Development of Satellite Town Ring Road (STRR) Phase-I newly declared Highway NH-948A from Dobbaspete to Ramanagara (km 0.000 to km 82.200) 82.20 km in Ramanagara, Karnataka 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-I of STRR. The total length of the Phase I is 82.2 km. The project stretch falls in the state of Karnataka.

- The Proposed Phase-I starts at design Ch. 0+00 near Oblapura village at Neelmangala Taluk of Bangalore Rural district and ends at Ch. 82+200 at cross point of SH-3 (Km 52.700) near Kailancha village at Ramanagara taluk in Ramanagara district.

- It passes through two districts of Karnataka viz. Bangalore Rural (From Design Ch. 0+00 to 19+500) and Ramanagara (From Design Ch. 19+500 to 82+200). The proposed road starts at Ch.0.000 (Km 131.225 of NH-207/648) and intersects at Ch. 9+500 (NH 4/48 – existing Km 50.550), Ch. 30+364 (NH-48/75 – existing Km 42.230), Ch. 44+500 (SH-85 Existing Km 47.112) and Ch.70+250 (NH-275/948 Existing Km. 318.130) and Ch. 82+200 (SH-3 existing Km 52.700). The proposed road near Ramanagara shall integrate with the proposed bypasses envisaged by NHAI on NH-275/948 for seamless traffic flow.

- The Land use pattern within 10 km on either side of project area is predominantly agricultural followed by barren land, forest and settlement area. The proposed road location is about 1.2 Km away from Ramadevarabetta Vulture Sanctuary and approximately 200m away from its notified ESZ of MoEF&CC notification S.O.2993 (E) dated 11th September 2017

- There are 22 Major Settlements along the alignment, namely, Manne, Tattekere, Nijagal, Kempohalli, Maddenahalli, Lakkuru, Agalakuppa, Hosapalya, Banawadi, Goruru, Gudemaranahalli, Handpost, Gudemaranahalli, Byalakere, Magadi, Hanchikuppe, Atimgere, Gungarahalli, Melahalli, Basavanapura, Rampura Doddi, Ramanagara, Kunagal.

- The proposed right of way for the Greenfield alignment is considered as 70m, throughout the corridor.

- The ending point of STRR phase-I will further be integrated with STRR Phase-II.

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

- The proposed land acquisition for the alignment is approx. total 785.5 ha.

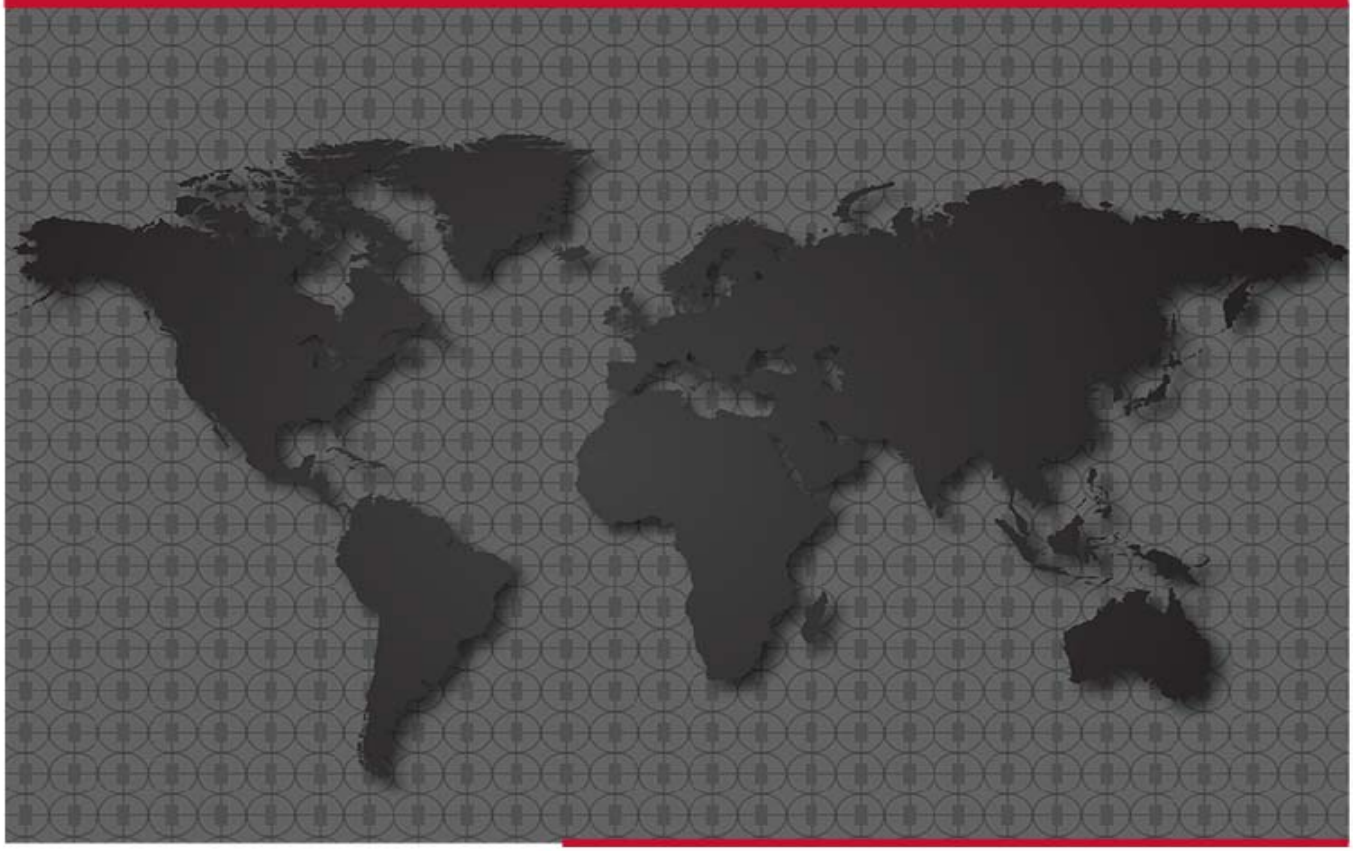
- The proposed road will have 2 nos. of Major Bridges, 5 nos. of Minor Bridges, 144 nos. of Culverts, 3 nos. of ROB's, 27 nos. of Vehicular Underpasses, 4 nos. of Interchnages.1 no. of Flyover.

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

- The detail of water body around the proposed project is as follows: River Arkavathy is crossing the project alignment at two locations (i.e. at Design Ch. 64+480 and Ch. 78+380); further, the alignment is crossing few minor streams.

- 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 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.
- Material requirement are aggregate (27.19 Lak Cum), Bitumen (0.44 Lakh Ton.), Earth (124.99 Lakh Cum.), Sand (9.30 Lakh Cum), Steel (0.57 Tonnes), Cement (2.30 Lakh Ton.).
- Fly ash will be used in the project depending upon their availability as per existing fly ash notification.
- The total requirement of water for construction is estimated to 250 KLD for 2 years.
- The total estimated cost of the project is Approx. INR 2600 Crores.

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), Bangalore, West Side

From Design Ch. Km 0+00 to Ch. Km 82+200)

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 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-I of project, which starts from Design Ch. 0+00 near Oblapura village at Nelamangala Taluk of Bangalore Rural district and end at Design Ch. 82+200 at crossing to SH-3 (Existing Ch. 52+700) near to Kailancha village in Ramanagara district.
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: 82.200 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, Ramadevarabetta Vulture Sanctuary (WLS), a Protected area notified under the wildlife (Protection) Act, 1972 is within 5 km radius of the proposed road however, the proposed road is outside its notified ESZ
8.	Does It Attract the Specific Condition? If yes please specify	No

S.No.	Item	Details
9.	Location	The project starts from Design Ch. 0+00 near Oblapura village at Nelamangala Taluk of Bangalore rural district and ends at Ch. 82.200 (Crossing at SH-3 at its Existing Ch. 52+700) near at Kailancha village at Ramanagara Taluk in Ramanagara district (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 61 villages. The list of villages is enclosed under as Annexure-II
	Tehsil	Total 3 Tehsils i. Nelamangala Tehsil ii. Magadi Tehsil iii. Ramanagara Tehsil
	District	2 Districts i. Bangalore Rural, ii. Ramanagara
	State	Karnataka
10.	Nearest Railway Station / Airport along with distance in Km's	Major Railway Station: Dabaspete Railway Station (approx. 1Km) Airport: Kempegowda International Airport (Bengaluru Airport) (approx. 40 Km /start point)
11.	Nearest Town, City, District Headquarters along with Distance in Kms	Some of the nearest towns are i. Dabaspete (1 Km), ii. Magadi (3 Km), iii. Ramanagara (1.8 Km)
12.	Village Panchayats, Zilla Parisad, Municipal Corporation. Local Bodies (Complete Address with Phone Numbers to be given)	The proposed road is passing through Nelamangala Tehsil, Magadi Tehsil, Ramanagara Tehsil in Karnataka
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,

S.No.	Item	Details
		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 topo sheet.	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?	No
	(b) Wildlife (Protection) Act 1972?	No
	(c) The CRZ Notification, 1991?	No
22.	Whether there is any Government Order/Policy relevant/relating to site?	No
23.	Forest Land Involved (Hectare)	No
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

S.No.	Item	Details
	(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. 785.5 ha. of land will be acquired along the proposed project. The current land use pattern of the proposed project is Agriculture, Barren land Forest and Settlements.
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. Building structures are 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, ROB 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 diversions may be provided during construction

S. No.	Information/ Checklist confirmation	Yes/ No	Details thereof (with approximate quantities/ rates, wherever possible) with source of information
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 watercourses is envisaged due the project. The balancing culverts will be provided to maintain the natural water flow and drainage.
1.22	Stream crossings?	Yes	River Arkavathy crossing at 2 location (at Design Ch. 64+480 and Ch. 78+380) and few minor streams crossing alignment.
1.23	Abstraction or transfers of water form ground or surface waters?	Yes	In an average about 3,223,901 KL/day, water will be required for the project. Water will be required mainly during construction period. Nelamangala taluk is a notified area for control and regulation of ground water by 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	
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.

S. No.	Information/ Checklist confirmation	Yes/ No	Details thereof (with approximate quantities/ rates, wherever possible) with source of information
			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. 785.5 ha. 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 3,223,901 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.
2.3	Minerals (MT)	Yes	Natural GSB, soil, aggregate, bitumen and sand minerals will be required for construction of the project road.

S. No.	Information /Checklist confirmation	Yes/ No	Details thereof (with approximate quantities / rates wherever possible) with source of information data
2.4	Construction material- stone, aggregates, and /soil (expected source- MT)	Yes	Aggregate (27.19 lakh Cum, Cement 2.30 lakh Tonne), Bitumen (0.44 in lakh Tonne), Earth requirement in (124.99 lakh Cum), Sand (9.30 lakh Cum), Steel (0.57 Tonnes) 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, site requisite 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.
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

S.No	Information /Checklist confirmation	Yes/No	Details thereof (with approximate quantities / rates. Wherever possible) with source of information data
			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 after segregation as per provision of Solid Waste Management Rules, 2016.

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

S.No	Information /Checklist confirmation	Yes/ No	Details thereof (with approximate quantities / rates. Wherever possible) with source of information data
			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 shall have 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 PCB 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 HMP/Batch mix/Stone crusher plants. Dust generation is due to construction activity is also anticipated at 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.
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.

S. No.	Information /Checklist confirmation	Yes/No	Details thereof (with approximate quantities / rates. Wherever possible) with source of information data
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.
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	-

S. No.	Information /Checklist confirmation	Yes/ No	Details thereof (with approximate quantities / rates. Wherever possible) with source of information data
7.5	Is there a risk of long-term buildup 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.		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.

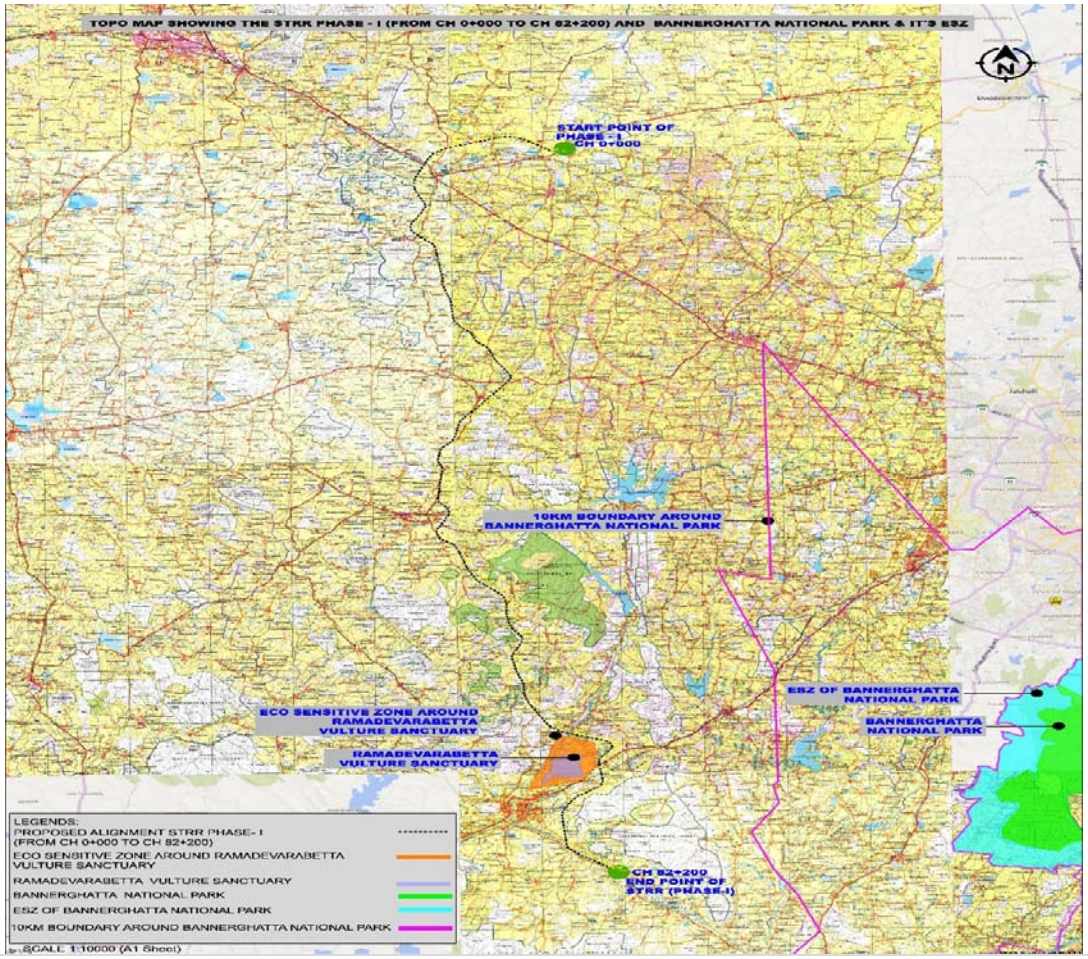
S. No	Information /Checklist confirmation	Yes/ No	Details thereof (with approximate quantities / rates. Wherever possible) with source of information data
	Supporting infrastructure (roads, power supply, waste or wastewater treatment, etc.) • Housing development • Extractive industries • Supply industries • Other	Yes	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 location boundary is about 1.2 Km away from Ramadevarabetta Vulture Sanctuary and approximately 200m away from its notified ESZ. The proposed project alignment does not pass through any sensitive receptor nor acquiring any land of the above mentioned sensitive areas for the project work.
2.	Areas which are important or sensitive for ecological reasons- Wetlands, watercourse or other water bodies, coastal zone, biosphere, mountains, forests	Yes	The proposed highway will cross Arkavathy River at 2 locations (at Ch. 64+590 and Ch. 78+380) where 2 major bridges are proposed.
3.	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, over wintering, migration	No	The proposed project alignment will not passes through the eco sensitive area nor acquiring any land of the above mentioned sensitive areas for the project work
4.	Inland, coastal, marine or underground water	No	-

S. No.	Areas	Name/ Identity	Aerial distance (within 15 Km.) proposed project location boundary
5.	State, National boundaries	No	
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, Ramanagara, Mysore, Bannerghatta National Park etc.
7.	Defense Installations	Nil	-
8.	Densely populated or built-up area	Yes	The proposed project is passing near Magadi, Ramanagara 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	
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

Sr. No.	District	Taluka	Village Name
1	Bengaluru Rural	Nelamangala	1) Obalapura
			2) Manne
			3) Kannohalli
			4) Dasenahalli
			5) Thattekere
			6) Karimanne
			7) Maddenahalli
			8) Nijagal Kempohalli
			9) Lakkuru
			10) Agalakuppa
			11) Kengal
			12) Honnenahalli
			13) Sirganahalli
			14) Shivagange
			15) Kambal
			16) Basavapatna
2	Ramanagara	Magadi	1) Aluru
			2) Mylanahalli
			3) Udakunte
			4) Banavadi
			5) Shanthapura
			6) Muppenahalli
			7) Kanikenahalli
			8) Goruru
			9) Parvathapalya
			10) Kannasandra
			11) Beeravara
			12) Gudemaranahalli
			13) Uddandahalli
			14) Harthi
			15) Sidaganahalli
			16) Singripalya
			17) Belagumba
			18) Bychapura
			19) Thimmasandra
			20) Thirumale
			21) Somakkanamutta
			22) Gummasandra
			23) Melanahalli
			24) Karlamangala
			25) Basavenahalli
			26) Thyagadarepalya
			27) Nagamangala
			28) Papasastripalya
			29) Hanchikuppe
			30) Attingere
			31) Siddedevarabetta
		Ramanagara	1) Kempavaderahalli
			2) Lakshmipura

Sr. No.	District	Taluka	Village Name
			3) Melehalli
			4) Harisandra
			5) Madapura
			6) Kethohalli
			7) Balaguli
			8) Basavanapura
			9) Kothipura
			10) Siddalakallu
			11) Hunasanahalli
			12) Achalu
			13) Kunagal
			14) Kailancha

Annexure-III

Agenda Item No._3.9 **File No. 10-33/2018-IA.III**

Check List for TOR

Title of the Project: Development of Satellite Town Ring Road (STRR) Phase-I newly declared Highway NH-948A from Dobbaspete to Ramanagara (km 0.000 to km 82.200) 82.20 km in Ramanagara, Karnataka 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-I of project, which starts from Design Ch. 0+00 near Oblapura village at Nelamangala Taluk of Bangalore Rural district and ends at Design Ch. 82+200 at cross point of SH-3 (Existing Ch. 52+700) near to Kailancha village in Ramanagara district in the state of Karnataka.
2.	Location	The Entire STRR Phase-I is located in Bangalore rural district of Karnataka. The proposed road passes through Nelamangala Tehsil of Bangalore Rural and Magadi Tehsil, and Ramanagara Tehsil of Ramanagara District in Karnataka.
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 (84%), Barren (14%), other revenue/forest land (2%) around the site up to 10Km radius. The major land use of STRR Phase-I includes cultivation land and rest includes 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 got 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-I has been proposed to improve the connectivity in order to cater the needs of the growing population along fringe areas of Bangalore. The proposed road having PROW of 70 m falls in Nelamangala, Magadi, Ramanagara Taluks. Technical feature of project attached as Annexure III c. Major Railway Station: Dabaspete Railway Station (approx. 1Km) Airport: Kempegowda International Airport (Bengaluru Airport) (approx. 40 Km /start point)
7	Cost of the project	INR 2599.02 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 location falls approx. 1.2 Km away from Ramadevarabetta Vulture Sanctuary and approximately 200m away from its ESZ notified by MoEFCC vide its notification no. S.O.2993(E) dated 11.09.2017
11	Port and harbour	-
(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 clearance	Water will be required mainly during construction period. About 250 Kl/day, water will be consumed 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 Prior to Construction
(ii)	Connectivity to the site	The proposed road starts at Km 0 (NH-207– Km 131.255) and intersects at 9+500 (NH4/48 –Km 50.550), 30+364 (NH-75/48–Km 42.230), 44+500 (SH-85 –Km 47.112) and 70+250 (NH-275 Ch. 318.130) and 82+200 (SH-3–Km 52+700). The proposed road near Ramanagara shall integrate with the proposed bypasses envisaged by NHAI on NH-275 to ease the traffic congestion.
(iii)	Terrain, level with respect to MSL, requirement of filling if any	Terrain is Plain / Rolling with elevation ranges from 665 to 951 MSL 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*) 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 land owner. 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 Arkavathy crossing the alignment at 2 locations (at Design Ch. 64+480 and Ch. 78+380) and few

		minor streams crossing alignment.
(vii)	Court cases if any.	No
(viii)	Investment/Cost of the project (in crore).	INR 2600 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	This 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

GOVERNMENT OF KARNATAKA

No. PWD 518 CNH 2017.

Karnataka Government Secretariat
Vikasa Soudha,
Bengaluru, dated 27.10.2017.

From:

The Additional Chief Secretary to Government,
Public Works, Ports & Inland Water
Transport Department, Bangalore.

To:

The Deputy General Manager(Tech),
& Project Director,
PIU-Bangalore (Expressway)
National Highways Authority of India,
(Ministry of Road Transport & Highways)
Nagasandra, Near Deepak Bus Stand,
Bangalore-Tumkur Road, NH-4,
M.S.Ramaiah Enclave,
Bangalore-560 073.

Sir,

Sub: NHAI, PIU-Bangalore (Expressway)-Preparation of DPR for Development of Economic Corridors, Inner Corridors, Feeder Routes and Coastal roads to improve the Efficiency of Fright Movement in India –Lot 3/Andhra Pradesh, Karnataka, Goa & Kerala/Package –I Consent of Government of Karnataka for taking up STRR (west side) along with the concurrence for the modifications-requested- reg.

Ref: Your letter No.NHAI/12012/Lot3/Package-I/1/2017/PIU-BNG (EXP)/ 1530 dated 19.10.2017.

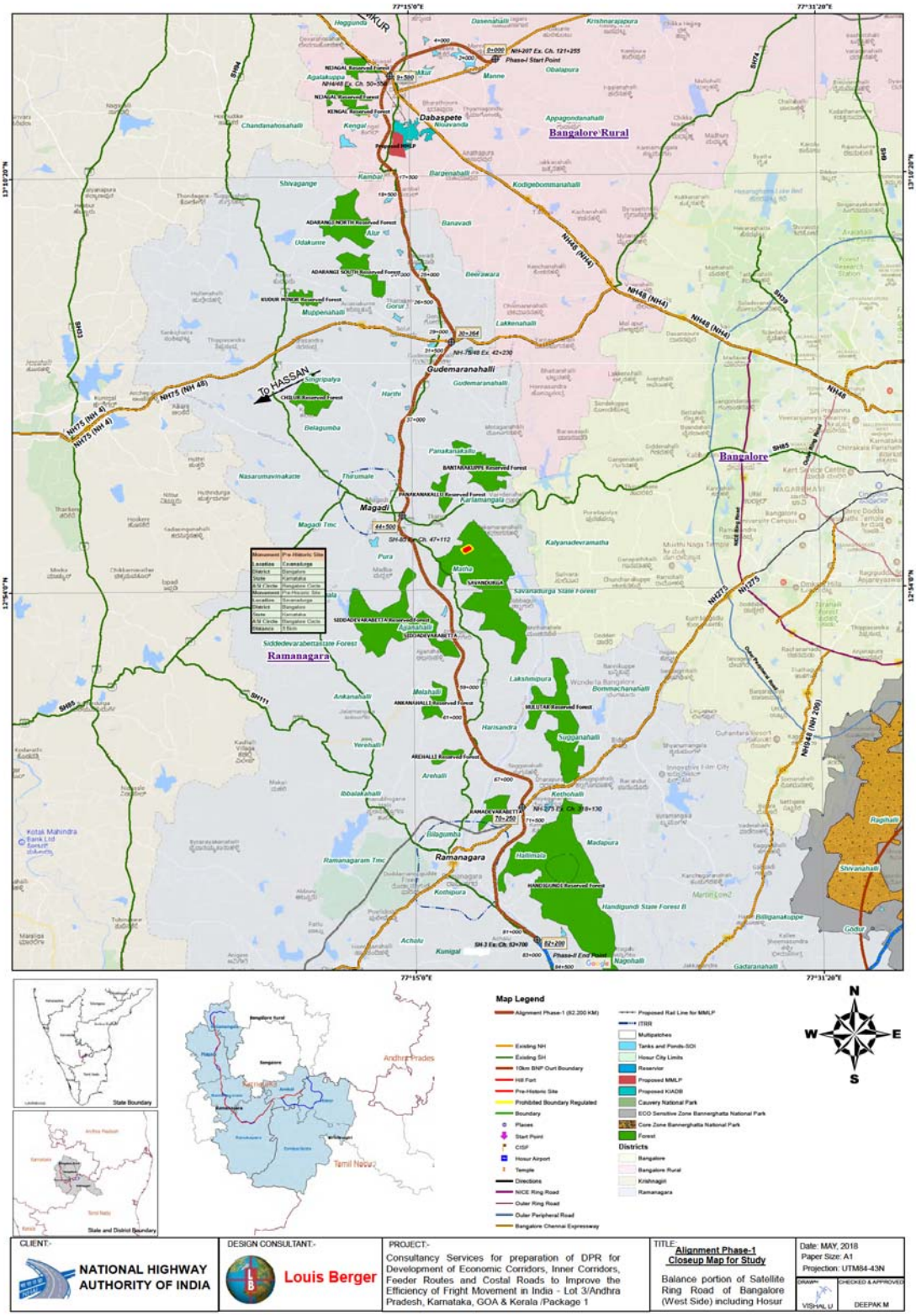
*****

With reference to the above subject, the Government of Karnataka examined the above referred your proposal for the modifications to the STRR [west side] alignment and agrees for the same. Further I am directed to convey the concurrence for taking up further studies and for initiation of preconstruction activities such as Land acquisition, MOEF and wildlife clearance etc., for the development of STRR around Bangalore.

Yours faithfully,

(M. LAKSHMINARAYANA)
Additional Chief Secretary to Government,
Public Works, Ports & Inland Water
Transport Department.

Annexure III b: The Detailed map of the alignment



Annexure III c: Salient Feature of the project

Item	Phase-I (Design Ch. 0+00 to Ch. 82+200)
Length of the existing alignment	Nil
Length of alignment proposed (Km)	82.200
Administrative locations	2 districts (Bangalore Rural and Ramanagara)
State	Karnataka
Terrain	Plain/Rolling
Width of the new alignment/ PROW (meters)	70m for the entire project road
Built-up locations	22 location near at Manne,Tattekere,Nijagal, Kempohalli, Maddenahalli, Lakkuru, Agalakuppa, Hosapalya, Banawadi, Goruru, Gudemaranahalli Handpost, Gudemaranahalli, Byalakere, Magadi, Hanchikuppe, Atimgere, Gungarahalli, Melahalli, Basavanapura, Rampura Doddi, Ramanagara, Kunagal,
Existing Carriageway	Nil
Proposed Carriageway	6 Lane
No. of Proposed Minor Bridge	5
No. of Proposed Major Bridge	2
ROBs	3 (Km. 8.946, Km 29.248, Km 71.020)
Proposed Box/Pipe Culvert	144
Proposed Vehicular Underpass	27
Proposed Viaduct	0
Proposed Interchanges	4
Existing Bus Bays	0
Proposed Bus Bays	0
Existing Truck Lay byes	0
Proposed Flyover	1 Flyover (8+950)
Project road within 15 Km of Wildlife Sanctuary	The proposed road location is about 1.2 Km away from Ramadevarabetta Vulture Sanctuary and approximately 200 m away from its ESZ notified by MoEF&CC notification S.O.2993 (E) dated 11th September 2017.
Proposed design Speed (kmph)	100 Kmph
Water requirement in KLD	250 KLD
Aggregate requirement in lakh Cum	27.19
Cement requirement in lakh Tonnes	2.30
Bitumen requirement in lakh Tonnes	0.44
Earth requirement in lakh Cum	124.99
Sand requirement in lakh Cum	9.30
Steel Requirement in Tonnes	0.57
Total Project Cost Rs.	INR 2600 Cr. (Approx.)
Environmental cost Rs.	Approx. 2% of the project cost

TOPO MAP SHOWING THE STRR PHASE - I (FROM CH 0+000 TO CH 82+200) AND BANNERGHATTA NATIONAL PARK & IT'S ESZ

START POINT OF PHASE - I CH 0+000

10KM BOUNDARY AROUND BANNERGHATTA NATIONAL PARK

ESZ OF BANNERGHATTA NATIONAL PARK

BANNERGHATTA NATIONAL PARK

ECO SENSITIVE ZONE AROUND RAMADEVARABETTA VULTURE SANCTUARY

RAMADEVARABETTA VULTURE SANCTUARY

CH 82+200 END POINT OF STRR (PHASE-I)

LEGENDS:

PROPOSED ALIGNMENT STRR PHASE- I (FROM CH 0+000 TO CH 82+200)

ECO SENSITIVE ZONE AROUND RAMADEVARABETTA VULTURE SANCTUARY

RAMADEVARABETTA VULTURE SANCTUARY

BANNERGHATTA NATIONAL PARK

ESZ OF BANNERGHATTA NATIONAL PARK

10KM BOUNDARY AROUND BANNERGHATTA NATIONAL PARK

SCALE 1:10000 (A1 Sheet)