survey/Khasra No	The proposed project is a linear greenfield alignment. The information regarding the Land shall be obtained during the LA Processes.
	Village	Project Passes through 36 villages. List of villages is enclosed under as Annexure-II
	Tehsil	Total 2 Tehsils i. Kankapura Tehsil (Karnataka) ii. Anekal Tehsil (Karnataka) iii. Denakanikottai Tehsil (Tamil Nadu)
	District	3 Districts Karnataka i. Ramanagara ii. Bangalore Urban Tamil Nadu iii. Krishnagiri
	State	Karnataka and Tamil Nadu
10.	Nearest Railway Station / Airport along with distance in Kms	Major Railway Station: Anekal Railway Station (approx. 6Km) Airport: Hosur Aerodrom (approx. 7 Km)
11.	Nearest Town, City, District Headquarters along with Distance in Kms	Some of the nearest towns are i. Kanakapura town (13 Km) ii. Anekal town (3 Km) iii. Hosur (8 Km)
12.	Village Panchayats, Zilla Parisad, Municipal Corporation. Local Bodies (Complete Address with Phone Numbers to be given)	The proposed road is passing through Kankapura Tehsil and Anekal Tehsil in Karnataka and Denakanikottai Tehsil in Tamil Nadu

S.No.	Item	Details
13.	Name of the Applicant	Dr. B. Mukhopadhay, GM (Environment)-II
14.	Registered Address	National Highways Authority of India G 5 & 6, Sector-10, Dwarka, New Delhi - 110 075 Phone: 91-011-25074100 & 25074200 Fax : 91-011-25093543
15.	Address of Correspondence	
	Name	Dr. B. Mukhopadhay
	Designation (Owner/Partner/CEO)	General Manager (Environment)-II
	Address	National Highways Authority of India G 5 & 6, Sector-10, Dwarka, New Delhi - 110 075
	Pin Code	110075
	Email	biswajit@nhai.org
	Telephone No.	91-011-25074100 & 25074200
	Fax No.	Fax : 91-011-25093543
16.	Details of Alternative Site Examined. If any location of these sites should be shown on a toposheet.	Yes, the alignment report enclosed herewith (Annexure-III)
17.	Interlinked Projects	No
18.	Whether Separate Application of interlinked project has been submitted?	N/A
19.	If Yes date of submission	-
20.	If no reason	
21.	Whether the proposal involves approval /clearance under: if yes, details of the same and their status to be given.	
	(a) The Forest (Conservation) Act 1980?	Yes
	(b) Wildlife (Protection) Act 1972?	Yes

S.No.	Item	Details
	(c) The CRZ Notification, 1991?	No
22.	Whether there is any Government Order/Policy relevant/relating to site?	No
23.	Forest Land Involved (Hectare)	Approx. 13.35 ha. (This will be examined during the detailed study)
24.	Whether there is any litigation pending against the project and /or land, which the project is, propose to be set up?	No
	(a) Name of the Court?	N/A
	(b) Case No.	N/A
	(c) Order/directions of the Courts, if any and its relevance with the proposed project	N/A

"I hereby given undertaking that the data and information given in the application and enclosures are true to the best of my knowledge and belief and I am aware that if any part of the data and information submitted is found to be false or misleading at any stage, the project will be rejected and clearance given, if any to the project will be revoked at our risk and cost."

Date: 21.08.2018

Place: New Delhi

बी. मुखोपाध्याय.

Dr. B. Mukhopadhay,
General Manager (Environment)-II
National Highways Authority of India

(II) Activity

1. Construction, operation or decommissioning of the project involving actions, which will cause physical changes in the locality (topography, land use, changes in water bodies, etc.)

S. No.	Information/ Checklist confirmation	Yes/ No	Details thereof (with approximate quantities/ rates, wherever possible) with source of information
1.1	Permanent or temporary change in land use, land cover or topography including increase in intensity of land use (with respect to local land use plan)	Yes	Permanent change in the land use due to proposed new national highway project is anticipated. Since, the proposed project is a Greenfield project; hence, it will have impact on land use change. Approx. 503.84ha. of land will be acquired along the proposed project. The current land use pattern of the proposed project is agriculture, forest and barren land
1.2	Clearance of existing land, vegetation and buildings?	Yes	Clearing and grubbing will be a part of the project implementation activity prior to the construction stage. List of structures likely to be affected. The detailed information will be done during the detailed assessments
1.3	Creation of new land uses?	Yes	The project is a linear greenfield alignment where land acquisition will be required in the width of 70 m for construction of proposed highway.
1.4	Pre- construction investigations e.g. bore house, soil testing?	Yes	Pre-construction investigations viz. LiDAR based topographical surveys, traffic surveys, soil investigations, sub surface investigations using bore logs for structures, and identification of new aggregate quarries and borrow areas for earth will be carried out during pre-construction stage.
1.5	Construction works?	Yes	The project implementation involves construction of new national highway. The project also involves construction of culverts, major and minor bridges, intersections/ junctions, animal underpasses, vehicle underpass etc.
1.6	Demolition Works?	Yes	Some of the existing structures within the proposed RoW will be demolished. However, utmost efforts will be made during the design phase towards restricting the construction works in the residential and commercial stretches.

S. No.	Information/ Checklist confirmation	Yes/ No	Details thereof (with approximate quantities/ rates, wherever possible) with source of information
1.7	Temporary sites used for construction works or Housing of Construction workers?	Yes	Temporary construction camps will be provided for project office, construction workers with all supporting infrastructures like toilet facilities, septic tanks, medical facility, and recreation centre etc. in an environmentally acceptable manner.
1.8	Above ground buildings, structures or earthworks including linear structures, cut and fill or excavations	Yes	Earth excavation would be one of the activities to be carried out during construction phase. The productive top soil layer will be preserved for reuses in landscaping, slope turfing and plantation as well as for rehabilitation of borrow areas/ plant sites.
1.9	Underground works including mining or tunneling.	No	
1.10	Reclamation Works?	No	
1.11	Dredging?	No	
1.12	Offshore structures?	No	
1.13	Production and manufacturing processes?	No	
1.14	Facilities for Storages of goods or materials?	Yes	Temporary structures for storage of raw materials for construction will be erected within the earmarked site. Construction materials, machinery and vehicles will be stored in the earmarked storage yard/ parking places.
1.15	Facilities for treatment or disposal of solid waste or liquid effluents?	Yes	The solid waste generated would mainly consist of earth material. These material will be reused for rehabilitation of borrow area/quarries sites, campsite and in temporary diversion and slopes. The municipal solid wastes generated in construction & workers camp will be disposed off at nearest identified locations of disposal sites of local authority with payments in environmentally acceptable manner. For Sewage, disposal & Septic Tanks with soak pits will be provided at Campsite.
1.16	Facilities for long-term housing of operational workers?	No	
1.17	New road, rail or sea traffic during construction or operation?	Yes	Proposed project involves development of new greenfield alignment. Temporary road

S. No.	Information/ Checklist confirmation	Yes/ No	Details thereof (with approximate quantities/ rates, wherever possible) with source of information
			diversions may be provided during construction.
1.18	New road, rail, air water borne or other transport infrastructure including new or altered routes and stations, ports, airports etc.?	Yes	Some new linking approach routes may be developed for transportation of construction material to the proposed new Greenfield alignment.
1.19	Closure or diversion of existing transport routes or infrastructure leading to changes in traffic movements?	No	There will not be any change in existing transport route or closure of existing traffic on the existing roads. However, during construction of new greenfield highway few diversion will be provided in the construction patches only.
1.20	New or diverted transmission lines or pipelines?	No	The electric poles, cables and transformers falling within proposed ROW will need to be diverted at few locations. The Affected utilities will be relocated in co-ordination with concerned departments/ agencies. Utility ducts will be provided along the alignment throughout the project stretch.
1.21	Impoundment, damming, culverting, realignment or other changes to the hydrology of watercourses or aquifers?	Yes	No change in hydrology of water courses is envisaged due the project. The balancing culverts will be provided to maintain the natural water flow and drainage.
1.22	Stream crossings?	Yes	6 minor streams crossing the alignment.
1.23	Abstraction or transfers of water form ground or surface waters?	Yes	In an average about 2,188,488 KL/day, water will be required for the project. Water will be required mainly during construction period. Drinking water for construction workers will be met through groundwater after obtaining requisite permission from competent Authority. Groundwater resources in the both the taluk are over exploited as per Central Ground Water Authority. The surface water will preferably be used for meeting the water requirement for construction to the possible extent depending upon the availability of water in nearby rivers/ streams with requisite permission from line department.
1.24	Changes in water bodies or the land surface affecting drainage or run-off?	No	

S. No.	Information/ Checklist confirmation	Yes/ No	Details thereof (with approximate quantities/ rates, wherever possible) with source of information
1.25	Transport of personnel or materials for construction, operation or decommissioning?	Yes	Transport of personnel or material during the construction and Operation phase is envisaged. Transport of materials from approved sources and hiring of unskilled labour for construction period will be required, which will be met from local area.
1.26	Long-term dismantling, decommissioning, or restoration works?	No	No such activity is required at the project site during the construction phase of project road.
1.27	Ongoing activity during decommissioning which could have an impact on the environment?	Yes	Decommissioning of plants, machinery and camp after the completion of construction work will reduce the impact on environment.
1.28	Influx of people to an area in either temporarily or permanently?	Yes	Only temporary influx of workforce will be there during construction and the team of workers will be demobilized from the site as soon as the construction activity is over.
1.29	Introduction of alien species?	No	No such possibility is envisaged due to construction and operation phase of the project road.
1.30	Loss of native species or genetic diversity?	No	No such possibility is envisaged due to construction and operation phase of the project road.
1.31	Any other actions?	No	Not applicable

2. Use of Natural resources for Construction or operation of the Project (such as land, water, materials or energy, especially any resources which are non-renewable or in short supply):

S. No.	Information /Checklist confirmation	Yes/No	Details thereof (with approximate quantities / rates wherever possible) with source of information data
2.1	Land especially undeveloped or agricultural land (ha)	Yes	Approx. 503.84ha. in the state will be acquired for the proposed project. The current land use of the proposed project corridor is agriculture, barren Land and settlements.
2.2	Water (expected source & competing users) unit: KLD	Yes	In an average about 2,188,488 KL/day, water will be required for the project. Water requirement for the project will be met from ground and surface water sources as per the availability.

S. No.	Information /Checklist confirmation	Yes/No	Details thereof (with approximate quantities / rates wherever possible) with source of information data
2.3	Minerals (MT)	Yes	Natural GSB, soil, aggregate, bitumen and sand minerals will be required for construction of the project road.
2.4	Construction material- stone, aggregates, and /soil (expected source- MT)	Yes	Aggregate 18.46 lac Cum, Cement 1.56 lac Tonnes, Bitumen 0.30 in lac Tonnes Earth requirement in 84.85 lac Cum, Sand 6.31lac Cum, Steel 0.39 Tonnes will be required. Steel and cement would be sourced from authorized vendors. Soil, Sand & Aggregate will be taken from operational licensed borrow areas and quarries. For opening if any new borrow area or quarry, permission will be obtained from concern department before extraction of materials
2.5	Forests and Timber (source- MT)	No	No forest resources will be utilized for the project execution.
2.6	Energy including electricity and fuels (source, competing users) Unit: fuel (MT), energy (MW)	Yes	During construction of the project, electricity will be taken from State Electricity Board. DG sets of required capacity fitted with acoustic enclosure will be used for emergency power supply during grid power failure. Quantity of fuel will depend on the operation of DG Sets and construction equipment, at one point of time, will be stored in barrels.
2.7	Any other natural resources (Use appropriate standard units)	No	

3. Use, storage, transport, handling or production of substances or materials, which could be harmful to human health or the environment or raise concerns about actual or perceived risks to human health.

S.No	Information /Checklist confirmation	Yes/No	Details thereof (with approximate quantities / rates. Wherever possible) with source of information data
3.1	Use of substances or materials, which are hazardous (as per MSIHC rules) to human health or the environment (flora, fauna, and water supplies)	Yes	Storage of HSD, Bitumen will be expedited as per the stipulated guideline. Besides these, emergency response plan will be in place towards meeting unforeseen emergencies. Trained personnel will be handling such materials and care will be taken so that spills are abated and in case of spills, immediately they are contained.

S.No	Information /Checklist confirmation	Yes/No	Details thereof (with approximate quantities / rates. Wherever possible) with source of information data
3.2	Changes in occurrence of disease or affect disease vectors (e.g. insect or water borne diseases)	No	Construction campsites will be provided with soak pits and septic tanks. At regular intervals, disinfectants will be applied to such habitations so that vector growth is kept at bay. Medical facilities will be in place to look after the health of inmates of the campsites.
3.3	Affect the welfare of people e.g. by changing living conditions?	Yes	The proposed project will be helpful in welfare of people by providing better, rapid and safe transport facilities in the region. The project will also create direct and indirect employment opportunities significantly during construction and operation phase. Therefore, overall impact on living conditions of peoples will be positive due to the development of project road.
3.4	Vulnerable groups of people who could be affected by the project e.g. hospital patients, children, the elderly etc.	Yes	SC & ST vulnerable groups of people are present in the region (which will be detailed examined during the study) likely to be affected by the project. All affected people (including vulnerable groups) will be resettled and rehabilitated as per 'the right to fair compensation and transparency in land acquisition, rehabilitation and resettlement Act-2013.
3.5	Any other cause	No	Not applicable

4. Production of solid wastes during construction or operation or decommissioning (MT/ month)

S.No	Information /Checklist confirmation	Yes/ No	Details thereof (with approximate quantities/rates. Wherever possible) with source of information data
4.1	Spoil, overburden or mine wastes	Yes	Spoil, overburden and mine waste will be generated during raw materials extraction and their processing. All these materials will be consumed for rehabilitation of borrow areas or filling of low lying/disfigured wasteland.
4.2	Municipal waste (domestic and or commercial wastes)	Yes	During construction phase, solid waste will be generated from construction labour camps at different places. Municipal waste generated from labour camps and by workers will be collected, segregated and disposed

S.No	Information /Checklist confirmation	Yes/ No	Details thereof (with approximate quantities/rates. Wherever possible) with source of information data
			after segregation as per provision of Solid Waste Management Rules, 2016.
4.3	Hazardous waste (as per Hazardous Waste Management Rules)	Yes	Waste oil generated from maintenance of heavy machinery will be collected and given to nearest CPCB approved waste recyclers.
4.4	Other industrial process wastes	Yes	The Minor amount of processing waste may be generated from Hot mix/Batch mix plant which will be collected and utilized towards strengthening internal road in the campsite or other haul roads.
4.5	Surplus product	Yes	Following categories of surplus product may be generated. **Top soil**: Top soil will be carefully stripped and utilized as top layer in median filling and/or embankment slopes prior to turfing. **Excavation:** Suitable excavated material will be reused in road embankments formation. **Overburden**: Overburdens generated from borrow pits/quarries will be used for its rehabilitation.
4.6	Sewage sludge or other sludge from effluent treatment	No	Minimal sewage generated from the labor camp toilets will be digested in the septic tanks.
4.7	Construction or demolition wastes	Yes	Construction and demolition waste will be suitably utilized for strengthening of roads, shoulders, or land filling.
4.8	Redundant machinery or equipment	Yes	Redundant machinery and equipment will be sold out to the scrape venders.
4.9	Contaminated soils or other materials	No	Contaminated soils and other materials will be scooped out, contained and disposed off in sealed chambers
4.10	Agricultural wastes	No	No agricultural waste is anticipated at the project site.
4.11	Other solid wastes	No	Top soil generated during construction of the project road will be collected and used for redevelopment of borrow areas, construction camp and for avenue plantation. Waste generated during construction phase will be managed in following way:

S.No	Information /Checklist confirmation	Yes/ No	Details thereof (with approximate quantities/rates. Wherever possible) with source of information data
			Solid Wastes Rules, 2016, The Hazardous and Other Wastes (Management and Transboundary Movement) Amendment Rules, 2016 and Construction and Demolition Waste Management Rules, 2016 shall be followed.

5. Release of pollutants or any hazardous, toxic or noxious substances to air (Kg/hr)

S. No.	Information /Checklist confirmation	Yes/No	Details thereof (with approximate quantities / rates. Wherever possible) with source of information data
5.1	Emissions from combustion of fossil fuels from stationery or mobile sources	Yes	All the vehicles, machinery, DG sets under operation will be releasing exhaust to the ambient air. However, regular maintenance of the same can reduce the emission levels. Such impact is temporary in nature and will persist only up to construction stage. The Hot mix Plant, Stone Crushers, Batch mix Plants, WMM Plants, etc will be fitted with suitable emission control devices and will conform to the emission standards as stipulated by the CPCB. NOC would be obtained by the Contractor from concerned Pollution Control Board wherever applicable.
5.2	Emissions from production processes	Yes	Hot mix plant will also source of stack emissions. However, suitable pollution control equipment will be fitted with the hot mix plant.
5.3	Emissions from materials handling including storage or transport	Yes	Fugitive dust emission will be occurring from storage, transportation and handling of construction materials like stone chips, aggregates, cement, earth, sand etc. during construction period. Trucks carrying construction materials will be covered by the tarpaulin. Other appropriate mitigation measures such as water sprinkling will be adopted in the construction and storage areas towards suppression of fugitive dust emission.

5.4	Emissions from construction activities including plant and equipment	Yes	Emission of Gaseous pollutants and Particulate Matter is envisaged from operation of Hot mix/Batch mix/Stone crusher plants. Dust generation is due to construction activity is also anticipated to some extent which is temporarily till construction period and will be limited to plant operation and construction zones. All the construction plants and equipment's will be installed sufficiently away from habitation by following the siting criteria norms. Stone crusher units, Hot mix plant, Batch mix plant will be fitted with suitable dust suppression system such as water sprinkling systems, scrubbers, cyclones, dust bags, etc. and will be regularly maintained. Regular water sprinkling will be carried out to suppress dust generation from construction zones and allied sites.
5.5	Dust or odours from handling or materials including construction materials, sewage and waste	Yes	All the temporary construction camps are to be provided with soak pits and septic tanks and those are the source of odor. Times to time disinfectants are to be applied towards abating odor. Campsite wastes are to be collected in waste pits and are to be applied with disinfectants time to time to reduce odor menace. Also, time to time the waste collected is to be disposed off in nearby Municipality waste yards
5.6	Emissions form incineration of waste	No	No incineration of waste will be at the project road site.
5.7	Emission from burning of waste in open air (e.g. slash materials, construction debris)	No	No burning of waste will be at the project road site.
5.8	Emissions from any other sources	No	No emission from any other sources is anticipated.

6. Generation of Noise and Vibration, and Emissions of Light and Heat:

S. No.	**Information /Checklist confirmation**	**Yes/No**	**Details thereof (with approximate quantities / rates. Wherever possible) with source of information data**
6.1	From operation of equipment e.g. engines, ventilation plant, crushes	Yes	All the construction equipments will be operated with noise abating devices.

S. No.	Information /Checklist confirmation	Yes/No	Details thereof (with approximate quantities / rates. Wherever possible) with source of information data
6.2	From industrial or similar processes	Yes	From hot mix plant and road construction equipment, noise levels of about 70 dB (A) will be generated.
6.3	From construction or demolition	Yes	Noise will be generated from heavy earthmoving machinery during construction process. Adequate site-specific measures will be taken to minimize impact on noise. Nighttime activities will be suspended in residential areas. Equipment's will be operated with suitable noise abating devices.
6.4	From blasting or piling	No	No blasting will be at the project road site.
6.5	From construction or operational traffic	Yes	Noise and vibration are inevitably associated with construction and operational traffic. However, no significant rise in construction traffic is anticipated. Moreover, regular maintenance of vehicles and machinery and use of new generation models is a remedy to get rid of higher noise and vibration levels.
6.6	From lighting or cooling systems	No	Not applicable
6.7	From any other sources	No	-

7. Risks of contamination of land or water from releases of pollutants into the ground or into sewers, surface waters, ground water, coastal waters or the sea:

S. No.	Information /Checklist confirmation	Yes/No	Details thereof (with approximate quantities / rates. Wherever possible) with source of information data
7.1	From handling, storage, use or spillage of hazardous materials.	Yes	Oils and lubricants will be stored for the construction activities with all the prescribed anti-spill measures. Provisions will be made so that spills are collected, stored and disposed off aesthetically Vehicles will be serviced and refueled at designated areas on paved surface. Oil traps will be provided to intercept oil/grease/asphalt etc. to prevent pollution from run-off entering into any water body.

S. No.	Information /Checklist confirmation	Yes/No	Details thereof (with approximate quantities / rates. Wherever possible) with source of information data
7.2	From discharge of sewage or other effluents to water or the land (expected mode and place of discharge)	Yes	During construction, sewage shall be discharged through septic tank followed by soak pit. Sewage generated during operation phase from toll plaza will be discharged though septic tank and used for green belt.
7.3	By deposition of pollutants emitted to air into the land or into water	Yes	The dust generation will take place due to material handling and earth works. These emissions will settle down in the immediate vicinity hence no impact is anticipated.
7.4	From any other sources	No	-
7.5	Is there a risk of long term build up of pollutants in the environment from these sources?	No	No such impact is anticipated.

8. Risk of accidents during construction or operation of the Project, which could affect human health or the environment.

S. No	Information /Checklist confirmation	Yes/No	Details thereof (with approximate quantities / rates. Wherever possible) with source of information data
8.1	From explosions, spillages, fires etc from storage, handling, use or production of hazardous substances.	No	All the safety measures will be provided during storage & handling of hazardous substances/ explosives as per norms. Emergency response plan) will be formulated at site. During construction activities, PPE shall be provided as per EHS norms. Training and awareness about the safety norms will be provided at construction sites. Adequate fire protection measures will be in place. During the operation phase, ambulances, emergency teams will be deployed at intermittent stretches.
8.2	From any other causes?	No	-
8.3	Could the project be affected by natural disasters causing environmental damage (e.g. floods, earthquake, landslides, cloudburst etc)?	No	Anticipated natural hazard is low, as the project, area is not characterised by any natural disaster prone area.

9. Factors which should be considered (such as consequential development) which could lead to environmental effects or the potential for cumulative impacts with other existing or planned activities in the locality

S. No	Information /Checklist confirmation	Yes/ No	Details thereof (with approximate quantities / rates. Wherever possible) with source of information data
9.1	Lead to development of supporting, utilities, ancillary development or development stimulated by the project, which could have impact on the environment e.g. • Supporting infrastructure (roads, power supply, waste or waste water treatment, etc.) • Housing development • Extractive industries • Supply industries • Other	Yes	The proposed project is aimed to provide better, safe and rapid transport facilities. The project will generate massive opportunity for local supply/ transportation industries to supply material within the native states to national level. The project road will reduce the time limit for transport industries and it will reduce the cost of goods as well as reduce the maintenance of vehicle.
9.2	Lead to after–use of the site, which could have an impact on the environment.	No	
9.3	Set a precedent for later developments.	Yes	Faster transportation and communication means will set precedence in the project area
9.4	Have cumulative effects due to proximity to other existing or planned projects with similar effects.	No	No cumulative effect is anticipated

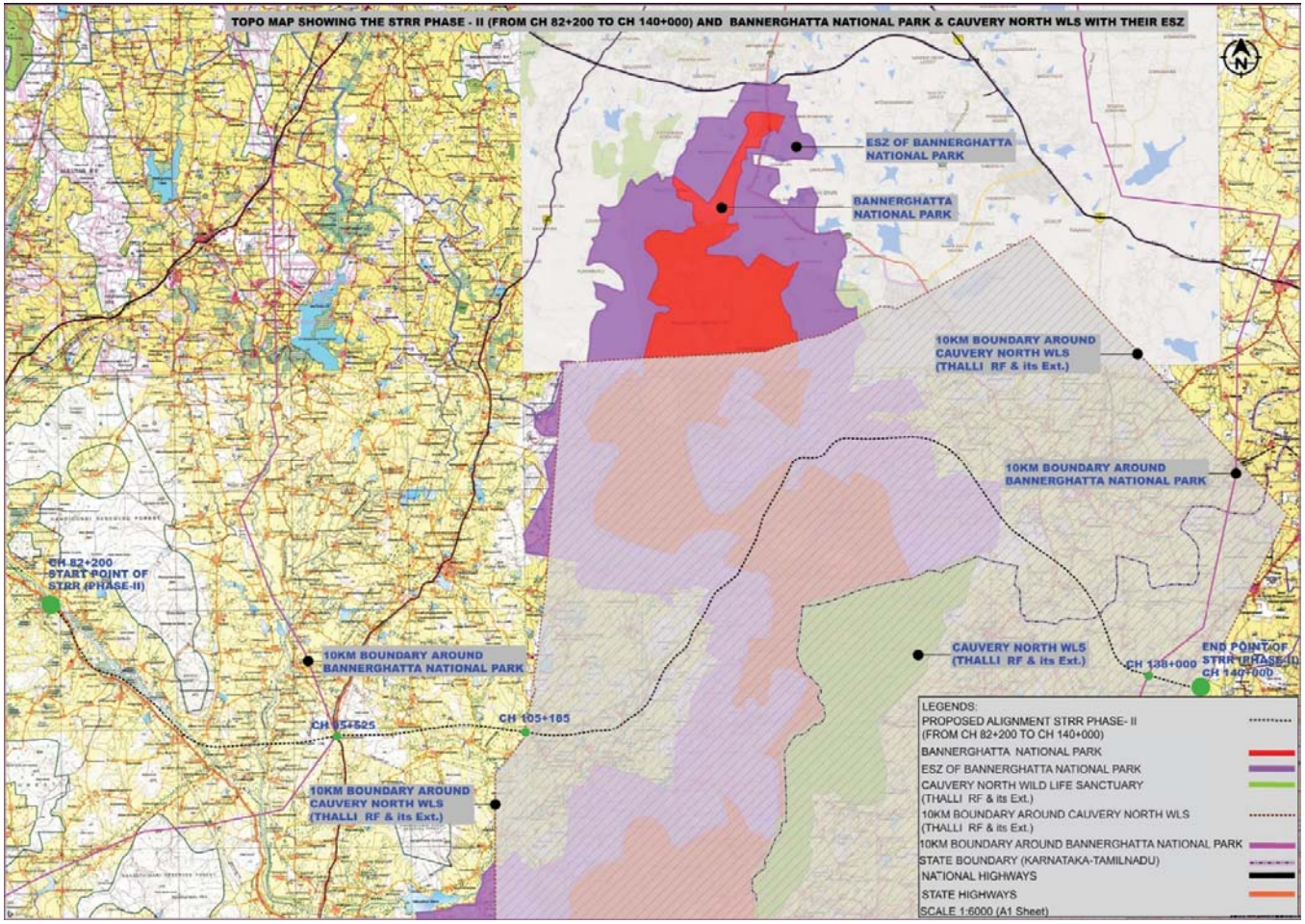
(III) Environmental Sensitivity

S. No.	Areas	Name/ Identity	Aerial distance (within 15 Km.) proposed project location boundary
1.	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value	Yes	The proposed road passes through the Bannerghatta National Park and its ESZ. The project also passing through ESZ of North Cauvery WLS. The project authorities shall follow the proper measures to mitigate the impact on National park and Wildlife
2.	Areas which are important or sensitive for ecological reasons- Wetlands, watercourse or other water	Yes	The project location boundary crosses 4 water stream

S. No.	Areas	Name/ Identity	Aerial distance (within 15 Km.) proposed project location boundary
	bodies, coastal zone, biosphere, mountains, forests		
3.	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, over wintering, migration	Yes	Bannerghatta National Park, has breeding population of Elephants and also supports Leopard, Wild dogs, Gaur, Sambar, Chital, Sloth bear, Slender Loris, Oriental white rumped vulture, Long-billed vulture, Yellow throated bulbul and other important wildlife species However, The project authorities shall follow the proper measures to mitigate the impact on National park and Wildlife
4.	Inland, coastal, marine or underground waters	No	-
5.	State, National boundaries	Yes	The proposed road end near to Karnataka/TN border
6.	Routes or facilities used by the public for access to recreation or other tourist, pilgrim area	No	The project sections of intersect existing highways which are being used as important connectivity to several tourist places. The important tourist places in the vicinity of the project road are Bangalore, Bannerghatta National Park, Hosur etc.
7.	Defense Installations	Nil	--
8.	Densely populated or built-up area	Yes	The proposed project is a greenfield new alignment however passing near Kanakapura, Anakel and Hosur town, etc.
9.	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	Nil	
10.	Areas containing important, high quality or scarce resources (Ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals)	Nil	
11.	Areas already subjected to pollution or environmental damage (those where existing legal environmental standards are exceeded)	Nil	

S. No.	Areas	Name/ Identity	Aerial distance (within 15 Km.) proposed project location boundary
12.	Areas susceptible to natural hazard which could cause the project to present environmental problems (earthquake, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions).	Nil	

Annexure-I Location Map



Annexure-II- List of Villages

S.No	District	Taluka	Village
1	Ramanagara	Ramanagara	1) Kailancha
			2) Hulikeregunnur
			3) Subkere
			4) Kotahalli
		Kanakapura	1) Singasandra
			2) Anajawadi
			3) Chikkamuduwadi
			4) Doddamuduwadi
			5) Ganalu
			6) Bandiganahalli
			7) Rampura
			8) Rayasandra
			9) Cheelur
			10) T. Hosahalli
			11) Marasandra
			12) Agara
			13) Anehosahalli
			14) Chikkamaralavadi
			15) Marasarahalli
			16) Banavasi
			17) Thattekere
2	Bengaluru Urban	Anekal	1) Bagganadoddi
			2) Indlawadi
			3) Thimmasandra
			4) Sonnanayakanapura
			5) Agasa Thimmanahalli
			6) Chikka Hosahalli
			7) Thammanaikanahalli
			8) Sunavara
			9) Pattanagere Gollahalli
			10) Bidarakadahalli
			11) Kalanayakanahalli
			12) Vanakanahalli
			13) Menasiganahalli
3	Krishnagiri	Denkanikottai	1) Sathanoor
			2) Peddamadhagondapalli

Annexure-III

Agenda Item No. 3.10 **File No. 10-34/2018-IA.III**

Check List for TOR

Title of the Project: Development of Satellite Town Ring Road (STRR) Phase-II newly declared National Highway NH-948A from Ramanagara to Peddamadhagondapalli (km 82.200 to km 140+000) 57.80 km in district Ramanagara and Bangalore Urban in Karnataka and District Krishnagiri in Tamil Nadu by M/s National Highways Authority of India.

1	Proposal	Consultancy Services for preparation of DPR for Development of Economic Corridors, Inner Corridors, Feeder Routes and Coastal Roads to Improve the Efficiency of Freight Movement in India- Lot 3/Andhra Pradesh, Karnataka, Goa & Kerala /Package 1 The Satellite Town Ring road (STRR) of Bangalore (New National Highway- NH 948A) is having a total length of 179+969 Km. The Project will be taken in 3 Phases: - Phase-I: From Ch. 0+00 to Ch. 82+200 - Phase-II: From Ch. 82+200 to Ch. 140+000 - Phase-III: From Ch. 140+000 to Ch. 179+969 This application is for Phase-II of project, which starts from Ch. 82+200 at Cross point of existing SH-3 -Km 52.700 near Kailancha Village in Ramanagara district (Karnataka) and end at Ch. 140+000 in Denkanikottai taluk of Krishnagiri District (near KNT/TN Border).
2	Location	The STRR Phase-II is located in Ramanagara (Kankapura Tehsil) and Bangalore Urban District (Anekal Tehsil) of Karnataka and Krishnagiri District (Denakanikottai Tehsil) of state Tamil Nadu.
3	Location on google map/ survey map	Location of proposed road is marked on google map and topo sheet and submitted as annexure in the Form I under the heading of basic information Sl. No. 9.
4	Land use of the site and around the site up to 10 km radius	Proposed project is a greenfield project. Agricultural (70%), Forest (19 %), other Barren/revenue land (11%) will be converted for infrastructure propose. The major land use of STRR Phase-II is cultivation land and rest includes forest and barren land.
5	Justification for selection of the site	For proposed 6 lane STRR as per IRC and MoRTH applicable guidelines, the following realignment is studied. The original STRR alignment was studied by the Karnataka State government however, the project shelved due to paucity of funds with the State government. The project get transferred to NHAI for further studies and implementing the Project Transfer letter from PWD to NHAI is attached as Annexure III a. The detailed map of the alignment is

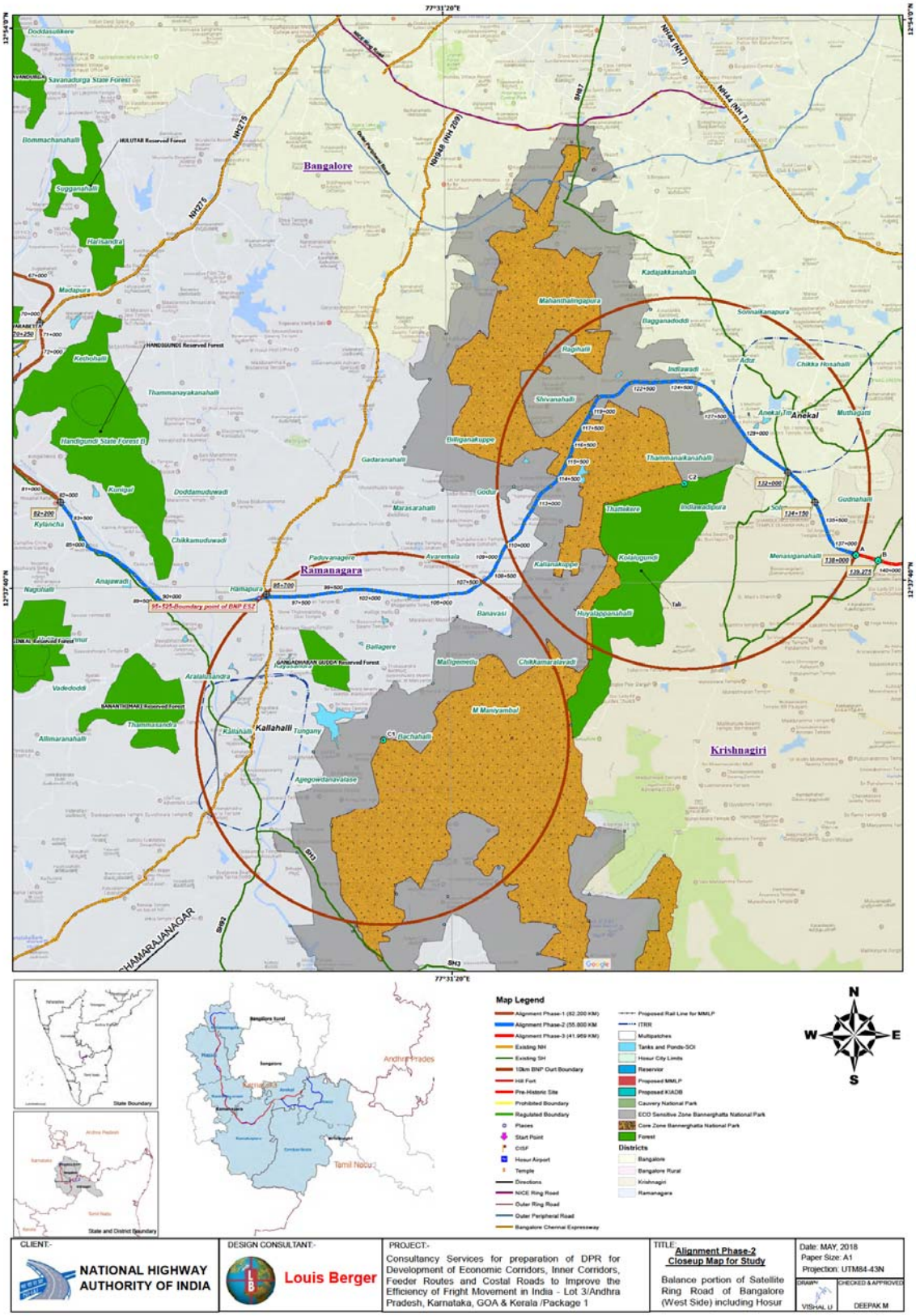
		enclosed as Annexure – III b
6	Project brief: nature of proposal (new/ expansion,) total area- land use, project components, connectivity to the site etc,	A new STRR Phase-II has been proposed to improve the connectivity in order to cater the needs of growing population along the fringe areas of Bangalore. The proposed road having PROW of 70 m falls in Kanakpura and Anekal (Karnataka), Denakanikottai (Tamil Nadu) Technical feature (Salient feature of the project) is attached as Annexure III c Near location: Kanakapura town (13 km), Anekal town (3 Km), Hosur (15 km), Anekal Railway Station (6 km), Hosur Aerodrom (approx. 7 km)
7	Cost of the project	INR 1764 Cr.
8	Whether the project is in Critically Polluted area	Not Applicable.
9	If the project involves diversion of forest land, extend of the forest land	No
10	If the project falls within 10 km of eco-sensitive area, Name of eco- sensitive area and distance from the project site	The proposed road falls within the 10km ESZ of Bannerghatta National Park and is passing through it for a length of 4.68 km. The proposed road also falling within 10km ESZ of North Cauvery Wildlife Sanctuary.
11	Port and harbor	-
(i)	Details of shore line change	-
(ii)	Details of channel, breakwaters, dredging, disposal and reclamation.	-
(iii)	handling of each cargo, storage, transport along with spillage control, dust preventive measures	-
(iv)	Details of fishing activity in the vicinity.	-
12	Airport	-
(i)	Habitation in and around, their location with respect to take off and landing funnel.	-
13	CETP	-
(i)	Type of effluent, Quantity, effluent conveyance system from the member units to CETP	-
(ii)	Treatment and usage of treated sewage	-
14	Incinerator	-
(i)	Types of wastes, sources, collection, treatment, waste generation and disposal Habitation in and around	-
15	Other details	
(i)	Water requirement, source, status of	Water will be required mainly during construction period. About 170 Kl/day, water will be consumed

	clearance	during peak construction period for the project. Surface Water (Approx. 70%) and Ground Water (30%) shall be utilized for construction works. Source: The detail shall be provided in EIA Status of Clearance: NoC will be obtained from Ground Water Authority prior to construction.
(ii)	Connectivity to the site	The proposed project road is connected through the following National Highways NH 209 and majority of State Highways SH 3
(iii)	Terrain, level with respect to MSL, requirement of filling if any	Terrain is Plain / Rolling with elevation ranges from 650 m to 960 m amsl. Overburden will be generated during excavation for alignment and at borrow areas. It is proposed to reuse these materials for construction of embankment, rehabilitation of borrow areas and other allied sites and or filling of low lying/ disfigured wasteland.
(iv)	Tree cutting, types, numbers, girth size etc.	As per initial assessment, it is anticipated that on an average about 150 to 200 trees are likely to be affected per km. The detailed assessment of actual trees to be affected (tree inventories) on the finalized alignment will be undertaken during detailed EIA Study and the preparation of Forest Clearance proposals as per FC (Act) 1980, and the subsequent amendments thereafter. (Common trees includes *Eucalyptus, Azadirachta indica, Acacia catechu Ficus Tamarindus indica*) Details/Numbers of trees will be assessed during detailed assessment. Efforts will be made to minimize the trees loss by restricting tree cutting within formation width. Avenue plantation shall be carried out as per IRC SP: 21:2009 on available ROW apart from statutory requirements. Required tree cutting will be done after obtaining requisite permission from competent authority. In order to minimize the impact of tree cutting, compensatory plantation shall be undertaken.
(v)	Rehabilitation involved if any	All the temporary sites used for construction activities will be rehabilitated properly before handing over back to the landowner. The solid waste generated due to construction and allied activities will be reused for rehabilitation of borrow area / quarries sites, campsite and in temporary diversions and slopes.
(vi)	Water bodies, diversion if any	River Akravati crossing at Ch.90+280 and River Suvarnamukhi crossing at 92+980.Minor streams crossing the alignment are Dry stream (Ch.90+300), Canal (Ch.105+150), Canal (Ch.105+400), Canal (Ch.105+700), Canal (Ch.106+200), Canal (Ch.106+400), Nalla (Dry) (Ch.107+800), Nalla (Dry) (Ch.118+300)
(vii)	Court cases if any.	No

(viii)	Investment/Cost of the project (in crore).	INR 1764 Cr. (Approx.)
(ix)	Employment potential	This Road project will improve the economic and social welfare of those using the road or served by it. Ultimately it will create jobs by increasing access to markets, education and health services etc.
(x)	Benefits of the project	The proposed project aims to improve connectivity particularly on economic corridors, border areas and to remote areas with an aim of rapid and safe movement of cargo to boost exports. International trade considered as a key aspect in this scheme and northeastern states have given special focus

Annexure III a: Transfer Letter of STRR from State Govt. to NHAI

Annexure III a: Detailed Map of the Alignment



CLIENT:-	DESIGN CONSULTANT:-	PROJECT:-	TITLE:-	
NATIONAL HIGHWAY AUTHORITY OF INDIA	Louis Berger	Consultancy Services for preparation of DPR for Development of Economic Corridors, Inner Corridors, Feeder Routes and Costal Roads to Improve the Efficiency of Fright Movement in India - Lot 3/Andhra Pradesh, Karnataka, GOA & Kerala /Package 1	Alignment Phase-2 Closeup Map for Study Balance portion of Satellite Ring Road of Bangalore (West Side) including Hosur	Date: MAY, 2018 Paper Size: A1 Projection: UTM84-43N DRAWN: VISHAL U CHECKED & APPROVED: DEEPAK M

Annexure III c: Salient Feature of the project

Item	Phase-II (Design Ch. 82+200 to Ch. 140+000)
Length of the existing alignment	Nil
Length of alignment proposed (Km)	57.800
Administrative locations	3 districts (Ramanagara and Bangalore Urban district and Krishnagiri)
State	Karnataka and Tamil Nadu
Terrain	Plain/Rolling
Width of the new alignment/ PROW (meters)	70 m except Bannerghatta National Park (28.5 m)
Built-up locations	15 Locations near Chikkenahalli, Anajawadi, Chikka Madhawadi, Alisab Doddi, Aralalusandra, Varager Halli, Chathra, Dodda, Maralawadi, Banavasi, T. Maniyambal, Indalavadi, Thimmasandra, Vanakanahalli, Menasiganahalli, Muttu
Existing Carriageway	Nil
Proposed Carriageway	6 Lane
No. of Proposed Minor Bridge	6
No. of Proposed Major Bridge	2
ROBs	-
Existing RCC/Slab/Pipe/Arch	0
Proposed Pipe/Box Culvert	104
Proposed Vehicular Underpass	14
Proposed Viaduct	It is proposed to elevated corridor through the BNP. Viaduct section would start from Ch. 113+350 to Ch. 119+980 (6.63 Km)
Proposed Interchanges	3
Existing Bus Bays	0
Proposed Bus Bays	0
Existing Truck Lay byes	0
Proposed Flyover	0
Project road within 15 Km of Wildlife Sanctuary	The proposed road traverses approx. 4.7 Km through Bannerghatta National Park (BNP). An elevated corridor is proposed through Bannerghatta National Park. Viaduct section would start from Design Ch. 113+350 to Design Ch. 119+980(Total length - 6.63 km). The project also falls in the of ESZ North Cauvery Wildlife sanctuary.
Proposed design Speed (kmph)	100 Kmph
Water requirement in KLD	170
Aggregate requirement in lakh Cum	18.46
Cement requirement in lakh Tonnes	1.56
Bitumen requirement in lakh Tonnes	0.30
Earth requirement in lakh Cum	84.85
Sand requirement in lakh Cum	6.31
Steel Requirement in Tonnes	0.39
Total Project Cost Rs.	INR 1764 (Approx.)
Environmental cost Rs.	Approx. 2% of the project cost

TOPO MAP SHOWING THE STRR PHASE - II (FROM CH 82+200 TO CH 140+000) AND BANNERGHATTA NATIONAL PARK & CAUVERY NORTH WLS WITH THEIR ESZ

ESZ OF BANNERGHATTA NATIONAL PARK

BANNERGHATTA NATIONAL PARK

10KM BOUNDARY AROUND CAUVERY NORTH WLS (THALLI RF & its Ext.)

10KM BOUNDARY AROUND BANNERGHATTA NATIONAL PARK

CH 82+200 START POINT OF STRR (PHASE-II)

CH 105+185

CH 95+525

CAUVERY NORTH WLS (THALLI RF & its Ext.)

CH 138+000

END POINT OF STRR (PHASE-II) CH 140+000

LEGENDS:

- PROPOSED ALIGNMENT STRR PHASE- II (FROM CH 82+200 TO CH 140+000)
- BANNERGHATTA NATIONAL PARK
- ESZ OF BANNERGHATTA NATIONAL PARK
- CAUVERY NORTH WILD LIFE SANCTUARY (THALLI RF & its Ext.)
- 10KM BOUNDARY AROUND CAUVERY NORTH WLS (THALLI RF & its Ext.)
- 10KM BOUNDARY AROUND BANNERGHATTA NATIONAL PARK
- STATE BOUNDARY (KARNATAKA-TAMILNADU)
- NATIONAL HIGHWAYS
- STATE HIGHWAYS

SCALE 1:6000 (A1 Sheet)