



# भारतीय राश्ट्रीय राजमार्ग प्राधिकरण

(सड़क परिवहन और राजमार्ग मंत्रालय)

## National Highways Authority of India

(Ministry of Road Transport and Highways)

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NHAI/11041/217/2007-Admn

Date : 11.09.2014

### Policy Matter : Admn/ Fin. (144/2014)

[Discussed in 207<sup>th</sup> EC Meeting held on 03.09.2014 vide Agenda Item No.207.05 and decided by Chairman vide File No.NHAI/13013/CO/2014-15 dated 11.09.2014]

**Sub.:** Implementation of ETC on Pan India basis; installation of Weigh-in-Motion (WIM)/ Static Weigh Bridge(SWB), AVCC and CCTV at all Toll Plazas (NHAI & Concessionaires)

– Delegation of Powers to ROs.

- Ref.:** (i) Note dated 30.04.2014 of Member (Fin.)  
(ii) Note dated 22.05.2014 of Member (Fin.)  
(iii) Letter No.53671 dated 26.06.2014 of GM(CO)  
(iv) Letter dated 20.08.2014 of GM (Electronics)  
(v) Letter dated 28.08.2014 of GM (CO)

Vide Ref.(i) & (ii), the decision of the Government to implement Electronic Toll Collection (ETC) on Pan-India basis at all Toll Plazas in all respects by Dec., 2014 was conveyed. Vide Ref.(iii), it was asked to provide a proper infrastructure at Toll Plazas sufficient to cater for the present traffic as well as future expansion including conversion of temporary Toll Plazas into permanent, so as to enable ETC implementation. Vide Ref.(v), it was also asked to install WIM/ Static Weigh Bridge (SWB) including AVCC & CCTV Surveillance System at all Toll Plazas by March, 2015.

2. The following powers have been delegated to Regional Officers of NHAI (ROs) for expediting and completion of ETC lanes by Dec.,2014 and WIM/ SWB/ AVCC/ CCTV by March, 2015 at all Toll Plazas :

#### **(a) Toll/ Annuity/ OMT Projects :**

(i) In case of **ETC lanes (one lane in each direction)**, ROs are authorized to sanction COS to the Concessionaires of Toll/ OMT Projects subject to ceiling on cost of COS as per tenders already finalized by IHMCL (Ref. details at Annex-A), duly examining the provisions in the Concession Agreement and satisfying that the same is not in the scope of the Concessionaire. They shall immediately mark a copy of COS order issued by them to concerned Member of CO Division at NHAI, HQ for information and record. While considering COS, ROs may keep in view the specifications and cost break-up of items in the tenders finalized by IHMCL (details enclosed at **Annex-A**). In case of Annuity Projects, if ETC lanes are not in the scope of the Concessionaires, ROs shall ask IHMCL to undertake ETC lanes work (no COS to Concessionaire in Annuity Projects).

Contd...2

(ii) In case of Weigh-in-Motion (WIM), Static Weigh Bridge (SWB), AVCC and CCTV, ROs are authorized to sanction COS to the Concessionaires of Toll/ Annuity/ OMT Projects subject to ceiling on cost of COS as per cost/ tenders being finalized by IHMCL under NHAI Toll Plazas, duly examining the provisions in the Concession Agreement and satisfying that these items are not in the scope of the Concessionaires. They shall immediately mark a copy of COS order issued by them to concerned Member of CO Division at NHAI, HQ for information and record. While considering COS, ROs may keep in view the specifications of work, which will be finalized and circulated by IHMCL shortly. Please note that in this case (i.e., for WIM, SWB, AVCC & CCTV), COS to Concessionaire is permitted under Annuity Projects, if these items are not covered in the scope of the Concessionaire.

**(b) Public Funded Projects:** IHMCL is undertaking the work of ETC lanes and complete end-to-end Toll Management System including WIM, SWB, AVCC and CCTV.

**(c) Public Funded Projects – Upgrading the infrastructure at Toll Plazas including conversion of temporary Toll Plazas into permanent:** The infrastructure at the Toll Plazas may be upgraded to minimum 5+5 lanes (including extra wide & ETC lanes) for Toll Plazas having a traffic of 15,000 PCUs/ day or more and 4+4 lane (including extra wide & ETC lanes) at other Toll Plazas, so that sufficient non-ETC lanes are available after dedicated (1+1) ETC lanes and also to provide scope for (2+2) ETC lanes in future. The pre-requisite work for installing ETC equipment, WIM, etc. and tentative items for upgrading the infrastructure at the toll plazas are enclosed at **Annex-B**. For these works (pre-requisite work and upgrading the infrastructure), ROs are given the power for sanctioning the works costing upto Rs.2.0 Crore per Toll Plaza (upto Rs.5.0 Crore in case concrete pavement is not existing at the toll plaza and it is to be constructed). In order to expedite the completion of such works, ROs are permitted to split the work considering the specialization like road work (expansion of number of toll lanes, concrete pavement, etc), structural work (canopy, administrative block, toll booths, porta cabins, etc), electrical (lighting, generators, etc), road signs, etc., obtain short-term tenders (10 days notice) and decide the agencies within the above delegated power (Rs.2.0 Crore/ Rs.5.0 Crore).

3. All ROs are requested to decide COS and issue COS notices/ orders to the Concessionaires. However, ROs shall immediately mark a copy of COS order issued by them to concerned Member of CO Division at NHAI, HQ for information and record. While issuing COS notice/ order, clear timelines may be fixed to the Concessionaires for completion of ETC lanes in all respects by Dec., 2014 and other items (WIM, SWB, AVCC and CCTV) by March, 2015. The timelines, toll plaza wise, may be furnished to CGM(CO) by ROs within 7 days from the date of this Circular for completion of ETC lanes by Dec., 2014 and WIM/ SWB/ AVCC/ CCTV by March, 2015 at all Toll Plazas under their jurisdiction.

**Encl. : Annex-A&B (6 Pages)**

  
**(V.K. Sharma)**  
**CGM(Coord)**

**To**  
**All ROs/ PIUs**  
**Chairman, IHMCL [JS(LA&P), MoRTH]**  
**All officers at HQ**

ETC Project – INDIAN HIGHWAYS MANAGEMENT COMPANY LTD (IHMCL)

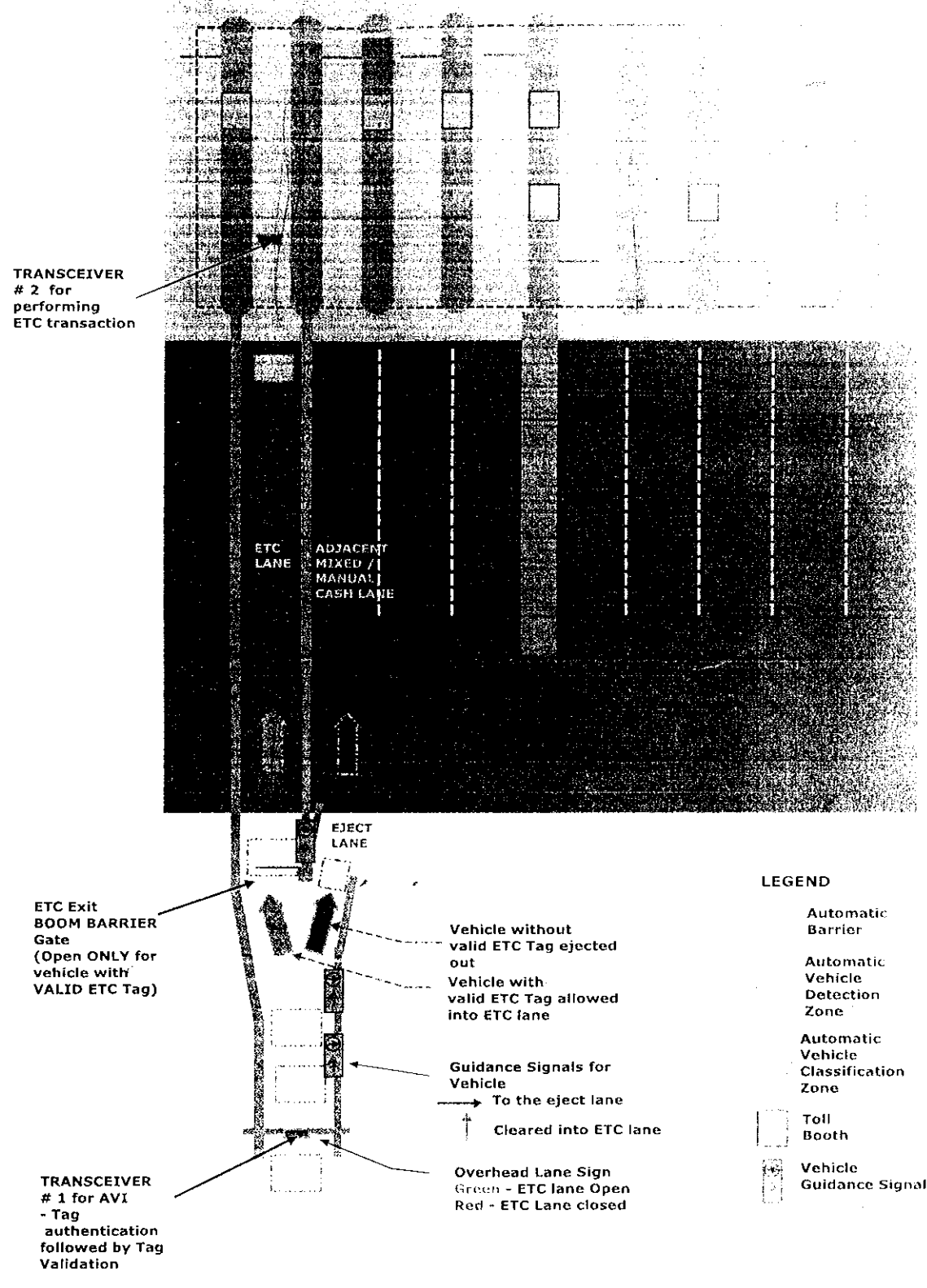


Fig 4.1. The concept of a lane ETC system with an Eject lane

*K. S. P.*



S.No.		1		2		3		4		5		6		7		8			
Name of Bidder		Kent Intelligent Transportation Systems (I) Pvt. Ltd.		EFKON India Pvt. Ltd.		Teccsidel India Private Limited		Vaan Infra Pvt. Ltd.		Rajdeep Info Techno Pvt. Ltd.		ATT Systems (India) Pvt. Ltd.		Metro Infrasy Pvc. Ltd.		Arya Omnitalk - Infravate Consortium			
Sr. No.	Item/Description	Unit	Quantity	Unit Rate (Rs.)	Amount (Rs.)	Unit Rate (Rs.)	Amount (Rs.)	Unit Rate (Rs.)	Amount (Rs.)	Unit Rate (Rs.)	Amount (Rs.)	Unit Rate (Rs.)	Amount (Rs.)	Unit Rate (Rs.)	Amount (Rs.)	Unit Rate (Rs.)	Amount (Rs.)		
<b>I - System Design, Engineering, Supply, Installation/ Commissioning(per toll plaza)</b>																			
1	RFID ETC transceiver (entry) - over lane entrance (AVI)	No	2 (1 per lane)	122400	244800	124939	249878	127864	255728	107000	214000	125000	250000	80000	160000	116471	232942	158979	317958
2	RFID ETC transceiver (exit) - for transaction - over lane Canopy near AVC	No	2 (1 per lane)	122400	244800	124939	249878	127864	255728	107000	214000	175000	350000	80000	160000	116471	232942	143036	286072
3	Electronics Enclosure	No	2 (1 per lane)	48960	97920	21003	42006	130126	260252	19231	38462	50000	100000	17500	35000	5812	11624	30238	60476
4	Lane Controller with Industrial PC	No	2 (1 per lane)	108800	217600	112207	224414	64640	129280	66308	132616	150000	300000	45000	90000	101706	203412	301790	603580
5	AVC including sensors, loop and detector	Set	2 (1 per lane)	190400	380800	260462	520924	66723	133446	182131	364262	375000	750000	250000	500000	155182	310364	417150	834300
6	User Fare Display with mounting pole	Set	2 (1 per lane)	12240	24480	21253	42506	24857	49714	19231	38462	25000	50000	20000	40000	17229	34458	33269	66538
7	Automatic Barrier Gate	No	2 (1 per lane)	251600	503200	180633	361266	170923	341846	135000	270000	175000	350000	130000	260000	110464	220928	160268	320536
8	Overhead Lane Status light (OHLs)	No	2 (1 per lane)	11560	23120	14962	29924	9667	19334	10181	20362	11000	22000	15000	30000	8281	16562	15038	30076
9	Vehicle Guidance Signal - Traffic light with mounting pole	Set	6 (3 per lane)	12240	73440	13199	79194	16126	96756	9842	59052	10000	60000	12000	72000	10633	63798	12834	77004
10	Loops with detector	Set	10 (5 per lane)	7480	74800	13089	130890	9751	97510	5900	59000	6000	60000	12000	120000	8718	87180	11804	118040
11	Light Curtain	No	6 (3 per lane)	61200	367200	34700	208200	38107	228642	20363	122178	35000	210000	70000	420000	26895	161370	77250	463500
12	Incident Capture Camera with mounting pole	Set	2 (1 per lane)	13600	27200	69856	139712	12084	24168	20363	40726	18000	36000	20000	40000	13291	26582	23278	46556
13	License Plate Image Capture Camera with mounting poles	Set	2 (1 per lane)	16320	32640	33355	66710	22711	45422	20363	40726	25000	50000	25000	50000	13291	26582	23278	46556
14	Hand-held RFID Reader	No	4	74800	299200	147872	591488	96040	384160	96574	386296	110000	440000	80000	320000	152020	608080	126333	505332
15	Local ETC Plaza Server in a hot-standby configuration	No	1	1033600	1033600	1734970	1734970	214286	214286	663075	663075	950000	950000	200000	200000	491039	491039	602550	602550
16	Incident Management Workstation	No	1	47600	47600	67188	67188	31817	31817	47363	47363	60000	60000	35000	35000	49104	49104	77250	77250
17	Network Printer	No	1	23120	23120	20503	20503	25966	25966	28418	28418	30000	30000	22000	22000	38503	38503	36411	36411
18	Cabling/Networking(including the provision of Network switch) /Installation/Commissioning (Lump sum)	Job	1	68000	68000	1116511	1116511	36429	36429	71269	71269	750000	750000	70000	70000	481803	481803	561809	561809
19	Internet router for connection to the CCH	No	1	40800	40800	14965	14965	2304	2304	2700	2700	8000	8000	10000	10000	4691	4691	25750	25750
20	Software - Lane Level	No	2 (1 per lane)	27200	54400	29086	58172	10000	20000	31371	62742	175000	350000	25000	50000	8879	17758	114837	229674
21	Software - Plaza level	No	1	272000	272000	137606	137606	50000	50000	31371	31371	350000	350000	100000	100000	35516	35516	120881	120881
22	Broadband internet connection with minimum 2 Mbps link	Facility	1	6800	6800	19089	19089	2914	2914	15838	15838	10000	10000	60000	60000	7818	7818	20600	20600
23	UPS system as required for the proposed bidder's ETC Toll Plaza system	No	1	306000	306000	201071	201071	209566	209566	447976	447976	250000	250000	90000	90000	234546	234546	251320	251320
24	Diesel Generator Set and control panel for the proposed bidder's ETC Toll Plaza system	No	1	374000	374000	239400	239400	327325	327325	300725	300725	150000	150000	90000	90000	160940	160940	206000	206000
25	Set of maintenance tools including Laptop computer	No	1	40800	40800	82318	82318	43714	43714	38831	38831	100000	100000	100000	100000	87176	87176	77250	77250
26	Providing Overhead ETC Lane Signages ( 4 boards of 1.2 m X 1.2 m dimensions)	Set	8 (4 per lane)	12240	97920	8726	69808	10929	87432	13575	108600	15000	120000	35000	280000	42218	337744	20600	164800
27	Providing Road markings on ETC lane ( at 4 places on the pavement)	Job	8 (4 per lane)	13600	108800	9817	78536	3643	29144	1923	15384	11000	88000	15000	120000	15636	125088	15450	123600
28	Painting on pavement with specific colour	Job	2 (1 per lane)	12240	24480	363578	727156	5100	10200	2941	5882	35000	70000	15000	30000	7818	15636	25750	51500
29	Providing traffic cones along the ETC lane at spacing of 2 metres	Set	2 (1 per lane)	24480	48960	65400	130800	66437	132874	39594	79188	20000	40000	30000	60000	14073	28146	20600	41200
30	Other items and works to complete the system	Job	1	859019	859019	1506269	1506269	291429	291429	0	0	0	0	0	0	40655*2	81310	523000	523000
<b>Total</b>					<b>6017499</b>		<b>9141352</b>		<b>3837386</b>		<b>3919504</b>		<b>6354000</b>		<b>3614000</b>		<b>4433642</b>		<b>6890119</b>
<b>II - Operation &amp; Maintenance (Two ETC lanes)per toll plaza</b>																			
(A)	Quarterly O&M charges				217250		1030064		243750		117900		240000		300000		227288		697806
(B)	Total O&M Charges for 5 years (20 quarters) [(A)*20]				4345000		20601280		4875000		2359000		4800000		6000000		4545760		13956120
<b>Sub-Total : Supply, Installation/commissioning and operation of 2 ETC Lanes [ I + II(B) ] =</b>					<b>10362499</b>		<b>29742632</b>		<b>8712386</b>		<b>6277504</b>		<b>11154000</b>		<b>9614000</b>		<b>8979402</b>		<b>20846239</b>
<b>III - Price of Two (2) additional ETC lanes during the contract period:</b>																			
(A)	Price of expanding the above system by Two (2) additional ETC lanes in INR (System Design, Engineering, Supply, installation, system integration & Commissioning)				2123000		5870996		2923780		1397161		2400000		1800000		3196285		4990177
(B)	Quarterly O&M Charges for additional two lanes, in INR				63690		313458		131250		85668		45000		135525		58002		88715
(C)	Total O&M Charges for 2 years ( 8 quarters) in INR ((B) * 8)				509520		2507664		1050000		685344		360000		1084200		464016		709720
<b>Grand Total: [ I + II (B) + III(A) + III(C) ] =</b>					<b>12995019</b>		<b>38121292</b>		<b>12686166</b>		<b>8360009</b>		<b>13914000</b>		<b>12498200</b>		<b>12639703</b>		<b>26546136</b>

(Sarang Adgokar)  
Dy. Manager  
IHMCL

(R. P. Shukla)  
Under Secretary (Toll)  
MoRT&H

(S. K. Patel)  
General Manager (LC)  
NHAI

(R. C. Palekar)  
CEO  
IHMCL

Note: Work (B) 2 Toll Plazas of NHAI awarded to Vaan Infra by IHMCL as per rates of Col. 4.

K. P.

Annex-3  
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**Tentative Items for Upgrading the Infrastructure at Toll Plazas**

Annex-B  
(3 Pages) 1/3

**A. Pre-requisite work for enabling ETC equipment installation:**

S. No.	Requirement (civil & electrical infrastructure) for implementation of ETC in penultimate lane	Remarks/ (obligation)
1	Concrete Pavement in approach area (taper portion) for 75 m length before bullnose of Toll Plaza island in approach direction (line diagram enclosed)	Special attention is to be paid while laying PQC in the area of ETC lane in view of loops to be laid for ETC implementation. / (NHAI); loops(Tecsidel/ Vaaan Infra).
<b>Note : As per guidelines, full length of taper portion in approach to Toll Plaza is to be provided with concrete pavement. However, keeping in view limited time available for completing the infrastructure, 75m length in approach direction only is prescribed here.</b>		
(i)	Concrete Pavement for each 5+5 lanes [(27+20)*75/2 =1762.5*2=3525 sqm], (in case traffic is more than 15,000 PCU/ day at Toll Plaza)	This quantity would almost remain same in case of staggered toll plaza. However, for 4+4 lane plaza, the quantity may suitably be modified [(23+20)*75/2 =1462.5*2=2925 sqm]. / (NHAI).
(ii)	Concrete Pavement in the Central Portion of Toll Plaza Area 5+5 lanes [27*35= 945*2 =1890 sqm]	For 4+4 lane Toll Plaza Area, Quantity of Concrete Pavement [23*35= 805*2 =1610 sqm] / (NHAI).
(iii)	To keep suitable pit for installing WIM at a later date of size (across toll lane including island) x 1.5 m x 1.0 (depth) with underneath cross drain provision, at axis of toll booth to axis of WIM distance of 20 m between the WIM and toll booth which, till installation of WIM shall be filled with suitable course material and keep flushed with pavement surface using interlocking tiles.	(NHAI)
2	Island on either side of ETC lane (For safety of vehicles, equipments and personnel on site)	No permanent island on approach to ETC lane/ ejection lane in taper portion of Toll Plaza is to be provided as it is a traffic safety hazard. The pole etc. required to install ETC equipment may be suitably anchored to CC pavement by agency of IHMCL and for protection of the same, plastic/ collapsible fenders/ attenuators may be placed by agency of IHMCL. / (Tecsidel/ Vaaan Infra)
3	Provision of conduits from proposed ETC lane to proposed Server location & from proposed DG location to UPS room	Covered under scope of work of IHMCL/ Tecsidel/ Vaaan Infra and may be done by Tecsidel/ Vaaan Infra at the time of laying of Concrete Pavement. / (Tecsidel/ Vaaan Infra)

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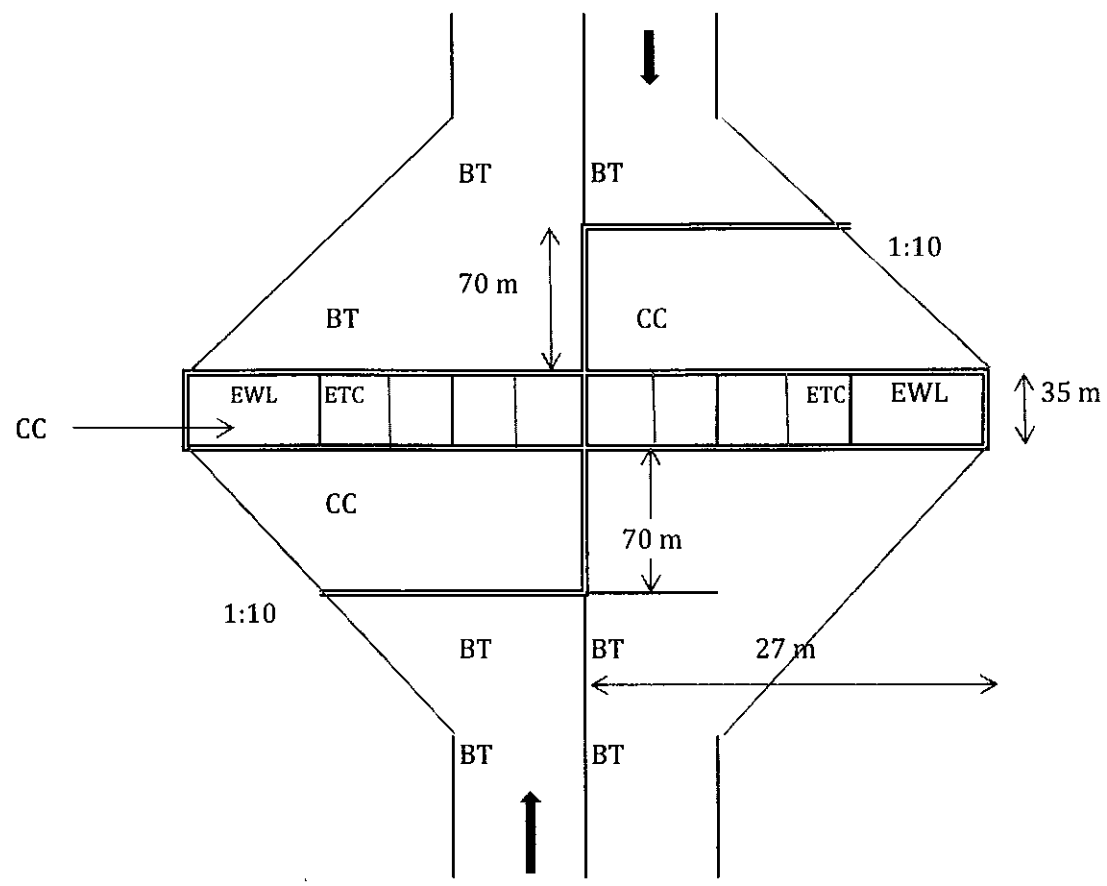
4	Foundations for Cantilever Gantry, Traffic light & Camera Poles, Barrier Gates, Light Curtain	Covered under scope of work of IHMCL/ Tecsidel/ Vaaan Infra and may be done by Tecsidel/ Vaaan Infra at the time of laying of PQC. The pole etc. required to install ETC equipment may be suitably anchored to CC pavement by agency of IHMCL and for protection of the same, plastic/ collapsible fenders/ attenuators may be placed by agency of IHMCL. / (Tecsidel/ Vaaan Infra)
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**B. Canopy, Toll Booth, etc. as per design preferably with the following specifications so as to maintain uniformity in all NHAI Toll Plazas**

1 (i)	Canopy: Providing and fixing Canopy of aesthetically pleasing design (covering full central portion of toll plaza area) with minimum elevation face/ depth of 1.2 m, using IMBH M.S. Pipe column 400 mm dia (nominal Bore) heavy class (minimum) as per IS -875 and stiffener & base/ top plate as per design and the members of space frame shall be made out of MS tubes, nominal bore/ heavy class confirming to IS-1239	Colour scheme of elevation of Canopy shall be same as road signs colour, i.e., green colour. However, Orange colour is to be used for ETC lane portion. Ceiling lighting shall be provided with a level of illumination of 100 Lux as per IS-1944 / (NHAI)
1 (ii)	Providing & Fixing, 1.6 mm thick (TeT) galvanized pre-coated trapezoidal profiled roofing sheet with high durable polyester coated (HDP) which is ultra violet rays resistant & weather resistant with approved make and colour.	(NHAI)
<b>Note : If Canopy is already existing, the same is to be retained and not to be disturbed. However, if required, extension of canopy may be undertaken. Similar is the case with toll booths also, i.e., the existing toll booths need not be disturbed.</b>		
2	Toll Booth: Powder coated aluminium work for doors, windows and partitions with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS: 733 and IS: 1285.	Colour scheme of elevation of Canopy and Toll Booth shall be same i.e., green (orange colour for ETC lane) / (NHAI)
3	Separate Space for Server, Workstations, UPS & Related IT equipment in control room with AC	Lockable rooms adjacent to/ in the Plaza Admin Building to be provided by NHAI. (Minimum size 8'x8'x10'). / (NHAI)
4	Standard Cabin or Booth for mounting of TLC, AVC & related IT equipment preferably temp controlled (i.e. AC)	May be installed by IHMCL/Tecsidel/ Vaaan Infra within the booth of ETC lane provided by NHAI. / (Tecsidel/ Vaaan Infra)

contd .. 3

K. V. S.



Line diagram of PQC for 5 + 5 lane toll plaza