

SCHEDULE – A
(See Clause 10.1)

SITE OF THE PROJECT

1 The Site

- 1.1** Site of the **Project - Six Lane Project Highway with Service Roads** shall include the land, buildings, structures and road works as described in Annex-I and Annex - II of this Schedule-A.
- 1.2** An inventory of the Site including the land, buildings, structures, road works, trees and any other immovable property on, or attached to, the Site is provided as a part of this schedule.

Annex - I *(Schedule-A)*

Site of Six Lane divided Highway with Service Roads

1.1 The Site

The Chennai Metropolitan Development Authority (CMDA) as part of its Master Plan has developed Outer Ring Road (ORR) along the periphery of Chennai Metropolitan Area (CMA) in Kanchipuram and Thiruvallur Districts of Tamil Nadu with the objective of relieving congestion within the city and also for catalyzing the even dispersal of urban growth. The ORR provides orbital linkages to the major radials as well as decongests the traffic flow on the existing major roads including the Inner Ring Road (IRR) and disperse the urban growth over a large area. The proposed ORR connects NH-45 at Vandalur in the south with Thiruvottiyur-Ponneri-Panchetti (TPP) Road at Minjur in the north. This ORR intersects five major roads the NH 45 (GST Road), NH 4 (Bangalore Road), NH 205 (CTH Road), NH 5 (GNT Road) and TPP Road. The entire stretch is divided into four segments and implemented in two Phases:

Phase I:

Segment-I – NH 45 to NH 4 Ch.Km. 0+000 to Km.18+950

Segment-II – NH 4 to NH 205 Ch. Km.18+950 to Km.29+650

Phase II:

Segment-III – NH 205 to NH 5 Ch.Km. 29+650 to Km.47+590

Segment-IV–NH 5 to TPP Road Ch.Km. 47+590 to Km.60+150

Segments I and II (approx. length of 29.650 km) connecting NH-45 near Vandalur to NH-205 (Between Tandarai and Nemilicheri villages) The Project Highway is developed as a six lane divided carriageway (Separated by Public Transportation Corridor of 22 m width) with service roads.

1.2 Disclaimer

The data presented in this schedule is for an initial understanding and guidance of the concessionaire. GOTN or TNRDC will not be responsible for any inaccuracy in the information provided and shall not be liable for or be bound by the data in the information provided and shall not be liable for or be bound by the data used by the Concessionaire in evaluating the project viability. The Concessionaire will carry out his own independent surveys for assessing actual position of the Project Highway.

The Concessionaire acknowledges that prior to the execution of this Agreement, the Concessionaire has satisfied himself (based on his own independent assessment) of the survey data, specifications and standards, site and all information provided by the GOTN / TNRDC. The concessionaire acknowledges and accepts the difficulties, risks and hazards likely to arise during the course of performance of his obligations hereunder.

1.3 Description of the Project Highway

The index map and location of the Project Highway is given in Figure A-1. The alignment passes

through agriculture lands and small built up areas.

1.3.1 Linear Chainage Referencing System

“Design Chainages” given in the base plans are to be used as reference for the entire length of the Project Highway. Using these as references, the Concessionaire shall, establish the “Design Chainage” for the Project Highway

1 Start and End of Project Highway

The approximate length of the Phase I of Project Highway is 29.650 kms. The Project Highway starts at National Highway – 45 at Vandalur (chainage Km 32.300) and ends at NH- 205(chainage Km 29.000) at Nemilicheri Village.

The approximate length of the Phase II of Project Highway is 30.5 kms. The Project Highway starts at Nemilicheri in National Highway – 205 i at the end of Chennai ORR Phase 1 and ends near Minjur in TPP road.

Total Length of the Project Highway is 60.15 kms.

2 Latitudes & Longitudes

The Project Highway lies between latitude 80°50’ and longitude 12°50’ and latitude 80°20’ and longitude 13°20’

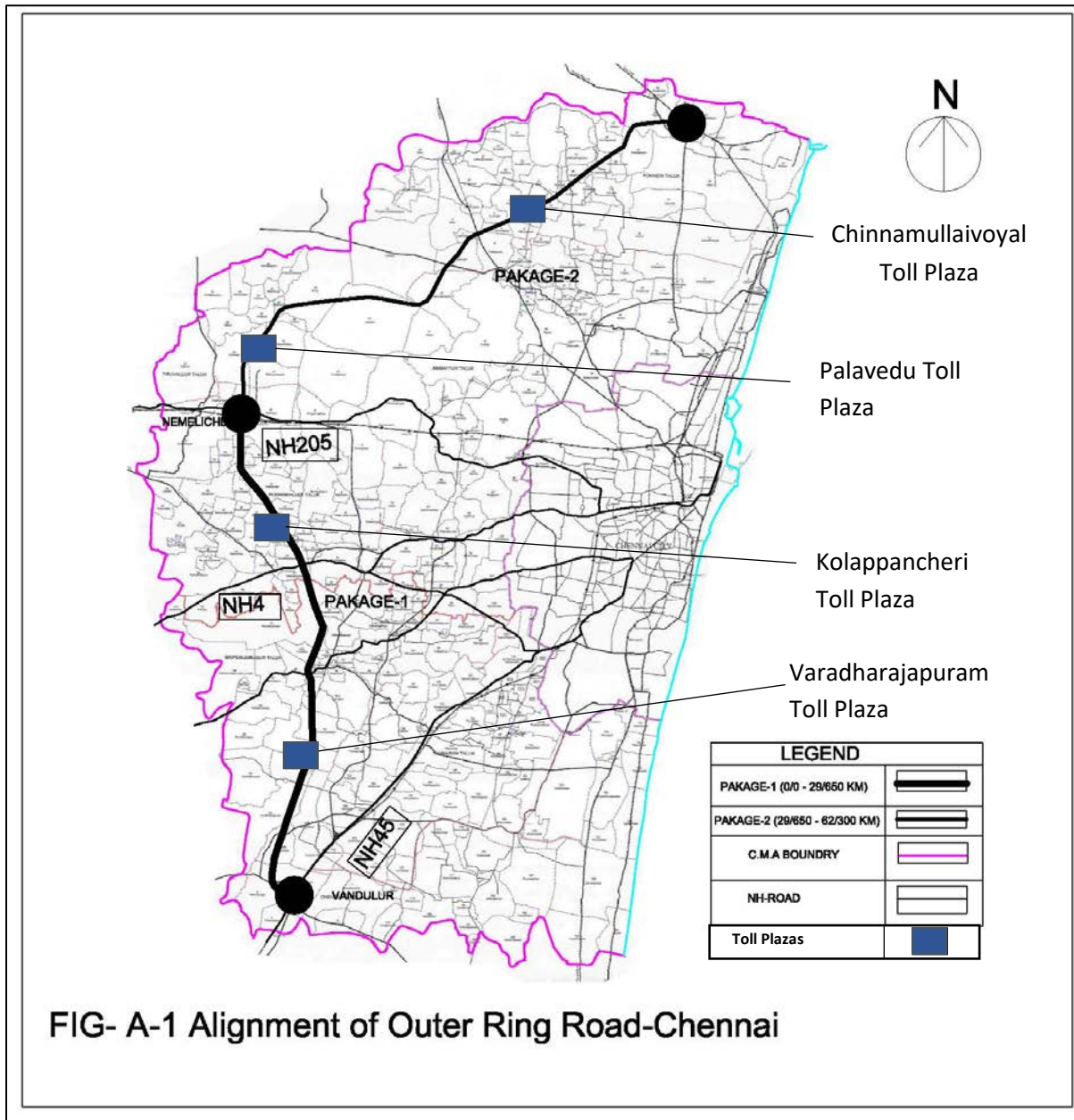
3 Terrain

The alignment passes through plain terrain.

4 Traffic

The indicative traffic estimates for the Project Highway at each toll plaza location is given in Tables A-1 to A-4.

Figure A-1: ORR Alignment in Context of Chennai Metropolitan Area



Toll plaza locations shown are indicative and for general understanding only

Map not to scale

Table A-1 Tollable Traffic on Varadharajapuram Toll Plaza

Year	Car, Van, Auto	LCV, Minibus	Bus and 2-axle	3-axle	MAV, Tractors
2022	11875	3598	1642	1252	3023
2023	13141	3786	1731	1315	3204
2024	13992	3965	1809	1380	3396
2025	14902	4153	1890	1449	3599
2026	14933	4008	1805	1377	3425
2027	15903	4197	1886	1446	3630
2028	16938	4395	1970	1518	3847
2029	18043	4603	2059	1594	4077
2030	19223	4820	2151	1674	4321
2031	20359	5026	2238	1749	4554
2032	21564	5240	2329	1828	4799
2033	22843	5464	2424	1910	5057
2034	24201	5698	2523	1996	5330
2035	25642	5942	2627	2086	5617
2036	27020	6171	2723	2170	5889
2037	28475	6410	2824	2258	6175
2038	30011	6658	2929	2349	6474
2039	31632	6915	3037	2445	6788
2040	33344	7183	3150	2544	7117
2041	34973	7434	3256	2636	7427
2042	36684	7694	3365	2733	7751

*The above figures are for reference only and the Authority does not take any responsibility/liability for their accuracy

Table A-2 Tollable Traffic on Kolappancheri Toll Plaza

Year	Car, Van, Auto	LCV, Minibus	Bus and 2-axle	3-axle	MAV, Tractors
2022	11875	3598	1642	1252	3023
2023	13141	3786	1731	1315	3204
2024	13992	3965	1809	1380	3396
2025	14902	4153	1890	1449	3599
2026	14933	4008	1805	1377	3425
2027	15903	4197	1886	1446	3630
2028	16938	4395	1970	1518	3847
2029	18043	4603	2059	1594	4077
2030	19223	4820	2151	1674	4321
2031	20359	5026	2238	1749	4554
2032	21564	5240	2329	1828	4799
2033	22843	5464	2424	1910	5057
2034	24201	5698	2523	1996	5330
2035	25642	5942	2627	2086	5617
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2040	33344	7183	3150	2544	7117
2041	34973	7434	3256	2636	7427
2042	36684	7694	3365	2733	7751

*The above figures are for reference only and the Authority does not take any responsibility/liability for their accuracy

Table A-3 Tollable Traffic on Palavedu Toll Plaza

Year	Car, Van, Auto	LCV, Minibus	Bus and 2-axle	3-axle	MAV, Tractors
2022	7199	3488	1385	1079	3447
2023	7920	3668	1456	1133	3654
2024	8413	3845	1527	1190	3873
2025	8940	4031	1601	1249	4104
2026	8541	3416	1396	1062	3458
2027	9070	3580	1464	1115	3665
2028	9634	3752	1535	1171	3884
2029	10235	3932	1610	1229	4117
2030	10875	4121	1688	1291	4363
2031	11490	4299	1762	1349	4598
2032	12142	4485	1840	1410	4846
2033	12833	4679	1921	1473	5107
2034	13565	4883	2005	1539	5382
2035	14342	5095	2093	1609	5672
2036	15082	5294	2176	1674	5947
2037	15863	5501	2262	1742	6235
2038	16687	5716	2352	1812	6538
2039	17555	5941	2445	1886	6855
2040	18471	6174	2542	1962	7187
2041	19341	6392	2633	2034	7501
2042	20254	6618	2727	2108	7828

*The above figures are for reference only and the Authority does not take any responsibility/liability for their accuracy

Table A-4 Tollable Traffic on Chinnamullaivoyal Toll Plaza

Year	Car, Van, Auto	LCV, Minibus	Bus and 2-axle	3-axle	MAV, Tractors
2022	2538	748	643	1038	3336
2023	2798	788	676	1090	3536
2024	2974	825	709	1144	3748
2025	3162	863	743	1201	3972
2026	2898	790	699	1141	3540
2027	3079	827	734	1198	3752
2028	3271	865	770	1258	3977
2029	3475	906	808	1321	4215
2030	3694	948	847	1387	4468
2031	3903	988	885	1450	4709
2032	4125	1030	924	1515	4963
2033	4361	1073	965	1583	5230
2034	4611	1119	1008	1654	5512
2035	4875	1166	1053	1729	5810
2036	5128	1211	1095	1799	6092
2037	5394	1257	1138	1871	6387
2038	5675	1305	1184	1947	6697
2039	5971	1355	1231	2026	7022
2040	6283	1407	1281	2108	7363
2041	6580	1456	1327	2185	7685
2042	6892	1506	1375	2265	8020

*The above figures are for reference only and the authority does not take any responsibility/liability for their accuracy

5 Abutting Land use:

Abutting land use is predominantly agriculture and sparse residential development. The existing land uses along the Project Highway is given in Table A-5.

Table A-5 Abutting Land Use

Phase I:

Chainage (Km)	LHS	RHS
0.000 - 4.000	Agriculture	Agriculture and open
4.000 - 8.000	Urbanisable	Primary Residential
8.000 - 10.000	Non- urban	Non urban
10.000- 11.000	Open, Industrial, Mixed Residential	Semi- urban, (Industrial and mixed Residential)
11.0000- 13.000	Open Residential/ agriculture	Open Residential/agriculture
13.000- 18.000	Water Body and Agriculture	Agriculture and Residential
18.000- 20.000	Commercial/ Open	Mixed / Residential
20.000- 26.000	Open / semi- urban	Open / Residential
26.000- 29.000	Open/Residential	Open / Residential
29.000-29.650	Open/Water Bodies	Open / Water Bodies

Phase II:

Chainage (Km)	LHS	RHS
0+000 to 0+950	Residential area/barren	Residential area
0+950 to 1+800	Agricultural, Pallavedu lake.	Agricultural/ Palavedu lake
1+800 to 2+200	Palavedu lake and residential area	Barren, residential area, Educational institutions
2+200 to 4+950	Agricultural and Commercial area	Agricultural
4+950 to 7+000	Barren	Barren
7+000 to 7+600	Commercial area and barren	Barren/Residential area
7+600 to 8+400	Barren	Barren
8+400 to 8+800	Educational Institutional area and barren	Educational Institutional area and barren
8+800 to 10+550	Barren	Coconut Plantation and barren
10+550 to 11+400	SIDCO, Eucalyptus plantation, Barren	Eucalyptus plantation, barren
11+400 to 12+750	SIDCO	Educational institution area, residential area
12+750 to 15+050	Barren/agricultural	Commercial area, barren/agricultural.
15+050 to 15+900	Barren, Commercial /residential area	Barren/ residential area
15+900 to 16+550	Commercial / residential area.	Coconut Plantations and Commercial / residential area
16+550 to 18+200	Barren	Agricultural, barren, and residential area
18+200 to 18+450	Commercial area and barren.	Commercial area and barren
18+450 to 19+100	Pannivakkam Lake	Pannivakkam Lake
19+100 to 21+250	Barren/ Agricultural	Barren/agricultural
21+250 to 24+100	Agricultural, residential area.	Residential and agricultural.
24+100 to 25+000	Agricultural	Agricultural
25+000 to 25+800	Periyamullaivoyal lake and agricultural	Periyamullaivoyal lake
25+800 to 28+750	Agricultural	Agricultural.
28+750 to 29+000	Kosathalayar River	Kosathalayar River
29+000 to 30+050	Agricultural and barren.	Agricultural and barren.
30+050 to 30+500	Barren and Commercial area	Barren and Education Institutional, Commercial area

6 Road Geometrics

The alignment traverses through plain terrain.

a. Road Inventory

The alignment length of Phase I is 29.650 km & Phase II is 30.50 km (approx.) traverses through plain terrain. The alignment is a green-field alignment developed on a new formation.

b. Land

The land width is 122 metres, and includes: (a) a 50 m road land width (in two strips of 25m each) allocated for Highways mode of transport (**Main Carriage Way with Service Road**) on either side of **Public Transportation Corridor (PTC)**; (b) a strip of 22m earmarked for locating a PTC within the ROW (in-between the two strips of 25m for the main carriageway), and, (c) a strip of 50 m, earmarked for commercial development on the inner side of the alignment.

The Concessionaire shall have no objection during any time of the concession period for access to Government or its nominated agencies on development in the 22m **PTC** and 50m **commercial development** strip of land.

c. Road Crossings/Junctions

There are in total 25 road crossings / junctions in Phase I along the Project Highway, which includes 11 major intersections of primary importance with NH and SH and 14 minor intersections of secondary importance with MDR, ODR or Village roads.

There are in total 49 road crossings / junctions in Phase II along the Project Highway, which includes 12 major intersections of primary importance with NH and SH and 37 minor intersections of secondary importance with MDR, ODR or Village roads.

d. RoBs

The Project Highway cuts across Railway lines at-grade at two locations. RoBs are provided for these locations, i.e., at Km 0.100 and Km 28.050. Both the RoBs are part of the interchanges proposed at Major Intersections with NH-45 and NH-205 respectively.

e. Drainage

The designs for the Project Highway include adequate provisions for overall drainage (cross drainage and longitudinal and/or road side) as per standards.

Annex - II
(Schedule-A)

Description of Six Lane Project Highway with Service Roads

1. Width of Carriageway

- 1.1. The paved carriageway is 36 meters wide, as mentioned in the typical cross-section (figure B), which includes (i) dual three lane carriageway, each 10.5m wide, (ii) 2.0m wide paved shoulders (1.0m wide on either side of the main carriageway), on each direction, and, (iii) 5.5m wide service roads, on either side of the divided highway.

2. Features of Six Lane with Service Roads – Project Highway

2.1. General

The description of various elements of the Project Highway has been given here. The “Project” has the same meaning as defined in Para 1.1 of Concession Agreement. The locations for the proposed elements of the Project Highway shall be finalized in consultation and approval from IE and GOTN/TNRDC.

2.2. CROSS SECTIONS

The Project Highway comprises of a 6-lane divided carriageway with paved and earthen shoulders and 5.5 m wide service roads separated by planter strip on one side as per cross section type given in Table B-1 & B-2 Cross Section to be followed is enclosed separately as **Figure B1 & B2**. The typical cross section of 6-lane with paved shoulder with 22.0m of land reserved in between for accommodating a Public Transportation Corridor (PTC) as indicated in **Figure B1 & B2**, is applicable for the Project Highway.

Table B-1: Type of Road Cross Sections for Phase I

Segment	Location		Cross Section
	From	To	
I	NH-45	NH-4	Figure B-1
II	NH-4	NH-205	Figure B-1

Table B-2: Type of Road Cross Sections for Phase II

Segment	Location		Cross Section
	From	To	
I	NH-205	NH-5	Figure B-2
II	NH-5	TPP Road	Figure B-2

2.3.Alignment Plan

The indicative alignment plan of Project Highway is available with the RFP.

Figure B-1: Typical Cross Section for Phase I

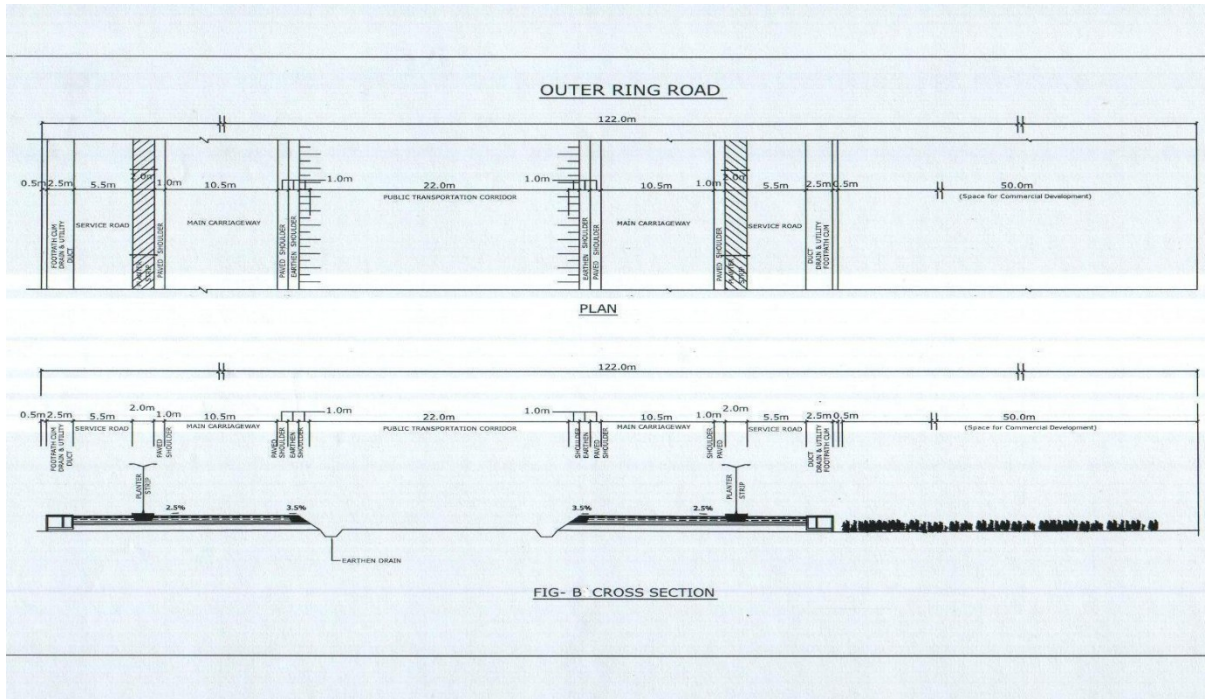
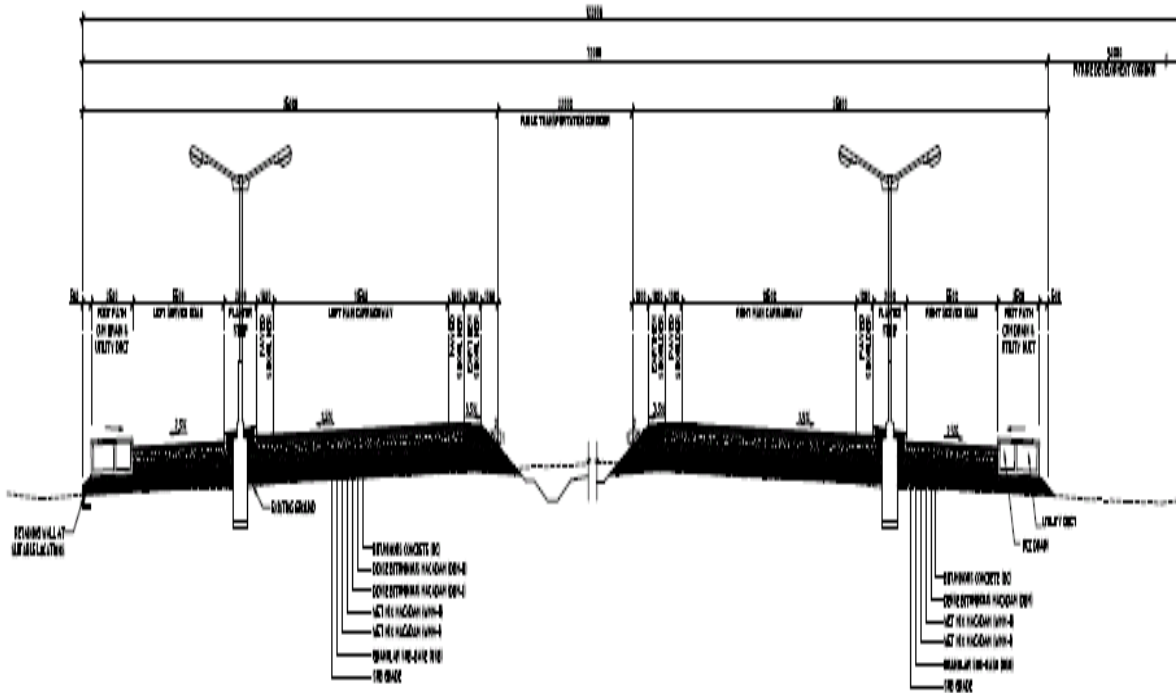


Figure B-2: Typical Cross Section for Phase II



2.4. SERVICE ROADS

Service roads (5.5m wide), one each on the LHS and RHS of the divided six lane carriageway, for the entire length of the Project Highway are designed and constructed. Planter strips of 2.0m width separate the main carriageway and service roads.

2.5. PAVEMENT

2.5.1. General

2.5.2. Pavement are flexible for main carriageway, paved shoulders, service roads, pick up bus stops, Truck lay-byes, wayside amenities complex and for cross roads up to ROW limits.

2.5.3. Pavement composition

The pavement composition for the main carriageway was designed as per IRC: 37-2001.

2.5.4. Paved Shoulder composition

The paved shoulders are an integral part of the pavement for the main carriageway. The pavement thickness of the paved shoulders is the same as in the main carriageway.

2.5.5. Pavement Composition for Service Road

The pavement composition for service roads is designed as per IRC: 37- 2001.

2.6 Existing Features

2.6.1 Feature inventory for Phase 1

Sr. No.	PARTICULARS	CHAINAGE
1.	Interchanges (3 Nos)	At Chainage 0+000, 19+650 and 29+000
2.	ROB (2 Nos)	At Chainage 0+100 and 28+550
3.	Flyovers (3 Nos)	At Chainage 1+524, 7+173 and 13+300
4.	Major Bridge (3 Nos)	At Chainage 0+730, 11+170 and 26+260
5.	Minor Bridge (2Nos)	At Chainage 5+020 and 27+990
6.	Vehicular Underpass (8 Nos)	At Chainage 4+217, 10+225, 11+080, 14+600, 18+100, 23+397, 25+043 and 27+300
7.	Pedestrian Underpass (18 Nos)	At Chainage 0+468, 2+400, 4+618, 5+152, 8+696, 9+661, 10+692, 11+859, 15+382, 17+437, 18+817, 21+000, 22+352, 23+022, 25+764, 26+588, 27+819 and 29+585
8.	Cross Drainages	Box Culverts 100 +4 =104 (4 Additional Culverts)
9.	Major Junctions (11 Nos)	At Chainage 1+480, 4+170, 7+100, 10+100, 10+900, 13+300, 14+550, 18+100, 23+300, 25+050 and 27+340
10.	Minor Junctions (14 Nos)	At Chainage 4+370, 5+040, 8+600, 9+550, 10+551, 11+780, 15+510, 17+400, 18+760, 22+375, 22+850, 25+710, 27+760 and 29+500
11.	Bus Bays (50 Nos)	At Chainage RHS - 1+575, 2+087, 4+207, 5+170, 6+938, 8+515, 9+438, 10+450, 11+884, 13+475, 14+817, 15+622, 17+240, 17+750, 18+393, 19+050, 20+080, 21+600, 23+100, 24+700, 25+900, 26+700, 27+162, 29+132 and 29+400. At Chainage LHS - 1+400, 2+150, 4+107, 5+250, 7+070, 8+622, 9+500, 10+600, 11+945, 13+535, 14+900, 15+480, 17+344, 17+801, 18+400, 18+915, 20+344, 22+213, 23+192, 24+880, 25+900, 26+650, 27+600, 29+200 and 29+465.
12.	Truck Lay Bays (2 Nos)	At Chainage RHS: 8+850, LHS:21+200
13.	Median Opening - Entry Points(18 Nos) LHS:10 Nos & RHS:08 Nos	At Chainage LHS: 2+980,5+750,6+600,7+840,9+300,12+550,12+850,14+250,17+180,21+650.

Sr. No.	PARTICULARS	CHAINAGE
		At Chainage RHS: 2+750,3+620,6+400,8+900,16+900,22+600,23+720,24+300.
14.	Median Opening - Exit Points(15Nos) LHS: 07 Nos & RHS:08 Nos	At Chainage LHS: 2+800,3+700,6+430,13+950,22+600,23+800,24+350 At Chainage RHS: 2+900, 5+540, 6+600, 9+100, 12+400, 12+800,13+950, 14+220,
15.	Median Opening (09Nos) LHS:03 Nos & RHS:06Nos	At Chainage LHS: 0+800,19+040,28+000 At Chainage RHS: 0+650,7+600,20+200,21+400,26+740,28+200
16.	No of Sign Boards	1187 Nos.
17.	Delineators	268 Nos. (LCW: 113Nos & RCW: 155Nos)
18.	MBCB	5584 RM
19.	Blinkers	44 Nos.
20.	Light Pole	1525 Nos.
21.	Pedestrian Guard Rail	840 RM
22.	5th Km Stone KM Stone HM Stone	10 Nos. 48 Nos. 232 Nos.
23.	Handrail	20050 RM
24.	Guard Post	757 Nos (LHS: 403 Nos & RHS: 354 Nos)

Box Culvert

CORR Phase-1 List of Box Culvert

Sl No.	STR No.	Chainage	Size	Remark
1	1/2	0+338	2m x 1.5m	
2	1/5	0+991	2m x 1.5m	
3	2/1	1+130	2m x 1.5m	
4	2/3	1+477	6m x 2.5m	
5	2/5	1+550	3.5m x 1.5m	
6	2/6	1+834	2m x 1.5m	
7	3/1	2+020	2m x 1.5m	
8	3/2	2+365	3.5m x 1.5m	
9	3/4	2+769	6m x 4m	
10	4/0	2+840	3.5m x 3m	
11	4/1	3+206	3.5m x 3m	
12	4/2	3+538	2m x 2m	
13	4/3	3+713	2m x 1.4m	
14	5/1	4+205	2m x 1.5m	
15	5/2	4+268	2m x 1.5m	
16	5/4	4+306	2m x 1.5m	
17	5/6	4+730	2m x 1.5m	
18	6/2	5+161	3.5m x 1.5m	
19	6/3	5+396	2m x 1.5m	
20	6/4	5+712	2m x 1.5m	
21	6/5	5+980	2m x 1.4m	
22	7/1	6+289	2m x 1.4m	
23	7/2	6+526	2m x 2m	
24	7/3	6+780	2m x 1.4m	
25	8/1	7+093	1m x 2m	
26	8/3	7+410	2m x 1.4m	
27	8/4	7+788	2m x 1.7m	
28	8/5	7+971	2m x 1.4m	
29	9/1	8+162	3.5m x 1.3m	
30	9/2	8+540	2m x 1.6m	
31	9/4	8+736	2m x 1.3m	

32	10/1	9+181	2x 1.5m
33	10/2	9+580	3.5 x 1.2m
34	10/4	9+989	2m x 1.4m
35	11/1	10+187	6m x 3m
36	11/3	10+386	2m x 1.5m
37	11/5	10+755	3.5m x 1.5m
38	11/6	10+897	3.5m x 1.5m
39	12/2	11+059	2m x 1.5m
40	12/4	11+705	2m x 1.5m
41	12/5	11+740	3.5m x 3.4m
42	13/1	12+015	2m x 2 m
43	13/3	12+386	2m x 2m
44	13/4	12+603	3.5m x 3m
45	13/5	12+857	3.5m x 1.5m
46	14/1	13+125	2m x 2m
47	14/4	13+407	3.5m x 1.5m
48	14/5	13+620	2m x 1.5m
49	15/1	14+074	2m x 1.5m
50	15/2	14+204	2m x 1.5m
51	15/3	14+347	3.5m x 2m
52	15/4	14+625	3.5m x 2m
53	15/6	14+800	3.5m x 1.5m
54	16/1	15+050	2m x 1.5m
55	16/3	15+565	2m x 2m
56	16/5	15+791	2m x 1.5m
57	16/6	15+927	2m x 1.5m
58	17/1	16+502	3.5m x 2m
59	17/2	16+520	3.5m x 2m
60	17/3	16+841	3.5m x 2m
61	18/1	17+040	2m x 2m
62	18/2	17+182	2m x 2m
63	18/3	17+300	2m x 1.5m
64	18/4	17+561	6m x 3m
65	18/5	17+748	3.5m x 2m
66	19/1	18+054	2m x 2m

67	19/3	18+220	3.5m x 1.5m	
68	19/4	18+258	2m x 1.5m	
69	19/6	18+999	2m x 1.5m	
70	20/1	19+402	2m x 2m	
71	20/2	19+800	2m x 1.5m	
72	21/1	20+002	2m x 1.5m	
73	21/2	20+187	2m x 1.5m	
74	21/3	20+482	2m x 1.5m	
75	21/4	20+634	2m x 1.5m	
76	21/5	20+894	2m x 2m	
77	22/2	21+202	2m x 1.5m	
78	22/3	21+463	2m x 2m	
79	22/4	21+960	3.5m 1.5m	
80	23/1	22+124	3.5m x 1.5m	
81	23/3	22+485	2m x 1.5m	
82	23/4	22+900	2m x 2m	
83	24/2	23+214	2m x 1.5m	
84	24/4	23+526	2m x 1.5m	
85	24/5	23+781	2m x 1.5m	
86	25/1	24+267	2m x 1.5m	
87	25/2	24+467	2m x 1.5m	
88	25/3	24+802	2m x 2m	
89	26/2	25+137	2m x 1.5m	
90	26/3	25+527	2m x 1.5m	
91	27/2	26+561	2m X 2m	
92	27/4	26+954	3.5m x 3m	
93	28/1	27+117	2m x 1.5m	
94	28/2	27+207	2m x 1.5m	
95	28/3	27+304	2m x 1.5m	
96	28/5	27+757	2m x 1.5m	
97	29/2	28+522	2m x 1.5m	
98	30/2	29+145	2m x 1.5m	
99	30/3	29+384	3.5m x 2m	
100	30/5	29+440	2m x 1.5m	

Tolling, Operation, Maintenance & Transfer of six lane Chennai Outer Ring Road (CORR) for Phase-I i.e. Vandalur to Nemilichery (29.65 km) and Phase-II i.e. Nemilichery to Minjur in TPP Road (30.50 Km), totalling 60.15 km

ADDITIONAL Culvert			
101		4+600	3no's x 600 mm dia
102		5+590	2m x 2m
103		5+931	2m x 2m
104		7+200	2m x 1.5m
Total			104

Delineators

Sl. No.	Chainage		Side	Quantity at site	Description	Remarks
	From	To				
1	0.680		LCW	1	Delineators	PTC side
2	2.700		LCW	1	Delineators	PTC
3	3.010		LCW	1	Delineators	PTC
4	8.787	9.150	LCW	11	Delineators	Kerb
5	12.314	12.880	LCW	5	Delineators	PTC
6	12.314	12.880	LCW	8	Delineators	Kerb
7	13.850		LCW	2	Delineators	PTC & Kerb
8	14.000		LCW	1	Delineators	PTC
9	14.300		LCW	2	Delineators	PTC & Kerb
10	15.499	16.502	LCW	27	Delineators	PTC & Kerb
11	19.350	20.000	LCW	29	Delineators	PTC
12	20.263	20.644	LCW	10	Delineators	Kerb
13	26.020	26.250	LCW	8	Delineators	Kerb
14	26.831	26.968	LCW	3	Delineators	PTC
15	26.831	26.968	LCW	4	Delineators	Kerb
16	0.970		RCW	1	Delineators	PTC
17	2.650		RCW	1	Delineators	PTC
18	2.950		RCW	1	Delineators	Kerb
19	8.707	9.660	RCW	13	Delineators	PTC
20	8.707	9.660	RCW	13	Delineators	Kerb
21	12.255	13.385	RCW	14	Delineators	PTC
22	12.255	13.385	RCW	18	Delineators	Kerb
23	13.720		RCW	2	Delineators	PTC & Kerb
24	13.980		RCW	2	Delineators	PTC & Kerb
25	14.180		RCW	2	Delineators	PTC & Kerb
26	15.387	16.485	RCW	26	Delineators	PTC & Kerb

27	19.350	20.000	RCW	25	Delineators	PTC
28	20.298	20.608	RCW	10	Delineators	Kerb
29	26.020	26.250	RCW	11	Delineators	Kerb
30	26.761	26.997	RCW	6	Delineators	PTC
31	26.761	26.997	RCW	10	Delineators	Kerb
TOTAL				268		

Metal Beam Crash Barrier

Sr. No.	Chainage		Side	Nos	Quantity (Rm)	Remarks
	From	To				
1	0.615	0.696	LCW	1	80.700	
2	0.772	0.800	LCW	1	28.000	
3	0.800	0.884	LCW	1	84.000	
4	0.884	0.977	LCW	1	92.700	
5	2.676	2.752	LCW	1	76.000	
6	2.752	2.790	LCW	1	38.000	
7	2.790	2.898	LCW	1	108.000	
8	2.898	2.998	LCW	1	100.000	
9	3.036	3.120	LCW	1	84.000	
10	3.120	3.192	LCW	1	72.000	
11	4.942	4.966	LCW	1	24.000	
12	5.018	5.042	LCW	1	24.000	
13	11.219	11.261	LCW	1	38.600	
14	11.374	11.498	LCW	1	124.500	
15	13.885	14.050	LCW	1	165.000	
16	15.795	16.035	LCW	1	240.00	
17	20.742	20.751	LCW	1	8.700	
18	21.800	22.113	LCW	1	312.700	
19	22.530	22.691	LCW	1	160.700	
20	22.850	22.859	LCW	1	8.700	
21	23.684	23.776	LCW	1	92.000	
22	23.787	23.956	LCW	1	168.700	
23	24.195	24.445	LCW	1	249.400	
24	24.602	24.611	LCW	1	8.700	
25	26.085	26.278	LCW	1	192.700	
26	26.420	26.480	LCW	1	60.000	
27	26.831	26.972	LCW	1	141.400	
28	27.924	27.957	LCW	1	32.700	
29	27.986	28.103	LCW	1	116.700	
	TOTAL				2932.60	Rm
30	0.614	0.694	RCW	1	80.000	
31	0.771	0.925	RCW	1	154.000	

Sr. No.	Chainage		Side	Nos	Quantity (Rm)	Remarks
	From	To				
32	2.642	2.680	RCW	1	38.000	
33	2.680	2.702	RCW	1	22.000	
34	2.702	2.712	RCW	1	10.000	
35	2.712	2.924	RCW	1	212.000	
36	2.924	2.956	RCW	1	32.000	
37	2.956	3.114	RCW	1	158.000	
38	3.114	3.130	RCW	1	16.000	
39	3.130	3.140	RCW	1	10.000	
40	3.140	3.160	RCW	1	20.000	
41	4.830	4.878	RCW	1	48.000	
42	4.915	4.939	RCW	1	24.000	
43	11.146	11.174	RCW	1	28.900	
44	11.283	11.396	RCW	1	113.100	
45	13.720	13.784	RCW	1	64.000	
46	13.784	13.796	RCW	1	11.800	
47	13.796	13.834	RCW	1	38.200	
48	15.895	15.965	RCW	1	70.00	
49	21.192	21.201	RCW	1	8.700	
50	21.499	21.601	RCW	1	101.400	
51	22.540	22.669	RCW	1	128.700	
52	23.677	23.958	RCW	1	280.700	
53	24.017	24.339	RCW	1	321.400	
54	24.420	24.462	RCW	1	41.400	
55	26.010	26.231	RCW	1	220.700	
56	26.350	26.399	RCW	1	48.700	
57	26.850	27.039	RCW	1	188.700	
58	27.850	27.890	RCW	1	40.000	
59	27.930	28.051	RCW	1	120.700	
	TOTAL				2651.10	Rm
	GRAND TOTAL =2932.6+2651.10				5583.70	Rm

Sign Boards

CORR Phase-1 List of Sign boards

Sr.no	Chainage	Side	NO.s	Type of Board	Remarks
1	0.000	LHS	1	Use Service road for CORR	
2	0.000	LHS	1	2 - Directional Sign	
3	0.480	LHS	1	Pedestrian Crossing	
4	0.468	LHS	1	Speed limit -40 Km	PUP
5	0.468	LHS	1	Speed Breaker	PUP
6	0.490	LHS	1	Height Limit - (2.5 m)	Minor Junction
7	0.630	LHS	1	Gap In Median	
8	0.660	LHS	1	Exit Ramp	
9	0.720	LHS	1	Hazard Board	
10	0.780	LHS	1	2 - Directional Sign	
11	0.840	LHS	1	Cluster Sign	Gap In Median
12	0.870	LHS	1	Entry Prohibited	
13	0.920	LHS	1	Hazard Board	
14	1.350	LHS	1	Bus Stop	
15	1.380	LHS	1	Cluster Sign	Bus Bay
16	1.400	LHS	1	Speed Breaker	Major Junction
17	1.440	LHS	1	Major Road	Major Junction
18	1.480	LHS	1	Stop Sign	Major Junction
19	1.500	LHS	1	2 - Directional Sign	Major Junction
20	1.510	LHS	1	2 - Directional Sign	Major Junction
21	1.550	LHS	1	Stop Sign	Major Junction
22	2.070	LHS	1	Bus Stop	
23	2.087	LHS	1	Cluster Sign	Bus Bay
24	2.090	LHS	1	No parking	

25	2.120	LHS	2	Hazard Board	
26	2.200	LHS	1	Left Junction	Minor Junction
27	2.215	LHS	1	Give way	Minor Junction
28	2.245	LHS	2	Cluster Sign	Minor Junction
29	2.250	LHS	1	Major Road (T)	Minor Junction
30	2.250	LHS	1	Directional	Minor Junction
31	2.350	LHS	1	Speed limit -40 Km	PUP
32	2.350	LHS	1	Speed Breaker	PUP
33	2.360	LHS	1	Pedestrian Crossing	
34	2.375	LHS	1	Height Limit - (2.5 m)	Minor Junction
35	2.720	LHS	1	Speed Breaker	
36	2.800	LHS	1	Exit Ramp	
37	2.800	LHS	1	Cluster Sign	Exit Ramp
38	2.815	LHS	1	No parking	
39	2.840	LHS	1	Go slow	
40	2.880	LHS	1	Speed Breaker	
41	2.910	LHS	1	Entry Ramp	
42	2.930	LHS	1	No parking	
43	2.990	LHS	1	Cluster Sign	Entry Ramp
44	3.540	LHS	1	Advanced direction board	Major Junction
45	3.600	LHS	1	Speed Breaker	
46	3.700	LHS	1	Exit Ramp	
47	3.700	LHS	1	Cluster Sign	Exit Ramp
48	3.950	LHS	1	Speed limit -100 Km	
49	3.950	LHS	1	Speed limit -40 Km	
50	4.000	LHS	1	Emergency contact board	AS per Site
51	4.010	LHS	2	Hazard Board	

Tolling, Operation, Maintenance & Transfer of six lane Chennai Outer Ring Road (CORR) for Phase-I i.e. Vandalur to Nemilichery (29.65 km) and Phase-II i.e. Nemilichery to Minjur in TPP Road (30.50 Km), totalling 60.15 km

52	4.045	LHS	1	Bus Stop	
53	4.100	LHS	1	Cluster Sign	Bus Bay
54	4.130	LHS	1	Major Road	
55	4.190	LHS	1	Speed Breaker	Major Junction
56	4.220	LHS	2	Stop Sign	Major Junction
57	4.230	LHS	1	2 - Directional Sign	Major Junction
58	4.300	LHS	2	Cluster Sign	Major junction
59	4.300	LHS	1	Height Limit (5.5m)	Major Junction
60	4.310	LHS	1	No Entry	Major Junction
61	4.508	LHS	1	Left Junction	Minor Junction
62	4.530	LHS	1	Directional	Minor Junction
63	4.550	LHS	1	Speed Breaker	Minor Junction
64	4.570	LHS	1	Speed limit -40 Km	Minor Junction
65	4.590	LHS	1	Pedestrian Crossing	
66	4.610	LHS	1	Height Limit - (2.5 m)	Minor Junction
67	4.620	LHS	1	Give way	Minor Junction
68	4.630	LHS	2	Cluster Sign	Minor Junction
69	4.630	LHS	1	Major Road (T)	Minor Junction
70	5.030	LHS	1	Hazard Board	
71	5.070	LHS	1	Speed Breaker	Minor Junction
72	5.080	LHS	1	Pedestrian Crossing	
73	5.100	LHS	1	Speed limit -40 Km	Minor Junction
74	5.120	LHS	1	Height Limit - (2.5 m)	Minor Junction
75	5.150	LHS	1	Give way	Minor Junction
76	5.150	LHS	2	Cluster Sign	Minor Junction
77	5.153	LHS	1	Left Junction	Minor Junction
78	5.160	LHS	1	Directional	Minor Junction

Tolling, Operation, Maintenance & Transfer of six lane Chennai Outer Ring Road (CORR) for Phase-I i.e. Vandalur to Nemilichery (29.65 km) and Phase-II i.e. Nemilichery to Minjur in TPP Road (30.50 Km), totalling 60.15 km

79	5.200	LHS	1	Bus Stop	
80	5.250	LHS	1	Cluster Sign	Bus Bay
81	5.390	LHS	1	No parking	
82	5.560	LHS	1	Speed Breaker	
83	5.585	LHS	1	Entry Ramp	
84	5.640	LHS	1	Cluster Sign	Entry Ramp
85	5.700	LHS	1	Speed limit -40 Km	
86	5.850	LHS	1	Two wheelers keep left	
87	6.304	LHS	1	Advanced direction board	
88	6.350	LHS	1	Directional	MCW
89	6.385	LHS	1	Exit Ramp	
90	6.460	LHS	1	Cluster Sign	Exit Ramp
91	6.570	LHS	1	Entry Ramp	
92	6.650	LHS	1	Cluster Sign	Entry Ramp
93	6.840	LHS	2	Hazard Board	
94	7.000	LHS	1	Bus Stop	
95	7.080	LHS	1	Cluster Sign	Bus Bay
96	7.100	LHS	1	Speed Breaker	Major Junction
97	7.150	LHS	1	Cross Road	Major Junction
98	7.170	LHS	1	Stop Sign	Major Junction
99	7.180	LHS	1	2 - Directional Sign	Major Junction
100	7.200	LHS	6	Cluster Sign	Major junction
101	7.200	LHS	1	No entry	Major junction
102	7.220	LHS	1	Stop Sign	Major Junction
103	7.220	LHS	1	Give way	Major Junction
104	7.300	LHS	1	Major Road (+)	Major Junction
105	7.620	LHS	1	Emergency contact board	

Tolling, Operation, Maintenance & Transfer of six lane Chennai Outer Ring Road (CORR) for Phase-I i.e. Vandalur to Nemilichery (29.65 km) and Phase-II i.e. Nemilichery to Minjur in TPP Road (30.50 Km), totalling 60.15 km

106	7.770	LHS	1	Speed Breaker	
107	7.785	LHS	1	Entry Ramp	
108	7.860	LHS	1	Cluster Sign	Entry Ramp
109	7.950	LHS	1	No parking	
110	7.960	LHS	1	Speed limit -100 Km	
111	7.960	LHS	1	Speed limit -40 Km	
112	8.515	LHS	2	Hazard Board	
113	8.530	LHS	1	Bus Stop	
114	8.570	LHS	1	Left Junction	Minor Junction
115	8.600	LHS	1	Speed Breaker	Minor Junction
116	8.610	LHS	1	Cluster Sign	Bus Bay
117	8.620	LHS	1	Pedestrian Crossing	Minor Junction
118	8.630	LHS	1	Speed limit -40 Km	Minor Junction
119	8.680	LHS	1	Height Limit - (2.5 m)	Minor Junction
120	8.720	LHS	1	Give way	Minor Junction
121	8.720	LHS	2	Cluster Sign	Minor Junction
122	8.720	LHS	1	Major Road (T)	Minor Junction
123	9.000	LHS	1	Directional	
124	9.015	LHS	1	Advanced direction board	Major Junction
125	9.030	LHS	1	Left Curve	
126	9.080	LHS	1	Cattle crossing	
127	9.100	LHS	1	Chevron	
128	9.150	LHS	1	Chevron	
129	9.200	LHS	1	Chevron	
130	9.240	LHS	1	Speed Breaker	
131	9.250	LHS	1	Chevron	
132	9.250	LHS	1	No parking	

133	9.280	LHS	1	Entry Ramp	
134	9.300	LHS	1	Chevron	
135	9.350	LHS	1	Chevron	
136	9.400	LHS	2	Hazard Board	
137	9.400	LHS	1	Bus Stop	
138	9.460	LHS	1	Cluster Sign	Bus Bay
139	9.550	LHS	1	Speed Breaker	Minor Junction
140	9.580	LHS	1	Pedestrian Crossing	
141	9.590	LHS	1	Speed limit -40 Km	Minor Junction
142	9.630	LHS	1	Give way	Minor Junction
143	9.630	LHS	1	Height Limit - (2.5 m)	Minor Junction
144	9.630	LHS	1	Left Junction	Minor Junction
145	9.650	LHS	2	Cluster Sign	Minor Junction
146	9.670	LHS	1	Major Road (T)	Minor Junction
147	9.670	LHS	1	Directional	Minor Junction
148	9.830	LHS	1	Emergency contact board	
149	9.900	LHS	2	Hazard Board	
150	10.112	LHS	1	Major Road (+)	Major Junction
151	10.160	LHS	1	Speed limit -40 Km	Major Junction
152	10.170	LHS	1	2 - Directional Sign	Major Junction
153	10.180	LHS	1	Speed Breaker	Major Junction
154	10.195	LHS	1	Stop Sign	Major Junction
155	10.230	LHS	1	Pedestrian Crossing	
156	10.230	LHS	2	Cluster Sign	Major junction
157	10.230	LHS	1	No Entry	Major Junction
158	10.240	LHS	1	Stop Sign	Major Junction
159	10.240	LHS	1	Advanced direction board	Major Junction

160	10.250	LHS	1	Height Limit (5.5m)	Major Junction
161	10.450	LHS	1	Bus Stop	
162	10.480	LHS	1	Cluster Sign	Bus Bay
163	10.530	LHS	1	Speed Breaker	Minor Junction
164	10.580	LHS	1	Speed limit -40 Km	Minor Junction
165	10.600	LHS	1	Pedestrian Crossing	Minor Junction
166	10.620	LHS	1	Left Junction	Minor Junction
167	10.640	LHS	1	Height Limit - (2.5 m)	Minor Junction
168	10.690	LHS	1	Directional	Minor Junction
169	10.699	LHS	1	Give way	Minor Junction
170	10.850	LHS	1	Speed limit -40 Km	Major Junction
171	10.890	LHS	1	2 - Directional Sign	Major Junction
172	10.900	LHS	1	Cross Road	Major Junction
173	10.900	LHS	1	Major Road (+)	Major Junction
174	10.920	LHS	1	Stop Sign	Major Junction
175	10.920	LHS	1	Speed Breaker	Major Junction
176	10.980	LHS	1	Pedestrian Crossing	
177	11.010	LHS	1	No Entry	Major Junction
178	11.020	LHS	1	Height Limit (5.5m)	Major Junction
179	11.020	LHS	2	Cluster Sign	Major junction
180	11.030	LHS	1	Cross Road	Major Junction
181	11.030	LHS	1	Stop Sign	Major Junction
182	11.030	LHS	1	Advanced direction board	Major Junction
183	11.260	LHS	1	Hazard Board	
184	11.500	LHS	1	Hazard Board	
185	11.750	LHS	1	Left Junction	Minor Junction
186	11.760	LHS	1	Speed Breaker	Minor Junction

187	11.790	LHS	1	Major Road (+)	Major Junction
188	11.820	LHS	1	Bus Stop	
189	11.840	LHS	1	Height Limit - (2.5 m)	Minor Junction
190	11.920	LHS	1	Cluster Sign	Bus Bay
191	12.200	LHS	1	Directional	MCW
192	12.280	LHS	1	Emergency contact board	
193	12.460	LHS	1	Speed Breaker	
194	12.470	LHS	1	Entry Ramp	
195	12.490	LHS	1	No parking	
196	12.540	LHS	1	Cluster Sign	Entry Ramp
197	12.550	LHS	1	No parking	
198	12.580	LHS	1	Advanced direction board	
199	12.610	LHS	1	Left Curve	
200	12.650	LHS	1	Chevron	
201	12.700	LHS	1	Chevron	
202	12.750	LHS	1	Chevron	
203	12.800	LHS	1	Chevron	
204	12.850	LHS	1	Cluster Sign	Entry Ramp
205	12.950	LHS	2	Hazard Board	
206	13.200	LHS	1	Major Road (+)	Major Junction
207	13.260	LHS	1	Speed Breaker	Major Junction
208	13.270	LHS	1	Pedestrian Crossing	
209	13.300	LHS	1	Stop Sign	Major Junction
210	13.310	LHS	1	2 - Directional Sign	Major Junction
211	13.360	LHS	1	No Entry	Major Junction
212	13.400	LHS	4	Cluster Sign	Major junction
213	13.400	LHS	1	Give way	Major junction

214	13.460	LHS	1	Bus Stop	
215	13.475	LHS	1	Cluster Sign	Bus Bay
216	13.850	LHS	1	Emergency contact board	
217	13.880	LHS	1	No parking	
218	13.885	LHS	1	Entry Ramp	
219	13.960	LHS	1	Cluster Sign	Entry Ramp
220	14.005	LHS	1	Advanced direction board	Major Junction
221	14.200	LHS	1	Entry Ramp	
222	14.270	LHS	1	Cluster Sign	Entry Ramp
223	14.300	LHS	1	Speed limit -100 Km	
224	14.300	LHS	1	Speed limit -40 Km	
225	14.340	LHS	2	Hazard Board	
226	14.540	LHS	1	Speed limit -40 Km	Major Junction
227	14.570	LHS	1	Pedestrian Crossing	
228	14.580	LHS	1	Major Road (+)	Major Junction
229	14.590	LHS	1	Speed Breaker	Major Junction
230	14.590	LHS	1	Stop Sign	Major Junction
231	14.670	LHS	1	No Entry	Major Junction
232	14.690	LHS	1	Cross Road	
233	14.690	LHS	1	Height Limit (5.5m)	Major Junction
234	14.700	LHS	4	Cluster Sign	Major Junction
235	14.700	LHS	1	Stop Sign	Major Junction
236	14.700	LHS	1	Advanced direction board	Major Junction
237	14.900	LHS	1	Bus Stop	
238	14.950	LHS	1	Cluster Sign	Bus Bay
239	15.280	LHS	1	Speed limit -40 Km	Minor Junction
240	15.290	LHS	1	Speed Breaker	Minor Junction

241	15.290	LHS	1	Left Junction	Minor Junction
242	15.320	LHS	1	Height Limit - (2.5 m)	Minor Junction
243	15.330	LHS	1	Pedestrian Crossing	
244	15.345	LHS	1	Directional	Minor Junction
245	15.360	LHS	1	Major Road (T)	Minor Junction
246	15.360	LHS	1	Give way	Minor Junction
247	15.610	LHS	1	Bus Stop	
248	15.630	LHS	1	Cluster Sign	Bus Bay
249	15.640	LHS	1	accident zone	
250	15.700	LHS	1	accident zone	
251	15.750	LHS	1	Speed limit -60 Km	
252	15.770	LHS	1	Sharp Curve Ahead	
253	15.810	LHS	1	Chevron	
254	15.860	LHS	1	Chevron	
255	15.910	LHS	1	Chevron	
256	15.960	LHS	1	Chevron	
257	16.010	LHS	1	Chevron	
258	16.060	LHS	1	Chevron	
259	16.110	LHS	1	Chevron	
260	16.160	LHS	1	Chevron	
261	16.210	LHS	1	Chevron	
262	16.860	LHS	1	Advanced direction board	
263	17.100	LHS	1	Entry Ramp	
264	17.100	LHS	1	No parking	
265	17.180	LHS	1	Cluster Sign	Entry Ramp
266	17.195	LHS	1	No parking	
267	17.250	LHS	2	Hazard Board	

268	17.260	LHS	1	Speed limit -40 Km	Minor Junction
269	17.280	LHS	1	Bus Stop	
270	17.320	LHS	1	Speed Breaker	Minor Junction
271	17.340	LHS	1	Cluster Sign	Bus Bay
272	17.380	LHS	1	Pedestrian Crossing	
273	17.390	LHS	1	Height Limit - (2.5 m)	Minor Junction
274	17.400	LHS	1	Left Junction	
275	17.410	LHS	1	Directional	Minor Junction
276	17.600	LHS	1	Emergency contact board	
277	17.720	LHS	2	Hazard Board	
278	17.730	LHS	1	Bus Stop	
279	17.780	LHS	1	Cluster Sign	Bus Bay
280	17.900	LHS	1	Speed limit -40 Km	Major Junction
281	17.979	LHS	1	Major Road (+)	Major Junction
282	17.985	LHS	1	Cross Road	Major Junction
283	18.055	LHS	1	Speed breaker	Major Junction
284	18.055	LHS	1	Speed Breaker	Major Junction
285	18.080	LHS	1	Stop Sign	Major Junction
286	18.100	LHS	1	Pedestrian Crossing	
287	18.150	LHS	1	Advanced direction board	Major Junction
288	18.150	LHS	1	Height Limit (5.5m)	Major Junction
289	18.320	LHS	1	Bus Stop	
290	18.393	LHS	1	Cluster Sign	Bus Bay
291	18.670	LHS	1	Speed limit -40 Km	Minor Junction
292	18.690	LHS	1	Left Junction	Minor Junction
293	18.710	LHS	1	Speed Breaker	Minor Junction
294	18.780	LHS	1	Pedestrian Crossing	

295	18.790	LHS	1	Height Limit - (2.5 m)	Minor Junction
296	18.810	LHS	2	Cluster Sign	Minor Junction
297	18.820	LHS	1	Give way	Minor Junction
298	18.850	LHS	1	Bus Stop	
299	18.900	LHS	1	Cluster Sign	Bus Bay
300	18.980	LHS	1	Advanced direction board	
301	18.990	LHS	1	Gap in Median	
302	18.995	LHS	1	Entry Ramp	
303	19.010	LHS	1	Advanced direction board	Major Junction
304	19.030	LHS	1	Emergency contact board	
305	19.040	LHS	1	Cluster Sign	Gap In Median
306	19.040	LHS	2	Hazard Board	
307	19.500	LHS	23	Chevron	South West
308	19.500	LHS	1	Advanced direction board	South West
309	19.550	LHS	2	Hazard Board	South West
310	19.550	LHS	1	Entry Prohibited	South West
311	19.550	LHS	2	Speed Limit 20 Km	South West
312	19.700	LHS	17	Chevron	North West
313	19.750	LHS	1	Advanced direction board	North West
314	19.750	LHS	1	Double chevron	North West
315	19.750	LHS	2	Speed Limit 20 Km	North West
316	20.220	LHS	1	Bus Stop	
317	20.250	LHS	1	Left Curve	
318	20.300	LHS	1	Cluster Sign	Bus Bay
319	20.300	LHS	1	Chevron	
320	20.350	LHS	1	Chevron	
321	20.380	LHS	1	Emergency contact board	

322	20.400	LHS	1	Chevron	
323	20.750	LHS	2	Hazard Board	
324	20.884	LHS	1	Truck Lay Bye	
325	20.920	LHS	1	Speed Breaker	PUP
326	20.930	LHS	1	Pedestrian Crossing	
327	20.950	LHS	1	Height Limit - (2.5 m)	Minor Junction
328	20.960	LHS	1	Speed limit -40 Km	PUP
329	21.500	LHS	1	Speed limit -40 Km	
330	21.560	LHS	1	Cluster Sign	Entry Ramp
331	21.570	LHS	1	Speed breaker	
332	21.610	LHS	1	Entry Ramp	
333	21.720	LHS	1	Two wheelers keep left	
334	21.800	LHS	1	Speed limit -100 Km	
335	21.810	LHS	1	Speed limit -40 Km	
336	22.120	LHS	1	Hazard Board	
337	22.140	LHS	1	Bus Stop	
338	22.200	LHS	1	Cluster Sign	
339	22.300	LHS	1	Speed limit -40 Km	Minor Junction
340	22.310	LHS	1	Pedestrian Crossing	
341	22.330	LHS	1	Height Limit - (2.5 m)	Minor Junction
342	22.340	LHS	1	Speed Breaker	Minor Junction
343	22.350	LHS	1	Left Junction	Minor Junction
344	22.350	LHS	1	Give way	
345	22.350	LHS	1	Major Road	
346	22.510	LHS	1	emergency contact board	
347	22.550	LHS	1	Exit Ramp	
348	22.560	LHS	1	Speed Breaker	

349	22.630	LHS	1	Cluster Sign	Exit Ramp
350	22.780	LHS	1	Left Junction	Minor Junction
351	22.800	LHS	1	Advanced direction board	
352	22.850	LHS	2	Hazard Board	
353	22.970	LHS	1	Pedestrian Crossing	
354	22.970	LHS	1	Speed Breaker	Minor Junction
355	22.980	LHS	1	Speed limit -40 Km	Minor Junction
356	22.990	LHS	1	Height Limit - (2.5 m)	Minor Junction
357	23.120	LHS	1	Bus Stop	
358	23.170	LHS	1	Cluster Sign	Bus Bay
359	23.250	LHS	1	Speed Breaker	Major Junction
360	23.270	LHS	1	Major Road	
361	23.340	LHS	1	2 - Directional Sign	Major Junction
362	23.370	LHS	1	Speed limit -40 Km	Major Junction
363	23.380	LHS	1	Stop Sign	Major Junction
364	23.390	LHS	1	Pedestrian Crossing	
365	23.400	LHS	1	Major Road (+)	Major Junction
366	23.420	LHS	1	No Entry	Major Junction
367	23.430	LHS	1	Height Limit (5.5m)	Major Junction
368	23.650	LHS	1	Speed Breaker	
369	23.735	LHS	1	Exit Ramp	
370	23.800	LHS	1	Cluster Sign	Exit Ramp
371	23.820	LHS	1	No parking	
372	24.260	LHS	1	Speed Breaker	
373	24.285	LHS	1	Exit Ramp	
374	24.350	LHS	1	Cluster Sign	Exit Ramp
375	24.400	LHS	1	Emergency contact board	

Tolling, Operation, Maintenance & Transfer of six lane Chennai Outer Ring Road (CORR) for Phase-I i.e. Vandalur to Nemilichery (29.65 km) and Phase-II i.e. Nemilichery to Minjur in TPP Road (30.50 Km), totalling 60.15 km

376	24.440	LHS	1	Advanced direction board	
377	24.500	LHS	1	No parking	
378	24.620	LHS	2	Hazard Board	
379	24.810	LHS	1	Bus Stop	
380	24.900	LHS	1	Cluster Sign	Bus Bay
381	24.940	LHS	1	speed breaker	
382	24.950	LHS	1	Speed limit -40 Km	
383	24.960	LHS	1	Pedestrian Crossing	
384	24.980	LHS	1	Major Road	
385	24.980	LHS	1	Cross Road	Major Junction
386	25.050	LHS	1	No Entry	Major Junction
387	25.050	LHS	1	Height Limit (5.5m)	Major Junction
388	25.100	LHS	1	Stop Sign	Major Junction
389	25.480	LHS	1	Speed limit -100 Km	
390	25.480	LHS	1	Speed limit -40 Km	
391	25.540	LHS	2	Hazard Board	
392	25.690	LHS	1	speed breaker	
393	25.700	LHS	1	Pedestrian Crossing	
394	25.725	LHS	1	Height Limit - (2.5 m)	Minor Junction
395	25.730	LHS	1	Directional	Minor Junction
396	25.760	LHS	1	Speed limit -40 Km	Minor Junction
397	25.760	LHS	1	Speed Breaker	Minor Junction
398	25.790	LHS	1	Left Junction	Minor Junction
399	25.800	LHS	2	Cluster Sign	Minor Junction
400	25.810	LHS	1	Give way	Minor Junction
401	25.810	LHS	1	Major Road (T)	Minor Junction
402	25.810	LHS	1	Directional	Minor Junction

403	25.850	LHS	1	Bus Stop	
404	25.900	LHS	1	Cluster Sign	Bus Bay
405	26.140	LHS	1	Right Curve	
406	26.170	LHS	1	Chevron	
407	26.190	LHS	1	Go Slow	
408	26.220	LHS	1	Chevron	
409	26.230	LHS	1	Hazard Board	
410	26.300	LHS	1	Left Junction	
411	26.420	LHS	1	Hazard Board	
412	26.430	LHS	2	Cluster Sign	Minor Junction
413	26.440	LHS	1	Major Road (T)	Minor Junction
414	26.460	LHS	1	Give way	Minor Junction
415	26.460	LHS	1	Directional	Minor Junction
416	26.520	LHS	1	Speed Breaker	Minor Junction
417	26.530	LHS	1	Speed limit -40 Km	Minor Junction
418	26.540	LHS	1	Pedestrian Crossing	
419	26.560	LHS	1	Height Limit - (2.5 m)	Minor Junction
420	26.580	LHS	1	Bus Stop	
421	26.630	LHS	1	Cluster Sign	Bus Bay
422	26.830	LHS	1	Go Slow	
423	26.830	LHS	1	Left Curve	
424	26.850	LHS	1	Chevron	
425	26.900	LHS	1	Chevron	
426	26.950	LHS	1	Chevron	
427	26.970	LHS	1	Hazard Board	
428	27.260	LHS	1	Cross Road	Major Junction
429	27.270	LHS	1	Speed limit -40 Km	

Tolling, Operation, Maintenance & Transfer of six lane Chennai Outer Ring Road (CORR) for Phase-I i.e. Vandalur to Nemilichery (29.65 km) and Phase-II i.e. Nemilichery to Minjur in TPP Road (30.50 Km), totalling 60.15 km

430	27.280	LHS	1	Pedestrian Crossing	
431	27.310	LHS	1	Speed Breaker	
432	27.340	LHS	1	Stop Sign	Major Junction
433	27.350	LHS	1	Stop Sign	Major Junction
434	27.380	LHS	3	Cluster Sign	Major junction
435	27.400	LHS	1	No Entry	Major Junction
436	27.400	LHS	1	Advanced direction board	Major Junction
437	27.420	LHS	1	Height Limit (5.5m)	Major Junction
438	27.520	LHS	1	Bus Stop	
439	27.520	LHS	1	Speed limit -40 Km	Major Junction
440	27.670	LHS	1	Speed Breaker	Major Junction
441	27.700	LHS	1	Speed limit -40 Km	Minor Junction
442	27.750	LHS	1	Pedestrian Crossing	
443	27.780	LHS	1	Height Limit - (2.5 m)	Minor Junction
444	27.810	LHS	1	Stop Sign	
445	27.820	LHS	1	Left Junction	Minor Junction
446	27.930	LHS	1	Major Road (T)	Minor Junction
447	27.950	LHS	1	Advanced direction board	Major Junction
448	27.960	LHS	1	Exit Ramp	Gap in Median
449	27.960	LHS	1	Speed Breaker	
450	27.970	LHS	1	Gap in Median	
451	28.000	LHS	1	Speed limit -100 Km	
452	28.000	LHS	1	Speed limit -40 Km	
453	28.040	LHS	1	Cluster Sign	Median Open
454	28.200	LHS	1	Emergency contact board	
455	28.260	LHS	2	Hazard Board	
456	28.450	LHS	1	Left Junction	Minor Junction

Tolling, Operation, Maintenance & Transfer of six lane Chennai Outer Ring Road (CORR) for Phase-I i.e. Vandalur to Nemilichery (29.65 km) and Phase-II i.e. Nemilichery to Minjur in TPP Road (30.50 Km), totalling 60.15 km

457	28.460	LHS	1	Major Road (T)	Minor Junction
458	28.460	LHS	1	Give way	Minor Junction
459	28.660	LHS	1	Double chevron	
460	29.132	LHS	1	Cluster Sign	Bus Bay
461	29.150	LHS	1	Bus Stop	
462	29.410	LHS	1	Bus Stop	
463	29.440	LHS	1	Cluster Sign	Bus Bay
464	29.580	LHS	1	Pedestrian Crossing	
465	29.590	LHS	1	Height Limit - (2.5 m)	Minor Junction
466	29.610	LHS	1	Speed Breaker	Minor Junction
467	29+650	LHs	1	Give way	
468	0.000	RHS	9	Chevron	Vandalur Up Ramp
469	0.000	RHS	10	Chevron	Vandalur Down Ramp
470	0.000	RHS	8	Chevron	Chennai Down Ramp
471	0.050	RHS	1	Speed limit -40 Km	Vandalur Up Ramp
472	0.050	RHS	1	Speed limit -40 Km	Vandalur Down Ramp
473	0.050	RHS	1	Speed limit -20 Km	Chennai Down Ramp
474	0.080	RHS	1	Speed limit -40 Km	Vandalur Up Ramp
475	0.080	RHS	1	Speed limit -40 Km	Vandalur Down Ramp
476	0.080	RHS	1	Speed limit -40 Km	Chennai Down Ramp
477	0.150	RHS	1	Double Chevron	
478	0.540	RHS	1	Height Limit - (2.5 m)	Minor Junction
479	0.550	RHS	1	Speed breaker	PUP
480	0.550	RHS	1	Pedestrian Crossing	
481	0.600	RHS	1	Hazard Board	
482	0.650	RHS	1	Culster Sign	Gap In Median
483	0.680	RHS	1	2 - Directional Sign	

Tolling, Operation, Maintenance & Transfer of six lane Chennai Outer Ring Road (CORR) for Phase-I i.e. Vandalur to Nemilichery (29.65 km) and Phase-II i.e. Nemilichery to Minjur in TPP Road (30.50 Km), totalling 60.15 km

484	0.700	RHS	1	Entry Ramp	
485	0.780	RHS	1	Hazard Board	
486	0.790	RHS	1	Speed limit -40 Km	
487	0.810	RHS	1	Gap In Median	
488	1.500	RHS	1	Advance Directional Board	Major Junction
489	1.500	RHS	1	Stop Sign	Major Junction
490	1.500	RHS	1	Cross Road	
491	1.550	RHS	1	2 - Directional Sign	Major Junction
492	1.560	RHS	1	Stop Sign	Major Junction
493	1.570	RHS	1	Major Road (+)	Major Junction
494	1.580	RHS	1	Speed breaker	Major Junction
495	1.650	RHS	1	Bus Stop	
496	1.950	RHS	2	Hazard Board	
497	2.070	RHS	1	Cluster Sign	Bus bay
498	2.160	RHS	1	Bus Stop	
499	2.400	RHS	1	Speed breaker	Minor Junction
500	2.408	RHS	1	Height Limit - (2.5 m)	Minor Junction
501	2.450	RHS	1	Pedestrian Crossing	Minor Junction
502	2.670	RHS	1	Hazard Board	
503	2.680	RHS	1	Speed limit -100 Km	
504	2.680	RHS	1	Speed limit -40 Km	
505	2.750	RHS	1	Cluster Sign	Entry Ramp
506	2.800	RHS	1	Emergency Contact Boards	
507	2.870	RHS	1	Entry Ramp	
508	2.900	RHS	1	Cluster Sign	Exit Ramp
509	2.980	RHS	1	Exit Ramp	
510	3.100	RHS	1	Advance Directional Board	

Tolling, Operation, Maintenance & Transfer of six lane Chennai Outer Ring Road (CORR) for Phase-I i.e. Vandalur to Nemilichery (29.65 km) and Phase-II i.e. Nemilichery to Minjur in TPP Road (30.50 Km), totalling 60.15 km

511	3.630	RHS	1	Cluster Sign	Entry Ramp
512	3.700	RHS	1	Entry Ramp	
513	4.050	RHS	1	Cluster Sign	Bus bay
514	4.100	RHS	1	Bus Stop	
515	4.200	RHS	1	Major Road (+)	Major Junction
516	4.200	RHS	1	No Entry	Major Junction
517	4.200	RHS	1	Advance Directional Board	Major Junction
518	4.200	RHS	1	Stop Sign	
519	4.200	RHS	1	Cross Road	
520	4.200	RHS	5	Cluster Sign	Major Junction
521	4.340	RHS	1	Height Limit (5.5m)	Major Junction
522	4.350	RHS	1	Stop Sign	
523	4.400	RHS	1	2 - Directional Sign	
524	4.410	RHS	1	Give Way	Major Junction
525	4.420	RHS	1	Speed breaker	Major Junction
526	4.600	RHS	2	Cluster Sign	Minor Junction
527	4.600	RHS	1	Directional Sign	Minor Junction
528	4.610	RHS	1	Speed breaker	Minor Junction
529	4.650	RHS	1	Height Limit - (2.5 m)	Minor Junction
530	4.680	RHS	1	Pedestrian Crossing	Minor Junction
531	4.850	RHS	1	Hazard Board	
532	5.100	RHS	1	Height Limit - (2.5 m)	Minor Junction
533	5.100	RHS	1	Give Way	Minor Junction
534	5.100	RHS	1	Major Road (T)	Minor Junction
535	5.100	RHS	2	Cluster Sign	Minor Junction
536	5.150	RHS	1	Directional Board	Minor Junction
537	5.150	RHS	1	Left Junction	Minor Junction

538	5.150	RHS	1	Pedestrian Crossing	Minor Junction
539	5.160	RHS	1	Directional Board	Minor Junction
540	5.160	RHS	1	Speed breaker	Minor Junction
541	5.190	RHS	1	Cluster Sign	Bus bay
542	5.245	RHS	1	Bus Stop	
543	5.270	RHS	2	Hazard Board	
544	5.580	RHS	1	Cluster Sign	exit Ramp
545	5.650	RHS	1	Exit Ramp	
546	5.750	RHS	1	Advance Directional Board	
547	6.040	RHS	1	Two wheelers keep left	
548	6.100	RHS	1	Speed breaker	
549	6.300	RHS	1	Speed limit -40 Km	
550	6.440	RHS	1	Cluster Sign	exit Ramp
551	6.500	RHS	1	Entry Ramp	
552	6.540	RHS	1	Speed breaker	
553	6.640	RHS	1	Cluster Sign	Entry Ramp
554	6.698	RHS	1	Exit Ramp	
555	6.938	RHS	1	Cluster Sign	Bus bay
556	7.020	RHS	1	Bus Stop	
557	7.170	RHS	1	Stop Sign	Major Junction
558	7.170	RHS	4	Cluster Sign	Major Junction
559	7.170	RHS	1	No Entry	Major Junction
560	7.170	RHS	1	Cross Road	Major Junction
561	7.270	RHS	1	Advance Directional Board	Major Junction
562	7.270	RHS	1	Speed breaker	Major Junction
563	7.280	RHS	1	Pedestrian Crossing	Major Junction
564	7.300	RHS	1	Major Road (+)	Major Junction

565	7.310	RHS	1	2 - Directional Sign	Major Junction
566	7.370	RHS	1	Stop Sign	Major Junction
567	7.400	RHS	1	Speed limit -40 Km	
568	7.502	RHS	1	Left Junction	
569	7.550	RHS	2	Hazard Board	
570	7.580	RHS	1	Speed limit -100 Km	
571	7.580	RHS	1	Cluster Sign	Gap In Median
572	7.600	RHS	1	Emergency Contact Boards	
573	7.600	RHS	1	Directional	MCW
574	7.610	RHS	1	Exit Ramp	
575	7.650	RHS	1	Gap In Median	
576	7.650	RHS	1	Speed Breaker	
577	7.660	RHS	1	Directional Board	
578	7.850	RHS	1	Advance Directional Board	
579	8.430	RHS	1	Overhead cable	
580	8.515	RHS	1	Cluster Sign	Bus bay
581	8.580	RHS	1	Bus Stop	
582	8.600	RHS	1	Major Road -T	
583	8.600	RHS	1	Give Way	Minor Junction
584	8.630	RHS	2	Cluster Sign	Minor Junction
585	8.670	RHS	1	Directional Board	Minor Junction
586	8.680	RHS	1	Height Limit - (2.5 m)	Minor Junction
587	8.680	RHS	1	Left Junction	Minor Junction
588	8.700	RHS	1	Speed breaker	Minor Junction
589	8.730	RHS	1	Directional Board	Minor Junction
590	8.880	RHS	2	Hazard Board	
591	8.950	RHS	1	Speed Breaker	

592	9.030	RHS	1	Cluster Sign	Entry Ramp
593	9.080	RHS	1	Entry Ramp	
594	9.140	RHS	1	Exit Ramp	
595	9.160	RHS	1	Speed breaker	
596	9.160	RHS	1	Speed Breaker	
597	9.200	RHS	1	Cattle crossing	
598	9.200	RHS	1	Chevron	
599	9.210	RHS	1	Cluster Sign	Exit Ramp
600	9.250	RHS	1	Chevron	
601	9.300	RHS	1	Chevron	
602	9.300	RHS	1	Truck Lay Bye	
603	9.300	RHS	1	Right Curve	
604	9.350	RHS	1	Chevron	
605	9.420	RHS	1	Cluster Sign	Bus bay
606	9.510	RHS	1	Bus Stop	
607	9.580	RHS	1	Directional Board	Minor Junction
608	9.580	RHS	1	Give Way	Minor Junction
609	9.580	RHS	2	Cluster Sign	Minor Junction
610	9.620	RHS	1	Major Road (T)	Minor Junction
611	9.680	RHS	1	Height Limit - (2.5 m)	Minor Junction
612	9.730	RHS	1	Speed breaker	Minor Junction
613	9.735	RHS	1	Left Junction	Minor Junction
614	9.740	RHS	1	Pedestrian Crossing	Minor Junction
615	9.770	RHS	1	Directional Board	Minor Junction
616	9.800	RHS	2	Hazard Board	
617	10.150	RHS	1	No Entry	Major Junction
618	10.150	RHS	1	Give Way	

619	10.150	RHS	1	Advance Directional Board	Major Junction
620	10.150	RHS	1	Stop Sign	Major Junction
621	10.150	RHS	2	Cluster Sign	Major Junction
622	10.150	RHS	1	Height Limit (5.5m)	Major Junction
623	10.200	RHS	1	Cross Road	Major Junction
624	10.200	RHS	1	2 - Directional Sign	Major Junction
625	10.240	RHS	1	Pedestrian Crossing	Major Junction
626	10.250	RHS	1	Speed breaker	Major Junction
627	10.260	RHS	1	Stop Sign	Major Junction
628	10.350	RHS	1	Major Road (+)	
629	10.450	RHS	1	Cluster Sign	Bus bay
630	10.530	RHS	1	Bus Stop	
631	10.550	RHS	1	Give Way	
632	10.550	RHS	1	T junction board	
633	10.550	RHS	1	Directional Board	
634	10.550	RHS	2	Cluster Sign	Minor Junction
635	10.700	RHS	1	Directional Board	Minor Junction
636	10.720	RHS	1	Height Limit - (2.5 m)	Minor Junction
637	10.750	RHS	1	Speed breaker	Minor Junction
638	10.755	RHS	1	Left Junction	Minor Junction
639	10.760	RHS	1	Pedestrian Crossing	Minor Junction
640	10.950	RHS	1	Stop Sign	Major Junction
641	10.950	RHS	1	Height Limit (5.5m)	Major Junction
642	10.950	RHS	2	Cluster Sign	Major Junction
643	10.950	RHS	1	Give Way	Major Junction
644	10.980	RHS	1	No Entry	Major Junction
645	11.010	RHS	1	Advance Directional Board	Major Junction

646	11.010	RHS	1	Cross Road	major Junction
647	11.050	RHS	1	Pedestrian Crossing	Major Junction
648	11.050	RHS	1	Speed breaker	Major Junction
649	11.100	RHS	1	Stop Sign	
650	11.120	RHS	2	Cluster Sign	Major Junction
651	11.140	RHS	1	Hazard Board	
652	11.150	RHS	1	Major Road (+)	Major Junction
653	11.320	RHS	1	Hazard Board	
654	11.770	RHS	1	Pedestrian Crossing	Minor Junction
655	11.800	RHS	2	Cluster Sign	Minor Junction
656	11.800	RHS	1	T junction board	
657	11.800	RHS	1	Give Way	Minor Junction
658	11.820	RHS	1	Directional Board	Minor Junction
659	11.850	RHS	1	Directional Board	Minor Junction
660	11.880	RHS	1	Speed breaker	Minor Junction
661	11.884	RHS	1	Cluster Sign	Bus bay
662	11.890	RHS	1	Height Limit (2.5 m)	Minor Junction
663	11.894	RHS	1	Left Junction	Minor Junction
664	11.900	RHS	1	Directional Board	Minor Junction
665	12.005	RHS	1	Bus Stop	
666	12.100	RHS	2	Hazard Board	
667	12.440	RHS	1	Cluster Sign	Exit Ramp
668	12.500	RHS	1	Emergency Contact Boards	
669	12.520	RHS	1	Exit Ramp	
670	12.540	RHS	1	Advance Directional Board	
671	12.600	RHS	1	Chevron	
672	12.650	RHS	1	Chevron	

Tolling, Operation, Maintenance & Transfer of six lane Chennai Outer Ring Road (CORR) for Phase-I i.e. Vandalur to Nemilichery (29.65 km) and Phase-II i.e. Nemilichery to Minjur in TPP Road (30.50 Km), totalling 60.15 km

673	12.700	RHS	1	Chevron	
674	12.750	RHS	1	Chevron	
675	12.800	RHS	1	Chevron	
676	12.850	RHS	1	Exit Ramp	
677	12.850	RHS	1	Chevron	
678	12.880	RHS	1	Go Slow	
679	12.900	RHS	1	Right Curve	
680	13.300	RHS	4	Cluster Sign	Major Junction
681	13.300	RHS	1	No Entry	Major Junction
682	13.380	RHS	1	2 - Directional Sign	Major Junction
683	13.410	RHS	1	Pedestrian Crossing	Major Junction
684	13.430	RHS	1	Stop Sign	
685	13.430	RHS	1	Speed breaker	Major Junction
686	13.490	RHS	1	Major road	Major Junction
687	13.500	RHS	1	Cluster Sign	Bus bay
688	13.500	RHS	1	Bus Stop	
689	13.700	RHS	2	Hazard Board	
690	13.750	RHS	1	Speed limit -40 Km	Major Junction
691	13.750	RHS	1	Speed limit -100 Km	
692	13.750	RHS	1	Speed limit -40 Km	
693	13.910	RHS	1	Cluster Sign	exit Ramp
694	13+990	RHS	1	Exit Ramp	
695	14.000	RHS	1	No Parking	
696	14.030	RHS	1	Place Identification Sign	
697	14.210	RHS	1	Cluster Sign	Exit Ramp
698	14.270	RHS	1	Cattle crossing	
699	14.310	RHS	1	Advance Directional Board	

700	14.350	RHS	1	Exit Ramp	
701	14.600	RHS	1	Stop Sign	Major Junction
702	14.600	RHS	1	Major Road	Major Junction
703	14.600	RHS	1	Give Way	Major Junction
704	14.600	RHS	1	Advance Directional Board	Major Junction
705	14.650	RHS	1	Advance Directional Board	Major Junction
706	14.660	RHS	1	Pedestrian Crossing	Major Junction
707	14.690	RHS	1	Major Road (+)	Major Junction
708	14.690	RHS	1	Give Way	Major Junction
709	14.690	RHS	1	Stop Sign	Major Junction
710	14.700	RHS	4	Cluster Sign	Major Junction
711	14.710	RHS	1	Speed breaker	Major Junction
712	14.715	RHS	1	No Entry	Major Junction
713	14.720	RHS	1	Give Way	
714	14.730	RHS	1	2 - Directional Sign	Major Junction
715	14.730	RHS	1	Stop Sign	
716	14.780	RHS	1	Height Limit (5.5m)	Major Junction
717	14.817	RHS	1	Cluster Sign	Bus bay
718	14.970	RHS	1	Bus Stop	
719	15.000	RHS	2	Hazard Board	
720	15.100	RHS	1	Emergency Contact Boards	
721	15.330	RHS	1	Give Way	Minor Junction
722	15.350	RHS	1	Height Limit - (2.5 m)	Minor Junction
723	15.360	RHS	1	Major Road (T)	Minor Junction
724	15.360	RHS	1	Directional Board	Minor Junction
725	15.360	RHS	2	Cluster Sign	Minor Junction
726	15.360	RHS	1	Pedestrian Crossing	Minor Junction

Tolling, Operation, Maintenance & Transfer of six lane Chennai Outer Ring Road (CORR) for Phase-I i.e. Vandalur to Nemilichery (29.65 km) and Phase-II i.e. Nemilichery to Minjur in TPP Road (30.50 Km), totalling 60.15 km

727	15.380	RHS	1	Speed breaker	Minor Junction
728	15.600	RHS	2	Hazard Board	
729	15.605	RHS	1	Left Junction	
730	15.622	RHS	1	Cluster Sign	Bus bay
731	15.740	RHS	1	Chevron	
732	15.770	RHS	1	Chevron	
733	15.774	RHS	1	Bus Stop	
734	15.820	RHS	1	Chevron	
735	15.870	RHS	1	Chevron	
736	15.920	RHS	1	Chevron	
737	15.980	RHS	1	Chevron	
738	16.030	RHS	1	Chevron	
739	16.090	RHS	1	Chevron	
740	16.140	RHS	1	Right Curve	
741	16.695	RHS	1	Cattle crossing	
742	16.900	RHS	1	Cluster Sign	Entry Ramp
743	16.970	RHS	1	Emergency Contact Boards	
744	16.980	RHS	1	Speed Breaker	
745	16.980	RHS	1	Entry Ramp	
746	17.240	RHS	1	Cluster Sign	Bus bay
747	17.350	RHS	1	Directional Board	Minor Junction
748	17.350	RHS	1	Give Way	Minor Junction
749	17.350	RHS	1	Major Road (T)	Minor Junction
750	17.360	RHS	1	Bus Stop	
751	17.400	RHS	2	Cluster Sign	Minor Junction
752	17.465	RHS	1	Height Limit - (2.5 m)	Minor Junction
753	17.470	RHS	1	Pedestrian Crossing	Minor Junction

754	17.500	RHS	1	Speed breaker	Minor Junction
755	17.540	RHS	1	Left Junction	Minor Junction
756	17.605	RHS	2	Hazard Board	
757	17.750	RHS	1	Cluster Sign	Bus bay
758	17.877	RHS	1	Bus Stop	
759	18.150	RHS	7	Cluster Sign	
760	18.150	RHS	1	Height Limit (5.5m)	Major Junction
761	18.160	RHS	1	Give Way	
762	18.180	RHS	1	No Entry	Major Junction
763	18.200	RHS	1	Advance Directional Board	Major Junction
764	18.200	RHS	1	Cross Road	Major Junction
765	18.210	RHS	1	Stop Sign	Major Junction
766	18.250	RHS	1	Stop Sign	
767	18.250	RHS	1	Pedestrian Crossing	Major Junction
768	18.300	RHS	1	Speed breaker	Major Junction
769	18.330	RHS	1	2 - Directional Sign	Major Junction
770	18.360	RHS	1	Major Road	
771	18.410	RHS	1	Cluster Sign	Bus bay
772	18.465	RHS	1	Bus Stop	
773	18.780	RHS	1	Give Way	Minor Junction
774	18.780	RHS	1	Major Road (T)	Minor Junction
775	18.790	RHS	1	Directional Board	Minor Junction
776	18.790	RHS	1	Directional Board	Minor Junction
777	18.830	RHS	1	Left Junction	
778	18.860	RHS	1	Pedestrian Crossing	Minor Junction
779	18.860	RHS	1	Pedestrian Crossing	
780	18.900	RHS	1	Height Limit - (2.5 m)	Minor Junction

781	18.900	RHS	1	Cluster Sign	Bus bay
782	18.910	RHS	1	Speed breaker	
783	19.166	RHS	1	Bus Stop	
784	19.480	RHS	1	Advance Directional Board	South East
785	19.500	RHS	27	Chevron	South East
786	19.550	RHS	1	2 - Directional Sign	South East
787	19.550	RHS	3	Speed Limit (20)	South East
788	19.650	RHS	1	2 - Directional Sign	North East
789	19.700	RHS	23	Chevron	North East
790	19.700	RHS	3	Speed Limit (20)	North East
791	19.700	RHS	23	Chevron	North East
792	19.780	RHS	1	Advance Directional Board	North East
793	19.920	RHS	1	Advance Directional Board	
794	20.080	RHS	1	Cluster Sign	Bus bay
795	20.136	RHS	1	Bus Stop	
796	20.220	RHS	2	Hazard Board	
797	20.220	RHS	1	Cluster Sign	Gap In Median
798	20.280	RHS	1	Gap In Median	
799	20.300	RHS	1	Emergency Contact Boards	
800	20.300	RHS	1	Speed Breaker	
801	20.320	RHS	1	Exit Ramp	
802	20.330	RHS	1	Advance Directional Board	
803	20.360	RHS	1	Speed breaker	
804	20.450	RHS	1	Speed limit -100 Km	
805	20.450	RHS	1	Speed limit -40 Km	
806	21.030	RHS	1	Height Limit - (2.5 m)	
807	21.040	RHS	1	Speed breaker	

808	21.050	RHS	1	Pedestrian Crossing	
809	21.050	RHS	1	Speed breaker	
810	21.200	RHS	2	Hazard Board	
811	21.600	RHS	1	Cluster Sign	Bus bay
812	21.706	RHS	1	Bus Stop	
813	21.900	RHS	1	Two wheelers keep left	
814	22.040	RHS	1	Speed limit -40 Km	
815	22.080	RHS	1	Speed limit -40 Km	
816	22.360	RHS	1	Directional Board	Minor Junction
817	22.372	RHS	1	Height Limit - (2.5 m)	Minor Junction
818	22.372	RHS	1	Speed breaker	
819	22.380	RHS	1	Pedestrian Crossing	Minor Junction
820	22.400	RHS	1	Give Way	Minor Junction
821	22.400	RHS	2	Cluster Sign	Minor Junction
822	22.400	RHS	1	T junction board	
823	22.450	RHS	1	Emergency Contact Boards	
824	22.450	RHS	1	Directional Board	
825	22.561	RHS	1	Left Junction	Minor Junction
826	22.600	RHS	2	Hazard Board	
827	22.620	RHS	1	Go Slow	
828	22.630	RHS	1	Entry Ramp	
829	22.650	RHS	1	Speed Breaker	
830	23.045	RHS	1	Left Junction	Minor Junction
831	23.065	RHS	1	Height Limit - (2.5 m)	Minor Junction
832	23.065	RHS	1	Speed breaker	Minor Junction
833	23.090	RHS	1	Pedestrian Crossing	Minor Junction
834	23.100	RHS	1	Cluster Sign	Bus bay

835	23.206	RHS	1	Bus Stop	
836	23.350	RHS	1	Advance Directional Board	Major Junction
837	23.350	RHS	4	Cluster Sign	Major Junction
838	23.350	RHS	1	Stop Sign	Major Junction
839	23.350	RHS	1	Height Limit (5.5m)	Major Junction
840	23.360	RHS	1	Cross Road	Major Junction
841	23.360	RHS	1	Stop Sign	Major Junction
842	23.360	RHS	1	No Entry	Major Junction
843	23.440	RHS	1	Speed breaker	Major Junction
844	23.450	RHS	1	2 - Directional Sign	Major Junction
845	23.460	RHS	1	Pedestrian Crossing	Major Junction
846	23.490	RHS	1	Major Road (+)	Major Junction
847	23.690	RHS	1	Hazard Board	
848	23.720	RHS	1	Cluster Sign	Entry Ramp
849	23.800	RHS	1	Speed Breaker	
850	23.820	RHS	1	Entry Ramp	
851	23.950	RHS	1	Give Way	
852	23.950	RHS	1	Major Road (T)	Minor Junction
853	23.950	RHS	2	Cluster Sign	Minor Junction
854	23.950	RHS	1	Directional Board	Minor Junction
855	23.980	RHS	1	Directional Board	Minor Junction
856	24.070	RHS	1	Advance Directional Board	
857	24.390	RHS	1	Speed Breaker	
858	24.400	RHS	1	Emergency Contact Boards	
859	24.410	RHS	1	Entry Ramp	
860	24.410	RHS	1	Cluster Sign	Entry Ramp
861	24.700	RHS	1	Cluster Sign	Bus bay

862	24.796	RHS	1	Bus Stop	
863	25.020	RHS	1	Height Limit (5.5m)	Major Junction
864	25.030	RHS	1	Cross Road	Major Junction
865	25.030	RHS	1	Stop Sign	Major Junction
866	25.040	RHS	4	Cluster Sign	Major Junction
867	25.050	RHS	1	No Entry	Major Junction
868	25.050	RHS	2	Stop Sign	Major Junction
869	25.080	RHS	1	Speed breaker	Major Junction
870	25.120	RHS	1	Major Road (+)	Major Junction
871	25.140	RHS	1	Pedestrian Crossing	Major Junction
872	25.150	RHS	1	Speed limit -40 Km	Major Junction
873	25.250	RHS	1	Go Slow	
874	25.400	RHS	2	Hazard Board	
875	25.450	RHS	1	Speed limit -100 Km	
876	25.740	RHS	1	Give Way	
877	25.740	RHS	2	Cluster Sign	Minor Junction
878	25.750	RHS	1	Major Road (T)	
879	25.800	RHS	1	Speed breaker	Minor Junction
880	25.810	RHS	1	Height Limit - (2.5 m)	Minor Junction
881	25.820	RHS	1	Pedestrian Crossing	Minor Junction
882	25.820	RHS	1	Speed limit -40 Km	Minor Junction
883	25.830	RHS	1	Directional Board	Minor Junction
884	25.885	RHS	1	Left Junction	Minor Junction
885	25.900	LHS	1	Cluster Sign	Bus bay
886	25.980	RHS	1	Bus Stop	
887	26.050	RHS	1	Go Slow	
888	26.050	RHS	1	Chevron	

889	26.100	RHS	1	Chevron	
890	26.150	RHS	1	Chevron	
891	26.200	RHS	1	Go Slow	
892	26.240	RHS	1	Left Curve	
893	26.370	RHS	1	Hazard Board	
894	26.390	RHS	1	Emergency Contact Boards	
895	26.580	RHS	1	Directional Board	
896	26.580	RHS	1	Give Way	Minor Junction
897	26.580	RHS	1	Major Road (T)	Minor Junction
898	26.590	RHS	1	Speed breaker	Minor Junction
899	26.620	RHS	1	Height Limit - (2.5 m)	Minor Junction
900	26.640	RHS	1	Speed limit -40 Km	
901	26.650	RHS	1	Pedestrian Crossing	Minor Junction
902	26.660	RHS	1	Directional Board	Minor Junction
903	26.700	RHS	2	Hazard Board	
904	26.700	LHS	1	Cluster Sign	Bus bay
905	26.700	RHS	1	Left Junction	
906	26.740	RHS	1	Cluster Sign	Gap In Median
907	26.780	RHS	1	Gap In Median	
908	26.800	RHS	1	Speed Breaker	
909	26.820	RHS	1	Chevron	
910	26.838	RHS	1	Bus Stop	
911	26.870	RHS	1	Chevron	
912	26.920	RHS	1	Chevron	
913	27.000	RHS	1	Go Slow	
914	27.070	RHS	1	Right Curve	
915	27.162	RHS	1	Cluster Sign	Bus bay

916	27.250	RHS	1	Bus Stop	
917	27.340	RHS	1	Height Limit (5.5m)	Major Junction
918	27.350	RHS	1	No Entry	Major Junction
919	27.350	RHS	1	Advance Directional Board	Major Junction
920	27.350	RHS	1	Cross Road	Major Junction
921	27.360	RHS	4	Cluster Sign	Major Junction
922	27.440	RHS	1	Speed limit -40 Km	Major Junction
923	27.450	RHS	1	Speed breaker	Major Junction
924	27.500	RHS	1	2 - Directional Sign	Major Junction
925	27.520	RHS	1	Major Road (+)	Major Junction
926	27.795	RHS	1	Height Limit - (2.5 m)	Minor Junction
927	27.830	RHS	1	Speed breaker	Minor Junction
928	27.860	RHS	1	Pedestrian Crossing	Minor Junction
929	27.900	RHS	2	Hazard Board	
930	27.970	RHS	1	Speed limit -40 Km	Minor Junction
931	28.000	RHS	1	Speed limit -100 Km	
932	28.030	RHS	1	Exit Ramp	
933	28.070	RHS	1	Speed Breaker	
934	28.205	RHS	1	Gap In Median	
935	28.260	RHS	1	Advance Directional Board	
936	28.950	RHS	2	Hazard Board	
937	29.120	RHS	1	No Entry	Major Junction
938	29.150	RHS	1	Speed breaker	
939	29.160	LHS	1	Cluster Sign	Bus bay
940	29.270	RHS	1	Bus Stop	
941	29.410	RHS	1	Cluster Sign	Bus bay
942	29.500	RHS	1	Bus Stop	

943	29.570	RHS	1	Give Way	Minor Junction
944	29.570	RHS	1	Major Road (T)	Minor Junction
945	29.580	RHS	1	Left Junction	Minor Junction
946	29.580	RHS	1	Pedestrian Crossing	Minor Junction
947	29.590	RHS	1	Height Limit - (2.5 m)	Minor Junction
948	29.610	RHS	1	Directional Board	Minor Junction
949	29.620	RHS	1	Speed breaker	Minor Junction
Total Sign boards			1189		

CORR Phase-1 Advance Traffic Management System

GCORR - CCTV CHAINAGES INSTALLED IN HIGHWAYS

S.NO	SIDE	CAMERA LOCATIONS	NO.OF CAMERAS
1	RHS	0+070	2
2	LHS	2+650	2
3	RHS	4+100	2
4	LHS	7+900	2
5	RHS	12+100	2
6	LHS	14+300	2
7	RHS	16+800	2
8	RHS	19+650	2
9	LHS	22+900	2
10	RHS	25+050	2
11	RHS	28+800	2
12	LHS	6+100	1
13	RHS	21+950	1
14	RHS	21+350	1
Total No of Camera's			25

EMERGENCY CALL BOX - ECB

S.NO	SIDE	ECB LOCATIONS	S.NO	SIDE	ECB LOCATIONS
1	LHS	0+900	16	RHS	0+900
2	LHS	2+730	17	RHS	2+730
3	LHS	3+450	18	RHS	3+450
4	LHS	5+900	19	RHS	5+900
5	LHS	7+700	20	RHS	7+700
6	LHS	9+860	21	RHS	9+860
7	LHS	12+370	22	RHS	12+370
8	LHS	14+100	23	RHS	14+100
9	LHS	16+800	24	RHS	16+800
10	LHS	18+960	25	RHS	18+960
11	LHS	20+500	26	RHS	20+500
12	LHS	22+570	27	RHS	22+570

13	LHS	24+470	28	RHS	24+470
14	LHS	26+940	29	RHS	26+940
15	LHS	28+220	30	RHS	28+220
Total No Of ECB'S					30

VMS - Variable Message Sign

S.NO	SIDE	VMS LOCATIONS
1	LHS	5+550
2	RHS	21+950

ATCC - Automatic Traffic Count Classifier

S.NO	SIDE	ATCC LOCATIONS
1	LHS	5+900
2	RHS	6+100

MDS - Meteorological Data System

S.NO	SIDE	ATCC LOCATIONS
1	RHS	21+350

2.6.2 Feature inventory for Phase 2

Sr. no.	Description	Proposed Facilities as per CA
1.	Road Details	1.LHS MCW - 30.5 KM - Width - 12.5 m 2.RHS MCW - 30.5 KM - Width - 12.5 m 3.LHS Service Road - 30.5 KM - Width - 5.5 m 4.RHS Service Road - 30.5 KM - Width - 5.5 m 5.Planter strip Road - 30.5 KM - Width - 2m
2.	Interchanges (1 Nos)	At Ch : 18+350
3.	Flyovers (1Nos)	At Ch : 16+009
4.	Major Bridge (1 Nos)	At Ch: 28+850
5.	Minor Bridge (2+4 Nos)	At Chainage 4+859,17+555,21+600,26+750 27+935,29+455
6.	Vehicular Underpass (13 Nos)	At Chainage 2+829,6+641,7+018,7+621,9+078 12+861,13+968,15+442,21+170, 23+050,24+083,25+970,28+657
7.	Pedestrian Underpass (14 Nos)	At Chainage 0+499,1+949,4+001,5+114,5+968, 8+602,10+702,12+247,16+940,17+600,19+430, 20+025,22+763,30+117
8.	Side drain with Utility duct	1.LHS – 30.5 KM Width - 2.5 m 2.RHS – 30.5 KM Width - 2.5 m
9	Cross Drainages(Box Culverts 107 Nos)	0+210,0+735,0+900,1+050,1+390,1+700,1+704, 1+920,2+065,2+540,2+731,2+890,3+250,3+860, 4+130,4+490,4+700,5+020,5+300,5+725,5+800, 6+100,6+300,6+700,6+900,7+100,7+320,7+715, 7+950,8+205,8+480,8+840,9+010,9+114,9+600, 10+135,10+930,11+240,11+400,11+620,11+780, 12+040,12+390,13+080,13+420,13+695,13+950, 14+510,14+595,15+180,15+545,15+765,16+160, 16+470,17+080,17+320,17+833,18+110, 18+530,18+570,18+620,18+670,18+720,18+770, 18+820,18+870,18+920,18+970,19+225,19+690, 19+945,20+250,20+772,20+990,21+246,21+925, 22+248,22+530,22+990,23+120,23+550,23+920, 24+225,24+510,24+950,25+200,25+430,25+480,

Sr. no.	Description	Proposed Facilities as per CA
		25+525,25+575,25+625,25+647,25+880,26+115, 26+235,26+350,27+350,27+670, 28+310,28+530,29+050,29+120,29+550, 29+650,30+080,30+200,30+420
10	Major Junctions (12 Nos)	At Chainage : 2+875,7+020,7+600,9+065,12+775,14+075,15+620 21+250,23+150,24+120,26+000,28+750.
11	Minor Junctions (37 Nos)	At Chainage : 0+040,0+080,0+140,0+180,0+225,0+265,0+300, 0+350,0+475,0+530,0+560,0+580,0+650,0+780, 0+900,2+000,4+970,5+100,5+950,6+700,8+500, 8+600,10+600,10+675,12+200,16+160,16+250, 16+820,16+900,17+620,18+420,20+200,22+650, 22+900,23+700,25+800,30+500.
12	Bus Bays (50 Nos)	At Chainage RHS 0+650, 1+450, 1+795, 2+700, 5+730, 6+150, 7+800, 8+850, 10+500, 12+075, 12+630, 14+150, 15+320, 15+850, 16+740,19+280, 19+880, 21+000, 22+850, 23+850, 26+160, 27+800, 30+350. At Chainage LHS 0+400, 1+000, 1+600, 3+020, 5+800, 6+830, 7+440, 8+800, 10+850, 11+900, 12+650, 13+800, 15+620, 16+150, 17+450,19+590, 20+180, 21+350, 23+200,24+300, 26+160, 27+800, 30+350.
13.	Truck Lay Bays (2 Nos)	At Chainage 9+580 to 10+310 LHS At Chainage 24+460 to 25+190 RHS
14.	Way side Amenities (2 Nos)	At Chainage 14+600 to 14+825 LHS At Chainage 21+700 to 21+925 RHS
15	Median Opening - Entry Points	At Chainage LHS 0+100, 3+600, 4+585, 8+100, 10+370,11+500, 14+825, 17+475,18+650, 20+700, 22+440, 23+670, 25+000, 26+535, 29+710. At Chainage RHS 3+310, 4+415, 9+470, 11+065, 14+570, 17+305, 18+920,20+380, 21+900, 23+500, 24+460, 26+365, 28+220. 29+540..

Sr. no.	Description	Proposed Facilities as per CA
16	Median Opening - Exit Points	At Chainage LHS 3+310, 4+415, 9+470, 11+065, 14+570, 17+305, 18+680,20+380, 21+900, 23+500, 24+540, 26+365, 28+000, 29+540, At Chainage RHS 0+100, 3+600, 4+585, 10+070, 11+500, 14+800, 17+475,18+720,20+700, 22+440, 23+670, 25+370, 26+535, 29+710,
17.	Toll Plaza	At Chainage 1+050 to 1+350 (COS) At Chainage 27+000 to 27+300
18.	No of Sign Boards	1004 Nos.
19.	Delineators	232 Nos.
20	Studs	20464 Nos.
21.	MBCB	12049 RM
22.	Blinkers	26 Nos.
23.	Street lighting	Street Lighting - 2567 Nos. High mast Lighting – 16 Nos VUP Lighting – 216 Nos PUP Lighting – 176 Nos
24	Gantry Board	At Chainage LHS 0+110,17+390,29+810 At Chainage RHS 29+810,19+080,14+910
25	5th Km Stone	12 Nos.
25.	KM Stone	48 Nos.
	HM Stone	244 Nos.
26	Traffic/Medical/Vehicle Rescue Post and Highway Patrol Traffic Management Tools	11+550 to 11+569 LHS 18+840 to 18+859 LHS 1+650 to 1+669 RHS 26+730 to 26+749 RHS
27	Administrative, Operation & Maintenance Base Camp	At Chainage 27+090 to 27+200
28	Pedestrian guard Rail	1.VUP Foot Path = 2x13x2x15 = 780 RM 2.Major Junction = 13x4x50 = 2600 RM 3.Flyover & GS = 2x4x50 = 400 RM Total = 3780 RM

Sr. no.	Description	Proposed Facilities as per CA
29	ATMS	1.VMS – 2 Nos 2.ATCC – 2 Nos 3.CCTV – 14Nos. 4.ECB – 28 Nos. 5.Meteorological system – 1Nos
30	Other Facilities :	1.Ambulance - 1Nos 2.Patrol Vehicle – 1Nos 3.30 T Crane - 1 Nos 4.TOW vehicle - 1 Nos

Boards

Sr.No	Chainage	Side	Description	Nos	Remarks
1	0+735	LCW	Object Hazard	1	
2	0+900	LCW	Object Hazard	1	
3	1+070	LCW	Object Hazard	1	
4	1+390	LCW	Object Hazard	1	
5	1+550	LCW	Object Hazard	1	
6	1+880	LCW	Right hand Curve	1	
7	1+970	LCW	Single Chevron @ every 60 M	9	
8	3+150	LCW	Stack type Reassurance Sign	1	
9	3+250	LCW	Object Hazard	1	
10	3+580	LCW	Object Hazard	1	
11	3+650	LCW	Single Chevron @ every 60 M	5	
12	3+680	LCW	Left hand Curve	1	
13	3+790	LCW	Object Hazard	1	
14	4+280	LCW	Stack type Reassurance Sign	1	
15	4+490	LCW	Object Hazard	1	
16	4+690	LCW	Object Hazard	1	
17	4+920	LCW	Right hand Curve	1	
18	4+940	LCW	Single Chevron @ every 60 M	18	
19	6+400	LCW	Object Hazard	1	
20	7+100	LCW	Over Head Cables	1	
21	7+950	LCW	Object Hazard	1	
22	8+205	LCW	Object Hazard	1	
23	8+920	LCW	Over Head Cables	1	
24	9+350	LCW	Reassurance Sign	1	
25	9+600	LCW	Object Hazard	1	
26	10+135	LCW	Object Hazard	1	
27	10+900	LCW	Reassurance Sign	1	
28	11+150	LCW	Object Hazard	1	
29	11+400	LCW	Object Hazard	1	
30	12+640	LCW	Single Chevron @ every 60m	1	
31	12+660	LCW	Right hand Curve	1	
32	14+140	LCW	First Aid Post	1	
33	14+170	LCW	Single Chevron @ every 60m	18	
34	14+195	LCW	Eating Place	1	
35	14+420	LCW	Stack type Reassurance Sign	1	
36	18+500	LCW	Over Head Cables	1	
37	19+680	LCW	Object Hazard	1	
38	19+760	LCW	Object Hazard	1	
39	20+240	LCW	Object Hazard	1	
40	20+772	LCW	Object Hazard	1	
41	21+925	LCW	Object Hazard	1	
42	22+080	LCW	Object Hazard	1	
43	24+500	LCW	Object Hazard	1	
44	24+950	LCW	Object Hazard	1	

45	25+200	LCW	Object Hazard	1	
46	25+220	LCW	Object Hazard	1	
47	26+350	LCW	Object Hazard	1	
48	26+580	LCW	Object Hazard	1	
49	26+740	LCW	Object Hazard	1	
50	27+300	LCW	Object Hazard	1	
51	27+330	LCW	Single Chevron @ every 60m	9	
52	27+660	LCW	Object Hazard	1	
53	27+930	LCW	Object Hazard	1	
54	28+300	LCW	Object Hazard	1	
55	29+540	LCW	Object Hazard	1	
56	29+640	LCW	Object Hazard	1	
57	29+890	LCW	Object Hazard	1	
58	29+650	RCW	Object Hazard	1	
59	29+550	RCW	Object Hazard	1	
60	29+470	RCW	Object Hazard	1	
61	29+400	RCW	Single Chevron @ every 60m	16	
62	29+360	RCW	Object Hazard	1	
63	27+950	RCW	Object Hazard	1	
64	27+860	RCW	Object Hazard	1	
65	27+680	RCW	Object Hazard	1	
66	26+820	RCW	Object Hazard	1	
67	26+750	RCW	Object Hazard	1	
68	26+360	RCW	Object Hazard	1	
69	26+235	RCW	Object Hazard	1	
70	25+860	RCW	Over Head Cables	1	
71	24+520	RCW	Object Hazard	1	
72	24+380	RCW	Object Hazard	1	
73	21+935	RCW	Object Hazard	1	
74	21+800	RCW	Object Hazard	1	
75	20+780	RCW	Object Hazard	1	
76	20+790	RCW	Object Hazard	1	
77	20+250	RCW	Object Hazard	1	
78	20+230	RCW	Object Hazard	1	
79	19+700	RCW	Object Hazard	1	
80	19+670	RCW	Object Hazard	1	
81	18+650	RCW	Object Hazard	1	
82	14+950	RCW	Stack type Reassurance Sign	1	
83	14+180	RCW	Single Chevron @ every 60m	18	
84	14+360	RCW	Right hand Curve	1	
85	14+400	RCW	Stack type Reassurance Sign	1	
86	11+660	RCW	Stack type Reassurance Sign	1	
87	11+500	RCW	Object Hazard	1	
88	11+300	RCW	Object Hazard	1	
89	10+950	RCW	Object Hazard	1	
90	10+905	RCW	Stack type Reassurance Sign	1	
91	10+205	RCW	Stack type Reassurance Sign	1	
92	10+140	RCW	Object Hazard	1	

93	9+600	RCW	Object Hazard	1	
94	9+030	RCW	Over Head Cables	1	
95	8+205	RCW	Object Hazard	1	
96	7+950	RCW	Object Hazard	1	
97	7+910	RCW	Object Hazard	1	
98	7+300	RCW	Over Head Cables	1	
99	6+470	RCW	Single Chevron @ every 60m	18	
100	6+440	RCW	Left hand Curve	1	
101	6+300	RCW	Object Hazard	1	
102	4+740	RCW	Stack type Reassurance Sign	1	
103	4+700	RCW	Object Hazard	1	
104	4+490	RCW	Object Hazard	1	
105	4+330	RCW	Stack type Reassurance Sign	1	
106	4+290	RCW	Object Hazard	1	
107	4+210	RCW	Single Chevron @ every 60m	5	
108	4+170	RCW	Right hand Curve	1	
109	3+750	RCW	Stack type Reassurance Sign	1	
110	3+250	RCW	Object Hazard	1	
111	3+150	RCW	Object Hazard	1	
112	2+720	RCW	Single Chevron @ every 60m	9	
113	2+700	RCW	Right hand Curve	1	
114	1+400	RCW	Object Hazard	1	
115	1+060	RCW	Object Hazard	1	
116	0+905	RCW	Object Hazard	1	
117	0+890	RCW	Over Head Cables	1	
118	0+720	RCW	Object Hazard	1	
119	0+735	RCW	Object Hazard	1	
120	0+010	LSR	STOP	1	
121	0+100	LSR	Merging Right	1	
122	0+120	LSR	Give way	1	
123	0+115	LSR	Reassurance Sign	1	
124	0+140	LSR	STOP	1	
125	0+140	LSR	T – Intersection	1	
126	0+200	LSR	STOP	1	
127	0+280	LSR	Reassurance Sign	1	
128	0+320	LSR	Bus – Bay	1	
129	0+680	LSR	Over Head Cables	1	
130	0+710	LSR	STOP	1	
131	0+870	LSR	STOP	1	
132	0+920	LSR	Bus – Bay	1	
133	1+460	LSR	Bus – Bay	1	
134	1+535	LSR	First Aid Post	1	
135	1+885	LSR	Speed Breaker	1	
136	1+900	LSR	Pedestrian Crossing	1	
137	1+910	LSR	Flag Type Direction Sign	1	
138	1+955	LSR	Height Limit - 4.0	1	
139	2+050	LSR	Flag Type Direction Sign	1	
140	2+130	LSR	STOP	1	

141	2+130	LSR	Reassurance Sign	1	
142	2+130	LSR	Speed Breaker	1	
143	2+130	LSR	Pedestrian Crossing	1	
144	2+720	LSR	Speed Breaker	1	
145	2+740	LSR	Reassurance Sign	1	
146	2+750	LSR	Pedestrian Crossing	1	
147	2+830	LSR	STOP	1	
148	2+830	LSR	Speed Breaker	1	
149	2+830	LSR	Pedestrian Crossing	1	
150	2+840	LSR	Height Limit 5.5	1	
151	2+940	LSR	Bus – Bay	1	
152	3+240	LSR	Merging Left	1	
153	3+245	LSR	Entry /Exit	1	
154	3+265	LSR	Give way	1	
155	3+420	LSR	Entry /Exit	1	
156	3+530	LSR	Merging Right	1	
157	3+550	LSR	Give way	1	
158	3+820	LSR	Reassurance Sign	1	
159	3+925	LSR	Speed Breaker	1	
160	3+935	LSR	Pedestrian Crossing	1	
161	3+940	LSR	Reassurance Sign	1	
162	4+010	LSR	Height Limit 4.0	1	
163	4+350	LSR	Entry /Exit	1	
164	4+370	LSR	Give way	1	
165	4+345	LSR	Merging Left	1	
166	4+435	LSR	Speed Limit 40 kmph	1	
167	4+480	LSR	Entry /Exit	1	
168	4+500	LSR	Reassurance Sign	1	
169	4+515	LSR	Merging Right	1	
170	4+540	LSR	Give way	1	
171	4+690	LSR	Y – Intersection	1	
172	4+790	LSR	Reassurance Sign	1	
173	4+820	LSR	Object Hazard	2	
174	4+900	LSR	Reassurance Sign	1	
175	4+900	LSR	STOP	1	
176	4+940	LSR	Object Hazard	1	
177	5+040	LSR	Speed Breaker	1	
178	5+055	LSR	Pedestrian Crossing	1	
179	5+070	LSR	Reassurance Sign	1	
180	5+130	LSR	Height Limit - 4.0	1	
181	5+130	LSR	Speed Breaker	1	
182	5+130	LSR	Pedestrian Crossing	1	
183	5+130	LSR	STOP	1	
184	5+740	LSR	Bus – Bay	1	
185	5+890	LSR	Speed Breaker	1	
186	5+900	LSR	Pedestrian Crossing	1	
187	5+920	LSR	Reassurance Sign	1	
188	5+970	LSR	Reassurance Sign	1	

189	5+970	LSR	Pedestrian Crossing	1	
190	5+970	LSR	STOP	1	
191	5+970	LSR	Speed Breaker	1	
192	5+970	LSR	Height Limit - 4.0	1	
193	6+240	LSR	Reassurance Sign	1	
194	6+520	LSR	Reassurance Sign	1	
195	6+550	LSR	Speed Breaker	1	
196	6+560	LSR	Pedestrian Crossing	1	
197	6+640	LSR	Reassurance Sign	1	
198	6+640	LSR	Speed Breaker	1	
199	6+640	LSR	Pedestrian Crossing	1	
200	6+640	LSR	STOP	1	
201	6+655	LSR	Height Limit - 5.5	1	
202	6+690	LSR	Bus - Bay	1	
203	6+910	LSR	Speed Breaker	1	
204	6+935	LSR	Reassurance Sign	1	
205	6+965	LSR	Pedestrian Crossing	1	
206	7+030	LSR	Height Limit - 5.5	1	
207	7+015	LSR	Reassurance Sign	1	
208	7+015	LSR	STOP	1	
209	7+015	LSR	Speed Breaker	1	
210	7+015	LSR	Pedestrian Crossing	1	
211	7+015	LSR	Cluster	2	
212	7+365	LSR	Bus - Bay	1	
213	7+515	LSR	Speed Breaker	1	
214	7+540	LSR	Pedestrian Crossing	1	
215	7+575	LSR	Reassurance Sign	1	
216	7+621	LSR	STOP	1	
217	7+621	LSR	Pedestrian Crossing	1	
218	7+621	LSR	Reassurance Sign	1	
219	7+621	LSR	Speed Breaker	1	
220	7+621	LSR	Height Limit - 5.5	1	
221	8+210	LSR	Over Head Cables	1	
222	8+270	LSR	Over Head Cables	1	
223	8+410	LSR	Flag Type Direction Sign	1	
224	8+500	LSR	Flag Type Direction Sign	1	
225	8+500	LSR	STOP	1	
226	8+535	LSR	Speed Breaker	1	
227	8+570	LSR	Flag Type Direction Sign	1	
228	8+560	LSR	Pedestrian Crossing	1	
229	8+560	LSR	Pedestrian Crossing	1	
230	8+610	LSR	Height Limit - 4.0	1	
231	8+735	LSR	Bus - Bay	1	
232	8+950	LSR	Reassurance Sign	1	
233	8+980	LSR	Speed Breaker	1	
234	9+000	LSR	Pedestrian Crossing	1	
235	9+078	LSR	Reassurance Sign	1	
236	9+078	LSR	Speed Breaker	1	

237	9+078	LSR	STOP	1
238	9+078	LSR	Pedestrian Crossing	1
239	9+090	LSR	Height Limit 5.5	1
240	9+395	LSR	Merging Left	1
241	9+395	LSR	Give way	1
242	9+490	LSR	Speed Limit 40 kmph - 40	1
243	9+520	LSR	Rest Place	1
244	9+540	LSR	Toilet	1
245	10+090	LSR	Entry /Exit	1
246	10+290	LSR	Merging Right	1
247	10+300	LSR	Reassurance Sign	1
248	10+330	LSR	Give way	1
249	10+480	LSR	T – Intersection	1
250	10+500	LSR	Flag Type Direction Sign	1
251	10+630	LSR	Speed Breaker	1
252	10+640	LSR	Pedestrian Crossing	1
253	10+650	LSR	Reassurance Sign	1
254	10+670	LSR	STOP	1
255	10+710	LSR	Height Limit - 4.0	1
256	10+750	LSR	Bus – Bay	1
257	10+990	LSR	Merging Left	1
258	10+995	LSR	Give way	1
259	11+140	LSR	Speed Limit 40 kmph - 40	1
260	11+290	LSR	Entry /Exit	1
261	11+410	LSR	Reassurance Sign	1
262	11+420	LSR	Merging Right	1
263	11+440	LSR	Give way	1
264	11+470	LSR	First Aid Post	1
265	11+520	LSR	Repair Facility	1
266	12+160	LSR	Speed Breaker	1
267	12+175	LSR	Pedestrian Crossing	1
268	12+190	LSR	Reassurance Sign	1
269	12+250	LSR	Reassurance Sign	1
270	12+250	LSR	Speed Breaker	1
271	12+250	LSR	Pedestrian Crossing	1
272	12+250	LSR	STOP	1
273	12+250	LSR	Height Limit 4.0	1
274	12+640	LSR	Bus – Bay	1
275	12+750	LSR	Reassurance Sign	1
276	12+790	LSR	Speed Breaker	1
277	12+800	LSR	Pedestrian Crossing	1
278	12+870	LSR	Reassurance Sign	1
279	12+870	LSR	Speed Breaker	1
280	12+870	LSR	STOP	1
281	12+870	LSR	Pedestrian Crossing	1
282	12+870	LSR	Height Limit - 5.5	1
283	13+660	LSR	Public Tele Phone	1
284	13+705	LSR	Bus – Bay	1

285	13+865	LSR	Reassurance Sign	1
286	13+885	LSR	Speed Breaker	1
287	13+905	LSR	Pedestrian Crossing	1
288	13+990	LSR	Reassurance Sign	1
289	13+990	LSR	Speed Breaker	1
290	13+990	LSR	STOP	1
291	13+990	LSR	Pedestrian Crossing	1
292	13+980	LSR	Height Limit 5.5	1
293	14+500	LSR	Entry /Exit	1
294	14+515	LSR	Merging Left	1
295	14+580	LSR	Speed Limit 40 kmph - 40	1
296	14+700	LSR	Entry /Exit	1
297	14+770	LSR	Merging Right	1
298	14+785	LSR	Give way	1
299	15+005	LSR	Reassurance Sign	1
300	15+350	LSR	Speed Breaker	1
301	15+355	LSR	Flag Type Direction Sign	1
302	15+365	LSR	Pedestrian Crossing	1
303	15+445	LSR	Cluster	4
304	15+445	LSR	STOP	1
305	15+445	LSR	Height Limit 5.5	1
306	15+445	LSR	Reassurance Sign	1
307	15+445	LSR	Speed Breaker	1
308	15+530	LSR	Bus - Bay	1
309	15+695	LSR	Reassurance Sign	1
310	16+910	LSR	Pedestrian Crossing	1
311	16+940	LSR	Pedestrian Crossing	1
312	16+940	LSR	STOP	1
313	16+940	LSR	Speed Breaker	1
314	16+945	LSR	Height Limit 4.0	1
315	16+980	LSR	Speed Limit 40 kmph	1
316	17+245	LSR	Merging Left	1
317	17+250	LSR	Entry /Exit	1
318	17+270	LSR	Give way	1
319	17+360	LSR	Merging Right	1
320	17+380	LSR	Entry /Exit	1
321	17+410	LSR	Give way	1
322	18+850	LSR	Eating place	1
323	18+930	LSR	Eating place	1
324	19+340	LSR	Speed Breaker	1
325	19+425	LSR	Speed Breaker	1
326	19+425	LSR	Pedestrian Crossing	1
327	19+425	LSR	STOP	1
328	19+425	LSR	Height limit 4.0M	1
329	19+480	LSR	Bus - Bay	1
330	19+500	LSR	Speed Limit 40	1
331	20+020	LSR	Speed Breaker	1
332	20+020	LSR	Pedestrian Crossing	1

333	20+020	LSR	STOP	1	
334	20+020	LSR	Height limit 4M	1	
335	20+100	LSR	Speed Limit 40	1	
336	20+110	LSR	Bus – Bay	1	
337	20+310	LSR	Give Way	1	
338	20+300	LSR	Entry Board	1	
339	20+300	LSR	Merging left	1	
340	20+620	LSR	Exit Board	1	
341	20+635	LSR	Give Way	1	
342	20+620	LSR	Merging Right	1	
343	21+100	LSR	Speed Limit 40	1	
344	21+020	LSR	Speed Breaker	1	
345	21+170	LSR	Pedestrian Crossing	1	
346	21+180	LSR	Speed Breaker	1	
347	21+180	LSR	STOP	1	
348	21+180	LSR	Height limit 5.5 M	1	
349	21+230	LSR	Speed Limit 40	1	
350	21+820	LSR	Exit Board	1	
351	21+860	LSR	Give Way	1	
352	21+820	LSR	Merging left	1	
353	22+350	LSR	Entry Board	1	
354	22+365	LSR	Give Way	1	
355	22+350	LSR	Merging left	1	
356	22+240	LSR	Speed Breaker	1	
357	22+765	LSR	STOP	1	
358	22+770	LSR	Height Limit 4.0 M	1	
359	22+960	LSR	Speed Limit 40	1	
360	22+980	LSR	Speed Breaker	1	
361	23+040	LSR	STOP	1	
362	23+040	LSR	Height Limit 4.0 M	1	
363	23+040	LSR	Speed Breaker	1	
364	23+420	LSR	Merging left	1	
365	23+420	LSR	Flag Type Direction Sign	1	
366	23+580	LSR	Over Head Cables	1	
367	23+600	LSR	Merging Right	1	
368	23+620	LSR	Give Way	1	
369	23+600	LSR	Reassurance Sign	1	
370	23+990	LSR	Speed Limit 40	1	
371	24+040	LSR	Pedestrian Crossing	1	
372	24+030	LSR	Speed Breaker	1	
373	24+100	LSR	STOP	1	
374	24+100	LSR	Speed Breaker	1	
375	24+100	LSR	Height Limit 5.5M	1	
376	24+100	LSR	Flag Type Direction Sign	1	
377	24+190	LSR	Speed Limit 40	1	
378	24+420	LSR	Merging left	1	
379	24+920	LSR	Reassurance Sign	1	
380	24+950	LSR	Give Way	1	

381	24+920	LSR	Merging Right	1	
382	25+690	LSR	Over Head Cables	1	
383	25+670	LSR	Speed Breaker	1	
384	25+650	LSR	Stop	1	
385	25+940	LSR	Speed Breaker	1	
386	25+980	LSR	Height Limit 5.5M	1	
387	25+980	LSR	Speed Breaker	1	
388	25+980	LSR	Stop	1	
389	26+020	LSR	Speed Limit 40	1	
390	26+280	LSR	Merging left	1	
391	26+310	LSR	Reassurance Sign	1	
392	26+300	LSR	Give Way	1	
393	26+400	LSR	Reassurance Sign	1	
394	26+480	LSR	Give Way	1	
395	26+470	LSR	Merging left	1	
396	27+170	LSR	Over Head Cables	1	
397	27+900	LSR	Flag Type Direction Sign	1	
398	27+930	LSR	Merging left	1	
399	28+000	LSR	Single Chevron	1	
400	28+320	LSR	Right hand Curve	1	
401	28+340	LSR	Single Chevron	1	
402	28+660	LSR	STOP	1	
403	29+440	LSR	Flag Type Direction Sign	1	
404	29+440	LSR	Merging left	1	
405	29+490	LSR	Give Way	1	
406	29+650	LSR	Flag Type Direction Sign	1	
407	29+650	LSR	Give Way		
408	29+620	LSR	Merging left	1	
409	30+060	LSR	Speed Breaker	1	
410	30+120	LSR	Height Limit 4.0 M	1	
411	30+125	LSR	STOP	1	
412	30+125	LSR	Speed Breaker	1	
413	30+160	RSR	Speed Breaker	1	
414	30+150	RSR	Flag Type Direction Sign	1	
415	30+080	RSR	Speed Breaker	1	
416	30+080	RSR	Reassurance Sign	1	
417	30+080	RSR	Flag Type Direction Sign	1	
418	30+080	RSR	STOP	1	
419	30+080	RSR	Height Limit 4.0M	1	
420	30+070	RSR	Speed Limit 40 kmph - 40	1	
421	29+820	RSR	Merging Left	1	
422	29+810	RSR	Entry/Exit Board	1	
423	29+790	RSR	Give way	1	
424	29+660	RSR	Entry/Exit Board	1	
425	29+625	RSR	Merging Right	1	
426	29+585	RSR	Give way	1	
427	28+300	RSR	Merging Right	1	
428	28+300	RSR	Entry/Exit Board	1	

429	28+250	RSR	Give way	1	
430	28+240	RSR	Flag Type Direction Sign	1	
431	28+150	RSR	Over Head Cables	1	
432	28+150	RSR	Cluster	2	
433	28+300	RSR	Flag Type Direction Sign	1	
434	28+570	RSR	Reassurance Sign	1	
435	28+600	RSR	Speed Limit 40 kmph	1	
436	28+660	RSR	Cluster	2	
437	28+660	RSR	Flag Type Direction Sign	1	
438	28+680	RSR	STOP	1	
439	27+770	RSR	Single Chevron @ every 60m	9	
440	27+700	RSR	Bus – Bay	1	
441	27+410	RSR	Over Head Cables	1	
442	26+800	RSR	First Aid Post	1	
443	26+790	RSR	First Aid Post	1	
444	26+720	RSR	Repair Facility	1	
445	26+630	RSR	Merging Left	1	
446	26+630	RSR	Entry/Exit Board	1	
447	26+600	RSR	Give way	1	
448	26+450	RSR	Entry/Exit Board	1	
449	26+430	RSR	Merging Right	1	
450	26+420	RSR	Give way	1	
451	26+050	RSR	Reassurance Sign	1	
452	26+000	RSR	Speed Breaker	1	
453	25+950	RSR	Flag Type Direction Sign	1	
454	25+950	RSR	Cluster	4	
455	25+950	RSR	Height Limit 5.5M	1	
456	25+980	RSR	Flag Type Direction Sign	1	
457	25+950	RSR	Speed Breaker	1	
458	25+950	RSR	Reassurance Sign	1	
459	25+950	RSR	STOP	1	
460	25+900	RSR	Speed Limit 40 kmph - 40	1	
461	25+770	RSR	Flag Type Direction Sign	1	
462	25+870	RSR	Reassurance Sign	1	
463	25+720	RSR	Flag Type Direction Sign	1	
464	25+720	RSR	Speed Breaker	1	
465	25+720	RSR	STOP	1	
466	25+660	RSR	Reassurance Sign	1	
467	25+450	RSR	Over Head Cables	1	
468	25+450	RSR	Merging Left	1	
469	25+450	RSR	Truck Lay Bay	1	
470	25+400	RSR	Give way	1	
471	25+350	RSR	Truck Lay Bay	1	
472	25+240	RSR	Truck Lay Bay	1	
473	25+170	RSR	First Aid Post	1	
474	25+050	RSR	Toilet	1	
475	24+600	RSR	Entry/Exit Board	1	
476	24+540	RSR	Merging Right	1	

477	24+510	RSR	Give way	1	
478	24+150	RSR	Reassurance Sign	1	
479	24+130	RSR	Speed Breaker	1	
480	24+120	RSR	Flag Type Direction Sign	1	
481	24+090	RSR	Pedestrian Crossing	1	
482	24+070	RSR	Speed Limit 40 kmph -40	1	
483	24+010	RSR	Cluster	4	
484	24+010	RSR	Height Limit 5.5M	1	
485	24+010	RSR	Flag Type Direction Sign	1	
486	24+010	RSR	Speed Breaker	1	
487	24+010	RSR	Reassurance Sign	1	
488	24+010	RSR	STOP	1	
489	23+980	RSR	Bus – Bay	1	
490	23+960	RSR	Speed Limit 40 kmph	1	
491	23+800	RSR	Reassurance Sign	1	
492	23+750	RSR	Give way	1	
493	23+730	RSR	Merging Left	1	
494	23+715	RSR	Over Head Cables	1	
495	23+730	RSR	Entry/Exit Board	1	
496	23+580	RSR	Entry/Exit Board	1	
497	23+580	RSR	Merging Right	1	
498	23+535	RSR	Give way	1	
499	23+150	RSR	Reassurance Sign	1	
500	23+130	RSR	Flag Type Direction Sign	1	
501	23+050	RSR	Speed Breaker	1	
502	23+050	RSR	Flag Type Direction Sign	1	
503	23+050	RSR	Reassurance Sign	1	
504	23+050	RSR	STOP	1	
505	23+010	RSR	Single Chevron @ every 60m	4	
506	23+050	RSR	Height Limit 5.5M	1	
507	22+990	RSR	Bus – Bay	1	
508	22+980	RSR	Speed Limit 40 kmph 40	1	
509	22+850	RSR	STOP	1	
510	22+760	RSR	Height Limit 4 M	1	
511	22+535	RSR	Merging Left	1	
512	22+530	RSR	Entry/Exit Board	1	
513	22+480	RSR	Give way	1	
514	22+340	RSR	Way side Amenities	1	
515	22+160	RSR	Way side Amenities	1	
516	22+980	RSR	Merging Right	1	
517	21+960	RSR	Give way	1	
518	21+970	RSR	Entry/Exit Board	1	
519	21+280	RSR	Reassurance Sign	1	
520	21+240	RSR	Flag Type Direction Sign	1	
521	21+220	RSR	Speed Breaker	1	
522	21+200	RSR	Speed Limit 40 kmph	1	
523	21+170	RSR	Height Limit 5.5M	1	
524	21+170	RSR	Cluster	4	

525	21+170	RSR	Speed Breaker	1	
526	21+170	RSR	Flag Type Direction Sign	1	
527	21+170	RSR	STOP	1	
528	21+100	RSR	Bus – Bay	1	
529	21+090	RSR	Speed Breaker	1	
530	20+900	RSR	Reassurance Sign	1	
531	20+800	RSR	Give way	1	
532	20+790	RSR	Entry/Exit Board	1	
533	20+770	RSR	Merging Left	1	
534	20+540	RSR	Entry/Exit Board	1	
535	20+520	RSR	Give way	1	
536	20+540	RSR	Merging Right	1	
537	20+200	RSR	Reassurance Sign	1	
538	20+160	RSR	Flag Type Direction Sign	1	
539	20+040	RSR	Cluster	2	
540	20+040	RSR	Speed Breaker	1	
541	20+040	RSR	Pedestrian Crossing	1	
542	20+040	RSR	STOP	1	
543	20+020	RSR	Bus – Bay	1	
544	20+020	RSR	Height limit 4.0M	1	
545	19+990	RSR	Speed Limit 40 kmph - 40	1	
546	19+500	RSR	Reassurance Sign	1	
547	19+490	RSR	Speed Breaker	1	
548	19+480	RSR	Pedestrian Crossing	1	
549	19+490	RSR	Flag Type Direction Sign	1	
550	19+430	RSR	Height limit 4.0 M	1	
551	19+430	RSR	Flag Type Direction Sign	1	
552	19+430	RSR	STOP	1	
553	19+430	RSR	Reassurance Sign	1	
554	19+430	RSR	Bus – Bay	1	
555	19+380	RSR	Speed Limit 40 kmph -40	1	
556	19+100	RSR	Entry/Exit Board	1	
557	19+100	RSR	Give way	1	
558	18+890	RSR	Eating Place	1	
559	18+870	RSR	Repair Facility	1	
560	18+800	RSR	Reassurance Sign	1	
561	18+750	RSR	Flag Type Direction Sign	1	
562	17+520	RSR	Merging Left	1	
563	17+460	RSR	Give way	1	
564	17+440	RSR	Entry/Exit Board	1	
565	16+940	RSR	Height limit 4.0M	1	
566	16+840	RSR	Reassurance Sign	1	
567	16+840	RSR	Flag Type Direction Sign	1	
568	16+840	RSR	STOP	1	
569	16+840	RSR	Pedestrian Crossing	1	
570	16+800	RSR	Speed Limit 40 kmph - 40	1	
571	16+815	RSR	Bus – Bay	1	
572	16+210	RSR	Speed Breaker	1	

573	16+200	RSR	Reassurance Sign	1
574	16+175	RSR	Flag Type Direction Sign	1
575	16+140	RSR	Cluster	2
576	16+140	RSR	Speed Breaker	1
577	16+140	RSR	Reassurance Sign	1
578	16+140	RSR	Pedestrian Crossing	1
579	16+140	RSR	STOP	1
580	16+080	RSR	Cluster	2
581	16+000	RSR	Cluster	1
582	16+000	RSR	STOP	1
583	15+945	RSR	Bus – Bay	1
584	15+630	RSR	Reassurance Sign	1
585	15+560	RSR	Speed Breaker	1
586	15+450	RSR	Height Limit 5.5M	1
587	15+460	RSR	Flag Type Direction Sign	1
588	15+500	RSR	Speed Breaker	1
589	15+500	RSR	Pedestrian Crossing	1
590	15+500	RSR	Reassurance Sign	1
591	15+500	LSR	Pedestrian Crossing	1
592	15+500	LSR	Round about	1
593	15+500	RSR	STOP	1
594	15+420	RSR	Bus – Bay	1
595	14+910	RSR	Give way	1
596	14+880	RSR	Merging left	1
597	14+870	RSR	Entry/Exit Board	1
598	14+860	RSR	Give way	1
599	14+790	RSR	Speed Limit 40 kmph	1
600	14+710	RSR	Entry/Exit Board	1
601	14+655	RSR	Merging Right	1
602	14+630	RSR	Give way	1
603	14+620	RSR	Reassurance Sign	1
604	14+175	RSR	Bus – Bay	1
605	14+050	RSR	Speed Breaker	1
606	14+030	RSR	Pedestrian Crossing	1
607	14+010	RSR	Flag Type Direction Sign	1
608	13+980	RSR	Pedestrian Crossing	1
609	13+980	RSR	Speed Breaker	1
610	13+980	RSR	Reassurance Sign	1
611	13+980	RSR	STOP	1
612	13+980	RSR	Cluster	3
613	13+970	RSR	Height Limit 5.5M	1
614	12+930	RSR	Speed Breaker	1
615	12+900	RSR	Pedestrian Crossing	1
616	12+860	RSR	Reassurance Sign	1
617	12+830	RSR	Cluster	5
618	12+820	RSR	Height Limit 5.5M	1
619	12+830	RSR	Reassurance Sign	1
620	12+830	RSR	Speed Breaker	1

621	12+830	RSR	Pedestrian Crossing	1	
622	12+830	RSR	STOP	1	
623	12+780	RSR	Bus – Bay	1	
624	12+350	RSR	Speed Breaker	1	
625	12+335	RSR	Pedestrian Crossing	1	
626	12+280	RSR	Reassurance Sign	1	
627	12+230	RSR	Pedestrian Crossing	1	
628	12+230	RSR	STOP	1	
629	12+230	RSR	Speed Breaker	1	
630	12+230	RSR	Reassurance Sign	1	
631	12+230	RSR	Height limit 4.0M	1	
632	12+230	RSR	Cluster	2	
633	11+580	RSR	Merging Left	1	
634	11+600	RSR	First aid post	1	
635	11+570	RSR	Repair Facility	1	
636	11+550	RSR	Entry/Exit Board	1	
637	11+540	RSR	Give way	1	
638	11+415	RSR	Speed Limit 40 kmph -40	1	
639	11+290	RSR	Entry/Exit Board	1	
640	11+150	RSR	Reassurance Sign	1	
641	11+145	RSR	Merging Left	1	
642	11+120	RSR	Give way	1	
643	10+790	RSR	Reassurance Sign	1	
644	10+780	RSR	Speed Breaker	1	
645	10+725	RSR	Flag Type Direction Sign	1	
646	10+770	RSR	Pedestrian Crossing	1	
647	10+700	RSR	Speed Breaker	1	
648	10+700	RSR	Repair Facility	1	
649	10+700	RSR	STOP	1	
650	10+700	RSR	Height limit 4.0M	1	
651	10+605	RSR	Bus – Bay	1	
652	10+385	RSR	Toilet	1	
653	10+140	RSR	Entry/Exit Board	1	
654	10+115	RSR	Give way	1	
655	10+040	RSR	Speed Limit 40 kmph 40	1	
656	9+670	RSR	Entry/Exit Board	1	
657	9+540	RSR	Reassurance Sign	1	
658	9+545	RSR	Merging Right	1	
659	9+530	RSR	Give way	1	
660	9+180	RSR	Speed Breaker	1	
661	9+160	RSR	Pedestrian Crossing	1	
662	9+140	RSR	Reassurance Sign	1	
663	9+078	RSR	Cluster	4	
664	9+078	RSR	Speed Breaker	1	
665	9+078	RSR	Pedestrian Crossing	1	
666	9+078	RSR	Reassurance Sign	1	
667	9+078	RSR	STOP	1	
668	9+050	RSR	Height Limit 5.5M	1	

669	8+930	RSR	Bus – Bay	1	
670	8+695	RSR	Speed Breaker	1	
671	8+680	RSR	Pedestrian Crossing	1	
672	8+660	RSR	Pedestrian Crossing	1	
673	8+640	RSR	Reassurance Sign	1	
674	8+590	RSR	Height limit 4.0M	1	
675	8+550	RSR	Speed Breaker	1	
676	8+550	RSR	Pedestrian Crossing	1	
677	8+550	RSR	Reassurance Sign	1	
678	8+160	RSR	Cluster	2	
679	8+400	RSR	Over Head Cables	1	
680	8+325	RSR	Over Head Cables	1	
681	8+280	RSR	Speed Limit 40 kmph	1	
682	8+260	RSR	Over Head Cables	1	
683	7+885	RSR	Bus – Bay	1	
684	7+720	RSR	Speed Breaker	1	
685	7+710	RSR	Pedestrian Crossing	1	
686	7+700	RSR	Reassurance Sign	1	
687	7+610	RSR	Height Limit 5.5M	1	
688	7+620	RSR	Cluster	4	
689	7+620	RSR	Speed Breaker	1	
690	7+620	RSR	Pedestrian Crossing	1	
691	7+620	RSR	Reassurance Sign	1	
692	7+610	RSR	STOP	1	
693	7+435	RSR	Speed Limit 40 kmph -40	1	
694	7+300	RSR	Over Head Cables	1	
695	7+150	RSR	Reassurance Sign	1	
696	7+120	RSR	Speed Limit 40 kmph	1	
697	7+110	RSR	Pedestrian Crossing	1	
698	7+020	RSR	Height Limit 5.5	1	
699	7+020	RSR	Reassurance Sign	1	
700	7+020	RSR	STOP	1	
701	7+020	RSR	Pedestrian Crossing	1	
702	7+020	RSR	Speed Breaker	1	
703	7+020	RSR	STOP	1	
704	7+020	RSR	Cluster	2	
705	6+920	RSR	Speed Breaker	1	
706	6+910	RSR	Pedestrian Crossing	1	
707	6+890	RSR	Reassurance Sign	1	
708	6+870	RSR	Cluster	2	
709	6+870	RSR	Flag Type Direction Sign	1	
710	6+870	RSR	Pedestrian Crossing	1	
711	6+870	RSR	STOP	1	
712	6+745	RSR	Speed Breaker	1	
713	6+730	RSR	Reassurance Sign	1	
714	6+690	RSR	Pedestrian Crossing	1	
715	6+240	RSR	Bus – Bay	1	
716	6+220	RSR	Object Hazard	1	

717	6+050	RSR	Speed Breaker	1	
718	6+030	RSR	Pedestrian Crossing	1	
719	6+020	RSR	Reassurance Sign	1	
720	5+980	RSR	Cluster	4	
721	5+980	RSR	Height limit 4.0M	1	
722	5+980	RSR	Pedestrian Crossing	1	
723	5+980	RSR	Reassurance Sign	1	
724	5+980	RSR	STOP	1	
725	5+760	RSR	Bus – Bay	1	
726	5+370	RSR	Object Hazard	1	
727	5+130	RSR	Speed Breaker	1	
728	5+110	RSR	Pedestrian Crossing	1	
729	5+090	RSR	Reassurance Sign	1	
730	5+080	RSR	Height limit 4.0M	1	
731	5+080	RSR	Cluster	2	
732	5+080	RSR	STOP	1	
733	5+080	RSR	Speed Breaker	1	
734	4+980	RSR	Bus – Bay	1	
735	4+920	RSR	Object Hazard	2	
736	4+650	RSR	Merging Left	1	
737	4+640	RSR	Entry/Exit Board	1	
738	4+620	RSR	Give way	1	
739	4+560	RSR	Speed Limit 40 kmph	1	
740	4+520	RSR	Entry/Exit Board	1	
741	4+470	RSR	Merging Right	1	
742	4+470	RSR	Reassurance Sign	1	
743	4+460	RSR	Give way	1	
744	4+080	RSR	Speed Breaker	1	
745	4+070	RSR	Pedestrian Crossing	1	
746	4+050	RSR	Flag Type Direction Sign	1	
747	3+990	RSR	Height Limit 4.0M	1	
748	3+640	RSR	Entry/Exit Board	1	
749	3+650	RSR	Merging Left	1	
750	3+630	RSR	Give way	1	
751	3+555	RSR	Speed Limit 40 kmph	1	
752	3+510	RSR	Entry/Exit Board	1	
753	3+370	RSR	Reassurance Sign	1	
754	3+370	RSR	Merging Right	1	
755	3+350	RSR	Give way	1	
756	2+960	RSR	Speed Breaker	1	
757	2+950	RSR	Reassurance Sign	1	
758	2+930	RSR	Pedestrian Crossing	1	
759	2+880	RSR	Cluster	3	
760	2+880	RSR	Height Limit 5.5M	1	
761	2+880	RSR	Speed Breaker	1	
762	2+880	RSR	Pedestrian Crossing	1	
763	2+880	RSR	Reassurance Sign	1	
764	2+880	RSR	STOP	1	

765	2+760	RSR	Bus – Bay	1
766	2+120	RSR	Flag Type Direction Sign	1
767	2+080	RSR	Speed Breaker	1
768	2+060	RSR	Pedestrian Crossing	1
769	1+970	RSR	Speed Breaker	1
770	1+970	RSR	Pedestrian Crossing	1
771	1+970	RSR	STOP	1
772	1+970	RSR	Flag Type Direction Sign	1
773	1+970	RSR	Cluster	2
774	1+950	RSR	Height limit 4.0M	1
775	1+950	RSR	Cluster	2
776	1+950	RSR	Flag Type Direction Sign	2
777	1+950	RSR	STOP	1
778	1+950	RSR	Pedestrian Crossing	1
779	1+950	RSR	STOP	1
780	1+875	RSR	Speed Breaker	1
781	1+855	RSR	Pedestrian Crossing	1
782	1+820	RSR	Speed Breaker	1
783	1+820	RSR	Pedestrian Crossing	1
784	1+820	RSR	STOP	1
785	1+630	RSR	First aid post	1
786	1+545	RSR	Bus – Bay	1
787	1+300	RSR	Cluster	2
788	3+225	LHS	50 KM Speed Limit	1
789	3+680	RHS	50 KM Speed Limit	1
790	4+330	LHS	50 KM Speed Limit	1
791	4+665	RHS	50 KM Speed Limit	1
792	9+380	LHS	50 KM Speed Limit	1
793	10+150	RHS	50 KM Speed Limit	1
794	10+980	LHS	50 KM Speed Limit	1
795	14+475	LHS	50 KM Speed Limit	1
796	15+980	RHS	50 KM Speed Limit	1
797	17+225	LHS	50 KM Speed Limit	1
798	21+805	LHS	50 KM Speed Limit	1
799	23+410	LHS	50 KM Speed Limit	1
800	24+460	LHS	50 KM Speed Limit	1

801	25+435	RHS	50 KM Speed Limit	1	
802	26+620	RHS	50 KM Speed Limit	1	
803	20+775	RHS	50 KM Speed Limit	1	
804	22+520	RHS	50 KM Speed Limit	1	
805	23+775	RHS	50 KM Speed Limit	1	
806	0+160	LHS	50 KM Speed Limit	1	
807	0+250	RHS	50 KM Speed Limit	1	
808	29+400	LHS	50 KM Speed Limit	1	
809	29+600	RHS	50 KM Speed Limit	1	
810	24+750	RHS	100 KM Speed Limit	1	
811	26+295	RHS	100 KM Speed Limit	1	
812	27+450	LHS	100 KM Speed Limit	1	
813	14+480	RHS	100 KM Speed Limit	1	
814	1+500	LHS	100 KM Speed Limit	1	
815	4+380	RHS	100 KM Speed Limit	1	
816	6+360	LHS	100 KM Speed Limit	1	
817	9+440	RHS	100 KM Speed Limit	1	
818	11+540	LHS	100 KM Speed Limit	1	
820	22+000	LHS	100 KM Speed Limit	1	
821	18+800	RHS	100 KM Speed Limit	1	
822	17+380	LHS	100 KM Speed Limit	1	
823	1+300	RHS	NO Parking	1	
824	2+460	LHS	NO Parking	1	
825	8+370	RHS	NO Parking	1	
826	8+355	LHS	NO Parking	1	
827	14+000	LHS	NO Parking	1	

828	14+520s	RHS	NO Parking	1	
829	20+200	LHS	NO Parking	1	
830	21+000	RHS	NO Parking	1	
831	24+000	LHS	NO Parking	1	
832	28+800	LHS	NO Parking	1	
833	25+000	RHS	NO Parking	1	
			Total	1004	

Delineators

S.no	Chainage	Side	Nos	Remarks
1	1+560	LHS	1	
2	1+640	LHS	1	
3	1+695	LHS	1	
4	1+980	LHS	1	
5	2+215	LHS	1	
6	2+250	LHS	1	
7	2+340	LHS	1	
8	2+420	LHS	1	
9	2+480	LHS	1	
10	3+110	LHS	1	
11	3+620	LHS	1	
12	4+760	LHS	1	
13	5+290	LHS	1	
14	5+400	LHS	1	
15	5+500	LHS	1	
16	5+600	LHS	1	
17	5+650	LHS	1	
18	5+700	LHS	1	
19	5+750	LHS	1	
20	5+790	LHS	1	
21	6+240	LHS	1	
22	6+310	LHS	1	
23	7+270	LHS	1	
24	11+240	LHS	1	
25	11+550	LHS	1	
26	11+630	LHS	1	
27	12+420	LHS	1	
28	12+500	LHS	1	
29	12+580	LHS	1	
30	13+590	LHS	1	
31	13+610	LHS	1	
32	13+635	LHS	1	
33	14+360	LHS	1	
34	14+430	LHS	1	
35	14+500	LHS	1	

36	14+590	LHS	1	
37	15+000	LHS	1	
38	16+500	LHS	1	
39	16+560	LHS	1	
40	16+715	LHS	1	
41	16+790	LHS	1	
42	17+140	LHS	1	
43	17+370	LHS	1	
44	19+060	LHS	1	
45	19+130	LHS	1	
46	19+210	LHS	1	
47	19+640	LHS	1	
48	19+810	LHS	1	
49	20+200	LHS	1	
50	21+740	LHS	1	
51	21+810	LHS	1	
52	22+100	LHS	1	
53	22+170	LHS	1	
54	22+235	LHS	1	
55	22+260	LHS	1	
56	22+330	LHS	1	
57	22+390	LHS	1	
58	22+450	LHS	1	
59	22+500	LHS	1	
60	22+560	LHS	1	
61	22+620	LHS	1	
62	22+670	LHS	1	
63	23+260	LHS	1	
64	23+380	LHS	1	
65	23+450	LHS	1	
66	23+520	LHS	1	
67	23+570	LHS	1	
68	23+640	LHS	1	
69	23+700	LHS	1	
70	23+760	LHS	1	
71	23+800	LHS	1	
72	23+850	LHS	1	
73	24+340	LHS	1	
74	25+230	LHS	1	

75	25+300	LHS	1	
76	25+360	LHS	1	
77	25+410	LHS	1	
78	25+590	LHS	1	
79	26+630	LHS	1	
80	26+760	LHS	1	
81	27+340	LHS	1	
82	27+400	LHS	1	
83	27+460	LHS	1	
84	27+500	LHS	1	
85	27+580	LHS	1	
86	27+650	LHS	1	
87	27+700	LHS	1	
88	27+750	LHS	1	
89	27+800	LHS	1	
90	27+850	LHS	1	
91	27+980	LHS	1	
92	28+030	LHS	1	
93	28+080	LHS	1	
94	28+130	LHS	1	
95	28+180	LHS	1	
96	28+320	LHS	1	
97	29+850	LHS	1	
98	1+750	RHS	1	
99	2+110	RHS	1	
100	2+165	RHS	1	
101	2+220	RHS	1	
102	2+260	RHS	1	
103	2+300	RHS	1	
104	2+340	RHS	1	
105	2+400	RHS	1	
106	2+445	RHS	1	
107	2+485	RHS	1	
108	2+530	RHS	1	
109	2+560	RHS	1	
110	3+220	RHS	1	
111	4+780	RHS	1	
112	5+350	RHS	1	
113	5+400	RHS	1	

114	5+445	RHS	1	
115	5+500	RHS	1	
116	5+550	RHS	1	
117	5+600	RHS	1	
118	5+650	RHS	1	
119	5+700	RHS	1	
120	5+780	RHS	1	
121	6+200	RHS	1	
122	7+220	RHS	1	
123	11+250	RHS	1	
124	11+290	RHS	1	
125	11+440	RHS	1	
126	11+620	RHS	1	
127	12+420	RHS	1	
128	12+495	RHS	1	
129	12+570	RHS	1	
130	13+605	RHS	1	
131	13+635	RHS	1	
132	13+660	RHS	1	
133	14+370	RHS	1	
134	14+435	RHS	1	
135	14+500	RHS	1	
136	14+560	RHS	1	
137	14+630	RHS	1	
138	15+050	RHS	1	
139	16+500	RHS	1	
140	16+560	RHS	1	
141	16+620	RHS	1	
142	16+680	RHS	1	
143	16+740	RHS	1	
144	16+800	RHS	1	
145	17+110	RHS	1	
146	17+180	RHS	1	
147	17+370	RHS	1	
148	19+080	RHS	1	
149	19+140	RHS	1	
150	19+630	RHS	1	
151	19+800	RHS	1	
152	20+200	RHS	1	

153	20+890	RHS	1	
154	21+670	RHS	1	
155	21+710	RHS	1	
156	22+060	RHS	1	
157	22+120	RHS	1	
158	22+170	RHS	1	
159	22+230	RHS	1	
160	22+280	RHS	1	
161	22+330	RHS	1	
162	22+390	RHS	1	
163	22+440	RHS	1	
164	22+510	RHS	1	
165	22+560	RHS	1	
166	22+620	RHS	1	
167	23+260	RHS	1	
168	23+300	RHS	1	
169	23+360	RHS	1	
170	23+420	RHS	1	
171	23+480	RHS	1	
172	23+560	RHS	1	
173	23+620	RHS	1	
174	23+680	RHS	1	
175	23+720	RHS	1	
176	23+770	RHS	1	
177	23+830	RHS	1	
178	24+360	RHS	1	
179	25+230	RHS	1	
180	25+280	RHS	1	
181	25+340	RHS	1	
182	25+400	RHS	1	
183	25+460	RHS	1	
184	25+540	RHS	1	
185	25+635	RHS	1	
186	26+730	RHS	1	
187	27+510	RHS	1	
188	27+560	RHS	1	
189	27+610	RHS	1	
190	27+660	RHS	1	
191	27+700	RHS	1	

192	27+760	RHS	1	
193	27+820	RHS	1	
194	27+930	RHS	1	
195	28+040	RHS	1	
196	28+090	RHS	1	
197	28+130	RHS	1	
198	28+190	RHS	1	
199	28+250	RHS	1	
200	28+320	RHS	1	
201	29+270	RHS	1	
202	29+310	RHS	1	
203	29+840	RHS	1	
204	2+460	LSR	1	
205	5+350	LSR	1	
206	5+400	LSR	1	
207	5+450	LSR	1	
208	5+500	LSR	1	
209	5+550	LSR	1	
210	5+600	LSR	1	
211	5+650	LSR	1	
212	5+700	LSR	1	
213	27+460	LSR	1	
214	27+500	LSR	1	
215	27+580	LSR	1	
216	27+650	LSR	1	
217	27+700	LSR	1	
218	27+750	LSR	1	
219	27+800	LSR	1	
220	27+850	LSR	1	
221	2+200	RSR	1	
222	2+300	RSR	1	
223	5+400	RSR	1	
224	5+500	RSR	1	
225	5+600	RSR	1	
226	5+700	RSR	1	
227	27+610	RSR	1	
228	27+660	RSR	1	
229	27+700	RSR	1	
230	27+760	RSR	1	

231	27+820	RSR	1	
232	27+930	RSR	1	
	Total		232	

Table:2.2.5 Road Studs

S.No	Chainage		Side	Nos as per approval	Quantity at site	Remarks
	From	To				
		00+100	LHS	42	RT Wall SR&PTC side	
2	00+225	00+350	LHS	52	RT Wall SR&PTC side	
3	00+660	00+760	LHS	42	RT Wall SR&PTC side	
4	01+720	02+240	LHS	210	RT Wall SR&PTC side	
5	02+460	03+190	LHS	294	RT & RE Wall SR & PTC side	
6	03+750	04+300	LHS	222	RT & RE Wall SR & PTC side	
7	04+780	05+340	LHS	226	RT & RE Wall SR & PTC side	
8	05+710	06+280	LHS	230	RT & RE Wall SR & PTC side	
9	06+370	08+290	LHS	770	RT & RE Wall SR & PTC side	
10	08+350	09+350	LHS	402	RT & RE Wall SR & PTC side	Curve
11	10+430	10+970	LHS	218	RT & RE Wall SR & PTC side	
12	12+100	14+450	LHS	942	RT & RE Wall SR & PTC side	
13	14+920	16+000	LHS	434	RT & RE Wall SR & PTC side	
14	16+020	16+600	LHS	234	RE wall	
15	16+600	16+800	LHS	82	RT wall	
16	16+800	17+120	LHS	130	RE wall	
17	17+120	17+240	LHS	50	RT wall	
19	17+450	17+890	LHS	178	RE wall	
20	17+890	17+990	LHS	42	RT wall	

21	17+990	18+810	LHS	330	RE wall	
22	18+810	18+850	LHS	18	RT wall	Curve
24	19+120	19+220	LHS	42	RT wall	
25	19+220	19+600	LHS	154	RE wall	
26	19+600	19+860	LHS	106	RT wall	
27	19+860	20+170	LHS	126	RE wall	Closed for traffic
28	20+170	20+280	LHS	46	RT wall	
30	20+840	20+940	LHS	42	RT wall	
31	20+940	21+370	LHS	174	RE wall	
32	21+370	21+690	LHS	130	RE wall	
34	22+590	22+710	LHS	50	RT wall	
35	22+710	23+240	LHS	214	RE wall	
36	23+240	23+400	LHS	66	RT wall	
38	23+760	23+880	LHS	50	RT wall	
39	23+880	24+290	LHS	166	RE wall	
40	24+290	24+400	LHS	46	RT wall	
42	25+720	25+830	LHS	46	RT wall	
43	25+830	26+120	LHS	118	RE wall	
44	26+120	26+270	LHS	62	RT wall	
46	28+370	29+240	LHS	350	RE wall	
48	29+850	29+950	LHS	42	RT wall	
49	29+950	30+260	LHS	126	RE wall	
50	30+260	30+370	LHS	46	RT wall	
53	00+000	16+100	LHS	319	Entry / Exit locations	
54	00+000	00+140	RHS	58	RT Wall SR&PTC side	
55	00+225	00+350	RHS	52	RT Wall SR&PTC side	Curve
56	00+650	00+720	RHS	30	RT Wall SR&PTC side	
57	01+730	02+210	RHS	194	RT Wall SR&PTC side	
58	02+310	03+200	RHS	358	RT & RE Wall SR & PTC side	

59	03+710	04+320	RHS	246	RT & RE Wall SR & PTC side	
60	04+780	05+370	RHS	238	RT & RE Wall SR & PTC side	
61	05+730	06+220	RHS	198	RT & RE Wall SR & PTC side	
62	06+360	07+960	RHS	642	RT & RE Wall SR & PTC side	
63	08+140	08+280	RHS	29	RT Wall SR side	
64	08+370	09+320	RHS	382	RT & RE Wall SR & PTC side	
65	10+460	10+970	RHS	206	RT & RE Wall SR & PTC side	Curve
66	12+100	14+450	RHS	942	RT & RE Wall SR & PTC side	
67	14+980	16+000	RHS	410	RT & RE Wall SR & PTC side	
68	16+020	16+600	LHS	234	RE Wall	
69	16+600	16+800	LHS	82	RT Wall	
70	16+800	17+120	LHS	130	RE Wall	
71	17+120	17+240	LHS	50	RT Wall	
73	17+450	17+890	LHS	178	RE Wall	
74	17+890	17+990	LHS	42	RT Wall	
75	17+990	18+810	LHS	330	RE Wall	
76	18+810	18+850	LHS	18	RT Wall	
78	19+120	19+220	LHS	42	RT Wall	
79	19+220	19+600	LHS	154	RE Wall	
80	19+600	19+860	LHS	106	RT Wall	
81	19+860	20+170	LHS	126	RE Wall	
82	20+170	20+280	LHS	46	RT Wall	
84	20+840	20+940	LHS	42	RT Wall	
85	20+940	21+370	LHS	174	RE Wall	
86	21+370	21+690	LHS	130	RE Wall	
88	22+590	22+710	LHS	50	RT Wall	
89	22+710	23+240	LHS	214	RE Wall	
90	23+240	23+400	LHS	66	RT Wall	

92	23+760	23+880	LHS	50	RT Wall
93	23+880	24+290	LHS	166	RE Wall
94	24+290	24+400	LHS	46	RT Wall
96	25+720	25+830	LHS	46	RT Wall
97	25+830	26+120	LHS	118	RE Wall
98	26+120	26+270	LHS	62	RT Wall
100	28+370	29+240	LHS	350	RE Wall
101	29+240	29+850	LHS		At Grade
102	29+850	29+950	LHS	42	RT Wall
103	29+950	30+260	LHS	126	RE Wall
104	30+260	30+370	LHS	46	RT Wall
105	30+370	30+530	LHS		At Grade
107	00+000	16+100	RHS	308	Entry / Exit locations
109	JN	1+800	BHS	30	JN
110	PUP	1+948	BHS	56	PUP
111	JN	2+125	BHS	32	JN
112	VUP	2+828	BHS	132	VUP
113	PUP	3+967	BHS	62	PUP
114	PUP	5+100	BHS	78	PUP
115	PUP	5+900	BHS	120	PUP
116	VUP	6+600	BHS	86	VUP
117	JN	6+800	BHS	14	JN
118	VUP	7+000	BHS	104	VUP
119	VUP	7+600	BHS	148	VUP
120	PUP	8+600	BHS	70	PUP
121	VUP	9+052	BHS	130	VUP
122	PUP	10+700	BHS	68	PUP
123	PUP	12+240	BHS	66	PUP
124	VUP	12+800	BHS	124	VUP
125	VUP	13+967	BHS	108	VUP
126	VUP	15+450	BHS	130	VUP
127	FO	16+100	BHS	40	FO

129	Entry		BHS	446	Entry	
130	Exit		BHS	446	Exit	
132	PUP	16+940	BHS	136	PUP	
133	PUP	17+585	BHS	140	PUP	
134	PUP	19+430	BHS	376	PUP	
135	PUP	20+025	BHS	136	PUP	
136	PUP	22+763	BHS	184	PUP	
137	PUP	30+112	BHS	184	PUP	
139	VUP	21+170	BHS	232	VUP	
140	VUP	23+036	BHS	376	VUP	
141	VUP	24+100	BHS	376	VUP	
142	VUP	25+974	BHS	230	VUP	
143	VUP	28+660	BHS	376	VUP	
		TOTAL		20464		

Metal Beam Crash Barrier

Sr. No.	Side	Chainage		Length	Deduction - Structure Chainage	Deduction Detail	Remarks
		From	To				
1	LHS	00+050	00+080	30			
2	LHS	00+240	00+320	80			
3	LHS	00+660	00+680	20			
4	LHS	01+560	01+790	210	1+700 BC	Deduction=19.7 m (Concrete Cross Barrier)	
5	LHS	02+100	02+120	20			
6	LHS	02+170	02+260	90			
7	LHS	02+550	02+580	30			
8	LHS	03+090	03+140	50			
9	LHS	03+590	03+650	60			
10	LHS	03+800	03+840	40			
11	LHS	04+200	04+240	40			
12	LHS	04+700	04+780	74	4+700 BC	Deduction = 12.71 m (Concrete Cross Barrier)	
13	LHS	05+250	05+290	40			
14	LHS	05+290	05+770	457	5+300,BC 5+725 BC	Structure Deduction = 23 m (2 Box Culverts)	
15	LHS	05+770	05+790	20			
16	LHS	06+180	06+190	10			
17	LHS	06+190	06+300	100		Structure Deduction = 9.98 m (1 Box Culvert)	
18	LHS	06+440	06+450	10			
19	LHS	07+230	07+310	80			
20	LHS	07+910	07+930	20			
21	LHS	08+420	08+430	10			
22	LHS	10+890	10+930	26	10+930 BC	Deduction = 13.84 m (Concrete Cross Barrier)	
23	LHS	11+210	11+280	59	11+240 BC	Deduction = 10.66 m (Concrete Cross Barrier)	
24	LHS	11+400	11+410	0	11+400 BC	Deduction = 10.00 m (Concrete Cross Barrier)	
25	LHS	11+520	11+680	147	11+620 BC	Deduction = 13.31 m (Concrete Cross Barrier)	

26	LHS	11+860	11+920	60			
27	LHS	12+420	12+580	160			
28	LHS	13+580	13+640	60			
29	LHS	14+350	14+600	224	14+510 BC 14+596 BC	Deduction = 26.122 m (Concrete Cross Barrier)	
30	LHS	14+960	15+040	80			
31	LHS	16+490	16+800	299	16+470 BC	Deduction=10.86 m Concrete Crash Barrier	
32	LHS	17+090	17+180	90			
33	LHS	17+200	17+220	20			
34	LHS	17+360	17+380	20			
35	LHS	17+390	17+450	60			
36	LHS	18+780	19+020	180	18+820BC, 18+870 BC, 18+920 BC, 18+970 BC	Deduction=59.62 m Concrete Crash Barrier	
37	LHS	19+050	19+210	160			
38	LHS	19+600	19+670	70			
39	LHS	19+720	19+730	10			
40	LHS	19+770	19+860	90			
41	LHS	20+170	20+220	50			
42	LHS	20+850	20+860	10			
43	LHS	20+890	20+920	30			
44	LHS	21+700	21+800	100			
45		21+950	21+960	10			
46	LHS	22+090	22+240	150			
47	LHS	22+260	22+675	402	22+533 BC	Deduction=13.28 m Concrete Crash Barrier	
48	LHS	23+250	23+380	130			
49	LHS	23+380	23+410	30			
50	LHS	23+450	23+850	384	23+550 BC	Deduction=16 m Concrete Crash Barrier	
51	LHS	24+300	24+360	60			
52	LHS	25+230	25+740	412	25+430, BC 25+480, BC 25+525, BC 25+570, BC 25+617, BC 25+647 BC	Deduction=97.56 m Concrete Crash Barrier	
53	LHS	26+170	26+230	50	26+235 BC	Deduction=10.36 m Concrete Crash	

						Barrier	
54	LHS	26+590	26+670	80			
55	LHS	26+740	26+790	50			
56	LHS	27+300	27+830	512.5	26+670 BC	Deduction=17.5 m Concrete Crash Barrier	
57	LHS	27+930	27+950	20			
58	LHS	28+313	28+360	47			
59	LHS	29+230	29+280	50			
60	LHS	29+900	29+960	60			
61	LHS	30+280	30+320	40			
62	RHS	00+070	00+120	50			
63	RHS	00+300	00+310	10			
64	RHS	00+650	00+680	30			
65	RHS	01+010	01+040	30			
66	RHS	01+710	01+790	80			
67	RHS	02+110	02+530	420			
68	RHS	03+090	03+140	50			
69	RHS	03+740	03+780	40			
70	RHS	04+250	04+280	30			
71	RHS	04+740	04+810	70			
72	RHS	05+310	05+350	40			
73	RHS	05+350	05+750	398	5+725 BC	Structure Deduction= 2.5 m (1 Box Culverts)	
74	RHS	05+750	05+790	40			
75	RHS	06+140	06+160	20			
76	RHS	06+160	06+240	80			
77	RHS	06+420	06+440	20			
78	RHS	07+210	07+320	110			
79	RHS	07+880	07+900	20			
80	RHS	08+420	08+440	20			
81	RHS	10+900	10+940	30	10+930 BC	Deduction=9.6 m (Concrete Cross Barrier)	
82	RHS	11+180	11+280	89	11+240 BC	Deduction=11.2 m (Concrete Cross Barrier)	
83	RHS	11+360	11+490	119	11+400 BC	Deduction=10.6 m (Concrete Cross Barrier)	
84	RHS	12+420	12+570	150			
85	RHS	13+600	13+670	70			
86	RHS	14+370	14+660	263	14+510 BC	Deduction=26.9 m	

					14+596 BC	(Concrete Cross Barrier)	
87	RHS	15+030	15+080	50			
88	RHS	16+500	16+800	300			
89	RHS	17+090	17+190	100			
90	RHS	17+200	17+220	20			
91	RHS	17+380	17+390	10			
92	RHS	17+400	17+450	50			
93	RHS	17+920	17+930	10			
94	RHS	18+780	19+210	368	18+820 BC, 18+870 BC, 18+920 BC, 18+970 BC	Deduction=62.32 m Concrete Crash Barrier	
95	RHS	19+600	19+670	70			
96	RHS	19+780	19+845	65			
97	RHS	20+170	20+220	50			
98	RHS	20+670	20+700	30			
99	RHS	20+840	20+860	20			
100	RHS	20+870	20+922	52			
101	RHS	21+700	21+810	110			
102	RHS	22+060	22+650	562	22+246 BC, 22+533 BC	Deduction=27.60 m Concrete Crash Barrier	
103	RHS	23+260	23.850	574	23+550 BC,	Deduction=15.90 m Concrete Crash Barrier	
104	RHS	24+330	24+380	50			
105	RHS	25+230	25+740	409	25+430 BC, 25+480 BC, 25+525 BC, 25+570 BC, 25+617 BC, 25+647 BC	Deduction=101.14 m Concrete Crash Barrier	
106	RHS	26+170	26+230	50	26+235 BC	Deduction=10.20 m Concrete Crash Barrier	
107	RHS	26+600	26+680	80			
108	RHS	26+730	26+790	44	26+794 BC	Deduction=16.28 m Concrete Crash Barrier	
109	RHS	27+300	27+830	517.50		Deduction=12.50 m Concrete Crash Barrier	
110	RHS	29+255	29+370	115			
111	RHS	29+890	29+940	50			
112	RHS	30+270	30+300	30			
			TOTAL	12049			

SQLAR BLINKER DETAILS

S.No	Chainage	Side	Nos	Remarks
1	Km 2+870	RHS	1	
2	Km 6+060	RHS	1	
3	Km 7+030	RHS	1	
4	Km 7+850	RHS	1	
5	Km 9+070	RHS	1	
6	Km13+860	RHS	1	
7	Km 14+000	RHS	1	
8	Km 15+480	RHS	1	
9	Km 16+080	RHS	1	
10	Km 21+180	RHS	1	
11	Km 23+070	RHS	1	
12	Km 24+100	RHS	1	
13	Km 25+990	RHS	1	
14	Km 28+660	RHS	1	
15	Km 2+800	LHS	1	
16	Km 6+690	LHS	1	
17	Km 7+020	LHS	1	
18	Km 7+600	LHS	1	
19	Km 9+060	LHS	1	
20	Km 13+940	LHS	1	
21	Km 15+240	LHS	1	
22	Km 15+970	LHS	1	
23	Km 21+150	LHS	1	
24	Km 23+010	LHS	1	
25	Km 24+040	LHS	1	
26	Km 25+960	LHS	1	
Total			26	

HIGHWAY LIGHTINGS DETAILS :

CORR PHASE -II (0+000 TO 30+500) POLES DETAILS											
S.NO	KM	9M SA POLE		9M DA NORMAL POLE		9M DA BUSBAY POLE		10M POLE		HIGHMAST	
		LHS	RHS	LHS	RHS	LHS	RHS	LHS	RHS	LHS	RHS
1	KM 00-01	-	-	38	33	-	4	2	2	-	-
2	KM 01-02	-	7	22	26	8	4	-	-	2	2
3	TOLL	9	11	-	-	-	-	-	-	-	-
4	CAR PARKING	-	19	-	-	-	-	-	-	-	-
5	KM 02-03	-	11	40	36	-	4	-	-	-	-
6	KM 03-04	-	-	35	35	-	-	4	4	-	-
7	KM 04-05	-	6	35	30	-	4	4	4	-	-
8	KM 05-06	-	7	40	35	-	4	-	-	-	-
9	KM 06-07	-	11	41	37	-	4	-	-	-	-
10	KM 07-08	4	13	40	35	-	4	-	-	-	-
11	KM 08-09	-	9	40	36	-	4	-	-	-	-
12	KM 09-10	-	12	39	38	-	-	2	2	-	-
13	KM 10-11	-	5	37	33	-	4	2	2	-	-
14	KM 11-12	-	-	18	21	-	-	4	4	-	-
15	KM 12-13	-	22	39	35	-	4	-	-	-	-
16	KM 13-14	-	9	35	36	4	4	-	-	-	-
17	KM 14-15	-	-	34	36	-	-	4	4	-	-
18	KM 15-16	-	3	41	32	-	8	-	-	1	2
19	KM 16-17	-	6	38	38	-	-	-	-	-	1
20	KM 17-18	-	-	18	14	-	4	4	4	-	-
21	KM 18-19	-	-	18	20	-	-	-	-	-	1
22	GIRDER	20	19	-	-	-	-	-	-	-	-
23	CL SLIP ROAD 1	-	15	-	-	-	-	-	-	-	-
24	KM 19-20	-	6	40	31	-	8	-	-	-	-
25	KM 20-21	-	7	34	32	-	2	4	4	-	-
26	KM 21-22	-	9	37	35	-	2	2	2	-	-
27	KM 22-23	-	4	36	32	-	4	2	2	-	-
28	KM 23-24	-	11	30	29	4	4	4	4	-	-
29	KM 24-25	-	9	35	38	-	-	3	2	-	-
30	TRUCK LAYBAY	-	26	-	-	-	-	-	-	-	-
31	KM 25-26	-	-	38	38	-	-	1	2	-	-
32	KM 26-27	-	9	33	27	-	4	4	4	-	-
33	KM 27-28	-	-	28	23	-	4	1	-	-	-
34	TOLL	9	12	-	-	-	-	-	-	2	2
35	CAR PARKING	-	10	-	-	-	-	-	-	-	-
36	KM 28-29	-	-	38	37	-	-	1	2	-	-
37	MB SLIP ROAD 2	-	24	-	-	-	-	-	-	-	-
38	KM 29-30	-	-	34	33	-	-	4	4	-	-
39	KM 30-30+500	-	7	5	5	-	-	-	-	-	-
TOTAL		42	319	1036	966	16	84	52	52	5	8
		361		2002		100		104		13	

ABSTRACT				
Sr.No	Description	Total	Grand Total	
1	9M SINGLE ARM POLE - JUNCTION	187	361	
2	9M SINGLE ARM POLE - GIRDER	39		
3	9M SINGLE ARM POLE - SLIP ROAD 1&2	39		
4	9M SINGLE ARM POLE - TRUCK LAYBAY	26		
5	9M SINGLE ARM POLE - TOLL	41		
6	9M SINGLE ARM POLE - CAR PARKING	29		
7	9M DOUBLE ARM NORMAL	2002	2102	
8	9M DOUBLE ARM BUSBAY	100		
9	10M POLE	104		
10	16M HIGHMAST	13		
			104	13

ECB DETAILS

Sr.No	Chainage	Sides	Nos	Remarks
1	1+500	Both Sides	2	
2	3+600	Both Sides	2	
3	5+600	Both Sides	2	
4	8+000	Both Sides	2	
5	9+900	Both Sides	2	
6	11+600	Both Sides	2	
7	14+500	Both Sides	2	
8	17+400	Both Sides	2	
9	19+100	Both Sides	2	
10	21+800	Both Sides	2	
11	23+700	Both Sides	2	
12	25+700	Both Sides	2	
13	27+700	Both Sides	2	
14	29+700	Both Sides	2	
Total			28	

Table:2.2.9.B. VMS DETAILS

Sr.No	Chainage	Sides	Nos	Remarks
1	3+600	LHS	1	
2	24+900	RHS	1	
Total			2	

Table:2.2.10.C. Meteorological System DETAILS

Sr.No	Chainage	Sides	Nos	Remarks
1	27+130	RHS	1	

SCHEDULE-B

(See Clause 2.1)

SCOPE OF THE PROJECT

The concessionaire is expected to visit the site as mentioned in Schedule A to assess the strength and durability conditions of all the assets including structures, pavement, boundary wall, lighting, ATMS, safety devices/furniture and other components of project highways for their proper functioning and to maintain Schedule F requirement after required rehabilitation, repair and restoration during concession period and the same shall be part of the contract. However, following additional works shall also be executed as per prescribed standard & specification applicable for NH/expressway as applicable.

The O&M operations shall be vested with the Concessionaire for the stretches 0/00 – 29/65 from 15.12.2030 and 29/65 – 60/15 from 28.10.2034. However, the Toll Plazas, O&M shall commence from the date of Appointed date/handing over date.

1.0 Service Road/Slip Road.

Nil

1.1 Construction of New Slip/Service Roads

Slip/Service Roads shall be constructed at the locations and for the lengths indicated below:

S.N.	Existing Kilometer (Km)		Length (m)	Width (m)	Side	TCS Type
	From	To				
Nil						

1.2 Widening/Improvement of existing service/slip road

Following service/slip road section shall be improved.

S.N.	Existing Kilometer (Km)		Length (m)	Width (m)	Side	TCS Type
	From	To				
NIL						

1.3 Widening of Existing Structures

Widening of Structures due to Improvement of Entry & Exit Arrangements are given below.

S.No	Existing Kilometer (Km)	Details of Existing Culvert		Improvement Proposal
		Type of Structure	Span/Dia. (m)	
Nil				

2. Construction of New Structures /Widening /Reconstruction

Following culverts shall be widened to match the proposed new road cross section.

2.1 New Construction/ Reconstruction of Structure

2.1.1 Pipe Culvert:

Sr. No	Exiting Kilometer (Km)	Existing Span (mm)	Proposed Span Arrangement (mm)	Proposed Width of Culvert (m)	Remark
NIL					

2.1.2 Box Culvert:

Sr. No	Exiting Kilometer (Km)	Existing Span (mm)	Proposed Span Arrangement (mm)	Proposed Width of Culvert (m)	Remark
NIL					

2.1.3 Minor Bridge:

Sr. No	Exiting Kilometer (Km)	Existing Span (mm)	Proposed Span Arrangement (mm)	Proposed Width (m)	Remark
Nil					

2.1.4 Flyover:

Sr. No	Exiting Kilometer (Km)	Existing Span (mm)	Proposed Span Arrangement (mm)	Proposed Width (m)	Remark
Nil					

3. MAINTENANCE WORKS

The Concessionaire shall carryout following maintenance works.

- a) Repair and Rehabilitation of pavement
- b) Repair and Rehabilitation of Embankment /Earthen Shoulders/ /Paved Shoulders/ Stone Pitching etc.
- c) Repair and Rehabilitation of structures.

3.1 Repair and Rehabilitation of Pavement

The Concessionaire shall carry out Pavement condition survey (visual, deflection, roughness, Skid resistance, etc.) with NSV (Network Survey Vehicle) and assess the existing pavement condition and identify the pavement distresses/ type of defects (Structural distresses and Functional Distresses) and determine the root cause of pavement's distress and track the rate of progression of the distress leading to pavement deterioration.

As per the pavement distresses, the remedial measures shall be carried out as per IRC 82-2015 for Flexible Pavement and IRC: SP: 83-2018 for Rigid Pavement.

Concessionaire shall also carryout FWD survey for the entire project highway as per IRC 115-2014 (Flexible) and IRC 117-2015 (Rigid) for structural evaluation and accordingly carry out the periodic maintenance as per the concession agreement and applicable standards.

3.2 Repair and Rehabilitation of Embankment/Earthen Shoulders/Paved Shoulders / Stone Pitching

i. Repair & Rehabilitation of Embankment:

The side slope along the Project Highway shall be improved as per site requirement and protected by using suitable slope protection measures, as per the provision of Section-4 of IRC SP-87-2019.

The damaged embankment slopes along the Project Highway and loops & Ramps etc. shall be re-instated as per the specifications & standards. The treatments for various embankment heights include the following but not limited to:

i. Repair & Rehabilitation of Embankment:

The damaged embankment slopes along the Project Highway and loops & Ramps etc. shall be re-instated as per the specifications & standards.

ii. Repair and Rehabilitation of Earthen Shoulder:

The Concessionaire shall restore the existing earthen shoulder width to 2m.

iii. Repair & Rehabilitation of Paved Shoulder:

The damaged paved shoulders shall be re-instated as per specifications and standards in consultation with Authority/Independent Engineer.

iv. Repair & Rehabilitation of Damaged Stone Pitching:

The damaged stone pitching shall be re-instated as per MORT&H specifications and standards in Consultation with Authority/Independent Engineer.

3.3 Repair and Rehabilitation of Structures

All the Structures existing at site and mentioned in Schedule-A shall be repaired & rehabilitated as mentioned below:

i. Structures:

Concessionaire shall carryout the condition survey of all the structures and carryout repair and rehabilitation of existing structures which includes but not limited to general cleaning, removal of debris around the bridge structure, restoration of protection works e. g. CC flooring flexible & rigid apron, guide bunds etc. , repair of damaged concrete due to spalling, honey combing , scaling, leaching and exposed reinforcement, relaying of wearing coat, hand rails on RCC crash barriers at structures and ramps etc., Cleaning/ Repairing/ Modification of existing drainage spouts, repair & replacement of

expansion joints, repair and replacement of damaged bearing with new bearings, painting of structure number plates etc.

As per NHA Circular No. 18.61/2021 dated 5th January 2021, Concessionaire must check the riding quality at approaches /Expansion joints of structures and accordingly rectify the deficiency if any.

The concessionaire must carry out repair and rehabilitation of ROBs', if any in consultation with Railway Authority's.

ii. Culverts

Concessionaire shall carryout the condition survey of all the culverts & utility ducts and carryout repair and rehabilitation which includes but not limited to general cleaning, removal of debris from barrel/box and around the culvert, restoration of protection works e. g. flexible & rigid apron, pitching in quadrant etc., repair of damaged concrete due to spalling, honey combing, scaling, leaching and exposed reinforcement, relaying of wearing coat, hand rails on RCC crash barriers, painting of structure number plates, etc.

iii. Approach Slab

Approach slabs shall be rehabilitated, constructed/reconstructed at the structures where settlement observed including side drain, railing and rain cuts etc.

Note: Additional treatments to that mentioned in section 1 & 2 above, if any, carried out by the Concessionaire shall not be considered under Change of Scope.

4. JUNCTION IMPROVEMENT

4.1 Improvement of Major Junctions

The Concessionaire shall improve the following junctions (below flyovers) as per details given below and specifications & Standards given in IRC: SP: 87- 2019.

S. No.	Existing Kilometer (Km)	Type	Improvement Strategies
Nil			

Refer: **Appendix B-III** for Major Junction development drawing.

4.2 Improvement of Minor Junctions

The Concessionaire shall improve the following minor.

S. No.	Existing Kilometer (Km)	Type	Improvement Strategies	Remarks
Nil				

4.3 Entry/Exit arrangement

The entry /exit arrangements shall be constructed/modified as per the 2.1C and 3.13 of IRC: SP: 87 - 2019, at the below mentioned locations:

S. No.	Structure Location/ Existing Kilometer (Km)	LHS Exit	LHS Entry	RHS Exit	RHS Entry
Nil					

5. MEDIAN OPENINGS

The details of the median openings and their treatments are given in table below. The Concessionaire shall not be allowed to construct any new median opening (without prior approval of Authority) except for improvement/construction of the median openings.

For traffic management for maintenance works and vehicles involved in accidents, Median openings with detachable barriers shall be provided if missing:

S. No.	Existing Kilometer (Km)	Recommendations
Nil		

6. DRAIN LOCATION

Reinforced Cement Concrete drains shall be provided as detailed below at the following locations:

S.N.	Existing Kilometer (Km)		Side	Length (m)	Improvement Proposal
	From	To			
Nil					

Apart from above mentioned RCC Drains, Concessionaire shall maintain the existing earthen drain and construct if not available at site in full length of Project Highway near ROW in consultation with IE.

7. RAINWATER HARVESTING

As per Ministry of Environment and Forests Notification, New Delhi dated 14.01.1997 (as amended on 13.01.1998, 05.01.1999 & 6.11.2000), the construction of Rainwater, **harvesting** structure is mandatory in and around Water Crisis area, notified by the Central Ground Water Board.

8. PROJECT FACILITIES

Following Project Facilities shall be retained/maintained in accordance with provisions mentioned in Schedule-C of this agreement.

1. Toll plazas.
2. Truck Lay Bye.
3. Landscaping and tree plantation.
4. Rest areas / Wayside Amenities.
5. Others
 - i. Highway Lighting
 - ii. Highway Patrol
 - iii. Ambulances
 - iv. Cranes
 - v. ATMS / TMS
 - vi. Traffic Aid Post
 - vii. Medical Aid Post

8.1 Toll Plaza

Toll plazas at all the locations along the Project Highway shall be retained and maintained.

The Existing Toll Booths, Toll Plaza premises including all facilities, parking etc. shall be reinstated and maintained. The Concessionaire shall restore and maintain the Administrative buildings. NHA/Policy Guidelines/management of toll plaza/2021 Policy circular No.

17.5.82 dated 24th May 2021 shall be followed.

Mini Nest and Toilet blocks at toll plaza on main carriageway shall be operated and maintained to desired level of cleanliness. If not maintained and for lack of proper upkeep, facilities etc. fine upto Rs. 10000/- will be imposed on every occurrence on Concessionaire.

Concessionaire shall also make arrangements for the water supply, electricity etc. for Mini Nest, Toilet blocks and Water ATM.

8.2 Truck Lay Bye

Truck Lay bye shall be provided at the following locations as per IRC: SP:87- 2019 within the ROW.

S.N.	Existing Kilometer (Km)		Side	Improvement Proposal
	From	To		
Nil				

The existing toilets shall be suitably modified to give an aesthetically pleasing look and shall gel with the surroundings. The Sewage disposal system shall be through Bio-digestible system (including Septic Tank & Soak pit). The drinking water facility shall be RO Treated Water.

8.3 Bus Bay and Bus Shelter

Bus bay and Shelter bye shall be provided at the following locations as per IRC: SP:87- 2019 within the ROW.

S.N.	Existing Kilometer (Km)		Side	Improvement Proposal
	From	To		
Nil				

The existing toilets shall be suitably modified to give an aesthetically pleasing look and shall gel with the surroundings. The Sewage disposal system shall be through Bio-digestible system (including Septic Tank & Soak pit). The drinking water facility shall be RO Treated Water.

8.4 Landscaping and Median Plantation

Landscaping and Median Plantation shall be done on, but not limited to the following as per IRC SP- 87-2019 and as per NHAI policy:

i. Landscaping shall be provided at the following locations

- Grade Separated Intersections
- Entry and Exit ramp
- At grade islands of intersection locations
- Toll Plaza Area

ii. Median Plantation is to be provided throughout the project stretch where not available, the bed for plantation to be prepared by using good earth mixed with manure in appropriate proportion. The entire new plantation and existing plantation shall be maintained in healthy state throughout the Concession period and the casualties, if any.

8.5 Rest Areas / Wayside Amenities

As per the plan of Ministry, i.e.- “Development of Wayside Amenities along Highways”,

GoTN/TNRDC will come up with Wayside Amenities along the Project Highway in due course of time. The same will be operated and maintained by GoTN/TNRDC

However, Concessionaire shall provide necessary support during operations of the same.

8.6 Highway Lighting

The Concessionaire shall provide the lighting at the following locations as per the Manual for Four Laning IRC: SP: 87-2019.

- I. Truck Lay Bys
- II. Toll Plaza Approach & Canopy (including existing lighting in the approaches of Toll Plaza shall be re-instated).
- III. Grade Separated Structures: The Flyovers, ROB and service /slip roads shall have lighting with solar energy system, as per Manual.

Lighting shall be provided at top & underside of the Grade Separated structures. The locations are given below:

S.N.	Existing Kilometer (Km)		Length	Remarks
	From	To		
Nil				

iv. Highmast

The highmast shall be provided at the following locations.

S. No.	Existing Kilometer (km)	Minimum Nos of High masts	Location
Nil			

8.7 Highway Patrol

Highway Patrol units (minimum two numbers) in accordance with IRC SP-87-2019 and comply with Operational requirements as mentioned in Schedule-F shall be provided. The Patrol Vehicles shall retain and maintained as per the specifications given in NHAI Policy No. 12.19, dated 20th March 2018. It shall be fitted with GPS based Vehicle Tracking System (VTS) to monitor movement on 24 hoursx7 days of a week basis.

8.8 Ambulances

Ambulance units (minimum two numbers) shall be continuously available along the Project Highway in accordance with IRC SP-87-2019 and comply with Operational requirements as mentioned in Schedule-F. The Ambulances shall be retained and maintained as per the specifications given in NHAI Policy No. 12.19, dated 20th March 2018.

It shall be fitted with GPS based Vehicle Tracking System (VTS) to monitor movement on 24hours x 7 days of a week basis.

8.9 Cranes

Mobile cranes having the capacity to lift a truck with a Gross Vehicle Weight of 30,000 (thirty thousand) kilograms shall be retained and maintained round the clock for rescue operations.

Cranes (minimum two numbers) shall be continuously available along the Project Highway in

accordance with the provision of IRC SP- 87-2019 and to comply with Operational requirements as mentioned in Schedule-F.

8.10 ATMS

The ATMS system shall be retained and maintained as contained in Functional and Technical Specifications released by the NHAI vide Ref. No. NHAI/CO/ATMS/02-2021, February 2021 and the warrants for the same shall be referred to the Circular released by NHAI vide Ref: No.11041/218/2007-Admn Dated 15th Sep 2016, also implement the circular issued time to time.

8.11 Traffic Aid Post

Traffic Aid Posts shall be retained and maintained at the Toll Plaza in accordance with Clause 17.3 of the DCA and the Manual of specifications & standards.

8.12 Medical Aid Post

Medical Aid Posts shall be retained and maintained at the Toll Plaza in accordance with Clause 18.2 of the DCA and the Manual of specifications & standards.

9. TRAFFIC CONTROL DEVICES/ ROAD SAFETY DEVICES/ ROADSIDE FURNITURE

Following traffic control devices/road safety devices/ roadside furniture's shall be provided in accordance with provisions mentioned in schedule-C of this agreement. There are many traffic control/safety device/roadside furniture's, which may not have the visibility at location as per the latest standards, so the Concessionaire shall replace and augment these devices and furniture's as per the standards given in the agreement with the approval of IE/Authority as per the approved signage plan. These devices and furniture's shall thereafter be maintained and replaced by Concessionaire due to any reasons (i.e., accident, theft, non-conformity standards etc.) throughout the concession period.

9.1 Traffic Signs, Road Marking, Road Studs, Road Delineators, Kilometer/Hectometer /Boundary Stones

(a) Traffic Signages:

- i. Existing damaged and non-standards sign boards shall be replaced.
- ii. Road signages (cautionary, mandatory, and informatory) along the project highway shall be provided wherever required, as per IRC:67-2012 & IRC: SP:87-2019.

(b) Road Marking

The Concessionaire shall provide new Road marking throughout the project highway including main carriageway, Service/slip roads, Ramps etc. as per IRC:35-2015 & IRC: SP:87-2019.

(c) Road Studs

Road Studs including Solar Studs shall be provided throughout the project highways Per IRC: SP:87-2019.

(d) Road Delineators

Road Delineators shall be provided throughout the project highway as per IRC: SP:87-2019 & IRC:79-2019.

(e) Kilometer/ Hectometer/Boundary Stones

The damaged/missing kilometer and hectometer stones shall be retained and maintained. All the Kilometer & Hectometer stones shall be repainted. Boundary Stones shall be provided throughout the project highway as per IRC: SP:87-2019 if damage/missing.

In addition to the above new installation items, any deficient road furniture, kerb item shall be replaced / repaired as per provisions of applicable specifications and standards as mentioned in Schedule-C.

9.2 Solar Blinkers

Solar Blinkers shall be retained and maintained at all the median openings, entry/exit ramps and U-turn facility at Toll Plaza. Apart from above existing solar blinkers shall be re-instated.

In addition to the above new installation items, any deficient road furniture, kerb etc. shall be replaced / repaired as per provisions of applicable specifications and standards as mentioned in Schedule-C.

9.3 Transverse Bar Marking

The Transverse Thermoplastic Bar Marking shall be provided as per NHA Circular (105/2012) issued vide letter no. 11041/218/2007-Admn, dated- 11th June 2012 and IRC:99-2018, at the hazardous locations including but not limited to the locations, Median openings (U-Turn Facilities), Toll Plaza approaches, Approaches to At-Grade junctions, Exit ramps and downside of the approach of the flyovers for both carriageways of Main Highway etc.

Note: The locations of shall be finalized in consultation with Authority/IE.

9.4 W- Beam Crash Barriers

- i. The existing damaged and missing W-Beam crash barriers shall be re-stained throughout the project length including Service/Slip Roads
- ii. The Concessionaire shall provide new W-beam crash barriers in median as per Fig.17 of IRC:119-2015 i.e., W-Beam on Raised median throughout the Project Highway.
- iii. The W-Beam crash barrier shall be provided for embankment height more than and equal to 3m. on Main Carriageway & Service/Slip Roads.
- iv. W-Beam crash barrier shall be provided between proposed Service Road & Main Carriageway as per the Typical Cross-sections in Appendix B-I.

Note: The Concessionaire shall maintain existing (including damaged/missing/theft etc.) and new crash barriers in functional condition throughout the concession period.

9.5 Kerb Stones:

- i. The existing damaged and missing Kerb stones shall be re-instated throughout the project length including slip/service road.
- ii. Kerb stones shall be provided at median openings, separators at Truck Lay bye, Minor Junction Islands, at proposed service road /slip road as per Typical Cross-section given in Appendix B-I.
- iii. The raising of Kerb stones/ new Kerb stones shall be provided throughout the project road after carrying out the strengthening of the main carriageway & service/slip roads.
- iv. All Kerb stones shall be painted as per specifications and standards.

Note: The Concessionaire shall maintain existing (including damaged/missing/theft etc.) and new kerb stones in functional condition throughout the concession period.

9.6 RCC Crash Barriers:

- i. The damaged/ missing RCC crash barriers and the handrails over it shall be restrained.
- ii. RCC crash barriers of Structures, Ramps etc. shall be painted as per specifications and standards.

10. COMPLETION SCHEDULE FOR IMPROVEMENT PROPOSALS

Completion schedule for Scope mentioned in Schedule-B shall be as below.

S. No.	Description of Work	Date of Completion
1	Incident Management (8.7, 8.8, 8.9, 8.11 and 8.12)	O&M Handover Date
2	Installation / Rectification of road furniture related items (Section 9) Landscaping and Tree Plantation (Section 8.4)	3 months from O&M Handover Date
3	Maintenance and Rehabilitation (Section 3)	6 months from O&M Handover Date
4	Toll Plaza and other facilities at Toll Plaza (Section 8.1)	From Appointed Date
5	ATMS (Section 8.10)	1 months from O&M Handover Date
6	Other Improvements (Section 1, 2, 4, 5, 6, 7, 8.2, 8.3, 8.5 and 8.6)	3 months from O&M Handover Date

SCHEDULE-C
(See Clause 41.1)
SPECIFICATIONS AND STANDARDS

1. ENGINEERING AND SAFETY IMPROVEMENTS

The Concessionaire shall comply with the Specifications and Standards set forth in Annexure-I of this Schedule-C for construction of the Engineering and Safety Improvements.

Annexure – I
(Schedule-C)

Specifications and Standards for Engineering and Safety Improvements

1. MANUAL OF SPECIFICATIONS AND STANDARDS TO APPLY

Subject to the provisions of Paragraph 2 of this Annexure-I, Engineering and Safety Improvements along the Project Highway shall conform to the IRC: SP:87-2019 Manual of Specifications & Standards for Six laning of Highways published by IRC.

Where the specification for a work is not given, Good Industry Practice shall be adopted to the satisfaction of the Independent Engineer.

2. DEVIATIONS FROM THE MANUAL

In the event of discrepancy in design, specifications and standards of the aforesaid manual and the existing design, specifications and standards, the later shall prevail.

SCHEDULE – D

DELETED

PERFORMANCE SECURITY

Principal Secretary to Government,
Highways and Minor Ports Department, GoTN
Secretariat, Fort St.George
Chennai 600 009

WHEREAS:

- (A) ****(hereinafter called the “**Bidder**”) had submitted the proposal for Toll, operate and transfer of Six lane Chennai Outer Ring Road (CORR) for Phase-I i.e. Vandalur to Nemilichery (29.65 km) and Phase-II i.e. Nemilichery to Minjur in TPP Road (30.50 Km), for a total length of 60.15 Km on Toll, Operate and Transfer (TOT) Annuity Basis .
- (B) Governor of Tamil Nadu, represented by its Principal Secretary, Highways and Minor Ports Department and having its office at Secretariat, Fort St. George, Chennai, Chennai-600009, Tamil Nadu, India (hereinafter referred to as “**GOTN/Authority**”) have appointed Tamil Nadu Road Development Company, (**TNRDC**), Chennai as its Managing Associate to assist **GOTN** and function on behalf of **GOTN**, in performing its roles and responsibilities during the bid process, Development Period, Concession Period etc. and **TNRDC** will, inter alia, finalize the bid process and accordingly select the successful bidder.
- (C) Based on the above, the bid submitted by the ***** [Consortium] or ***** [Bidder] has been accepted by the Authority and a Letter of Award (LOA) was issued by the Authority vide its communication no. ***** dated ***** to the *****[Consortium] or *****[Bidder] requiring, inter alia, the execution of Concession Agreement within 30 (thirty) days of the date of LOA.
- (D) Pursuant to the above, M/s.***** Ltd having its Registered office at ***** has been incorporated as a Special Purpose Vehicle (SPV) hereinafter called the “**Concessionaire**”.
- (E) As provided in Request for Proposal (RFP) the Concessionaire has to furnish a Performance Security to the Authority for a sum of Rs. 10,47,06,468 (Rs Ten Crores forty seven lakhs six thousand four hundred and sixty eight only (the “**Guarantee Amount**”) as security for due and faithful performance of its obligations, under and in accordance with the RFP and/or LOA during the Concession Period (as defined in the Concession Agreement) and thereafter until expiry of 2 (two) months from the end of the Defects Liability Period.
- (E) We, ***** through our Branch at ***** (the “**Bank**”) have agreed to furnish this Bank Guarantee by way of Performance Security.

NOW, THEREFORE, the Bank hereby, unconditionally and irrevocably, guarantees and affirms as follows:

1. The Bank hereby unconditionally and irrevocably guarantees the due and faithful performance of the Concessionaire’s obligations during the Concession Period, under and in accordance with the Agreement, and agrees and undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Concessionaire, such sum or sums upto an aggregate sum of the Guarantee Amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.
2. A letter from the Authority, or under the hand of any of the employee of the Authority or any other person or entity duly authorised by the Authority in this regard, that the Concessionaire

has committed default in the due and faithful performance of all or any of its obligations under and in accordance with the RFP and/or LOA and/or Draft Agreement shall be conclusive, final and binding on the Bank. The Bank further agrees that the Authority shall be the sole judge as to whether the Concessionaire is in default in due and faithful performance of its obligations during the Concession Period under the Agreement and its decision that the is in default shall be final, and binding on the Bank, notwithstanding any differences between the Authority and the Concessionaire, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Concessionaire for any reason whatsoever.

3. We, the Bank unconditionally undertake to pay to the Authority any money so demanded under this Guarantee notwithstanding any dispute or disputes raised by the Concessionaire or any other party including in any suit or proceeding pending before any court or tribunal relating thereto or any instructions or purported instructions by the Concessionaire or any other party to the Bank not to pay or for any cause to withhold or defer payment to the Authority under this Guarantee. The Bank's liability under this Guarantee is irrevocable, unconditional, absolute and unequivocal. The payment so made by the Bank under this Guarantee shall be a valid discharge of the bank's liability for payment hereunder and the Concessionaire shall have no claim against the Bank for making such payment.
4. In order to give effect to this Guarantee, Authority shall be entitled to act as if the Bank were the principal debtor and any change in the constitution of the Concessionaire and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.
5. It shall not be necessary, and the Bank hereby waives any necessity, for the Authority to proceed against the Concessionaire before presenting to the Bank its demand under this Guarantee.
6. Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Agreement or to extend the time or period for the compliance with, fulfilment and/ or performance of all or any of the obligations of the Concessionaire contained in the Agreement or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Authority against the Concessionaire and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Concessionaire or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.
7. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Agreement or for the fulfilment, compliance and/or performance of all or any of the obligations of the Concessionaire under the Agreement.
8. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force for the period specified in paragraph 9 below and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee, not later than 6 (six) months from the date of expiry of this Guarantee, all rights of the Authority under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.
9. We, the Bank further agree that the Guarantee herein contained shall remain in full force and effect until (hereinafter called "**the End Date**"). Unless a demand or claim under this Guarantee is made on the Bank by the Authority or under the hand of any of the employee of the Authority or any other person or entity duly authorised by the Authority in this regard, in writing on or before 6 (six) months from the said End Date, the Bank shall be

discharged from all liability under this Guarantee thereafter.

10. We hereby agree to renew and extend the validity of this guarantee for a period not exceeding one year from the End Date on a request made by the Authority or under the hand of any of the employee of the Authority or any other person or entity duly authorised by the Authority in this regard.
11. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred Branch, which shall be deemed to have been duly authorised to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.
12. We, the bank lastly undertake not to revoke this Guarantee during its currency.
13. Notwithstanding anything contained herein.
 - a) Our liability under the Bank Guarantee shall not exceed Rs 10,47,06,468 (Rs Ten Crores forty seven lakhs six thousand four hundred and sixty eight only)
 - b) The Bank Guarantee shall be valid upto [date], 20__.
 - c) Unless a demand in writing is made upon us on or before _____, or any other extended date, all our liability under this guarantee shall cease.

IN WITNESS WHEREOF THE BANK HAS SET ITS HANDS HERETO ON THE DAY, MONTH AND YEAR MENTIONED HEREUNDER.

Signed and Delivered

On behalf of(Bank name)

(Signature)

(Date)

by the hand of Mr
(name of authorized signatory)

Designation

Address of the controlling office of the issuing branch with phone number and fax number to be provided.

Note: Authenticated copy of Letter of Authority authorizing the signatory of this guarantee to execute the same to be enclosed herewith).

SCHEDULE-F
(See Clause 15.2)

Maintenance Requirements

1. Introduction

- 1.1 The Concessionaire shall be responsible for the improvement and Operation and Maintenance of the length of Project Highway stipulated by the Concession Agreement in accordance with scope defined in Schedule-B during the Concession Period. Thereafter, the length of Project Highway shall be transferred to the Authority. This schedule elaborates the Operation and Maintenance (O&M) requirements of the Concession and is to be read together with the Concession Agreement for this purpose. For clarification of doubt the period during which the Concessionaire shall comply with the O&M requirements covers the entire Concession Period. The Concessionaire shall operate and maintain the Project Highway such that from O&M Handover date, lane availability at the end of each year of the Concession will be minimum of 99% on cumulative basis. For this purpose, lane availability at the end of each year will be computed as follows:

$$\frac{\{(Length\ of\ Project\ Road\ \times\ Number\ of\ Lanes\ \times\ Number\ of\ days\ since\ O\&M\ Handover\ Date)\} - \sum (lane\ length\ closed\ \times\ number\ of\ days\ for\ which\ closed)}{\{(Length\ of\ Project\ Road\ \times\ Number\ of\ Lanes\ \times\ Number\ of\ days\ since\ O\&M\ Handover\ Date)\}}$$

- 1.2 The Concessionaire shall, at all times maintain the Project Highway in accordance with the provisions of this Agreement, Applicable Laws, and Applicable Permits. In particular, the Concessionaire shall at all times during the operation period, conform to maintenance requirements set forth in this schedule-F (“**Maintenance Requirements**”)
- 1.3 The Concessionaire shall repair & rectify any defect or deficiency set forth in this Schedule-F within the time limit specified therein and any failure in this behalf shall constitute a breach of the agreement & non-fulfillment of the Maintenance obligations by the Concessionaire. Upon occurrence of any breach hereunder, the Authority shall be entitled to effect reduction in monthly lump sum payment as set forth in Clause 15.8 of this Agreement, without prejudice to the rights of the Authority under this agreement including Termination thereof.
- 1.4 All Materials works and construction operations shall conform to the MORTH Specifications for Road and Bridges works, and the relevant IRC publications. Where the specifications for a work are not given, Good Industry Practice shall be adopted.
- 1.5 The Concessionaire shall, through its engineer, undertake daily visual inspection of the Project Highway and maintain a record thereof in a register to be kept in such form and manner as the Independent Engineer may specify. Such records shall be kept in safe custody of the Concessionaire and shall be open to inspection by the Authority and the Independent Engineer at any time during office hours.
- 1.6 The Concessionaire shall display a copy of this Schedule-F at the Toll Plaza[s] along with Complaint Register stipulated in Article-39.
- 1.7 All defects and deficiencies specified in this Schedule-F shall be repaired and rectified by the Concessionaire so that Project Highway conforms to the Maintenance Requirement on the Transfer date.

2. Repair/rectification of Defects and deficiencies

- 2.1 The obligations of the Concessionaire in respect of Maintenance Requirements shall include repair and rectification of the Defects and deficiencies specified in this Schedule-F within the time limit set forth therein.
- 2.2 The Concessionaire shall at all times maintain an adequate inventory of spares and consumables to meet the Maintenance Requirements.

3. Other Defects and Deficiencies

In respect of any Defect or deficiency not Specified in this Schedule-F, the Independent Engineer may,

in conformity with Good Industry Practice, specify the permissible limit of deviation or deterioration with reference to the Specifications and standards, and any deviation or deterioration beyond the permissible limit shall be repaired or rectified by the Concessionaire in accordance with Good Industry Practice and within the time limit specified by the Independent Engineer.

4. Extension of Time Limit

Notwithstanding anything to the contrary specified in this Schedule-F, if the nature and extent of any defect or deficiency justifies more time for its repair or rectification than the time specified herein, the Concessionaire shall be entitled to additional time in conformity with Good Industry Practice. Such additional time shall be determined by the Independent Engineer and conveyed to Concessionaire and Authority with reasons thereof.

5. Emergency repairs /restorations

Notwithstanding anything to the contrary contained in this Schedule-F, if any defect, deficiency or deterioration in the Project Highway poses a hazard to safety or risk of damage to property, the Concessionaire shall promptly take all reasonable measures for eliminating or minimizing such danger.

6. Operation and Maintenance (O&M) Requirements

6.1 The Concessionaire shall take all such actions and do all such things, including without limitation, organizing itself, adopting measures and standards, executing procedures such as inspection procedures, highway patrols, engaging and managing contractors, agents, and employees, as will secure:

- a) The safety of users of the Project Highway, workers, or other persons on the Project Highway and/or facilities there on.
- b) Unimpaired performance of statutory duties and functions of the TNRDC and other Authorities in relation to the Project Highway and/or other adjoining roads and facilities: and, subject to paragraphs a) and b) above, ensure that:

6.1.1 Adequate safety measures taking into account „Schedule-H“ are taken up on the construction zone during the O&M period.

6.1.2 Delay to users of the Project Highway and of adjoining roads or facilities is minimized.

6.1.3 Risk of adverse effects on the environment and on the amenity enjoyed by the owners and occupiers of property and/or land adjacent to the Project Highway, adjoining roads and facilities are minimized.

6.1.4 Accidents and emergencies on the Project Highway and facilities thereon are responded to as quickly as possible and their adverse effects minimized.

6.1.5 Risk of disturbance or damage or destruction to property of third party is minimized.

6.1.6 Members of the public are treated with due courtesy and consideration.

6.1.7 Users are given adequate information and forewarning of any event on or any other matter affecting the Project Highway which will enable them to minimize any adverse consequences on them of that event or matter.

6.1.8 Members of the public and others are given adequate opportunity to bring to the attention of the Concessionaire any matters affecting its ability to meet the maintenance Requirements.

6.1.9 Traffic data and data relating to the operation and maintenance of the Project Highway and its facilities and events on the Project Highway are collected and disseminated such that the TNRDC and other persons or bodies with statutory duties or functions in relation to the Project Highway or adjoining roads are able to perform those duties and functions efficiently.

6.1.10 The project facilities provided under Schedule-B and Change of Scopes as applicable, shall be operated and maintained in order to fulfill the requirements set forth in the Concession Agreement.

6.1.11 The Scope for Operation and Maintenance includes but not limited to following obligations:

- Improvement – this includes improvement of the existing assets as per requirement of this Agreement and safety audit.
- Maintenance of Civil Works and Assets- this includes maintenance of civil works and all

assets as per requirement of this agreement.

- Road Maintenance – this includes routine maintenance, preventive maintenance, periodic maintenance as per IRC:82-2015, Design overlay as per Manual of 4-laning/6-laning, disaster maintenance, exigencies, and inspections.
- Traffic Management – this includes enforcement of regulations together with the relevant authorities. This also includes hazard response, information gathering and dissemination, Road patrols and ATMS surveillance etc.
- Safety– this includes accident prevention, after care, user education, enforcement, data collection and analysis.
- Facility Management – this includes periodic inspections, routine maintenance, Rehabilitation, and expansion planning.
- Road property management – this includes management of access, encroachment, and ribbon development.
- General responsibilities – this includes budgeting, compliance with legal and accounting requirements, and public relations.
- Maintaining public relations unit to interface with and attend to suggestions from users of the highway, the media, Govt. agencies and other external agencies.

The broad limit of responsibilities of the Concessionaire shall be as described below as per contractual obligations:

- a. In general, the limit of the Concessionaire's responsibility is to maintain all areas within the Right of way of the Project Highway inclusive of all features such as interchanges, toll plaza, street lighting facilities, traffic light facilities, ATMS and other facilities present within the Project Highway.
- b. Limit of Maintenance by the Concessionaire for another road joining or crossing the concession limit shall be according to the following condition:
 - i. Where the other road crosses an underpass the Concessionaire shall be responsible to maintain the crossing structure, viz., culverts, bridges and their abutments and related facilities such as drainage, turfing, etc. as per concession agreement.
 - ii. The Concessionaire shall be responsible for maintenance of the road surface, or the roadside drains of the other roads that are within 100m beyond the Right of Way of Project Highway.
- c. The Concessionaire shall operate and maintain all the street lighting, traffic light system, structures, roadway surface and the related facilities such as drainage, turfing etc. within the interchanges, and such maintenance shall be extended until the end of the flare and the deceleration and acceleration lanes of the interchanges.
- d. The Concessionaire shall be responsible for maintaining all cross roads indicated in Schedule-A and B up to Right of Way of the Project Highway and their flares to junctions at any interchange within the Project Highway, whichever is more.
- e. For setting out the limit of maintenance for the Concessionaire, Tamil Nadu shall be responsible for negotiating with the local authorities or where required, with other relevant third parties. The Concessionaire shall maintain all the drainage system within the Right of Way including the culvert crossings and the drains. However, the Concessionaire shall not be liable to maintain rivers and the streams under the jurisdiction of Irrigation Department except when such Maintenance of Project Highway is required as a result of exceptional discharge.
- f. Report Formats- As per Article 15 of the Concession Agreement, the Concessionaire shall submit a Maintenance Program for the next year prepared in accordance with inventory of all assets created during COD of the project along with the deployment Schedule of manpower & other resources with testing facilities.
- g. The asset performance created by the Concessionaire as per the scope of the Concession

agreement shall be assessed by Independent Engineer as per consultancy agreement and shall be honored by the concessionaire pertaining to the outcome of equipment-based monitoring provisions as applicable.

7. Traffic Management and Lane Closure

7.1 Traffic Management during Operation and Maintenance of the Project Highway is an important activity the Concessionaire has to attend to ensure safety of the road users as well as the maintenance workers simultaneously throughout the Concession Period. It is usual activity to carry out various types of maintenance works at different stages and at different periods as per site requirement. Also, it is a vital activity during unforeseen and/or emergency situations arising on account of natural causes or accidents or administrative reasons.

7.2 Traffic Management is required during planned scheduled like Routine and Periodic maintenance activities.

However, traffic management will also be called for during unscheduled activities such as

- i. Emergency situation arising on account of
 - a. Force Majeure.
 - b. Accident/incident on the Project Highway
- ii. Special repairs required on account of deficiency/failure of an element of the Project Highway; and
- iii. Default of the Concessionaire with respect to any O&M activity on the Project Highway

7.3 The basic principles to be followed for traffic management and lane closure in this Project Highway shall be as follows:

7.3.1 Work programme schedule shall be prepared in a manner that diversion roads for the main traffic are minimized. Two-lanes of carriageway shall be available to the maximum extent possible.

7.3.2 Measures shall be taken such that the traffic is guided from a closed lane onto the operating lane without any conflict with the traffic from the opposite direction.

7.3.3 The activity of maintenance of pavement surface and/or strengthening/renewal of pavement structure shall not be taken up in a continuous length of more than 2 kilometers at a time to avoid long detour of the traffic.

7.3.4 The traffic diversion road where provided shall be appropriately designed for the traffic plying on the main carriageway. It shall also be properly maintained during its operation period.

7.3.5 During traffic detour involving traffic diversion, adequate safety measures as in 'Schedule-H' shall be followed.

7.3.6 Proper and adequate information about the maintenance activity shall be notified to the road users well before approaching the work site. Traffic Management and Diversion arrangement at the work site shall be as per IRC: SP: 55- 2014 or subsequent updates thereof. In addition to this, Robot Flagman and other advanced traffic diversion devices shall be used for diversion arrangement.

7.4 Traffic Management Plan and programme for a planned scheduled construction and/or maintenance activity shall be prepared in advance of that activity keeping above in view and be approved by the Independent Engineer/TNRDC as the case may be.

7.5 In case of unscheduled activities, described above, an emergency traffic management for the affected reach of the highway shall be prepared and implemented in line with the guidelines set forth Specifications and Standards, complying with Article 18 and Schedule-H. This emergency traffic management plan shall take into account the various requirements spelt out in the Concession Agreement as well as in this schedule.

7.6 Traffic Management and Lane Closures Requirements during Emergency situations arising on the Project Highway needing Traffic Management are detailed below:

- 7.6.1 This stage could arise any time and shall have to be addressed based on its own merits. The extent of traffic management shall be assessed as per the site requirement and situation.
- 7.6.2 The nature of emergency requirement will determine the type and extent of the traffic diversion.
- 7.6.3 Traffic Management Plan in emergency shall be prepared and implemented as per Specifications and Standards set forth in Schedule-H.

8. Implementation of Asset Management Framework during O&M Period

8.1 Introduction

8.1.1 Asset Management is a systematic process of maintaining assets, upgrading and operating assets, combining engineering principles with sound business practice and economic rationale, and providing tools to facilitate a more organised and flexible approach to making the decisions necessary to achieve expectations. Objective of Asset Management shall be to fulfill the requirements mentioned in 6.1 with optimum allocation of resources for management, operation, preservation, and maintenance of highway infrastructure asset.

8.1.2 Basic common requirement for Asset Management are:

- Establish a complete inventory of all road asset with all its elements.
- Provide a clear picture of the current condition/performance of the road assets.
- Create Real Time Database of the Asset Inventory and Condition with all-time data availability to all stakeholders.
- Estimate future demand of traffic and service needs.
- Estimate maintenance needs and costs.
- Prioritise objectives related to the desired quality and performance of the road.
- Define a strategy (Asset Management Plan) (This includes both Operation and Maintenance Plan).
- Implementation of Asset Management Plan

8.1.3 As requirement of maintenance manual under Article 15 of the Concession Agreement, the Concessionaire shall in accordance with this schedule and Specifications and Standards also evolve an Asset Management Manual as required in Article 15 of the Concession Agreement. The same shall be submitted to Independent Engineer. Independent Engineer upon finding this as set Management Manual in accordance with schedules, Concession Agreement and the best industry practice of the day shall approve the same.

8.1.4 The Asset Management Manual prepared by the Concessionaire shall set out the Asset Management standards and details of the Operations & Maintenance activities to be undertaken during the Concession Period, so that the Project Facilities shall at all times conform to the Design Requirements/specifications.

8.1.5 The Asset Management Manual prepared by the Concessionaire shall set out the Asset Management standards and details of the Operations & Maintenance activities to be undertaken during the Concession Period, so that the Project Facilities shall at all times conform to the Design Requirements/specifications.

8.1.6 The manual shall include without limitation the following aspects:

- i. Organization structure with responsibilities of key personnel.
- ii. Traffic Management Plan including the Corridor Control Plan.
- iii. Safety Management Programme Including the Emergency Response Protocol.
- iv. Inspection Procedures, Parameters, Frequency and schedule.
- v. Routine and Periodic Maintenance Intervention Levels.
- vi. Asset Management Project Deliverables and Tolerance Criteria.
- vii. Environment Management Plan.

viii. Maintenance Programme.

ix. Management Information System;

x. Report Formats.

8.1.7 As per Article 15.4.1 of the Concession Agreement, the Concessionaire shall submit an annual Asset Management Plan/Maintenance Program for the next year prepared in accordance with Asset Management Manual.

8.1.8 The Asset Management System should be capable of monitoring real time compliance of the Asset Management Plan and provide necessary feedback to all stake holders.

8.1.9 In order to determine the Assets Performance Parameters for the Base Year, the Concessionaire shall carry out Revalidation and Testing on the road project to arrive at updated Base Year Parameters, 45 -days before Appointed Date {O&M Handover Date}. Initial Maintenance Requirement shall be assessed / revalidated based on Base Year Performance Parameters. It is hereby clarified that the concessionaire will arrive at Base Year Parameters within 45-days of the (a) Appointed Date for that part of O&M which is to be handed over to Concessionaire on Appointed Date, and (b) O&M Handover Date 2 for that part of O&M, which is to be handed over to Concessionaire on O&M Handover Date. TNRDC/ Independent Engineer may audit the Revalidation and Testing processes. The data to be collected for performance indicator along-with recommended revalidation / testing procedures are as mentioned in the following table.

Description of Data	Recommended Process
Asset Inventory (Highway, Structures, Road Furniture, Facilities)	Visual Survey Manual Validation of Past Data
Pavement Distress – (Cracking and other visual distress)	Network Survey Vehicle or ROMDAS or equivalent technology
Roughness Value (IRI), Rutting, Skid Resistance	Network Survey Vehicle (Laser Profilometer) or ROMDAS or equivalent technology
Deflection Value/Remaining Life	Falling Weight Deflectometer
Condition Survey of Structures	Updation of Past Data by Visual Condition Survey and Thorough Inspection using Mobile Bridge Inspection Unit.
Condition Survey of Road Furniture, Facilities	Updation of Past Data by Visual Condition Survey and thorough Inspection using Retro Reflectometer.
Traffic Data	7-day ATCC based traffic Volume Count Survey backed by Video
Axle Load Data	2-days Axle Load Survey with axle Pad
Encroachment Data	Survey to be carried out including Geotagged Images
Aerial Imaging of the Asset	Drone, LiDAR, or equivalent technology
Utility Mapping	Ground Penetration Radar, Visual Inspection

8.1.10 The Concessionaire in-accordance of provisions of the Concession Agreement shall plan/programme inspections of the Project Highway classified in the following categories for effective O&M/Asset Management System Implementation:

a. Routine Inspection

- b. Close Inspection
- c. Detailed Inspection

8.1.11 Routine Inspection

Routine Visual Inspections are to be carried out by highway/bridge maintenance engineers having knowledge of highway/road structures. The purpose of visual inspection is to report the obstacles to traffic, defects and deficiencies of pavement/structure, missing or damages to safety barrier (crash barriers) and traffic signs installed or erected on highway. Such inspections should be done daily. The visual inspection may be carried out by visual assessment with careful observation of the specific object/item of the Project Facilities for identification and for quantification of the deficiencies or damages of the Project Facilities. Geo-tagging Cameras and Distance Measuring Devices shall be used to update base asset performance parameters on daily basis. If timely inspection and reporting of these safety related deficiencies are not done, they could lead to accidents or severe maintenance problems.

8.1.12 Close Inspection

Close inspections for assessment of defects/deficiencies of Project Highway shall be periodic in nature and would require detailed examination of all elements of the Project Highway. Close inspection may be visual or may involve investigations to be carried out using instruments. The frequency of close inspections would depend upon the nature of the elements of Project Highway. This inspection is to be carried out by the Highway/Bridge Engineer having good knowledge of Highway with theoretical background to analyse the nature, and extent of defects/deficiencies, suggest suitable remedial measures to rectify/remedy them and quantify repair work.

8.1.13 Detailed Inspection

A detailed inspection is comprehensive and detailed assessment of defects/deficiencies of the Project Highway with the aid of standard equipment and non-destructive testing. Such an inspection is to be carried out on the basis of comprehensive checklist of items related to the materials, condition of element of Project Highway. A checklist is to be prepared well in advance of inspection. The detailed inspection should be undertaken during the most critical weather condition. Detailed inspection carried out will offer the most critical evaluation of the performance of the Project Highway elements.

Besides being a qualified Highway/Bridge engineer, the inspection team leader must be familiar with design and construction features of the Highway /Bridges to be inspected so that the condition can be properly and accurately assessed for a meaningful report and quantification of repair works. The competence of team leader to recognize any structural distress/deficiencies and assess its seriousness with complete recommendation for appropriate repairs is important pre-requisites for entrusting this assignment to him.

8.1.14 The Concessionaire shall strictly maintain the assets of the Project Highway and adhere to the Asset Management Project deliverables and Tolerance Criteria as mentioned in the following tables.

Table 1: Maintenance Criteria for Pavements

Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools/ Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification / Repair	Maintenance specifications
		Desirable	Acceptable					
Flexible Pavement – Routine Inspection (Pavement of MCW, Service Road, Approach of Grade structures, approaches of connecting roads, slip roads, lay byes etc. as applicable)	Potholes	Nil	<0.1% of area and subjected to limit of 10mm in depth	Daily	Length Measurement Unit like Scale, Tape, odometer etc.	IRC 82: 2015 and Distress Identification Manual for Long Term Pavement Performance Program, FHWA 2003	24-48 hours	MORT&H Specification 3004.2
	Cracking	Nil	<5% subject to limit of 0.5 sqm for any 50m length	Daily			7-15 days	MORT&H Specification 3004.3
	Rutting	Nil	<5mm	Daily	Straight Edge		15 -30 days	MORT&H Specification 3004.2
	Corrugations and Shoving	Nil	0.1% of area	Daily	Length Measurement Unit like Scale, Tape, odometer etc.		2-7 days	IRC:82-2015
	Bleeding	Nil	<1% of area	Daily			3-7 days	MORT&H Specification 3004.4
	Ravelling/ Stripping	Nil	<1% of area	Daily	Length Measurement Unit like Scale, Tape, odometer etc.		7-15 days	IRC:82-2015 read with IRC SP-81
	Edge Deformation / Breaking	Nil	<1m for any 100m section and/or width <0.1m at any Location restricted to 30cm from the edge.	Daily			7-15 days	IRC:82-2015
Flexible Pavement –	Roughness BI	2000 mm/km	2400 mm/km	Bi-Annually	Network Survey vehicle	ASTM E950 (98) :2004 –Standard	180 days	IRC:82-2015

Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools/ Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification / Repair	Maintenance specifications
		Desirable	Acceptable					
Programmed Inspection	Rutting	<10mm for any 50 m section and/or, length of section <5m	<10mm for any 50 m section and/or, length of section <10m	Bi-Annually	(NSV) with all its module such as Laser Profilometers, Transverse profile logger, Laser crack measurement system, Video logging modules, high resolution Odometer etc.	Test Method for measuring Longitudinal Profile of Travelled Surfaces with Accelerometer Established Inertial Profiling Reference and ASTM E1656 - 94:2000- Standard Guide for Classification of Automatic Pavement Condition Survey Equipment	15-30 days	IRC:82-2015
	Pavement rating based on distress per IRC 82 / Pavement Condition Index as per ASTM 6433-07	>3/85	>2.1/70	Bi-Annually			180 days	IRC:82-2015/ ASTM D 6433-07
	Other Pavement Distresses	-	-	Bi-Annually			2-7 days	IRC:82-2015
	Skid	60SN	50SN	Bi-Annually	SCRIM (Sideway force Coefficient Routine Investigation Machine or equivalent) British Pendulum Tester	IRC:82-2015	180 days	BS:7941-1:2006, IRC:82-2015/ ASTM 274
	Deflection/ Remaining Life		-	Annually	Falling Weight Deflectometer	IRC 115: 2014	180 days	IRC:115-2014
Rigid Pavement	Roughness BI	<2200mm/km	<2400mm/km	Bi-Annually	Class I Profilometer	ASTM E950 (98) :2004 and ASTM	180 days	IRC: SP:83-2018

Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools/ Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification / Repair	Maintenance specifications											
		Desirable	Acceptable																
(Pavement of MCW, Service Road, Grade separated structure, approaches of connecting roads, slip roads, lay byes etc. as applicable.					Mounted on NSV	E1656 -94: 2000													
	Skid	Skid Resistance No. at different speed of vehicles <table border="1"> <thead> <tr> <th>Minimum SN</th> <th>Traffic Speed</th> </tr> </thead> <tbody> <tr> <td>36</td> <td>50</td> </tr> <tr> <td>33</td> <td>65</td> </tr> <tr> <td>32</td> <td>80</td> </tr> <tr> <td>31</td> <td>95</td> </tr> <tr> <td>31</td> <td>100</td> </tr> </tbody> </table>		Minimum SN	Traffic Speed	36	50	33	65	32	80	31	95	31	100	Bi-Annually	SCRIM (Sideway force Coefficient Routine Investigation Machine or equivalent) British Pendulum Tester	IRC: SP:83-2018	180 days
Minimum SN	Traffic Speed																		
36	50																		
33	65																		
32	80																		
31	95																		
31	100																		
Embankment /Slope	Edge drops at shoulders	Nil	40mm	Daily	Length Measurement Unit like Scale, Tape, odometer etc.	IRC	7-15 days	MORT&H Specification											
	Slope of camber/cross fall	Nil	<2% variation in prescribed slope of camber /cross fall	Daily			7-15 days	MORT&H Specification											
	Embankment Slopes	Nil	<15 % variation in prescribe side slope	Daily			7-15 days	MORT&H Specification											
	Embankment Protection	Nil	Nil	Daily			7-15 days	MORT&H Specification											
	Rain Cuts/Gullies in slope	Nil	Nil	Daily Specially During Rainy Season	NA	IRC	7-15 days	MORT&H Specification											
Cut Section/ Slope	Unstable Slopes	Nil	-		NA	IRC	2-7 days	MORT&H Specification											

In addition to above performance criterion, the concessionaire shall strictly maintain the rigid pavements as per requirements in the following tables:

Table 2: Maintenance Criteria for Rigid Pavements

S. No	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
CRACKING						
1	Single Discrete Cracks Not intersecting with any joint Single Transverse (or Diagonal) Crack intersecting with one or more joints	w = width of crack, L = length of crack, d = depth of crack, D = depth of slab w = width of crack L = length of crack d = depth of crack D = depth of slab	0	Nil, not discernible	No Action	-
			1	w < 0.2 mm. hair cracks		
			2	w = 0.2 - 0.5 mm, discernible from slow-moving car	Seal without delay	Full Depth Repair Dismantle and reconstruct affected portion - See Para 5.4, within 15 days
			3	w = 0.5 - 1.5 mm, discernible from fast-moving car		
			4	w = 1.5 - 3.0 mm	Seal and stitch if L > 1 m. within 7 days	
			5	w > 3 mm.		
2	Single Transverse (or Diagonal) Crack intersecting with one or more joints	w = width of crack L = length of crack d = depth of crack D = depth of slab	0	Nil, not discernible	No Action	
			1	w < 0.2 mm. hair cracks	Route and seal with Epoxy within 7 days	Seal Staple within 15days & Cross stitch or
			2	w = 0.2 - 0.5 mm, discernible from slow-moving car		
			3	w = 0.5 - 3.0 mm, discernible from fast-moving car	Seal and stitch, if L > 1 m. within 7 days	Full Depth Repair Dismantle and reconstruct affected portion with norms & Specifications - See Para 5.5 & refer chapter 9 of IRC: SP: 83-2018, within 15 days.
			4	w = 3.0 - 6.0 mm	Not Applicable	Staple or Dowel Bar

S. No	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
						Retrofit within 15 days.
			5	w > 6 mm, usually associated with spalling, and/or slab rocking under traffic	Not Applicable, (full depth crack)	Staple or Dowel Bar Retrofit within 15 days
3	Single Longitudinal Crack intersecting with one or more joints	w = width of crack L = length of crack d = depth of crack D = depth of slab	0	Nil, not discernible	No Action	
			1	w < 0.5 mm, discernible from slow moving vehicle	Seal and stitch if L > 1 m within 7 days	Seal and Cross-Stich or Staple within 15 days
			2	w = 0.5 - 3.0 mm, discernible from fast vehicle		
			3	w = 3.0 - 6.0 mm	Seal & Staple, within 15 days	Partial Depth Repair with or without dowel bar retrofit within 15 days or
			4	w = 6.0 - 12.0 mm, usually associated with spalling	Not applicable	
			5	w > 12 mm, usually associated with spalling, and/or slab rocking under traffic	Not Applicable, (Rocking/ Spalling indicates full depth crack)	Full Depth Repair Dismantle and reconstruct affected portion - See Fig 5.6 and Chapter 9 of IRC: SP:83-2018, within 15 days
4	Multiple Cracks intersecting with one or more joints	w = width of crack	0	Nil, not discernible	No Action	
			1	w < 0.2 mm. hair cracks	Seal and stitch if L > 1 m. within 15 days	Dismantle and Reconstruct whole slab as per Specifications
			2	w = 0.2 - 0.5 mm, discernible from slow-moving car		
			3	w = 0.5 - 3.0 mm, discernible from fast-moving car	Full depth repair within 15 days	within 30days.
			4	w = 3.0 - 6.0 mm panel broken into 2 or 3 pieces		
			5	w > 6 mm and/or panel		

S. No	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
				broken into more than 4 pieces		reconstruct whole slab within 30days.
5	Corner Break	w = width of crack, L = length of crack	0	Nil, not discernible	No Action	
			1	w < 0.5 mm; only 1 corner broken	Seal with low viscosity epoxy to secure broken parts within 7 days	
			2	w < 1.5 mm; L < 0.6 m, only one corner broken		
			3	w < 1.5 mm; L < 0.6 m, two corners broken	Partial Depth (Refer Figure 8.3 of IRC: SP:83-2018) within 15 days	Full depth repair within 30 days.
			4	w > 1.5 mm; L > 0.6 m or three corners broken		
			5	three or four corners broken		Reinstate sub-base, and reconstruct the slab as per norms & Specifications within 30 days.
6	Punchout (Applicable to Continuous Reinforced Concrete Pavement CRCP only)	w = width of crack L = length (m/m ²)	0	Nil, not discernible	No Action	
			1	w < 0.5 mm; L < 3 m/m ²	Not Applicable, (Punch-out is full depth Distress)	Seal with low viscosity epoxy to secure broken parts Within 15 days
			2	either w > 0.5 mm or L < 3 m/m ²		
			3	w > 1.5 mm and L < 3 m/m ²		
			4	w > 3 mm, L < 3 m/m ² and deformation	Full depth repair - Cut out and replace damaged area taking care not to damage reinforcement. Within 30 days.	
			5	w > 3 mm, L > 3 m/m ² and deformation		
Surface Defects						
					Short Term	Long Term
7	Ravelling or Honeycomb type surface	r = area damaged surface/total surface of slab	0	Nil, not discernible	No action.	Not Applicable
			1	r < 2 %	Local repair of areas damaged and liable to	
			2	r = 2 - 10 %		

S. No	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action
		h = maximum depth of damage (%)	3	r = 10-25%	damage. Within 15 days
			4	r = 25 - 50 %	Bonded Inlay, if affecting 2 or 3 slabs. Within 30 days
			5	r > 50% and h > 25 mm	Reconstruct slabs, if affecting 4 or more slabs. Within 30 days
8	Scaling	r = area damaged surface/total surface of slab (%) h = maximum depth of damage	0	Nil, not discernible	No action.
			1	r < 2 %	Local repair of areas damaged and liable to within 7 days
			2	r = 2 - 10 %	
			3	r = 10 - 20%	Bonded Inlay within 15 days
			4	r = 20 - 30 %	
			5	r > 30 % and h > 25 mm	Reconstruct slab within 30 days.
9	Polished Surface/Glazing	t = texture depth, sand patch test	0		No action.
			1	t > 1 mm	Monitor rate of deterioration
			2	t = 1 - 0.6 mm	
			3	t = 0.6 - 0.3 mm	
			4		
			5	t < 0.3 mm	Diamond Grinding if affecting 50% or more slabs in a continuous stretch of minimum 5 km. Within 30 days
10	Popout (Small Hole), Pothole Refer Para 8.4	n = number/m2, d = diameter, h = maximum depth	0	d < 50 mm; h < 25 mm; n < 1 per 5 m2	No action.
			1	d = 50 - 100 mm; h < 50 mm; n < 1 per 5 m2	Partial depth repair 65 mm deep. Within 15 days
			2	d = 50 - 100 mm; h > 50 mm; n < 1 per 5 m2	
			3	d = 100 - 300 mm; h <	Partial depth repair

S. No	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
				100 mm n < 1 per 5 m2	110mm i.e., 10 mm more than the depth of the hole within 30 days	
			4	d = 100 - 300 mm; h > 100 mm; n < 1 per 5 m2		
			5	d > 300 mm; h > 100 mm; n > 1 per 5 m2	Full depth repair within 30 days.	
JOINT DEFECT						
					Short Term	Long Term
11	Joint Seal Defects	loss or damage L = Length as % total joint length	0	Difficult to discern.	No action.	Not Applicable
			1	Discernible, L < 25% but of little immediate consequence with regard to ingress of water or trapping incompressible material.	Clean joint, inspect later.	
			3	Notable. L > 25% insufficient protection against ingress of water and trapping incompressible material.	Clean and reapply sealant in selected locations. Within 7 days.	
			5	Severe; w > 3 mm negligible protection against ingress of water and trapping incompressible material.	Clean, widen and reseal the joint following strict procedures within 7 days.	
12	Spalling of Joints	w = width on either side of the joint	0	Nil, not discernible	No action.	
			1	w < 10 mm	Apply low viscosity epoxy resin/mortar in	
			2	w = 10 - 20 mm, L <		

S. No	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
		L = length of spalled portion (as % joint length)		25%	cracked portion within 7 days	
			3	w = 20 - 40 mm, L > 25%	Partial Depth Repair, 30 - 50 mm deep, h = w + 20% of w, within 30 days	
			4	w = 40 - 80 mm, L > 25%		
			5	w > 80 mm, and L > 25%	50 - 100 mm deep repair. H = w + 20% of w, within 30 days	
13	Faulting (or Stepping) in Cracks or Joints	f = difference of level	0	not discernible, < 1 mm	No action.	
			1	f < 3 mm		
			2	f = 3 - 6 mm	Determine cause and observe	
			3	f = 6 - 12 mm	Diamond Grinding within 15 days	
			4	f = 12 - 18 mm	Raise sunken slab within 15 days.	
			5	f > 18 mm	Strengthen subgrade and sub-base by grouting, within 30 days.	
14	Blowup or Buckling	h = vertical displacement from normal profile	0	Nil, not discernible	No action.	
			1	h < 6 mm		
			2	h = 6 - 12 mm	Install Signs to Warn Traffic, within 24 hours days	
			3	h = 12 - 25 mm		
			4	h > 25 mm	Full Depth Repair, within 30 days.	
			5	shattered slabs, i.e. 4 or more pieces	Replace broken slabs, within 30 days.	
15	Depression	h = negative vertical displacement from normal profile.	0	Not discernible. h < 5 mm	No action.	
			1	h = 5 - 15 mm		
			2	h = 15 - 30 mm,	Install Signs to Warn	

S. No	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
		L = length		Nos<20% joints	Traffic, within 24 hours	
			3	h = 30 - 50 mm		
			4	h > 50 mm or > 20% joints	Strengthen subgrade. Reinstate pavement at normal level, within 30 days.	
			5	h > 100 mm		
16	Heave	h = positive vertical displacement from normal profile. L = length	0	Not discernible. h < 5 mm	No action.	
			1	h = 5 - 15 mm	Follow up.	
			2	h = 15 - 30 mm, Nos<20% joints	Install Signs to Warn Traffic, within 24 hours	
			3	h = 30 - 50 mm		
			4	h > 50 mm or > 20% joints	Stabilise subgrade. Reinstate pavement at normal level, within 30 days	
			5	h > 100 mm		
17	Bump	h = vertical displacement from normal profile	0	h < 4 mm	No action.	
			1	h = 4 - 7 mm	Grind, in case of new construction. Within 7 days	
			3	h = 7 - 15 mm	Grind in case of Ongoing maintenance within 15 days	
			5	h > 15 mm		
18	Lane to Shoulder Drop-off	f = difference of level	0	Nil, not discernible < 3mm	No action.	
			1	f = 3 - 10 mm	Spot repair of shoulder. Within 3 days	
			2	f = 10 - 25 mm		
			3	f = 25 - 50 mm	Fill up shoulder within 7 days	
			4	f = 50 - 75 mm		For any 100 m segment, Reconstruct shoulder, if affecting 25% or more of segment, within 30 days.
			5	f > 75 mm		
DRAINAGE						
					Short Term	Long Term

S. No	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
19	Pumping	quantity of fines and water expelled through open joints and cracks Nos/100 m stretch	0	not discernible	No action.	
			1 to 2	slight/occasional Nos < 10%	Repair cracks and joints without delay	Inspect and repair Sub-drainage at distressed sections and upstream
			3 to 4	appreciable/Frequent 10 - 25%	Lift or jack slab within 30 days.	
			5	abundant, crack development > 25%	Repair distressed pavement sections. Strengthen subgrade And sub-base. Replace slab. Within 30 days.	
20	Ponding	Ponding on slabs due to blockage of drains	0-2	No discernible problem	No action.	
			3 to 4	Blockages observed in drains, but water flowing	Clean drains etc., follow up, deep grooving in transverse direction to remove water, within 7 days	Action required to stop water damaging foundation within 15 days.
			5	Ponding, accumulation of water observed	Deep grooving in transverse direction to remove water-hydro planning within 7 days	

Table 3: Maintenance Criteria for Safety Related Items and Other Furniture Items

Asset Type	Performance Parameter	Level of Service (LOS)			Frequency of Measurement	Testing Method	Recommended Remedial Measures	Time limit for Rectification	Specifications and Standards
		Design Speed (kmph)	Desirable Minimum Sight Distance (m)	Safe Stopping Sight Distance (m)					
Highway	Availability of Safe Sight Distance	As per IRC SP:87-2019, a minimum of safe stopping sight distance shall be available throughout.			Monthly	Manual Measurements With Odometer along with	Removal of obstruction within 24 hours, in case of sight line affected by temporary objects such as trees, temporary encroachments.		IRC: SP:87-2019
		100	360	180					
		80	260	130		video/ image backup	In case of permanent structure or design deficiency: * Removal of obstruction/		

Asset Type	Performance Parameter	Level of Service (LOS)			Frequency of Measurement	Testing Method	Recommended Remedial Measures	Time limit for Rectification	Specifications and Standards
		Design Speed (kmph)	Desirable Minimum Sight Distance (m)	Safe Stopping Sight Distance (m)					
							improvement of deficiency at the earliest * Speed Restriction boards and suitable traffic calming measures such as transverse bar marking, blinkers, etc. shall be applied during the period of rectification.		
Pavement Marking	Wear	<70% of marking remaining			Bi-Annually	Visual Assessment as per Annexure-F of IRC:35-2015	Re-Painting	Cat-1 Defect – within 24 hours Cat-2 Defect – within 2 months	IRC:35-2015
	Day time Visibility	During expected life Service Time • Cement Road - 130mcd/m ² /lux • Bituminous Road - 100mcd/m ² /lux			Monthly	As per Annexure- D of IRC:35- 2015	Re-Painting	Cat-1 Defect – within 24 hours Cat-2 Defect –within 2 months	IRC:35-2015
	Night Time Visibility	Initial and Minimum Performance for Dry Retro reflectivity during night time:			Bi-Annually	As per Annexure-E of IRC:35- 2015	Re-Painting	Cat-1 Defect – within 24 hours Cat-2 Defect – within 2 months	IRC:35-2015
		Design Speed	(RL) Retro-Reflectivity (mcd/m ² /lux)						
			Initial (7Days)	Minimum Threshold Level (TL) and warranty period required up to 2 years					

Asset Type	Performance Parameter	Level of Service (LOS)			Frequency of Measurement	Testing Method	Recommended Remedial Measures	Time limit for Rectification	Specifications and Standards
		Design Speed (kmph)	Desirable Minimum Sight Distance (m)	Safe Stopping Sight Distance (m)					
		Up to 65	200	80					
		65 - 100	250	120					
		above 100	350	150					
		Initial and Minimum Performance for Night Visibility under wet condition (Retro reflectivity): <ul style="list-style-type: none"> • Initial 7 days Retro reflectivity: 100 mcd/m²/lux • Minimum Threshold Level: 50 mcd/m²/lux 							
	Skid Resistance	Initial and Minimum performance for Skid Resistance <ul style="list-style-type: none"> • Initial (7days): 55BPN • Min. Threshold: 44BPN *Note: shall be considered under urban/city traffic condition encompassing the locations like pedestrian crossings, bus bay, bus stop, cycle track intersection delineation, transverse bar markings etc.			Bi-Annually	As per Annexure-G of IRC:35- 2015	Within 24 hours	IRC:35-2015	
Road Sign	Shape and Position	Shape and Position as per IRC:67- 2012. Signboard should be clearly visible for the design speed of the section			Daily	Visual with video/image backup	Improvement of shape, in case if shape is damaged. Relocation as per requirement	48 hours in case of Mandatory Signs, Cautionary and Informatory Signs (Single and Dual post signs), 15	IRC:67-2012

Asset Type	Performance Parameter	Level of Service (LOS)			Frequency of Measurement	Testing Method	Recommended Remedial Measures	Time limit for Rectification	Specifications and Standards
		Design Speed (kmph)	Desirable Minimum Sight Distance (m)	Safe Stopping Sight Distance (m)					
							Days in case of Gantry/ Cantilever Sign boards		
	Retro reflectivity	As per specifications in IRC:67-2012		Bi-Annually	Testing of each signboard using Retro Reflectivity Measuring Device. In accordance with ASTM D 4956-09	Change of signboard	48 hours in case of Mandatory Signs, Cautionary and Informatory Signs (Single and Dual post signs). 1 Month in case of Gantry/ Cantilever Sign boards	IRC:67-2012	
Kerb	Kerb Height	As per IRC 86:2018 depending upon type of Kerb		Bi-Annually	Use of distance measuring tape	Raising Kerb Height	Within 1 Month	IRC 86:2018	
	Kerb Painting	Functionality: Functioning of Kerb painting as intended		Daily	Visual with video/image backup	Kerb Repainting	Within 7-days	IRC 35:2015	
Other Road Furniture	Reflective Pavement Markers (Road Studs)	Numbers and Functionality as per specifications in IRC: SP:87-2019 and IRC:35-2015, unless specified in Schedule-B.		Daily	Counting	New Installation	Within 2 months	IRC: SP:87-2019, IRC:35-2015	
	Pedestrian Guardrail	Functionality: Functioning of guardrail as intended		Daily	Visual with video/image	Rectification	Within 15 days	IRC: SP:87-2019	

Asset Type	Performance Parameter	Level of Service (LOS)			Frequency of Measurement	Testing Method	Recommended Remedial Measures	Time limit for Rectification	Specifications and Standards
		Design Speed (kmph)	Desirable Minimum Sight Distance (m)	Safe Stopping Sight Distance (m)					
					backup				
	Traffic Safety Barriers	Functionality: Functioning of Safety Barriers as intended			Daily	Visual with video/image backup	Rectification	Within 7-days	IRC: SP:87-2019, IRC:119-2015
	End Treatment of Traffic Safety Barriers	Functionality: Functioning of End treatment as intended			Daily	Visual with video/image backup	Rectification	Within 7-days	IRC: SP:87-2019, IRC:119-2015
	Attenuators	Functionality: Functioning of Attenuators as intended			Daily	Visual with video/image backup	Rectification	Within 7-days	IRC: SP:87-2019, IRC:119-2015
	Guard Posts and Delineators	Functionality: Functioning of Guard Posts and Delineators as intended			Daily	Visual with video/image backup	Rectification	Within 15 days	IRC:79-2019
	Overhead Sign Structure	Overhead sign structure shall be structurally adequate			Daily	Visual with video/image backup	Rectification	Within 15 days	IRC:67-2012
	Traffic Blinkers	Functionality: Functioning of Traffic Blinkers as intended			Daily	Visual with video/image backup	Rectification	Within 7-days	IRC: SP:87-2019
Highway Lighting System	Highway Lights	Illumination: Minimum 40 Lux illumination on the road surface			Daily	The illumination level shall be measured with lux- meter	Improvement in Lighting System	24 hours	IRC: SP:87-2019
		No major failure in the lighting system			Daily	-	Rectification of failure	24 hours	IRC: SP:87-2019
		No minor failure in the lighting system			Monthly	-	Rectification of failure		IRC: SP:87-2019
	Toll Plaza Canopy Lights	Minimum 40 Lux illumination on the road surface			Daily	The illumination level shall be	Improvement in Lighting System	24 hours	IRC: SP:87-2019

Asset Type	Performance Parameter	Level of Service (LOS)			Frequency of Measurement	Testing Method	Recommended Remedial Measures	Time limit for Rectification	Specifications and Standards	
		Design Speed (kmph)	Desirable Minimum Sight Distance (m)	Safe Stopping Sight Distance (m)						
						measured with lux- meter				
		No major/minor failure in the lighting system			Daily	-	Rectification of failure	8 hours	IRC: 2019	SP:87-
Trees and plantation including median plantation	Obstruction in a minimum head- room of 5.5 m above carriageway or obstruction in visibility of road signs				Monthly	Visual with video/image backup	Removal of trees	Immediate	IRC: 2019	SP:87-
	Deterioration in health of trees and bushes				Daily	Visual with video/image backup	Timely watering and treatment. Or Replacement of Trees and Bushes.	Within 90 days	IRC: 2019	SP:87-
	Vegetation affecting sight line and road structures				Daily	Visual with video/image backup	Removal of trees	Immediate	IRC: 2019	SP:87-
Rest Area	Cleaning of toilets				Daily	-	-	Every 4 hours	-	
	Defects in electrical, water and sanitary installations				Daily	-	Rectification	24 hours	-	
Other Project Facilities and Approach	Damage or deterioration in Approach Roads, pedestrian facilities, truck lay-bys, bus-bays, bus- shelters, cattle crossings, Traffic Aid Posts, Medical Aid Posts, and other works				Daily	-	Rectification	15 Day	IRC: 2019	SP:87-

Asset Type	Performance Parameter	Level of Service (LOS)			Frequency of Measurement	Testing Method	Recommended Remedial Measures	Time limit for Rectification	Specifications and Standards
		Design Speed (kmph)	Desirable Minimum Sight Distance (m)	Safe Stopping Sight Distance (m)					
roads									

Table 4: Maintenance Criteria for Structures and Culverts

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
Pipe/box/slab culverts	Free waterway/ unobstructed flow section	85% of culvert normal flow area to available.	2 times in a year (before and after rainy season)	Inspection by Bridge Engineer as per IRC SP: 35- 1990 and recording of depth of silting and area of vegetation	Cleaning silt up soils and debris in culvert barrel after rainy season, removal of bushes and vegetation, U/s of barrel, under barrel and D/s of barrel before rainy season.	15 days before onset of monsoon and within 30 days after end of rainy season.	IRC 5-2015, IRC SP:40-2019 and IRC SP:13-2004
	Leak-proof expansion joints if any	No leakage through expansion joints	Bi-Annually	Physical inspection of expansion joints as per IRC SP: 35- 1990 if any, for leakage strains on walls at joints.	Fixing with sealant suitably	30 days or before onset of rains whichever comes earlier	IRC SP:40-2019 and IRC SP:69-2011
	Structurally sound	Spalling of concrete not more than 0.25 sq.m. Delamination of concrete not more than 0.25 sq.m. Cracks wider than 0.3 mm not more than 1m aggregate length	Bi-Annually	Detailed inspection of all components of culvert as per IRC SP:35-1990 and recording the defects	Repairs to spalling, cracking, delamination, rusting shall be followed as per IRC: SP:40-2019.	15 days	IRC SP 40-2019 and MORTH Specifications clause 2800

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
	Protection works in good condition	Damaged of rough stone apron or bank revetment not more than 3 sq.m, damage to solid apron (concrete apron) not more than 1 sq.m	2 times in a year (before and after rainy season)	Condition survey as per IRC SP:35-1990	Repairs to damaged aprons and pitching	30 days after defect observation or 2 weeks before onset of rainy season whichever is earlier.	IRC: SP 40-2019 and IRC: SP:13-2004.
Bridges including ROB's, Flyover and Viaducts etc. as applicable	Riding quality or user comfort No pothole in wearing coat on	No pothole in wearing coat on bridge deck	Daily	Visual inspection as per IRC SP:35-1990	Repairs to BC or wearing coat	15 days	MORT&H Specification 2811
Bridges including ROB's, Flyover and Viaducts etc. -Super Structure	Bumps	No bump at expansion joint	Daily	Visual inspection as per IRC SP:35-1990	Repairs to BC on either side of expansion joints, profile correction course on approach slab in case of settlement to approach embankment	15 days	MORT&H Specification 3004.2 & 2811
	User safety (condition of crash barrier and guard rail)	No damaged or missing stretch of crash barrier or pedestrian hand railing	Daily	Visual inspection and detailed condition survey as per IRC SP: 35- 1990	Repairs and replacement of safety barriers as the case may be	3days	IRC: 5-2015, IRC SP: 87-2019 and IRC SP: 40- 2019
	Rusted reinforcement	Not more than 0.25 sq.m	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection unit.	All the corroded reinforcement shall need to be thoroughly cleaned from rusting and	15 days	IRC SP: 40-2019 and MORTH Specification 1600 IRC SP: 40-2019 and MORTH
	Spalling of concrete	Not more than 0.50 sq.m					
Delamination	Not more than						

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
		0.50 sq.m			applied with anti-corrosive coating before carrying out the repairs to affected concrete portion with epoxy mortar/concrete.		Specification
	Cracks wider than 0.30 mm	Not more than 1m total length	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit.	Grouting with epoxy mortar, investigating causes for cracks or other defects development and carry out necessary rehabilitation.	48 Hours	IRC SP: 40-2019 and MORTH Specification 2800
	Rainwater seepage through deck slab	Leakage - nil	Quarterly	Detailed condition survey as per IRC SP: 35-1990	Grouting of deck slab at leakage areas, waterproofing, repairs to drainage spouts	1 month	MORTH specifications 2600 & 2700.
	Deflection due to permanent loads and live loads	Within design limits.	Once in every 10 years for spans more than 40 m	Load test method	Carry out major rehabilitation works on bridge to retain original design loads capacity	6 months	IRC SP: 51-2015
	Vibrations in bridge deck due to moving trucks	Frequency of vibrations shall not be more than 5 Hz	Once in every 5 years for spans more than 30m and every 10 years for spans between 15 to 30	Laser displacement sensors or laser vibrometers	Strengthening of super structure	4 months	AASHTO, LRFD specifications
	Leakage in Expansion joints	No damage to elastomeric sealant compound in strip seal	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990. using Mobile Bridge	Replacement of seal in expansion joint. Replacement of Sealing compound in	15 days	MORTH specifications 2600 and IRC SP: 40-2019.

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
		expansion joint, no leakage of rainwater through expansion joint in case of buried and asphalt plug and copper strip joint.		Inspection Unit.	case of leakage I copper strip type joint.		
	Debris and dust in strip seal expansion joint	No dust or debris in expansion joint gap.	Monthly	Detailed condition survey as per IRC SP: 35-1990.	Cleaning of expansion joint gaps thoroughly	3 days	MORTH specifications 2600, IRC SP: 40-2019 and IRC: SP:69-2011
	Drainage spouts	No down take Pipe missing/broken below soffit of the deck slab. No silt, debris, clogging of drainage spout collection chamber.	Monthly	Detailed condition survey as per IRC SP: 35-1990. using Mobile Bridge Inspection Unit.	Cleaning of drainage spouts thoroughly. Replacement of missing/broken down take pipes with a minimum pipe extension of 500mm below soffit of slab. Providing sealant around the edrainage spout if any leakages observed.	3 days	MORTH specification 2700
Bridges including ROB's, Flyover and Viaducts etc.- Bridge Substructure	Cracks/ spalling of concrete /rusted steel	No cracks, spalling of concrete and rusted steel	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit.	All the corroded reinforcement shall need to be thoroughly cleaned from rusting and applied with anti-corrosive coating before carrying out repairs to substructure by grouting/guniting	30 days	IRC SP: 40-2019 and MORTH specification 2800

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
					and micro concreting depending on type of defect noticed		
	Elastomeric Bearings	Delamination of bearing reinforcement not more than 5%, cracking or tearing of rubber not more than 2 locations per side, no rupture of reinforcement or rubber	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit.	In case of failure of even one bearing on any pier/abutment, all the bearings on that pier/abutment shall be replaced, in order to get uniform load transfer on to bearings.	3 months	MORTH specification 2810, IRC SP: 40- 2019 and IRC:83 (Part-II)-2018
	POT/PFFE and Spherical Bearings	No locking of movable and rotational parts, No Corrosion, Cleanliness	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit.	Unlocking of affected parts, Cleaning of Rust and repainting. General Cleaning of bearings.	30 days	IRC:83 (Part-III)-2018, IRC:83 (Part-IV)-2014
Bridges including ROB's, Flyover and Viaducts etc.- Bridge Foundations	Scouring around Foundations	Scouring shall not be lower than maximum scour level for the bridge	Bi-Annually	Condition survey and visual inspection as per IRC SP:35-1990 using Mobile Bridge Inspection Unit. In case of doubt Underwater camera for Inspection of deep wells in Major Rivers.	Suitable protection works around pier/abutment	1 month	IRC SP: 40-2019, IRC: 89-2019, IRC:78-2014, MORTH specification 2500
	Protection works in good condition	Damaged of rough stone apron or bank revetment not more than 3 sq.m, damage to solid apron	2 times in a year (before and after rainy season)	Condition survey as per IRC SP:35-1990	Repairs to damaged aprons and pitching	30 days after Defect observation or 2 weeks before onset of rainy Season whichever is	IRC: SP 40-2019, IRC: SP:13- 2004 and IRC:89-2019

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
		(concrete apron) not more than 1 sq.m				earlier.	

Note:

Any structure / part of the structure component during entire concession period which is found not complying with all /or either of the requirements of this table will be rehabilitated or even reconstructed to achieve the desired level of services.

MoRT&H Specification for Roads and Bridge works (Vth Revision) shall be applicable.

IRC Codes indicated above shall be applicable as per year of publication in consonance with the start of project implementation.

Annexure D: Service Level Agreement:

- (i) The uptime availability of all critical components of Hybrid ETC/ETC lanes shall be 99% per lane per month for 90% of total lanes in a toll plaza (rounded off to nearest integer). The permissible downtime is 7 hours per lane per month. For the balance 10% lanes, uptime availability of all critical components shall be 98% per lane per month.
- (ii) The downtime for a toll lane shall be calculated at a cumulative level when any of the below mentioned critical component is non-operational for that specific lane:
 - a. RFID Reader
 - b. Toll Lane Controller System
 - c. Automatic Vehicles Classification Controller and Sensor
 - d. Automatic Barrier
 - e. Customized Keyboard
 - f. Thermal Receipt Printer
 - g. License Plate Image Capture Camera
 - h. Incident Capture Camera
 - i. Any plaza level Equipment that results in lane downtime.
- (iii) For all the components of Hybrid ETC/ETC System, the uptime availability shall be 98% per lane per month.
- (iv) Scheduled downtime is defined as a period of time when system will remain unavailable for conducting necessary preventive maintenance, urgent repairs etc. The maximum scheduled downtime for any Site shall be 4 hours per lane per month.
- (v) The formula for calculation of Hybrid ETC System availability shall be as follows:
System Uptime = $[1 - \{A/(B-C)\} * 100]$
Where A = Time for which system is down per month basis scenarios
B = Total time in a month
C = Scheduled downtime basis as per section (iv) above.
- (vi) The Concessionaire shall maintain adequate inventory to ensure the service level's prescribed in section i. are adhered. Spares of critical components of Hybrid ETC/ETC System as identified in section (ii) above.
- (vii) The Concessionaire shall ensure that the Hybrid ETC/ETC Systems are operational as per the service levels defined in section (i) above to facilitate payment of user fee through ETC. In case, a vehicle user with a valid, functional ETC RFID tag with sufficient balance in the linked account is not able to pay user fee through ETC, through any lane owing to malfunctioning of Hybrid ETC/ETC equipment/hardware, the vehicle user shall be permitted to pass without payment of any user fee.
- (viii) In case of non-adherence to service levels as defined in section (i), Damages shall be levied on each lane as per the below table. This shall be over and above the Damages described in Clause G:

S. No.	Downtime (per month)	Toll plazas with less than or equal to 10 lanes	Toll plazas with greater than 10 lanes
A	Per Lane (beyond permissible limit)	Damages (% of monthly user fee revenue as per Escrow Account or as reported in [Schedule G] of Concession Agreement whichever is higher)	Damages (% of monthly user fee revenue as per Escrow Account or as reported in Schedule G of Concession Agreement whichever is higher)
1	Up to 2 hours	1%	0.5%
2	2 hours – 5 hours	3%	1%
3	5 hours – 10 hours	4%	2%
4	Greater than 10 hours	5%	3%
B	SWB System Downtime		
If SWB information is not available in Overweight transactions		Deductions = SWB downtime in hours (per month) X 0.5% of monthly user fee revenue as per Escrow Account or as reported in Schedule G of Concession Agreement whichever is higher * This shall be calculated for each SWB separately and added to arrive at the final Damages for SWB.	

The total Damages for a month shall be calculated by adding the Damages imposed on each lane and SWB at the Toll Plaza. The maximum Damages per month shall be capped at Rs. 25,00,000 which may be revised to the extent of variation in WPI after every three years from the date of signing of the Agreement. An INDICATIVE example is shown in the table below:

Example – 6 lane Toll Plaza		
Estimated user fee revenue (as per Escrow Account or as reported in Schedule G whichever is higher)	INR 40,000,000 per month (INDICATIVE)	
Lane	Downtime (outside SLA in minutes)	Damages
Lane 1	40	4,00,000
Lane 2	0	
Lane 3	30	4,00,000
Lane 4	100	4,00,000
Lane 5	140	12,00,000
Lane 6	0	0
Total Damages		24,00,000

8.1.15 Testing and Investigation

After thorough visual inspection and detailed condition survey of various bridge components at 5 years interval and also whenever distress/ serious distress observed in the conditional survey, following test shall need to be carried out: -

S. No	Name of Tests	Minimum no. of tests sample per span/pier/abutment	Minimum no. of spans to tested in a bridge	Frequency of testing
1	Ultra-Pulse Velocity Test	3	1 span for every 3 spans	5 Years
2	Rebound Hammer Test	3	1 span for every 3 spans	5 Years
3	Half Cell Potential Test	3	1 span for every 3 spans	5 Years
4	Carbonation Depth	3	1 span for every 3 spans	5 Years
5	Transient Dynamic Response test	3	1 span for every 3 spans	5 Years
6	Laser vibrometer test	1 at mid span	1 span for every 3 spans	Once every 5 years for spans more than 30m and every 10 years for spans between 15 to 30m

8.1.16 The results of tests like Profilometer/Transient Dynamic Response tests, the encrypted files should be submitted to the Authority and Independent Engineer. The results of tests conducted shall be updated in Asset Management System and should be preserved.

8.1.17 For all the items in Table 4 for which Priority Level is critical, redundant inventory shall be maintained at site for all times by the concessionaire.

8.1.18 The Concessionaire shall maintain the Project Highway in traffic-worthy condition and the Project's Ancillary Facilities in usable condition throughout the Concession Period or any extension thereof in terms of the Concession Agreement through regular maintenance and preventive maintenance of the various items and elements of the Project Highway.

8.2 Based on updated base parameter and future demand of traffic and service needs, Concessionaire shall define an asset management strategy/operation and maintenance plan.

8.3 Asset Management Plan – Operations

Asset Management plan on the operation side shall prescribe procedures and systems for activities including but not be limited to the following for the regular and emergency operations of the Project Highway and facilities thereon.

- Permitting smooth and uninterrupted flow of traffic during normal operating conditions
- Functioning of Toll System including charging and collecting fees from the road users in accordance with the Concession Agreement and IRC: SP 87-2019
- Functioning of the lighting system
- Functioning of the Patrolling System as per IRC: SP 87-2019
- Functioning of rescue and medical aid services
 - Ambulance
 - Fire BrigadeFire Extinguishers
 - Tow away truck and cranesFunctioning of Advanced Traffic Highways

Management System as per standard ATMS provisions as contained in Functional and Technical Specifications released by the NHAI vide Ref.No. NHAI/CO/ATMS/02-2021, February is being practiced. Latest Policy / Circular at the time of execution shall prevail.

- Functioning of the Project Facilities
 - Administrative, Operation and Maintenance Base Camp
 - Rest Areas
 - Truck Lay-Byes
 - Public toilets and other sanitary facilities at rest areas and Truck Lay-Byes

- Potable Water supply system including supply of drinking water at Truck Lay-Byes, Rest Areas, Toll Plazas etc.
- Solid wastes disposal system including those from litterbins

8.3.1 Minimizing disruption to the traffic in the event of emergency accidents and/or incidents affecting the safety and use of the Project Highway by providing a rapid and effective response and maintaining liaison procedures with emergency services.

- Reasonably smooth and safe movement of traffic during emergency activities such as special repairs during floods, storms, hurricane, and earthquakes.
- Failure of a system due to human error, electrical or mechanical failure.

8.3.2 The Concessionaire shall keep regular record of accidents that occur including the nature of accident, location of occurrence, time and date in the prescribed format, included in the Maintenance Manual and shall update/report the same on Asset Management System.

SCHEDULE – G

(See Clause 16.5)

MONTHLY FEE STATEMENT

Project Highway:

Month:

Toll Plaza Location:

Stretch	Start (Km)	End (Km)	Length (km)
Six – Lane Chennai Outer Ring Road (Phase I) i.e. Vandalur to Nemilichery	0.00	29.65	29.65
Six – Lane Chennai Outer Ring Road (Phase II) i.e. Nemilichery to Minjur	29.65	60.15	30.50

Table- 1: Vehicle Count

Vehicle Category	No. of vehicles using the Project Highway					
	Single journey	Return Pass (Within a day – 24 hrs)	Daily Pass (Multiple Trips) (Valid for 24 hrs)	50 Trip Pass (Valid for 3 months)	Monthly pass (30 days)	Exempted vehicles
Car, Jeep, Van, Light Motor Vehicle & Motorized Three Wheelers						
Light Commercial Vehicle, Light Goods Vehicle, Mini Bus						
Truck/ Bus (Two axles)						
Three Axle Commercial Vehicle						
Heavy Construction Machinery (HCM)/ Earth Moving Equipment (EME) or Multi Axle Vehicle (MAV) (4 to 6 axles)						
Over Sized Vehicles (7 or more axles)						

Remarks, if any:

Note: The Concessionaire is required to provide the information for all toll plazas

Tolling, Operation, Maintenance & Transfer of six lane Chennai Outer Ring Road (CORR) for Phase-I i.e. Vandalur to Nemilichery (29.65 km) and Phase-II i.e. Nemilichery to Minjur in TPP Road (30.50 Km), totalling 60.15 Km

Table- 2: Fee statement

Vehicle Category	Fee from vehicles using the project highway				
	Single journey	Return Pass (Within a day – 24 hrs)	Daily Pass (Multiple Trips) (Valid for 24 hrs)	50 Trip Pass (Valid for 3 months)	Monthly pass (30 days)
Car, Jeep, Van, Light Motor Vehicle & Motorized Three Wheelers					
Light Commercial Vehicle, Light Goods Vehicle, Mini Bus					
Truck/ Bus (Two axles)					
Three Axle Commercial Vehicle					
Heavy Construction Machinery (HCM)/ Earth Moving Equipment (EME) or Multi Axle Vehicle (MAV) (4 to 6 axles)					
Over Sized Vehicles (7 or more axles)					

Remarks, if any:

Note: The Concessionaire is required to provide the information for all toll plazas

SCHEDULE – H

(See Clause 18.1)

SAFETY REQUIREMENTS

1 Guiding principles

- 1.1 Safety Requirements aim at reduction in injuries, loss of life and damage to the properties resulting from accidents on the Project Highway, irrespective of the person(s) at fault.
- 1.2 Users of the Project Highway include motorised and non-motorised vehicles as well as pedestrians and animals involved in, or associated with accidents. Vulnerable Road Users (VRU) include pedestrians as well as riders of motorised two-wheelers, bicycles and other vehicles which do not provide adequate occupant protection.
- 1.3 Safety Requirements apply to all phases of construction, operation and maintenance with emphasis on identification of factors associated with accidents, consideration of the same, and implementation of appropriate remedial measures.
- 1.4 Safety Requirements include measures associated with traffic management and regulation such as road signs, pavement marking, traffic control devices, roadside furniture, highway design elements, enforcement and emergency response.

2 Obligations of the Concessionaire

The Concessionaire shall abide by the following as they relate to safety of the Users:

- (a) Applicable Laws and Applicable Permits;
- (b) Manual for Safety in Road Design, issued by MORTH;
- (c) relevant Standards/Guidelines of IRC relating to safety, road geometrics, bridges, culverts, road signs, pavement marking and roadside furniture;
- (d) provisions of this Agreement; and
- (e) Good Industry Practice.
- (f) Appoint a safety officer to ensure all the safety measures are implemented by the concessionaire.

3 Appointment of Safety Consultant

For carrying out safety audit of the Project Highway under and in accordance with this Schedule-H, the Authority shall appoint from time to time, one or more qualified firms or organisations as its consultants (the “**Safety Consultant**”). The Safety Consultant shall employ a team comprising, without limitation, one road safety expert and one traffic planner to undertake safety audit of the Project Highway.

4 Safety measures during Development Period

- 4.1 Not later than 90 (ninety) days from the date of signing of Concession Agreement, the Authority shall appoint a Safety Consultant for carrying out safety audit at the design stage of the Project.
- 4.2 The Concessionaire shall provide to the Safety Consultant, in four copies, the relevant drawings containing the design details that have a bearing on safety of Users (the “**Safety Drawings**”). Such design details shall include horizontal and vertical alignments; sightlines; layouts of intersections; interchanges; road cross-section; bridges and culverts; side drains; provision for parked vehicles, slow moving vehicles (tractors, bullock carts, bicycles) and pedestrians; bus bays; truck lay-bys; and other incidental or consequential information. The Safety Consultant shall review the design details and forward three copies of the Safety Drawings with its recommendations, if any, to the IE who shall record its comments, if any, and forward one copy each to the Authority and the Concessionaire.
- 4.3 The design details shall be compiled, analysed and used by the Safety Consultant for evolving a package of recommendations consisting of safety related measures for the Project Highway. The safety audit shall be completed in a period of three months and a report thereof (the “**Safety Report**”) shall be submitted to the Authority , in 5 (five) copies. One copy each of the Safety Report shall be forwarded by the Authority to the Concessionaire and the forthwith.
- 4.4 The Concessionaire shall endeavor to incorporate the recommendations of the Safety Report in the design of the Project Highway, as may reasonably be required in accordance with Applicable Laws, Applicable Permits, Manuals and Guidelines of MORTH and IRC, Specifications and Standards, and Good Industry Practice. If the Concessionaire does not agree with any or all of such recommendations, it shall state the reasons thereof and convey them to the Authority forthwith. In the event that any or all of the works and services recommended in the Safety Report fall beyond the scope of Schedule-B or Schedule-C, the Concessionaire shall make a report thereon and seek the instructions of the Authority for funding such works in accordance with the provisions of Article 18.
- 4.5 Without prejudice to the provisions of Paragraph 4.4, the Concessionaire and the IE shall, within 15 (fifteen) days of receiving the Safety Report, send their respective comments thereon to the Authority , and not later than 30 (thirty) days of receiving such comments, the Authority shall review the same along with the Safety Report and by notice direct the Concessionaire to carry out any or all of the recommendations contained therein with such modifications as the Authority may specify; provided that any works or services required to be undertaken hereunder shall be governed by the provisions of Article 18.

5 Safety measures during Construction Period

- 5.1 The Safety Consultant appointed by the Authority in the Development Period, shall, during the Construction Period, carry out a periodic safety audit, of the safety measures adopted, including those for the safety of workers and road users during construction.
- 5.2 The Concessionaire shall make adequate arrangements during the Construction Period for the safety of workers and road Users in accordance with the guidelines of IRC for safety in construction zones, and notify the Authority and the IE about such arrangements.
- 5.3 On completion of the construction works, the Safety Consultant shall study the Safety Report for the Development Period and inspect the Project Highway to assess the adequacy of safety measures. The Safety Consultant shall complete the safety audit within a period of 4 (four)

months and submit a Safety Report recommending a package of additional road safety measures, if any, that are considered essential for reducing accident hazards on the Project Highway. Such recommendations shall be processed, *mutatis mutandis*, and acted upon in the manner set forth in Paragraphs 4.3, 4.4 and 4.5 of this Schedule-H.

6 Safety measures during Operation Period

- 6.1 The Concessionaire shall develop, implement and administrate a surveillance and safety programme for Users, including correction of safety violations and deficiencies and all other actions necessary to provide a safe environment in accordance with this Agreement.
- 6.2 The Concessionaire shall establish a Highway Safety Management Unit (the “HSMU”) to be functional on and after COD, and designate one of its officers to be in-charge of the HSMU. Such officer shall have specialist knowledge and training in road safety and traffic engineering by having attended a course conducted by a reputed organisation on the subject.
- 6.3 The Concessionaire shall keep a copy of every FIR recorded by the Police with respect to any accident occurring on the Project Highway. In addition, the Concessionaire shall also collect data for all cases of accidents not recorded by the Police but where a vehicle rolled over or had to be towed away. The information so collected shall be summarised in the form prescribed by IRC/ MORTH for this purpose. The Concessionaire shall also record the exact location of each accident on a road map. The aforesaid data shall be submitted to the Authority at the conclusion of every quarter and to the Safety Consultant as and when appointed.
- 6.4 The Concessionaire shall submit to the Authority before the 31st (thirty first) May of each year, an annual report (in ten copies) containing, without limitation, a detailed listing and analysis of all accidents of the preceding Accounting Year and the measures taken by the Concessionaire pursuant to the provisions of Paragraph 6.1 of this Schedule-H for averting or minimising such accidents in future.
- 6.5 Once in every Accounting Year, a safety audit shall be carried out by the Safety Consultant to be appointed by the Authority. It shall review and analyse the annual report and accident data of the preceding year, and undertake an inspection of the Project Highway. The Safety Consultant shall complete the safety audit within a period of 15 (fifteen) days and submit a Safety Report recommending specific improvements, if any, required to be made to the road, bridges, culverts, markings, signs, road furniture and Project Facilities, including cattle crossings and pedestrian crossings. Such recommendations shall be processed, *mutatis mutandis*, and acted upon in the manner set forth in Paragraphs 4.3, 4.4 and 4.5 of this Schedule-H.
- 6.6 The audit report will be reviewed by the committee consists of representatives from concessionaire, Safety Audit consultant and the Authority. The committee will give direction for the necessary remedial measures to the concessionaire within 15 (fifteen) days from the receipt of the report.

7 Costs and expenses

Costs and expenses incurred in connection with the Safety Requirements set forth herein, including the provisions of Paragraph 2 of this Schedule, shall be met in accordance with Article 18, and in particular, the remuneration of the Safety Consultant, safety audit, and costs incidental thereto, shall be met out of the Safety Fund.

SCHEDULE-I

(See Clause 19.1)

Weekly Traffic Census

Project Highway:

Week ending:

Toll Plaza:

Stretch	Start (Km)	End (Km)	Length (km)
Six – Lane Chennai Outer Ring Road (Phase I) i.e. Vandalur to Nemilichery	0.00	29.65	29.65
Six – Lane Chennai Outer Ring Road (Phase II) i.e. Nemilichery to Minjur	29.65	60.15	30.50

Vehicle Category	No. of vehicles using the Project Highway					
	Single journey	Return Pass (Within a day – 24 hrs)	Daily Pass (Multiple Trips) (Valid for 24 hrs)	50 Trip Pass (Valid for 3 months)	Monthly pass (30 days)	Exempted vehicles
Car, Jeep, Van, Light Motor Vehicle & Motorized Three Wheelers						
Light Commercial Vehicle, Light Goods Vehicle, Mini Bus						
Truck/ Bus (Two axles)						
Three Axle Commercial Vehicle						
Heavy Construction Machinery (HCM)/ Earth Moving Equipment (EME) or Multi Axle Vehicle (MAV) (4 to 6 axles)						
Over Sized Vehicles (7 or more axles)						

Remarks, if any:

Note: The Concessionaire is required to provide the information for all toll plazas

Weekly Report for Weigh Stations

Project Highway:

Week ending:

Toll Plaza:

Stretch	Start (Km)	End (Km)	Length (km)
Six – Lane Chennai Outer Ring Road (Phase I) i.e. Vandalur to Nemilichery	0.00	29.65	29.65
Six – Lane Chennai Outer Ring Road (Phase II) i.e. Nemilichery to Minjur	29.65	60.15	30.50

Type of Vehicle	Permitted Gross	No. of Vehicles	No. of vehicles carrying load			
			Within permissible limits	Up to 10% in excess	Over 10% and up to 20% in excess	Over 20% in excess
(1)	(2)	(3)	(4)	(5)	(6)	(7)
A- LCV						
B- Truck						
C- Three-Axle vehicle						
D- Multi- Axle truck						
E- Total						

Note: Sample size shall not be less than 200 Trucks per week and 20 Trucks per day and should include a proportionate number of Multi-axle Trucks.

Remarks, if any:

Note: The Concessionaire is required to provide the information in the format requested by TNRDC

SCHEDULE – J

(See Clause 19.3)

TRAFFIC SAMPLING

1 Traffic sampling

Authority may, in its discretion and at its own cost, undertake traffic sampling, pursuant to Clause 19.3, in order to determine the actual traffic on the Project Highway. Such traffic sampling shall be undertaken through the IE in the manner set forth below.

2 Manual traffic count

The IE shall employ the required number of enumerators who shall count, classify and record all the vehicles as they pass by, and divide the survey into fixed time periods. The count stations shall be located on a straight section of the road with good visibility. The survey shall be conducted continuously for a minimum of 24 (twenty four) hours and maximum of 7 (seven) days at a time. The count period shall be 15 (fifteen) minutes with results summarised hourly.

3 Automatic traffic count

For automatic traffic count to be conducted on intermittent (non-continuous) basis, the IE shall use suitable and standardised equipment to classify and record the range of vehicles passing through the Toll Plaza[s]. For this purpose, the counter shall be checked with at least 100 (one hundred) vehicles, including all major vehicle types, over a range of speeds to ensure that all vehicles are being counted and classified correctly.

4 Variation between manual and automatic count

Average Daily Traffic (ADT) for each type of vehicle shall be determined separately by the aforesaid 2 (two) methods and in the event that the number of vehicles in any category, as counted by the manual method, varies by more than 1% (one per cent) of the number of such vehicles as counted by the automatic method, the manual and automatic count of such category of vehicles shall be repeated, and in the event of any discrepancy between the two counts in the second enumeration, the average thereof shall be deemed to be the actual traffic. For the avoidance of doubt, it is expressly agreed that the Authority may, in consultation with the Concessionaire, adopt modified or alternative processes of traffic sampling for improving the reliability of such sampling.

5 Target Fee Calculation

Traffic Sampling of target points 1 or 2, as the case may be, shall be estimated in accordance with Clause 19.3. The Authority shall carryout traffic sampling using suitable technology, for estimation of trip-wise spilt for estimation of Target Fee. The technology, duration (not less than 7 days) and frequency of traffic sampling shall be decided by the Authority at the time of carrying out such sampling. The Concessionaire shall provide full assistance as the Authority may reasonably require for such activity of trip-wise traffic for estimation of Target Fee.

SCHEDULE-K

(See Clause 20.2)

Terms of Reference for Independent Engineer

1 Scope

These Terms of Reference for the Independent Engineer (the “**TOR**”) are being specified pursuant to the Concession Agreement dated (the “**Agreement**”), which has been entered into between the Authority and (the “**Concessionaire**”) for Six lane Chennai Outer Ring Road (CORR) for Phase-I i.e. Vandalur to Nemilichery (29.65 km) and Phase-II i.e. Nemilichery to Minjur in TPP Road (30.50 Km), for a total length of 60.15 Km. on toll, operate and transfer on Annuity (TOT Annuity) basis, and a copy of which is annexed hereto and marked as Annex-A to form part of this TOR.

2 Definitions and interpretation

2.1 The words and expressions beginning with or in capital letters used in this TOR and not defined herein but defined in the Agreement shall have, unless repugnant to the context, the meaning respectively assigned to them in the Agreement.

2.2 References to Articles, Clauses and Schedules in this TOR shall, except where the context otherwise requires, be deemed to be references to the Articles, Clauses and Schedules of the Agreement, and references to Paragraphs shall be deemed to be references to Paragraphs of this TOR.

2.3 The rules of interpretation stated in Clauses 1.2, 1.3 and 1.4 of the Agreement shall apply, mutatis mutandis, to this TOR.

3. Role and functions of the Independent Engineer

3.1. The role and functions of the Independent Engineer shall include the following:

- (i) Review of the Drawings and Documents as set forth in Paragraph 4;
- (ii) Determine the Project Facilities Completion Schedule;
- (iii) Review, inspection and monitoring of Construction Works as set forth in Paragraph 5;
- (iv) Conducting tests on completion of construction and issuing Completion Certificate as set forth in Paragraph 5;
- (v) Review, inspection and monitoring of O&M as set forth in Paragraph 6;
- (vi) Review, inspection and monitoring of Divestment Requirements as set forth in Paragraph 7;
- (vii) Determining, as required under the Agreement, the costs of any works or services and/or their reasonableness;
- (viii) Determining, as required under the Agreement, the period or any extension thereof, for performing any duty or obligation;

(ix) Assisting Authority in review and inspection of the books of accounts submitted by the Concessionaire to the Authority and the records maintained by the Concessionaire as set forth in Paragraph 12.

(ix) Assisting the Parties in resolution of disputes as set forth in Paragraph 9; and

(x) Undertaking all other duties and functions in accordance with the Agreement.

3.2. The Independent Engineer shall discharge its duties in a fair, impartial and efficient manner, consistent with the highest standards of professional integrity and Good Industry Practice.

4. Review of Drawings and Documents

4.1. The Independent Engineer shall undertake a detailed review of the Documents and Drawings to be furnished by the Concessionaire along with supporting data, including the pavement, structural, geo-technical and hydrological investigations, characteristics of materials from borrow areas and quarry sites, topographical surveys and traffic surveys. The Independent Engineer shall complete such review and send its comments/observations to the Authority and the Concessionaire within 15 (fifteen) days of receipt of such Documents and Drawings. In particular, such comments shall specify the conformity or otherwise of such Documents and Drawings with the Scope of the Project and Specifications and Standards.

4.2. The Independent Engineer shall review any modified Drawings or supporting Documents sent to it by the Concessionaire and furnish its comments within 7 (seven) days of receiving such Drawings or Documents.

4.3. The Independent Engineer shall review the Drawings sent to it by the Safety Consultant in accordance with Schedule-H and furnish its comments thereon to the Authority and the Concessionaire within 7 (seven) days of receiving such Drawings. The Independent Engineer shall also review the Safety Report and furnish its comments thereon to the Authority within 15 (fifteen) days of receiving such report.

4.4. The Independent Engineer shall review the detailed design, construction methodology, quality assurance procedures and the procurement, engineering and construction time schedule sent to it by the Concessionaire and furnish its comments within 15 (fifteen) days of receipt thereof.

5. Construction/Improvement Period

5.1. In respect of the Drawings, Documents and Safety Report received by the Independent Engineer for its review and comments during the Construction Period, the provisions of Paragraph 4 shall apply, mutatis mutandis.

5.2. The Independent Engineer shall review the monthly progress report furnished by the Concessionaire and send its comments thereon to the Authority and the Concessionaire within 7 (seven) days of receipt of such report.

5.3. The Independent Engineer shall inspect the Construction Works and the Project once every month, preferably after receipt of the monthly progress report from the Concessionaire, but before the 20th (twentieth) day of each month in any case, and make out a report of such inspection (the “**Inspection Report**”) setting forth an overview of the status, progress, quality and safety of construction, including the work methodology adopted, the materials used and their sources, and conformity of Construction

Works with the Scope of the Project and the Specifications and Standards. In a separate section of the Inspection Report, the Independent Engineer shall describe in reasonable detail the lapses, defects or deficiencies observed by it in the construction of the Project. The Inspection Report shall also contain a review of the maintenance of the existing lanes in conformity with the provisions of the Agreement. The Independent Engineer shall send a copy of its Inspection Report to the Authority and the Concessionaire within 7 (seven) days of the inspection.

5.4. The Independent Engineer may inspect the Project more than once in a month if any lapses, defects or deficiencies require such inspections.

5.5. For determining that the Construction Works conform to Specifications and Standards, the Independent Engineer shall require the Concessionaire to carry out, or cause to be carried out, tests on a sample basis, to be specified by the Independent Engineer in accordance with Good Industry Practice for quality assurance. For purposes of this Paragraph 5.5, the tests specified in the IRC Special Publication-11 (Handbook of Quality Control for Construction of Roads and Runways) and the Specifications for Road and Bridge Works issued by the Authority (the “**Quality Control Manuals**”) or any modification/substitution thereof shall be deemed to be tests conforming to Good Industry Practice for quality assurance. The Independent Engineer shall issue necessary directions to the Concessionaire for ensuring that the tests are conducted in a fair and efficient manner, and shall monitor and review the results thereof.

5.6. The sample size of the tests, to be specified by the Independent Engineer under Paragraph 5.5, shall comprise 10% (ten percent) of the quantity or number of tests prescribed for each category or type of tests in the Quality Control Manuals; provided that the Independent Engineer may, for reasons to be recorded in writing, increase the aforesaid sample size by up to 10% (ten percent) for certain categories or types of tests.

5.7. The timing of tests referred to in Paragraph 5.5, and the criteria for acceptance/ rejection of their results shall be determined by the Independent Engineer in accordance with the Quality Control Manuals. The tests shall be undertaken on a random sample basis and shall be in addition to, and independent of, the tests that may be carried out by the Concessionaire for its own quality assurance in accordance with Good Industry Practice.

5.8. In the event that the Concessionaire carries out any remedial works for removal or rectification of any defects or deficiencies, the Independent Engineer shall require the Concessionaire to carry out, or cause to be carried out, tests to determine that such remedial works have brought the Construction Works into conformity with the Specifications and Standards, and the provisions of this Paragraph 5 shall apply to such tests.

5.9. In the event that the Concessionaire fails to achieve any of the Project Milestones, the Independent Engineer shall undertake a review of the progress of construction and identify potential delays, if any. If the Independent Engineer shall determine that completion of the Project is not feasible within the time specified in the Agreement, it shall require the Concessionaire to indicate within 15 (fifteen) days the steps proposed to be taken to expedite progress, and the period within which COD shall be achieved. Upon receipt of a report from the Concessionaire, the Independent Engineer shall review the same and send its comments to the Authority and the Concessionaire forthwith.

5.10. If at any time during the Construction Period, the Independent Engineer determines that the Concessionaire has not made adequate arrangements for the safety of workers and Users in the zone of construction or that any work is being carried out in a manner that threatens the safety of the workers

and the Users, it shall make a recommendation to the Authority forthwith, identifying the whole or part of the Construction Works that should be suspended for ensuring safety in respect thereof.

5.11. In the event that the Concessionaire carries out any remedial measures to secure the safety of suspended works and Users, it may, by notice in writing, require the Independent Engineer to inspect such works, and within 3 (three) days of receiving such notice, the Independent Engineer shall inspect the suspended works and make a report to the Authority forthwith, recommending whether or not such suspension may be revoked by the Authority.

5.12. If suspension of Construction Works is for reasons not attributable to the Concessionaire, the Independent Engineer shall determine the extension of dates set forth in the Project Completion Schedule, to which the Concessionaire is reasonably entitled, and shall notify the Authority and the Concessionaire of the same.

5.13. The Independent Engineer shall carry out, or cause to be carried out, all the Tests specified in clause 16.3 and issue a Completion Certificate or Provisional Certificate, as the case may be. For carrying out its functions under this Paragraph 5.13 and all matters incidental thereto, the Independent Engineer shall act under and in accordance with the provisions of Article 14 and clause 16.3.

5.14. Upon reference from the Authority, the Independent Engineer shall make a fair and reasonable assessment of the costs of providing information, works and services as set forth in Article 21 and certify the reasonableness of such costs for payment by the Authority to the Concessionaire.

5.15. The Independent Engineer shall aid and advise the Concessionaire in preparing the Maintenance Manual.

5.16. Upon reference from the Authority, the Independent Engineer shall undertake the assessment of cost of civil works, as per applicable schedule of rates, for the reduction of Scope of work as provided in Clause 21.6.1 of the Concession Agreement.

6. Operation and Maintenance Period

6.1. Review proposed practice/scheme of maintenance (routine and maintenance) for roads and bridges, including the planning approach (prioritization, resource allocation, resource utilization), timelines and methodology as mentioned in the Annual Maintenance Plan.

6.2. In respect of the Drawings, Documents and Safety Report received by the Independent Engineer for its review and comments during the Operation Period, the provisions of Paragraph 4 shall apply, mutatis mutandis.

6.3. The Independent Engineer shall review the Annual Maintenance Program furnished by the Concessionaire and send its comments thereon to the Authority and the Concessionaire within 15 (fifteen) days of receipt of the Maintenance Program.

6.4. The Independent Engineer shall review the monthly status report furnished by the Concessionaire and send its comments thereon to the Authority and the Concessionaire within 7 (seven) days of receipt of such report.

6.5. The Independent Engineer shall inspect the Project as per Schedule F.

6.6. The Independent Engineer should be well versed with advanced survey/inspection technologies mentioned in Schedule F.

6.7. The Independent Engineer shall ensure the development, implementation and functioning of the Asset Management plan by the Concessionaire as per Schedule F.

6.8. The Independent Engineer after receipt of the monthly status report from the Concessionaire, but before the 20th (twentieth) day of each month in any case, prepare an O&M Inspection Report setting forth an overview of the status, quality and safety of O&M including its conformity with the Maintenance Requirements and Safety Requirements. In a separate section of the O&M Inspection Report, the Independent Engineer shall describe in reasonable detail the lapses, defects or deficiencies observed by it in O&M of the Project. The Independent Engineer shall send a copy of its O&M Inspection Report to the Authority and the Concessionaire within 7 (seven) days of the inspection. In respect of the Drawings, Documents and Safety Report received by the Independent Engineer for its review and comments during the Operation Period, the provisions of Paragraph 4 shall apply, mutatis mutandis.

6.9. The Independent Engineer shall in its O&M Inspection Report specify the tests if any, in accordance with Schedule F, that the Concessionaire shall carry out, or cause to be carried out, for the purpose of determining that the Project is in conformity with the Maintenance Requirements. It shall monitor and review the results of such tests and the remedial measures, if any, taken by the Concessionaire in this behalf.

6.10. In respect of any defect or deficiency referred to Schedule- F, the Independent Engineer shall ensure that there is no deviation from the permissible limits and time limit for repair and rectification mentioned in Schedule F with reference to the Specifications and Standards.

6.11. The Independent Engineer shall determine if any delay has occurred in completion of repair or remedial works in accordance with the Agreement, and shall also determine the Damages, if any, payable by the Concessionaire to the Authority for such delay.

6.12. The Independent Engineer shall examine the request of the Concessionaire for closure of any lane(s) of the carriageway for undertaking maintenance/repair thereof, keeping in view the need to minimize disruption in traffic and the time required for completing such maintenance/repair in accordance with Good Industry Practice. It shall grant permission with such modifications, as it may deem necessary, within 3 (three) days of receiving a request from the Concessionaire. Upon expiry of the permitted period of closure, the Independent Engineer shall monitor the re-opening of such lane(s), and in case of delay, determine the Damages payable by the Concessionaire to the Authority under Clause 15.7.

6.13. The Independent Engineer shall monitor and review the curing of defects and deficiencies by the Concessionaire as set forth in Clause 16.4.

6.14. In the event that the Concessionaire notifies the Independent Engineer of any modifications that it proposes to make to the Project, the Independent Engineer shall review the same and send its comments to the Authority and the Concessionaire within 15 (fifteen) days of receiving the proposal.

6.15. The Independent Engineer shall undertake traffic sampling, as and when required by the Authority, under and in accordance with the provisions of this Agreement.

7. Termination

7.1. At any time, not earlier than 90 (ninety) days prior to Termination but not later than 15 (fifteen) days prior to such Termination, the Independent Engineer shall, in the presence of a representative of

the Concessionaire, inspect the Project for determining compliance by the Concessionaire with the Divestment Requirements set forth in Clause 31.1 and, if required, cause tests to be carried out at the Concessionaire's cost for determining such compliance. If the Independent Engineer determines that the status of the Project is such that its repair and rectification would require a larger amount than the sum set forth in Clause 32.2, it shall recommend retention of the required amount in the Escrow Account and the period of retention thereof.

7.2. The Independent Engineer shall inspect the Project once in every 15 (fifteen) days during a period of 90 (ninety) days after Termination for determining the liability of the Concessionaire under Article 32, in respect of the defects or deficiencies specified therein. If any such defect or deficiency is found by the Independent Engineer, it shall make a report in reasonable detail and send it forthwith to the Authority and the Concessionaire.

8. Determination of costs and time

8.1. The Independent Engineer shall determine the costs, and/or their reasonableness, that are required to be determined by it under the Agreement.

8.2. The Independent Engineer shall determine the period, or any extension thereof, that is required to be determined by it under the Agreement.

9. Assistance in Dispute resolution

9.1. When called upon by either Party in the event of any Dispute, the Independent Engineer shall mediate and assist the Parties in arriving at an amicable settlement.

9.2. In the event of any disagreement between the Parties regarding the meaning, scope and nature of Good Industry Practice, as set forth in any provision of the Agreement, the Independent Engineer shall specify such meaning, scope and nature by issuing a reasoned written statement relying on good industry practice and authentic literature.

10. Other duties and functions

The Independent Engineer shall perform all other duties and functions specified in the Agreement.

11. Miscellaneous

11.1. The Independent Engineer shall notify its programmer of inspection to the Authority and to the Concessionaire, who may, in their discretion, depute their respective representatives to be present during the inspection.

11.2. A copy of all communications, comments, instructions, Drawings or Documents sent by the Independent Engineer to the Concessionaire pursuant to this TOR, and a copy of all the test results with comments of the Independent Engineer thereon shall be furnished by the Independent Engineer to the Authority forthwith.

11.3. The Independent Engineer shall obtain, and the Concessionaire shall furnish in 2 (two) Copies thereof, all communications and reports required to be submitted, under this Agreement, by the Concessionaire to the Independent Engineer, whereupon the Independent Engineer shall send 1 (one) of the copies to the Authority along with its comments thereon.

11.4. The Independent Engineer shall retain at least one copy each of all Drawings and Documents

received by it, including 'as-built' Drawings, and keep them in its safe custody.

11.5. Upon completion of its assignment hereunder, the Independent Engineer shall duly classify and list all Drawings, Documents, results of tests and other relevant records, and hand them over to the Authority or such other person as the Authority may specify, and obtain written receipt thereof. Two copies of the said documents shall also be furnished in their editable digital format or in such other medium or manner as may be acceptable to the Authority.

11.6. Wherever no period has been specified for delivery of services by the Independent Engineer, the Independent Engineer shall act with the efficiency and urgency necessary for discharging its functions in accordance with Good Industry Practice.

12. Assistance to Authority in review of book of accounts

12.1 Upon receipt of copy of books of accounts from Authority, the Independent Engineer shall review the Escrow account statements with respect to the provisions of the Escrow agreement, books of accounts for information pertaining (a) the traffic count (b) Fee determination thereof, and (c) Project costs, and (d) such other information relating or resulting from other duties and functions of Independent Engineer in accordance with the Agreement, as the Authority may reasonably require and submit its report within 10 (ten) days

SCHEDULE – L

(See Clause 20.1)

SELECTION OF INDEPENDENT ENGINEER

1 Selection of Independent Engineer

- 1.1 The provisions of The Tamil Nadu Transparency in Tenders Act, 1998 and read with the rules thereunder, or any substitute thereof, shall apply for the selection of an experienced firm to discharge the duties and functions set forth in Schedule-L. Provided, however, that no entity which is owned or controlled by the Authority shall be eligible for appointment as the Independent Engineer hereunder.

2 Fee and expenses

- 2.1 The expenses towards fees and expenses of the Independent Engineer shall be borne equally by the Authority and the Concessionaire in accordance with the provisions of this Agreement.
- 2.2 The nature and quantum of duties and services to be performed by the Independent Engineer during the Concession Period shall be determined by the Authority in conformity with the provisions of this Agreement and with due regard for economy in expenditure. All payments made to the Independent Engineer on account of fee and expenses during the Concession Period shall be borne equally by the Authority and the Concessionaire.

- 3 The appointment of the Independent Engineer shall normally be for a period of 3 (three) years. On expiry of the aforesaid period, the Authority may in its discretion renew the appointment or appoint another firm as per Clause 20.1

4 Appointment of Government entity as Independent Engineer

Notwithstanding anything to the contrary contained in this Schedule, the Authority may in its discretion to appoint a government-owned entity as the Independent Engineer; provided that such entity shall be a body corporate having as one of its primary function the provision of consulting, advisory and supervisory services for engineering projects; provided that a government-owned entity which is owned or controlled by the Authority shall not be eligible for appointment as Independent Engineer.

SCHEDULE-M

(See Clause 23.1.1)

FEE NOTIFICATION



ABSTRACT

Highways Department – Tamil Nadu Road Development Company Limited – Collection of 'User fee' from the user of Chennai Outer Ring Road, Phase-I and II – Approval of Publication of Toll Notification in the Tamil Nadu Government Gazette - Orders - Issued.

Highways and Minor Ports (HF2) Department

G.O. (Ms) No. 2

Dated: 05.01.2022

பிலவ - மார்கழி - 21 , திருவள்ளூர் ஆண்டு 2052

Read:

1. G.O.(MS) No.52, Highways and Minor Ports (HF2) Department, dated 11.07.2017.
2. G.O.(MS) No.53, Highways and Minor Ports (HF2) Department, dated 11.04.2018.
3. G.O.(MS) No.89, Highways and Minor Ports (HF2) Department, dated 28.05.2018.
4. From the Chairman and Managing Director, Tamil Nadu Road Development Company Limited, Letter Ref. No.TNRDC / ORR / 076 / 2021, dated 09.06.2021.

ORDER:-

In the Government Order first read above, Orders were issued declaring the Chennai Outer Ring Road (Phase-I and Phase-II) as Toll Road and permitted the Tamil Nadu Road Development Company Limited to develop / install Toll Plazas at four locations for collecting "User Fee" from the Road Users of Chennai Outer Ring Road Phase-I and Phase-II in accordance with National Highways Fee (Determination of Rates and Collection) Rules, 2008 and Tamil Nadu Road Development Company Limited appointed as an Agency of the Government for the collection of 'User Fee' in respect of Chennai Outer Ring Road Phase-I and Phase-II under Clause (f) Section-16 of the Tamil Nadu Transparency in Tenders Act, 1998.

2. In the Government Order second read above, sanction was accorded for construction of two toll plazas in Chennai Outer Ring Road Phase-I for a sum of Rs.50,92,14,233/- (Fifty Crore Ninety Two Lakhs Fourteen Thousand Two Hundred and Thirty Three Only) (including GST at 12%) under Change of Scope to be executed through the Concessionaire viz. M/s.GMR Chennai Outer Ring Road Private Limited.

3. In the Government Order third read above, sanction was accorded for a sum of Rs.25,46,02,636/- (Rupees Twenty Five Crore Forty Six Lakhs Two Thousand Six Hundred and Thirty Six Only) (including GST at 12%) for the construction of one Toll Plaza in Chennai Outer Ring Road Project - Phase-II under Change of Scope to be executed through the Concessionaire viz. M/s.GVR Ashoka Chennai Outer Ring Road Limited within a period of 9 months and the Tamil Nadu Road Development Company Limited was permitted to take up the above work by new Agency in the event of no response from the Concessionaire to the above cost and time stipulations through Tender.

4. In the letter fourth read above, the Chairman and Managing Director, Tamil Nadu Road Development Company Limited has stated as follows:-

- ❖ The Chennai Outer Ring Road Phase-I was developed at an estimated cost of Rs1081.40 Crore and Chennai Outer Ring Road Phase-II at an estimated cost of Rs.1075.00 Crore. The development of the above Road was taken up under Design, Build, Finance, Operate and Transfer (DBFOT) Model.
- ❖ The User Fee for the Six Lane Project Highway with Service Roads for a length of 60.15 Km is to be effected in consonance with National Highway Fee (Determination of Rates and collection) Rules, 2008 including any amendments there off.
- ❖ The total length of the Chennai Outer Ring Road Phase –I and II is 60.15 Km (29.65 Km + 30.50 Km) and it has been divided into 10 Sections covering 4 Toll Plazas viz. Varadharajapuram, Kolapancheri, Palavedu and Chinnamullaivoyal for Journey on Left Hand Side (LHS) from Vandalur to Minjur in Thiruvotriyur – Ponneri - Pancheti (TPP) Road for the purpose of fixing User Fee (Toll Rates) based on the traffic accumulation and dispersal. Similarly, it has been divided into 10 Sections covering 4 Toll Plazas viz. Chinnamullaivoyal, Palavedu, Kolapancheri and Varadharajapuram for Journey on Right Hand Side (RHS) from Minjur in Thiruvotriyur – Ponneri - Pancheti (TPP) Road to Vandalur for the purpose of fixing User Fee (Toll Rates).
- ❖ User fee to be collected in respect of the following categories of vehicles.
 - Car, Jeep, Van, LMV and motorized three wheelers.
 - Light commercial vehicle, Light goods vehicle and Mini bus.
 - Bus or Truck (Two axles).
 - Three axle commercial vehicles.
 - Heavy Construction Machinery (HCM), Earth Moving Equipment, (EME) or Multi Axle Vehicles(MAV)three to six axles)
 - Over sized vehicles (seven or more axles)
- ❖ according to para-7 of the Notification No.S.O.2342 (E), dated 26.07.2017 of the Ministry of Road Transport and Highways, Government of India, if a mechanical vehicle which is loaded in excess of permissible load specified for its category, shall be liable to pay fee for entering the overloaded vehicle to the Toll Plazas, equal to ten times of the fee applicable to such category of vehicle and shall not be entitled to make use of the highway section unless the excess load has been removed from such mechanical vehicle.
- ❖ similarly, if the user of vehicle not fitted with "FASTag" or vehicle without valid, functional, FASTag" entering in to "FASTag Lane" of the Toll plazas, a fee equivalent to two times of the fee applicable to that

category of vehicles as per second proviso to Rule 6 (3) of the National Highways Fee (Determination of Rates and collection) Rules, 2008.

- ❖ the same rate of Penalty for Overloading in Vehicles and the Vehicle without Fast Tag entering into the FasTag Lane of the Toll Plazas instead of Cash Lanes has to be adopted and incorporated in the Toll Notification.

5. The Chairman and Managing Director, Tamil Nadu Road Development Company Limited has further stated that the User Fee charges proposed for the period from 01.04.2021 to 31.03.2022 is adopting WPI dated 31.12.2020. While assessing the User Fee for the period ending 31.03.2022, the structures having more than 60m length has been converted with equalization Factor 10 and Tollable length is modified accordingly as per the NHAI guidelines dated 12.02.2019.

6. The Chairman and Managing Director, Tamil Nadu Road Development Company Limited has therefore requested the Government to accord sanction on the following:-

- i. approval of User Fee (Toll rates) noted in the Schedule-1 to 10 for Journey i.e. from Vandalur to Minjur Vice Versa.
- ii. sanction of Rs.7,83,23,200/- towards expenditure on the operation of User Fee Collection in the Four Toll Plazas Per Annum.
- iii. sanction of Management / Agency Fee to Tamil Nadu Road Development Company Limited at 6% of the User Fee Collection Per Annum for maintaining Toll Plazas, monitoring, Operation and attending to the legal issues arising then and there, collection of User Fee in the Four Toll Plazas in Chennai Outer Ring Road and ensuring the remittance of User Fee collected in Government account.
- iv. approval and Publication of the Notification No.I and attached Schedules Numbering 10 for levy of Tolls on Motor Vehicles included with Tollable length of Structures; Levy of Penalty for overloading vehicles, FASTag Lane violations etc., and also the Notification No.II (the details of vehicles exempted from levy of Tolls).
- v. Permitting Tamil Nadu Road Development Company Limited to revise the Toll tariff every year from 1st April based on the prescribed norms in NHAI Toll Policy.

7. The Government after careful examination of the proposal of the Chairman and Managing Director, Tamil Nadu Road Development Company Limited

- (i) approve the User Fee (Toll rates) noted in the Schedule - 1 to 10 in Notification I and II for Journey i.e., from Vandalur to Minjur and Vice Versa appended to this order.

- (ii) accord administrative sanction for a sum of Rs.7,83,23,200/- (Rupees seven crores eighty three lakhs twenty three thousand and two hundred only) towards expenditure on the operation of User Fee Collection in the Four Toll Plazas Per Annum and accord financial sanction for a sum of Rs.2,00,00,000/- in the current financial year 2021-2022.
- (iii) accord sanction for 1.5% of user fee collection per annum as Management / Agency Fee to Tamil Nadu Road Development Company Limited for maintaining Toll Plazas, monitoring, Operation and attending to the legal issues arising then and there, collection of User Fee in the Four Toll Plazas in Chennai Outer Ring Road and ensuring the remittance of User Fee collected in Government account.
- (iv) permit Tamil Nadu Road Development Company Limited to revise the Toll tariff every year from 1st April based on the prescribed norms in NHAI Toll Policy.

8. The appended Notification I and II will be published in the extraordinary issue of the Tamil Nadu Government Gazette.

9. The Toll collection amount sanctioned in para-7(i) above shall be credited in to the following new receipt head of account opened under Budget Publication No.60. Detailed budget estimates of Revenue with HoD code 21-03 as detailed below:-

"1054.00. Roads and Bridges – 102. Tolls on Roads – AC. Collection of Tolls entry of vehicles from Vandalur to Minjur Vice Versa – 227. Non-Taxation Fees – 35. Toll".
[IFHRMS DPC: 1054-00-102-AC-22735]

10. The expenditure sanctioned in para-7(ii) above shall be debited under the following new head of account opened under D.No.21.03. Chief Engineer (Construction and Maintenance), Highways.

"3054.Roads and Bridges – 03. State Highways – 337. Road Works - State's Expenditure – AF. Operation of User Fee collection in the Toll Plazas maintained by Tamil Nadu Road Development Company Ltd (TNRDC) - 318. Maintenance – 01. Periodical Maintenance.
[IFHRMS DPC: 3054-03-337-AF-31801]

11. The Chief Engineer (Construction and Maintenance), Highways Department is the Estimating. Reconciling and Controlling authority for the above new head of account.

12. The expenditure sanctioned in para-7(ii) above shall constitute an item of "New Service" and approval of the Legislature will be obtained in due course. Pending approval of the Legislature, the expenditure will be initially met by an advance from the Contingency Fund. The Chief Engineer (Construction and Maintenance), Highways Department is directed to calculate the actual amount required for the period upto next Supplementary Estimates and apply for sanction of the same as advance from the Contingency Fund to Finance (B.G-I) Department

directly in Form 'A' appended to the Tamil Nadu Contingency Fund Rules, 1963 along with a copy of this order. Orders for sanction of an advance from the Contingency Fund will be issued from Finance (B.G-I) Department. The Chief Engineer (Construction and Maintenance), Highways Department is also directed to send a draft explanatory notes for inclusion of the above expenditure in the Supplementary Estimates 2021-2022 to Finance (B.G.-1/PW-I) Department without fail.

13. This orders issues with the concurrence of the Finance Department vide its U.O.No. 54329/PW1/2021, dated 03.01.2022 and ASL No.1353 (One thousand three hundred and fifty three)

(By Order of the Governor)

Dheeraj Kumar
Principal Secretary to Government

To

The Works Manager, Government Central Press, Chennai – 01. (w.e)

The Chief General Manager,

Tamil Nadu Road Development Company Limited, Chennai -28.

The Director General, Highways Department, Chennai-25.

The Chief Engineer ((Construction & Maintenance),

Highways Department, Chennai – 25.

The Accountant General, Chennai – 9/18/35.

The District Collector, Kancheepuram, Chengalpattu, Thiruvallur.

Copy to:

The Finance(PW-I/BG-I/III/W&M-I) Department, Chennai - 9.

The O/o. the Hon'ble Chief Minister, Chennai – 9.

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

Clean copy : 4505/HF2/2020.

SF / SC.

// Forwarded by Order //

Obon-hadunom
5-1-22
SECTION OFFICER

Bms
05/01/22

APPENDIX

NOTIFICATION-I

(G.O (Ms) No. 2, Highways and Minor Ports (HF2) Department,

dated 05.01.2022)

In exercise of the powers conferred by Clause (c) of sub-section (1) and clause (c) of sub – section (2) of section 2 of the Indian Toll Act 1851 (Central Act VIII of 1851), the Governor of Tamil Nadu hereby levies tolls on motor vehicles, for the use of the Chennai Outer Ring Road connecting NH-32 (45) at Vandalur to Minjur in Thiruvotriyur – Ponneri-Pancheti (TPP Road) via NH-48 (4) at Nazarathpet, NH-716 (205) at Nemilicheri & NH-16 (5) at Padiyanallur from Km:0+000 to Km:60+150, maintained on a long term Concession basis under DBFOT mode by the Concessionaire and operated by the Tamil Nadu Road Development Company Limited at the rates specified in the Schedule to this Notification for the period commencing from the date of Notification till 31.03.2022.

THE SCHEDULE- 1

BETWEEN CH:0+000 (NH-32 (45) AT VANDALUR)AND CH:19+650 (NH-48 (4)AT NAZARATHPET) AND VICE VERSA (SIX LANE)

Toll Rate - Applicable Period	From the date of Notification to 31.03.2022				
	Vehicle Category	Fee for single journey	Fee for return Pass (Within a day 24 hrs)	Fee for Daily Pass (Multiple Trips) (Valid for 24 hrs)	Fee for 50 Trip Pass (Valid for 3 Months)
Car, Jeep, Van, Light Motor Vehicle & Motorized Three Wheelers	47	70	128	1555	2729
Light Commercial Vehicle, Light Goods Vehicle, Mini Bus	75	113	207	2512	4408
Truck / Bus (Two Axles)	158	237	434	5263	9236
Three Axle Commercial Vehicles	172	258	474	5741	10076
Heavy Construction Machinery (HCM) / Earth Moving Equipment (EME) or Multi Axle Vehicle (MAV) (4 to 6 Axles)	248	371	681	8253	14484
Over Sized Vehicles (7 or More Axles)	301	452	829	10047	17633

Length conversion has been made by converting the length of structures more than 60m length in to an equivalent length of Highway by multiplying the length of such structures by an equalization Factor of 10 & Tollable length -40.29 km.

Levy of Penalty

- (1) It is notified that, if a mechanical vehicle which is loaded in excess of permissible load specified for its category, shall be liable to pay fee for entering the overloaded vehicle to the Toll Plaza, **equal to ten times** of the fee applicable to such category of vehicle and shall not be entitled to make use of the highway section unless the excess load has been removed from such mechanical vehicle.
- (2) It is also notified that, if the user of vehicle not fitted with "FASTag" or vehicle without valid, functional, FASTag" entering in to "FASTag lane" of the Toll plaza, shall pay a fee **equivalent to two times** of the fee applicable to that category of vehicles.

THE SCHEDULE- 2

BETWEEN CH:0+000 (NH-32 (45) AT VANDALUR)AND CH:29+000(NH-716 (205) AT
NEMILICHERY) AND VICE VERSA (SIX LANE)

Toll Rate - Applicable Period	From the date of Notification to 31.03.2022				
	Fee for single journey	Fee for return Pass (Within a day 24 hrs)	Fee for Daily Pass (Multiple Trips) (Valid for 24 hrs)	Fee for 50 Trip Pass (Valid for 3 Months)	Monthly pass (30 days)
Car, Jeep, Van, Light Motor Vehicle & Motorized Three Wheelers	66	99	182	2206	3872
Light Commercial Vehicle, Light Goods Vehicle, Mini Bus	107	160	294	3564	6255
Truck / Bus (Two Axles)	224	336	616	7468	13106
Three Axle Commercial Vehicles	244	367	672	8147	14297
Heavy Construction Machinery (HCM) / Earth Moving Equipment (EME) or Multi Axle Vehicle (MAV) (4 to 6 Axles)	351	527	966	11711	20552
Over Sized Vehicles (7 or More Axles)	428	642	1176	14256	25020

Length conversion has been made by converting the length of structures more than 60 m length in to an equivalent length of Highway by multiplying the length of such structures by an equalization Factor of 10 & Tollable length -57.16 km.

Levy of Penalty

- (1) It is notified that, if a mechanical vehicle which is loaded in excess of permissible load specified for its category, shall be liable to pay fee for entering the overloaded vehicle to the Toll Plaza, **equal to ten times** of the fee applicable to such category of vehicle and shall not be entitled to make use of the highway section unless the excess load has been removed from such mechanical vehicle.
- (2) It is also notified that, if the user of vehicle not fitted with "FASTag" or vehicle without valid, functional, FASTag" entering in to "FASTag lane" of the Toll plaza, shall pay a fee **equivalent to two times** of the fee applicable to that category of vehicles.

THE SCHEDULE - 3

BETWEEN CH:0+000 (NH-32 (45) AT VANDALUR)AND CH: 48+000 (NH-16 (5) AT
PADIYANALLUR) AND VICE VERSA (SIX LANE)

Toll Rate - Applicable Period	From the date of Notification to 31.03.2022				
	Vehicle Category	Fee for single journey	Fee for return Pass (Within a day 24 hrs)	Fee for Daily Pass (Multiple Trips) (Valid for 24 hrs)	Fee for 50 Trip Pass (Valid for 3 Months)
Car, Jeep, Van, Light Motor Vehicle & Motorized Three Wheelers	91	137	251	3045	5345
Light Commercial Vehicle, Light Goods Vehicle, Mini Bus	148	221	406	4919	8634
Truck / Bus (Two Axles)	309	464	850	10307	18089
Three Axle Commercial Vehicles	337	506	928	11244	19734
Heavy Construction Machinery (HCM) / Earth Moving Equipment (EME) or Multi Axle Vehicle (MAV)(4 to 6 Axles)	485	727	1334	16164	28367
Over Sized Vehicles (7 or More Axles)	590	885	1623	19678	34534

Length conversion has been made by converting the length of structures more than 60 m length in to an equivalent length of Highway by multiplying the length of such structures by an equalization Factor of 10 & Tollable length – 78.90 Km.

Levy of Penalty

- (1) It is notified that, if a mechanical vehicle which is loaded in excess of permissible load specified for its category, shall be liable to pay fee for entering the overloaded vehicle to the Toll Plaza, **equal to ten times** of the fee applicable to such category of vehicle and shall not be entitled to make use of the highway section unless the excess load has been removed from such mechanical vehicle.
- (2) It is also notified that, if the user of vehicle not fitted with "FASTag" or vehicle without valid, functional, FASTag" entering in to "FASTag lane" of the Toll plaza, shall pay a fee **equivalent to two times** of the fee applicable to that category of vehicles.

THE SCHEDULE - 4

BETWEEN CH:0+000 (NH-32 (45) AT VANDALUR) AND CH: 60+150 (MINJUR IN TPP ROAD) AND VICE VERSA (SIX LANE)

Toll Rate - Applicable Period	From the date of Notification to 31.03.2022				
	Fee for single journey	Fee for return Pass (Within a day 24 hrs)	Fee for Daily Pass (Multiple Trips) (Valid for 24 hrs)	Fee for 50 Trip Pass (Valid for 3 Months)	Monthly pass (30 days)
Car, Jeep, Van, Light Motor Vehicle & Motorized Three Wheelers	109	163	299	3620	6352
Light Commercial Vehicle, Light Goods Vehicle, Mini Bus	175	263	482	5847	10261
Truck / Bus (Two Axles)	368	551	1011	12251	21500
Three Axle Commercial Vehicles	401	601	1103	13364	23455
Heavy Construction Machinery (HCM) / Earth Moving Equipment (EME) or Multi Axle Vehicle (MAV)(4 to 6 Axles)	576	865	1585	19211	33716
Over Sized Vehicles (7 or More Axles)	702	1052	1929	23388	41046

Length conversion has been made by converting the length of structures more than 60 m length in to an equivalent length of Highway by multiplying the length of such structures by an equalization Factor of 10 & Tollable length –93.78 Km.

Levy of Penalty

- (1) It is notified that, if a mechanical vehicle which is loaded in excess of permissible load specified for its category, shall be liable to pay fee for entering the overloaded vehicle to the Toll Plaza, **equal to ten times** of the fee applicable to such category of vehicle and shall not be entitled to make use of the highway section unless the excess load has been removed from such mechanical vehicle.
- (2) It is also notified that, if the user of vehicle not fitted with "FASTag" or vehicle without valid, functional, FASTag" entering in to "FASTag lane" of the Toll plaza, shall pay a fee **equivalent to two times** of the fee applicable to that category of vehicles.

THE SCHEDULE- 5

**BETWEEN CH:19+650(NH-48 (4)AT NAZARATHPET)AND CH:29+000(NH-716 (205)
AT NEMILICHERY) AND VICE VERSA(SIX LANE)**

Toll Rate - Applicable Period	From the date of Notification to 31.03.2022				
	Vehicle Category	Fee for single journey	Fee for return Pass (Within a day 24 hrs)	Fee for Daily Pass (Multiple Trips) (Valid for 24 hrs)	Fee for 50 Trip Pass (Valid for 3 Months)
Car, Jeep, Van, Light Motor Vehicle & Motorized Three Wheelers	20	29	54	651	1143
Light Commercial Vehicle, Light Goods Vehicle, Mini Bus	32	47	87	1052	1847
Truck / Bus (Two Axles)	66	99	182	2205	3869
Three Axle Commercial Vehicles	72	108	198	2405	4221
Heavy Construction Machinery (HCM) / Earth Moving Equipment (EME) or Multi Axle Vehicle (MAV) (4 to 6 Axles)	104	156	285	3457	6068
Over Sized Vehicles (7 or More Axles)	126	189	347	4209	7387

Length conversion has been made by converting the length of structures more than 60 m length in to an equivalent length of Highway by multiplying the length of such structures by an equalization Factor of 10 & Tollable length – 16.88 Km.

Levy of Penalty

- (1) It is notified that, if a mechanical vehicle which is loaded in excess of permissible load specified for its category, shall be liable to pay fee for entering the overloaded vehicle to the Toll Plaza, **equal to ten times** of the fee applicable to such category of vehicle and shall not be entitled to make use of the highway section unless the excess load has been removed from such mechanical vehicle.
- (2) It is also notified that, if the user of vehicle not fitted with "FASTag" or vehicle without valid, functional, FASTag" entering in to "FASTag lane" of the Toll plaza, shall pay a fee **equivalent to two times** of the fee applicable to that category of vehicles.

THE SCHEDULE - 6

BETWEEN CH: 19+650 (NH-48 (4) AT NAZARATHPET) AND CH: 48+000 (NH-16 (5) AT PADIYANALLUR) AND VICE VERSA (SIX LANE)

Toll Rate - Applicable Period	From the date of Notification to 31.03.2022				
	Fee for single journey	Fee for return Pass (Within a day 24 hrs)	Fee for Daily Pass (Multiple Trips) (Valid for 24 hrs)	Fee for 50 Trip Pass (Valid for 3 Months)	Monthly pass (30 days)
Car, Jeep, Van, Light Motor Vehicle & Motorized Three Wheelers	45	67	123	1490	2616
Light Commercial Vehicle, Light Goods Vehicle, Mini Bus	72	108	199	2408	4225
Truck / Bus (Two Axles)	151	227	416	5044	8853
Three Axle Commercial Vehicles	165	248	454	5503	9658
Heavy Construction Machinery (HCM) / Earth Moving Equipment (EME) or Multi Axle Vehicle (MAV) (4 to 6 Axles)	237	356	653	7910	13883
Over Sized Vehicles (7 or More Axles)	289	433	794	9630	16901

Length conversion has been made by converting the length of structures more than 60 m length in to an equivalent length of Highway by multiplying the length of such structures by an equalization Factor of 10 & Tollable length – 38.61 Km.

Levy of Penalty

- (1) It is notified that, if a mechanical vehicle which is loaded in excess of permissible load specified for its category, shall be liable to pay fee for entering the overloaded vehicle to the Toll Plaza, **equal to ten times** of the fee applicable to such category of vehicle and shall not be entitled to make use of the highway section unless the excess load has been removed from such mechanical vehicle.
- (2) It is also notified that, if the user of vehicle not fitted with "FASTag" or vehicle without valid, functional, FASTag" entering in to "FASTag lane" of the Toll plaza, shall pay a fee **equivalent to two times** of the fee applicable to that category of vehicles.

THE SCHEDULE- 7

BETWEEN CH: 19+650 (NH-48 (4)AT NAZARATHPET)AND CH: 60+150 (MINJUR IN
TPP ROAD)AND VICE VERSA(SIX LANE)

Toll Rate - Applicable Period	From the date of Notification to 31.03.2022				
	Vehicle Category	Fee for single journey	Fee for return Pass (Within a day 24 hrs)	Fee for Daily Pass (Multiple Trips) (Valid for 24 hrs)	Fee for 50 Trip Pass (Valid for 3 Months)
Car, Jeep, Van, Light Motor Vehicle & Motorized Three Wheelers	62	93	170	2065	3623
Light Commercial Vehicle, Light Goods Vehicle, Mini Bus	100	150	275	3335	5853
Truck / Bus (Two Axles)	210	314	576	6988	12264
Three Axle Commercial Vehicles	229	343	629	7623	13379
Heavy Construction Machinery (HCM) / Earth Moving Equipment (EME) or Multi Axle Vehicle (MAV) (4 to 6 Axles)	329	493	904	10958	19232
Over Sized Vehicles (7 or More Axles)	400	600	1101	13340	23412

Length conversion has been made by converting the length of structures more than 60 m length in to an equivalent length of Highway by multiplying the length of such structures by an equalization Factor of 10 & Tollable length – 53.49 Km.

Levy of Penalty

- (1) It is notified that, if a mechanical vehicle which is loaded in excess of permissible load specified for its category, shall be liable to pay fee for entering the overloaded vehicle to the Toll Plaza, **equal to ten times** of the fee applicable to such category of vehicle and shall not be entitled to make use of the highway section unless the excess load has been removed from such mechanical vehicle.
- (2) It is also notified that, if the user of vehicle not fitted with "FASTag" or vehicle without valid, functional, FASTag" entering in to "FASTag lane" of the Toll plaza, shall pay a fee **equivalent to two times** of the fee applicable to that category of vehicles.

THE SCHEDULE - 8

BETWEEN CH: 29+000(NH-716 (205) AT NEMILICHERY) AND CH: 48+000(NH-16 (5)
AT PADIYANALLUR) AND VICE VERSA(SIX LANE)

Toll Rate - Applicable Period	From the date of Notification to 31.03.2022				
	Vehicle Category	Fee for single journey	Fee for return Pass (Within a day 24 hrs)	Fee for Daily Pass (Multiple Trips) (Valid for 24 hrs)	Fee for 50 Trip Pass (Valid for 3 Months)
Car, Jeep, Van, Light Motor Vehicle & Motorized Three Wheelers	25	38	69	839	1472
Light Commercial Vehicle, Light Goods Vehicle, Mini Bus	41	61	112	1355	2379
Truck / Bus (Two Axles)	85	128	234	2840	4984
Three Axle Commercial Vehicles	93	139	256	3098	5437
Heavy Construction Machinery (HCM) / Earth Moving Equipment (EME) or Multi Axle Vehicle (MAV) (4 to 6 Axles)	134	200	367	4453	7815
Over Sized Vehicles (7 or More Axles)	163	244	447	5421	9514

Length conversion has been made by converting the length of structures more than 60 m length in to an equivalent length of Highway by multiplying the length of such structures by an equalization Factor of 10 & Tollable length – 21.74 Km.

Levy of Penalty

- (1) It is notified that, if a mechanical vehicle which is loaded in excess of permissible load specified for its category, shall be liable to pay fee for entering the overloaded vehicle to the Toll Plaza, **equal to ten times** of the fee applicable to such category of vehicle and shall not be entitled to make use of the highway section unless the excess load has been removed from such mechanical vehicle.
- (2) It is also notified that, if the user of vehicle not fitted with "FASTag" or vehicle without valid, functional, FASTag" entering in to "FASTag lane" of the Toll plaza, shall pay a fee **equivalent to two times** of the fee applicable to that category of vehicles.

THE SCHEDULE- 9

BETWEENCH: 29+000 (NH-716 (205) AT NEMILICHERY) AND CH:60+150 (MINJUR IN
TPP ROAD) AND VICE VERSA(SIX LANE)

Toll Rate - Applicable Period	From the date of Notification to 31.03.2022				
	Vehicle Category	Fee for single journey	Fee for return Pass (Within a day 24 hrs)	Fee for Daily Pass (Multiple Trips) (Valid for 24 hrs)	Fee for 50 Trip Pass (Valid for 3 Months)
Car, Jeep, Van, Light Motor Vehicle & Motorized Three Wheelers	42	64	117	1413	2480
Light Commercial Vehicle, Light Goods Vehicle, Mini Bus	68	103	188	2283	4006
Truck / Bus (Two Axles)	143	215	395	4783	8394
Three Axle Commercial Vehicles	157	235	430	5218	9157
Heavy Construction Machinery (HCM) / Earth Moving Equipment (EME) or Multi Axle Vehicle (MAV) (4 to 6 Axles)	225	338	619	7501	13164
Over Sized Vehicles (7 or More Axles)	274	411	753	9131	16026

Length conversion has been made by converting the length of structures more than 60 m length in to an equivalent length of Highway by multiplying the length of such structures by an equalization Factor of 10 & Tollable length – 36.61 Km.

Levy of Penalty

- (1) It is notified that, if a mechanical vehicle which is loaded in excess of permissible load specified for its category, shall be liable to pay fee for entering the overloaded vehicle to the Toll Plaza, **equal to ten times** of the fee applicable to such category of vehicle and shall not be entitled to make use of the highway section unless the excess load has been removed from such mechanical vehicle.
- (2) It is also notified that, if the user of vehicle not fitted with "FASTag" or vehicle without valid, functional, FASTag" entering in to "FASTag lane" of the Toll plaza, shall pay a fee **equivalent to two times** of the fee applicable to that category of vehicles.

THE SCHEDULE- 10
BETWEEN CH: 48+000(NH-16 (5) AT PADIYANALLUR) AND CH: 60+150 (MINJUR IN
T.P.P ROAD) AND VICE VERSA(SIX LANE)

Toll Rate - Applicable Period	From the date of Notification to 31.03.2022				
	Vehicle Category	Fee for single journey	Fee for return Pass (Within a day 24 hrs)	Fee for Daily Pass (Multiple Trips) (Valid for 24 hrs)	Fee for 50 Trip Pass (Valid for 3 Months)
Car, Jeep, Van, Light Motor Vehicle & Motorized Three Wheelers	17	26	47	574	1008
Light Commercial Vehicle, Light Goods Vehicle, Mini Bus	28	42	77	928	1628
Truck / Bus (Two Axles)	58	87	160	1943	3411
Three Axle Commercial Vehicles	64	95	175	2120	3721
Heavy Construction Machinery (HCM) / Earth Moving Equipment (EME) or Multi Axle Vehicle (MAV) (4 to 6 Axles)	91	137	251	3048	5349
Over Sized Vehicles (7 or More Axles)	111	167	306	3710	6511

Length conversion has been made by converting the length of structures more than 60 m length in to an equivalent length of Highway by multiplying the length of such structures by an equalization Factor of 10 & Tollable length – 14.88 Km.

Levy of Penalty

- (1) It is notified that, if a mechanical vehicle which is loaded in excess of permissible load specified for its category, shall be liable to pay fee for entering the overloaded vehicle to the Toll Plaza, **equal to ten times** of the fee applicable to such category of vehicle and shall not be entitled to make use of the highway section unless the excess load has been removed from such mechanical vehicle.
- (2) It is also notified that, if the user of vehicle not fitted with "FASTag" or vehicle without valid, functional, FASTag" entering in to "FASTag lane" of the Toll plaza, shall pay a fee **equivalent to two times** of the fee applicable to that category of vehicles.

Dheeraj Kumar
Principal Secretary to Government

//True Copy//

Am- Lalvar
5-1-22
SECTION OFFICER
Jrb
05/01/22

APPENDIX

NOTIFICATION-II

**(G.O (Ms) No. 2, Highways and Minor Ports (HF2) Department,
dated 05.01.2022)**

In exercise of the powers conferred by Clause (b) of section 4 of the Indian Toll Act 1851 (Central Act VIII of 1851), the Governor of Tamil Nadu hereby exempts from levy of tolls for the passage of following mechanical vehicle on the section of the Chennai Outer Ring Road connecting NH-32 (45) at Vandalur to Minjur in Thiruvotriyur – Ponneri - Pancheti (TPP Road) via NH-48 (4) at Nazarethpet, NH-716 (205) at Nemilicheri & NH-16 (5) at Padiyanallur from Km:0+000 to Km:60+150, maintained on a long term Concession basis under DBFOT mode by the Concessionaire and operated by the Tamil Nadu Road Development Company Limited during the period commencing from the date of Notification till 31.03.2022.

(a) Official vehicles transporting and accompanying,-

- (i) the President of India;
- (ii) the Vice-President of India;
- (iii) the Prime-Minister of India;
- (iv) the Governor of a State;
- (v) the Chief Justice of India;
- (vi) the Speaker of the House of People;
- (vii) the Cabinet Minister of the Union;
- (viii) the Chief Minister of a State;
- (ix) the Judge of the Supreme Court;
- (x) the Minister of State of the Union;
- (xi) the Lieutenant Governor of Union territory;
- (xii) the Chief of Staff holding the rank of full General or equivalent rank;
- (xiii) the Chairman of the Legislative Council of a State;
- (xiv) the Speaker of the Legislative Assembly of the State;
- (xv) the Chief Justice of High Court;
- (xvi) the Judge of a High Court;
- (xvii) the Member of Parliament;
- (xviii) the Army Commander or Vice- Chief of Army Staff and equivalent in other services;
- (xix) the Chief Secretary to a State Government within concerned State;

- (xx) the Secretary to the Government of India;
- (xxi) the Secretary, Council of States;
- (xxii) the Secretary, House of People;
- (xxiii) the Foreign dignitary on State visit;
- (xxiv) the Member of Legislative Assembly of a State and the Member of Legislative Council of a State within their respective State, if he or she produces his or her identity card issued by the Concerned Legislature of the State;
- (xxv) the awardee of Param Vir Chakra, Ashok Chakra, Maha Vir Chakra, Kirti Chakra, Vir Chakra and Shaurya Chakra, if such awardee produces his or her photo identity card duly authenticated by the appropriate or competent authority for such award;

(b) Used for official purposes by,-

- (i) the Ministry of Defence including (Army, Air force & Navy);
 - (ii) the Central and State armed forces in uniform including para military forces and police;
 - (iii) an executive Magistrate;
 - (iv) a fire-fighting department or organization and
 - (v) the National Highway Authority of India or any other Government organisation using such vehicle for inspection, survey, construction or operation of national highways and maintenance thereof;
- (c) used as ambulance and
- (d) used as funeral vehicle.

Dheeraj Kumar
Principal Secretary to Government

//True Copy//

Dheeraj Kumar
5-1-22
SECTION OFFICER

5/1/22

THE INDIAN TOLLS ACT, 1851

ARRANGEMENT OF SECTIONS

PREAMBLE

SECTIONS

1. [*Repealed*].
 - 1A. Extent.
 2. Power to cause levy of tolls on roads and bridges within certain rates, and to appoint collectors. Collectors' responsibilities.
 3. Their powers for recovery of toll.
Release of seized property on tender of dues.
 4. Exemptions from payment of toll.
 5. Assistance of collectors by Police-officers.
 6. Penalty for offences under Act. Compensation to person aggrieved. Saving of his right to sue.
 7. Exhibition of table of tolls, and statement of penalties.
 8. Application of proceeds of tolls.
- SCHEDULE.—[*Repealed*].

THE INDIAN TOLLS ACT, 1851¹

ACT NO. 8 OF 1851

[4th July, 1851.]

An Act for enabling Government to levy Tolls on Public Roads and Bridges.

Preamble.—WHEREAS it is expedient to enable Government to levy tolls upon roads and bridges; it is enacted as follows:—

1. [Repeal of Acts].—Rep. by the Repealing Act, 1870 (14 of 1870), s. 1 and the Schedule, Part II.

²[1A. Extent.—This Act extends to the territories administered on the fourth of July, eighteen hundred and fifty-one, by the Governor of the Presidency of Fort William in Bengal, the Lieutenant-Governor of North-Western Provinces of Bengal and the Governor of the Presidency of Fort St. George in Council.]

2. Power to cause levy of tolls on roads and bridges within certain rates, and to appoint collectors. Collectors' responsibilities.—³[The State Government] may cause such rates of toll, ⁴*** as ⁵[it thinks fit], to be levied upon any road or bridge which has been, or shall hereafter be, made or repaired ⁶[at the expense of the Central or any State Government]; and may place the collection of such tolls under the management of such persons as may appear to ⁷[it] proper: and all persons employed in the

1. Short title given by the Indian Short Titles Act, 1897 (14 of 1897).

This Act should be read with the Indian Tolls Act, 1864 (15 of 1864), and the Indian Tolls Act, 1888 (8 of 1888).

This Act has been amended in Assam by Assam Act 3 of 1931 and Act 1 of 1932; C. P. by C.P. Act 8 of 1932, Madras by Madras Act 6 of 1938, Act 14 of 1942 and Act 26 of 1950.

This Act is deemed to be in force throughout the territories administered by the Lieutenant-Governor of the Punjab on the 5th September, 1888 and to have been in force, from the 21st August 1857, in the territories for the time being administered as part of the Punjab.

It has been extended under s. 3 of Act 15 of 1864 to Ajmer and Merwar, see Gazette of India, 1889, Pt. II, p. 562.

It has been declared to be in force in the C.P. and the Sambalpur District by the C. P. Laws Act, 1875 (20 of 1875), s. 3; in the Southal Parganas Settlement Regulation, 1872 (3 of 1872), s. 3.

It has been declared, by notification under s. 3(a) of the Scheduled Districts Act, 1874 (14 of 1874), to be in force in the following Scheduled Districts, namely:—

The Districts of Hazaribagh,

Lohardaga (now the Ranchi District,

see Calcutta Gazette, 1899, Pt. I, p. 44),

and Manbhum, and Pargana Dhalbhum and

Kolhan in the District of Singhbhum.

The District of Lahaul

See Gazette of India,

Ditto

1881, Pt. I, p. 504.

1886, Pt. I, p. 301.

It has been extended by notification under s. 5 of the last mentioned Act to the Scheduled District of Coorg, see Gazette of India, 1878, Pt. I, p. 45; to the Scheduled Districts in Ganjam and Vizagapatam, see *ibid.*, 1899, Pt. I, p. 720; to the Ducharti and Gudiseru Mutthas, Yellavuram taluk, East Godavari Agency, see Notification No. 110, dated 22nd April, 1927, Fort St. George Gazette, 1927, Pt. I, p. 661, and to the District of Darjeeling, see Calcutta Gazette, 1934, Pt. I, p. 179.

It has been repealed in the Presidency of Bombay, to which it originally applied by the Bombay Tolls Act 1875 (Bom. Act 3 of 1875), s. 1 and has also been amended in Assam by Assam Acts 3 of 1931 and 1 of 1932; C.P. by C. P. Act 8 of 1932; and Madras by Madras Acts 6 of 1938 and 14 of 1942.

It has been repealed in Mysore by Mysore Act 29 of 1958.

The Act has been extended to the whole of Madhya Pradesh by M.P. Act 23 of 1958 and to the Union territory of Pondicherry by Act 26 of 1968, s. 3 and the Schedule.

The Act has been amended in its application to Uttar Pradesh by U.P. Act 5 of 1957, Andhra Pradesh by A.P. Act 17 of 1975 and West Bengal by W.B. Act 18 of 1978.

2. Ins. by the A.O. 1937.

3. Subs. by *ibid.*, for "The Governor of the Presidency of Fort William in Bengal, the Lieutenant-Governor of the North-Western Provinces of Bengal and the Governor of the Presidency of Fort St. George in Council". The words "and the Governor of the Presidency of Bombay in Council" had been rep. by Act 8 of 1888, s. 5.

The authority of the Provincial Government in any Province of India not specified in s. 1A to which this Act and the Indian Tolls Act, 1864 (15 of 1864), may be or have been extended, is to be the same as if it had been originally specified in s. 2. See the Indian Tolls Act, 1888 (8 of 1888), s. 2(1).

4. The words "not exceeding the rates mentioned in the Schedule annexed to this Act" omitted by Act 38 of 1920, s. 2 and the First Schedule.

5. Subs. by the A.O. 1937, for "they respectively think fit".

6. Subs., *ibid.*, for "at the expense of the Govt."

7. Subs., *ibid.*, for "them".

management and collection of such tolls shall be liable to the same responsibilities as would belong to them if employed in the collection of the land revenue.

STATE AMENDMENT

Orissa

Amendment of section 2.—In section 2 of the Indian Tolls Act, 1851(8 of 1851) in its application to the State of Orissa, for the words “at the expense of the Central or any State Government”, the words “at the expense of the Central or any State Government or any Corporation, Statutory Body, Company, Firm or person authorized by the State Government for this purpose” shall be substituted.

[Vide the Orissa Act 7 of 1999, s. 2]

3. Their powers for recovery of toll.—In case of non-payment of any such toll on demand, the officers appointed to collect the same may seize any of the carriages or animals on which it is chargeable, or any part of their burden of sufficient value to defray the toll; and, if any toll remains undischarged for twenty-four hours, with the cost arising from such seizure, the case shall be brought before the officer appointed to superintend the collection of the said toll, who may sell the property seized for discharge of the toll, and all expenses occasioned by such non-payment, seizure and sale, and cause any balance that may remain to be returned, on demand, to the owner of the property; and the said officer, on receipt of the property, shall forthwith issue a notice that, at noon of the next day, exclusive of Sunday, or any closed holiday, he will sell the property by auction:

Release of seized property on tender of dues.—Provided that, if, at any time before the sale has actually begun, the person whose property, has been seized shall tender the amount of all the expenses incurred, and of double the toll payable by him, the said officer shall forthwith release the property seized.

4. Exemptions from payment of toll.—No tolls shall be paid for the passage ^{1***} of Police-officers on duty, or of any person or property in their custody, but no other exemption from payment of the toll levied under this Act shall be allowed.

STATE AMENDMENT

Orissa

Amendment of section 4.—In section 4 of the Indian Tolls Act, 1851 (8 of 1851), in its application to the State of Orissa, after the words “shall be paid for the passage of” the words “the State Government Vehicles on Government duty and” shall be inserted.

[Vide the Orissa Act 13 of 1987, s. 2]

5. Assistance of collectors by Police-officers.—All Police-officers shall be bound to assist the toll-collectors, when required, in the execution of this Act; and, for that purpose, shall have the same power which they have in the exercise of their common police-duties.

6. Penalty for offences under Act. Compensation to person aggrieved. Saving of his right to sue.—Every person, other than the persons appointed to collect the tolls under this Act, who shall levy or demand any toll on any public road or bridge, or for passing through any bazar situated thereon, and also every person who shall unlawfully and extortionately demand, or take any other or higher toll than the lawful toll, or under colour of this Act seize or sell any property knowing such seizure or sale to be to lawful, or in any manner unlawfully extort money or any valuable thing from any person under colour of this Act, shall be liable on conviction before a Magistrate to imprisonment for any term not exceeding six calendar months, or to fine not exceeding two hundred rupees, any part of which fine may be awarded by the Magistrate to the person aggrieved; but this remedy shall not be deemed to bar or affect his right to have redress by suit in the Civil Court ^{2***}.

7. Exhibition of table of tolls, and statement of penalties.—A table of the tolls authorized to be taken at any toll-gate or station shall be put up in a conspicuous place near such gate or station legibly

1. The words “of troops and military stores and equipages on their march or” rep. by Act 2 of 1901, s. 8 and the Schedule.

2. The words “of the Zillah” rep. by Act 12 of 1876, s. 1 and the Schedule, Part. I.

written or printed in English words and figures, and also in those of the vernacular language of the district, to which shall be annexed, written or printed in like manner, a statement of the penalties for refusing to pay the tolls and for taking any lawful toll.

8. Application of proceeds of tolls.—The tolls levied under this Act shall be deemed public revenue

[*SCHEDULE.*] *Rep. by the Devolution Act, 1920 (38 of 1920), s. 2 and the First Schedule.*

1. The words "but the net proceeds thereof shall be applied wholly to the construction, repair and maintenance roads and bridges within the presidency in which they are levied" omitted by the A.O. 1937.



TAMIL NADU GOVERNMENT GAZETTE

EXTRAORDINARY PUBLISHED BY AUTHORITY

No. 12]

CHENNAI, WEDNESDAY, JANUARY 5, 2022
Margazhi 21, Pilava, Thiruvalluvar Aandu-2052

Part II—Section 2

Notifications or Orders of interest to a Section of the public
issued by Secretariat Departments.

NOTIFICATIONS BY GOVERNMENT

HIGHWAYS AND MINOR PORTS DEPARTMENT

LEVY OF TOLLS ON MOTOR VEHICLES FOR COLLECTION OF 'USER FEE' FROM THE USER OF CHENNAI OUTER RING ROAD, PHASE-I AND II UNDER THE INDIAN TOLL ACT.

[G.O. Ms. No. 2, Highways and Minor Ports (HF2), 5th January 2022, மார்கழி 21, பிலவ, திருவள்ளுவர் ஆண்டு-2052.]

No. II(2)/HWMP/29(b-1)/2022.

In exercise of the powers conferred by Clause (c) of sub-section (1) and clause (c) of sub-section (2) of Section 2 of the Indian Toll Act, 1851 (Central Act VIII of 1851), the Governor of Tamil Nadu hereby levies tolls on motor vehicles, for the use of the Chennai Outer Ring Road connecting NH-32 (45) at Vandalur to Minjur in Thiruvotriyur - Ponneri - Pancheti (TPP Road) via NH-48 (4) at Nazarathpet, NH-716 (205) at Nemilicheri & NH-16 (5) at Padiyanallur from Km:0+000 to Km:60+150, maintained on a long term Concession basis under DBFOT mode by the Concessionaire and operated by the Tamil Nadu Road Development Company Limited at the rates specified in the Schedule to this Notification for the period commencing from the date of Notification till 31-03-2022.

THE SCHEDULE - 1

Between CH: 0+000 [NH-32 (45) at Vandalur] and CH: 19+650 [NH-48 (4) at Nazarathpet] and Vice Versa (Six Lane)

Toll Rate-Applicable Period	From the date of Notification to 31-03-2022					
	Vehicle Category	Fee for single journey	Fee for return Pass (Within a day 24 hrs)	Fee for Daily Pass (Multiple Trips) (Valid for 24 hrs)	Fee for 50 Trip Pass (Valid for 3 Months)	Monthly pass (30 days)
Car, Jeep, Van, Light Motor Vehicle & Motorized Three Wheelers		47	70	128	1555	2729
Light Commercial Vehicle, Light Goods Vehicle, Mini Bus		75	113	207	2512	4408
Truck / Bus (Two Axles)		158	237	434	5263	9236
Three Axle Commercial Vehicles		172	258	474	5741	10076

Toll Rate-Applicable Period	From the date of Notification to 31-03-2022				
	Fee for single journey	Fee for return Pass (Within a day 24 hrs)	Fee for Daily Pass (Multiple Trips) (Valid for 24 hrs)	Fee for 50 Trip Pass (Valid for 3 Months)	Monthly pass (30 days)
Heavy Construction Machinery (HCM) / Earth Moving Equipment (EME) or Multi Axle Vehicle (MAV) (4 to 6 Axles)	248	371	681	8253	14484
Over Sized Vehicles (7 or More Axles)	301	452	829	10047	17633

Length conversion has been made by converting the length of structures more than 60m length in to an equivalent length of Highway by multiplying the length of such structures by an equalization Factor of 10 & Tollable length-40.29 km.

Levy of Penalty

- (1) It is notified that, if a mechanical vehicle which is loaded in excess of permissible load specified for its category, shall be liable to pay fee for entering the overloaded vehicle to the Toll Plaza, equal to ten times of the fee applicable to such category of vehicle and shall not be entitled to make use of the highway section unless the excess load has been removed from such mechanical vehicle.
- (2) It is also notified that, if the user of vehicle not fitted with "FASTag" or vehicle without valid, functional, FASTag entering in to "FASTag lane" of the Toll plaza, shall pay a fee equivalent to two times of the fee applicable to that category of vehicles.

THE SCHEDULE - 2

Between CH: 0+000 [NH-32 (45) at Vandalur] and CH: 29+000 [NH-716 (205) at Nenilichery] and Vice Versa (Six Lane)

Toll Rate-Applicable Period	From the date of Notification to 31-03-2022				
	Fee for single journey	Fee for return Pass (Within a day 24 hrs)	Fee for Daily Pass (Multiple Trips) (Valid for 24 hrs)	Fee for 50 Trip Pass (Valid for 3 Months)	Monthly pass (30 days)
Car, Jeep, Van, Light Motor Vehicle & Motorized Three Wheelers	66	99	182	2208	3672
Light Commercial Vehicle, Light Goods Vehicle, Mini Bus	107	160	294	3564	6255
Truck / Bus (Two Axles)	224	336	616	7488	13108
Three Axle Commercial Vehicles	244	367	672	8147	14287
Heavy Construction Machinery (HCM) / Earth Moving Equipment (EME) or Multi Axle Vehicle (MAV) (4 to 6 Axles)	351	527	966	11711	20552
Over Sized Vehicles (7 or More Axles)	428	642	1176	14256	25020

Length conversion has been made by converting the length of structures more than 60 m length in to an equivalent length of Highway by multiplying the length of such structures by an equalization Factor of 10 & Tollable length -57.16 km.

Levy of Penalty

- (1) It is notified that, if a mechanical vehicle which is loaded in excess of permissible load specified for its category, shall be liable to pay fee for entering the overloaded vehicle to the Toll Plaza, equal to ten times of the fee applicable to such category of vehicle and shall not be entitled to make use of the highway section unless the excess load has been removed from such mechanical vehicle.
- (2) It is also notified that, if the user of vehicle not fitted with "FASTag" or vehicle without valid, functional, FASTag entering in to "FASTag lane" of the Toll plaza, shall pay a fee equivalent to two times of the fee applicable to that category of vehicles.

THE SCHEDULE - 3

Between CH: 0+000 [NH-32 (45) at Vandalur] and CH: 48+000 [NH-16 (5) at Padiyanallur] and Vice Versa (Six Lane)

Toll Rate-Applicable Period	From the date of Notification to 31-03-2022				
	Vehicle Category	Fee for single journey	Fee for return Pass (Within a day 24 hrs)	Fee for Daily Pass (Multiple Trips) (Valid for 24 hrs)	Fee for 50 Trip Pass (Valid for 3 Months)
Car, Jeep, Van, Light Motor Vehicle & Motorized Three Wheelers	91	137	251	3045	5345
Light Commercial Vehicle, Light Goods Vehicle, Mini Bus	148	221	406	4919	8634
Truck / Bus (Two Axles)	309	464	850	10307	18089
Three Axle Commercial Vehicles	337	506	928	11244	19734
Heavy Construction Machinery (HCM) / Earth Moving Equipment (EME) or Multi Axle Vehicle (MAV)(4 to 6 Axles)	485	727	1334	16164	28367
Over Sized Vehicles (7 or More Axles)	590	885	1623	19678	34534

Length conversion has been made by converting the length of structures more than 60 m length in to an equivalent length of Highway by multiplying the length of such structures by an equalization Factor of 10 & Tollable length – 78.90 Km.

Levy of Penalty

- (1) It is notified that, if a mechanical vehicle which is loaded in excess of permissible load specified for its category, shall be liable to pay fee for entering the overloaded vehicle to the Toll Plaza, **equal to ten times** of the fee applicable to such category of vehicle and shall not be entitled to make use of the highway section unless the excess load has been removed from such mechanical vehicle.
- (2) It is also notified that, if the user of vehicle not fitted with "FASTag" or vehicle without valid, functional, FASTag" entering in to "FASTag lane" of the Toll plaza, shall pay a fee **equivalent to two times** of the fee applicable to that category of vehicles.

THE SCHEDULE - 4

Between CH: 0+000 [NH-32 (45) at Vandalur] and CH: 60+150 (Minjur in Tpp Road) and Vice Versa (Six Lane)

Toll Rate-Applicable Period	From the date of Notification to 31-03-2022				
	Vehicle Category	Fee for single journey	Fee for return Pass (Within a day 24 hrs)	Fee for Daily Pass (Multiple Trips) (Valid for 24 hrs)	Fee for 50 Trip Pass (Valid for 3 Months)
Car, Jeep, Van, Light Motor Vehicle & Motorized Three Wheelers	109	163	299	3620	6352
Light Commercial Vehicle, Light Goods Vehicle, Mini Bus	175	263	482	5847	10261
Truck / Bus (Two Axles)	368	551	1011	12251	21500
Three Axle Commercial Vehicles	401	601	1103	13364	23455
Heavy Construction Machinery (HCM) / Earth Moving Equipment (EME) or Multi Axle Vehicle (MAV)(4 to 6 Axles)	576	865	1585	19211	33716
Over Sized Vehicles (7 or More Axles)	702	1052	1929	23388	41046

Length conversion has been made by converting the length of structures more than 60 m length in to an equivalent length of Highway by multiplying the length of such structures by an equalization Factor of 10 & Tollable length-93.78 Km.

Levy of Penalty

- (1) It is notified that, if a mechanical vehicle which is loaded in excess of permissible load specified for its category, shall be liable to pay fee for entering the overloaded vehicle to the Toll Plaza, equal to ten times of the fee applicable to such category of vehicle and shall not be entitled to make use of the highway section unless the excess load has been removed from such mechanical vehicle.
- (2) It is also notified that, if the user of vehicle not fitted with "FASTag" or vehicle without valid, functional, FASTag entering in to "FASTag lane" of the Toll plaza, shall pay a fee equivalent to two times of the fee applicable to that category of vehicles.

THE SCHEDULE - 5

Between CH: 19+650[NH-48 (4) at Nazarethpet] and CH:29+000[NH-716 (205) at Nemilichery] and Vice Versa(Six Lane)

Toll Rate-Applicable Period	From the date of Notification to 31-03-2022				
	Fee for single journey	Fee for return Pass (Within a day 24 hrs)	Fee for Daily Pass (Multiple Trips) (Valid for 24 hrs)	Fee for 50 Trip Pass (Valid for 3 Months)	Monthly pass (30 days)
Car, Jeep, Van, Light Motor Vehicle & Motorized Three Wheelers	20	29	54	651	1143
Light Commercial Vehicle, Light Goods Vehicle, Mini Bus	32	47	87	1052	1847
Truck / Bus (Two Axles)	68	99	182	2205	3889
Three Axle Commercial Vehicles	72	108	198	2405	4221
Heavy Construction Machinery (HCM) / Earth Moving Equipment (EME) or Multi Axle Vehicle (MAV) (4 to 6 Axles)	104	156	285	3457	6068
Over Sized Vehicles (7 or More Axles)	128	188	347	4209	7387

Length conversion has been made by converting the length of structures more than 60 m length in to an equivalent length of Highway by multiplying the length of such structures by an equalization Factor of 10 & Tollable length - 16.88 Km.

Levy of Penalty

- (1) It is notified that, if a mechanical vehicle which is loaded in excess of permissible load specified for its category, shall be liable to pay fee for entering the overloaded vehicle to the Toll Plaza, equal to ten times of the fee applicable to such category of vehicle and shall not be entitled to make use of the highway section unless the excess load has been removed from such mechanical vehicle.
- (2) It is also notified that, if the user of vehicle not fitted with "FASTag" or vehicle without valid, functional, FASTag entering in to "FASTag lane" of the Toll plaza, shall pay a fee equivalent to two times of the fee applicable to that category of vehicles.

THE SCHEDULE - 6

Between CH: 19+650 [NH-48 (4) at Nazarethpet] and Ch: 48+000 [NH-16 (5) at Padiyanallur] and Vice Versa (Six Lane)

Toll Rate - Applicable Period	From the date of Notification to 31-03-2022				
	Fee for single journey	Fee for return Pass (Within a day 24 hrs)	Fee for Daily Pass (Multiple Trips) (Valid for 24 hrs)	Fee for 50 Trip Pass (Valid for 3 Months)	Monthly pass (30 days)
Car, Jeep, Van, Light Motor Vehicle & Motorized Three Wheelers	45	67	123	1490	2616
Light Commercial Vehicle, Light Goods Vehicle, Mini Bus	72	108	199	2408	4225
Truck / Bus (Two Axles)	151	227	416	5044	8853
Three Axle Commercial Vehicles	185	248	454	5503	9658
Heavy Construction Machinery (HCM) / Earth Moving Equipment (EME) or Multi Axle Vehicle (MAV) (4 to 6 Axles)	237	356	653	7910	13883
Over Sized Vehicles (7 or More Axles)	289	433	794	9630	16901

Length conversion has been made by converting the length of structures more than 60 m length in to an equivalent length of Highway by multiplying the length of such structures by an equalization Factor of 10 & Tollable length - 38.61 Km.

Levy of Penalty

- (i) It is notified that, if a mechanical vehicle which is loaded in excess of permissible load specified for its category, shall be liable to pay fee for entering the overloaded vehicle to the Toll Plaza, **equal to ten times** of the fee applicable to such category of vehicle and shall not be entitled to make use of the highway section unless the excess load has been removed from such mechanical vehicle.
- (ii) It is also notified that, if the user of vehicle not fitted with "FASTag" or vehicle without valid, functional, FASTag entering in to "FASTag lane" of the Toll plaza, shall pay a fee **equivalent to two times** of the fee applicable to that category of vehicles.

THE SCHEDULE - 7

Between Ch: 19+650 (NH-48 (4) at Nazarethpet) and CH: 60+150 [Minjur in TPP Road] and Vice Versa (Six Lane)

Toll Rate-Applicable Period	From the date of Notification to 31-03-2022				
	Fee for single journey	Fee for return Pass (Within a day 24 hrs)	Fee for Daily Pass (Multiple Trips) (Valid for 24 hrs)	Fee for 50 Trip Pass (Valid for 3 Months)	Monthly pass (30 days)
Car, Jeep, Van, Light Motor Vehicle & Motorized Three Wheelers	62	93	170	2065	3623
Light Commercial Vehicle, Light Goods Vehicle, Mini Bus	100	150	275	3335	5853
Truck / Bus (Two Axles)	210	314	576	6988	12264
Three Axle Commercial Vehicles	229	343	629	7623	13379
Heavy Construction Machinery (HCM) / Earth Moving Equipment (EME) or Multi Axle Vehicle (MAV) (4 to 6 Axles)	329	493	904	10958	19232
Over Sized Vehicles (7 or More Axles)	400	600	1101	13340	23412

Length conversion has been made by converting the length of structures more than 60 m length in to an equivalent length of Highway by multiplying the length of such structures by an equalization Factor of 10 & Tollable length - 53.49 Km.

Levy of Penalty

- (1) It is notified that, if a mechanical vehicle which is loaded in excess of permissible load specified for its category, shall be liable to pay fee for entering the overloaded vehicle to the Toll Plaza, equal to ten times of the fee applicable to such category of vehicle and shall not be entitled to make use of the highway section unless the excess load has been removed from such mechanical vehicle.
- (2) It is also notified that, if the user of vehicle not fitted with "FASTag" or vehicle without valid, functional, FASTag entering in to "FASTag lane" of the Toll plaza, shall pay a fee equivalent to two times of the fee applicable to that category of vehicles.

THE SCHEDULE - 8

Between CH: 29+000 [NH-716 (205) at Nemilichery] and CH: 49+000 [NH-16 (5) at Padiyanallur] and Vice Versa (Six Lane)

Toll Rate-Applicable Period	From the date of Notification to 31-03-2022				
	Vehicle Category	Fee for single journey	Fee for return Pass (Within a day 24 hrs)	Fee for Daily Pass (Multiple Trips) (Valid for 24 hrs)	Fee for 50 Trip Pass (Valid for 3 Months)
Car, Jeep, Van, Light Motor Vehicle & Motorized Three Wheelers	25	38	69	839	1472
Light Commercial Vehicle, Light Goods Vehicle, Mini Bus	41	61	112	1355	2379
Truck / Bus (Two Axles)	85	128	234	2840	4984
Three Axle Commercial Vehicles	93	139	256	3098	5437
Heavy Construction Machinery (HCM) / Earth Moving Equipment (EME) or Multi Axle Vehicle (MAV) (4 to 6 Axles)	134	200	367	4453	7815
Over Sized Vehicles (7 or More Axles)	163	244	447	5421	9514

Length conversion has been made by converting the length of structures more than 60 m length in to an equivalent length of Highway by multiplying the length of such structures by an equalization Factor of 10 & Tollable length - 21.74 Km.

Levy of Penalty

- (1) It is notified that, if a mechanical vehicle which is loaded in excess of permissible load specified for its category, shall be liable to pay fee for entering the overloaded vehicle to the Toll Plaza, equal to ten times of the fee applicable to such category of vehicle and shall not be entitled to make use of the highway section unless the excess load has been removed from such mechanical vehicle.
- (2) It is also notified that, if the user of vehicle not fitted with "FASTag" or vehicle without valid, functional, FASTag entering in to "FASTag lane" of the Toll plaza, shall pay a fee equivalent to two times of the fee applicable to that category of vehicles.

THE SCHEDULE - 9

Between CH: 29+000 [NH-716 (205) at Nemilichery] and CH: 60+150 (Minjur in Tpp Road) and Vice Versa (Six Lane)

Toll Rate-Applicable Period	From the date of Notification to 31-03-2022				
	Vehicle Category	Fee for single journey	Fee for return Pass (Within a day 24 hrs)	Fee for Daily Pass (Multiple Trips) (Valid for 24 hrs)	Fee for 50 Trip Pass (Valid for 3 Months)
Car, Jeep, Van, Light Motor Vehicle & Motorized Three Wheelers	42	64	117	1413	2480
Light Commercial Vehicle, Light Goods Vehicle, Mini Bus	68	103	188	2283	4006
Truck / Bus (Two Axles)	143	215	395	4783	8394
Three Axle Commercial Vehicles	157	235	430	5218	9157
Heavy Construction Machinery (HCM) / Earth Moving Equipment (EME) or Multi Axle Vehicle (MAV) (4 to 6 Axles)	225	338	619	7501	13164
Over Sized Vehicles (7 or More Axles)	274	411	753	9131	16026

Length conversion has been made by converting the length of structures more than 60 m length in to an equivalent length of Highway by multiplying the length of such structures by an equalization Factor of 10 & Tollable length – 38.81 Km.

Levy of Penalty

- (1) It is notified that, if a mechanical vehicle which is loaded in excess of permissible load specified for its category, shall be liable to pay fee for entering the overloaded vehicle to the Toll Plaza, **equal to ten times** of the fee applicable to such category of vehicle and shall not be entitled to make use of the highway section unless the excess load has been removed from such mechanical vehicle.
- (2) It is also notified that, if the user of vehicle not fitted with "FASTag" or vehicle without valid, functional, FASTag entering in to "FASTag lane" of the Toll plaza, shall pay a fee **equivalent to two times** of the fee applicable to that category of vehicles.

THE SCHEDULE - 10

Between CH: 48+000 [NH-16 (5) at Padiyanallur] and CH: 60+150 (Minjur in TPP Road) and Vice Versa (Six Lane)

Toll Rate-Applicable Period	From the date of Notification to 31-03-2022				
	Vehicle Category	Fee for single journey	Fee for return Pass (Within a day 24 hrs)	Fee for Daily Pass (Multiple Trips) (Valid for 24 hrs)	Fee for 50 Trip Pass (Valid for 3 Months)
Car, Jeep, Van, Light Motor Vehicle & Motorized Three Wheelers	17	26	47	574	1008
Light Commercial Vehicle, Light Goods Vehicle, Mini Bus	28	42	77	928	1628
Truck / Bus (Two Axles)	58	87	160	1943	3411
Three Axle Commercial Vehicles	64	95	175	2120	3721
Heavy Construction Machinery (HCM) / Earth Moving Equipment (EME) or Multi Axle Vehicle (MAV) (4 to 6 Axles)	91	137	251	3048	5349
Over Sized Vehicles (7 or More Axles)	111	167	306	3710	6511

Length conversion has been made by converting the length of structures more than 60 m length in to an equivalent length of Highway by multiplying the length of such structures by an equalization Factor of 10 & Tollable length – 14.88 Km.

Levy of Penalty

- (1) It is notified that, if a mechanical vehicle which is loaded in excess of permissible load specified for its category, shall be liable to pay fee for entering the overloaded vehicle to the Toll Plaza, **equal to ten times** of the fee applicable to such category of vehicle and shall not be entitled to make use of the highway section unless the excess load has been removed from such mechanical vehicle.
- (2) It is also notified that, if the user of vehicle not fitted with "FASTag" or vehicle without valid, functional, FASTag entering in to "FASTag lane" of the Toll plaza, shall pay a fee **equivalent to two times** of the fee applicable to that category of vehicles.

NOTIFICATION-II

[G.O. Ms. No. 2, Highways and Minor Ports (HF2), 5th January 2022,
[செப்டம்பர் 21, 2020, திருவள்ளூர் ஆணை-2022.]

No. III(2)/HWMP/29(b-2)/2022.

In exercise of the powers conferred by Clause (b) of Section 4 of the Indian Toll Act, 1851 (Central Act VIII of 1851), the Governor of Tamil Nadu hereby exempts from levy of tolls for the passage of following mechanical vehicle on the section of the Chennai Outer Ring Road connecting NH-32 (45) at Vandalur to Minjur in Thiruvotriyur – Panneri – Pancheti (TPP Road) via NH-48 (4) at Nazarethpet, NH-716 (205) at Nemilicheri & NH-16 (5) at Padiyanallur from Km:0+000 to Km: 60+150, maintained on a long term Concession basis under DBFOT mode by the Concessionaire and operated by the Tamil Nadu Road Development Company Limited during the period commencing from the date of Notification till 31-03-2022.

(a) Official vehicles transporting and accompanying,-

- (i) the President of India;
- (ii) the Vice-President of India;
- (iii) the Prime-Minister of India;
- (iv) the Governor of a State;
- (v) the Chief Justice of India;
- (vi) the Speaker of the House of People;
- (vii) the Cabinet Minister of the Union;
- (viii) the Chief Minister of a State;
- (ix) the Judge of the Supreme Court;
- (x) the Minister of State of the Union;
- (xi) the Lieutenant Governor of Union territory;
- (xii) the Chief of Staff holding the rank of full General or equivalent rank;
- (xiii) the Chairman of the Legislative Council of a State;
- (xiv) the Speaker of the Legislative Assembly of the State;
- (xv) the Chief Justice of High Court;
- (xvi) the Judge of a High Court;
- (xvii) the Member of Parliament;
- (xviii) the Army Commander or Vice-Chief of Army Staff and equivalent in other services;
- (xix) the Chief Secretary to a State Government within concerned State;
- (xx) the Secretary to the Government of India;
- (xxi) the Secretary, Council of States;
- (xxii) the Secretary, House of People;
- (xxiii) the Foreign dignitary on State visit;
- (xxiv) the Member of Legislative Assembly of a State and the Member of Legislative Council of a State within their respective State, if he or she produces his or her identity card issued by the Concerned Legislature of the State;
- (xxv) the awardee of Param Vir Chakra, Ashok Chakra, Maha Vir Chakra, Kirti Chakra, Vir Chakra and Shaurya Chakra, if such awardee produces his or her photo identity card duly authenticated by the appropriate or competent authority for such award;

(b) Used for official purposes by:-

- (i) the Ministry of Defence including (Army, Air force & Navy);
 - (ii) the Central and State armed forces in uniform including para military forces and police;
 - (iii) an executive Magistrate;
 - (iv) a fire-fighting department or organization and
 - (v) the National Highway Authority of India or any other Government organisation using such vehicle for inspection, survey, construction or operation of national highways and maintenance thereof;
- (c) used as ambulance and
- (d) used as funeral vehicle.

DHEERAJ KUMAR,
Principal Secretary to Government.

PRINTED AND PUBLISHED BY THE COMMISSIONER OF STATIONERY AND PRINTING, CHENNAI
ON BEHALF OF THE GOVERNMENT OF TAMIL NADU

IN PRINCIPAL APPROVAL FOR TOT OF CHENNAI OUTER RING ROAD (PHASE I & II)

GO - NOV 22



ABSTRACT

Chennai Outer Ring Road-In-Principal approval for the Toll Operate Transfer (TOT) Policy and constitution of Committee to approve the stretches for Toll Operate Transfer, Estimated concession value, Proposed Concession period and financial proposal of Toll Operate Transfer Concessionaire / Bidder - Accorded - Orders - Issued.

Highways and Minor Ports (HF2) Department

G.O. (Ms.) No.226

Dated: 29.11.2022

சுபகிருது - கார்த்திகை -13
திருவள்ளூர்வாராண்டு - 2053

Read:

1. G.O. (Ms.) No.52, Highways and Minor Ports (HF2) Department, dated 11.07.2017.
2. From the Managing Director, Tamil Nadu Road Development Company Ltd. Letter No. TNRDC/CORR/787/2022, dated 30.08.2022.
3. From the Managing Director, Tamil Nadu Road Development Company Ltd. Letter No. TNRDC / 1007 / 2022, dated 18.10.2022.

ORDER:-

In the Government Order first read above, the Government have issued following orders:-

- (i) Declare the Chennai Outer Ring Road as Toll Road.
- (ii) Permit Tamil Nadu Road Development Company Limited to develop / install Toll Plazas at the following locations of Chennai Outer Ring Road Phase-I & Phase-II for collection of User Fee from the Road Users in accordance with National Highways Fee (Determination of Rates and Collection) Rules, 2008.

(1)	Segment NH-45 to NH-4	:	At Chainage 6+000 in Varadarajapuram Village for the section of project road from Vandalur (0+000) to Nazarthpet (19+650).
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(2)	Segment NH-4 to NH-205	:	At Chainage 21+800 in Kolappancheri Village for the section of project road from Varadarajapuram (19+650) to Nemilichery (29+650).
(3)	Segment NH-205 to NH-5	:	At Chainage 1+200 in Palavedu Village for the section of project road from Nemilichery (0+000) to Padiyanallur (18+350).
(4)	Segment NH-5 to Minjur	:	At Chainage 27+150 in Chinamullaivoyal Village for the section of project road from Padiyanallur (18+350) to Minjur (30+500).

- (iii) Appoint Tamil Nadu Road Development Company Limited as an Agency of the Government for the collection of "User Fee" in respect of Chennai Outer Ring Road Project Phase-I & Phase-II under clause (f) of Section 16 of the Tamil Nadu Transparency in Tenders Act, 1998.

2. A meeting was conducted on 27.07.2022 under the Chairmanship of Additional Chief Secretary, Finance Department for monetization of road assets. During the meeting, it was decided to implement the following:-

- (a) The Outer Ring Road can be considered for monetization through auction method as a first step.
- (b) Vandalur - Wallajabad road and Singaperumalkoil - Sjperumbudur Road may also be considered for monetization through the auction method.
- (c) The Infrastructure Investment Trust process can be initiated and the assets to be monetized through Infrastructure Investment Trust may be identified. Other roads totalling above Rs.500 crore with potential of revenue generation can be considered for Infrastructure Investment Trust route in the first stage.
- (d) Tamil Nadu Road Development Company Limited to drive the transaction advisory process for monetization of Outer Ring Road with funding support from Tamil Nadu Infrastructure Development Board.

3. In the letter second read above, the Managing Director, Tamil Nadu Road Development Company Limited has requested the approval of the Government for implementation of Toll Operate Transfer (TOT) policy in respect of Chennai Outer Ring Road (CORR).

4. In the letter third read above, the Managing Director, Tamil Nadu Road Development Company Limited has furnished the details of Chennai Outer Ring Road (SH-234) as follows:-

Chennai Outer Ring Road (SH-234)

Length of the Road	-	60.15 Km.
Configuration of the road	-	Dual 3 lane Main Carriageway with service road and footpath on either side.
Right of Way (RoW)	-	72.0m
No. of Toll Plazas	-	4 Nos
Location of Toll Plaza	-	Ch: 6+000-Varadharajapuram Village. Ch: 21+800-Kolapancheri Village. Ch: 1+200 - Palavedu Village. Ch: 27+150-Chinnamullaivoyal Village.
Present Condition	-	Fully completed and presently used by the public.
Mode of Execution	-	BOT (Annuity Basis)
Any Traffic Study	-	In progress
Status of toll	-	Tolling commenced on 19.01.2022.
Current Toll Revenue	-	Average collection is Rs.37 Lakhs per day from all the four toll plazas.

Accordingly, toll is being collected since 19.01.2022.

5. The Managing Director, Tamil Nadu Road Development Company Limited has also stated that in the meeting held on 27.07.2022 under the Chairmanship of Additional Chief Secretary to Government, Finance Department, it has been decided to invoke Toll Operate Transfer (TOT) system in the above Chennai Outer Ring Road so as to avail upfront NPV from the prospective Concessionaire.

6. The Managing Director, Tamil Nadu Road Development Company Limited has further stated that as this is a first of its kind, specific approval of the Government of Tamil Nadu is required for monetization of toll revenue, i.e. Toll Operate Transfer (TOT) policy in general for raising finance against toll receipt from the identified public funded project through securitization.

7. The Managing Director, Tamil Nadu Road Development Company Limited has therefore requested the Government to issue orders for the following:-

- (i) To approve the Toll Operate Transfer (TOT) policy in general and approval to adopt the same for Chennai Outer Ring Road.
- (ii) To appoint TNRDC as Managing Associate / Nodal Agency for managing Toll Operate Transfer works.
- (iii) To authorize the TNRDC to fix the Concession period between 10 to 20 years depending on project features.
- (iv) To constitute a Committee empowering the approval of the proposed stretches in Toll Operate Transfer (either single or bundle), its Estimated Concession value (upfront NPV) and proposed Concession period and final approval for the financial proposal of Toll Operate Transfer Concessionaire / Bidder.

8. The Government, after careful examination of the proposal of the Managing Director, Tamil Nadu Road Development Company Limited, issue the following orders:-

- (i) Accord in-principal approval for the Toll Operate Transfer (TOT) policy and to adopt the same for Chennai Outer Ring Road.
- (ii) Appoint Tamil Nadu Road Development Company Limited as Managing Associate / Nodal Agency for managing all Toll Operate Transfer projects in future.
- (iii) Authorize Tamil Nadu Road Development Company Limited to fix the concession period between 10 to 20 years depending on the project features.
- (iv) Constitute a Committee to approve the proposed stretches in Toll Operate Transfer (either single or bundle), its Estimated Concession value (upfront NPV) and proposed Concession period and financial proposal of Toll Operate Transfer Concessionaire / Bidder with the following composition:-

(i)	Additional Chief Secretary to Government, Finance Department.	-	Chairman
(ii)	Principal Secretary to Government, Highways and Minor Ports Department.	-	Member
(iii)	Additional Secretary to Government, Finance Department.	-	Member
(iv)	Managing Director, TNRDC	-	Convener

9. The Government direct that the Managing Director, Tamil Nadu Road Development Company Limited, upon completion of bidding for Outer Ring Road, shall obtain Administrative Sanction from Government for signing of the agreement.

(By Order of the Governor)

Pradeep Yadav
Principal Secretary to Government

To
The Managing Director,
Tamil Nadu Road Development Company Ltd., Chennai-28.
The Chief Engineer (Construction and Maintenance),
Highways Department, Chennai-25.
The Accountant General, Chennai - 18 / 35.
The Additional Chief Secretary to Government,
Finance Department, Chennai - 9.

Copy to:

O/o. the Hon'ble Chief Minister, Chennai-9.
The Special Personal Assistant to Hon'ble Minister,
(Public Works - Buildings, HW & MP), Chennai-9.
The Finance (PW-I) Department, Chennai-9.
The Private Secretary to Principal Secretary to Government,
Highways and Minor Ports Department, Secretariat, Chennai-9.
The Chief Executive Officer,
Tamil Nadu Infrastructure Development Board, Chennai - 9.
(C.No.10579 / HF2 / 2022)
SF / SC

// Forwarded By Order //

Pradeep Yadav
29/11/2022
SECTION OFFICER

SCHEDULE – N

(See Clause 23A.1)

ESCROW AGREEMENT

THIS ESCROW AGREEMENT is entered into on this the *** day of *** 20**.

AMONGST

- 1 _____, a company incorporated under the provisions of the Companies Act, 1956 and having its registered _____(hereinafter referred to as the “**Concessionaire**” which expression shall, unless repugnant to the context or meaning thereof, include its successors, permitted assigns and substitutes);
- 2 ****[name and particulars of Lenders’ Representative] and having its registered office at *** acting for and on behalf of the Senior Lenders as their duly authorised agent with regard to matters arising out of or in relation to this Agreement (hereinafter referred to as the “**Lenders’ Representative**” which expression shall, unless repugnant to the context or meaning thereof, include its successors and substitutes);
- 3 ****[name and particulars of the Escrow Bank] and having its registered office at ****(hereinafter referred to as the “**Escrow Bank**” which expression shall, unless repugnant to the context or meaning thereof, include its successors and substitutes); and
- 4 Governor of TamilNadu, represented by Principal Secretary, Highways and Minor Ports Department and having its principal office at Secretariat, Fort St.George, Chennai 600 009 (hereinafter referred to as the “**Authority**” which expression shall unless repugnant to the context or meaning thereof include its administrators, successors and assigns);

WHEREAS:

- (A) Authority has entered into a Concession Agreement dated _____ with the Concessionaire (the “**Concession Agreement**”) for Six lane Chennai Outer Ring Road (CORR) for Phase-I i.e. Vandalur to Nemilichery (29.65 km) and Phase-II i.e. Nemilichery to Minjur in TPP Road (30.50 Km), for a total length of 60.15 Km. and a copy of which is annexed hereto and marked as Annex-A to form part of this Agreement
- (B) The Senior Lenders namely***** and ***** have agreed to finance the Project in accordance with the terms and conditions set forth in the financing agreement. The Senior Lenders are appointed ***** as Lenders Representative as their duly authorised agent with regard to matters relating to the Financial Agreements.
- (C) The Concession Agreement requires the Concessionaire to establish an Escrow Account, inter alia, on the terms and conditions stated in the Escrow Agreement..

NOW IT IS HEREBY AGREED as follows:

1 DEFINITIONS AND INTERPRETATION

1.1 Definitions

In this Agreement, the following words and expressions shall, unless repugnant to the context or

meaning thereof, have the meaning hereinafter respectively assigned to them:

“**Agreement**” means this Escrow Agreement and any amendment thereto made in accordance with the provisions contained herein;

“**Concession Agreement**” means the Concession Agreement referred to in Recital (A) above and annexed hereto as Annex-A, and shall include all of its Recitals and Schedules and any amendments made thereto in accordance with the provisions contained in this behalf therein;

“**Cure Period**” means the period specified in this Agreement for curing any breach or default of any provision of this Agreement by the Concessionaire, and shall commence from the date on which a notice is delivered by the Authority or the Lenders’ Representative, as the case may be, to the Concessionaire asking the latter to cure the breach or default specified in such notice;

“**Escrow Account**” means an escrow account established in terms of and under this Agreement, and shall include the Sub-Accounts;

“**Escrow Default**” shall have the meaning ascribed thereto in Clause 6.1;

“**Lenders’ Representative**” means the person referred to as the Lenders’ Representative in the foregoing Recitals;

“**Parties**” means the parties to this Agreement collectively and “**Party**” shall mean any of the Parties to this Agreement individually;

“**Payment Date**” means, in relation to any payment specified in Clause 4.1, the date(s) specified for such payment; and

“**Sub-Accounts**” means the respective Sub-Accounts of the Escrow Account, into which the monies specified in Clause 4.1 would be credited every month and paid out if due, and if not due in a month then appropriated proportionately in such month and retained in the respective Sub Accounts and paid out therefrom on the Payment Date(s).

1.2 Interpretation

1.2.1 References to Lenders’ Representative shall, unless repugnant to the context or meaning thereof, mean references to the Lenders’ Representative, acting for and on behalf of Senior Lenders.

1.2.2 The words and expressions beginning with capital letters and defined in this Agreement shall have the meaning ascribed thereto herein, and the words and expressions used in this Agreement and not defined herein but defined in the Concession Agreement shall, unless repugnant to the context, have the meaning ascribed thereto in the Concession Agreement.

1.2.3 References to Clauses are, unless stated otherwise, references to Clauses of this Agreement.

1.2.4 The rules of interpretation stated in Clauses 1.2, 1.3 and 1.4 of the Concession Agreement shall apply, *mutatis mutandis*, to this Agreement.

2 ESCROW ACCOUNT

2.1 Escrow Bank to act as trustee

2.1.1 The Concessionaire hereby appoints the Escrow Bank to act as trustee for the Authority , the Lenders’ Representative and the Concessionaire in connection herewith and authorises the Escrow Bank to exercise such rights, powers, authorities and discretion as are specifically

delegated to the Escrow Bank by the terms hereof together with all such rights, powers, authorities and discretion as are reasonably incidental hereto, and the Escrow Bank accepts such appointment pursuant to the terms hereof.

- 2.1.2 The Concessionaire hereby declares that all rights, title and interest in and to the Escrow Account shall be vested in the Escrow Bank and held in trust for the Authority , the Lenders' Representative and the Concessionaire, and applied in accordance with the terms of this Agreement. No person other than the Authority , the Lenders' Representative and the Concessionaire shall have any rights hereunder as the beneficiaries of, or as third party beneficiaries under this Agreement.

2.2 Acceptance of Escrow Bank

The Escrow Bank hereby agrees to act as such and to accept all payments and other amounts to be delivered to and held by the Escrow Bank pursuant to the provisions of this Agreement. The Escrow Bank shall hold and safeguard the Escrow Account during the term of this Agreement and shall treat the amount in the Escrow Account as monies deposited by the Concessionaire, Senior Lenders or the Authority with the Escrow Bank. In performing its functions and duties under this Agreement, the Escrow Bank shall act in trust for the benefit of, and as agent for, the Authority , the Lenders' Representative and the Concessionaire or their nominees, successors or assigns, in accordance with the provisions of this Agreement.

2.3 Establishment and operation of Escrow Account

- 2.3.1 Within 30 (thirty) days from the date of this Agreement, and in any case prior to the Appointed Date, the Concessionaire shall open and establish the Escrow Account with the **** (name of Branch) Branch of the Escrow Bank. The Escrow Account shall be denominated in Rupees.
- 2.3.2 The Escrow Bank shall maintain the Escrow Account in accordance with the terms of this Agreement and its usual practices and applicable regulations, and pay the maximum rate of interest payable to similar customers on the balance in the said account from time to time.
- 2.3.3 The Escrow Bank and the Concessionaire shall, after consultation with the Lenders' Representative, agree on the detailed mandates, terms and conditions, and operating procedures for the Escrow Account, but in the event of any conflict or inconsistency between this Agreement and such mandates, terms and conditions, or procedures, this Agreement shall prevail.

2.4 Escrow Bank's fee

The Escrow Bank shall be entitled to receive its fee and expenses in an amount, and at such times, as may be agreed between the Escrow Bank and the Concessionaire. For the avoidance of doubt, such fee and expenses shall form part of the O&M Expenses and shall be appropriated from the Escrow Account in accordance with Clause 4.1.

2.5 Rights of the parties

The rights of the Authority, the Lenders' Representative and the Concessionaire in the monies held in the Escrow Account are set forth in their entirety in this Agreement and the Authority, the Lenders' Representative and the Concessionaire shall have no other rights against or to the monies in the Escrow Account.

2.6 Substitution of the Concessionaire

The Parties hereto acknowledge and agree that upon substitution of the Concessionaire with the

Nominated Company, pursuant to the Substitution Agreement, it shall be deemed for the purposes of this Agreement that the Nominated Company is a Party hereto and the Nominated Company shall accordingly be deemed to have succeeded to the rights and obligations of the Concessionaire under this Agreement on and with effect from the date of substitution of the Concessionaire with the Nominated Company.

3 DEPOSITS INTO ESCROW ACCOUNT

3.1 Deposits by the Concessionaire

3.1.1 The Concessionaire agrees and undertakes that it shall deposit into and/or credit the Escrow Account with: (a) all funds constituting the Financial Package; (b) all Fee and any other revenues from or in respect of the Project Highway, including the proceeds of any rentals, deposits, capital receipts or insurance claims.

3.1.2 The Concessionaire may at any time make deposits of its other funds into the Escrow Account, provided that the provisions of this Agreement shall apply to such deposits.

3.2 Deposits by the Authority

The Authority agrees and undertakes that, as and when due and payable, it shall deposit into and/or credit the Escrow Account with:

(a) all payments by the Authority including, if any, in relation to the change of scope in the Project; and

(b) the Termination Payments..

3.3 Interest on deposits

The Escrow Bank agrees and undertakes that all interest accruing on the balances of the Escrow Account shall be credited to the Escrow Account; provided that the Escrow Bank shall be entitled to appropriate therefrom the fee and expenses due to it from the Concessionaire in relation to the Escrow Account and credit the balance remaining to the Escrow Account.

4 WITHDRAWALS FROM ESCROW ACCOUNT

4.1 Withdrawals during Concession Period

4.1.1 At the beginning of every month, or at such shorter intervals as the Concessionaire may by written instructions determine, the Escrow Bank shall withdraw amounts from the Escrow Account and appropriate them in the following order by depositing such amounts in the relevant Sub-Accounts for making due payments, and if such payments are not due in any month, then retain such monies in such Sub-Accounts and pay out therefrom on the Payment Date(s):

(a) all taxes due and payable by the Concessionaire for and in respect of the Project Highway;

(b) all payments relating to construction of the Project Highway, subject to and in accordance with the conditions, if any, set forth in the Financing Agreements;

(c) O&M Expenses, subject to and in accordance with the conditions, if any, set forth in the Financing Agreements;

(d) O&M Expenses and other costs and expenses incurred by the Authority in accordance with the provisions of this Agreement, and certified by the Authority as due and payable to it;

- (e) monthly proportionate provision of debt service payment due in an Accounting Year;
- (f) all payments and Damages certified by the Authority as due and payable to it by the Concessionaire pursuant to the Concession Agreement; and
- (g) balance, if any, in accordance with the instructions of the Concessionaire.

4.1.2 No later than 60 (sixty) days prior to the commencement of each Accounting Year, the Concessionaire shall provide to the Escrow Bank, details of the amounts likely to be required for each of the payment obligations set forth in this Clause 4.1; provided that such amounts may be subsequently modified, with prior written approval of the Authority, if fresh information received during the course of the year makes such modification necessary.

4.2 Withdrawals upon Termination

Upon Termination of the Concession Agreement, all amounts standing to the credit of the Escrow Account shall, notwithstanding anything in this Agreement, be appropriated and dealt with in the following order:

- (a) all taxes due and payable by the Concessionaire for and in respect of the Project Highway;
- (b) payment due to Senior Lenders;
- (c) all payments and Damages certified by the Authority as due and payable to it by the Concessionaire;
- (d) retention and payments relating to the liability for defects and deficiencies set forth in Article 32;
- (e) incurred or accrued O&M Expenses;
- (f) any other payments required to be made under this Agreement; and
- (g) balance, if any, in accordance with the instructions of the Concessionaire. Provided that the disbursements specified in Sub-clause (g) of this Clause 4.2 shall be undertaken only after the Vesting Certificate has been issued by the Authority.

4.3 Application of insufficient funds

Funds in the Escrow Account shall be applied in the serial order of priority set forth in Clauses 4.1 and 4.2, as the case may be. If the funds available are not sufficient to meet all the requirements, the Escrow Bank shall apply such funds in the serial order of priority until exhaustion thereof.

4.4 Application of insurance proceeds

Notwithstanding anything in this Agreement, the proceeds from all insurance claims, except life and injury, shall be deposited into and/or credited to the Escrow Account and utilised for any necessary repair, reconstruction, reinstatement, replacement, improvement, delivery or installation of the Project Highway, and the balance remaining, if any, shall be applied in

accordance with the provisions contained in this behalf in this Agreement.

4.5 Withdrawals during Suspension

Notwithstanding anything to the contrary contained in this Agreement, the Authority may exercise all or any of the rights of the Concessionaire during the period of Suspension under Article 29 of the Concession Agreement. Any instructions given by the Authority to the Escrow Bank during such period shall be complied with as if such instructions were given by the Concessionaire under this Agreement and all actions of the Authority hereunder shall be deemed to have been taken for and on behalf of the Concessionaire.

5 OBLIGATIONS OF THE ESCROW BANK

5.1 Segregation of funds

Monies and other property received by the Escrow Bank under this Agreement shall, until used or applied in accordance with this Agreement, be held by the Escrow Bank in trust for the purposes for which they were received, and shall be segregated from other funds and property of the Escrow Bank.

5.2 Notification of balances

7 (seven) business days prior to each Payment Date (and for this purpose the Escrow Bank shall be entitled to rely on an affirmation by the Concessionaire and/or the Lenders' Representative as to the relevant Payment Dates), the Escrow Bank shall notify the Lenders' Representative of the balances in the Escrow Account and Sub-Accounts as at the close of business on the immediately preceding business day.

5.3 Communications and notices

In discharge of its duties and obligations hereunder, the Escrow Bank:

- (a) may, in the absence of bad faith or gross negligence on its part, rely as to any matters of fact which might reasonably be expected to be within the knowledge of the Concessionaire upon a certificate signed by or on behalf of the Concessionaire;
- (b) may, in the absence of bad faith or gross negligence on its part, rely upon the authenticity of any communication or document believed by it to be authentic;
- (c) shall, within 5 (five) business days after receipt, deliver a copy to the Authority/ Lenders' Representative of any notice or document received by it in its capacity as the Escrow Bank from the Concessionaire or any other person hereunder or in connection herewith; and
- (d) shall, within 5 (five) business days after receipt, deliver a copy to the Concessionaire of any notice or document received by it from the Authority/ Lenders' Representative in connection herewith.

5.4 No set off

The Escrow Bank agrees not to claim or exercise any right of set off, banker's lien or other right or remedy with respect to amounts standing to the credit of the Escrow Account. For the avoidance of doubt, it is hereby acknowledged and agreed by the Escrow Bank that the monies and properties held by the Escrow Bank in the Escrow Account shall not be considered as part of the assets of the Escrow Bank and being trust property, shall in the case of bankruptcy or

liquidation of the Escrow Bank, be wholly excluded from the assets of the Escrow Bank in such bankruptcy or liquidation.

5.5 Regulatory approvals

The Escrow Bank shall use its best efforts to procure, and thereafter maintain and comply with, all regulatory approvals required for it to establish and operate the Escrow Account. The Escrow Bank represents and warrants that it is not aware of any reason why such regulatory approvals will not ordinarily be granted to the Escrow Bank.

6 ESCROW DEFAULT

6.1 Escrow Default

6.1.1 Following events shall constitute an event of default by the Concessionaire (an“Escrow Default”) unless such event of default has occurred as a result of Force Majeure or any act or omission of the Authority or the Lenders’ Representative:

- (a) the Concessionaire commits breach of this Agreement by failing to deposit any receipts into the Escrow Account as provided herein and fails to cure such breach by depositing the same into the Escrow Account within a Cure Period of 5 (five) business days;
- (b) the Concessionaire causes the Escrow Bank to transfer funds to any account of the Concessionaire in breach of the terms of this Agreement and fails to cure such breach by depositing the relevant funds into the Escrow Account or any Sub-Account in which such transfer should have been made, within a Cure Period of 5 (five) business days; or
- (c) the Concessionaire commits or causes any other breach of the provisions of this Agreement and fails to cure the same within a Cure Period of 5 (five) business days.

6.1.2 Upon occurrence of an Escrow Default, the consequences thereof shall be dealt with under and in accordance with the provisions of the Concession Agreement.

7 TERMINATION OF ESCROW AGREEMENT

7.1 Duration of the Escrow Agreement

This Agreement shall remain in full force and effect so long as any of its obligations to the Authority remain to be discharged, unless terminated earlier by consent of all the Parties or otherwise in accordance with the provisions of this Agreement.

7.2 Substitution of Escrow Bank

The Concessionaire may, by not less than 45 (forty five) days prior notice to the Escrow Bank and the Authority, terminate this Agreement and appoint a new Escrow Bank, provided that arrangements are made satisfactory to the Authority for transfer of amounts deposited in the Escrow Account to a new Escrow Account established with the successor Escrow Bank. The termination of this Agreement shall take effect only upon coming into force of an Escrow Agreement with the substitute Escrow Bank.

7.3 Closure of Escrow Account

The Escrow Bank shall, at the request of the Concessionaire and the Lenders' Representative made on or after the payment by the Concessionaire of all outstanding amounts under the Concession Agreement and the Financing Agreements including the payments specified in Clause 4.2, and upon confirmation of receipt of such payments, close the Escrow Account and Sub-Accounts and pay any amount standing to the credit thereof to the Concessionaire. Upon closure of the Escrow Account hereunder, the Escrow Agreement shall be deemed to be terminated.

8 SUPPLEMENTARY ESCROW AGREEMENT

8.1 Supplementary escrow agreement

The Lenders' Representative and the Concessionaire shall be entitled to enter into a supplementary escrow agreement with the Escrow Bank providing, inter alia, for detailed procedures and documentation for withdrawals from Sub-Accounts pursuant to Clause 4.1.1 and for matters not covered under this Agreement such as the rights and obligations of Senior Lenders and lenders of Subordinated Debt, investment of surplus funds, restrictions on withdrawals by the Concessionaire in the event of breach of this Agreement or upon occurrence of an Escrow Default, procedures relating to operation of the Escrow Account and withdrawal therefrom, reporting requirements and any matters incidental thereto; provided that such supplementary escrow agreement shall not contain any provision which is inconsistent with this Agreement and in the event of any conflict or inconsistency between provisions of this Agreement and such supplementary escrow agreement, the provisions of this Agreement shall prevail.

9 INDEMNITY

9.1 General indemnity

- 9.1.1 The Concessionaire will indemnify, defend and hold the Authority, Escrow Bank and the Senior Lenders, acting through the Lenders' Representative, harmless against any and all proceedings, actions and third party claims for any loss, damage, cost and expense arising out of any breach by the Concessionaire of any of its obligations under this Agreement or on account of failure of the Concessionaire to comply with Applicable Laws and Applicable Permits.
- 9.1.2 Authority will indemnify, defend and hold the Concessionaire harmless against any and all proceedings, actions and third party claims for any loss, damage, cost and expense arising out of failure of the Authority to fulfil any of its obligations under this Agreement materially and adversely affecting the performance of the Concessionaire's obligations under the Concession Agreement or this Agreement other than any loss, damage, cost and expense arising out of acts done in discharge of their lawful functions by the Authority, its officers, servants and agents.
- 9.1.3 The Escrow Bank will indemnify, defend and hold the Concessionaire harmless against any and all proceedings, actions and third party claims for any loss, damage, cost and expense arising out of failure of the Escrow Bank to fulfil its obligations under this Agreement materially and adversely affecting the performance of the Concessionaire's obligations under the Concession Agreement other than any loss, damage, cost and expense, arising out of acts done in discharge of their lawful functions by the Escrow Bank, its officers, servants and agents.

9.2 Notice and contest of claims

In the event that any Party hereto receives a claim from a third party in respect of which it is entitled to the benefit of an indemnity under Clause 9.1 or in respect of which it is entitled to

reimbursement (the “**Indemnified Party**”), it shall notify the other Party responsible for indemnifying such claim hereunder (the “**Indemnifying Party**”) within 15 (fifteen) days of receipt of the claim and shall not settle or pay the claim without the prior approval of the Indemnifying Party, which approval shall not be unreasonably withheld or delayed. In the event that the Indemnifying Party wishes to contest or dispute the claim, it may conduct the proceedings in the name of the Indemnified Party and shall bear all costs involved in contesting the same. The Indemnified Party shall provide all cooperation and assistance in contesting any claim and shall sign all such writings and documents as the Indemnifying Party may reasonably require.

10 DISPUTE RESOLUTION

10.1 Dispute resolution

10.1.1 Any dispute, difference or claim arising out of or in connection with this Agreement, which is not resolved amicably, shall be decided finally by reference to arbitration to a Board of Arbitrators comprising one nominee of each Party to the dispute, and where the number of such nominees is an even number, the nominees shall elect another person to such Board. Such arbitration shall be held in accordance with the Rules of Arbitration of the International Centre for Alternative Dispute Resolution, New Delhi (the “Rules”) or such other rules as may be mutually agreed by the Parties, and shall be subject to the provisions of the Arbitration and Conciliation Act, 1996.

10.1.2 The Arbitrators shall issue a reasoned award and such award shall be final and binding on the Parties. The venue of arbitration shall be Chennai and the language of arbitration shall be English.

11 MISCELLANEOUS PROVISIONS

11.1 Governing law and jurisdiction

This Agreement shall be construed and interpreted in accordance with and governed by the laws of India, and the Courts at Chennai shall have jurisdiction over all matters arising out of or relating to this Agreement.

11.2 Waiver of sovereign immunity

Authority unconditionally and irrevocably:

- (a) agrees that the execution, delivery and performance by it of this Agreement constitute commercial acts done and performed for commercial purpose;
- (b) agrees that, should any proceedings be brought against it or its assets, property or revenues in any jurisdiction in relation to this Agreement or any transaction contemplated by this Agreement, no immunity (whether by reason of sovereignty or otherwise) from such proceedings shall be claimed by or on behalf of the Authority with respect to its assets;
- (c) waives any right of immunity which it or its assets, property or revenues now has, may acquire in the future or which may be attributed to it in any jurisdiction; and
- (d) consents generally in respect of the enforcement of any judgement or award against it in any such proceedings to the giving of any relief or the issue of any process in any jurisdiction in connection with such proceedings (including the making, enforcement or execution against it or in respect of any assets, property or revenues whatsoever irrespective of their use or intended

use of any order or judgement that may be made or given in connection therewith).

11.3 Priority of agreements

In the event of any conflict between the Concession Agreement and this Agreement, the provisions contained in the Concession Agreement shall prevail over this Agreement.

11.4 Alteration of terms

All additions, amendments, modifications and variations to this Agreement shall be effectual and binding only if in writing and signed by the duly authorised representatives of the Parties.

11.5 Waiver

11.5.1 Waiver by any Party of a default by another Party in the observance and performance of any provision of or obligations under this Agreement:

- (a) shall not operate or be construed as a waiver of any other or subsequent default hereof or of other provisions of or obligations under this Agreement;
- (b) shall not be effective unless it is in writing and executed by a duly authorised representative of the Party; and
- (c) shall not affect the validity or enforceability of this Agreement in any manner.

11.5.2 Neither the failure by any Party to insist on any occasion upon the performance of the terms, conditions and provisions of this Agreement or any obligation thereunder nor time or other indulgence granted by any Party to another Party shall be treated or deemed as waiver of such breach or acceptance of any variation or the relinquishment of any such right hereunder.

11.6 No third party beneficiaries

This Agreement is solely for the benefit of the Parties and no other person or entity shall have any rights hereunder.

11.7 Survival

11.7.1 Termination of this Agreement:

- (a) shall not relieve the Parties of any obligations hereunder which expressly or by implication survive termination hereof; and
- (b) except as otherwise provided in any provision of this Agreement expressly limiting the liability of either Party, shall not relieve either Party of any obligations or liabilities for loss or damage to the other Party arising out of, or caused by, acts or omissions of such Party prior to the effectiveness of such termination or arising out of such termination.

11.7.2 All obligations surviving the cancellation, expiration or termination of this Agreement shall only survive for a period of 3 (three) years following the date of such termination or expiry of this Agreement.

11.8 Severability

If for any reason whatever any provision of this Agreement is or becomes invalid, illegal or

unenforceable or is declared by any court of competent jurisdiction or any other instrumentality to be invalid, illegal or unenforceable, the validity, legality or enforceability of the remaining provisions shall not be affected in any manner, and the Parties will negotiate in good faith with a view to agreeing to one or more provisions which may be substituted for such invalid, unenforceable or illegal provisions, as nearly as is practicable to such invalid, illegal or unenforceable provision. Failure to agree upon any such provisions shall not be subject to dispute resolution under Clause 10.1 of this Agreement or otherwise.

11.9 Successors and assigns

This Agreement shall be binding on and shall inure to the benefit of the Parties and their respective successors and permitted assigns.

11.10 Notices

All notices or other communications to be given or made under this Agreement shall be in writing and shall either be delivered personally or sent by courier or registered post with an additional copy to be sent by facsimile. The address for service of each Party and its facsimile number are set out under its name on the signing pages hereto. A notice shall be effective upon actual receipt thereof, save that where it is received after 5.30 (five thirty) p.m. on a business day, or on a day that is not a business day, the notice shall be deemed to be received on the first business day following the date of actual receipt. Without prejudice to the foregoing, a Party giving or making a notice or communication by facsimile shall promptly deliver a copy thereof personally, or send it by courier or registered post to the addressee of such notice or communication. It is hereby agreed and acknowledged that any Party may by notice change the address to which such notices and communications to it are to be delivered or mailed. Such change shall be effective when all the Parties have notice of it.

11.11 Language

All notices, certificates, correspondence and proceedings under or in connection with this Agreement shall be in English.

11.12 Authorised representatives

Each of the Parties shall, by notice in writing, designate their respective authorised representatives through whom only all communications shall be made. A Party hereto shall be entitled to remove and/or substitute or make fresh appointment of such authorised representative by similar notice.

11.13 Original Document

This Agreement may be executed in four counterparts, each of which when executed and delivered shall constitute an original of this Agreement.

IN WITNESS WHEREOF THE PARTIES HAVE EXECUTED AND DELIVERED THIS AGREEMENT AS OF THE DATE FIRST ABOVE WRITTEN.

SIGNED, SEALED AND
DELIVERED

For and on behalf of
CONCESSIONAIRE by:

(Signature)

(Name)
(Designation)
(Address)
(Fax No.)

SIGNED, SEALED AND

DELIVERED

For and on behalf of
ESCROW BANK by:

(Signature)

(Name)
(Designation)
(Address)
(Fax No.)

In the presence of:

1.

SIGNED, SEALED AND
DELIVERED

For and on behalf of
SENIOR LENDERS by the
Lenders' Representative:

(Signature)

(Name)
(Designation)
(Address)
(Fax No.)

SIGNED, SEALED AND

DELIVERED

For and on behalf of
GOVERNMENT OF TAMIL
NADU, HIGHWAYS
DEPARTMENT by:
(Signature)

(Name)
(Designation)
(Address)
(Fax No.)

2.

SCHEDULE – O

(See Clause 31.4)

VESTING CERTIFICATE

- 1 Governor of Tamil Nadu represented by Pricipal Secretary, Highways and Minor Ports Department (the “**Authority**”) refers to the Concession Agreement dated _____(the “**Agreement**”) entered into between the Authority and _____for Six lane Chennai Outer Ring Road (CORR) for Phase-I i.e. Vandalur to Nemilichery (29.65 km) and Phase-II i.e. Nemilichery to Minjur in TPP Road (30.50 Km), for a total length of 60.15 Km. on toll, operate and transfer on annuity (“**TOT**”) basis.
- 2 Authority hereby acknowledges compliance and fulfilment by the Concessionaire of the Divestment Requirements set forth in Clause 31.1 of the Agreement on the basis that upon issue of this Vesting Certificate, Authority shall be deemed to have acquired, and all title and interest of the Concessionaire in or about the Project Highway shall be deemed to have vested unto the Authority, free from any encumbrances, charges and liens whatsoever.
- 3 Notwithstanding anything to the contrary contained hereinabove, it shall be a condition of this Vesting Certificate that nothing contained herein shall be construed or interpreted as waiving the obligation of the Concessionaire to rectify and remedy any defect or deficiency in any of the Divestment Requirements and/or relieving the Concessionaire in any manner of the same.

Signed this *** day of ***, 20** at Chennai.

AGREED, ACCEPTED AND SIGNED

For and on behalf of

CONCESSIONAIRE by:

(Signature)

(Name)

(Designation)

(Address)

SIGNED, SEALED AND DELIVERED

For and on behalf of

AUTHORITY by:

(Signature)

(Name)

(Designation)

(Address)

In the presence of:

1.

2.

SCHEDULE – P
(See Clause 4.1.3)

SUBSTITUTION AGREEMENT

THIS SUBSTITUTION AGREEMENT is entered into on this the *** day of *** 20**.

AMONGST

- 1 Governor of TamilNadu, represented by Principal Secretary, Highways and Minor Ports Department and having its principal offices at Secretariat, Fort St. George, Chennai 600 009, Tamil Nadu, India (hereinafter referred to as the “**Authority**” which expression shall unless repugnant to the context or meaning thereof include its administrators, successors and assigns);
- 2 _____¹, a company incorporated under the provisions of the Companies Act, 1956 and having its registered office at _____, (hereinafter referred to as the “**Concessionaire**” which expression shall unless repugnant to the context or meaning thereof include its successors and permitted assigns and substitutes);
- 3 **** [name and particulars of Lenders’ Representative] and having its registered office at ****, acting for and on behalf of the Senior Lenders as their duly authorised agent with regard to matters arising out of or in relation to this Agreement (hereinafter referred to as the “**Lenders’ Representative**”, which expression shall unless repugnant to the context or meaning thereof include its successors and substitutes);

WHEREAS:

- (A) Authority has entered into a Concession Agreement dated _____ with the Concessionaire (the “**Concession Agreement**”) for Six lane Chennai Outer Ring Road (CORR) for Phase-I i.e.Vandalur to Nemilichery (29.65 km) and Phase-II i.e. Nemilichery to Minjur in TPP Road (30.50 Km), for a total length of 60.15 Km on toll, operate and transfer basis on annuity (TOT Annuity), and a copy of which is annexed hereto and marked as Annex-A to form part of this Agreement.
- (B) Senior Lenders have agreed to finance the Project in accordance with the terms and conditions set forth in the Financing Agreements.
- (C) Senior Lenders have requested the Authority to enter into this Substitution Agreement for securing their interests through assignment, transfer and substitution of the Concession to a Nominated Company in accordance with the provisions of this Agreement and the Concession Agreement.
- (D) In order to enable implementation of the Project including its, operation and maintenance, the

¹ All project-specific provisions in this document have been enclosed in square parenthesis and may be modified suitably, as necessary.

Authority has agreed and undertaken to transfer and assign the Concession to a Nominated Company in accordance with the terms and conditions set forth in this Agreement and the Concession Agreement.

NOW IT IS HEREBY AGREED as follows:

1 DEFINITIONS AND INTERPRETATION

1.1 Definitions

In this Substitution Agreement, the following words and expressions shall, unless repugnant to the context or meaning thereof, have the meaning hereinafter respectively assigned to them:

“**Agreement**” means this Substitution Agreement and any amendment thereto made in accordance with the provisions contained in this Agreement;

“**Financial Default**” means occurrence of a material breach of the terms and conditions of the Financing Agreements or a continuous default in Debt Service by the Concessionaire for a minimum period of 3 (three) months;

“**Lenders’ Representative**” means the person referred to as the Lenders’ Representative in the foregoing Recitals;

“**Nominated Company**” means a company, incorporated under the provisions of the Companies Act, 1956, selected by the Lenders’ Representative, on behalf of Senior Lenders, and proposed to the Authority for assignment/transfer of the Concession as provided in this Agreement;

“**Notice of Financial Default**” shall have the meaning ascribed thereto in Clause 3.2.1; and

“**Parties**” means the parties to this Agreement collectively and “**Party**” shall mean any of the Parties to this Agreement individually.

1.2 Interpretation

1.2.1 References to Lenders’ Representative shall, unless repugnant to the context or meaning thereof, mean references to the Lenders’ Representative, acting for and on behalf of Senior Lenders.

1.2.2 References to Clauses are, unless stated otherwise, references to Clauses of this Agreement.

1.2.3 The words and expressions beginning with capital letters and defined in this Agreement shall have the meaning ascribed thereto herein, and the words and expressions used in this Agreement and not defined herein but defined in the Concession Agreement shall, unless repugnant to the context, have the meaning ascribed thereto in the Concession Agreement.

1.2.4 The rules of interpretation stated in Clauses 1.2, 1.3 and 1.4 of the Concession Agreement shall

apply, *mutatis mutandis*, to this Agreement.

2 ASSIGNMENT

2.1 Assignment of rights and title

The Concessionaire hereby assigns the rights, title and interest in the Concession to, and in favour of, the Lenders' Representative pursuant to and in accordance with the provisions of this Agreement and the Concession Agreement by way of security in respect of financing by the Senior Lenders under the Financing Agreements.

3 SUBSTITUTION OF THE CONCESSIONAIRE

3.1 Rights of substitution

3.1.1 Pursuant to the rights, title and interest assigned under Clause 2.1, the Lenders' Representative shall be entitled to substitute the Concessionaire by a Nominated Company under and in accordance with the provisions of this Agreement and the Concession Agreement.

3.1.2 The Authority hereby agrees to substitute the Concessionaire by endorsement on the Concession Agreement in favour of the Nominated Company selected by the Lenders' Representative in accordance with this Agreement. (For the avoidance of doubt, the Senior Lenders or the Lenders' Representative shall not be entitled to operate and maintain the Project Highway as Concessionaire either individually or collectively).

3.2 Substitution upon occurrence of Financial Default

3.2.1 Upon occurrence of a Financial Default, the Lenders' Representative may issue a notice to the Concessionaire (the "**Notice of Financial Default**") along with particulars thereof, and send a copy to the Authority for its information and record. A Notice of Financial Default under this Clause 3 shall be conclusive evidence of such Financial Default and it shall be final and binding upon the Concessionaire for the purposes of this Agreement.

3.2.2 Upon issue of a Notice of Financial Default hereunder, the Lenders' Representative may, without prejudice to any of its rights or remedies under this Agreement or the Financing Agreements, substitute the Concessionaire by a Nominated Company in accordance with the provisions of this Agreement.

3.2.3 At any time after the Lenders' Representative has issued a Notice of Financial Default, it may by notice require the Authority to suspend all the rights of the Concessionaire and undertake the operation and maintenance of the Project Highway in accordance with the provisions of Article 29 of the Concession Agreement, and upon receipt of such notice, the Authority shall undertake Suspension under and in accordance with the provisions of the Concession Agreement. The aforesaid Suspension shall be revoked upon substitution of the Concessionaire by a Nominated Company, and in the event such substitution is not completed within 120 (one hundred and twenty) days from the date of such Suspension, the Authority may terminate the

Concession Agreement forthwith by issuing a Termination Notice in accordance with the provisions of the Concession Agreement; provided that upon written request from the Lenders' Representative and the Concessionaire, the Authority may extend the aforesaid period of 120 (one hundred and twenty) days by a period not exceeding 90 (ninety) days.

3.3 Substitution upon occurrence of Concessionaire Default

3.3.1 Upon occurrence of a Concessionaire Default, the Authority shall by a notice inform the Lenders' Representative of its intention to issue a Termination Notice and grant 60 (sixty) days time to the Lenders' Representative to make a representation, stating the intention to substitute the Concessionaire by a Nominated Company.

3.3.2 In the event that the Lenders' Representative makes a representation to the Authority within the period of 60 (sixty) days specified in Clause 3.3.1, stating that it intends to substitute the Concessionaire by a Nominated Company, the Lenders' Representative shall be entitled to undertake and complete the substitution of the Concessionaire by a Nominated Company in accordance with the provisions of this Agreement within a period of 120 (one hundred and twenty) days from the date of such representation, and the Authority shall either withhold Termination or undertake Suspension for the aforesaid period of 120 (one hundred and twenty) days; provided that upon written request from the Lenders' Representative and the Concessionaire, the Authority shall extend the aforesaid period of 120 (one hundred and twenty) days by a period not exceeding 90 (ninety) days.

3.4 Procedure for substitution

3.4.1 Authority and the Concessionaire hereby agree that on or after the date of Notice of Financial Default or the date of representation to the Authority under Clause 3.3.2, as the case may be, the Lenders' Representative may, without prejudice to any of the other rights or remedies of the Senior Lenders, invite, negotiate and procure offers, either by private negotiations or public auction or tenders for the take over and transfer of the Project Highway including the Concession to the Nominated Company upon such Nominated Company's assumption of the liabilities and obligations of the Concessionaire towards the Authority under the Concession Agreement and towards the Senior Lenders under the Financing Agreements.

3.4.2 To be eligible for substitution in place of the Concessionaire, the Nominated Company shall be required to fulfil the eligibility criteria that were laid down by the Authority for shortlisting the bidders for award of the Concession; provided that the Lenders' Representative may represent to the Authority that all or any of such criteria may be waived in the interest of the Project, and if the Authority determines that such waiver shall not have any material adverse effect on the Project, it may waive all or any of such eligibility criteria.

3.4.3 Upon selection of a Nominated Company, the Lenders' Representative shall request the Authority to:

(a) accede to transfer to the Nominated Company the right to operate and maintain the

Project Highway in accordance with the provisions of the Concession Agreement;

- (b) endorse and transfer the Concession to the Nominated Company, on the same terms and conditions, for the residual Concession Period; and
- (c) enter into a Substitution Agreement with the Lenders' Representative and the Nominated Company on the same terms as are contained in this Agreement.

3.4.4 If the Authority has any objection to the transfer of Concession in favour of the Nominated Company in accordance with this Agreement, it shall within 15 (fifteen) days from the date of proposal made by the Lenders' Representative, give a reasoned order after hearing the Lenders' Representative. If no such objection is raised by the Authority, the Nominated Company shall be deemed to have been accepted. Authority thereupon shall transfer and endorse the Concession within 15 (fifteen) days of its acceptance/deemed acceptance of the Nominated Company; provided that in the event of such objection by the Authority, the Lenders' Representative may propose another Nominated Company whereupon the procedure set forth in this Clause 3.4 shall be followed for substitution of such Nominated Company in place of the Concessionaire.

3.5 Selection to be binding

The decision of the Lenders' Representative and the Authority in selection of the Nominated Company shall be final and binding on the Concessionaire. The Concessionaire irrevocably agrees and waives any right to challenge the actions of the Lenders' Representative or the Senior Lenders or the Authority taken pursuant to this Agreement including the transfer/assignment of the Concession in favour of the Nominated Company. The Concessionaire agrees and confirms that it shall not have any right to seek revaluation of assets of the Project or the Concessionaire's shares. It is hereby acknowledged by the Parties that the rights of the Lenders' Representative are irrevocable and shall not be contested in any proceedings before any court or Authority and the Concessionaire shall have no right or remedy to prevent, obstruct or restrain the Authority or the Lenders' Representative from effecting or causing the transfer by substitution and endorsement of the Concession as requested by the Lenders' Representative.

4 PROJECT AGREEMENTS

4.1 Substitution of Nominated Company in Project Agreements

The Concessionaire shall ensure and procure that each Project Agreement contains provisions that entitle the Nominated Company to step into such Project Agreement, in its discretion, in place and substitution of the Concessionaire in the event of such Nominated Company's assumption of the liabilities and obligations of the Concessionaire under the Concession Agreement.

5 TERMINATION OF CONCESSION AGREEMENT

5.1 Termination upon occurrence of Financial Default

At any time after issue of a Notice of Financial Default, the Lenders' Representative may by a notice in writing require the Authority to terminate the Concession Agreement forthwith, and upon receipt of such notice, the Authority shall undertake Termination under and in accordance with the provisions of Article 30 of the Concession Agreement.

5.2 Termination when no Nominated Company is selected

In the event that no Nominated Company acceptable to the Authority is selected and recommended by the Lenders' Representative within the period of 120 (one hundred and twenty) days or any extension thereof as set forth in Clause 3.3.2, the Authority may terminate the Concession Agreement forthwith in accordance with the provisions thereof.

6 DURATION OF THE AGREEMENT

6.1 Duration of the Agreement

This Agreement shall come into force from the date hereof and shall expire at the earliest to occur of the following events:

- (a) Termination of the Agreement; or
- (b) no sum remains to be advanced, or is outstanding to the Senior Lenders, under the Financing Agreements.

7 INDEMNITY

7.1 General indemnity

7.1.1 The Concessionaire will indemnify, defend and hold the Authority and the Lenders' Representative harmless against any and all proceedings, actions and third party claims for any loss, damage, cost and expense of whatever kind and nature arising out of any breach by the Concessionaire of any of its obligations under this Agreement or on account of failure of the Concessionaire to comply with Applicable Laws and Applicable Permits.

7.1.2 Authority will indemnify, defend and hold the Concessionaire harmless against any and all proceedings, actions and third party claims for any loss, damage, cost and expense arising out of failure of the Authority to fulfil any of its obligations under this Agreement, materially and adversely affecting the performance of the Concessionaire's obligations under the Concession Agreement or this Agreement, other than any loss, damage, cost and expense, arising out of acts done in discharge of their lawful functions by the Authority, its officers, servants and agents.

7.1.3 The Lenders' Representative will indemnify, defend and hold the Concessionaire harmless

against any and all proceedings, actions and third party claims for any loss, damage, cost and expense arising out of failure of the Lenders' Representative to fulfil its obligations under this Agreement, materially and adversely affecting the performance of the Concessionaire's obligations under the Concession Agreement, other than any loss, damage, cost and expense, arising out of acts done in discharge of their lawful functions by the Lenders' Representative, its officers, servants and agents.

7.2 Notice and contest of claims

In the event that any Party hereto receives a claim from a third party in respect of which it is entitled to the benefit of an indemnity under Clause 7.1 or in respect of which it is entitled to reimbursement (the "**Indemnified Party**"), it shall notify the other Party responsible for indemnifying such claim hereunder (the "**Indemnifying Party**") within 15 (fifteen) days of receipt of the claim and shall not settle or pay the claim without the prior approval of the Indemnifying Party, such approval not to be unreasonably withheld or delayed. In the event that the Indemnifying Party wishes to contest or dispute the claim, it may conduct the proceedings in the name of the Indemnified Party and shall bear all costs involved in contesting the same. The Indemnified Party shall provide all cooperation and assistance in contesting any claim and shall sign all such writings and documents as the Indemnifying Party may reasonably require.

8 DISPUTE RESOLUTION

8.1 Dispute resolution

8.1.1 Any dispute, difference or claim arising out of or in connection with this Agreement which is not resolved amicably shall be decided by reference to arbitration to a Board of Arbitrators comprising one nominee each of the Authority, Concessionaire and the Lenders' Representative. Such arbitration shall be held in accordance with the Rules of Arbitration of the International Centre for Alternative Dispute Resolution, New Delhi (the "Rules") or such other rules as may be mutually agreed by the Parties, and shall be subject to provisions of the Arbitration and Conciliation Act, 1996.

8.1.2 The Arbitrators shall issue a reasoned award and such award shall be final and binding on the Parties. The venue of arbitration shall be Chennai and the language of arbitration shall be English.

9 MISCELLANEOUS PROVISIONS

9.1 Governing law and jurisdiction

This Agreement shall be construed and interpreted in accordance with and governed by the laws of India, and the Courts at Chennai shall have jurisdiction over all matters arising out of or relating to this Agreement.

9.2 Waiver of sovereign immunity

Authority unconditionally and irrevocably:

- (a) agrees that the execution, delivery and performance by it of this Agreement constitute commercial acts done and performed for commercial purpose;
- (b) agrees that, should any proceedings be brought against it or its assets, property or revenues in any jurisdiction in relation to this Agreement or any transaction contemplated by this Agreement, no immunity (whether by reason of sovereignty or otherwise) from such proceedings shall be claimed by or on behalf of the Authority with respect to its assets;
- (c) waives any right of immunity which it or its assets, property or revenues now has, may acquire in the future or which may be attributed to it in any jurisdiction; and
- (d) consents generally in respect of the enforcement of any judgement or award against it in any such proceedings to the giving of any relief or the issue of any process in any jurisdiction in connection with such proceedings (including the making, enforcement or execution against it or in respect of any assets, property or revenues whatsoever irrespective of their use or intended use of any order or judgement that may be made or given in connection therewith).

9.3 Priority of agreements

In the event of any conflict between the Concession Agreement and this Agreement, the provisions contained in the Concession Agreement shall prevail over this Agreement.

9.4 Alteration of terms

All additions, amendments, modifications and variations to this Agreement shall be effectual and binding only if in writing and signed by the duly authorised representatives of the Parties.

9.5 Waiver

9.5.1 Waiver by any Party of a default by another Party in the observance and performance of any provision of or obligations under this Agreement:

- (a) shall not operate or be construed as a waiver of any other or subsequent default hereof or of other provisions of or obligations under this Agreement;
- (b) shall not be effective unless it is in writing and executed by a duly authorised representative of the Party; and
- (c) shall not affect the validity or enforceability of this Agreement in any manner.

9.5.2 Neither the failure by either Party to insist on any occasion upon the performance of the terms, conditions and provisions of this Agreement or any obligation thereunder nor time or other

indulgence granted by a Party to another Party shall be treated or deemed as waiver of such breach or acceptance of any variation or the relinquishment of any such right hereunder.

9.6 No third party beneficiaries

This Agreement is solely for the benefit of the Parties and no other person or entity shall have any rights hereunder.

9.7 Survival

9.7.1 Termination of this Agreement:

- (a) shall not relieve the Parties of any obligations hereunder which expressly or by implication survive termination hereof; and
- (b) except as otherwise provided in any provision of this Agreement expressly limiting the liability of either Party, shall not relieve either Party of any obligations or liabilities for loss or damage to the other Party arising out of or caused by acts or omissions of such Party prior to the effectiveness of such termination or arising out of such termination.

9.7.2 All obligations surviving the cancellation, expiration or termination of this Agreement shall only survive for a period of 3 (three) years following the date of such termination or expiry of this Agreement.

9.8 Severability

If for any reason whatever any provision of this Agreement is or becomes invalid, illegal or unenforceable or is declared by any court of competent jurisdiction or any other instrumentality to be invalid, illegal or unenforceable, the validity, legality or enforceability of the remaining provisions shall not be affected in any manner, and the Parties will negotiate in good faith with a view to agreeing to one or more provisions which may be substituted for such invalid, unenforceable or illegal provisions, as nearly as is practicable to such invalid, illegal or unenforceable provision. Failure to agree upon any such provisions shall not be subject to dispute resolution under Clause 8 of this Agreement or otherwise.

9.9 Successors and assigns

This Agreement shall be binding on and shall inure to the benefit of the Parties and their respective successors and permitted assigns.

9.10 Notices

All notices or other communications to be given or made under this Agreement shall be in writing, shall either be delivered personally or sent by courier or registered post with an additional copy to be sent by facsimile. The address for service of each Party and its facsimile number are set out under its name on the signing pages hereto. A notice shall be effective upon

actual receipt thereof, save that where it is received after 5.30 (five thirty) p.m. on any day, or on a day that is a public holiday, the notice shall be deemed to be received on the first working day following the date of actual receipt. It is hereby agreed and acknowledged that any Party may by notice change the address to which such notices and communications to it are to be delivered or mailed. Such change shall be effective when all the Parties have notice of it.

9.11 Language

All notices, certificates, correspondence and proceedings under or in connection with this Agreement shall be in English.

9.12 Authorised representatives

Each of the Parties shall by notice in writing designate their respective authorised representatives through whom only all communications shall be made. A Party hereto shall be entitled to remove and/or substitute or make fresh appointment of such authorised representative by similar notice.

9.13 Original Document

This Agreement may be executed in three counterparts, each of which when executed and delivered shall constitute an original of this Agreement.

IN WITNESS WHEREOF THE PARTIES HAVE EXECUTED AND DELIVERED THIS AGREEMENT AS OF THE DATE FIRST ABOVE WRITTEN.

SIGNED, SEALED AND DELIVERED

For and on behalf of
CONCESSIONAIRE by:

(Signature)
(Name)
(Designation)
(Address)
(Fax No.)

SIGNED, SEALED AND DELIVERED

For and on behalf of
AUTHORITY by:

(Signature)
(Name)
(Designation)
(Address)
(Fax No.)

SIGNED, SEALED AND DELIVERED

For and on behalf of
SENIOR LENDERS by the Lenders' Representative:

(Signature)
(Name)
(Designation)
(Address)
(Fax)

In the presence of:

- 1.
- 2.

SCHEDULE-Q

(See Article 41)

Year-Wise distribution of Concession Fee based on Unexpired Cash Flows

End of Financial Year	Year Wise distribution of Concession Fee (Unexpired Cash Flows) (Percentage of Concession Fee)	Termination Payment towards Scope of Work as per Schedule B (Percentage of Estimated Project Cost)
0	100.0%	NA
1	100.0%	NA
2	93.5%	NA
3	91.2%	NA
4	89.7%	NA
5	84.5%	NA
6	79.6%	NA
7	74.9%	NA
8	69.1%	NA
9	62.2%	NA
10	56.2%	NA
11	48.7%	NA
12	40.4%	NA
13	31.0%	NA
14	15.4%	NA
15	0.0%	NA

* Proportion of unexpired cashflows shall be the minimum of the actual proportion of the unexpired cashflow of the current year or the preceding year.

SCHEDULE-R

(See Article 37)

Procedure for Dispute Resolution Board

The parties to the Concession Agreement mutually agree as follows:

- (1) The DRB shall comprise of 3 (three) Members having experience in the field of construction or have been involved in the Works related to construction and with the interpretation of contractual documents. 1 (One) Member shall be selected by each of the Authority and the Concessionaire. In the event the parties fail to select the member within 28 (twenty eight) days of the date of the signing of Concession Agreement, in that eventuality, upon the request of either or both parties such Member shall be selected by the International Centre for Alternative Dispute Resolution, New Delhi within 14 (fourteen) days. The third Member shall be selected by the other 2 (two) members from the same list. If the 2 (two) Members selected by or on behalf of the parties fail to select the third Member within 14 (fourteen) days after the later of their selections, then upon the request of either or both parties such third Member shall be selected by the International Centre for Alternative Dispute Resolution, New Delhi within 14 (fourteen) days. The third Member shall serve as Chairman of the Board.
- (2) The Board shall be constituted when each of the 3 (three) Board Members has signed a Board Member's declaration of Acceptance as required by the DRB's rules and procedures (which, along with the declaration of acceptance form, are attached as Annexure herewith).
- (3) In the event of death, disability, or resignation of any Member, such Member shall be replaced in the same manner as the Member being replaced was selected. If for any other reason, a Member fails or is unable to serve, the Chairman (or failing the action of the Chairman then either of the other Members) shall inform the Parties and such non-serving Member shall be replaced in the same manner as the Member being replaced was selected. Any replacement made by the parties shall be completed within 28 (twenty eight) days after the event giving rise to the vacancy on the Board, failing which the replacement shall be made by the International Centre for Alternative Dispute Resolution, New Delhi in the same manner as described above. Replacement shall be considered complete when the new Member signs the Board Member's Declaration of Acceptance. Throughout any replacement process, the Members not being replaced shall continue to serve and the Board shall continue to function and its activities shall have the same force and effect as if the vacancy had not occurred, provided, however, that the Board shall not conduct a hearing nor issue a decision until the replacement is completed.
- (4) If either the Authority or the Concessionaire is dissatisfied with any decision of the Board, and/or if the Board fails to issue its decision within 56 (fifty six) days after receipt of all the pleadings (along with the supporting documents) of the parties by the Chairman of the Board or any extension mutually agreed upon by the Authority and the Concessionaire, in such a case, either the Authority or the Concessionaire may, within 28 (twenty eight) days after his receipt of the decision, or within 28 (twenty eight) days after the expiry of the said period, as the case may be, give notice to the other party, with a copy for information to the Independent Engineer, of his intention to refer the matter to the arbitration.

- (5) It is mandatory to refer all the disputes to DRB before issuance of completion certificate and satisfactory completion of punch list items. No dispute shall be entertained after completion of aforementioned date.
- (6) If the Board has issued a decision to the Authority and the Concessionaire within the said 56 (fifty six) days or any extension mutually agreed upon by the Authority and the Concessionaire and no notice of intention to commence arbitration as to such dispute has been given by either the Authority or the Concessionaire within 28 (twenty eight) days after the parties received such decision from the Board, the decision shall become final and binding upon the Authority and Concessionaire.
- (7) Whether or not it has become final and binding upon the Authority and the Concessionaire, a decision shall be admissible as evidence in any subsequent dispute resolution procedure, including any arbitration or litigation having any relation to the dispute to which the decision relates.
- (8) All decision of DRB which have become final and binding or till they have been reversed in subsequent Arbitration process shall be implemented by the parties forthwith. Such implementation shall also include any relevant action of the Independent Engineer.
- (9) If during the Concession Period, the Authority and the Concessionaire are of the opinion that the Disputes Resolution Board is not performing its functions properly, the Authority and the Concessionaire may together disband the Disputes Resolution Board and reconstitute it. In that case, a new board shall be selected in accordance with the provisions applying to the selection of the original Board as specified above, except that words “within 28 (twenty eight) days after the signing of this Concession Agreement” shall be replaced by the words “within 28 (twenty eight) days after the date on which the notice disbanding the original Board became effective”.
- (10) The Authority and the Concessionaire shall jointly sign a notice specifying that the Board shall stand disbanded with effect from the date specified in the notice. The notice shall be posted by email to each Member of the Board. A Member shall be deemed to have received the email even if he refuses to have received the same.
- (11) All other terms and conditions of the original Concession Agreement shall remain unaltered/unaffected and the parties shall remain bound by terms and conditions as contained therein.

Annexure to Schedule R

Disputes Resolution Board's Rules and Procedures

1. Except for providing the services required hereunder, the Board Members shall not give any advice to either party or to the Independent Engineer concerning conduct of the Works. The Board Members:
 - (a) Shall have no financial interest in any party to the Concession Agreement, or the Independent Engineer, or a financial interest in the contract, except for payment for services on the Board.
 - (b) Shall have had no previous employment by, or financial ties to, any party to the Concession Agreement, or the Independent Engineer, except for fee based consulting services/advisers on other projects, and/or be Retired Government Officers (not connected in whole or part with the project), all of which must be disclosed in writing to both parties prior to appointment to the Board.
 - (c) Shall have disclosed in writing to both parties prior to appointment to the Board any and all recent or close professional or personal relationships with any director, officer, or employee of any party to the Concession Agreement, or the Independent Engineer, and any and all prior involvement in the project to which the Concession relates;
 - (d) Shall not, while Board member, be employed whether as a consultant or adviser or otherwise by either party to the Concession Agreement, or the Independent Engineer, except as a Board Member, without the prior consent of the parties and the other Board Members;
 - (e) Shall not, while a Board Member, engage in discussion or make any agreement with any party to the Concession Agreement, or with the Independent Engineer, regarding employment whether as a consultant or otherwise whether after the Concession is completed or after service as a Board Member is completed.
 - (f) Shall remain and be impartial and independent of the parties and shall disclose in writing to the Authority, the Concessionaire and one another any fact or circumstance which might be such as to cause either the Authority or the Concessionaire to question the continued existence of the impartiality and independence required of Board Members; and
 - (g) Shall be fluent in the language of the Concession.
2. Except for its participation in the Board's activities as provided in the Concession Agreement and in this Agreement none of the Authority, the Concessionaire, and or the Independent Engineer shall solicit advice or consultation from the Board or the Board Members on matters dealing with the conduct of the Works.
3. The Concessionaire shall:

- (a) Furnish to each Board member 1 (one) copy of all documents which the Board may request including Concession Agreement, progress reports and other documents pertinent to the performance of the Concession Agreement.
 - (b) In cooperation with the Authority, coordinate the site visits of the Board, including conference facilities, and secretarial and copying service.
4. The Board shall begin its activities following the signing of a Board Member's Declaration of Acceptance by all three Board Members, and it shall terminate these activities as set forth below:
- (a) The Board shall terminate its regular activities when either (i) issuance of completion certificate and completion of punch list items or (ii) the parties have terminated the Concession and when, in either case, the Board has communicated to the parties and the Independent Engineer its decision on all disputes previously referred to it.
 - (b) Once the Board has terminated its regular activities as provided by the previous paragraph, the Board shall remain available to process any dispute referred to it by either party. In case of such a referral, Board Members shall receive payments as provided in paragraphs 7(a)(ii), (iii) and (iv).
5. Board Members shall not assign or subcontract any of their work under these Rules and Procedures.
6. The Board Members are Independent and not employees or agents of either the Authority or the Concessionaire.
7. Payments to the Board Members for their services shall be governed by the following provisions:
- (a) Each Board Member will receive payments as follows:
 - i. A retainer fee per calendar month as specified in the schedule of fee made part of this Schedule and its revision from time to time. This retainer fee shall be considered as payment in full for:
 - (A) Being available, on 7 (seven) days' notice, for all hearings, Site Visits, and other meetings of the Board.
 - (B) Being conversant with all project developments and maintaining relevant files.
 - (C) All offices and overhead expenses such as secretarial services, photocopying and office supplies (but not include telephone calls, faxes and telexes) incurred in connection with the duties as a Board Member.
 - ii. A daily fee as specified in the schedule of fee in respect of fee for site visit & meeting, fee for meeting/ hearing not at site and extra charges for days (max. of 2 (two) days for travel on each occasion) other than hearing / meeting days.
 - iii. Expenses, in addition to the above, all reasonable and necessary travel expenses (including economy class air fare, subsistence, and other direct travel expenses). Receipts for all expenses in excess of [Rs. 2000/- (Rupees Two Thousand only)] shall be provided.

- iv. Reimbursement of any taxes that may be levied on payments made to the Board Member pursuant to this paragraph 7.
 - (b) The retainer fee and other fees shall remain fixed for the period of each Board Member's term until revised by the Authority.
 - (c) Phasing out of monthly retainer fee. Beginning with the next month after the completion certificate (or, if there are more than one, the one issued last) has been issued, the Board members shall receive only one-third of the monthly retainer fee till next 1 (one) year. Beginning with the next month after the Board has terminated its regular activities pursuant to paragraph 4(a) above, the Board members shall no longer receive any monthly retainer fee.
 - (d) Payments to the Board Members shall be shared equally by the Authority and the Concessionaire. The concerned Project Implementation Unit (PIU) of Authority shall pay members' invoices within 30 (thirty) calendar days after receipt of such invoices and shall invoice the Concessionaire for one-half of the amounts of such invoices. The Concessionaire shall pay such invoices within 30 (thirty) days' time period after receipt of such invoices.
8. Board Site Visits:
- (a) The Board shall visit the Site and meet the representatives of the Authority, the Concessionaire and the Independent Engineer at regular intervals, at times of critical construction events, at the written request of either party, and in any case not less than 6 (six) times in any period of 12 (twelve) months. The timing of Site visits shall be as agreed among the Authority, the Concessionaire and the Board, but failing agreement shall be fixed by the Board.
 - (b) Site visits shall include an informal discussion of the status of the construction of the Works. Site visits shall be attended by personnel from the Authority, the Concessionaire and the Independent Engineer.
 - (c) At the conclusion of each Site visit, the Board shall prepare a report covering its activities during the visit and shall send copies to the parties and to the Independent Engineer.
9. Procedure for Dispute Referral to the Board:
- (a) If either party objects to any action or inaction of the other party or the Independent Engineer, the objecting party may file a written Notice of Dispute to the other party with a copy to the Independent Engineer stating that it is given pursuant to the Agreement and state clearly and in details the basis of the dispute.
 - (b) The party receiving the Notice of Dispute will consider it and respond to it in writing within 14 (fourteen) days after receipt.
 - (c) This response shall be final and conclusive on the subject, unless a written appeal to the response is filed with the responding party within 10 (ten) days after receiving the response and call upon Independent Engineer to mediate and assist the parties in arriving an amicable settlement thereof. Both parties are encouraged to pursue the matter further to attempt to settle the dispute.

- (d) If the Independent Engineer receiving the Notice of Dispute fails to provide a written response within 14 (fourteen) days after receipt of such Notice or failing mediation by Independent Engineer, either party may require such dispute to be referred to the Board, either party may refer the dispute to the Board by written Request to the Board. The Request for decision shall state clearly and in full detail the specific issues of the dispute (s) to be considered by Board and shall be addressed to the Chairman of the Board, with copies to the other Board Members, the other party, and the Independent Engineer, and it shall state that it is made pursuant to this Agreement.
- (e) When a dispute is referred to the Board, and the Board is satisfied that the dispute requires the Board's assistance, the Board decide when to conduct a hearing on the dispute. The Board may request that written documentation and arguments from both parties be submitted to each Board Member before the hearing begins. The parties shall submit insofar as possible agreed statements of the relevant facts.
- (f) During the hearing, the Concessionaire, the Authority, and the Independent Engineer shall each have ample opportunity to be heard and to offer evidence. The Board's decision for resolution of the dispute will be given in writing to the Authority, the Concessionaire and the Independent Engineer as soon as possible, and in any event not more than 56 (fifty six) days or any mutually extended period between the Authority and the Concessionaire. The time period of 56 (fifty six) days of issuance of DRB decision will reckon/start from the day of first hearing that begins after submission of complete pleadings (including supporting documents, if any) by the parties.

10. Conduct of Hearings:

- (a) Normally hearings will be conducted at the Site, but any location that would be more convenient and still provide all required facilities and access to necessary documentation may be utilized by the Board. Private session of the Board may be held at any cost effective location convenient to the Board. Video recordings of all hearings shall invariably be made.
- (b) The Authority, the Independent Engineer and the Concessionaire shall be given opportunity to have representatives at all hearings. Parties should restrain to bring any Advocate/Law Firm during DRB hearings.
- (c) During the hearings, no Board Member shall express any opinion concerning the merit of the respective arguments of the parties.
- (d) After the hearings are concluded, the Board shall meet privately to formulate its decision. The private meeting (s) of the Board shall not exceed 3 (three) sittings. All Board deliberations shall be conducted in private, with all Members' individual views kept strictly confidential. The Board's decisions, together with an explanation of its reasoning shall be submitted in writing to both parties and to the Independent Engineer. The decision shall be based on the pertinent Concession provisions, applicable laws and regulations and the facts and circumstances involved in the dispute.
- (e) The Board shall make every effort to reach a unanimous decision. If this proves impossible the majority shall decide and the dissenting Member may prepare a written minority report together with an explanation of its reasoning for submission to both parties and to the Independent Engineer.

11. In all procedural matters, including the furnishing of written documents and arguments relating to disputes, site visits and conduct of hearings, the Board shall have full and the final authority. If a unanimous decision on any such matter proves impossible, the majority shall prevail.
12. After having been selected and where necessary approved each Board Member shall sign (two) copies of the following declaration and make 1 (one) copy available each to the Authority and to the Concessionaire.

“BOARD MEMBER’S DECLARATION OF ACCEPTANCE”

WHEREAS

- (a) A Concession Agreement (the Concession) for the _____ project [fill in the name of project] has been signed on _____ [fill in date] between _____ [name of Authority] and _____ [name of Concessionaire] (the Concessionaire).;
- (b) The provisions of Agreement and Dispute Resolution Board’s rules and procedure provided for establishment and operation of Dispute Resolution Board (DRB).
- (c) The undersigned has been selected to serve as a Board Member on said Board;

NOW THEREFORE, the undersigned Board Member hereby declares as follows:

- 1. I accept the selection as a Board Member and agree to serve on the Board and to be bound by the provisions of Concession Agreement and rules and procedure provided for establishment and operation of Dispute Resolution Board (DRB).
- 2. With respect to paragraph 1 of Dispute Resolution Board’s Rules and Procedure. said Annex A, I declare
 - (a) that I have no financial interest of the kind referred to in subparagraph (a);
 - (b) that I have had no previous employment nor financial ties of the kind referred to in subparagraph (b); and
 - (c) that I have made to both parties any disclosures that may be required by sub-paragraphs (b) and (c).
- 3. I declare that I have ___ no. of Arbitrations (list enclosed) and ___ no. of DRBs (list enclosed) in progress and that I will give sufficient time for the current assignment.

BOARD MEMBER

_____ *[insert name of Board Member]*

Date: _____.

Schedule of expenses and fees payable to the Member (s) of Dispute Resolution Board (DRB)

The fee and other expenses payable to the Members of DRB shall be as under: -

S. No.	PARTICULAR	AMOUNT PAYBLE
1	Retainer-ship fee, secretarial assistance and incidental charges (telephone, fax, postage etc.)	Rs. 50,000/- (Rupees Fifty Thousand only) per month for one package and maximum of Rs. 75,000/- (Rupees Seventy Five Thousand) per month for 2 (two) or more packages
2(i)	Fee for Site visit or meetings at Site	Rs. 25,000/- (Rupees Twenty Five Thousand only) per day
(ii)	Fee for meetings/hearings not at Site	Rs. 10,000/- (Rupees Ten Thousand only) per day
3	Traveling expenses	Economy class by air, AC first class by train and AC taxi by road
4	Lodging & Boarding	Rs.15,000/- (Rupees Fifteen Thousand only) per day (Metro Cities); or Rs. 10,000/- (Rupees Ten Thousand only) per day (in other cities); or Rs. 5,000/- (Rupees Five Thousand only) per day (own arrangement)
5	Extra charges for days other than hearing/meeting days (travel days maximum of 2 days on each occasion)	Rs.5,000/- (Rupees Five Thousand only)
6	Local conveyance	Rs.2,000/- (Rupees Two Thousand only)

Notes:

- (i) Lodging, boarding and travelling expenses will be allowed only for those Members who are residing 100 (one hundred) kms away from the place of meeting.
- (ii) Delhi, Mumbai, Chennai, Kolkata, Bangalore and Hyderabad shall be considered as metro cites.
- (iii) The above schedule of fee and expenses shall be applicable on or after the date of issue of this circular.

The expenses are to be shared equally by the Parties i.e. Authority and Concessionaire.