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UPMRC/CE-CONTRACT/KNPCC-05/2020-21

Date: 01/09/2020

To,

All Bidders

Subject: - Reply to Pre-bid queries and Addendum-01 for tender KNPCC-05

Ref: - Tender KNPCC-5: Design and Construction of Tunnel from start of elevated ramp (after Moti Jheel Metro Station) to end of Nayaganj station including four underground metro stations (viz. Chunniganj, Naveen Market, Bada Chauraha and Nayaganj) and ramp including Architectural finishes, E & M, TVS, ECS etc. on Corridor-1 of Kanpur MRTS Project at Kanpur, Uttar Pradesh.

Dear Sir,

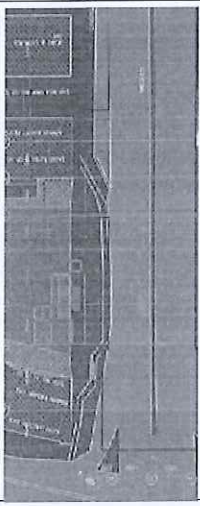
Please find enclosed herewith the reply to pre-bid queries and Addendum-01 to the tender KNPCC-05. Further, the submission and opening dates are revised as follows:

- Date & Time of submission of tender : **30.09.2020 upto 15:00 Hrs**
- Date & Time of opening of tender : **30.09.2020@ 15:30 Hrs**

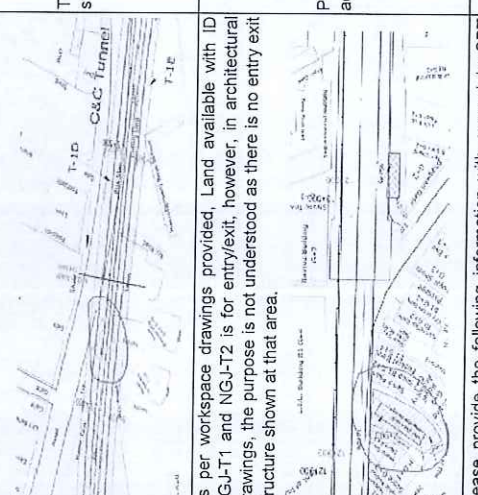
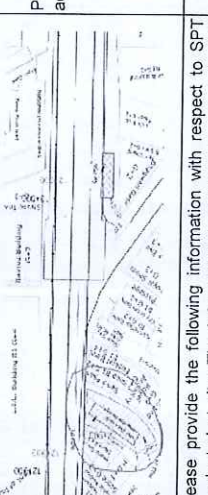


Reply to Pre-Bid Queries KNPC-05

Tender KNPC-05: Design and Construction of Tunnel from start of elevated ramp (after Moti Jheel Metro Station) to end of Nayaganj station including four underground metro stations (viz. Chunniganj, Naveen Market, Bada Chauraha and Nayaganj) and ramp including Architectural finishes, E & M, TVS, ECS etc. on Corridor-1 of Kanpur MRTS Project at Kanpur, Uttar Pradesh, India.

Sr No	Reference Clauses		Employer Requirement	Details / Clarifications Required	UPMRC's Reply
	Section	Page No. Clause			
1	Tender drawings	Utility Drawings	The chartered utility are shown in drawings	Kindly confirm the depth of Covered drains and UG electrical lines for better understanding and planning.	Please refer to clause B-2.3 of ITT and Annexure-01 of (utility drawing No. UPMRC/CPM-3/KNPC05/UTILITY R-1) of addendum-1.
2	Employers Requirement Part II	Appendix 2B	Key Dates	In line with Key date 07 and launching constraints of two TBM's in parallel, we request to modify the timeline from 40 weeks to 42 weeks.	As per tender conditions.
3	Vol-1 NIT ITT FOT	30 of 118	CI C2.2 ©	Tenderer should also submit priced BOQ in MS Excel format on an CD in sealed condition in Financial Package. The format/sequence should not be altered and should be submitted same as provided with the tender documents. In case of any discrepancy between hard copy & soft copy, hard copy will prevail.	BOQ in Word format is being provided by email. However in case of any discrepancy between soft copy and hard copy, hard copy attached with tender will prevail.
4	Vol-2 GCC	13 of 202	CI 2.2	The Employer shall grant the Contractor right of access to, and / or possession of, the Site progressively for the completion of Works. Such right and possession may not be exclusive to the Contractor. The Contractor will draw/modify the schedule for completion of Works according to progressive possession/right of such sites.	Request to provide the land hand over schedule, so that contractors can plan the schedule accordingly. In case of delay in land handing over site during execution then contractor shall be compensated for time and cost. We also request to confirm the land acquisition status associated with this requirement.
5	Vol-2 GCC	148 of 202	CI. 11.2.1	No advance against plant and machinery.	As per tender conditions. Please refer Clause 27 of SCC (part-1), sub-clause 11.2.2 Pg.115.
6	Vol-3 Employer's Requirements	1367 of 1429	Appendix 2A	The employer will provide the work areas of Approx. 6 hect of land for casting yard for construction of segments for Tunnel construction & stacking Depot within 20 Km radius of work site.	We request to provide the specific site location for location of Casting Yard to plan the factory setup with other ancillary structures.
7				The original and all copies of the tender shall be typed or written in indelible ink (in the case of copies, photocopies are also acceptable) and all the pages of the original and all copies shall be signed by a person or persons duly authorised to sign on behalf of the Tenderer	We understand that only the original document need to be signed in person by authorised signatory and photocopy need not to be signed Please clarify.
8	Vol-4 Outline Design Specifications	Page No. 61	Section 2.8.3 (vi)	Other Incidental Load	Do we need to consider One strut failure condition in temporary structure design? and if yes please elaborate in case of stages having multiple layers of struts.
9	Vol-4 Outline Design Specifications	Page No. 62 and 63	Section 2.8.5	Floatation	Please specify, if we can consider the skin friction between the concrete surface (D-walls) and the soil in uplift calculations.
				Plan shown for concourse slab and for station insertion plan is not matching. Please suggest which to be followed ?	Yes, one strut/Anchor failure should be checked in all construction stages with a FOS of 1.05. Yes, in case of D-wall.
			Architectural Drawings - Naveen Market Station		Please refer to Annexure-02 for Architectural drawing of addendum-1.




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11	Tender Drawings		Alignment Drawings -UG Ramp at Chainage - +9440	<p>We understand that the existing roads at chainage + 9440 shall be permanently closed. Please confirm?</p> 	The chainage +9440 is at off road location. Existing road shall be restored after construction of C&C tunnel.
12	Tender Drawings		Work space and Architectural Drawings - Land Available NGJ T1 and NGJ-T2	<p>As per workspace drawings provided, Land available with ID NGJ-T1 and NGJ-T2 is for entry/exit, however, in architectural drawings, the purpose is not understood as there is no entry exit structure shown at that area.</p> 	Please refer to Annexure-02 for Architectural drawing of addendum-1.
13	Geotechnical Report		SPT Values	<p>Please provide the following information with respect to SPT conducted at site. The information is required to calculate N60 values.</p> <ol style="list-style-type: none"> 1. Hammer Efficiency 2. Rod Length from G.L. to anvil 3. Type of Sampler 	Geotechnical Report has already been provided for reference. Kindly refer to clause B 2.1 and B 2.3 of ITT.
14	Vol-6 TVS Drawings	267	TUNNEL VENTILATION SYSTEM ARRANGEMENT	<p>Please provide Nozzle Drawings & TVS system arrangement drawings for different stations</p>	Typical Nozzle Drawings attached as Addendum-1 annexure-06.
15	Vol-3 part-II 1.5 & 1.1.1	584 & 601	TVS & ECS System	<p>The contract price shall add any necessary equipment, equipment of higher capacities and higher ratings for the systems and sub-systems necessary for the complete, safe, reliable and operable Environment Control System providing all clarifications and justifications for the same.</p>	Any change in rating of equipment will be treated as New Item, please confirm. As design work is responsibility of DDC, so contractor could not verify any capacity and rating at current stage.
16	Volume 3, Part 2 A01.3.7.3	700	Fan motor & starter	<p>Motor shall comply with NEMA MG-1 & high efficiency class i.e. EFF-1.</p>	Code mentioned for motors NEMA which is an American standard. Please allow equivalent international IS or BS standards as most of OEM for motors are based in Europe, Asia or outside America and follow IS or BS standards.
17	Volume 3, Part 2 V06.4	1026	Air Dryers	<p>The air dryers shall be capable of producing dry air at a dew point of -40C of free air at 7.5bars gauge based on continuous operation.</p>	Please note EFF rating of motors have been phased out and not used by OEM as per approved make list. Please allow rating of motor efficiency as per equivalent IE ratings.
18	Volume 3, Part 2 Datasheet of Air Compressor	1321	Air Compressor	<p>RPM not more than 1450 RPM</p>	As per previous Metro experience like DMRC/ LMRC/ CMRL, dew point for air dryer is 2 deg C to 4 deg C. Please update this technical requirement.
19			Only PDF true drawings will be provided.	<p>This is to note that, while converting drawing from PDF to AutoCAD version, all the elements are Exploded & not to the scale. The sufficient time for conversion, rearrangement of all components into scale and preparing design drawings is not available to meet current bid submission date (18-09-20). We request you to share the ACAD version of all drawings to accelerate the works.</p>	As per Clause V06.4.1 Page 1026 The air dryers shall be capable of producing dry air at a dew point of -4°C of free air at 7.5bars. Compressor upto 3000 RPM may be acceptable.

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20	Vol-1 Invitation for Bids		Bid Submission date - 18-09-20	To evaluate the tender in details with above clarifications as well as time required for Notarisation of Power of attorney, we request you to extend the bid submission date by 6 weeks i.e. 02-11-2020.	Please refer Annexure-08 of Addendum-01.
21	Volume - 1	NIT Page No 5 1.1.4.2	Work Experience: For a Joint Venture / Consortium to qualify, each of its partner (including non-substantial partners) must have experience of executing at least one Civil and/or E&M and/or "TVS & ECS" work of minimum 20% of NIT value in last 07 years.	We understand that the requirement of 20% of the NIT Value can be fulfilled by a JV Member with a combination of two separate contracts i.e., "1 TVS & ECS Work" and "1 E&M work" in the last 07 Years, for a Joint venture/ Consortium to qualify. Please confirm.	As per tender conditions. The clause is self explanatory of having experience of executing one single work of Civil and/or E&M and/or TVS & ECS of minimum 20% NIT value in last 7 years.
22	Volume - 1	NIT Page No 5 1.1.4.2	Work Experience: For a Joint Venture / Consortium to qualify, each of its partner (including non-substantial partners) must have experience of executing at least one Civil and/or E&M and/or "TVS & ECS" work of minimum 20% of NIT value in last 07 years.	We request you to kindly amend the qualification requirements to the following, for the submission of most competitive offer: "The requirement of 20% of the NIT Value can be fulfilled by a JV Member with a combination of two separate contracts i.e., "1 TVS & ECS Work" and "1 E&M work" in the last 10 Years, for a Joint venture/ Consortium to qualify. Please confirm."	As per tender conditions.
23	Volume - 1	NIT Page No 5 1.1.4.2	Work Experience: For a Joint Venture / Consortium to qualify, each of its partner (including non-substantial partners) must have experience of executing at least one Civil and/or E&M and/or "TVS & ECS" work of minimum 20% of NIT value in last 07 years.	We request you to kindly amend the qualification requirements to the following, for the submission of most competitive offer: "The requirement of 20% of the NIT Value can be fulfilled by a JV Member with a combination of two separate contracts i.e., "1 TVS & ECS Work" and "1 E&M work" in the last 10 Years in the capacity of Contractor/Sub-Contractor/Management Contractor, for a Joint venture/ Consortium to qualify.	As per tender conditions.
24	Volume - 1	NIT Page No 7 A3	Subcontractor/s for "E&M works" and "ECS & TVS work" may be the same or different.	Citing the technical, interfacing, & coordination requirements between various system-wide contractors, better design implementation for such a prestigious project, we request you to kindly amend the subject requirement as per below: "Subcontractor/s for "E&M works" and "ECS & TVS work" should be the same. " Kindly confirm.	As per tender conditions.
25	Volume - 1	NIT Page No 5, 6 & 7	ECS, TVS, E&M and SCADA Works	We request you to kindly invite separate bid for the subject scope of works i.e. ECS, TVS, E&M and SCADA Works, for the receipt of most competitive offer by UPMRC.	As per tender conditions.
26	General			• Due to COVID-19 and lock down imposed in Kanpur we cannot make site visit hence we kindly ask you to extend last date of submission of tender at least 4 weeks.	Please refer to NIT for date of submission of tender. There is no restriction on movement in Kanpur on weekdays.
27	General			• Kindly please link milestones dates to Commencement date instead of LOA.	As per tender conditions.
28	General			• There are 34 numbers of key dates with unachievable interim dates. Kindly please reduce the number of milestone dates to important achievement only.	As per tender conditions.
29	General			• In order to stay in Contract Duration Traffic Diversions are required. Complete closure of streets or 2 lanes only arrangement need to be approved. Please confirm if it is possible.	As per tender conditions.
30	General			• Horizontal alignment shall be modified to suit the requirement of TBM operation and Station Construction and operation which may require additional work areas. Please confirm if such additional work areas to be provided.	Please refer to clause 3 of Employer's Requirements/Section-B/Functional. Work area drawing is attached with the tender. Contractor may arrange additional land on its own.

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31	General			<ul style="list-style-type: none"> Please confirm that the casting yard area to be provided free of charge to Contractor including royalties for the duration of the Project. 	Land for casting yard shall be provided free of cost till the date of handing over back stipulated in the contract.
32	General			<ul style="list-style-type: none"> Please confirm if one component grouting is accepted for annulus grouting. 	Two component grouting is accepted.
33	General			<ul style="list-style-type: none"> Kindly please answer, are diaphragm walls considered acceptable for permanent structure? 	Yes
34	General			<ul style="list-style-type: none"> Could you please share us alignment design report or local criteria for geometric design? In tender drawings, alignment design criteria are not defined. 	Please refer to clause 3 of Employer's Requirements/Section-B/Functional.
35	General			<ul style="list-style-type: none"> According to Outline Design Specifications, 4 hrs. fire protection should be adopted and minimum concrete covers is specified in Table 1. Is this enough for fire protection? or is there an additional fire protection system as a requirement that we consider? 	SOD is attached as annexure-05 of Addendum-1. As per tender conditions.
36	General			<ul style="list-style-type: none"> Could you revise the tender submission as online? 	As per tender conditions.
37	Vol. No. 2 GCC Vol. No. 3 ER Part-II 2.2 Appendix-2A	13 of Vol.2 1387 of ER Part-II	<p>The Employer shall grant the Contractor right of access to, and / or possession of, the Site progressively for the completion of Works.</p> <p>The employer will provide the work areas of Approx. 6 hect of land for casting yard for construction of segments for Tunnel construction & stacking Depot within 20 Km radius of work site.</p> <p><small>Sub Clause 11.1.1 (v) of GCC is replaced as under:</small></p> <p>(b) Goods and Services Tax (GST) is excluded in the contract price. The contractor shall maintain details of GST paid to 'Trade and Taxes' department and the same shall be reimbursed by UPMRC based on submission of.....</p>	<ul style="list-style-type: none"> Request you to please confirm whether all the lands will be handed over in the first month from commencement of works, as the possessions of Land for Stations is crucial as all Key Dates are critical. <p>Request you to please confirm whether Land for Casting Yard will be handed over in the first month. The initial Drive of 1st TBM is 38 weeks and therefore, possession of Casting Yard in 1st Month is crucial to enable commencement of initial Drive in 38th week.</p>	Please refer clause 2.2 of GCC.
38	Clause No. 24 Sub-Clause 11.1.1 Clause No. 24 Sub-Clause 11.1.1	Page No. 109 Page No. 146	<p>The rates and prices quoted in the Bill of Quantities shall be inclusive of all taxes, levies, duties, cess, freight, insurance and any other charges leviable, including tax deducted at source except the:</p> <p>...(b) GST on the indigenous or imported complete finished Equipments/components, Spares, Jigs, Fixtures, Special tools and Testing and Diagnostic equipments etc.,.....</p> <p>...Also, GST on the indigenous items shall reimburse by the UPMRC.</p>	<p>As per bid document, GST shall be reimbursed by UPMRC</p> <p>Please confirm whether GST paid by Contractor for TBM purchase, will be reimbursed to the Contractor as per actuals.</p>	GST paid by contractor for purchase of TBM will not be reimbursed by UPMRC.



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39	<p>SCC Part-2: For E&M, ECS & TVS Clause No. 24 Sub- Clause 11.1.1</p>	<p>Page No. 146 Contract Price : Import Duty</p>	<p>....UPMRC projects are eligible for availing concessional duty benefits under Chapter 98.01 of Customs Tariff Act. UPMRC shall facilitate the contractor for obtaining sponsoring letter for getting them registered for availing the Project Import Benefits.However, the responsibility to avail the concessional benefits under Project Import or otherwise as extended in accordance with the law of the land shall solely rest with the Contractor.Accordingly, UPMRCL shall reimburse the eligible Basic Custom Duty and Cess paid by the Contractor on imported items. The term Basic Custom Duty shall mean the Custom Duties excluding the Input tax credits/GST available to the Contractor. Also, GST on the indigenous items shall reimburse by the UPMRCL.</p>	<p>It is stated that responsibility of availing concessional duty benefits under Project Import rests with Contractor. Further it is stated that UPMRCL shall reimburse the eligible Basic Custom Duty and Cess paid by the Contractor on imported items Request you to kindly clarify the contradictions. We wish to understand whether Contractor will get concession during import or Contractor will pay the duties and later get reimbursement from UPMRCL. Please confirm if the name of "Uttar Pradesh Metro Rail Corporation Limited" as sponsoring Authority is included or being included in the table 3FF in Project Import Regulations, 1986 or its amendments. UPMRC is being included in table 3FF. As UPMRCL projects are eligible for availing concessional duty benefits under Chapter 98.01 of Customs Tariff Act, please confirm whether Contractor will get concession in Import duties for import of Civil Works components and equipment and machinery spares. On civil works it is not available.</p>	<p>As per tender conditions there is no contradictions. It will be reimbursed as per tender conditions.</p>
40	<p>Vol.2, SCC Part 2 Clause 11.1.1</p>	<p>Page No.146</p>	<p>(A) The tenderer is required to note..... The rates and prices quoted in the Bill of Quantities shall be inclusive of all taxes, levies, duties.....except the: a) The Basic Customs Duty, cess and other surcharges (as applicable) on the imported components/ equipments, Spares, Jigs, Fixtures, Special Tools and Testing and Diagnostic equipments, etc. b) UPMRC projects are eligible for availing concessional duty benefits under Chapter 98.01 of Customs Tariff Act. UPMRC shall facilitate the contractor for obtaining sponsoring letter for getting them registered for availing the Project Import Benefits. In view of above clause, and to avail the concessional duty benefits, Contractor needs to do the High Sea Sale to the Employer, and then do the import clearance basis Employer credential viz. GSTIN, IEC code. Being Composite contract price for entire MEP work, Contractor wouldn't be able to do the High Sea Sales for imported items embedded in MEP Work to the Employer to take the advantage of concessional BCD.</p>	<p>Request you to kindly clarify</p>	<p>As per tender conditions.</p>
			<p>We could not have clarity regarding diameter of sewers, Size of Drains, Capacity of Electric Cables, presence of Gas Lines from the Drawings. These are necessary to work out cost of Utility Diversion</p>	<p>We request you to kindly provide detailed Utility Drawing to enable us plan the Utility supporting, Utility Diversion and work out their costs.</p>	<p>Please refer to clause B-2.3 of ITT and Annexure-01 of (utility drawing No. UPMRCL/CPM-3/KNPCC05/UTILITY R-1) of addendum-1.</p>

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42	BOQ	Page No. 8	<p>We find that the Total Percentage payable on A2 component of Lump sum Portion Quoted is 14% for Construction of concourse slab(Based on proportional progress). However, stage Payments provided for each station is 1.5% leading to sum total of 6%.</p> <p>We find that the Total Percentage payable on A2 component of Lump sum Portion Quoted is 10% for Construction of all roof slab including RCC work above roof slab including water proofing if any (Based on proportional progress). However, stage Payments provided for each station is 1.5% leading to sum total of 6%.</p>	<p>We request you to kindly rectify the typo error in stage payment percentages for each station and provide us with Excel Format of the BOQ.</p>	<p>Please refer to annexure-03 of addendum-1.</p>
43	UPMRC-DESIGN-JUG-ST-104		Detail shows 6+1 segment arrangement.	Please confirm the requirement as 6+1 segments or contractor can change to 5+1.	Please refer to drawing no UPMRC -DESIGN-JUG-ST-104 R-1 attached as Annexure-04 of Addendum-1.
44	UPMRC-DESIGN-JUG-ST-115		Cross section shows the distance between wall and track centre with additional distance as clearance (X)	The SOD details are not available in bid document. Please provide the SOD.	Please refer to SOD attached as annexure-05 of Addendum-1.
45	Vol. 4 clause 2.7.5	49	Ground water table shown in the tender GI shows no presence of ground water. Design requirement is for last 20 years data +4m, while for uplift at ground level.	Uplift is checked for ground water table at ground level, however water level doesnot found 30 m below ground as per tender geotechnical reports. While the structures are designed for lower water pressure of maximum ground water from last 20 years +4m. The design shall comply for uplift and structural design for same water table. Please consider.	As per tender conditions.
46	Vol. No 4 Clause 2.7.8	55	Passenger emergency evacuation design for cross passages running tunnels which are constructed by either cut and cover or bored method shall be in accordance with the requirements of NFPA 130	Generally cross passages for most of Indian metro projects followed based on NBC-2016. Please confirm.	Cross passage location shall be proposed by contractor based on Latest NBC guidelines and drainage requirement.
47	UPMRC/PH-1/KNPCC-05/GAD/SHEET-1	Sheet-01 to 07	Building Condition Survey	Please provide us the Building Condition Survey if carried out. As per geotechnical report the houses in Kanpur have not incorporated building by-laws, and do not have adequate structural strength to withstand even a moderate earthquake.	As per tender condition Building Condition Survey shall be carried out by the contractor.
48	UPMRC/PH-1/KNPCC-05/GAD/SHEET-1	Drawings	Profile	The stations are at same level which tends to zero slope for the TBM between stations. The profile shall consider the drainage minimum slope.	Please refer to the General Alignment Drawing.
49	Volume-7 E&M BOQ	319-320	ECS : Make for Water Cooled Screw Chillers / Air Cooled Chillers (Trane / Carrier/ York)	we request for approval of Voltas make Water Cooled Screw Chillers & Air Cooled Chillers, manufactured at our works in Vadodara, Gujarat. We had been manufacturing Chillers in india for last three decades. Our Chillers are operational for various govt. client for e.g. CPWD, PWD, MES, Airport Authority of India/SRO/DRDO etc along with private sector. We also have a AHRI certified test bed at our works to offer you the testing of chiller before dispatch. We seek your support for "MAKE IN INDIA" manufacturing which is also encourage by Govt. of India through their circular ,reference no. P-4502/1/2/2017-PP (BE-II) dated 04.06.2020. We are also complying the Criteria of "Class 1 Local Supplier" mentioned in to the above circular. We use Semi hermetic screw Compressors from Hanbell / Eushana/Bitzer	Water Cooled Screw Chillers / Air Cooled Chillers : In addition to Makes already specified in Tender M/s Voltas is also included in line with Tender Condition.
50	ECS-work	433	3 / Air Cooled Packaged Scroll Chillers	Refrigerant R-134A (R-410A)	As per tender conditions.

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51	Volume-7 E&M (BOQ) Part B : ECS Work	433	Air Cooled Packaged Scroll Chillers shall be AHR/Eurovent Certified	Scroll Chillers are Lower Capacity chillers & AHRI Certification below 200TR Chillers are not mandatory. Request to kindly accept those Scroll chillers as well which are not AHR/Eurovent Certified but designed, assembled & tested in accordance with AHR/Eurovent standards.	Air cooled packaged Scroll Water chillers (AHR/Eurovent Certified) is already mentioned in BOQ Item (3) Air cooled packaged Scroll chillers.
52	Volume 3	711	A03.2.2 /Manufacturers Qualification & experience The Water chilling Units Manufacturer shall show atleast 10 Years of continuous & current experience in the design, assembly & testing of Such units	Efficiency improvement in chillers is a continuous process. Tender has called for 6.1 COP chillers, these Efficiency benchmark has came in recently last 2-3 years. Hence having the 10 Years of experience with such a high efficiency chillers & Same Chillers models is not possible. Chiller OEM shall have more than 10 years of experience in design, assembly & testing of chillers, but it should not be applicable for the models offered against the tender requirements, as the offered models might be developed in past 2-3 years.	The manufacturer should have experience of 10 years for manufacturing of Water Chilling units.
53	Volume 3	713	A03.3.2.8 /Compressor The units shall be complete with automatic capacity control mechanism, to permit modulation between 20% and 100% of capacity range	Generally Capacity Modulation for single compressor remains available from 25% to 100%, but for Multi compressor /dual Compressor, it can unload upto 20%. Hence request to kindly accept capacity modulation 25% to 100% for single compressor & 20% to 100% for dual compressors.	As per tender conditions.
54	Volume 3	713	A03.3.2.8 /Compressor Chilled water temperature control setting capability will be 0.1 Deg F or less	0.1 deg F equals to 0.05 Deg C of temperature settings. A chiller control setting could not be designed for a change of 0.05 deg C. Hence request to kindly change the temperature control setting capability from 0.1 Deg f to 0.1 deg c, Which is practically possible.	As per tender conditions.
55	Volume 3	714	A03.3.4.5/ Condenser The condenser shall be tested against leaks with a pressure of 24.5 Kg/Cm2 on both the shell side and the waterside. Our Condenser shall be designed.	R-134A Screw chiller's condenser on refrigerant side can be tested at a maximum of 18KG/Cm2 of test pressure. Even this 18KG/Cm2 test pressure is beyond the ratings of ASME pressure vessels codes, Section VIII. Request to kindly accept condenser test pressure on shell side as 18KG/Cm2 & Water side as 10.54 KG/cm2 or As per the guidelines of ASME PV Code test pressure ratings	As per tender conditions.
56	Volume 3	715	A03.3.4.6/ Condenser Refrigerant Isolation Valve	Performance of each chillers gets deteriorate when we used isolation valves on refrigerant lines, hence request you to kindly accept the Chillers as per OEM design standard with/without Isolation valves	As per tender conditions.
57	Volume 3	715	A03.3.5.5/ Evaporator The chiller Shall be tested against leaks with a pressure of not less than of 15.75 Kg/Cm2 both on the Shell & the water side.	ASME pressure vessels codes ,Section VIII recommends the water side test pressure of 150 Psig for evaporators, equivalent to 10.54 KG/Cm2. Request to kindly accept Evaporator test pressure on Water side as per the guidelines of ASME PV code test pressure ratings	As per tender conditions.
58	Volume 3	716	A03.3.7.2/ Control Panel Oil feed and sump temperatures	As the Oil circulation & Oil sump are the integral parts of Screw compressors, it does not required external oil separator, oil pump, oil cooler. Hence the remote indication of these parameters are not possible. Kindly remove this specifications. Oil differential Pressure is a pressure safety ratings which adequate & ensures of return of Oil back to the compressor & sensed by inbuilt pressure transducers. This feature could not be display but it will be remain available within the Chiller control panel. Kindly accept the same	As per tender conditions.
59	Volume 3	716	A03.3.7.2/ Control Panel Oil Pump discharge & Oil differential pressure.	As the Oil circulation & Oil sump are the integral parts of Screw compressors, it does not required external oil separator, oil pump, oil cooler. Hence the remote indication of these parameters are not possible. Kindly remove this specifications. Oil differential Pressure is a pressure safety ratings which adequate & ensures of return of Oil back to the compressor & sensed by inbuilt pressure transducers. This feature could not be display but it will be remain available within the Chiller control panel. Kindly accept the same	As per tender conditions.
60	Volume 3	717	A03.3.7.2/ 3. Control Panel Should include the items below Start/Stop Switch (Remote Operation)	Remote operation of Chiller will be possible either with a CPM or BMS System . Hence incorporation of Start & stop Command /Switch shall be remain in CPM/BMS Scope of work.	As per tender conditions.



Sr No	Reference Clauses		Employer Requirement	Details / Clarifications Required	UPMRC's Reply
	Section	Page No. / Clause			
61	Volume 3	A03.7.2/4, Safeties incorporated in Control Panel	High or low oil feed temprature	As the Oil circulation & Oil sump are the integral parts of Screw compressors, it does not require external oil separator, oil pump, oil cooler. Hence indication of these parameters are not possible. Kindly remove this specifications.	As per tender conditions.
62	Volume 3	A03.3.9.1/Lubrication System	The lubrication system shall be complete with accessories such as Oil chiller with thermostatic control.	Oil chiller is not an accessory & does not applicable in Screw compressors. Kindly remove this specification.	As per tender conditions.
63	Volume 3	A04 / Air cooled chillers with Scroll compressors	3. Manufacturer's Qualifications & Experience : The offered chiller shall be ARI/AHR/eurovent Certified.	Scroll Chillers are Lower Capacity chillers & AHR Certification below 200TR Chillers are not mandatory. Request to kindly accept those Scroll chillers as well which are not AHR/Eurovent Certified but designed, assembled & tested in accordance with AHR/Eurovent standards.	Air cooled packaged Scroll Water chillers (AHR/Eurovent Certified) is already mentioned in BOQ Item (3) Air cooled packaged Scroll chillers.
64	Volume 3	A04 / Air cooled chillers with Scroll compressors	4.2 The chiller Shall be tested against leaks with a pressure of not less than of 15.75 Kg/Cm2 both on the Shell & the water side.	ASME pressure vessels codes, Section VIII recommends the water side test pressure of 150 Psig for evaporators, equivalent to 10.54 KG/Cm2. Request to kindly accept Evaporator test pressure on Water side as per the guidelines of ASME PV code test pressure ratings	As per tender conditions.
65	Volume 3	A04 / Air cooled chillers with Scroll compressors	4.3 Condenser shall be air cooled type of copper tube & copper fin construction.	Standard Air cooled condensers are designed with Copper tubes & Aluminium fins. Same is also asked in the condenser specifications in same paragraph. Please confirm that it is copper tube & Aluminium Fins only.	The condenser shall be copper tube and copper fins / aluminium fins as already specified in Clause 4.3. of Condenser at Page no. 731 & 732 of Volume-3/ Employer's Requirements/ Section-B/Functional Part-2/ECS & TVS
66	Volume 3	A04 / Air cooled chillers with Scroll compressors	4.3 Condenser shall be designed for a test pressure of 450Psig on refrigerant side.	Request to kindly accept designed test pressure upto 430 Psig also.	As per tender conditions.
67	Volume 3	A04 / Air cooled chillers with Scroll compressors	4.5/ the starter for the motor shall be automatic soft type with tappings to limit starting current within 2 times the Full load current.	Soft starter does not ensures the starting current to be get limited within 2 time soft Full load current. As Scroll chillers are with multi compressors, in starting of the chillers, only one compressors starts, whose starting current will be lower than the current of all 2 /3/4 compressors. Request to kindly accept standard DOL starter for scroll chillers.	As per tender conditions.
68	Vol-1, ITT, Page 77 Annexure-4, Appendix-H	Proposal for Contractor's Machinery	Column No. 7 Approx. cost in Rupees Column No. 8 Approx. cost CIF Value	As we are using various equipment with various combination of old and new sets it will be very difficult to provide data in column 7 & 8 during tender submission. We kindly request to delete the Column no 7 and Column no 8 from Appendix H.	As per tender conditions.
69	Volume-2, Page 151, Special Conditions of Contract (Part-2) Sub Clause 12.5	Quantity Variation	The variations can be implemented anywhere in the network of Kanpur & Agra Metro Rail Project.	As this is Kanpur MRTS Project at Kanpur, please modify the sentence as follows "Variations can be implemented for this Project only".	As per tender conditions. "The variations can be implemented anywhere in the network of Kanpur Metro Rail Project only".
70	Volume-6	Not all columns are shown at concourse level plan		As this is D&B tender, additional intermediate column can be provided in station, as the spacing of some grids are 25m to 41m. Request to kindly allow additional intermediate column.	As per tender conditions.
71	Volume-7			Ground levels & rail levels are not matching in Architecture cross section & Alignment drawing. Please clarify which drawings needs to be followed.	Please refer to revised Architectural Drawings attached as annexure-02 with addendum-1.
72	Volume-7, BOQ, Page 491	SCADA and PLC cost		SCADA and PLC cost was not included in the BMS BOQ, TVS SCADA BOQ and TVS SCADA at OCC works. Please provide the same	BOQ Item No. 8 BMS PLC EQUIPMENT (BMS - ECS & E&M) is already there in BOQ item 7 BMS PLC EQUIPMENT (TVS BMS) is already there for TVS SCADA at OCC the BOQ item No. 1 at Page 492 is inclusive of all required software and hardware.

Sr No	Reference Clauses		Employer Requirement	Details / Clarifications Required	UPMRC's Reply
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73		Payment- Interim and Final 11.6.1 – GCC 64Payments of local currency shall be made into bank account, nominated by the Contractor. Payments of foreign currencies shall be made through Letter of Credit route.	In case of joint venture, we request to release full payment to the designated Bank Account of lead partner having majority share holding in the joint venture if requested in writing, this will enable the contractor to manage the cash flow efficiently. Please review and accept this consideration.	As per tender conditions.
74		Clause C18 - ITT, volume 1 37	C18. Tender Security C18.1 The Tenderer shall submit with his Tender a Tender Security for the sum mentioned in NIT in the form of a. an irrevocable bank guarantee issued by a Scheduled Commercial bank (including scheduled Commercial Foreign Banks) in India in the form given in Annexure 7 to these Instruction to Tenderers.	As you would know, that Exim Bank of India is approved and allowed to provide Bank Guarantees towards Bid Security, Performance Security and Advance Bank Guarantees for ICB and multi-lateral Bank funding projects. Kindly confirm and allow us to submit the Tender Security / Performance Security / Advance Bank Guarantee issued by Exim Bank of India as acceptable to the employer.	As per tender conditions.
75		clause no. 1.1.4.2 of NIT 5	We wish to draw your attention to clause no. 1.1.4.2 of Minimum Eligibility Criteria of Notice Inviting Tender. • Tenderer (or atleast one member in case of JV/Consortium) should have carried out at least one "similar work" of value Rs. 483.00 Crores or more in India or in a country outside their own country.	Bank Full name: Export-Import Bank of India (EXIM Bank) Floor 21, Centre One Building, World Trade Centre Cuffe Parade, Mumbai, Maharashtra 400005 In the recent underground metro rail tender of Delhi Metro Rail Corporations and Gujarat Metro Rail Corporations, in case of JV / consortium, the criterion for foreign party stipulate as follows. Similar conditions are widely used by other metro rail organisations across the country. (Extracts are attached herewith, ref. Annexure - I) "If the tenderer is a JV/Consortium having foreign partner(s) and above work(s) have been executed by the foreign partner of JV/Consortium and the work(s) were done in the country of the foreign partner; then in addition to this the foreign partner must have executed works (which need not necessarily be similar in nature work) outside the country of the foreign partner" Therefore, we humbly request the employer to review above and please make a provisions in such way that, in case of foreign partners, the experience need not necessarily be a similar in nature of work, outside the country of the foreign partner. This would truly enable healthy competition from the industry, in the current varying scenario.	As per tender conditions.
76		Vol. 4 ODS, Cl 2.9.4		Deflection limits in D-wall should be applicable at the top of D-wall and not in D-wall below the base slab. Moreover as per contract 35 mm has been restricted to control ground settlement for damage of buildings. But CIRIA has given a general rule whereas the actual settlement may vary with soil parameters. Thus deflection limits should be subjected to 25mm settlement of adjoining ground and to be worked out as per FEM analysis.	As per tender condition.
77		Architectural drawings of stations	Proposed 29m column spacing (as per tender drawings)	Proposed 29m column spacing (as per tender drawings) is difficult and may not be feasible, It is assumed that permanent columns between grids H - J & K - L will also be allowed at detailed design stage to reduce column spacing.	As per tender conditions.
78		Architectural drawings 14005	Difference in Rail Level	There is discrepancy in the data provided in the tender drawings and plan and profile. Rail level is 14.64 below GL as per drwg no. 14005. While, as per plan and profile, ground level is approx 128m and rail level is 112.3m. Thus rail level appears to be 15.7m below GL. There is a difference of approximately 1m in levels. Please clarify.	Please refer to revised Architectural Drawings attached with addendum-1 annexure-02.



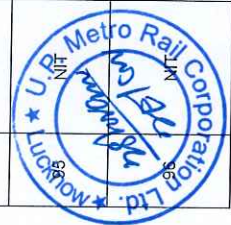
Sr No	Reference Clauses		Employer Requirement	Details / Clarifications Required	UPMRC's Reply
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79	Tunnel Ventilation Nozzles	Part C TVS BOQ line item no 4.1. Supply, installation, testing and commissioning of nozzles to suite 75/85 cms for fans made of SS-304.		Please share sizes and drawings for Tunnel Ventilation Nozzles.	Typical Nozzle drawing is attached as per Addendum-1 annexure-06
80	Screw type air cooled compressed air package	Part C TVS BOQ line item no 5.1		Please share schematics / drawings for Compressed air package.	Typical schematic drawing is attached as per Addendum-1 annexure-07.
81	Approved makes	Air handling units & FCU-Blue star / ETA / Waves		In addition to tender approved makes, we seek your acceptance on the following makes in addition to the tender approved makes.	
82			Carrier/ Zeco/ Edgetech/ Flaktwoods		AHU/Fan coil Units: In addition to makes already specified in tender M/s Carrier & M/s System Air are also included in line with tender condition.
83			Chiller - TRANE / YORK /Carrier		Water Cooled Screw Chillers / Air Cooled Chillers : In addition to Makes already specified in Tender M/s Voltas is also included in line with Tender Condition.
84		Fire pumps- KNPCC-05 Vol-3 (Part-I) ER section B/ Function part-2/E&M, also comply with BS 5257	All Main and standby fire pumps shall be UL listed/ FM approved & Comply with NFPA 20 and where applicable shall also comply with BS 5257	We understand that main and standby pumps are UL/ FM approved however the Jockey pumps shall be as per IS Standards. Kindly confirm.	Agreed.
85	General		No details available for PA, CCTV & ACS systems	Kindly provide the design/BOQ details of PA system, CCTV & Access Control system to consider the costing accordingly.	These works are not in the Scope of this Contract.
86	Approved makes	Fire Alarm system, Pg. No 119	M/s Notifier, M/s Simplex (Tyco)	Kindly approve Siemens for PLC and Fire Alarm system.	Fire Alarm System : In addition to Makes already specified in Tender M/s Siemens is also included in line with Tender Condition.
87	Electrical Panels	Master Control Equipment (PLC) , Pg. No 321	GE-FANUC /Schneider /Rockwell /Honeywell	Siemens XLS Fire Finder (UL listed) system has been already installed in Chennai Metro Rail - HQ building	Master Control Equipment (PLC) : In addition to Makes already specified in Tender M/s Siemens is also included in line with Tender Condition.
88	Transformer & UPS	Volume 5 / BOQ / Electrical Panels	Neptune, Scheinder, Siemens, L&T, Tricolite, Ritai, Sterling Generators.	Kindly approve ABB & Legrand for Electrical panels.	Electrical Panels : In addition to Makes already specified in Tender M/s ABB & Legrand is also included in line with Tender Condition.
89	Batery limits of incoming power supply	General		No details are available for Transformers and UPS. Kindly confirm whether these equipments are included in scope of constructor. Kindly provide the battery limits for incoming Power Supply scope.	These works are not in the Scope of this Contract.



Sr No	Reference Clauses		Employer Requirement	Details / Clarifications Required	UPMRC's Reply
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90	Cl. 16.1, GCC, Volume 2	82	<p>Force Majeure In this Clause, "force majeure" means an event beyond the control of the Employer and the Contractor, which makes it impossible or illegal for a party to perform, including but not limited to:</p> <p>a) Act of God; b) War, hostilities (whether war be declared or not), invasion, act of foreign enemies, mobilisation, requisition or embargo; c) Rebellion, revolution, insurrection, or military or usurped power, or civil war; d) Contamination by radio-activity from any nuclear fuel, or from any nuclear waste from the combustion of nuclear fuel, radio-active toxic explosive, or other hazardous properties of any explosive nuclear assembly or nuclear component of such an assembly e) Riot, commotion or disorder, unless solely restricted to employees of the Contractor or of his Sub-contractors currently or formerly engaged on the Works. f) Terrorism, g) Strike or lockout by persons other than the Contractor's Personnel h) Munitions of war, explosive materials</p>	<p>In light of the current situation, it is necessary to include the event – "COVID-19" in clause 16.1 (i), thus the said sub clause should be replaced as "force majeure" an event beyond the control of the Employer and the Contractor, which makes it impossible or illegal for a party to perform, including but not limited to</p> <p>a) Act of God, Epidemics, Pandemic; This will bring in clarity for interpretation to minimise the risks in future since there are chances that the present situation may arise in future.</p>	As per tender conditions.
91	NIT	1.1.4.2 (A1)	<p>Work experience of Shield tunneling and construction of u/g station by cut & cover method:</p> <p>(i) At least one "similar work"* of value of Rs. 966.00 Crores or more and at least one underground metro station (having plan area of at least 4500 sqm) in urban environment if not included in this works. OR (ii) Two "similar works"* each of value Rs. 604 Crores or more and at least one underground metro station (having plan area of at least 4500 sqm) in urban environment if not included in this works. OR (iii) Three "similar works"* each of value Rs. 483.00 Crores or more and at least one underground metro station (having plan area of at least 4500 sqm) in urban environment if not included in this works.</p>	<p>Work experience of Shield tunneling and construction of u/g station by cut & cover method:</p> <p>(i) At least one "similar work"* of value of Rs. 740.00 Crores or more and at least one underground metro station (having plan area of at least 4500 sqm) in urban environment if not included in this works. OR (ii) Two "similar works"* each of value Rs. 500.00 Crores or more and at least one underground metro station (having plan area of at least 4500 sqm) in urban environment if not included in this works. OR (iii) Three "similar works"* each of value Rs. 400.00 Crores or more and at least one underground metro station (having plan area of at least 4500 sqm) in urban environment if not included in this works.</p>	As per tender conditions.



Sr No	Reference Clauses		Employer Requirement	Details / Clarifications Required	UPMRC's Reply
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92		1.1.4.2 (A1) Notes	<p>1) In case of JV/Consortium the work of tunnel & station may be by different partners also.</p> <p>2) Tenderer (or atleast one member in case of JV/Consortium) should have carried out at least one "similar work" of value Rs. 483.00 Crores or more in India or in a country outside their own country.</p> <p>**"Similar Work" for this contract shall be work of construction of Tunnel by shield TBM in urban environment with finished internal dia. of more than 5.0 m with or without underground metro station in urban environment.</p> <p>2) The bidder should have minimum experience of having constructed a total of minimum of 2.5 km of tunnel length by shield TBM in urban environment (In case of twin tunnel each length of tunnel) with finished internal dia. of more than 5.0 m (including completed portion of ongoing works) with or without underground metro station in urban environment (each having plan area of at least 4000 sqm) using cut & cover method. This requirement has to be met through one/two/three similar works of value mentioned in clause 1.1.4.2A.1 (i),(ii) & (iii) respectively.</p>	<p>Request to modify this clause as under:</p> <p>1) In case of JV/Consortium the work of tunnel & station may be by different partners also.</p> <p>2) Tenderer (or atleast one member in case of JV/Consortium) should have carried out at least one "similar work" of value Rs. 400.00 Crores or more in India or in a country outside their own country.</p> <p>**"Similar Work" for this contract shall be work of construction of Tunnel by shield TBM in urban environment with finished internal dia. of more than 5.0 m with or without underground metro station in urban environment.</p> <p>2) The bidder should have minimum experience of having constructed a total of minimum of 2.5 km of tunnel length by shield TBM in urban environment (In case of twin tunnel each length of tunnel) with finished internal dia. of more than 5.0 m (including completed portion of ongoing works) with or without underground metro station in urban environment (each having plan area of at least 4000 sqm) using cut & cover method. This requirement has to be met through one/two/three similar works of value mentioned in clause 1.1.4.2A.1 (i),(ii) & (iii) respectively.</p>	As per tender conditions.
93	NIT	1.1.4.2, B (i) a	<p>B. - Financial Standing: The tenderers will be qualified only if they have minimum financial capabilities as below:</p> <p>(i) T1 - Liquidity: The tenderer must have liquidity equal to cash flow requirement of value Rs. 57.52 Crores for the contract.</p> <p>a) The liquidity shall be ascertained from Net Working Capital [(Current Assets - (current liabilities + provisions))] as per latest audited balance sheet and/or from the Banking reference(s).</p>	<p>Bidder requests to consider that any one member of the JV can fulfill the requirement.</p>	As per tender conditions.
94	NIT	1.1.4.2 B(i) d	<p>d) In Case of JV: - Requirement of working capital is to be distributed between members as per their percentage participation and every member should satisfy the requirement for his portion.</p> <p>Example: Let member-1 has percentage participation=M and member-2 has percentage participation=N. If minimum working capital required is 'W' then working capital of member-1 $\geq W \cdot M / 100$ and working capital of member-2 $\geq W \cdot N / 100$</p>	<p>Bidder requests to consider that any one member of the JV can fulfill the total requirement of working capital.</p>	As per tender conditions.
		1.1.4.2 B(ii)	<p>(ii) T2 - Profitability: Profit before Tax should be positive in at least 2 (two) of the last 5 audited financial years.</p> <p>In Case of JV/Consortium- The profitability of only lead member shall be evaluated.</p>	<p>Bidder requests to consider that any one member of the JV should have profit before tax as positive for last two years</p>	As per tender conditions.
		1.1.4.2 B(ii)	<p>(iii) T3 - Net Worth: Net Worth of tenderer should be positive in last Two financial years.</p> <p>In Case of JV/Consortium- Each member of the JV should have positive Net Worth in the last Two financial years.</p>	<p>Bidder requests to consider that any one member of the JV should have positive net worth for two financial years.</p>	As per tender conditions.



Sr No	Reference Clauses		Employer Requirement	Details / Clarifications Required	UPMRC's Reply
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97	Key dates	KD-10	Key Date 10 - Completion of Track way Basic Structure for designated contractors access- Track way including construction of cross passages, 1st stage track bed concrete including drainage for 1st block section between 1st pair of stations (both up and down line) - with in 80 weeks from LOA	As per construction sequence, TBMs will be launched in LAUNCHING shaft in C&C tunnel and will be retrieved in NAYAGANJ STATION. All tunneling operations will be carried out from the Launching shaft and the logistics will be through tunnels. Hence it is not possible to construct cross passage and 1st stage concrete while tunneling is in progress. Hence request you to delete this Key date.	As per tender conditions.
98	Key dates		Key Date 11 to 25 & 27 to 33 - Key dates related to station.	As per the sequence provided, TBMs will be launched in Launching shaft in C&C tunnel and will be retrieved in NAYAGANJ STATION. All tunneling operation will be carried out from the Launching shaft and the logistics will be through tunnels. So it is not possible to construct stations (CHUNNI GANJ STATION, NAVEEN MARKET STATION & BADA CHAURAH STATION) below Concourse slab. Request you to modify the key Dates considering above constraints.	As per tender conditions.
99	Appendix 2B - Contract Key dates	Appendix 2B	Liquidated Damage mentioned in Appendix 2B - Contract Key dates	We presume that the delay damages imposed against not achieving of a particular KD, will be released upon Contractor achieve progress in the subsequent KD. Please confirm.	Such request can be considered on merits by Engineer, if overall work completion is with in the stipulated period.
100	Adjust in Contract Price	GCC Clause 11.1.3, Page 111	Ws = All India Price Index (with base Oct'12 = 100) for Reinforcement bars (TMT-500) for primary manufacturers, issued by Central Public Works Department (CPWD) for the period of work under consideration. Wc = All India Price Index (with base Oct'12 = 100) for Cement (OPC) issued by Central Public Works Department (CPWD) for the period of work under consideration. Wf = Wholesale Price Index (Averages) for Fuel & Power, as published in the RBI Bulletins for the period of work under consideration. Wm = Wholesale Price Index (Averages) Machinery and Equipment as published in the RBI Bulletins for the period of work under consideration.	Please confirm that the All India Price Index used for calculation of Price Variation, issued by CPWD for reinforcement bars, OPC Cement, Fuel & Power, Machinery & Equipment shall be as applicable to Kanpur Area.	As per tender conditions.
101	Work Area Drawing	Work Area Drawing 05/WORK AREA/BCH	Bada Chauraha Work Area Drawing : KNPDD01-TDR-KNPCC05/WORK AREA/BCH	Request you to provide the details of Foot Over Bridge shown at the Bada Chauraha Station.	Please refer to clause B 2.1 and B 2.2 of ITT. Bidder may visit the site and collect relevant information.
102	Payment Schedule	Vol-7: BILL OF QUANTITIES / PRICING DOCUMENT Sub-Head: 2-A2-Construction of Underground Stations, Item no. 5		There seems to be a typographical error of 1.5% in the stage payment column. Total of 14% payment if distributed equally to 4 stations works out be 3.5% per station. It should be 3.5% instead of 1.5%. Please confirm.	Please refer to revised BOQ attached with addendum-1 as annexure-03.
103	Payment Schedule	Vol-7: BILL OF QUANTITIES / PRICING DOCUMENT Sub-Head: 2-A2-Construction of Underground Stations, Item no. 6		There seems to be a typographical error of 1.5% in the stage payment column. Total of 10% payment if distributed equally to 4 stations works out be 2.5% per station. It should be 2.5% instead of 1.5%. Please confirm.	Please refer to revised BOQ attached with addendum-1 as annexure-03.
104	SOD	Pg.1426 Vol-3 (Part-II) ER, Schedule of Appendix 19 - Schedule of Dimensions	Schedule of Dimensions	Final SOD (revised on 06.02.20), as mentioned in Station Architecture dwg, not found in the tender document. Please provide the SOD.	SOD is attached as annexure-05 to addendum-1.
105	Tunnel Walkway	Volume 4, ODS, Vol-6 Tender Drawings, Clause 2.7.21, Pg.58 UPMRC-Design-UG-ST-107	Tunnel Emergency Evacuation Walkway Bored Tunnel Walkway Design	In ODS, size of walkway is 750 mm x 2000 mm, whereas drawing shows the walkway of steel deck of 600mm wide and of varying length. Please Clarify.	Minimum Walkway width shall be 610mm as per SOD of as approved by the Engineer.
106	Tunnel Segment	Volume 6, Drawings, UPMRC-Design-US-ST-108	Pre-cast Standard Segments	Numbers of precast segments of 275mm thickness shown in the dwg. are 6+1. Considering the tunnel of 5.8 m dia., can we change the configuration to 5+1? Please confirm.	Agreed.

Sr No	Reference Clauses		Employer Requirement	Details / Clarifications Required	UPMRC's Reply
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107	Release of Retention Money	Vol-2/SCC(part-2), Add Clause Pag-153	Retention money shall become due to the Contractor on the date of issue of the Taking Over Certificate of works in respective sections/corridors. Price variation	Request for incorporating the provision of releasing the Retention money on submission of equivalent BG on 6 monthly Basis.	Agreed.
108	KNPCC-05 Vol-2 GCC & SCC	SPECIAL CONDITIONS OF CONTRACT (SCC) Part 2: for E&M, ECS & TVS Clause-25 pg. 156.	Prices quoted by the tenderer shall be fixed throughout the Tenderers performance of the contract and not subject to variation of any account except where specifically mentioned in the contract conditions along with the price variations formula to be made applicable	-If the job exceeds scheduled completion time for the reasons not attributable to contractor, we request you to pay escalation as per RBI labour index & IEEMA.	As per tender conditions.
109	KNPCC-05 Vol-3 (Part-I) ER KNPCC-05 Vol-3 (Part-II) ER	E02. LV POWER AND CONTROL CABLES pg. 318 A16.0 LV POWER AND CONTROL CABLES pg. 861 Clause E02.3.2.9 Clause A16.3.2.9	a) Cables to be used should be moisture – resistant and to be tested through accelerated water penetration test. b) Cables used in moist area should be corrosion resistant.	The specifications & standards provided in tender does not recommend or suitable for water penetration test. "Water Penetration test" is applicable on cable or cable part which claims to be watertight. Water penetration test is applicable mainly for HT / EHV cables & not required for LT cables. Please confirm.	As per tender conditions.
110	KNPCC-05 Vol-3 (Part-I) ER KNPCC-05 Vol-3 (Part-II) ER	E01. LOW VOLTAGE MAIN SWITCHBOARDS pg. 278 A15.0 LOW VOLTAGE MAIN SWITCHBOARDS pg. 830 Clause E01.3.6.4 Clause A15.3.6.4	Connection shall be made with double split cast brass clamps. Drilling of the bars will not be permitted, unless Approved by the Employers Representative.	Only one OEM shall be able to comply this clause, hence we request to accept design of connections of busbar as per type tested design of approved OEM's.	Agreed.
111	KNPCC-05 Vol-7 BOQ	Schedule D1 & Schedule D2 BOQ item no. 3.11 BOQ item no. 3 BOQ item no. 2.1 BOQ item no. 4.1 to 4.24 BOQ item no. 5.3.24 BOQ item no. 8.02 & 8.04 BOQ item no. 11.a & 11.b BOQ item no. 4.1.1 BOQ item no. 6.1 BOQ item no. 14.2 & 14.3 BOQ item no. 18.4		The rates for these items mentioned in referred BOQ are unusually low. Schedule D1 BOQ item no. 3.11 & BOQ item no. 3 (DG sets) - Structural Support BOQ item no. 4.1 to 4.24-Wiring & accessories BOQ item no. 5.3.24- Intelligent Poles BOQ item no. 8.02 & 8.04 (Bus ducts Accessories) BOQ item no. 11.a & 11.b (Main Fire pump) Schedule D2 BOQ item no. 4.1.1 (Chilled Water pumps) BOQ item no. 6.1 (AHU) BOQ item no. 14.2 & 14.3 (Water Treatment system) BOQ item no. 18.4 (Motorised Operated fire damper). Request to look into and revise the rates as per current market conditions.	As per tender conditions.



Sr No	Reference Clauses		Employer Requirement	Details / Clarifications Required	UPMRC's Reply
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112	KNPCC-05 Vol-1 NIT ITT FOT	<p>QUALIFICATION CRITERIA pg.7</p> <p>A.3: Work experience ECS & TVS work (Design verification, Detail Engineering, Supply, Installation, Testing and Commissioning of Environment Control System (ECS) And Tunnel Ventilation System (TVS)) for U/G Metro Station/s</p>	<p>1.1.4 Qualification Criteria - Notes:</p> <p>In case the bidder or their "ECS & TVS" Sub contractor does not have the experience as required in para A.3.2 for "ECS & TVS work", Support documents from specialist vendor/designer in support of having such experience confirming their willingness with the bidder/sub-contractor for meeting the requirement of clause A.3.2 shall be submitted along with the bid. The name of specialist vendor/designer for BMS work of "E&M" and "ECS&TVS" shall also be submitted with bid.</p>	<p>Clause A.3.2 for 'ECS & TVS work is not mentioned in the NIT. Kindly provide the description for Clause A.3.2.</p>	<p>Please refer annexure- 12 of Addendum-01.</p>
113	Vol-6 Tender drawings	<p>drg. No UPMRC-DESIGN-U-G-ST-101</p>	<p>B. Concrete casting note number 5 : Pour strip of 1m width in top and bottom slab @ 15m c/c</p>	<p>This is not required and not done in any UG project so far. The note may be deleted as pour strips may be required in very big size raft foundations where expansion is allowed, here there are D walls and expansion is not possible.</p>	<p>As per tender conditions.</p>
114	Vol-6 Tender drawings	<p>All Station drgs</p>	<p>permanent columns from concourse to Roof level</p>	<p>In all station there are no columns in the public area zone and only very few columns in the back of house zone. Please inform whether any change/suggestion can be made/done in internal planning of stations to allow columns.</p>	<p>Please refer to ODS & Architectural Drawings.</p>
115	Date of Submission	<p>Volume-1/NIT, Pg. 4</p>	<p>Date of Submission of Tender = 18.09.2020</p>	<p>Considering the current Covid situation, travel restrictions, scope of work and Project being EPC, Kindly extend the date of submission by another 30 days i.e. up to 19.10.2020</p>	<p>Please refer Annexure-08 of Addendum-01.</p>
116				<p>As per the tender document, stipulated contract duration for the subject scope is only 36months, with intermittent Key dates.</p> <p>Considering quantum of work involving design of components and construction Sequence involving TBM Tunnelling of 2664 RM from one end crossing 3 Underground stations, and construction of 4 underground stations including Architectural works, Plumbing, Electrical & Mechanical including ECS and TVS etc, construction period of 36 months is not practical. Please note that all stations are located on the road which will substantially reduce the productivity of all resources. Further, as required by CI 9.4.5 Exploration of Tunnel Face, Outline Construction Specification/ Section-9/Tunnelling "at least one exploratory hole shall be drilled ahead of each tunnel face to probe the ground conditions ahead of the advancing tunnel", which will affect the TBM Tunnelling progress.</p> <p>We have prepared line diagram for the total scope, considering the following 2 options which are enclosed with this e-mail.</p> <p>Considering above and in order to complete the project on time. Provision of min. 3 TBMs shall be kept as a mandatory requirement in the tender conditions.</p>	<p>Tender condition specifies the minimum number of TBMs and there is no restriction in deploying additional TBMs</p>



Sr No	Reference Clauses		Employer Requirement	Details / Clarifications Required	UPMRC's Reply
	Section	Page No. / Clause			
117	Volume-1 Instructions to Tenderer 1.1.2 Key Details	Date & Time of Submission of Tender		<p>We kindly emphasize that the main reasons of tender extension;</p> <ol style="list-style-type: none"> This is a Design & Built project which requires a Tender Design study to be performed by qualified design companies which is requiring at least two months tender design period, Due to the detail scope of work, preparing tender documents requires additional time to be scheduled by the tenderer, and Considering the ongoing Covid-19 issue worldwide, and being an foreign bidder. <p>By considering the complexity of the Project and substantial volume of work to be performed and to prepare the best technical engineering solutions and the most competitive bid, we kindly requested at least six (4) weeks of time extension to bid due date.</p> <p>As per referred clause, submission of completed tender documents will be done physically to the Employer's address.</p> <p>Authority and place for submission of completed tender documents: Chief Engineer (Contract), Uttar Pradesh Metro Rail Corporation, Administrative Building, Vipin Khand, Gomti Nagar, Near Dr. Bhimrao Ambedkar Samajik Parivartan Sthal, Lucknow-226010, Uttar Pradesh, India Email: cecontract@mrc@gmail.com</p> <p>As per tender conditions.</p>	Please refer Annexure-08 of Addendum-01.
118	Volume-1 Instructions to Tenderer D. Submission of Tenders Page no: 40	Submission of Tenders		<p>We kindly emphasize you that due to the current pandemic COVID-19, which is still can not under control, there might be regional lockdowns, travel restrictions and some other precautions.</p> <p>Due to these peculiar circumstances, in order not to face with any problem on submission of tender documents we kindly ask you to accept online submission of tender documents.</p> <p>As per referred section, it is stated as:</p> <p>"Proven Design The Contractor shall develop the design based on this specification and on proven and reliable Engineering Practices. The design details shall be submitted with technical data and calculations to the Engineer for review and acceptance. The System, including all Sub-systems and Equipment shall be of proven design practice. Sub-systems and Equipment of similar design philosophy shall have been in use and have established their performance reliability on at least one Mass Rapid Transit System or Suburban Railway System in Revenue Service over a period of at least two years. <u>Tenderers are required to submit Performance certificates from users in support of the above performance requirements.</u>"</p> <p>Since the design verification of E&M, ECS & TVS Works will be in contractor's scope, we understand that, above mentioned Performance Certificates will be submitted by Contractor after contract award, not by the Tenderer at tender stage, please confirm.</p>	
119	Volume-1/ITT Annexure - 4B & Annexure - 4C Proven Design Page no: 60 & 65	Proven Design for E&M, ECS & TVS Works		<p>"Proven Design The Contractor shall develop the design based on this specification and on proven and reliable Engineering Practices. The design details shall be submitted with technical data and calculations to the Engineer for review and acceptance. The System, including all Sub-systems and Equipment shall be of proven design practice. Sub-systems and Equipment of similar design philosophy shall have been in use and have established their performance reliability on at least one Mass Rapid Transit System or Suburban Railway System in Revenue Service over a period of at least two years. <u>Tenderers are required to submit Performance certificates from users in support of the above performance requirements.</u>"</p> <p>Confirmed.</p>	

Sr No	Reference Clauses		Employer Requirement	Details / Clarifications Required	UPMRC's Reply
	Section	Page No. / Clause			
120	VOLUME 2 SPECIAL CONDITIONS OF CONTRACT (SCC) Part 1 and Part 2 Sub Clause 11.2.1 and 11.2.2	Mobilisation Advance / Plant and Machinery Advance		We kindly emphasize that there is a contradiction between SCC Part 1: Civil Works and Part 2: E&M, ECS & TVS in Advance Payment clauses. By considering the scope of the work there will be a need for purchase of plant and machinery specific for the project purpose, we kindly ask you to provide interest free 10% Mobilisation advance and 5% Plant & Machinery Advance.	As per tender conditions.
121	VOLUME 2 SPECIAL CONDITIONS OF CONTRACT (SCC) SCC PART 1, Pg 110; 25. Clause 11.1.3 Adjust in Contract Price & SCC PART 2, Pg 148; 25. Sub Clause 11.1.3 Price Variation	Price Variation		There is a contradiction between Part 1 and Part 2 of Special Conditions of Contract, please find below referred sections for Price Variation: 1- SCC PART 1, Pg 110; 25. Clause 11.1.3 Adjust in Contract Price The price variation will be payable only on the Indian currency component (no adjustment for Foreign currency component) of the Contract Price as per the follow price variation formula. Payment as per the contract shall be subject to adjustment in accordance with the following Price Variation formula, and other terms given herein, to provide for variation in the market rates of inputs like labour, materials and fuel / energy during the currency of the Contract 2- SCC PART 2, Pg 148; 25. Sub Clause 11.1.3 Price Variation Following is added to GCC sub Clause 11.1.3 Prices quoted by the tenderer shall be fixed throughout the Tenderers performance of the contract and not subject to variation of any account except where specifically mentioned in the contract conditions along with the price variations formula to	SCC part-1 is applicable for Civil Work and SCC part-2 for Electrical work.
122	Volume-3/Employer's Requirements/Appendices Appendix 2A	Work Areas		We understand that, work areas mentioned in referred section, both; 6 hectares land for casting yard within 20km and dumbering yards within 20 km will be handed over to the contractor from commencement date without any cost, please confirm.	As per tender conditions.
123	Volume-7/ Bill of Quantities (BOQ)-Pricing Document Schedule A Sub-Head: 1 - A1 General BOQ Item 5	Deployment of Traffic Marshals		BOQ item is as follows: "5) Deployment of Traffic Marshals and barricading of all work areas including Construction Depot, Batching Plant, Casting Yard etc. (inclusive of erection & Maintenance of barricades)" Since Traffic Marshals are under control of Traffic Police Department, we understand that the cost of deployment of adequate number of Traffic Marshals will not be in Contractor's Lump Sum cost, please confirm.	As per tender conditions.
124	Clause 27 SCC, Access to and Possession of the Site PART 1	Site access		We understand that, site will be handed over to the Contractor from the Commencement date according to Contractor schedule which is flexible and coherent with key dates. Kindly confirm?	As per tender conditions.
125	Volume-3 Employer's Requirements Appendix 2B	Key Date 7 and 9 Initial Drive for TBMs		We would like to request that the start of an initial drive for TBM 01 should change 48 weeks and the start of an initial drive for TBM 02 should change 52 weeks due to the duration of fabrication and delivery to the site.	As per tender conditions.

Sr No	Reference Clauses		Employer Requirement	Details / Clarifications Required	UPMRC's Reply
	Section	Page No. / Clause			
126	Government of India / General Financial Rules 2017	Suppliers/Manufacturers based in bordering countries		As we all know recently Government of India amended the General Financial Rules 2017 to enable imposition of restrictions on bidders/vendors/suppliers from countries which share a land border with India on grounds of defence of India. We kindly ask you to clarify if the project specific plant and machineries like TBMs will be allowed to be purchased from manufacturers from bordering countries like China.	This tender is being financed by EIB. Presently, there are no restrictions, However responsibility of getting all necessary clearances for import lies with the contractor.
127	UPMRC/KNPCC-05/Volume-3/Employer's Requirements/Appendices /Appendix 2B	Key Dates		We kindly emphasize that the given key dates are very difficult to achieve and with these key dates delay damages seems inevitable. In order to provide the most accurate work schedule and costing studies, we kindly ask you to revise below key dates as requested: - Key date 6: from 21 weeks to 28 weeks - Key date 10: from 80 weeks to 121 weeks - Key date 28: from 130 weeks to 154 weeks - Key date 33: from 156 weeks to 180 weeks - Key date 28: from 130 weeks to 147 weeks	As per tender conditions.
128	Volume-2 Special Conditions of Contract (SCC) 4-12	Land Acquisition		We understand that land acquisition including work areas is under Employers Responsibility. Please confirm?	Acquisition of permanent land and work area is the employer's responsibility. Contractor will have to insure uninterrupted access to the neighbouring building/facilities and erect barricade in consultation with local bodies/authorities.
129	Volume-1 Instructions to Tenderer Appendix H - Proposal for Contractor's Machinery	Proposal for Contractor's Machinery		As per the table provided in ITT, tenderer has to provide approximately cost for each equipment or machinery. Since referred appendix is a part of technical tender, we kindly ask you delete approximately cost columns from Appendix H.	As per tender conditions. Cost Columns of Appendix "H" may be left blank.
130	KNPCC-05 Vol-1 NIT-ITT FOT ANNEXURE -4 B Clause B-12	Electrical Licence		It is stated that "The technical proposal shall also contain Electrical Contractor's license for Kanpur, Uttar Pradesh. (Refer Appendix-L to Annexure-4 of ITT)" Please confirm that this license can be submitted after award of contract and it will not be submitted at tender stage .	Confirmed.
131	KNPCC-05 Vol-3 (Part-I) ER EMPLOYER'S REQUIREMENTS - FUNCTIONAL: Part 1: Civil Clause 2-TT.30	Scope of TVS&ECS Works		In that clause "Tunnel Ventilation" and "SCADA and UPS to some defined equipment provided by others" seem in different contractors' scope. Please confirm that these systems/equipment are not in our scope.	Please refer Annexure-14 (Page 4 of 5) of Addendum-01.

Summary Sheet of ADDENDUM No.-1: Contract KNPCC-05

Tender KNPCC-05: Design and Construction of Tunnel from start of elevated ramp (after Mofi Jheel Metro Station) to end of Nayaganj station including four underground metro stations (viz. Chunniganj, Naveen Market, Bada Chauraha and Nayaganj) and ramp including Architectural finishes, E & M, TVS, ECS etc. on Corridor-1 of Kanpur MRTS Project at Kanpur, Uttar Pradesh, India.

S. NO.	Existing Clause / Pg. No.	Clause in Existing Tender Document	Revised Clause	Revised Clause placed as Annexure/ Pg. No.
1	Utility Drawings	UPMRC/PH-1/KNPCC-05/UTILITY/SHEET 1 to 7- R-0	UPMRC/PH-1/KNPCC-05/UTILITY/SHEET 1 to 7- R-1	Annexure-1
2	Architectural Drawings OF All Stations	-	Refer revised Architectural drawings.	Annexure-2
3	UPMRC/KNPCC-05/Volume-7/ Bill of Quantities (BOQ) - Pricing Document/ Pg No. 8	Sub Head: 2-A2 (5 & 8)	Refer revised table.	Annexure-3 page 8R
4	Bored Tunnel Precast Standard Segments	UPMRC-DESIGN-JG-ST-104 - R0	UPMRC-DESIGN-JG-ST-104 - R1 (SHEET 01 OF 02) UPMRC-DESIGN-JG-ST-104 - R1 (SHEET 02 OF 02)	Annexure-04
5	UPMRC/KNPCC-05/Volume-3/ Employer's Requirements/ Section-B/Functional Part-1	-	Schedule of Dimensions (1-49)	Refer annexure-05
6	Tender Drawing	-	Typical Nozzle Drawing	Refer Annexure-06
7	Tender Drawing	-	Compressor Schematic	Refer Annexure-07
8	Clause 1.1.2 of NIT, Volume-01, Page 4	Last date of issuing addendum : 26.06.2020. Date & time of Submission of Tender : 18.09.2020 @ 15:00 Hrs. Date & time of opening of Tender : 18.09.2020 @ 15:30 Hrs.	Last date of issuing addendum 26-06-2020 <u>01.09.2020</u> . Date & time of Submission of Tender 18-09-2020 @ 15:00 Hrs. <u>30.09.2020 @ 15:00 Hrs.</u> Date & time of opening of Tender 18-09-2020 @ 15:30 Hrs. <u>30.09.2020 @ 15:30 Hrs.</u>	Refer Annexure-08, Page 4R
9	Bullet of Clause 1.1.4.2 of NIT, page 6	The bidder should have minimum experience of having constructed a total of minimum of 2.5 km of tunnel length by shield TBM in urban environment (In case of twin tunnel each tunnel shall be counted as a separate Tunnel for calculation of length of tunnel) with finished internal dia. of more than 5.0 m (including completed portion of ongoing works) with or without underground metro station in urban environment (each having plan area of at least 4000 sqm) using cut & cover method. This requirement has to be met through one/two/three similar works of value mentioned in clause 1.1.4.2A.1 (i), (ii) & (iii) respectively.	The bidder should have minimum experience of having constructed a total of minimum of 2.5 km of tunnel length by shield TBM in urban environment (In case of twin tunnel each tunnel shall be counted as a separate Tunnel for calculation of length of tunnel) with finished internal dia. of more than 5.0 m (including completed portion of ongoing works) with or without underground metro station in urban environment (each having plan area of at least 4000 4500 sqm) using cut & cover method. This requirement has to be met through one/two/three similar works of value mentioned in clause 1.1.4.2A.1 (i), (ii) & (iii) respectively.	Refer Annexure-09, Page 6R



Summary Sheet of ADDENDUM No.-1: Contract KNPCC-05

Tender KNPCC-05: Design and Construction of Tunnel from start of elevated ramp (after Moti Jheel Metro Station) to end of Nayaganj station including four underground metro stations (viz. Chunniganj, Naveen Market, Bada Chauraha and Nayaganj) and ramp including Architectural finishes, E & M, TVS, ECS etc. on Corridor-1 of Kanpur MRTS Project at Kanpur, Uttar Pradesh, India.

10	Clause 11.1 of GCC , Page 60			New clause of 11.1.3 & 11.1.4 are added.	Refer Annexure-10, Page 60R
11	Performance Security Amount ,Clause 4.2.1 of GCC, page 18			Refer revised clause.	Refer Annexure-11, Page 18R to 18B
12	Bullets of Notes to Clause 1.1.4.2. A.3, of NIT , Page 7.		In case the bidder or their "ECS & TVS" Sub contractor does not have the experience as required in para A.3.2 for "ECS & TVS work", Support documents from specialist vendor/designer in support of having such experience confirming their willingness with the bidder/sub-contractor for meeting the requirement of clause A.3.2 shall be submitted along with the bid. The name of specialist vendor/designer for BMS work of "E&M" and "ECS&TVS" shall also be submitted with bid.	In case the bidder or their "ECS & TVS" Sub contractor does not have the experience as required in para A.3.2 for "ECS & TVS work", Support documents from specialist vendor/designer in support of having such experience confirming their willingness with the bidder/sub-contractor for meeting the requirement of clause A.3.2 shall be submitted along with the bid. The name of specialist vendor/designer for BMS work of "E&M" and "ECS&TVS" shall also be submitted with bid.	Refer Annexure-12, Page 7R
13	UPMRC/KNPCC-05/Volume-4/ Outline Design Specifications/ Section-1			Ground Water Table	Refer Annexure-13
14	Clause 2 of ER/Section-B/Functional Part-1, Vol-3, Page 176-180			Please refer revised clause 2.	Refer Annexure-14, Page 176R to 180R
15	Clause A05.4 at Page 738 to 739 of ER/Functional Part-2/ECS&TVS				Refer Annexure-15, Page 738R to 739 R
16	UPMRC/KNPCC-05/Volume-4/ Outline Design Specifications/ Section-1/ Pg No. 23			<u>One Strut Failure OSF</u>	Refer Annexure-16 page 23R
17	UPMRC/KNPCC-05/Volume-4/ Outline Design Specifications/ Section-1/ Pg No. 27		4. A seismic racking analysis for both ODE (0.12 g) and MDE (0.24g) shall be undertaken as per Hashash et. al.	4. A seismic racking analysis for both ODE (0.12 g <u>PGA</u>) and MDE (0.24g <u>PGA</u>) shall be undertaken as per Hashash et. al.	Refer Annexure-17 page 27R
	UPMRC/KNPCC-05/Volume-4/ Outline Design Specifications/ Section-1/ Pg No. 33			<u>1.5.15 OSF</u> The temporary structures shall be checked for the effects of a ' One strut/Anchor failure' condition. A condition of a single strut failing at any location when all the strut and Wallers are installed shall be evaluated in Ultimate limit state condition with load factor of 1.05.	Refer Annexure-18 page 33R
	UPMRC/KNPCC-05/Volume-4/ Outline Design Specifications/ Section-1/ Pg No. 49	CL 2.7.5		Please refer revised page.	Refer Annexure-19 page 49R



Summary Sheet of ADDENDUM No.-1: Contract KNPCC-05

Tender KNPCC-05: Design and Construction of Tunnel from start of elevated ramp (after Moti Jheel Metro Station) to end of Nayaganj station including four underground metro stations (viz. Chunniganj, Naveen Market, Bada Chauraha and Nayaganj) and ramp including Architectural finishes, E & M, TVS, ECS etc. on Corridor-1 of Kanpur MRTS Project at Kanpur, Uttar Pradesh, India.

20	UPMRC/KNPCC-05/Volume-4/ Outline Design Specifications/ Section-1/ Pg No. 55	<p>"Passenger emergency evacuation design for cross passages between running tunnels which are constructed by either cut and cover or bored method shall be in accordance with the requirements of NFPA 130 (latest version) as follows: -</p> <p>(a) The distance from a station or from a mid-tunnel escape shaft to a cross passage shall be not be greater than 244 m.</p> <p>(b) The distance between adjacent cross passages shall not be greater than 244 m.</p> <p>(c) In specific cases spacing of 244 m can go up to 250 m to reduce the number of cross passages between two stations.</p> <p>(d) Track cross-overs shall not be considered as cross passages.</p> <p>The locations of cross passages have, wherever possible, shall be chosen to avoid critical sections of the alignment where their construction could have an adverse effect on adjacent structures. The openings into the running tunnels shall have a width of 1.2 m and a height of 2.1 m. Throughout the cross passage a minimum headroom of 2.1 m shall be maintained over a width of 1.2 m.</p>	<p>"Passenger emergency evacuation design for cross passages between running tunnels which are constructed by either cut and cover or bored method shall be in accordance with the requirements of NFPA 130 (latest version) as follows: -</p> <p>(a) The distance from a station or from a mid-tunnel escape shaft to a cross passage shall be not be greater than 244 m.</p> <p>(b) The distance between adjacent cross passages shall not be greater than 244 m.</p> <p>(c) In specific cases spacing of 244 m can go up to 250 m to reduce the number of cross passages between two stations.</p> <p>(d) Track cross-overs shall not be considered as cross passages.</p> <p><u>Passenger emergency evacuation design for cross passages between running tunnels which are constructed by either cut and cover or bored method shall be in accordance with the requirements of National Building Code 2016 or latest.</u></p> <p>The locations of cross passages have, wherever possible, shall be chosen to avoid critical sections of the alignment where their construction could have an adverse effect on adjacent structures. The openings into the running tunnels shall have a width of 1.2 m and a height of 2.1 m. Throughout the cross passage a minimum headroom of 2.1 m shall be maintained over a width of 1.2 m.</p> <p><u>The openings into the running tunnels shall be as specified in NBC 2016 or latest.</u></p>	Refer Annexure-20 page 55R
21	UPMRC/KNPCC-05/Volume-4/ Outline Design Specifications/ Section-1/ Pg No. 61		<p>vii. <u>For construction stage design water table can be taken as maximum water table in boreholes in that area + 2m</u></p>	Refer Annexure-21 page 61R
22	UPMRC/KNPCC-05/Volume-4/ Outline Design Specifications/ Section-1/ Pg No. 63	CL 2.8.4	<p>The contractor shall check all proposed cut and cover structures (including ramps, cut and cover tunnels, box structures, stations etc) for the possibility of floatation due to differential water pressure and shall design each and every underground structure such that the factors of safety against floatation are achieved for all load cases. An additional check in ULS condition considering all load factors to be 1.0 shall also be performed to ensure that the structure satisfy the strength criteria (capacity check) during the floatation condition. Seismic forces shall not be considered in this case.</p>	Refer Annexure-22 page 63R
	UPMRC/KNPCC-05/Volume-4/ Outline Design Specifications/ Section-1/ Pg No. 64	CL 2.8.6	<p>Refer revised clause.</p>	Refer Annexure-23 page 64R



Summary Sheet of ADDENDUM No.-1: Contract KNPCC-05

Tender KNPCC-05: Design and Construction of Tunnel from start of elevated ramp (after Moti Jheel Metro Station) to end of Nayaganj station including four underground metro stations (viz. Chunnigani, Naveen Market, Bada Chauraha and Nayaganj) and ramp including Architectural finishes, E & M, TVS, ECS etc. on Corridor-1 of Kanpur MRTS Project at Kanpur, Uttar Pradesh, India.

24	UPMRC/KNPCC-05/Volume-7/ Bill of Quantities (BOQ) - Pricing Document/ Pg No. 48	Annexure-B 2 Architectural Finishing Works (Non DSR Items) Summary 2. GRANITE/STONE/TILE WORKS - 12,49,39,926.25 3. FLOORING WORKS - 3,59,17,133.98 8. MISCELLANEOUS WORKS - 2,57,03,167.84 Total of Schedule-B - 49,69,84,179.63	Annexure-B 2 Architectural Finishing Works (Non DSR Items) Summary 2. GRANITE/STONE/TILE WORKS - 12,49,39,926.25 3. FLOORING WORKS - 3,59,17,133.98 8. MISCELLANEOUS WORKS - 2,57,03,167.84 Total of Schedule-B - 49,69,84,179.63	Refer Annexure-24 page 48R
25	UPMRC/KNPCC-05/Volume-7/ Bill of Quantities (BOQ) - Pricing Document/ Pg No. 51	Architectural Finishing Works (Non DSR Items) S.No 2.5 Quantity 7000.00 Amount 30968910.00 Total Sub Head Granite/Stone/Tile Work Amount 124939926.25	Architectural Finishing Works (Non DSR Items) S.No 2.5 Quantity 7000.00 Amount 30968910.00 Total Sub Head Granite/Stone/Tile Work Amount 124939926.25	Refer Annexure-25 page 51R
26	UPMRC/KNPCC-05/Volume-7/ Bill of Quantities (BOQ) - Pricing Document/ Pg No. 53	S.No. Rate 3.2.1 102.22 3577700.00 3.2.2 543.06 24437700.00 Total Sub Head Flooring Works Amount 35917133.98	S.No. Rate 3.2.1 102.22 3577700.00 3.2.2 543.06 24437700.00 Total Sub Head Flooring Works Amount 35917133.98	Refer Annexure-26 page 53R
27	UPMRC/KNPCC-05/Volume-7/ Bill of Quantities (BOQ) - Pricing Document/ Pg No. 54	S.No. Rate 3.2.1 102.22 3577700.00 3.2.2 543.06 24437700.00 Total Sub Head Flooring Works Amount 35917133.98	S.No. Rate 3.2.1 102.22 3577700.00 3.2.2 543.06 24437700.00 Total Sub Head Flooring Works Amount 35917133.98	Refer Annexure-27 page 58R-69R
28	UPMRC/KNPCC-05/Volume-7/ Bill of Quantities (BOQ) - Pricing Document/ Pg No. 55	S.No. Rate 3.2.1 102.22 3577700.00 3.2.2 543.06 24437700.00 Total Sub Head Flooring Works Amount 35917133.98	S.No. Rate 3.2.1 102.22 3577700.00 3.2.2 543.06 24437700.00 Total Sub Head Flooring Works Amount 35917133.98	Refer Annexure-28
29	UPMRC/KNPCC-05/Volume-7/ Bill of Quantities (BOQ) - Pricing Document/ Pg No. 68-69	UPMRC-DESIGN-JUG-ST-105 - R0 UPMRC-DESIGN-JUG-ST-105 - R1 (SHEET 01 OF 03) UPMRC-DESIGN-JUG-ST-105 - R1 (SHEET 02 OF 03) UPMRC-DESIGN-JUG-ST-105 - R1 (SHEET 01 OF 03)	UPMRC-DESIGN-JUG-ST-105 - R0 UPMRC-DESIGN-JUG-ST-105 - R1 (SHEET 01 OF 03) UPMRC-DESIGN-JUG-ST-105 - R1 (SHEET 02 OF 03) UPMRC-DESIGN-JUG-ST-105 - R1 (SHEET 01 OF 03)	Refer Annexure-29
30	GAD	UPMRC-DESIGN-JUG-ST-115 - R0	UPMRC-DESIGN-JUG-ST-115 - R0	Refer Annexure-30
31	Cross Passage	UPMRC-DESIGN-JUG-ST-105 - R0	UPMRC-DESIGN-JUG-ST-105 - R0	Refer Annexure-29
32	General Arrangements For Cut & Cover Ramp, Cross Section	UPMRC-DESIGN-JUG-ST-115 - R0	UPMRC-DESIGN-JUG-ST-115 - R0	Refer Annexure-30



Summary Sheet of ADDENDUM No.-1: Contract KNPCC-05

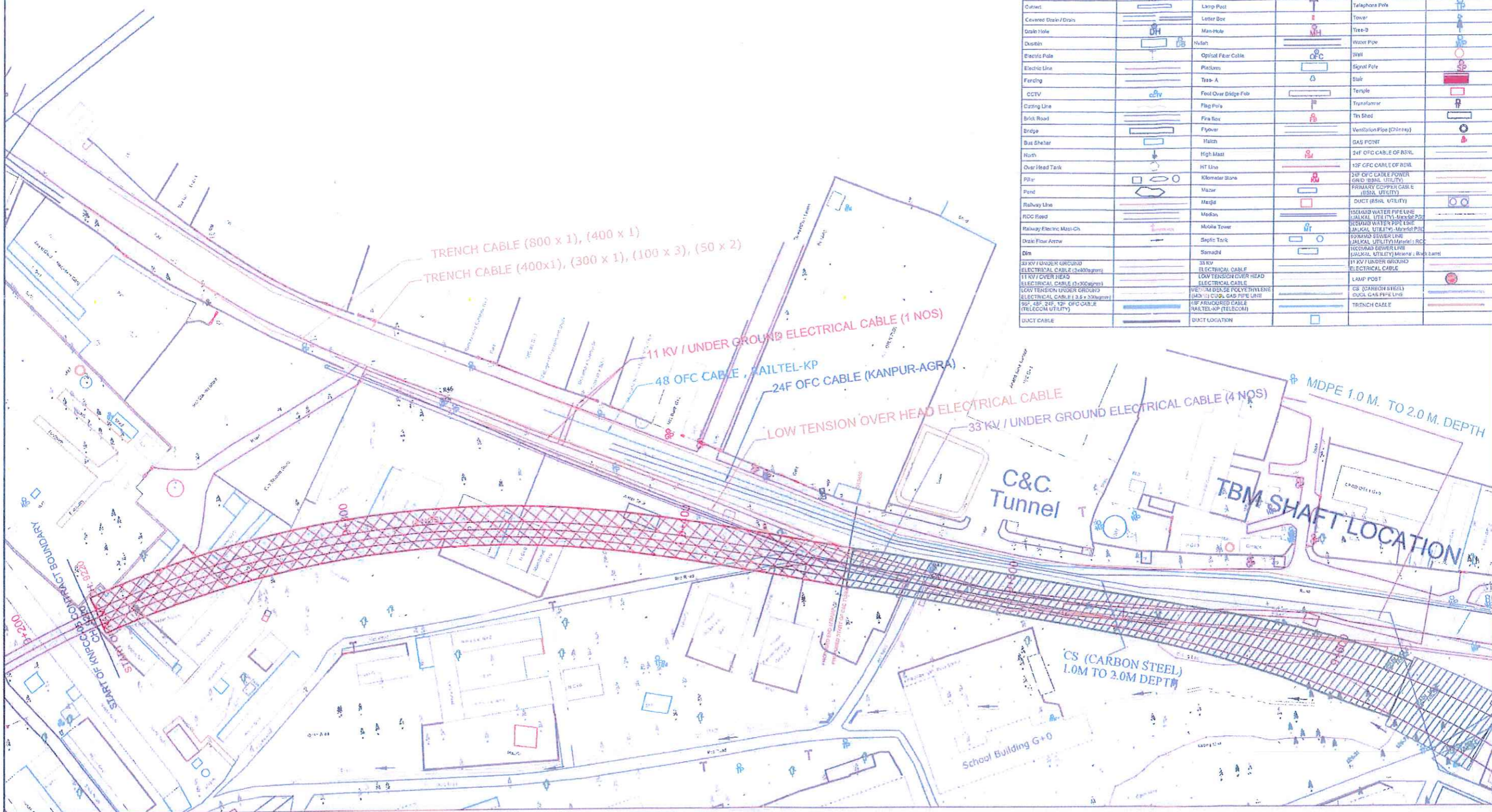
Tender KNPCC-05: Design and Construction of Tunnel from start of elevated ramp (after Moti Jheel Metro Station) to end of Nayaganj station including four underground metro stations (Viz. Chunniganj, Naveen Market, Bada Chauraha and Nayaganj) and ramp including Architectural finishes, E & M, TVS, ECS etc. on Corridor-1 of Kanpur MRTS Project at Kanpur, Uttar Pradesh, India.

33	General Arrangements For Box at Niche Location	-	UPMRC-DESIGN-UG-ST-116-R0	Refer Annexure-31
34	General Arrangements For Clean and Main Earth Mat	-	UPMRC-DESIGN-UG-ST-117-R0	Refer Annexure-32
35	Basement Wall & Foundation Drawings of Crystal Parking Adjacent to Naveen Market Station	-	UPMRC-KNPCC-05-NMK-KCP-01	Annexure-33
36	Tender Drawing	-	Typical Earth Mat Power & Clean	Refer Annexure-34



<<<< TOWARDS MOTI JHEEL TOWARDS NAYA GANJ >>>>

LEGEND		LEGEND		LEGEND	
DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL
Boundary Line (Area)	[Symbol]	Footing	[Symbol]	Furrow	[Symbol]
Bore Well	[Symbol]	Gates with Wall	[Symbol]	Gravel	[Symbol]
Building (Shed / Toilet)	[Symbol]	Hand Pump	[Symbol]	Gravel	[Symbol]
Cart Track	[Symbol]	Indoor Gas Lift	[Symbol]	Sign Board	[Symbol]
Chamber	[Symbol]	Junction Box	[Symbol]	Tank / Water Tank	[Symbol]
Cumcut	[Symbol]	Lamp Post	[Symbol]	Telephone Pole	[Symbol]
Covered Drain / Drain	[Symbol]	Letter Box	[Symbol]	Tower	[Symbol]
Drain Hole	[Symbol]	Man-Hole	[Symbol]	Tree-D	[Symbol]
Dustbin	[Symbol]	Nyctal	[Symbol]	Water Pipe	[Symbol]
Electric Pole	[Symbol]	Optical Fiber Cable	[Symbol]	Well	[Symbol]
Electric Line	[Symbol]	Platform	[Symbol]	Signal Pole	[Symbol]
Fencing	[Symbol]	Tire-A	[Symbol]	Stair	[Symbol]
CCTV	[Symbol]	Foot Over Bridge Foot	[Symbol]	Temple	[Symbol]
Cutting Line	[Symbol]	Flag Pole	[Symbol]	Transformer	[Symbol]
Brick Road	[Symbol]	Fire Box	[Symbol]	Tin Shed	[Symbol]
Bridge	[Symbol]	Flyover	[Symbol]	Ventilation Pipe (Chimney)	[Symbol]
Bus Shelter	[Symbol]	Hatch	[Symbol]	GAS POINT	[Symbol]
North	[Symbol]	High Mast	[Symbol]	24F OFC CABLE OF RSNL	[Symbol]
Over Head Tank	[Symbol]	HT Line	[Symbol]	12F OFC CABLE OF RSNL	[Symbol]
Pillar	[Symbol]	Kilometer Stone	[Symbol]	24F OFC CABLE POWER GRD (SNL UTILITY)	[Symbol]
Pond	[Symbol]	Mazur	[Symbol]	PRIMARY COPPER CABLE (SNL UTILITY)	[Symbol]
Railway Line	[Symbol]	Mast	[Symbol]	DUCT (SNL UTILITY)	[Symbol]
RCC Road	[Symbol]	Medon	[Symbol]	150MM WATER PIPE LINE (SNL UTILITY)	[Symbol]
Railway Electric Mast-ON	[Symbol]	Mobile Tower	[Symbol]	150MM WATER PIPE LINE (SNL UTILITY)	[Symbol]
Drain Floor Arrow	[Symbol]	Septic Tank	[Symbol]	150MM WATER PIPE LINE (SNL UTILITY)	[Symbol]
Drain	[Symbol]	Sinagdi	[Symbol]	150MM WATER PIPE LINE (SNL UTILITY)	[Symbol]
33KV / UNDER GROUND ELECTRICAL CABLE (3x300sqmm)	[Symbol]	STRIP ELECTRICAL CABLE	[Symbol]	150MM WATER PIPE LINE (SNL UTILITY)	[Symbol]
11 KV / OVER HEAD ELECTRICAL CABLE (3x300sqmm)	[Symbol]	LOW TENSION OVER HEAD ELECTRICAL CABLE	[Symbol]	150MM WATER PIPE LINE (SNL UTILITY)	[Symbol]
LOW TENSION UNDER GROUND ELECTRICAL CABLE (1.1 & 3x300sqmm)	[Symbol]	UNDER GROUND POLYETHYLENE (AD-3) CABLE GAS PIPE LINE	[Symbol]	150MM WATER PIPE LINE (SNL UTILITY)	[Symbol]
800-48F, 24F, 12F OFC CABLE (TELECOM UTILITY)	[Symbol]	1/8" ARMOURD CABLE RAILTEL-KP (TELECOM)	[Symbol]	150MM WATER PIPE LINE (SNL UTILITY)	[Symbol]
DUCT CABLE	[Symbol]	DUCT LOCATION	[Symbol]	150MM WATER PIPE LINE (SNL UTILITY)	[Symbol]



NOTE :
 • The Work in connection with Diversion / Strengthening/ Protection / Restoration etc. of Utilities (viz. electric line, pole, culvert, drain etc.) shall fall within the scope of chartered utilities.

PARTICULARS	DRN	CHD	VER	DATE



NOTICE OF NO OBJECTIONS FROM EMPLOYER					
NOTICE OF NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES HOWEVER THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAIL DESIGN CONSULTANT.					
GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE
CA/MARCH - GC			<input type="checkbox"/> NOC	DY.CA-UPMRC	
CE/STRU - GC			<input type="checkbox"/> NOWC	CE DESIGN - UPMRC	
CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRC	
				CPM UPMRC	

PROJECT TITLE: **UTTAR PRADESH METRO RAIL CORPORATION LTD** (Formerly known as Lucknow Metro Rail Corporation Ltd.)
 KNPDD01-IT KANPUR-NAUBASTA CORRIDOR-1

PREPARED: NAME: _____ SIGNATURE: _____ DRAWING TITLE: **UTILITY DRAWING**

DRAWN BY: _____
 DESIGNED BY: _____
 CHECKED BY: _____
 APPROVED BY: _____

SCALE: AS SHOWN DATE OF ISSUE: _____ STAGE: _____

DRG. NO. **UPMRC/PH-1/KNPCC-05/UTILITY/SHEET - 01** REV. RLT

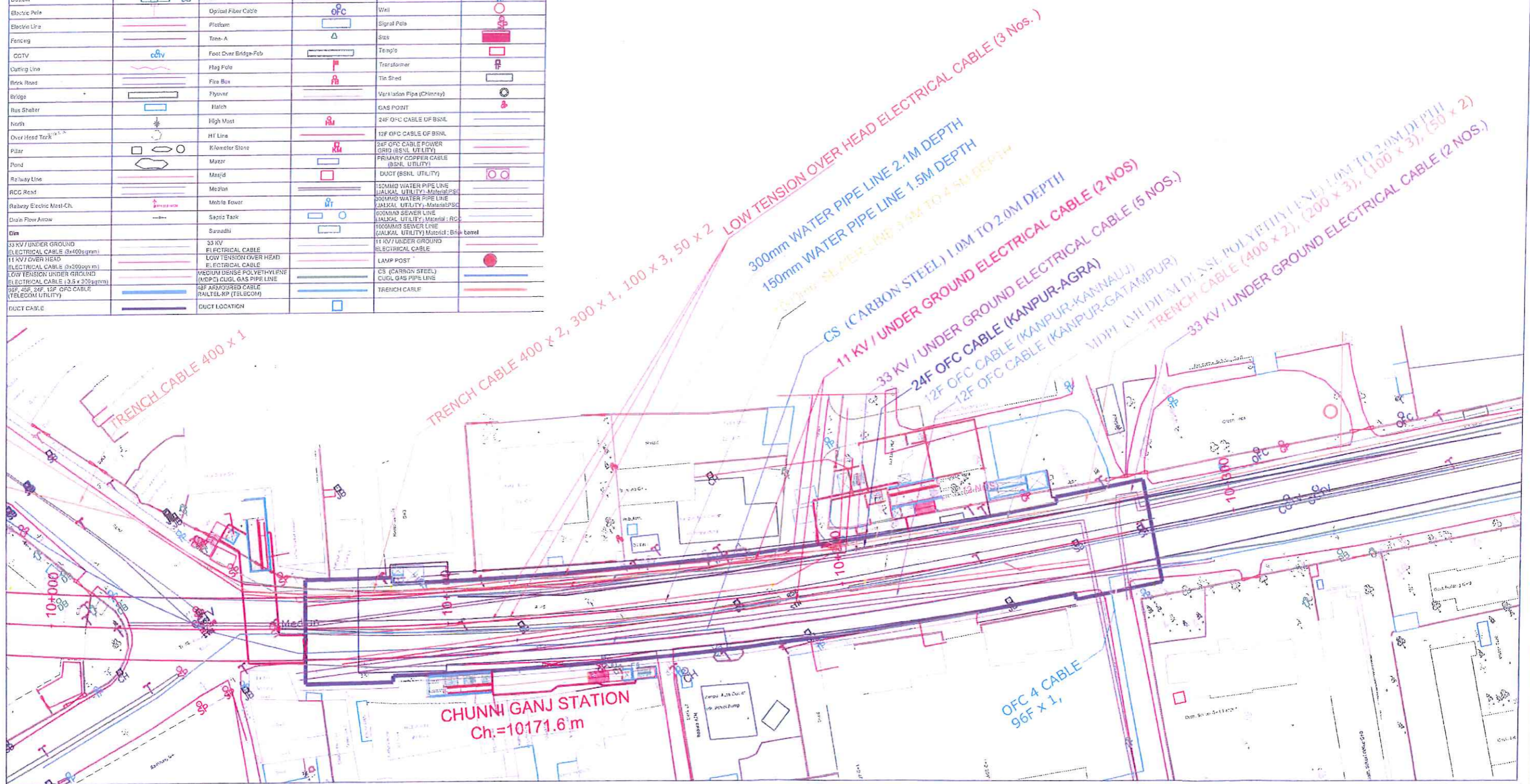
TENDER DRAWING



LEGEND		LEGEND		LEGEND	
DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL
Boundary Line (Area)		Footpath		Porch	
Bore Well		Gate with Wall		Roof	
Building / Shed / Toilet		Hand Pump		Hut	
Cart Track		Indiprasaha Gas Ltd		Sign Board	
Chamber		Junction Box		Tank / Water Tank	
Culvert		Lamp Post		Telephone Pole	
Covered Drain / Drain		Letter Box		Tower	
Drain Hole		Man Hole		Traffic	
Dustbin		Nallah		Water Pipe	
Electric Pole		Optical Fiber Cable		Well	
Electric Line		Platform		Signal Pole	
Fencing		Traffic - A		Stop	
CCTV		Foot Over Bridge-Pole		Temple	
Cutting Line		Flag Pole		Transformer	
Bank Road		Fire Box		Tin Shed	
Bridge		Flyover		Veri-laden Pipe (Chimney)	
Bus Shelter		Hatch		GAS POINT	
North		High Mast		24F OFC CABLE OF BSNL	
Over Head Tank		HT Line		12F OFC CABLE OF BSNL	
Pillar		Kilometer Stone		24F OFC CABLE POWER GRID (BSNL UTILITY)	
Pond		Masjid		PRIMARY COPPER CABLE (BSNL UTILITY)	
Railway Line		Mosque		DUCT (BSNL UTILITY)	
RCC Road		Motion		150MM WATER PIPE LINE (JALKAL UTILITY) - Material: PS	
Railway Electric Mast-Ch.		Mobile Tower		300MM WATER PIPE LINE (JALKAL UTILITY) - Material: PS	
Drain Flow Arrow		Space Tank		600MM SEWER LINE (JALKAL UTILITY) - Material: RC	
Drain		Saroadhi		1000MM SEWER LINE (JALKAL UTILITY) - Material: Brick barrel	
33 KV / UNDER GROUND ELECTRICAL CABLE (3x400sqmm)		33 KV ELECTRICAL CABLE		11 KV / UNDER GROUND ELECTRICAL CABLE	
11 KV / OVER HEAD ELECTRICAL CABLE (3x200sqmm)		LOW TENSION OVER HEAD ELECTRICAL CABLE		LAMP POST	
LOW TENSION UNDER GROUND ELECTRICAL CABLE (3.5 x 300sqmm)		MEDIUM DENSE POLYETHYLENE (MDPE) CUGL GAS PIPE LINE		CS (CARBON STEEL) CUGL GAS PIPE LINE	
24F, 24F, 12F OFC CABLE (TELECOM UTILITY)		11F ARMOURD CABLE (RAILTEL-IP (TELECOM))		TRENCH CABLE	
DUCT CABLE		DUCT LOCATION			

<<<< TOWARDS MOTI JHEEL

TOWARDS NAYA GANJ >>>>



NOTE : ● The Work in connection with Diversion / Strengthening/ Protection / Restoration etc. of Utilities (viz. electric line, pole, culvert, drain etc.) shall fall within the scope of chartered utilities.

PROJECT TITLE
UTTAR PRADESH METRO RAIL CORPORATION LTD
(Formerly known as Lucknow Metro Rail Corporation Ltd.)
KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1

PARTICULARS	DRN.	CHD.	VER.	DATE



TENDER DRAWING							
NOTICE OF NO OBJECTIONS FROM EMPLOYER							
NOTICE OF NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES HOWEVER THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAIL DESIGN CONSULTANT.							
GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE	SIGNATURE	
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CE/STRU - GC			<input type="checkbox"/> NOWC	CE DESIGN - UPMRC			
CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRC			
				CPM-UPMRC			

PREPARED	NAME	SIGNATURE	DRAWING TITLE
			UTILITY DRAWING
DRAWN BY			
DESIGNED BY			
CHECKED BY			
APPROVED BY			

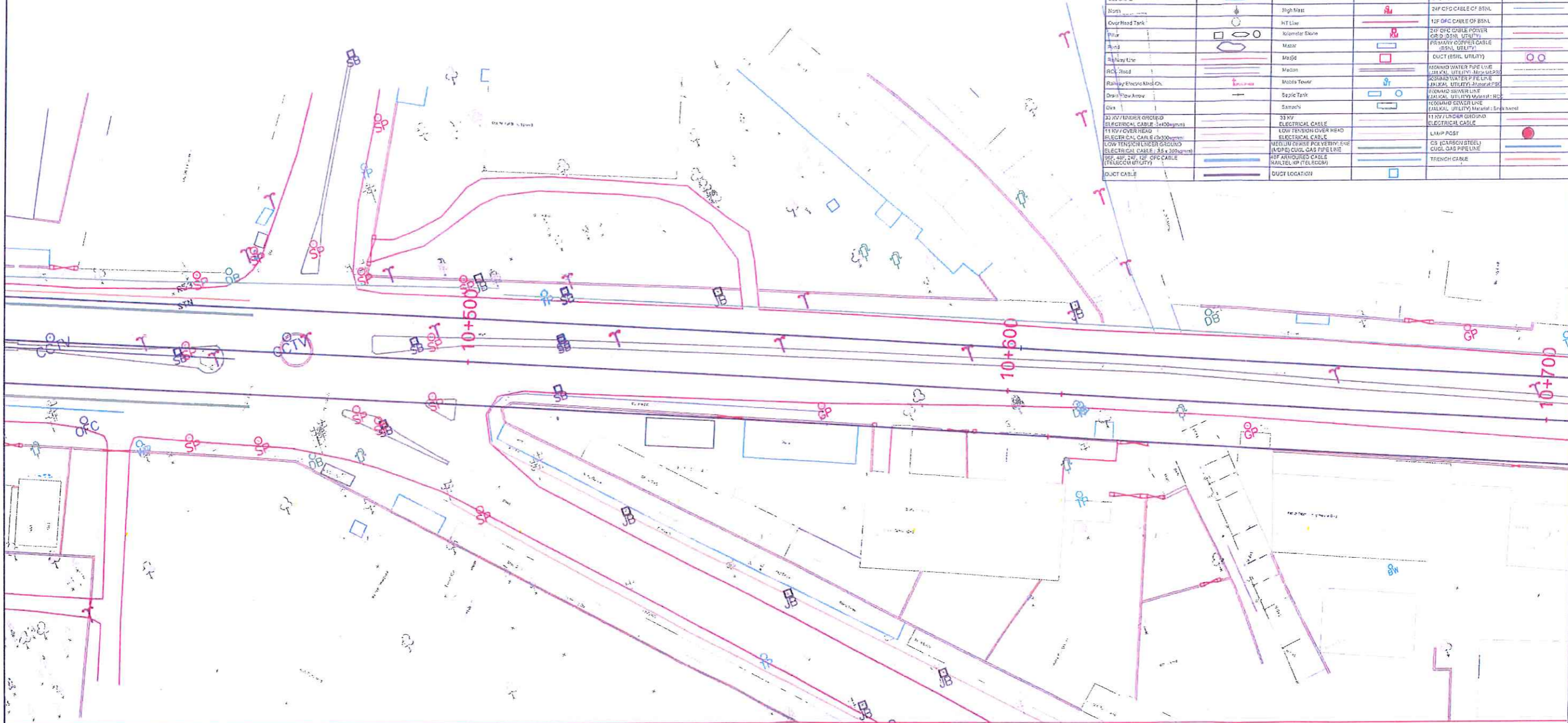
SCALE	AS SHOWN	DATE OF ISSUE	STAGE
DRG. NO.			

UPMRC/PH-1/KNPCC-05/UTILITY DRAWING - SHEET - 02

<< << TOWARDS MOTI JHEEL

TOWARDS NAYA GANJ >>>>

LEGEND		LEGEND		LEGEND	
DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL
Boundary Line (Area)		Footing		Post	
Iron Well		Gas Main Well		Road	
Building Shed / Tent		Hand Pump		Well	
U&M Track		Indraprastha Gas Lid		Sign Board	
Chamber		Junction Box		Fare / Meter Tower	
CLVERT		Lamp Post		Telephone Pole	
Covered Drain / Drain		Letter Box		Tower	
Drain Hole		Man-Hole		Tree B	
Ductin		Man-Isn		Water Pipe	
Electric Pole		Optical Fiber Cable		Well	
Electric Line		Platform		Signal Post	
Fencing		Tree-A		Stair	
CCTV		Foot Over Bridge Fcb		Temple	
Culvert		Flag Pole		Transformer	
Brick Road		Fire Hicc		Tn Shed	
Bridge		Plyover		Ventilation Pipe (Ch-entry)	
Bus Shelter		Hand		Gas Point	
Block		High Mast		21F C/D CABLE OF BSNL	
Overhead Tank		HT Line		12F C/D CABLE OF BSNL	
Pillar		Kilometer Stone		21F C/D CABLE COVER (B/S/ U/S/ U/L/)	
Arch		Mast		PRIMARY COPPER CABLE (B/S/ U/S/ U/L/)	
Playway Line		Ma-Js		DUCT (B/S/ U/S/ U/L/)	
PCU / Road		Median		INDIAN WATER PIPE LINE (11" V/L/ U/L/ U/S/ U/L/)	
Railway Electric Mast/Ch		Mobile Tower		CONCRETE PIPE LINE (JAL/KAL/ U/S/ U/L/)	
Drain Flow Arrow		Septic Tank		FORWARD SEWER LINE (JAL/KAL/ U/S/ U/L/)	
Over		Sampah		REVERSE SEWER LINE (JAL/KAL/ U/S/ U/L/)	
33 KV / 11KV OVERHEAD ELECTRICAL CABLE (3x40sqmm)		33KV ELECTRICAL CABLE		11KV UNDER GROUND ELECTRICAL CABLE	
11KV OVERHEAD ELECTRICAL CABLE (3x30sqmm)		LOW TENSION OVERHEAD ELECTRICAL CABLE		LAMP POST	
LOW TENSION UNDER GROUND ELECTRICAL CABLE (3x 30sqmm)		MEDIUM DENSE POLYETHYLENE (MDPE) CUGL GAS PIPE LINE		CS (C/RS/ST/STEEL) CUGL GAS PIPE LINE	
11KV / 24V / 12V C/D CABLE (TELECOM UTILITY)		11KV AIRCROUED CABLE (MULTI-PAIR TELECOM)		TRENCH CABLE	
DUCT CABLE		DUCT LOCATION			



NOTE:
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TENDER DRAWING

PROJECT TITLE
UTTAR PRADESH METRO RAIL CORPORATION LTD
 (Formerly known as Lucknow Metro Rail Corporation Ltd.)
 KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1

PREPARED	NAME	SIGNATURE	DRAWING TITLE
DRAWN BY			UTILITY DRAWING
DESIGNED BY			
CHECKED BY			
APPROVED BY			

SCALE AS SHOWN DATE OF ISSUE STAGE

DRG NO **UPMRC/PH-1/KNPCC-05/UTILITY/SHEET - 03** REV. R1

PARTICULARS	DRN.	CHD.	VER.	DATE



NOTICE OF NO OBJECTIONS FROM EMPLOYER
 NOTICE OF NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES HOWEVER THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAIL DESIGN CONSULTANT.

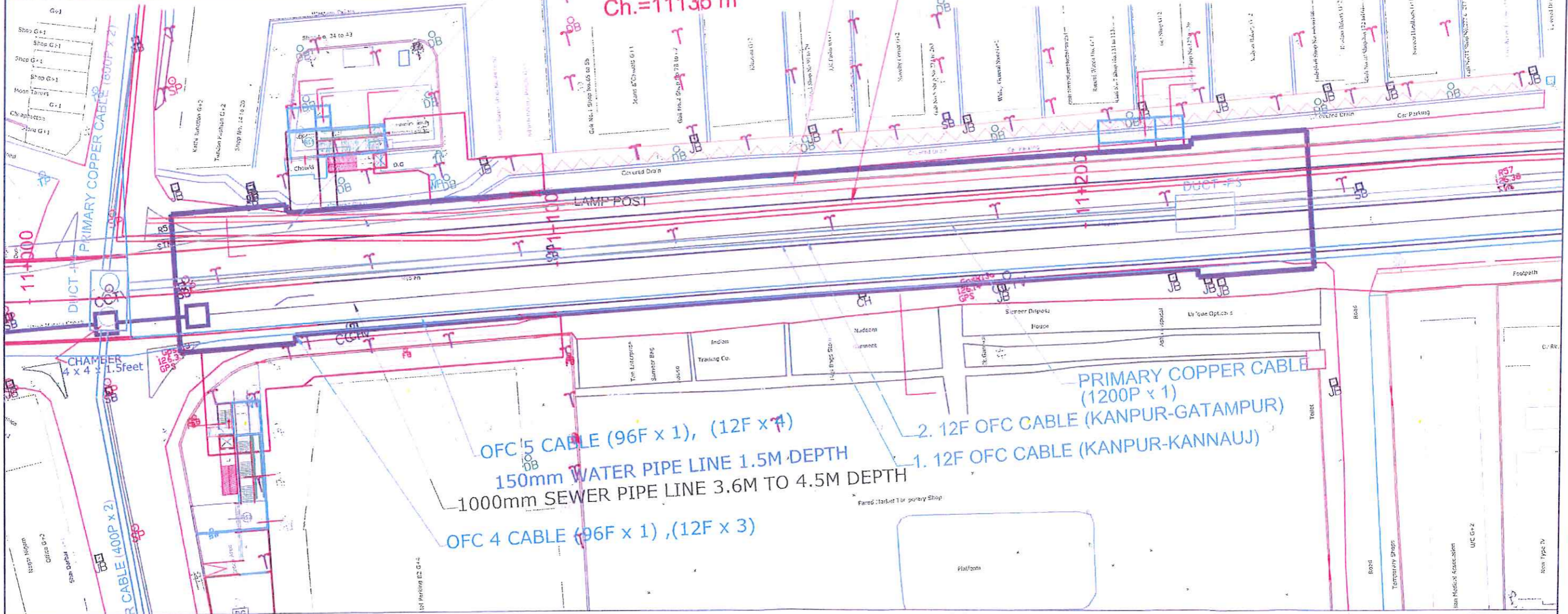
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CE/STRU - GC			<input type="checkbox"/> NO/C	CE DESIGN - UPMRCL		
CE/EAM - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRCL		
				CPM-UPMRC		



<< << TOWARDS MOTI JHEEL

TOWARDS NAYA GANJ >>>>

LEGEND		LEGEND		LEGEND	
DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL
Boundary (R/S)	[Symbol]	Electric Wire	[Symbol]	Water	[Symbol]
Boundary (L/S)	[Symbol]	Electric Wire	[Symbol]	Water	[Symbol]
Boundary (T/S)	[Symbol]	Electric Wire	[Symbol]	Water	[Symbol]
...



NOTE:
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PROJECT TITLE
 UTTAR PRADESH METRO RAIL CORPORATION LTD
 (Formerly known as Lucknow Metro Rail Corporation Ltd.)
 KNPDD01-HIT KANPUR-NAUBASTA CORRIDOR-1

PARTICULARS	ORN.	CHD.	VER.	DATE



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CE/STRU - GC			<input type="checkbox"/> NOWC	CE DESIGN - UPMRC		
CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRC		
				CPM-UPMRC		

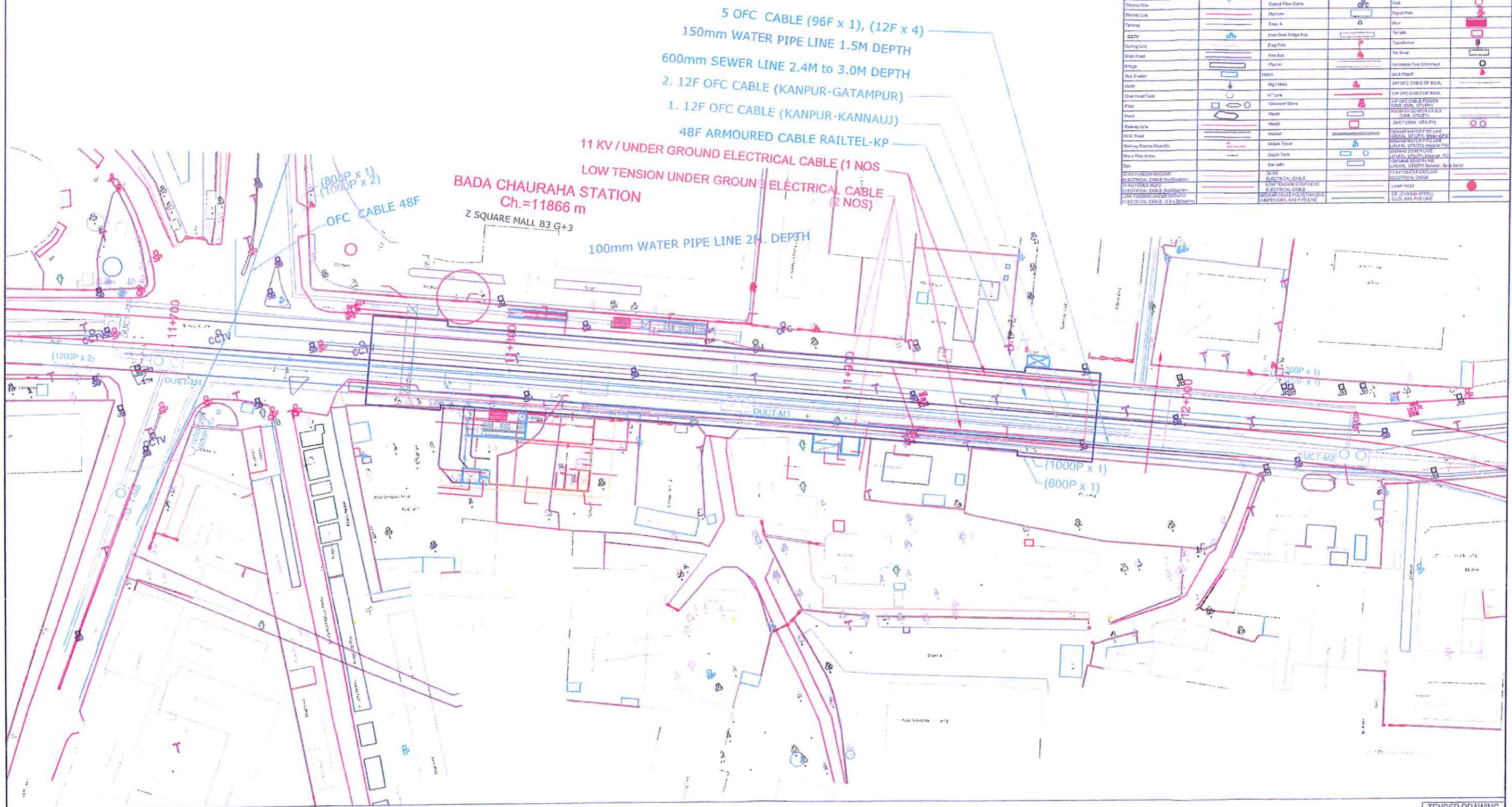
PREPARED	NAME	SIGNATURE	DRAWING TITLE
			UTILITY DRAWING
DRAWN BY			
DESIGNED BY			
CHECKED BY			
APPROVED BY			



SCALE AS SHOWN DATE OF ISSUE
 UPMRC/PH-1/KNPCC-05/UTILITY SHEET - 04 REV. R1

<<<< TOWARDS MOTI JHEEL

TOWARDS NAYA GANJ >>>>



LEGEND		LEGEND		LEGEND	
DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL
Borrowing Line (Area)	[Symbol]	Flagpole	[Symbol]	Post	[Symbol]
Bore Well	[Symbol]	Gate with Wall	[Symbol]	Road	[Symbol]
Bulking Shed / Tank	[Symbol]	Hand Pump	[Symbol]	Well	[Symbol]
Canal	[Symbol]	Ironing Rack	[Symbol]	Sign Board	[Symbol]
Chamber	[Symbol]	Junction Box	[Symbol]	Tank / Water Tank	[Symbol]
Claret	[Symbol]	Lang. Post	[Symbol]	Telephone Pole	[Symbol]
Concrete Drain / Drain	[Symbol]	Lamp Post	[Symbol]	Tower	[Symbol]
Dip Valve	[Symbol]	Manhole	[Symbol]	Tree B	[Symbol]
Ditch	[Symbol]	Median	[Symbol]	Water Pipe	[Symbol]
Electric Pole	[Symbol]	Overhead Cable	[Symbol]	Well	[Symbol]
Electric Line	[Symbol]	Platform	[Symbol]	Signal Pole	[Symbol]
Fencing	[Symbol]	Trap A	[Symbol]	Slur	[Symbol]
Foot Over Bridge	[Symbol]	Foot Over Bridge Post	[Symbol]	Target	[Symbol]
Gas Line	[Symbol]	Flag Pole	[Symbol]	Transformer	[Symbol]
Grass	[Symbol]	Fire Box	[Symbol]	Tn Shed	[Symbol]
Gravel	[Symbol]	Hydrant	[Symbol]	Underfoot Post (Chimney)	[Symbol]
Gas Meter	[Symbol]	Manhole	[Symbol]	Gas Post	[Symbol]
High Mast	[Symbol]	High Mast	[Symbol]	24F OFC CABLE OF BSM	[Symbol]
HT Line	[Symbol]	HT Line	[Symbol]	12F OFC CABLE OF BSM	[Symbol]
Generator	[Symbol]	Generator	[Symbol]	22F OFC CABLE POWER CORD ROOM UTILITY	[Symbol]
Motor	[Symbol]	Motor	[Symbol]	22F OFC CABLE OF BSM (22F, UTILITY)	[Symbol]
Manhole	[Symbol]	Manhole	[Symbol]	600T (SMK UTILITY)	[Symbol]
Median	[Symbol]	Median	[Symbol]	200mm WATER PIPE LINE (SMK UTILITY)	[Symbol]
Mobile Tower	[Symbol]	Mobile Tower	[Symbol]	100mm WATER PIPE LINE (SMK UTILITY)	[Symbol]
Open Flow Arroy	[Symbol]	Open Flow Arroy	[Symbol]	100mm WATER PIPE LINE (SMK UTILITY)	[Symbol]
Open	[Symbol]	Open	[Symbol]	100mm WATER PIPE LINE (SMK UTILITY)	[Symbol]
33 KV UNDERGROUND ELECTRICAL CABLE (33KV)	[Symbol]	33 KV	[Symbol]	11 KV UNDERGROUND ELECTRICAL CABLE	[Symbol]
11 KV UNDERGROUND ELECTRICAL CABLE (11KV)	[Symbol]	11 KV UNDERGROUND ELECTRICAL CABLE	[Symbol]	LAMP POST	[Symbol]
11 KV UNDERGROUND ELECTRICAL CABLE (11KV)	[Symbol]	11 KV UNDERGROUND ELECTRICAL CABLE	[Symbol]	22F UNDERGROUND ELECTRICAL CABLE	[Symbol]
11 KV UNDERGROUND ELECTRICAL CABLE (11KV)	[Symbol]	11 KV UNDERGROUND ELECTRICAL CABLE	[Symbol]	22F UNDERGROUND ELECTRICAL CABLE	[Symbol]
11 KV UNDERGROUND ELECTRICAL CABLE (11KV)	[Symbol]	11 KV UNDERGROUND ELECTRICAL CABLE	[Symbol]	22F UNDERGROUND ELECTRICAL CABLE	[Symbol]

NOTE :
 ● The Work in connection with Diversion / Strengthening/ Protection / Restoration etc. of Utilities (viz. electric line, pole ,culvert, drain etc.) shall fall within the scope of chartered utilities.

PROJECT TITLE
 UTTAR PRADESH METRO RAIL CORPORATION LTD
 (Formerly known as Lucknow Metro Rail Corporation Ltd.)
 KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1

PREPARED	NAME	SIGNATURE
DRAWN BY		
DESIGNED BY		
CHECKED BY		
APPROVED BY		

DRAWING TITLE
 UTILITY DRAWING

SCALE AS SHOWN DATE OF ISSUE STAGE

IRG.NO. UPMRC/PH-1/KNPCC-05/UTILITY/SHEET-05 REV. R11

PARTICULARS	DRN.	CHD.	VER.	DATE

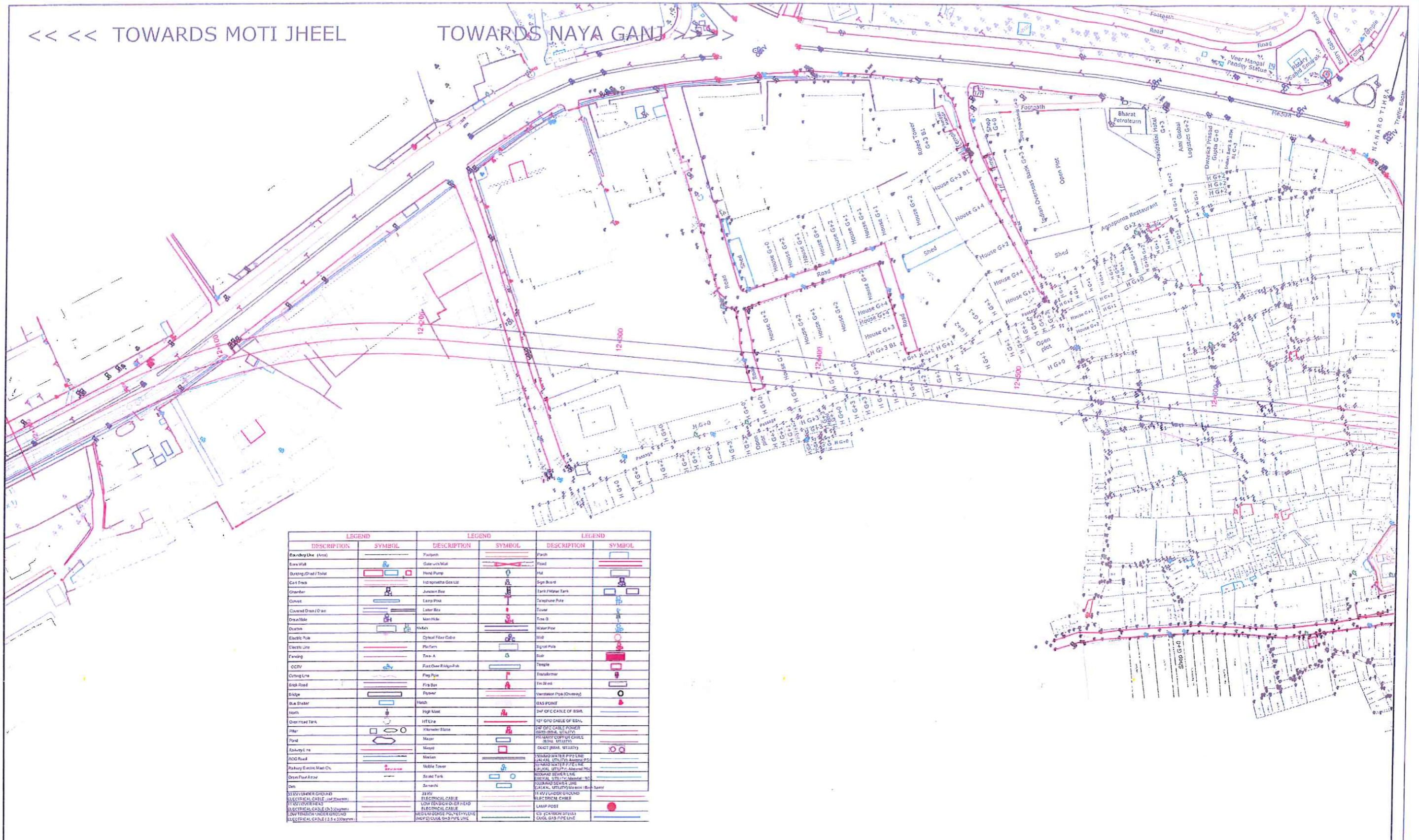


NOTICE OF NO OBJECTIONS FROM EMPLOYER						
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GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE	SIGNATURE
CMARCH - GC			<input type="checkbox"/> NOC	DY.CA-UPMRC		
CE/STRU - GC			<input type="checkbox"/> NOWC	CE DESIGN - UPMRC		
CE/EAM - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRC		
				CPM-UPMRC		



<<<< TOWARDS MOTI JHEEL

TOWARDS NAYA GANJ >>>>



LEGEND		LEGEND		LEGEND	
DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL
Standby Line (Hm)		Flagpost		Post	
Open Well		Open Well		Man	
Cutting Grad / Toilet		Hand Pump		Sign Board	
Gas Pipe		Isoprene Gas Lid		Earth / Water Tank	
Chamber		Junction Box		Telephone Pole	
Convent		Lamp Post		Tower	
Covered Drain / Gas		Labor Box		Tree B	
Drain Hole		Main Hole		Water Pipe	
Culvert		W/S		Wall	
Electric Pole		Cyber Fiber Cable		Signal Post	
Electric Line		Platform		Stair	
Fencing		Tree A		Temple	
CCTV		Foot Over Bridge/Road		Transformer	
Cutting Line		Flag Pole		Iron Stand	
Block Road		Fire Box		Ventilation Pipe (Overhead)	
Bridge		Flower		SS POINT	
Bus Shelter		Hatch		24" OF CABLE OF SSW	
Roof		High Mast		12" OF CABLE OF SSW	
Over Head Tank		HT Line		14" OF CABLE POWER	
Pole		Water Meter		16" OF CABLE POWER	
Pond		Marg		18" OF CABLE POWER	
Standby Line		Marg		20" OF CABLE POWER	
Road Road		Median		22" OF CABLE POWER	
Railway Electric Mast Ch.		Mobile Tower		24" OF CABLE POWER	
Open Plot Area		Scale Tank		26" OF CABLE POWER	
Open		Sewer		28" OF CABLE POWER	
11 KV / 6.6 KV OVERHEAD		33 KV		30" OF CABLE POWER	
ELECTRICAL CABLE (4-20mm)		ELECTRICAL CABLE		32" OF CABLE POWER	
11 KV OVERHEAD		ELECTRICAL CABLE (30-20mm)		34" OF CABLE POWER	
20 KV OVERHEAD		33 KV OVERHEAD		36" OF CABLE POWER	
ELECTRICAL CABLE (33 + 330mm)		33 KV UNDERGROUND		38" OF CABLE POWER	
		33 KV UNDERGROUND		40" OF CABLE POWER	
		33 KV UNDERGROUND		42" OF CABLE POWER	
		33 KV UNDERGROUND		44" OF CABLE POWER	
		33 KV UNDERGROUND		46" OF CABLE POWER	
		33 KV UNDERGROUND		48" OF CABLE POWER	
		33 KV UNDERGROUND		50" OF CABLE POWER	
		33 KV UNDERGROUND		52" OF CABLE POWER	
		33 KV UNDERGROUND		54" OF CABLE POWER	
		33 KV UNDERGROUND		56" OF CABLE POWER	
		33 KV UNDERGROUND		58" OF CABLE POWER	
		33 KV UNDERGROUND		60" OF CABLE POWER	

NOTE :

- The Work in connection with Diversion / Strengthening/ Protection / Restoration etc. of Utilities (viz. electric line, pole, culvert, drain etc.) shall fall within the scope of chartered utilities.

PROJECT TITLE
 UTTAR PRADESH METRO RAIL CORPORATION LTD
 (Formerly known as Lucknow Metro Rail Corporation Ltd.)
 KNPPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1

TENDER DRAWING

PARTICULARS	DRN.	CHD.	VER.	DATE



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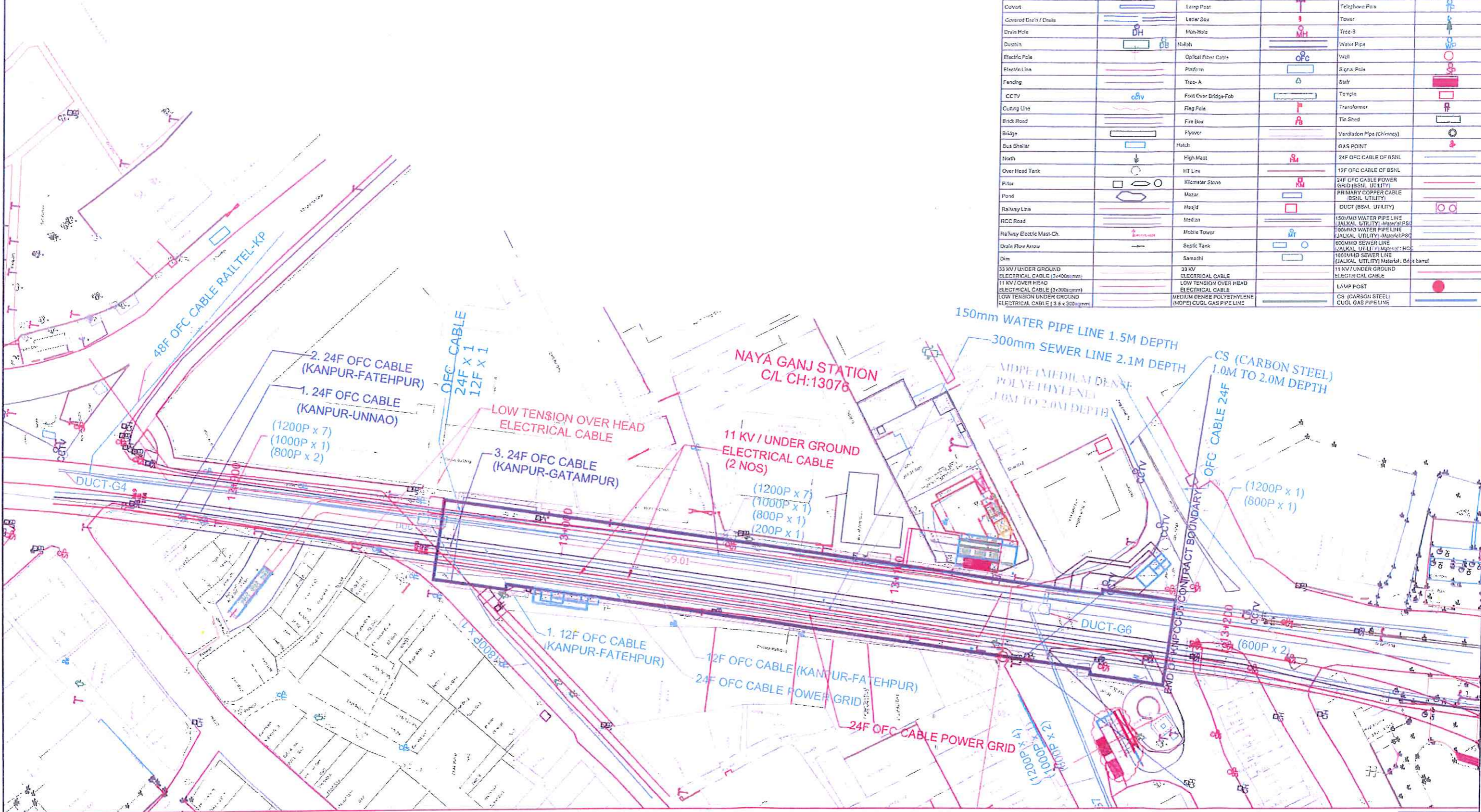
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CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY. CE CIVIL - UPMRC		<i>Upreti</i>
				CFM - UPMRC		

PREPARED	NAME	SIGNATURE	DRAWING TITLE
			UTILITY DRAWING
DRAWN BY			
DESIGNED BY			
CHECKED BY			
APPROVED BY			

SCALE	AS SHOWN	DATE OF ISSUE
DRG. NO.	UPMRC/PH-1/KNPCC-05/UTILITY/SHEET - 06	REV. R1



<<<< TOWARDS MOTI JHEEL TOWARDS NAYA GANJ >>>>



LEGEND		LEGEND		LEGEND	
DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL
Boundary Line (Area)		Footpath		Porch	
Bore Well	BW	Gate with Wall		Road	
Building (Shed / Toilet)		Hand Pump		Hut	
Can Track		Indragashta Gas Ltd		Sign Board	
Chamber		Junction Box		Tank / Water Tank	
Culvert		Lamp Post		Telephone Pole	
Covered Drain / Drains		Letter Box		Tower	
Drain Hole	DH	Mun-Hole	MH	Tree-B	
Dustbin		Nallah		Water Pipe	
Electric Pole		Optical Fiber Cable	OFC	Well	
Electric Line		Platform		Signal Pole	
Fencing		Tree- A		Subr	
CCTV	cctv	Foot Over Bridge-Fob		Temple	
Cutting Line		Flag Pole		Transformer	
Brick Road		Fire Box		Tin Shed	
Bridge		Flyover		Ventilation Pipes (Chimney)	
Bus Shelter		Hatch		GAS POINT	
North		High Mast		24F OFC CABLE OF BSNL	
Over Head Tank		HT Line		12F OFC CABLE OF BSNL	
Pillar		Kilometer Stone		24F OFC CABLE POWER GRID (BSNL UTILITY)	
Pond		Mazar		PRIMARY COPPER CABLE (BSNL UTILITY)	
Railway Line		Mayid		DUCT (BSNL UTILITY)	
RCC Road		Median		150MM/3 WATER PIPE LINE (JALKAL UTILITY - Major/PS)	
Railway Electric Mast-Ch		Mobile Tower		300MM WATER PIPE LINE (JALKAL UTILITY - Major/PS)	
Drain Flow Arrow		Septic Tank		100MM/3 SEWER LINE (JALKAL UTILITY) Material : RC	
Dim		Savathi		600MM/3 SEWER LINE (JALKAL UTILITY) Material : RC	
33 KV / UNDER GROUND ELECTRICAL CABLE (3x400sqmm)		33 KV ELECTRICAL CABLE		11 KV / UNDER GROUND ELECTRICAL CABLE	
11 KV / UNDER GROUND ELECTRICAL CABLE (3x300sqmm)		11 KV / UNDER GROUND ELECTRICAL CABLE		LAMP POST	
LOW TENSION UNDER GROUND ELECTRICAL CABLE (1.5 x 300sqmm)		MEDIUM DENSE POLYETHYLENE (MDPE) CUGL GAS PIPE LINE		CS (CARBON STEEL) CUGL GAS PIPE LINE	

NOTE :
 • The Work in connection with Diversion / Strengthening/ Protection / Restoration etc. of Utilities (viz.electric line,pole ,culvert,drain etc.) shall fall within the scope of chartered utilities.

PROJECT TITLE
UTTAR PRADESH METRO RAIL CORPORATION LTD
 (Formerly known as Lucknow Metro Rail Corporation Ltd.)
 KNPDD01-HIT KANPUR-NAUBASTA CORRIDOR-1

PARTICULARS	DRN.	CHD.	VER.	DATE



NOTICE OF NO OBJECTIONS FROM EMPLOYER							
NOTICE OF NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES HOWEVER THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAIL DESIGN CONSULTANT .							
GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE	SIGNATURE	
CA/ARCH - GC			<input type="checkbox"/> NOC	DY.CA - UPMRC			
CE/STRU - GC			<input type="checkbox"/> NOWC	CE DESIGN - UPMRC			
CE/EAM - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRC			
				CPM-UPMRC			

PREPARED	NAME	SIGNATURE	DRAWING TITLE
			UTILITY DRAWING
DRAWN BY			
DESIGNED BY			
CHECKED BY			
APPROVED BY			

SCALE	AS SHOWN	DATE OF ISSUE	



UPMRC/PH-1/KNPCC-05/UTILITY/SHEET - 07

TENDER DRAWING

REV R1

DRAWING LIST - CHUNNIGANJ STATION			
S.NO.	DRAWING NO.	DRAWING TITLE	REV. NO.
1	KNPDD01-TDR-CGJ-ARC-LIS-14000	DRAWING LIST	R1
2	KNPDD01-TDR-CGJ-ARC-PLN-14001	GROUND LEVEL PLAN	R1
3	KNPDD01-TDR-CGJ-ARC-PLN-14002	CONCOURSE LEVEL PLAN	R1
4	KNPDD01-TDR-CGJ-ARC-PLN-14003	PLATFORM LEVEL PLAN	R1
5	KNPDD01-TDR-CGJ-ARC-PLN-14004	UNDERCROFT LEVEL PLAN	R1
6	KNPDD01-TDR-CGJ-ARC-CRS-14005	CROSS SECTIONS	R1
7	KNPDD01-TDR-CGJ-ARC-LGS-14006	LONGITUDINAL SECTION	R1
8	KNPDD01-TDR-CGJ-ARC-PLN-14007	ANCILLARY BUILDING PLANS & SECTIONS	R1
9	KNPDD01-TDR-CGJ-ARC-ELE-14008	ENTRY & ANCILLARY ELEVATIONS	R1
10	KNPDD01-TDR-CGJ-ARC-PLN-14009	INSERTION LEVEL PLAN	R1

TENDER DRAWING

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GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRCL-SIGN OFF	SIGNATURE
CA/ARCH - GC			<input type="checkbox"/> NOC	DY.CA-UPMRCL	
CE/STRU - GC			<input type="checkbox"/> NOWC	CE DESIGN - UPMRCL	
CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRCL	
				CPM-UPMRCL	
PROJECT TITLE					
UTTAR PRADESH METRO RAIL CORPORATION LTD (Formerly known as Lucknow Metro Rail Corporation Ltd.) KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1					
PREPARED	NAME	SIGNATURE	DRAWING TITLE		
	S.SHUKLA		CHUNNIGANJ STATION		
DRAWN BY	M.FURWAR		DRAWING LIST		
DESIGNED BY	N.CHATURVEDI		SCALE	DATE OF ISSUE	STAGE
CHECKED BY	ASHISH K.		AS SHOWN	01-06-2020	TENDER DESIGN
APPROVED BY			DRG NO	KNPDD01-TDR-CGJ-ARC-LIS-14000	REV R1



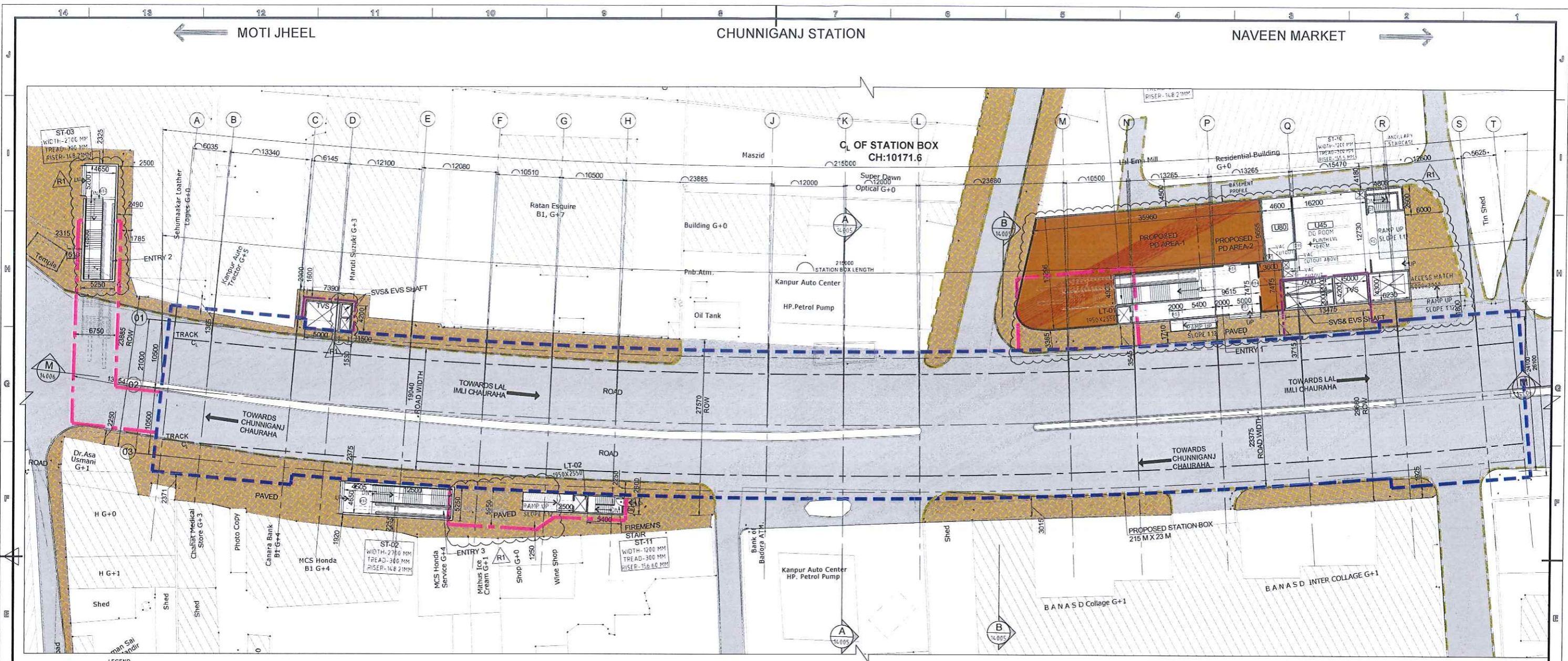
REFERENCE DRAWINGS	
Drawing Number	Description

AGAK CONSORTIUM
GENERAL CONSULTANT
B3-3-4, D3-3-4-37, LMRC - GC TOWER,
OPP. TO GOMTI NAGAR BUS DEPOT,
VIBHUTI KHAND, LUCKNOW-226010.

DETAIL DESIGN CONSULTANT
SYSTRA
SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
VATIKA MINDSCAPES, TOWER-B, 12/3,
MATHURA ROAD, NH-2, SECTOR-27/D,
FARIDABAD, HARYANA-121013
PH: 0129 668 5600
SUBSIDIARY OF:
SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

* AVAILABILITY OF LAND FOR PROPOSED ENTRIES NEEDS TO BE CONFIRMED BY UPMRCL
* LEVELS PROPOSED IN ENTIRE STATION BY KEEPING ROAD LEVEL OF 400 MM.
* LENGTH OF ENTRY STAIRCASE / ESCALATOR MAY VARIAS AS PER SPOT LEVEL AROUND ENTRY STRUCTURE.

REV.	PARTICULARS	DRN.	CHD.	VER.	DATE
R1	REVISION: TENDER SUBMISSION	S.SHUKLA	M.FURWAR	N.CHATURVEDI	24.06.2020
R0	TENDER SUBMISSION	K.TANDOI	M.FURWAR	N.CHATURVEDI	1.06.2020



LEGEND

1	BLOCKWORK
2	CONCRETE WORK
3	GLASS WALL / WINDOW

ABBREVIATIONS :-
 LT- LIFT
 ESC- ESCALATOR
 ST- STAIRCASE
 PD- PROPERTY DEVELOPMENT

GROUND LEVEL PLAN
 SCALE - 1:300

- NOTES :-**
- ALL DIMENSIONS ARE IN MM, UNLESS NOTED OTHERWISE.
 - ALL DIMENSIONS ARE TO BE READ AS MENTIONED ON THE DRAWINGS & NOT TO BE MEASURED.
 - THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT STRUCTURAL, MEP, SYSTEM, VENDOR, FIRE FIGHTING & TRAFFIC MANAGEMENT DRAWINGS.
 - ANY DISCREPANCY THUS ARRIVED MUST BE BROUGHT TO THE NOTICE OF THE CONSULTANT.
 - STRUCTURE SYSTEM SHOWN IS INDICATIVE. REFER STRUCTURE DRAWING FOR ALL STRUCTURE MEMBER SIZES TO BE DETAIL BY CONTRACTOR AT LATER STAGE.
 - THIS DRAWINGS HAVE BEEN DEVELOPED IN CONFORMITY TO DPR, SOD, NBC, UPMRC & OTHER LOCAL BODY REQUIREMENT.
 - THE STATION LOCATION SHOWN AS PER ALIGNMENT DRAWING RECEIVED FROM UPMRC DATED 22.06.2020.
 - ESCALATOR FIT, LIFT SHAFT & LIFT PIT SIZE ARE SHOWN AS PER THE ELEVATED STATION AND ARE SUBJECT TO VENDOR'S REQUIREMENT.
 - TRACK CENTRE TO PLATFORM EDGE DISTANCE & PLATFORM HEIGHT ARE PROVIDED AS PER FINAL SOD (REVISED ON 06.02.20).
 - STAIRCASE SIZE & THEIR NOS. SHOWN AS PER RIDERSHIP REQUIREMENT. REFERENCE RECEIVED WITH DPR.
 - ROOM SIZE, HEIGHTS DOOR/STAIR AND CUTOFF DIMENSIONS BY RELEVANT DISCIPLINES OF ENGINEERING.
 - ROOM SIZES PROVIDED AS PER CONCERN DISCIPLINE REQUIREMENT. THIS MAY CHANGE AT THE TIME OF DETAIL DESIGN.
 - FLOOR FINISH THICKNESS OF CONCOURSE & PLATFORM SHOWN AS PER GC MAIL DATED 14.05.20.
 - CONCOURSE SHALL BE POINT OF SAFETY AS PER CLAUSE REF-JS-1.1.1 D/EVACUATION TIME PART-4 FIRE LIFE & SAFETY OF NBC 2016 VOL.1.
 - LOCATION OF FHC HOSE CABINET, FIRE EXTINGUISHER & CUTOFF IS TENTATIVE AND SHALL BE REFERRED BY MEP DWG.
 - MINIMUM HORIZONTAL DISTANCE MAINTAINED FROM PLATFORM EDGE TO ANY STRUCTURE AS PER SOD.
 - STATION BOX SIZE PROPOSED AS PER DISCUSSION WITH UPMRC.
 - SYSTEM WIDE RELATED ROOM SIZES & FLOOR LEVELS MAY VARY & SHALL BE AS PER SYSTEM WIDE CONTRACTOR REQUIREMENT.
 - NO. OF AFC GATES, TOM COUNTERS, DFMD GATE SHOWN ARE TENTATIVE MAY BE CHANGE IN DETAIL DESIGN STAGE AS PER FINAL SYSTEM WIDE REQUIREMENT.
 - NO. OF AFC GATES MARKED AS PER EMERGENCY CONDITION CALCULATION I.E @ 50 P/MIN. HOWEVER, AS PER DPR (REV-DEC 2017) AFC GATES NO. MARKED IN NORMAL CONDITION I.E @ 35 P/MIN. PLANNING OF UNPAID & PAID AREA MAY REVISE AS PER AFC GATES REQUIREMENT MENTIONED IN DPR.
 - LOCATION, NO. & SIZE OF EARTH MAT, CLEAN EARTH, EPR, LDB & MEP RELATED CUTOFF SHALL BE REFERRED BY MEP DWG.
 - CLEAR HT. BETWEEN CONCOURSE & PLATFORM IS PROVIDED AS PER MEP REQUIREMENT.
 - PD AREAS ON CONCOURSE & GROUND MARKED TENTATIVELY & SAME SHALL BE REVISED AS PER UPMRC REQUIREMENT.
 - ENTRY/EXIT LOCATION, ANCILLARY LOCATION, PD AREA ON GROUND SHOWN IN DISCUSSION WITH UPMRC.
 - EQUIPMENT DELIVERY ROUTE FOR MEP ROOMS & ANCILLARY AREAS SHALL BE AS PER MEP REQUIREMENT.
 - PASSENGER CAR DROP OFF, BUS DROP OFF, NO. OF PARKINGS FOR (24 WHEELER) BUSES, PEDESTRIAN CROSSING, FOOT PATH, ROADS SHOWN IN THIS PLAN ARE TENTATIVE & SHALL BE FINALIZED IN CONJUNCTION WITH TRANSPORT INTEGRATION DRAWINGS.
 - ALL FINISHES ARE SUBJECT TO UPMRC/GC APPROVAL.
 - DRAINAGE DETAIL SHALL BE REFERRED FROM MEP DETAIL DRAWINGS.
 - MEP ROOM EQUIPMENT LAYOUT, MEP CUTOFFS & LOCATION OF DEMOUNTABLE PANELS SHALL BE REFERRED FROM MEP DRAWINGS.
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ANCILLARY BUILDING GROUND FLOOR

S.NO	ROOM CODE	ROOM NAME	WIDTH	LENGTH	AREA sqm
1	U45	DG ROOM	11.40	12.73	145.10
2	U80	DG PANEL ROOM	4.60	9.65	44.40
3		PROPOSED PD AREA-1			469.90
4		PROPOSED PD AREA-2	3.60	7.47	26.90

- REVISION LOG - R1**
- LOCATION & SIZE OF EVS & SVS SHAFT REVISED.
 - ANCILLARY BUILDING REVISED.
 - ENTRY - 2 LIFT REMOVE.
 - ANCILLARY BUILDING REVISED AS PER MEP REQUIREMENT.
 - SUBWAY PROFILE OF ENTRY-3 REVISED.
 - LAYOUT AT ENTRY REARRANGED TO MAKE SINGLE CANOPY FOR LIFT & SET OF STAIR & ESCALATOR.
 - DOOR SCHEDULE REVISED WITH FIRE RATING INDICATED.

DOOR SCHEDULE

DOOR NO.	WIDTH (IN MM)	LINTEL HEIGHT FROM FFL (IN MM)	FIRE RATING	REMARKS
D5b	1200	2100	--	--
D6a	1000	2100	--	--
D6	1000	2100	FS-90	--
RS	7000	3000	--	ROLLING SHUTTER
RS1	5000	3000	--	ROLLING SHUTTER
RS2	4650	3000	--	ROLLING SHUTTER
RS3	2000	3000	--	ROLLING SHUTTER
RS4	3000	3000	--	ROLLING SHUTTER



DETAIL DESIGN CONSULTANT

SYSTRA

SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
 VATIKA MINDSCAPES, TOWER-B, 12/3,
 MATHURA ROAD, NH-2, SECTOR-27/D,
 FARIDABAD, HARYANA-121013
 PH: 0129 668 5600
 SUBSIDIARY OF:
 SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

REFERENCE DRAWINGS

Drawing Number	Description

UPMRC

AGAK CONSORTIUM
 GENERAL CONSULTANT
 B3-3-4 D334-37, LMRC - GC TOWER,
 OPP. TO GCMTI NAGAR BUS DEPT.,
 VIHUTI KHAND, LUCKNOW-226010.

- LEGENDS :**
- ROAD
 - FOOTPATH
 - FUTURE P.D.
 - STATION BOX
 - SUBWAY
 - SHAFT ROUTING
 - KERB LINE

TENDER DRAWING

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GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE	SIGNATURE
CA/MARCH - GC			<input type="checkbox"/> NOC	DY.CA- UPMRC		
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				CPM-UPMRC		

PROJECT TITLE
UTTAR PRADESH METRO RAIL CORPORATION LTD.
 (Formerly known as Lucknow Metro Rail Corporation Ltd.)
 KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1

Stamp: **U.P. Metro Rail Corporation Ltd.**

REVISIONS

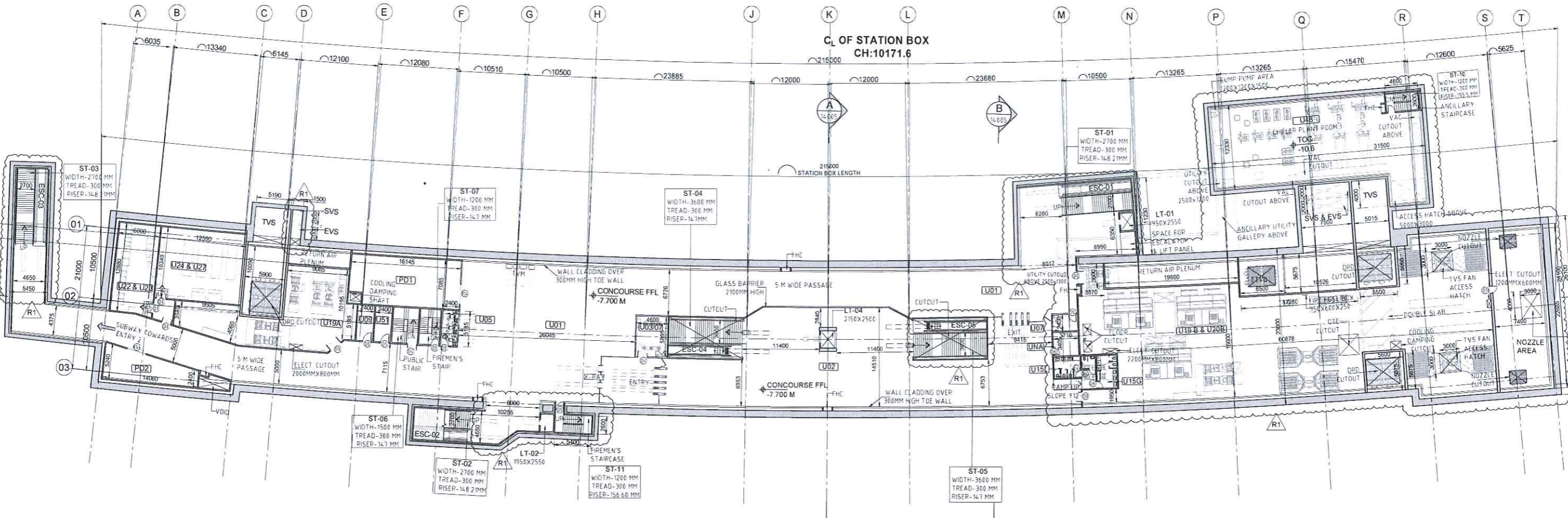
REV.	PARTICULARS	DRN.	CHD.	VER.	DATE
R1	REVISED TENDER DRAWING	S.SHUKLA	R.FURWAR	N.CHATURVEDI	04-06-2020
RC	TEXT CORRECTIONS	S.SHUKLA	R.FURWAR	N.CHATURVEDI	04-06-2020

PREPARED	NAME	SIGNATURE	DRAWING TITLE
			CHUNNIGANJ STATION
			GROUND LEVEL PLAN
DRAWN BY	DESIGNED BY	CHECKED BY	APPROVED BY
S.SHUKLA	M.FURWAR	N.CHATURVEDI	ASHISH K.
SCALE	DATE OF ISSUE	STAGE	REV
AS SHOWN	01-06-2020	TENDER DESIGN	R1
DRG NO			
KNPDD01-TR-CGJ-ARC-PLN-14001			

MOTI JHEEL

CHUNNIGANJ STATION

NAVEEN MARKET



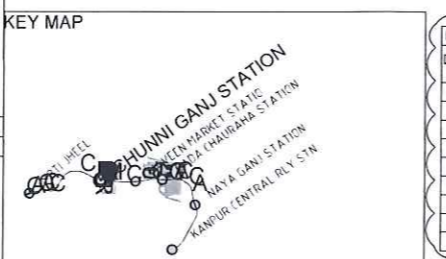
CONCOURSE LEVEL PLAN
SCALE - 1:300

ABBREVIATIONS:	
LT	LIFT
ESC	ESCALATOR
ST	STAIRCASE
PD	PROPERTY DEVELOPMENT

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 - FLOOR FINISH THICKNESS OF CONCOURSE & PLATFORM SHOWN AS PER GC MAIL DATED 14.05.20.
 - CONCOURSE SHALL BE POINT OF SAFETY AS PER CLAUSE REF-J.5.1 D ECAVATION TIME PART-4 FIRE LIFE & SAFETY OF NBC 2016 VOL 1
 - LOCATION OF FHC HOSE CABINET, FIRE EXTINGUISHER & CUTOUT IS TENTATIVE AND SHALL BE REFERRED BY MEP DWG.
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CONCOURSE			
S.NO	ROOM CODE	ROOM NAME	AREA sqm
1	U01	UNPAID AREA CONCOURSE	1230.90
2	U02	PAID AREA CONCOURSE	596.70
3	U03	SCR	4.6
4	U05	TOM	2.4
5	U07	EFO	3.71
6	U09	SECURITY ROOM	2.4
7	U15	TOILET	45
8	U19A	ECS/TVS FAN ROOM	278.10
9	U19B/U20B	ECS/TVS FAN ROOM	825.00
10	U22&U23	SER & TER COMBINED	78.95
11	U24&U27	UPS BATTERY ROOM	12.59
12	U51	EMERGENCY EQUIPMENT ROOM	2.4
13		NOZZEL - (RIGHT HAND SIDE)	7.4
14	PD1	PROPERTY DEVELOPMENT	16.15
15	PD2	PROPERTY DEVELOPMENT	7.09
16	UNA	SPARE ROOM	3.71

- REVISION LOG - R1**
- LOCATION & SIZE OF EVS & SVS SHAFT REVISED.
 - ANCILLARY BUILDING REVISED.
 - STATION ENTRANCE OPENINGS INCREASED TO 8 METERS.
 - UTILITY GALLERY SIZE & POSITION REVISED.
 - DOOR SCHEDULE REVISED WITH FIRE RATING INDICATED.
 - TOILET BLOCK LOCATION & SIZE REVISED.
 - POSITION OF PUBLIC STAIRS & ESCALATOR REVISED.
 - BOH AREA REVISED.
 - LOCATION OF ENTRY 1 CUTOUT REVISED.
 - SOME OF ROOMS ARE REARRANGED.
 - LIFT REMOVED FROM ENTRY -2
 - FIREMEN NEAR ENTRY-3 REVISED



DOOR SCHEDULE				
DOOR NO	WIDTH (IN MM)	LINTEL HEIGHT FROM FFL (IN MM)	FIRE RATING	REMARKS
D1	2000	2500	FS-90	BOH AREA
D2	1500	2500	FS-180	BOH ROOM
D3	1500	2500	FS-90	BOH AREA
D4	1500	2100	FS-90	--
D5	1200	2100	FS-90	--
D5a	1200	2100	FS-180	BOH ROOM
D6	1000	2100	FS-90	--
D7	750	2100	FS-90	BOH AREA
RS4	3000	3000	--	ROLLING SHUTTER

REFERENCE DRAWINGS	
Drawing Number	Description

UPMRCL

AGAK CONSORTIUM
GENERAL CONSULTANT
B3-4, D3-34-37, LMRC - GC TOWER,
OFF. TO GMDI NAGAR BUS DEPOT,
VIBHUTI KHAND, LUCKNOW-226010.

DETAIL DESIGN CONSULTANT

SYSTRA

SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
VATIKA MINDSCAPES, TOWER-B, 12/3,
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PH: 0129 668 5600
SUBSIDIARY OF:
SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

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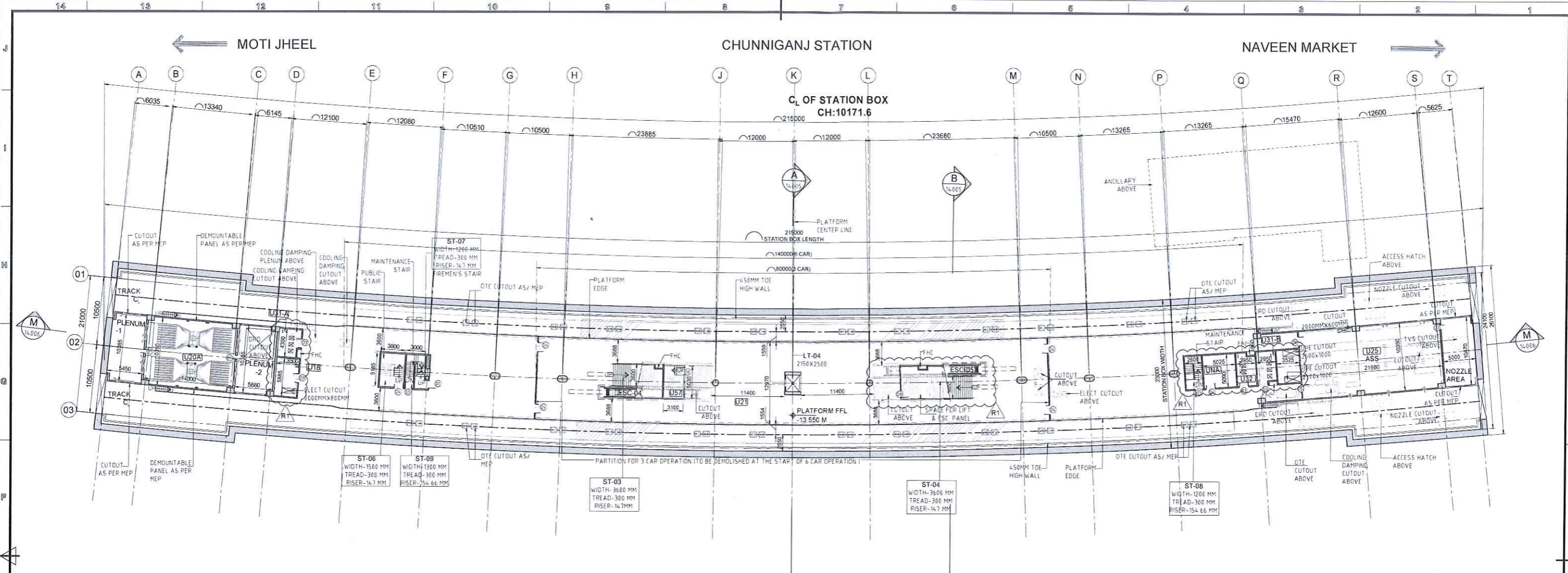
GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC SIGN OFF	DATE	SIGNATURE
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PROJECT TITLE
UTTAR PRADESH METRO RAIL CORPORATION LTD
(Formerly known as Lucknow Metro Rail Corporation Ltd.)
KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1

PREPARED	NAME	SIGNATURE	DRAWING TITLE
	S.SHUKLA		CHUNNIGANJ STATION
DRAWN BY	M.PURWAR		CONCOURSE LEVEL PLAN
DESIGNED BY	N.CHATURVEDI		
CHECKED BY	ASHISH K.		
APPROVED BY			

SCALE AS SHOWN DATE OF ISSUE 01-06-2020 STAGE TENDER DESIGN

DRG NO. KNPDD01-TDR-CGJ-ARC-PLN-14002



PLATFORM LEVEL PLAN

SCALE - 1:300

LEGEND

1	BLOCKWORK	
2	CONCRETE WORK	
3	GLASS WALL / WINDOW	

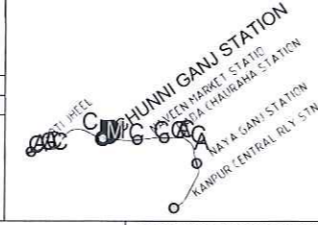
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 - SYSTEM WIDE RELATED ROOM SIZES & FLOOR LEVELS MAY VARY & SHALL BE AS PER SYSTEM WIDE CONTRACTOR REQUIREMENT.
 - NO OF AFC GATES, TOM COUNTERS, DFMD GATE SHOWN ARE TENTATIVE MAY BE CHANGE IN DETAIL DESIGN STAGE AS PER FINAL SOD.
 - NO OF AFC GATES MARKED AS PER EMERGENCY CONDITION CALCULATION I.E. @ 50 PPMIN. HOWEVER, AS PER DPR (REV-DEC 2017) AFC GATES NO. MARKED IN NORMAL CONDITION I.E. @ 35 PPMIN. PLANNING OF UNPAID & PAID AREA MAY REVISE AS PER AFC GATES REQUIREMENT MENTIONED IN DPR.
 - LOCATION, NO. & SIZE OF EARTH MAT, CLEAN EARTH, EPR, LDB & MEP RELATED CUTOUT SHALL BE REFERRED BY MEP DWG.
 - CLEAR HT. BETWEEN CONCOURSE & PLATFORM IS PROVIDED AS PER MEP REQUIREMENT.
 - PD AREAS ON CONCOURSE & GROUND MARKED TENTATIVELY & SAME SHALL BE REVISED AS PER UPMRC REQUIREMENT.
 - ENTRY/EXIT LOCATION, ANCILLARY LOCATION, PD AREA ON GROUND SHOWN IN DISCUSSION WITH UPMRC.
 - EQUIPMENT DELIVERY ROUTE FOR MEP ROOMS & ANCILLARY AREAS SHALL BE AS PER MEP REQUIREMENT.
 - PASSENGER CAR DROP OFF BUS DROP OFF NO. OF PARKINGS FOR 1/24 WHEELER, BUS BAYS, PEDESTRIAN CROSSING, FOOT PATH, ROADS SHOWN IN THIS PLAN ARE TENTATIVE & SHALL BE FINALIZED IN CONJUNCTION WITH TRANSPORT INTEGRATION DRAWINGS.
 - ALL FINISHES ARE SUBJECT TO UPMRC/GC APPROVAL.
 - DRAINAGE DETAIL SHALL BE REFERRED FROM MEP DETAIL DRAWINGS.
 - MEP ROOM EQUIPMENT LAYOUT, MEP CUTOUTS & LOCATION OF DEMOUNTABLE PANELS SHALL BE REFERRED FROM MEP DRAWINGS.
 - FILLING OVER ROOF MAY INCREASE OR DECREASE AS PER ACTUAL SITE CONDITION/UTILITIES. THIS MAY RESULT INTO CHANGE IN VERTICAL LEVELS OF STATIONS.

PLATFORM

S.NO	ROOM CODE	ROOM NAME	WIDTH	LENGTH	AREA sqm
1	UJ18	DB ROOM	3.50	5.88	20.60
2	U20A	TVS FAN ROOM	14.00	10.39	145.45
3	U21	PLATFORM PUBLIC AREA			1565.70
4	U-25	ASS	21.98	10.39	228.40
5	U31-A	SEEPAGE ROOM-1	3.5	4.3	15.00
6	U31-B	SEEPAGE ROOM-2	2.95	5.09	15.00
7	U32	SEEWAGE ROOM	2.95	5.09	15.00
8	U57	PLATFORM SUPERVISOR BOOTH	3.1	5.03	15.60
9	UNA	SPARE ROOM	5.02	5.09	25.55
10	PLENUM-1		4.99	10.39	51.75
11	PLENUM-2		5.88	10.39	61.00
12	NOZZLE AREA		5	10.47	52.35

- REVISION LOG - R1**
- ARRANGEMENT & SIZE OF TECHNICAL ROOMS & STAIRCASE REVISED IN BOTH THE SIDES.
 - CDMA & GSM ROOM REMOVED, UNA PROVIDED.
 - DOOR SCHEDULE REVISED WITH FIRE RATING INDICATED.

KEY PLAN



DOOR SCHEDULE

DOOR NO	WIDTH (IN MM)	LINTEL HEIGHT FROM FFL (IN MM)	FIRE RATING	REMARKS
D1	2000	2500	FS-90	BOH AREA
D2	1500	2500	FS-180	BOH AREA
D3	1500	2500	FS-90	BOH AREA
D4	1500	2100	FS-90	--
D5	1200	2100	FS-90	--
D5a	1200	2100	FS-180	BOH AREA
D6	1000	2100	FS-90	--
D7	750	2100	FS-90	BOH AREA
RS4	3000	3000	--	ROLLING SHUTTER

TENDER DRAWING

NOTICE OF 'NO OBJECTIONS' FROM EMPLOYER

NOTICE OF NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES HOWEVER THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAIL DESIGN CONSULTANT.

GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE	SIGNATURE
CA/ARCH - GC			<input type="checkbox"/> NOC	DY.CA- UPMRCL		
CE/STRU - GC			<input type="checkbox"/> NOWC	CE DESIGN - UPMRCL		
CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRCL		
				CPM-UPMRC		

PROJECT TITLE
UTTAR PRADESH METRO RAIL CORPORATION LTD
(Formerly known as Lucknow Metro Rail Corporation Ltd.)
KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1

PREPARED	NAME	SIGNATURE	DRAWING TITLE
	S.SHUKLA		CHUNNIGANJ STATION
DRAWN BY	M.FURWAR		PLATFORM LEVEL PLAN
DESIGNED BY	K.CHATURVEDI		
CHECKED BY	ASHISH K.		
APPROVED BY			

SCALE AS SHOWN DATE OF ISSUE 01-06-2020 STAGE TENDER DESIGN

DRG NO. KNPDD01-TDR-CGJ-ARC-PLN-14003

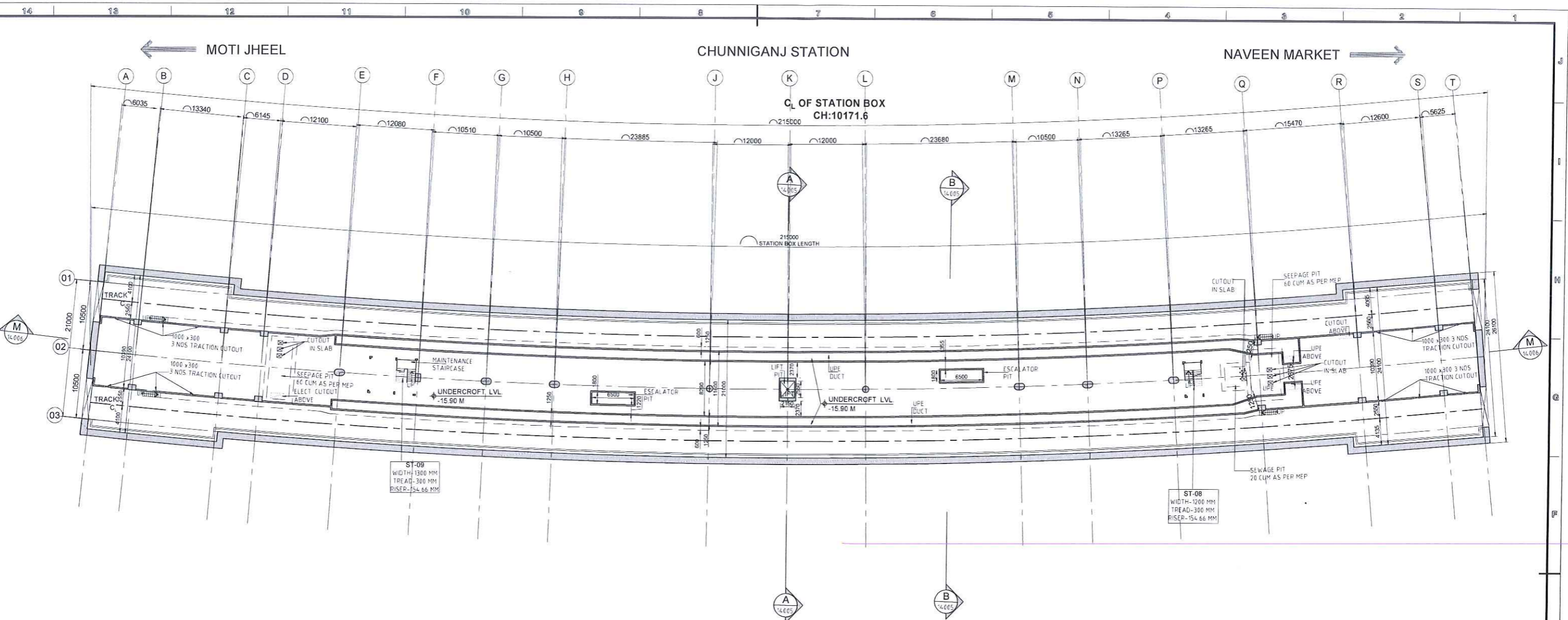
REV R1

AGAK CONSORTIUM
GENERAL CONSULTANT
B3-4 D3-34-37, LMRC - GC TOWER,
OPP. TO GOMTI NAGAR BUS DEPOT,
VIBHUTI KHAND, LUCKNOW-226010.

UPMRC

SYSTRA
DETAIL DESIGN CONSULTANT
SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
VATIKA MINDSCAPES, TOWER-B, 12/3,
MATHURA ROAD, NH-2, SECTOR-27/D,
FARIDABAD, HARYANA-121013
PH: 0129 668 5600
SUBSIDIARY OF:
SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

REV.	PARTICULARS	DRN.	CHD.	VER.	DATE
R1	REVISED TENDER SUBMISSION	S.SHUKLA	M.FURWAR	K.CHATURVEDI	04-06-2020
R0	TENDER SUBMISSION	S.SHUKLA	M.FURWAR	K.CHATURVEDI	01-06-2020



UNDERCROFT LEVEL PLAN
SCALE - 1:300

ABBREVIATIONS :-

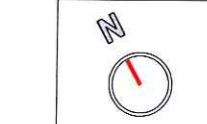
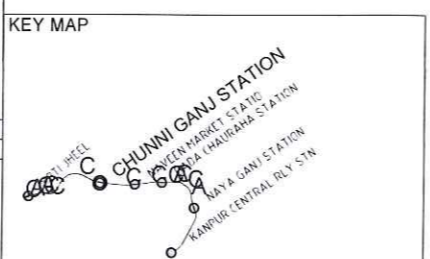
LF	LIFT
ESC	ESCALATOR
ST	STAIRCASE
PD	PROPERTY DEVELOPMENT

LEGEND

1	BLOCKWORK	
2	CONCRETE WORK	
3	GLASS WALL / WINDOW	

- NOTES :-**
- ALL DIMENSIONS ARE IN MM. UNLESS NOTED OTHERWISE
 - ALL DIMENSIONS ARE TO BE READ AS MENTIONED ON THE DRAWINGS & NOT TO BE MEASURED
 - THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT STRUCTURAL, MEP, SYSTEM, VENDOR, FIRE FIGHTING & TRAFFIC MANAGEMENT DRAWINGS
 - ANY DISCREPANCY THIS ARRIVED MUST BE BROUGHT TO THE NOTICE OF THE CONSULTANT
 - STRUCTURE SYSTEM SHOWN IS INDICATIVE REFER STRUCTURE DRAWING FOR ALL STRUCTURE MEMBER SIZES TO BE DETAIL BY CONTRACTOR AT LATER STAGE
 - THIS DRAWINGS HAVE BEEN DEVELOPED IN CONFORMITY TO DPR, SOD, NBC, UPMRCL & OTHER LOCAL BODY REQUIREMENT
 - THE STATION LOCATION SHOWN AS PER ALIGNMENT DRAWING RECEIVED FROM UPMRCL DATED 22.06.2020
 - ESCALATOR PIT, LIFT SHAFT & LIFT PIT SIZE ARE SHOWN AS PER THE ELEVATED STATION AND ARE SUBJECT TO VENDOR'S REQUIREMENT
 - TRACK CENTRE TO PLATFORM EDGE DISTANCE & PLATFORM HEIGHT ARE PROVIDED AS PER FINAL SOD (REVISED ON 06.02.20)
 - STAIRCASE SIZE & THEIR NOS. SHOWN AS PER RIDERSHIP REQUIREMENT. REFERENCE RECEIVED WITH DPR
 - ROOM SIZE, HEIGHTS DOOR/SIZE AND CUTOUT DIMENSIONS BY RELEVANT DISCIPLINES OF ENGINEERING
 - ROOM SIZES PROVIDED AS PER CONCERN DISCIPLINE REQUIREMENT. THIS MAY CHANGE AT THE TIME OF DETAIL DESIGN
 - FLOOR FINISH THICKNESS OF CONCOURSE & PLATFORM SHOWN AS PER GC MAIL DATED 14.05.20
 - CONCOURSE SHALL BE POINT OF SAFETY AS PER CLAUSE REF-J-5.1 D. ECAVATION TIME, PART-4 FIRE LIFE & SAFETY OF NBC 2016 VOL.1
 - LOCATION OF FHC HOSE CABINET, FIRE EXTINGUISHER & CUTOUT IS TENTATIVE AND SHALL BE REFERRED BY MEP DWG
 - MINIMUM HORIZONTAL DISTANCE MAINTAINED FROM PLATFORM EDGE TO ANY STRUCTURE AS PER SOD
 - STATION BOX SIZE PROPOSED AS PER DISCUSSION WITH UPMRCL
 - SYSTEM WIDE RELATED ROOM SIZES & FLOOR LEVELS MAY VARY & SHALL BE AS PER SYSTEM WIDE CONTRACTOR REQUIREMENT
 - NO. OF AFC GATES, TOM COUNTERS,DFMD GATE SHOWN ARE TENTATIVE MAY BE CHANGE IN DETAIL DESIGN STAGE AS PER FINAL SYSTEM WIDE REQUIREMENT.
 - NO OF AFC GATES MARKED AS PER EMERGENCY PAID CONDITION CALCULATION I.E @ 50 P/MIN HOWEVER, AS PER DPR (REV. DEC 2017) AFC GATES NO. MARKED IN NORMAL CONDITION I.E @ 35 P/MIN PLANNING OF UNPAID & PAID AREA MAY REVISE AS PER AFC GATES REQUIREMENT MENTIONED IN DPR
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 - PD AREAS ON CONCOURSE & GROUND MARKED TENTATIVELY & SAME SHALL BE REVISED AS PER UPMRCL REQUIREMENT
 - ENTRY/EXIT LOCATION, ANCILLARY LOCATION, PD AREA ON GROUND SHOWN IN DISCUSSION WITH UPMRCL
 - EQUIPMENT DELIVERY ROUTE FOR MEP ROOMS & ANCILLARY AREAS SHALL BE AS PER MEP REQUIREMENT
 - PASSENGER CAR DROP OFF BUS DROP OFF, NO. OF PARKINGS FOR (2/4 WHEELER), BUS BAYS, PEDESTRIAN CROSSING, FOOT PATH, ROADS SHOWN IN THIS PLAN ARE TENTATIVE & SHALL BE FINALIZED IN CONJUNCTION WITH TRANSPORT INTEGRATION DRAWINGS
 - ALL FINISHES ARE SUBJECT TO UPMRCL/CIC APPROVAL
 - DRAINAGE DETAIL SHALL BE REFERRED FROM MEP DETAIL DRAWINGS
 - MEP ROOM EQUIPMENT LAYOUT, MEP CUTOUTS & LOCATION OF DEMOUNTABLE PANELS SHALL BE REFERRED FROM MEP DRAWINGS
 - FILLING OVER ROOF MAY INCREASE OR DECREASE AS PER ACTUAL SITE CONDITION/UTILITIES. THIS MAY RESULT INTO CHANGE IN VERTICAL LEVELS OF STATIONS

REVISION LOG R1 :
1. LOCATION OF MAINTENANCE STAIRCASE, SEWAGE & SEEPAGE PITS UPDATED AS PER PLATFORM LEVEL PLAN.



TENDER DRAWING

NOTICE OF NO OBJECTIONS FROM EMPLOYER					
NOTICE OF NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES HOWEVER THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAIL DESIGN CONSULTANT.					
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CA/ARCH - GC			<input type="checkbox"/> NOC	DY.CA- UPMRCL	
CE/STRU - GC			<input type="checkbox"/> NOWC	CE DESIGN - UPMRCL	
CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRCL	
				CPM-UPMRCCL	

PROJECT TITLE
UTTAR PRADESH METRO RAIL CORPORATION LTD
(Formerly known as Lucknow Metro Rail Corporation Ltd.)
KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1

NAME	SIGNATURE	DRAWING TITLE
S.SHUKLA		CHUNNIGANJ STATION
M PURWAR		UNDERCROFT LEVEL PLAN
N.CHATURVEDI		SCALE AS SHOWN
ASHISH K.		DATE OF ISSUE 1.06.2020

STAGE: TENDER DESIGN

DRG NO: KNPDD01-TDR-CGJ-ARC-PLN-14004

REV: R1

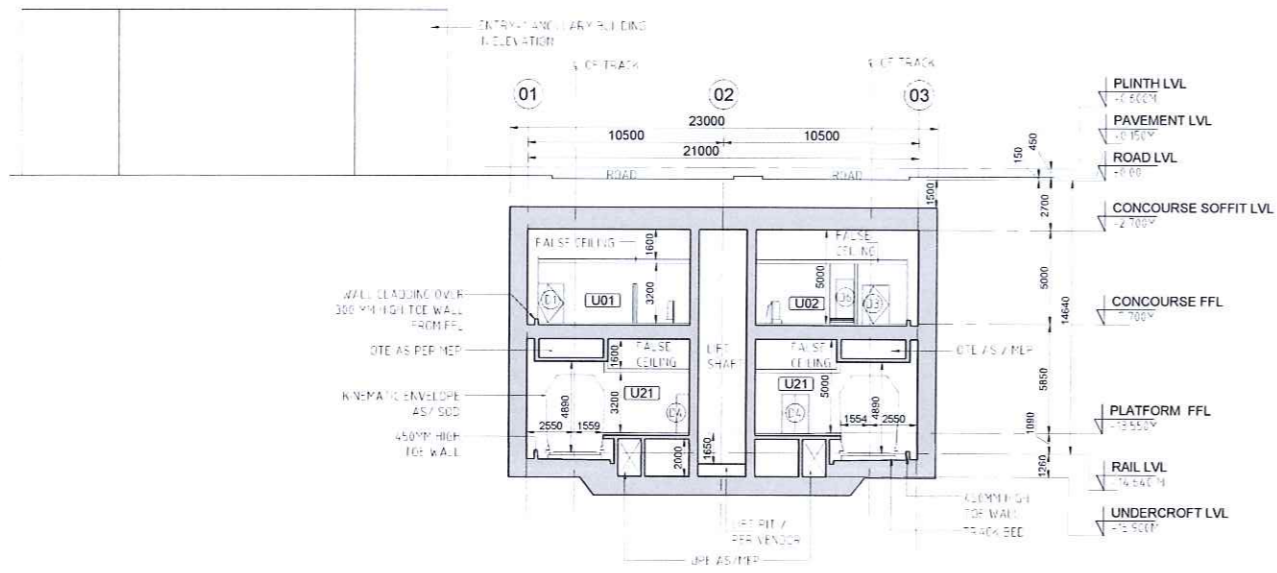
REV.	PARTICULARS	DRN.	CHD.	VER.	DATE
R1	REVISED TENDER SUBMISSION	S.SHUKLA	M.PURWAR	N.CHATURVEDI	24.06.2020
R0	TENDER SUBMISSION	S.SHUKLA	M.PURWAR	N.CHATURVEDI	1.06.2020

AGAK CONSORTIUM
GENERAL CONSULTANT
B3/3-4 D/34-37, LMRC - GC TOWER,
OFF. TO GOMTI NAGAR BUS DEPOT,
VIBHUTI KHAND, LUCKNOW-226010.

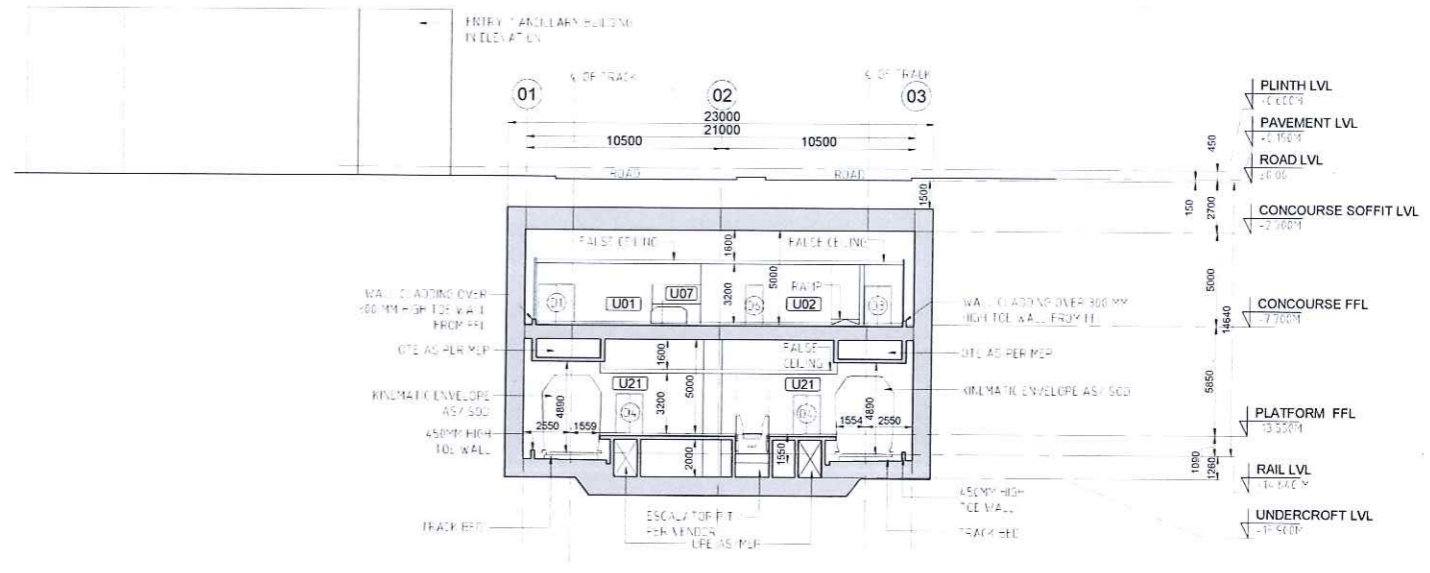
SYSTRA
DETAIL DESIGN CONSULTANT
SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
VATIKA MINDSCAPES, TOWER-B, 12/3,
MATHURA ROAD, NH-2, SECTOR-27/D,
FARIDABAD, HARYANA-121013
PH: 0129 668 5600
SUBSIDIARY OF:
SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009



ARCHITECTURE



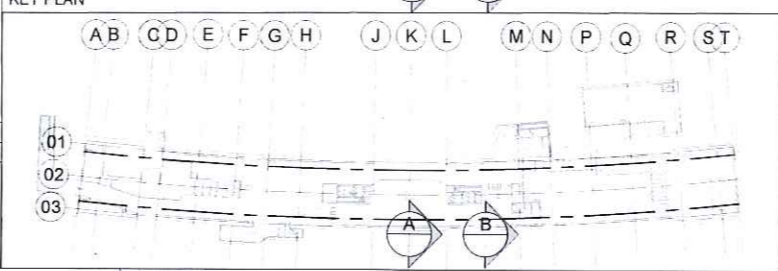
SECTION-AA
SCALE-1:200



SECTION-BB
SCALE-1:200

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 8. THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL, STRUCTURAL, PLUMBING & ELECTRICAL DRAWINGS

REVISION LOG R1:
1. UPDATED AS PER REVISED FLOOR PLANS.



Drawing Number		REFERENCE DRAWINGS	
Description		Description	

REV	PARTICULARS	DRN	CHD.	VER	DATE
R1	TENDER SUBMISSION	K.PANDEY	M.PURIWAR	N.CHATURVEDI	24.06.2020
R2	TENDER SUBMISSION	K.TANDON	M.FURANAR	N.CHATURVEDI	1.06.2020



AGAK CONSORTIUM
GENERAL CONSULTANT
B3-3-4, D5/34-37, LMRC - GC TOWER,
OPP. TO GOMTI NAGAR BUS DEPOT,
VIBHUTI KHAND, LUCKNOW - 226010.

SYSTRA
DETAIL DESIGN CONSULTANT
SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
VATIKA MINDSCAPES, TOWER-B, 12/3,
MATHURA ROAD, NH-2, SECTOR-27/D,
FARIDABAD, HARYANA-121013
PH: 0129 668 5600
SUBSIDIARY OF:
SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

TENDER DRAWING

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GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRCI-SIGN OFF	DATE	SIGNATURE
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CE/STRU - GC			<input type="checkbox"/> NOWC	CE DESIGN - UPMRCL		
CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRCL		
				CPM-UPMRCI		

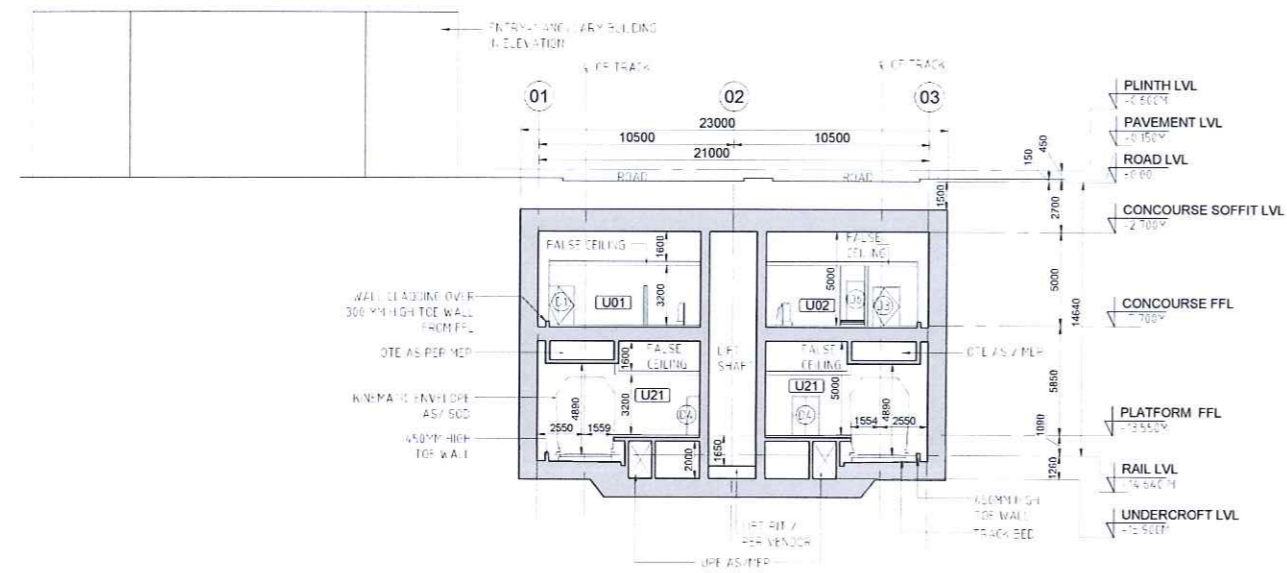
PROJECT TITLE
UTTAR PRADESH METRO RAIL CORPORATION LTD
(Formerly known as Lucknow Metro Rail Corporation Ltd.)
KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1

PREPARED	NAME	SIGNATURE	DRAWING TITLE
	K.PANDEY		CHUNNIGANJ STATION
	M.PURIWAR		CROSS SECTIONS
	N.CHATURVEDI		
	Ashish K		

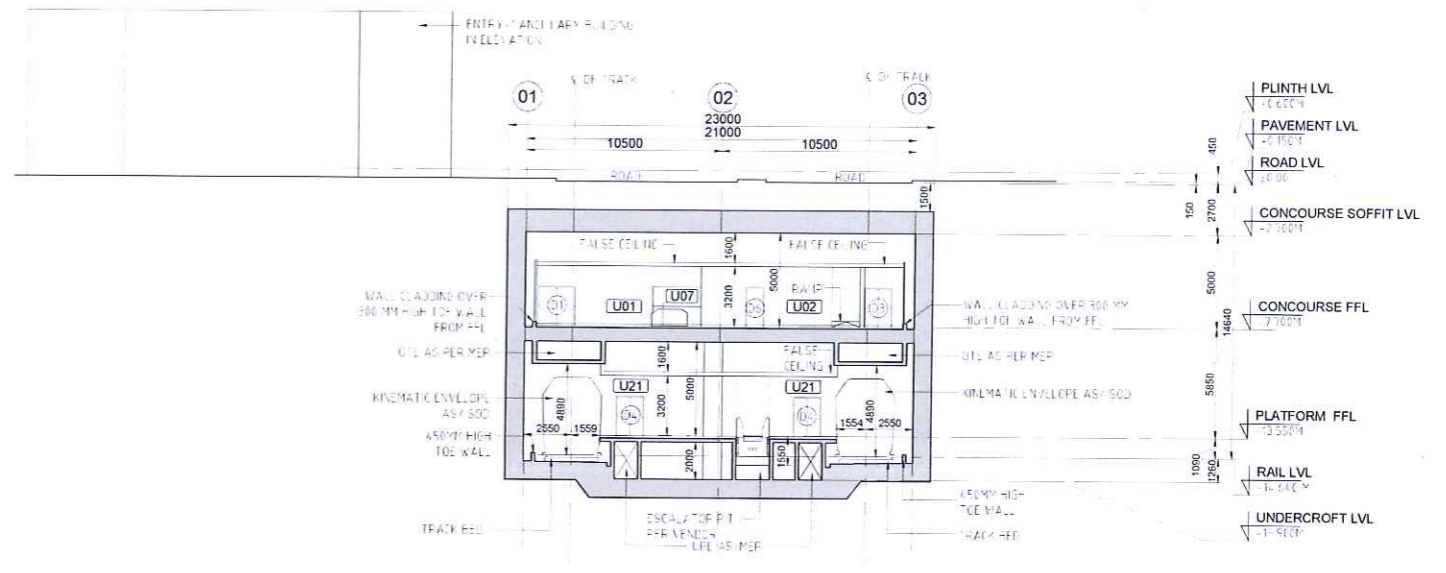
SCALE	DATE OF ISSUE	STAGE
AS SHOWN	1.06.2020	TENDER DESIGN

DRG NO	REV
KNPDD01-TDR-CGJ-ARC-CRS-14005	R1





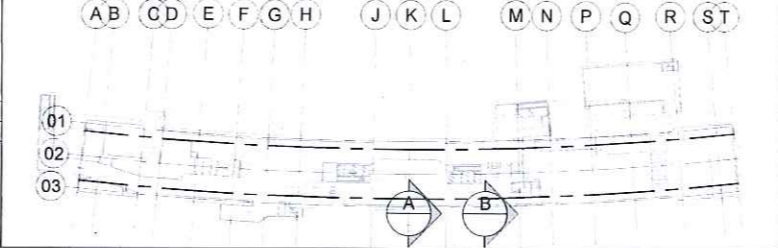
SECTION-AA
SCALE=1:200



SECTION-BB
SCALE=1:200

NOTES:
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REVISION LOG R1:
 1. UPDATED AS PER REVISED FLOOR PLANS.
KEY PLAN



REFERENCE DRAWINGS	
Drawing Number	Description

REV	PARTICULARS	DRN.	CHD.	VER.	DATE
R1	TENDER SUBMISSION	K.PANDEY	M.PURWAR	N.CHATURVEDI	24.08.2020
R0	TENDER SUBMISSION	K.TANDON	M.PURWAR	N.CHATURVEDI	1.01.2020



AGAK CONSORTIUM
 GENERAL CONSULTANT
 B3-34, D3/34-37, LMRC - GC TOWER,
 OPP. TO GOMTI NAGAR BUS DEPOT,
 VIBHUTI KHAND, LUCKNOW - 226010.

DETAIL DESIGN CONSULTANT



SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
 VATIKA MINDSCAPES, TOWER-B, 12/3,
 MATHURA ROAD, NH-2, SECTOR-27/D,
 FARIDABAD, HARYANA-121013
 PH: 0129 668 5600
 SUBSIDIARY OF:
 SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

PREPARED	NAME	SIGNATURE
DRAWN BY	K.PANDEY	
DESIGNED BY	M.PURWAR	
CHECKED BY	N.CHATURVEDI	
APPROVED BY	Ashish K.	

DRAWING TITLE		SCALE		DATE OF ISSUE		STAGE	
CHUNNIGANJ STATION		AS SHOWN		1.06.2020		TENDER DESIGN	
CROSS SECTIONS		DRG NO		KNPDD01-TDR-CGJ-ARC-CRS-14005		REV R1	

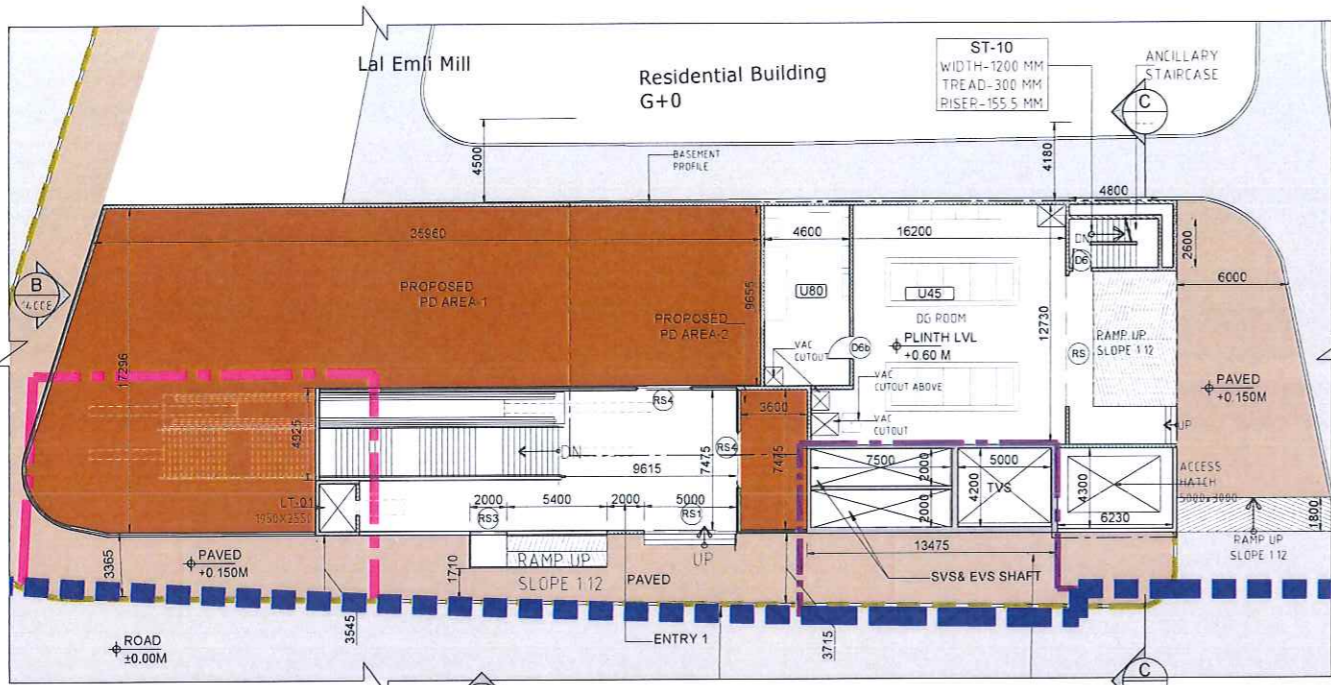
NOTICE OF 'NO OBJECTIONS' FROM EMPLOYER						
NOTICE OF NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES HOWEVER THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAIL DESIGN CONSULTANT.						
GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE	SIGNATURE
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				CPM-UPMRC		

PROJECT TITLE
UTTAR PRADESH METRO RAIL CORPORATION LTD
 (Formerly known as Lucknow Metro Rail Corporation Ltd.)
 KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1



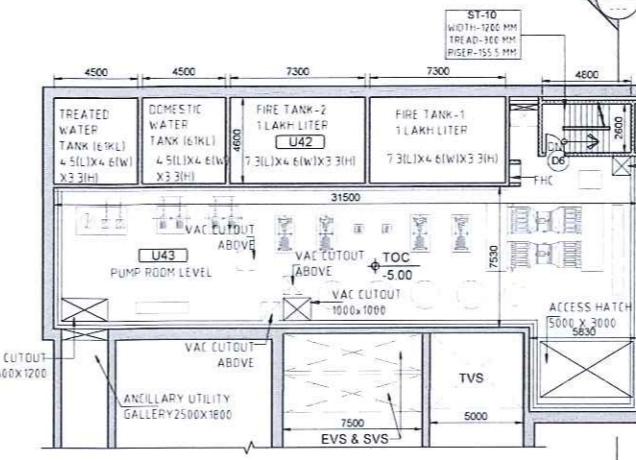
TENDER DRAWING

ARCHITECTURE



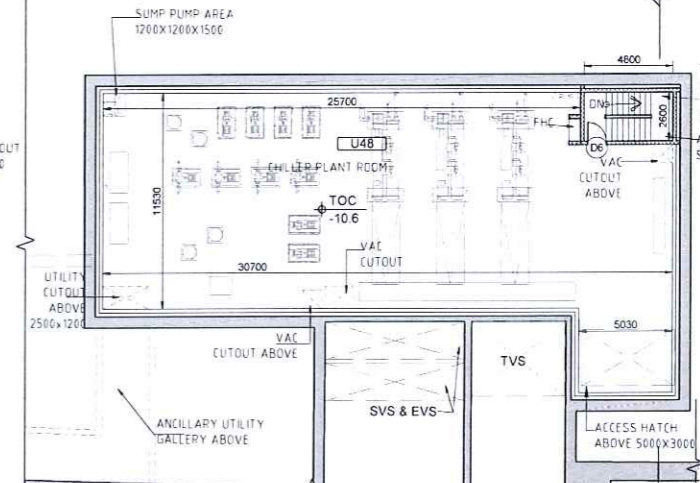
GROUND LEVEL PLAN

SCALE - 1:200



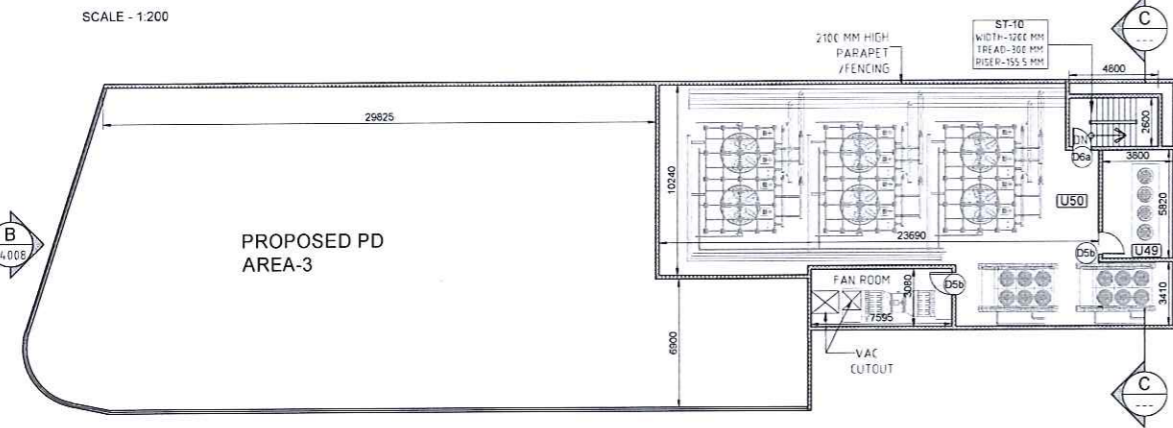
PUMP ROOM LEVEL PLAN

SCALE - 1:200



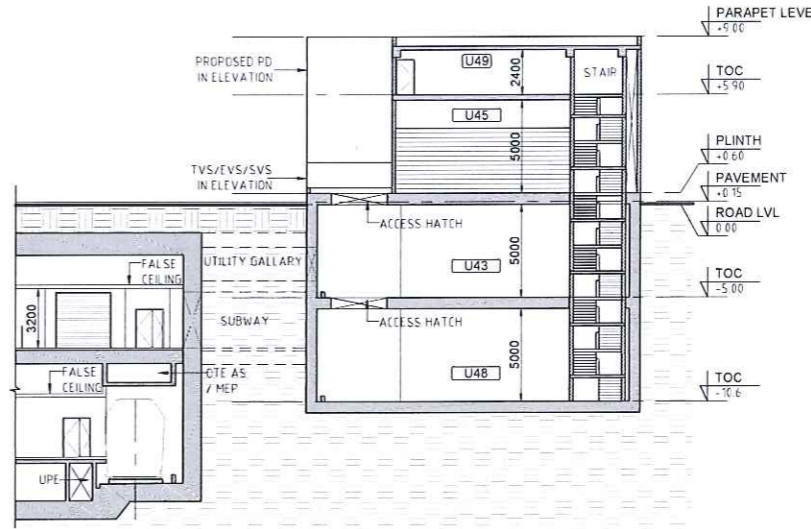
CHILLER PLANT LEVEL PLAN

SCALE - 1:200



COOLING TOWER LEVEL PLAN

SCALE - 1:200



SECTION CC

SCALE - 1:200

ABBREVIATIONS :-

LT	LIFT
ESC	ESCALATOR
ST	STAIRCASE
PD	PROPERTY DEVELOPMENT

LEGEND

1	BLOCKWORK
2	CONCRETE WORK
3	GLASS WALL / WINDOW

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 - THIS DRAWINGS HAVE BEEN DEVELOPED IN CONFORMITY TO DPR, SOD, NBC, UPMRC & OTHER LOCAL BODY REQUIREMENT
 - THE STATION LOCATION SHOWN AS PER ALIGNMENT DRAWING RECEIVED FROM UPMRC DATED 22.06.2020
 - ESCALATOR FIT, LIFT SHAFT & LIFT PIT SIZE ARE SHOWN AS PER THE ELEVATED STATION AND ARE SUBJECT TO VENDOR'S REQUIREMENT
 - TRACK CENTRE TO PLATFORM EDGE DISTANCE & PLATFORM HEIGHT ARE PROVIDED AS PER FINAL SOD (REVISED ON 06.02.20)
 - STAIRCASE SIZE & THEIR NOS. SHOWN AS PER RIDERSHIP REQUIREMENT. REFERENCE RECEIVED WITH DPR
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 - MINIMUM HORIZONTAL DISTANCE MAINTAINED FROM PLATFORM EDGE TO ANY STRUCTURE AS PER SOD
 - STATION BOX SIZE PROPOSED AS PER DISCUSSION WITH UPMRC
 - SYSTEM WIDE RELATED ROOM SIZES & FLOOR LEVELS MAY VARY & SHALL BE AS PER SYSTEM WIDE CONTRACTOR REQUIREMENT
 - NO OF AFC GATES TO BE COUNTERS OF GATE SHOWN ARE TENTATIVE MAY BE CHANGE IN DETAIL DESIGN STAGE AS PER FINAL SYSTEM WIDE REQUIREMENT
 - NO OF AFC GATES MARKED AS PER EMERGENCY CONDITION CALCULATION I.E @ 50 P/MIN. HOWEVER, AS PER DPR (REV. DEC 2017) AFC GATES NO. MARKED IN NORMAL CONDITION I.E @ 35 P/MIN. PLANNING OF UNPAID & PAID AREA MAY REVISE AS PER AFC GATES REQUIREMENT MENTIONED IN DPR
 - LOCATION, NO & SIZE OF EARTH MAT, CLEAN EARTH, EPR, LDB & MEP RELATED CUTOUT SHALL BE REFERRED BY MEP DWG
 - CLEAR HT BETWEEN CONCOURSE & PLATFORM IS PROVIDED AS PER MEP REQUIREMENT
 - PD AREAS ON CONCOURSE & GROUND MARKED TENTATIVELY & SAME SHALL BE REVISED AS PER UPMRC REQUIREMENT
 - ENTRY/EXIT LOCATION, ANCILLARY LOCATION, PD AREA ON GROUND SHOWN IN DISCUSSION WITH UPMRC
 - EQUIPMENT DELIVERY ROUTE FOR MEP ROOMS & ANCILLARY AREAS SHALL BE AS PER MEP REQUIREMENT
 - PASSENGER CAR DROP OFF, BUS DROP OFF, NO OF PARKINGS FOR (24 WHEELER), BUS BAYS, PEDESTRIAN CROSSING, FOOT PATH, ROADS SHOWN IN THIS PLAN ARE TENTATIVE & SHALL BE FINALIZED IN CONJUNCTION WITH TRANSPORT INTEGRATION DRAWINGS
 - ALL FINISHES ARE SUBJECT TO UPMRC/GC APPROVAL
 - DRAINAGE DETAIL SHALL BE REFERRED FROM MEP DETAIL DRAWINGS
 - MEP ROOM EQUIPMENT LAYOUT, MEP CUTOUPS & LOCATION OF DEMOUNTABLE PANELS SHALL BE REFERRED FROM MEP DRAWINGS
 - FILLING OVER ROOF MAY INCREASE OR DECREASE AS PER ACTUAL SITE CONDITION/UTILITIES. THIS MAY RESULT INTO CHANGE IN VERTICAL LEVELS OF STATIONS
- * AVAILABILITY OF LAND FOR PROPOSED ENTRIES NEEDS TO BE CONFIRMED BY UPMRC
 * LEVELS PROPOSED IN ENTIRE STATION BY KEEPING ROAD LEVEL OF 100 MM.
 * LENGTH OF ENTRY STAIRCASE / ESCALATOR MAY VARY AS PER SPOT LEVEL AROUND ENTRY STRUCTURE

REVISION LOG R1 :
 1. REVISED LAYOUT AS PER MEP REQUIREMENTS.

LEGEND :

- ROAD
- FOOTPATH
- FUTURE P.D
- STATION BOX
- SUBWAY
- SHAFT ROUTING
- KERB LINE

ANCILLARY BUILDING GROUND FLOOR					DOOR SCHEDULE					
S.NO	ROOM CODE	ROOM NAME	WIDTH	LENGTH	AREA sqm	DOOR NO.	WIDTH (IN MM)	LINTEL HEIGHT FROM FFL (IN MM)	FIRE RATING	REMARKS
1	U45	DG ROOM	11.40	12.73	145.10	D5b	1200	2100	--	--
2	U80	DG PANEL ROOM	4.60	9.65	44.40	D6a	1000	2100	--	--
3		PROPOSED PD AREA-1			470.00	D6	1000	2100	FS-90	--
3		PROPOSED PD AREA-2	3.60	7.47	26.90	RS1	5000	3000	--	ROLLING SHUTTER
ANCILLARY BUILDING FIRST FLOOR					RS2	4650	3000	--	ROLLING SHUTTER	
1	U49	DOZING PLANT ROOM	3.80	5.82	22.10	RS3	2000	3000	--	ROLLING SHUTTER
2	U50	COOLING TOWER	23.69	10.24	242.60	RS4	3000	3000	--	ROLLING SHUTTER
3		PROPOSED PD AREA-3			612.00					
4		FAN ROOM	7.59	3.08	23.40					
ANCILLARY BUILDING CONCOURSE LEVEL										
1	U42	WATER TANK	24.35	4.60	112.00					
2	U43	PUMP ROOM			251.00					
ANCILLARY BUILDING PLATFORM LEVEL										
1	U48	CHILLER PLANT ROOM			396.00					

UPMRC

AGAK CONSORTIUM
 GENERAL CONSULTANT
 B3-34, D3-34-37, LMRC - GC TOWER,
 OPP. TO GOMTI NAGAR BUS DEPOT,
 VIBHUTI KHAND, LUCKNOW-226010.

SYSTRA

SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
 VATIKA MINDSCAPES, TOWER-B, 12/3,
 MATHURA ROAD, NH-2, SECTOR-27/D,
 FARIDABAD, HARYANA-121013
 PH: 0129 668 5600
 SUBSIDIARY OF:
 SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

TENDER DRAWING

NOTICE OF NO OBJECTIONS FROM EMPLOYER

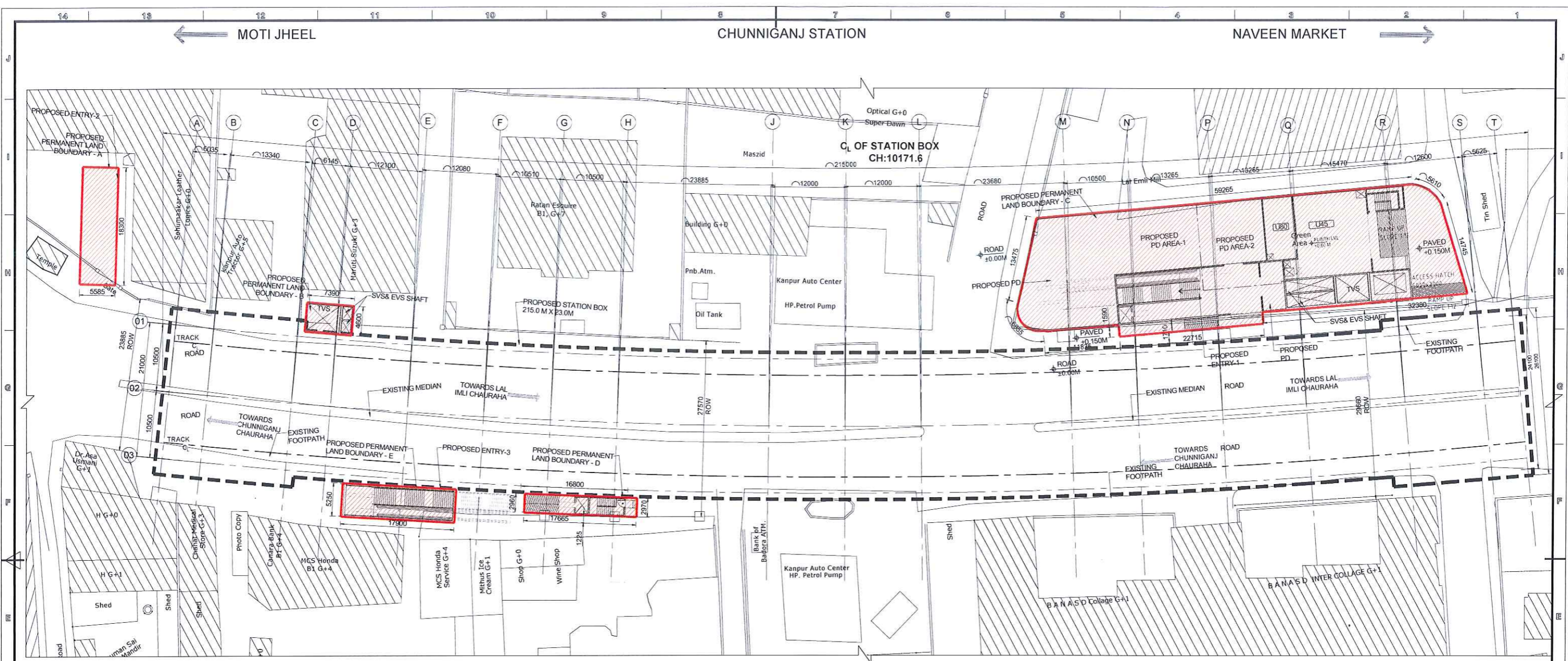
NOTICE OF NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES HOWEVER THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAIL DESIGN CONSULTANT.

GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE	SIGNATURE
CA/ARCH - GC			<input type="checkbox"/> NOC	DY.CA-UPMRC		
CE/STRU - GC			<input type="checkbox"/> NOWC	CE DESIGN-UPMRC		
CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL-UPMRC		
				CPM-UPMRC		

PROJECT TITLE
UTTAR PRADESH METRO RAIL CORPORATION LTD
 (Formerly known as Lucknow Metro Rail Corporation Ltd.)
 KNPDD01-JIT KANPUR-NAUBASTA CORRIDOR-1

PREPARED	NAME	SIGNATURE	DRAWING TITLE
			CHUNNIGANJ STATION
DRAWN BY	D GUPTA		ANCILLARY BUILDING PLANS & SECTIONS
DESIGNED BY	M FURWAR		
CHECKED BY	N.CHATURVEDI		
APPROVED BY	ASHISH.K		

SCALE AS SHOWN DATE OF ISSUE 01.06.2020 STAGE TENDER DESIGN
 DRG NO KNPDD01-TDR-CGJ-ARC-PLN-14007 REV R1



INSERTION LEVEL PLAN
SCALE - 1:300

- NOTES :-**
1. ALL DIMENSIONS ARE IN MM. UNLESS NOTED OTHERWISE
 2. ALL DIMENSIONS ARE TO BE READ AS MENTIONED ON THE DRAWINGS & NOT TO BE MEASURED.
 3. THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT STRUCTURAL, MEP, SYSTEM, VENDOR, FIRE FIGHTING & TRAFFIC MANAGEMENT DRAWINGS
 4. ANY DISCREPANCY THUS ARRIVED MUST BE BROUGHT TO THE NOTICE OF THE CONSULTANT
 5. STRUCTURE SYSTEM SHOWN IS INDICATIVE. REFER STRUCTURE DRAWING FOR ALL STRUCTURE MEMBER SIZES TO BE DETAIL BY CONTRACTOR AT LATER STAGE
 6. THIS DRAWINGS HAVE BEEN DEVELOPED IN CONFORMITY TO DPR, SOD, NBC, UPMRC & OTHER LOCAL BODY REQUIREMENT.
 7. THE STATION LOCATION SHOWN AS PER ALIGNMENT DRAWING RECEIVED FROM UPMRC DATED 22.06.2020.
 8. ESCALATOR PIT, LIFT SHAFT & LIFT PIT SIZE ARE SHOWN AS PER THE ELEVATED STATION AND ARE SUBJECT TO VENDOR'S REQUIREMENT
 9. TRACK CENTRE TO PLATFORM EDGE DISTANCE & PLATFORM HEIGHT ARE PROVIDED AS PER FINAL SOD (REVISED ON 06.02.20)
 10. STAIRCASE SIZE & THEIR NOS. SHOWN AS PER RIDERSHIP REQUIREMENT. REFERENCE RECEIVED WITH DPR
 11. ROOM SIZE, HEIGHTS DOOR/SIZE AND CUTOUT DIMENSIONS BY RELEVANT DISCIPLINES OF ENGINEERING
 12. ROOM SIZES PROVIDED AS PER CONCERN DISCIPLINE REQUIREMENT. THIS MAY CHANGE AT THE TIME OF DETAIL DESIGN
 13. FLOOR FINISH THICKNESS OF CONCOURSE & PLATFORM SHOWN AS PER GC MAIL DATED 14.05.20
 14. CONCOURSE SHALL BE POINT OF SAFETY AS PER CLAUSE REF J-5.1 D EVACUATION TIME PART-4 FIRE LIFE & SAFETY OF NBC 2016 VOL 1
 15. LOCATION OF FHC HOSE CABINET FIRE EXTINGUISHER & CUTOUT IS TENTATIVE AND SHALL BE REFERRED BY MEP DWG
 16. MINIMUM HORIZONTAL DISTANCE MAINTAINED FROM PLATFORM EDGE TO ANY STRUCTURE AS PER SOD
 17. STATION BOX SIZE PROPOSED AS PER DISCUSSION WITH UPMRC
 18. SYSTEM WIDE RELATED ROOM SIZES & FLOOR LEVELS MAY VARY & SHALL BE AS PER SYSTEM WIDE CONTRACTOR REQUIREMENT
 19. NO OF AFC GATES, TOM COUNTERS, DFMD GATE SHOWN ARE TENTATIVE MAY BE CHANGE IN DETAIL DESIGN STAGE AS PER FINAL SYSTEM WIDE REQUIREMENT
 20. NO OF AFC GATES MARKED AS PER EMERGENCY CONDITION CALCULATION I @ 50 P/MIN. HOWEVER, AS PER DPR (REV. DEC 2017) AFC GATES NO. MARKED IN NORMAL CONDITION I.E @ 35 P/MIN. PLANNING OF UNPAID & PAID AREA MAY REVISE AS PER AFC GATES REQUIREMENT MENTIONED IN DPR
 21. LOCATION, NO. & SIZE OF EARTH MAT, CLEAN EARTH, EPR, LDB & MEP RELATED CUTOUT SHALL BE REFERRED BY MEP DWG
 22. CLEAR HT. BETWEEN CONCOURSE & PLATFORM IS PROVIDED AS PER MEP REQUIREMENT
 23. PD AREAS ON CONCOURSE & GROUND MARKED TENTATIVELY & SAME SHALL BE REVISED AS PER UPMRC REQUIREMENT
 24. ENTRY/EXIT LOCATION, ANCILLARY LOCATION, PD AREA ON GROUND SHOWN IN DISCUSSION WITH UPMRC
 25. EQUIPMENT DELIVERY ROUTE FOR MEP ROOMS & ANCILLARY AREAS SHALL BE AS PER MEP REQUIREMENT
 26. PASSENGER CAR DROP OFF, BUS DROP OFF, NO. OF PARKINGS FOR (2/4 WHEELER), BUS BAYS, PEDESTRIAN CROSSING, FOOT PATH, ROADS SHOWN IN THIS PLAN ARE TENTATIVE & SHALL BE FINALIZED IN CONJUNCTION WITH TRANSPORT INTEGRATION DRAWINGS
 27. ALL FINISHES ARE SUBJECT TO UPMRC/GC APPROVAL
 28. DRAINAGE DETAIL SHALL BE REFERRED FROM MEP DETAIL DRAWINGS
 29. MEP ROOM EQUIPMENT LAYOUT, MEP CUTOUTS & LOCATION OF DEMOUNTABLE PANELS SHALL BE REFERRED FROM MEP DRAWINGS
 30. FILLING OVER ROOF MAY INCREASE OR DECREASE AS PER ACTUAL SITE CONDITIONALITIES. THIS MAY RESULT INTO CHANGE IN VERTICAL LEVELS OF STATIONS

REVISION LOG R1 :
1. UPDATED AS PER REVISED GROUND FLOOR PLAN.

NOTE:
1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH GROUND LEVEL PLAN (DRAWING NO KNPDD01-TDR-CGJ-ARC-PLN-14001)

KEY MAP



PROPOSED PERMANENT LAND BOUNDARY	AREA (IN SQ. MT.)
A	102.02
B	33.66
C	1227.85
D	52.52
E	93.97

LEGEND :
 PROPOSED PERMANENT LAND BOUNDARY

REV.	PARTICULARS	DRN.	CHD.	VER.	DATE
R1	REVISED TOPIC SHEET	S.S.HUKLA	M.PURNAR	H.CHATURVEDI	04-06-2020
R2	TOPIC SHEET	S.S.HUKLA	M.PURNAR	H.CHATURVEDI	03-06-2020

Drawing Number	Description
	REFERENCE DRAWINGS



AGAK CONSORTIUM
GENERAL CONSULTANT
B3-4 D3/34-37 LMR - GC TOWER
OPP. TO GOMTI NAGAR BUS DEPOT
VIBHUTI KHAND, LUCKNOW-226010.



DETAIL DESIGN CONSULTANT
SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
VATIKA MINDSCAPES, TOWER-B, 12/3,
MATHURA ROAD, NH-2, SECTOR-27/D,
FARIDABAD, HARYANA-121013
PH: 0129 668 5600
SUBSIDIARY OF:
SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

PREPARED	NAME	SIGNATURE
DRAWN BY	S.S.HUKLA	
DESIGNED BY	M.PURNAR	
CHECKED BY	N.CHATURVEDI	
APPROVED BY	ASHSHK.	

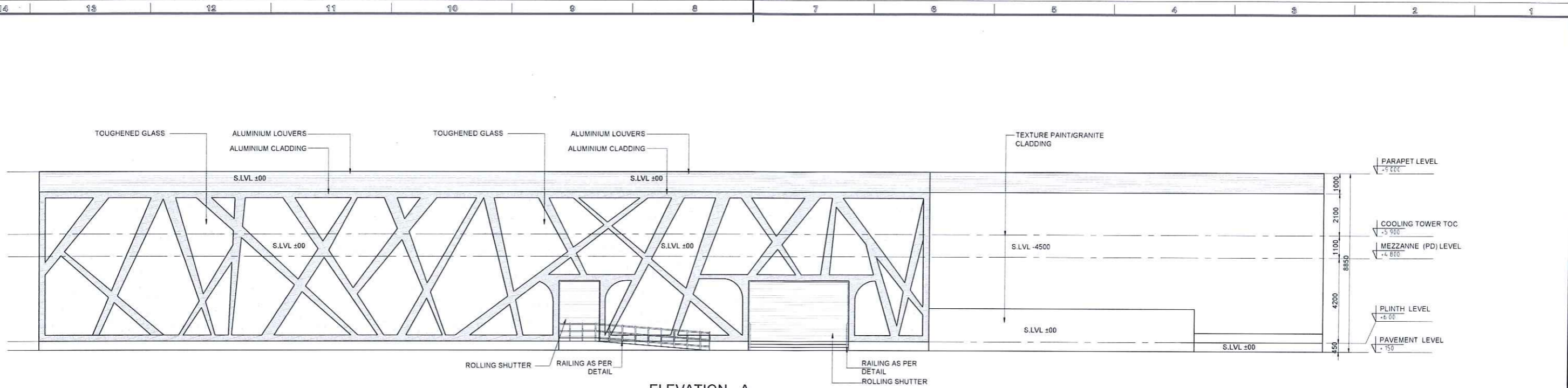
NOTICE OF 'NO OBJECTIONS' FROM EMPLOYER						
NOTICE OF NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES HOWEVER THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAIL DESIGN CONSULTANT.						
GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE	SIGNATURE
CA/ARCH - GC			<input type="checkbox"/> NOC	DY.CA- UPMRCL		
CE/STRU - GC			<input type="checkbox"/> NOCW	CE DESIGN - UPMRCL		
CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRCL		
				CPM-UPMRC		

PROJECT TITLE
UTTAR PRADESH METRO RAIL CORPORATION LTD
(Formerly known as Lucknow Metro Rail Corporation Ltd.)
KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1

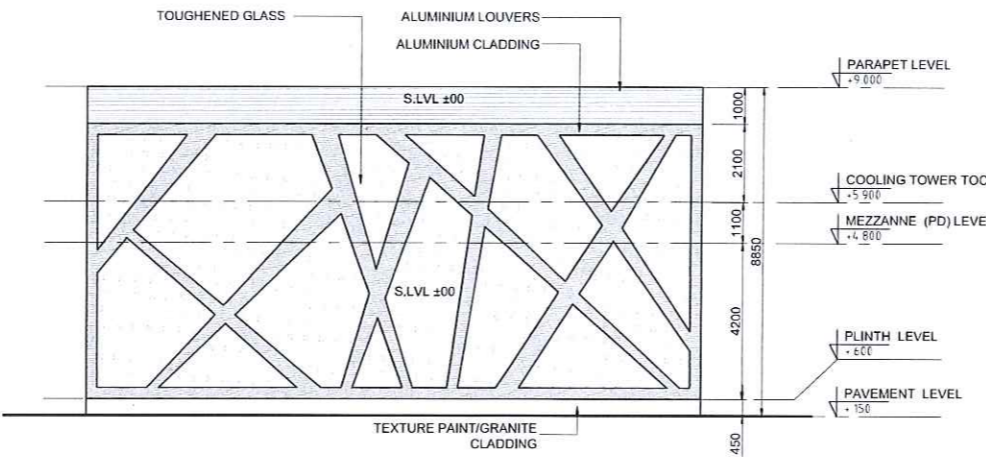


NAME	SIGNATURE	DRAWING TITLE
		CHUNNIGANJ STATION INSERTION LEVEL PLAN
SCALE	AS SHOWN	DATE OF ISSUE
DRG NO	KNPDD01-TDR-CGJ-ARC-PLN-14009	STAGE
		TENDER DESIGN

ARCHITECTURE
REV R1



ELEVATION - A
SCALE - 1:100

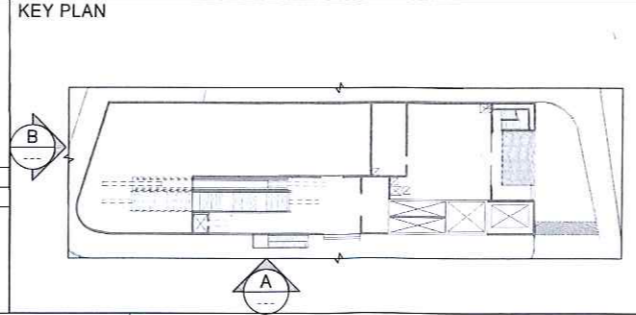


ELEVATION - B
SCALE - 1:100

LEGEND	
1	TEXTURE PAINT GRANITE/CLADDING
2	ALUMINIUM LOUVER
3	ALUMINIUM CLADDING
4	TOUGHENED GLASS

REVISION LOG: R1	
1.	UPDATED AS /REVISED FLOOR PLAN.

- ABBREVIATIONS :-**
S.LVL: SIGHT LEVEL
T.O.C: TOP OF CONCRETE
- NOTES :-**
1. ALL DIMENSIONS ARE IN MM. UNLESS NOTED OTHERWISE.
2. ALL DIMENSIONS ARE TO BE READ AS MENTIONED ON THE DRAWINGS & NOT TO BE MEASURED.
3. ANY DISCREPANCY THUS ARRIVED MUST BE BROUGHT TO THE NOTICE OF THE CONSULTANT.
4. ALL STRUCTURE ELEMENTS SIZES & THICKNESS MAY VARY AS PER STRUCTURE DETAIL DRAWINGS.
5. ALL FINISHES ARE SUBJECT TO UPMRC/GC APPROVAL.
6. DRAINAGE DETAIL SHALL BE REFERRED FROM MEP DETAIL DRAWINGS.
7. ALL THE FIXING AND MEMBER SIZING ARE INDICATIVE AND TO BE CONFIRMED AS PER MANUFACTURER'S REQUIREMENT.
8. THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL, STRUCTURAL, PLUMBING & ELECTRICAL DRAWINGS.
9. ROAD LEVEL ASSUMED ±00.



REFERENCE DRAWINGS	
Drawing Number	Description



AGAK CONSORTIUM
GENERAL CONSULTANT
B3-34, D3-34-37, LMRC - GC TOWER,
OFF. TO GOMTI NAGAR BUS DEPOT,
VIBHUTI KHAND, LUCKNOW-226010.



SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
VATIKA MINDSCAPES, TOWER-B, 12/3,
MATHURA ROAD, NH-2, SECTOR-27/D,
FARIDABAD, HARYANA-121013
PH: 0129 668 5600
SUBSIDIARY OF:
SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

NOTICE OF NO OBJECTIONS FROM EMPLOYER					
NOTICE OF NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES HOWEVER THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAIL DESIGN CONSULTANT.					
GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE
CA/ARCH - GC			<input type="checkbox"/> NOC	DY.CA- UPMRCL	
CE/STRU - GC			<input type="checkbox"/> NOWC	CE DESIGN - UPMRCL	
CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRCL	
				CPM-UPMRC	
PROJECT TITLE					
UTTAR PRADESH METRO RAIL CORPORATION LTD (Formerly known as Lucknow Metro Rail Corporation Ltd.) KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1					
PREPARED	NAME	SIGNATURE	DRAWING TITLE		
	MUZAWMIL		CHUNNIGANJ STATION		
DRAWN BY	M PURWAR		ENTRY & ANCILLARY ELEVATIONS		
CHECKED BY	N. CHATURVEDI		SCALE	DATE OF ISSUE	STAGE
			AS SHOWN	01.06.2020	TENDER DESIGN
APPROVED BY	ASHISH.K		DRG NO.	KNPDD01-TDR-CGJ-ARC-ELE-14008	
					REV R1



TENDER DRAWING

ARCHITECTURE

DRAWING LIST - NAVEEN MARKET STATION			
S.NO.	DRAWING NO.	DRAWING TITLE	REV. NO.
1	KNPDD01-TDR-NMK-ARC-LIS-14250	DRAWING LIST	R1
2	KNPDD01-TDR-NMK-ARC-PLN-14251	GROUND LEVEL PLAN	R1
3	KNPDD01-TDR-NMK-ARC-PLN-14252	CONCOURSE LEVEL PLAN	R1
4	KNPDD01-TDR-NMK-ARC-PLN-14253	PLATFORM LEVEL PLAN	R1
5	KNPDD01-TDR-NMK-ARC-PLN-14254	UNDERCROFT LEVEL PLAN	R1
6	KNPDD01-TDR-NMK-ARC-CRS-14255	CROSS SECTIONS	R1
7	KNPDD01-TDR-NMK-ARC-LGS-14256	LONGITUDINAL SECTION	R1
8	KNPDD01-TDR-NMK-ARC-PLN-14257	ANCILLARY BUILDING PLANS & SECTIONS	R1
9	KNPDD01-TDR-NMK-ARC-ELE-14258	ENTRY & ANCILLARY ELEVATIONS	R1
10	KNPDD01-TDR-NMK-ARC-PLN-14259	INSERTION LEVEL PLAN	R1

TENDER DRAWING

NOTICE OF NO OBJECTIONS' FROM EMPLOYER						
NOTICE OF NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES HOWEVER THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAIL DESIGN CONSULTANT.						
GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRCI-SIGN OFF	DATE	SIGNATURE
CA/ARCH - GC			<input type="checkbox"/> NOC	DY.CA-UPMRCI		
CE/STRU - GC			<input type="checkbox"/> NOWC	CE DESIGN - UPMRCI		
CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRCI		
				CPM-UPMRCI		
PROJECT TITLE UTTAR PRADESH METRO RAIL CORPORATION LTD (Formerly known as Lucknow Metro Rail Corporation Ltd.) KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1						
PREPARED	NAME	SIGNATURE	DRAWING TITLE			
DRAWN BY	D GUPTA	<i>D Gupta</i>	NAVEEN MARKET STATION			
DESIGNED BY	M PURWAR	<i>M Purwar</i>	DRAWING LIST			
CHECKED BY	N.CHATURVEDI	<i>N Chaturvedi</i>	SCALE	AS SHOWN	DATE OF ISSUE	15.05.2020
APPROVED BY	ASHISH.K	<i>Ashish K</i>	STAGE	TENDER DESIGN		
			DRG NO	KNPDD01-TDR-NMK-ARC-LIS-14250		REV R1

REFERENCE DRAWINGS	
Drawing Number	Description



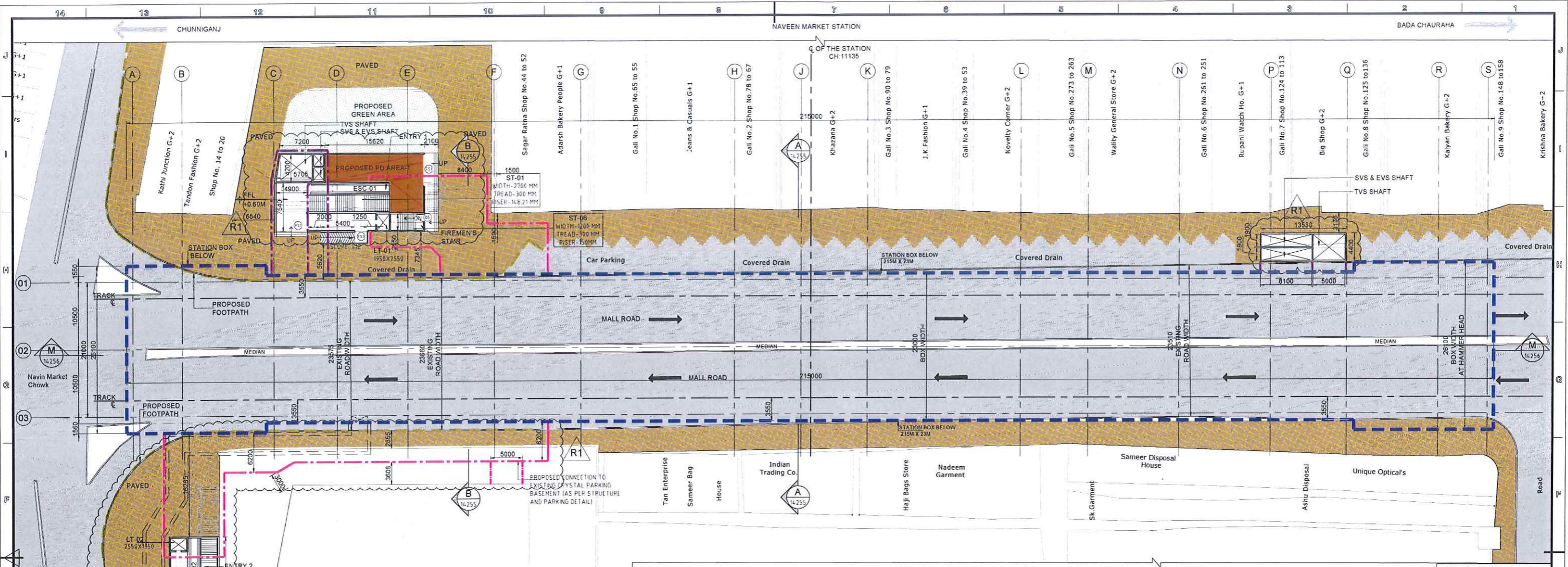
AGAK CONSORTIUM
 GENERAL CONSULTANT
 B3/3-4, D3/3-4/37, I.M.R.C. - GC TOWER
 OPP. TO GOMTI NAGAR BUS DEPOT,
 VIBHUTI KHAND, LUCKNOW-226010.



DETAIL DESIGN CONSULTANT
SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
 VATIKA MINDSCAPES, TOWER-B, 12/3,
 MATHURA ROAD, NH-2, SECTOR-27/D,
 FARIDABAD, HARYANA-121013
 PH: 0129 668 5600
 SUBSIDIARY OF:
 SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

REV.	PARTICULARS	DRN.	CHD.	VER.	DATE
R1	REVISED TENDER SUBMISSION	C. GUPTA	M. PURWAR	N. CHATURVEDI	24.05.2020
R0	TENDER SUBMISSION	D. GUPTA	M. PURWAR	N. CHATURVEDI	15.05.2020

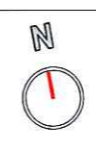
ARCHITECTURE



GROUND LEVEL PLAN

SCALE - 1:300

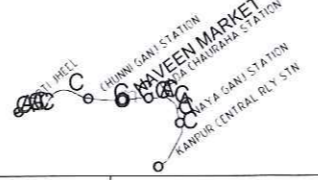
- LEGENDS :**
- ROAD
 - FOOTPATH
 - PROPOSED P.D.
 - STATION BOX
 - SUBWAY
 - SHAFT ROUTING
 - KERB LINE



S.NO	ROOM CODE	ROOM NAME	LENGTH	WIDTH	AREA sqm	REMARKS
1	U45	DG ROOM (Enclosed)			174.43	Irregular
2	U80	DG PANEL ROOM			29.73	Irregular
3		PROPOSED PROPERTY DEVELOPMENT 1			90	Irregular
4		PROPOSED PROPERTY DEVELOPMENT 2			50	Irregular

DOOR NO	WIDTH (IN MM)	LINTEL HEIGHT FROM FFL (IN MM)	FIRE RATING	REMARKS
D5	1200	2100	-	-
D6	1000	2100	FS-90	-
D6a	1000	2100	-	-
RS1	5000	3000	-	ROLLING SHUTTER
RS2	3000	3000	-	ROLLING SHUTTER
RS3	2000	3000	-	ROLLING SHUTTER

KEY MAP



NOTES :-

- ALL DIMENSIONS ARE IN MM. UNLESS NOTED OTHERWISE.
- ALL DIMENSIONS ARE TO BE READ AS MENTIONED ON THE DRAWINGS & NOT TO BE MEASURED.
- THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT STRUCTURAL, MEP, SYSTEM, VENDOR, FIRE FIGHTING & TRAFFIC MANAGEMENT DRAWINGS.
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- THIS DRAWINGS HAVE BEEN DEVELOPED IN CONFORMITY TO DPR, SOD, NBC, UPMRC & OTHER LOCAL BODY REQUIREMENT.
- THE STATION LOCATION SHOWN AS PER ALIGNMENT DRAWING RECEIVED FROM UPMRC DATED 22.06.2020.
- ESCALATOR PIT, LIFT SHAFT & LIFT PIT SIZE ARE SHOWN AS PER THE ELEVATED STATION AND ARE SUBJECT TO VENDOR'S REQUIREMENT.
- TRACK CENTRE TO PLATFORM EDGE DISTANCE & PLATFORM HEIGHT ARE PROVIDED AS PER FINAL SOD (REVISED ON 06.02.20).
- STAIRCASE SIZE & THEIR NOS. SHOWN AS PER RIDERSHIP REQUIREMENT. REFERENCE RECEIVED WITH DPR.
- ROOM SIZE, HEIGHTS DOOR SIZE AND CUTOUT DIMENSIONS BY RELEVANT DISCIPLINES OF ENGINEERING.
- ROOM SIZES PROVIDED AS PER CONCERN DISCIPLINE REQUIREMENT. THIS MAY CHANGE AT THE TIME OF DETAIL DESIGN.
- FLOOR FINISH THICKNESS OF CONCOURSE & PLATFORM SHOWN AS PER GC MAIL DATED 14.05.20.
- CONCOURSE SHALL BE POINT OF SAFETY AS PER CLAUSE REF J-5.1 D ECAVATION TIME PART-4 FIRE LIFE & SAFETY OF NBC 2016 VOL 1.
- LOCATION OF FHC HOSE CABINET, FIRE EXTINGUISHER & CUTOUT IS TENTATIVE AND SHALL BE REFERRED BY MEP DWG.
- MINIMUM HORIZONTAL DISTANCE MAINTAINED FROM PLATFORM EDGE TO ANY STRUCTURE AS PER SOD.
- SYSTEM WIDE RELATED ROOM SIZES & FLOOR LEVELS MAY VARY & SHALL BE AS PER SYSTEM WIDE CONTRACTOR REQUIREMENT.
- NO OF AFC GATES, TOM COUNTERS, DFMD GATE SHOWN ARE TENTATIVE MAY BE CHANGE IN DETAIL DESIGN STAGE AS PER FINAL SYSTEM WIDE REQUIREMENT.
- NO OF AFC GATES MARKED AS PER EMERGENCY CONDITION CALCULATION I.E @ 50 P/MIN. HOWEVER, AS PER DPR (REV- DEC 2017) AFC GATES NO. MARKED IN NORMAL CONDITION I.E @ 35 P/MIN. PLANNING OF UNPAID & PAID AREA MAY REVISE AS PER AFC GATES REQUIREMENT MENTIONED IN DPR.
- LOCATION, NO & SIZE OF EARTH MAT, CLEAN EARTH, EPR, LDB & MEP RELATED CUTOUT SHALL BE REFERRED BY MEP DWG.
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- PD AREAS ON CONCOURSE & GROUND MARKED TENTATIVELY & SAME SHALL BE REVISED AS PER UPMRC REQUIREMENT.
- ENTRY/EXIT LOCATION, ANCILLARY LOCATION, PD AREA ON GROUND SHOWN IN DISCUSSION WITH UPMRC.
- EQUIPMENT DELIVERY ROUTE FOR MEP ROOMS & ANCILLARY AREAS SHALL BE AS PER MEP REQUIREMENT.
- PASSENGER CAR DROP OFF BUS DROP OFF NO. OF PARKINGS FOR (24 WHEELER), BUS BAYS, PEDESTRIAN CROSSING, FOOT PATH, ROADS SHOWN IN THIS PLAN ARE TENTATIVE & SHALL BE FINALIZED IN CONJUNCTION WITH TRANSPORT INTEGRATION DRAWINGS.
- ALL FINISHES ARE SUBJECT TO UPMRC/GC APPROVAL.
- DRAINAGE DETAIL SHALL BE REFERRED FROM MEP DETAIL DRAWINGS.
- MEP ROOM EQUIPMENT LAYOUT, MEP CUTOUTS & LOCATION OF DEMOUNTABLE PANELS SHALL BE REFERRED FROM MEP DRAWINGS.
- FLOOR OVER ROOF MAY INCREASE OR DECREASE AS PER ACTUAL SITE CONDITION/UTILITIES. THIS MAY RESULT INTO CHANGE IN VERTICAL LEVELS OF STATIONS.

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GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE	SIGNATURE
CA/MARCH - GC			<input type="checkbox"/> NOC	DY.CA-UPMRC		
CE/STRU - GC			<input type="checkbox"/> NOWC	CE DESIGN - UPMRC		
CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRC		
				CPM-UPMRC		

ABBREVIATIONS :-
 LT - LIFT
 ESC - ESCALATOR
 ST - STAIRCASE
 PD - PROPERTY DEVELOPMENT

LEGEND

1	BLOCKWORK
2	CONCRETE WORK
3	GLAZE WALL / WINDOW

* AVAILABILITY OF LAND FOR PROPOSED ENTRIES NEEDS TO BE CONFIRMED BY UPMRC.
 * LEVELS PROPOSED IN ENTIRE STATION BY KEEPING ROAD LEVEL OF 460 MM.
 * LENGTH OF ENTRY STAIRCASE / ESCALATOR MAY VARY AS PER SPOT LEVEL AROUND ENTRY STRUCTURE.

REV.	REVISION	DRN.	CHD.	VER.	DATE
R1	REVISOR TELCEC SUBMISSION	D. GUPTA	M. PURNAR	F. CHATURVEDI	24.08.2020
R2	TELEORDER SUBMISSION	D. GUPTA	D. GUPTA	F. CHATURVEDI	15.02.2021

UPMRC

AGAK CONSORTIUM
 GENERAL CONSULTANT
 B3/4, D3/4-37, LMRC - GC TOWER
 OPP. TO GOMTI NAGAR BUS DEPOT,
 VIHUTI KHAND, LUCKNOW - 226010.

SYSTRA

DETAIL DESIGN CONSULTANT

SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
 VATIKA MINDSCAPES, TOWER-B, 12/3,
 MATHURA ROAD, NH-2, SECTOR-27/D,
 FARIDABAD, HARYANA-121013
 PH: 0129 668 5600
 SUBSIDIARY OF:
 SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

PREPARED BY: NAME, SIGNATURE

DRAWN BY: D. GUPTA, SIGNATURE

DESIGNED BY: M. PURNAR, SIGNATURE

CHECKED BY: N. CHATURVEDI, SIGNATURE

APPROVED BY: ASHISH K., SIGNATURE

DRAWING TITLE: NAVEEN MARKET STATION GROUND LEVEL PLAN

SCALE: AS SHOWN

DATE OF ISSUE: 15.05.2020

STAGE: TENDER DESIGN

DRG NO: KNPD01-TDR-NMK-ARC-PLN-14251

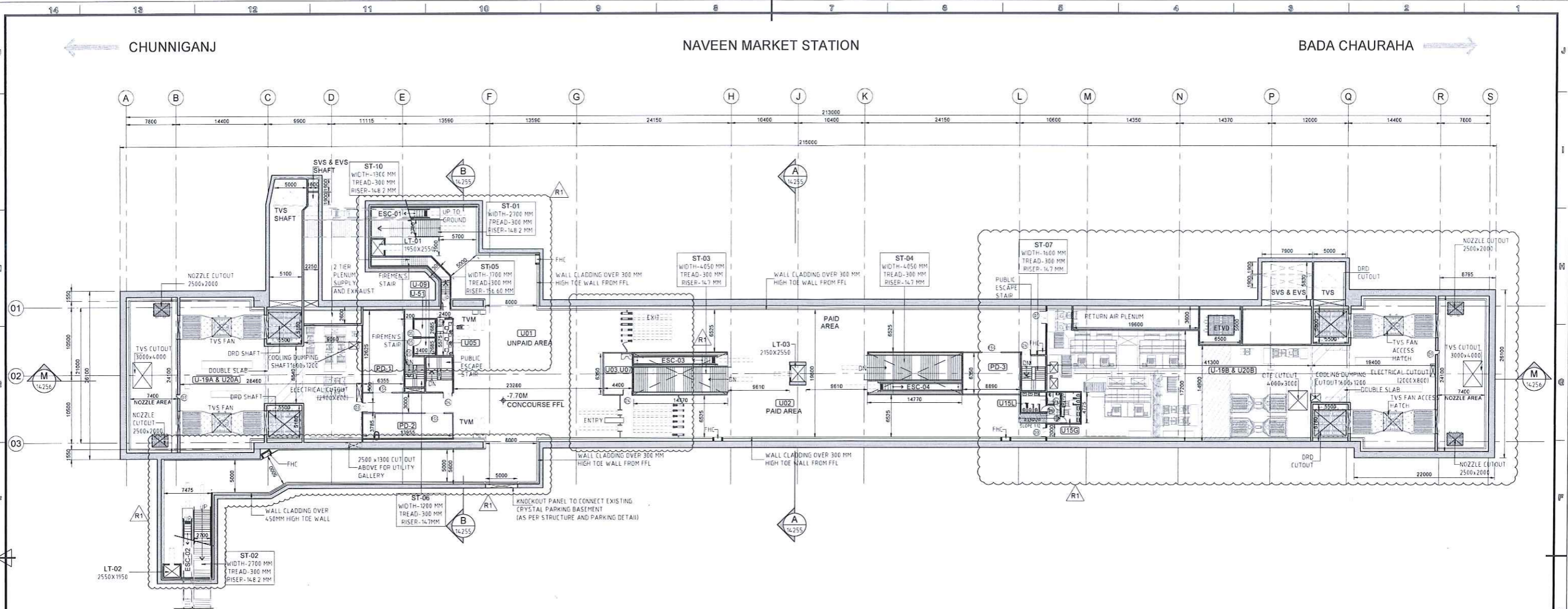
REV: R1

TENDER DRAWING

CHUNNIGANJ

NAVEEN MARKET STATION

BADA CHAURAHA



CONCOURSE LEVEL PLAN

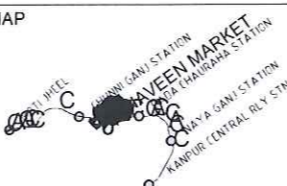
SCALE - 1:300

ABBREVIATIONS	LEGEND
LT - LIFT	1 BLOCKWORK
ESC - ESCALATOR	2 CONCRETE WORK
ST - STAIRCASE	3 GLASS WALL / WINDOW
PD - PROPERTY DEVELOPMENT	

- NOTES:-**
- ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE
 - ALL DIMENSIONS ARE TO BE READ AS MENTIONED ON THE DRAWINGS & NOT TO BE MEASURED.
 - THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT STRUCTURAL, MEP, SYSTEM, VENDOR, FIRE FIGHTING & TRAFFIC MANAGEMENT DRAWINGS.
 - ANY DISCREPANCY THUS ARRIVED MUST BE BROUGHT TO THE NOTICE OF THE CONSULTANT.
 - STRUCTURE SYSTEM SHOWN IS INDICATIVE. REFER STRUCTURE DRAWING FOR ALL STRUCTURE MEMBER SIZES TO BE DETAIL BY CONTRACTOR AT LATER STAGE.
 - THIS DRAWINGS HAVE BEEN DEVELOPED IN CONFORMITY TO DPR, SOD, NBC, UPMRC & OTHER LOCAL BODY REQUIREMENT.
 - THE STATION LOCATION SHOWN AS PER ALIGNMENT DRAWING RECEIVED FROM UPMRC DATED 22.08.2020.
 - ESCALATOR PIT, LIFT SHAFT & LIFT PIT SIZE ARE SHOWN AS PER THE ELEVATED STATION AND ARE SUBJECT TO VENDOR'S REQUIREMENT.
 - TRACK CENTRE TO PLATFORM EDGE DISTANCE & PLATFORM HEIGHT ARE PROVIDED AS PER FINAL SOD (REVISED ON 06.02.20).
 - STAIRCASE SIZE & THEIR NOS. SHOWN AS PER RIDERSHIP REQUIREMENT REFERENCE RECEIVED WITH DPR.
 - ROOM SIZE, HEIGHTS DOOR SIZE AND CUTOUT DIMENSIONS BY RELEVANT DISCIPLINES OF ENGINEERING.
 - ROOM SIZES PROVIDED AS PER CONCERN DISCIPLINE REQUIREMENT. THIS MAY CHANGE AT THE TIME OF DETAIL DESIGN.
 - FLOOR FINISH THICKNESS OF CONCOURSE & PLATFORM SHOWN AS PER GC MAIL DATED 14.05.20.
 - CONCOURSE SHALL BE POINT OF SAFETY AS PER CLAUSE REF J-5.1 D. EVACUATION TIME, PART-4 FIRE LIFE & SAFETY OF NBC 2016 VOL 1.
 - LOCATION OF FHC HOSE CABINET, FIRE EXTINGUISHER & CUTOUT IS TENTATIVE AND SHALL BE REFERRED BY MEP DWG.
 - MINIMUM HORIZONTAL DISTANCE MAINTAINED FROM PLATFORM EDGE TO ANY STRUCTURE AS PER SOD.
 - SYSTEM WIDE RELATED ROOM SIZES & FLOOR LEVELS MAY VARY & SHALL BE AS PER SYSTEM WIDE CONTRACTOR REQUIREMENT.
 - NO OF AFC GATES, TOM COUNTERS, DFMD GATE SHOWN ARE TENTATIVE MAY BE CHANGE IN DETAIL DESIGN STAGE AS PER FINAL SYSTEM WIDE REQUIREMENT.
 - NO OF AFC GATES MARKED AS PER EMERGENCY CONDITION CALCULATION I.E. @ 50 P/Min. HOWEVER, AS PER DPR (REV-DEC 2017) AFC GATES NO. MARKED IN NORMAL CONDITION I.E. @ 35 P/Min. PLANNING OF UNPAID & PAID AREA MAY REVISE AS PER AFC GATES REQUIREMENT MENTIONED IN DPR.
 - LOCATION, NO. & SIZE OF EARTH MAT, CLEAN EARTH, EPR, LDB & MEP RELATED CUTOUT SHALL BE REFERRED BY MEP DWG.
 - CLEAR HT. BETWEEN CONCOURSE & PLATFORM IS PROVIDED AS PER MEP REQUIREMENT.
 - PD AREAS ON CONCOURSE & GROUND MARKED TENTATIVELY & SAME SHALL BE REVISED AS PER UPMRC REQUIREMENT.
 - ENTRY/EXIT LOCATION, ANCILLARY LOCATION, PD AREA ON GROUND SHOWN IN DISCUSSION WITH UPMRC.
 - EQUIPMENT DELIVERY ROUTE FOR MEP ROOMS & ANCILLARY AREAS SHALL BE AS PER MEP REQUIREMENT.
 - PASSENGER CAR DROP OFF, BUS DROP OFF, NO. OF PARKINGS FOR (24 WHEELER), BUS BAYS, PEDESTRIAN CROSSING, FOOT PATH, ROADS SHOWN IN THIS PLAN ARE TENTATIVE & SHALL BE FINALIZED IN CONJUNCTION WITH TRANSPORT INTEGRATION DRAWINGS.
 - ALL FINISHES ARE SUBJECT TO UPMRC/GC APPROVAL.
 - DRAINAGE DETAIL SHALL BE REFERRED FROM MEP DETAIL DRAWINGS.
 - MEP ROOM EQUIPMENT LAYOUT, MEP CUTOUTS & LOCATION OF DEMOUNTABLE PANELS SHALL BE REFERRED FROM MEP DRAWINGS.
 - FILLING OVER ROOF MAY INCREASE OR DECREASE AS PER ACTUAL SITE CONDITION/UTILITIES. THIS MAY RESULT INTO CHANGE IN VERTICAL LEVELS OF STATIONS.
 - LENGTH OF ENTRY STAIRCASE / ESCALATOR MAY VARIES AS PER SPOT LEVEL AROUND ENTRY STRUCTURE.

CONCOURSE						
1	NOZZEL -1 (LEFT HAND SIDE)	7.4	24.1	178.34		
2	NOZZEL -2 (RIGHT HAND SIDE)	7.4	24.1	178.34		
3	U19A/U20A	ECS/TVS FAN ROOM		598	irregular	
4	U05	TOM	2.4	5.57	13.368	
5	U03 & U07	SCR & EFO	4.4	6.35	27.94	
6	U15	TOILET (PUBLIC & HANDICAPED)			44	irregular
7	U19B/U20B	ECS/TVS FAN ROOM			1386	irregular
8	U01	UNPAID AREA CONCOURSE			503	irregular
9	U02	PAID AREA CPNCOURSE			993	irregular
10	U09	SECURITY ROOM	3.4	2.68	9.112	
11	U51	EMERGENCY EQUIPMENT ROOM	3.4	2.68	9.112	
12	PD1	PROPERTY DEVELOPMENT	6.35	12.6	80.01	
13	PD2	PROPERTY DEVELOPMENT	13.95	3.7	51.615	
14	PD3	PROPERTY DEVELOPMENT	8.89	6.35	56.4515	

KEY MAP



DOOR SCHEDULE				
DOOR NO	WIDTH (IN MM)	LINTEL HEIGHT FROM FFL (IN MM)	FIRE RATING	REMARKS
D1	2000	2500	FS-90	BOH AREA
D2	1500	2500	FS-180	BOH AREA
D3	1500	2500	FS-90	BOH AREA
D4	1500	2100	FS-90	--
D5	1200	2100	FS-90	--
D6	1000	2100	FS-90	--
D7	750	2100	FS-90	BOH AREA
RS2	3000	3000	--	ROLLING SHUTTER

- REVISION LOG R1:**
- FIREMEN CORRIDOR REMOVED FROM ENTRY-2 SUBWAY & PROPOSED AT ENTRY-1
 - UPDATED OPENING OF ENTRIES.
 - TECHNICAL ROOM LAYOUT UPDATED.
 - DOOR SCHEDULE REVISED WITH FIRE RATING INDICATED.

NOTICE OF NO OBJECTIONS FROM EMPLOYER					
NOTICE OF NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES HOWEVER THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAIL DESIGN CONSULTANT.					
GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE
CA/ARCH - GC			<input type="checkbox"/> NCC	DY.CA - UPMRCL	
CE/STRU - GC			<input type="checkbox"/> NCWC	CE DESIGN - UPMRCL	
CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRCL	
				CPM-UPMRC	

PROJECT TITLE
UTTAR PRADESH METRO RAIL CORPORATION LTD
 (Formerly known as Lucknow Metro Rail Corporation Ltd.)
 KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1

NAME	SIGNATURE	DRAWING TITLE
		NAVEEN MARKET STATION
		CONCOURSE LEVEL PLAN

SCALE AS SHOWN **DATE OF ISSUE** 15.05.2020 **STAGE** TENDER DESIGN

DRG NO. KNPDD01-TDR-NMK-ARC-PLN-14252 **REV** R1

REV.	PARTICULARS	DRN.	CHD.	VER.	DATE
R1	REVISED TENDER ELEVATION	E.GUPTA	V.PURWAR	N.CHATURVEDI	24.05.2020
R0	TENDER SUBMISSION	KRM	V.PURWAR	N.CHATURVEDI	15.05.2020

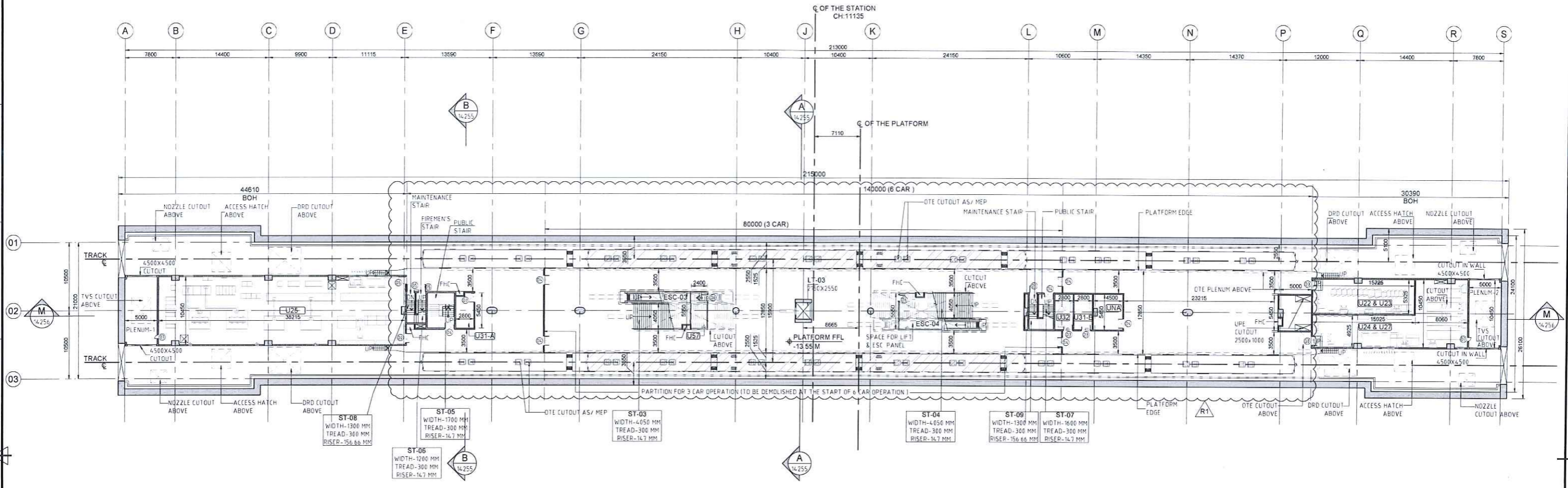
AGAK CONSORTIUM
 GENERAL CONSULTANT
 B3/3-4 D3/34-37, LMRC - GC TOWER,
 OPP. TO GOMTI NAGAR BUS DEPOT,
 VIBHUTI KHAND, LUCKNOW - 226010.

SYSTRA
 DETAIL DESIGN CONSULTANT
 SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
 VATIKA MINDSCAPES, TOWER-B, 12/3,
 MATHURA ROAD, NH-2, SECTOR-B, 27/D,
 FARIDABAD, HARYANA-121013
 PH: 0129 668 5600
 SUBSIDIARY OF:
 SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

APPROVED BY ASHSHK. **DATE** 15.05.2020

REVISION LOG R1:

NO.	DESCRIPTION	DATE
1	REVISED TENDER ELEVATION	24.05.2020
0	TENDER SUBMISSION	15.05.2020



PLATFORM LEVEL PLAN
SCALE - 1:300

ABBREVIATIONS and LEGEND table listing symbols for blockwork, concrete, and glass wall/window.

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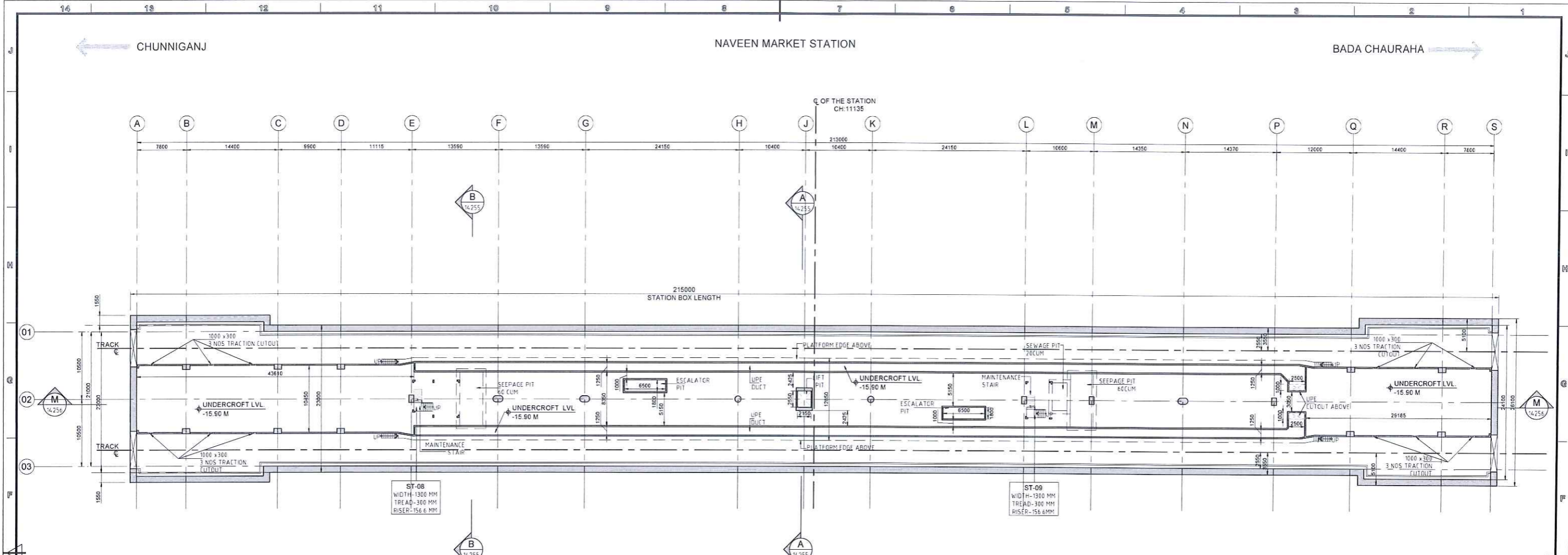
PLATFORM table listing room details like U21 TVS PLENUM-1, U25-A ASS, U31-A SEEPAGE ROOM-1, etc.

KEY MAP showing station locations and DOOR SCHEDULE table with columns for door no, width, lintel height, fire rating, and remarks.

REVISION LOG R1, NOTICE OF NO OBJECTION FROM EMPLOYER, and TENDER DRAWING stamp area.

Revision table with columns for REV, PARTICULARS, DRN, CHD, VER, DATE.

Project information including logos for UPMRCL, AGAK CONSORTIUM, SYSTRA, and project title: UTTAR PRADESH METRO RAIL CORPORATION LTD. (Formerly known as Lucknow Metro Rail Corporation Ltd.)



UNDERCROFT LEVEL PLAN
SCALE - 1:300

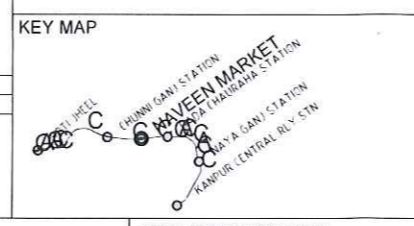
ABBREVIATIONS :-

- CT- LIFT
- ESC- ESCALATOR
- ST- STAIRCASE
- PD- PROPERTY DEVELOPMENT

LEGEND

1	BLOCKWORK	
2	CONCRETE WORK	
3	GLASS WALL / WINDOW	

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 - STAIRCASE SIZE & THEIR NOS. SHOWN AS PER RIDERSHIP REQUIREMENT. REFERENCE RECEIVED WITH DPR
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 - LOCATION OF FHC HOSE CABINET FIRE EXTINGUISHER & CUTOUT IS TENTATIVE AND SHALL BE REFERRED BY MEP DWG
 - MINIMUM HORIZONTAL DISTANCE MAINTAINED FROM PLATFORM EDGE TO ANY STRUCTURE AS PER SOD
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 - NO OF AFC GATES MARKED AS PER EMERGENCY CONDITION CALCULATION I.E @ 50 PPM, HOWEVER, AS PER DPR (REV. DEC 2017) AFC GATES NO. MARKED IN NORMAL CONDITION I.E @ 35 PPM. PLANNING OF UNPAID & PAID AREA MAY REVISE AS PER AFC GATES REQUIREMENT MENTIONED IN DPR.
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REVISION LOG R1

- LOCATION OF MAINTENANCE STAIRCASE, SEWAGE & SEEPAGE PITS UPDATED AS PER PLATFORM LEVEL PLAN.

TENDER DRAWING

NOTICE OF 'NO OBJECTIONS' FROM EMPLOYER

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GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE	SIGNATURE
CA/ARCH - GC			<input type="checkbox"/> NCC	DY.CA-UPMRC		
CE/STRU - GC			<input type="checkbox"/> NCWC	CE DESIGN - UPMRC		
CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRC		
				CPM-UPMRC		

REFERENCE DRAWINGS

Drawing Number	Description

UPMRC

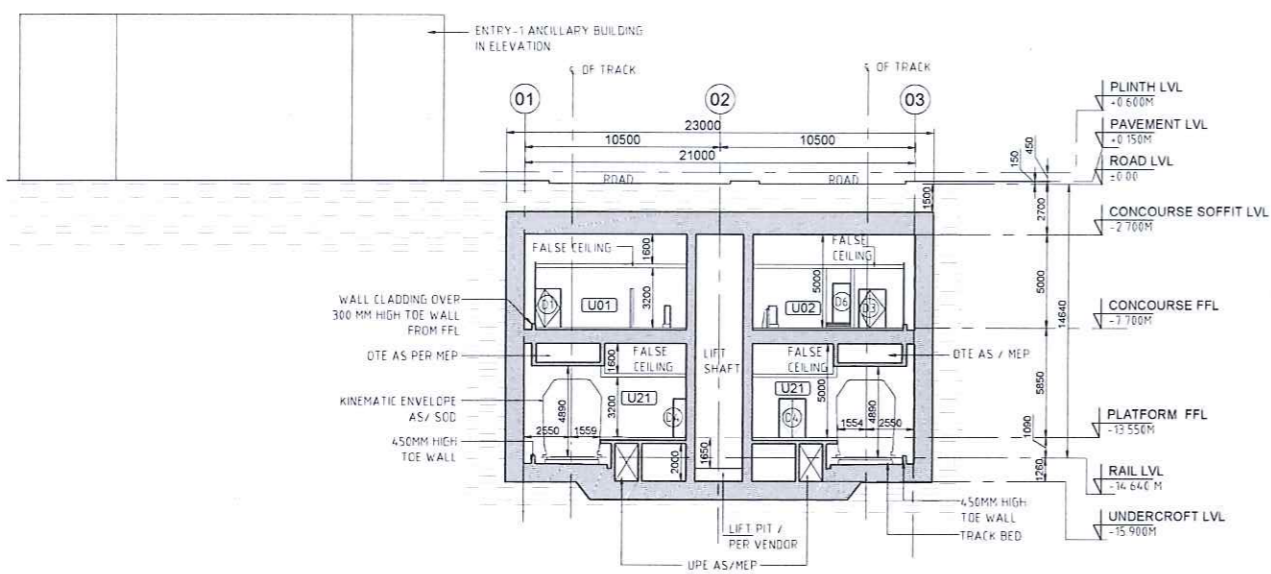
AGAK CONSORTIUM
GENERAL CONSULTANT
B3/4, D3/4-37, LMR - GC TOWER,
OPP. TO GOMTI NAGAR BUS DEPOT,
VIBHUTI KHAND, LUCKNOW - 226010.

SYSTRA
DETAIL DESIGN CONSULTANT
SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
VATIKA MINDSCAPES, TOWER-B, 12/3,
MATHURA ROAD, NH-2, SECTOR-27/D,
FARIDABAD, HARYANA-121013
PH: 0129 668 5600
SUBSIDIARY OF:
SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

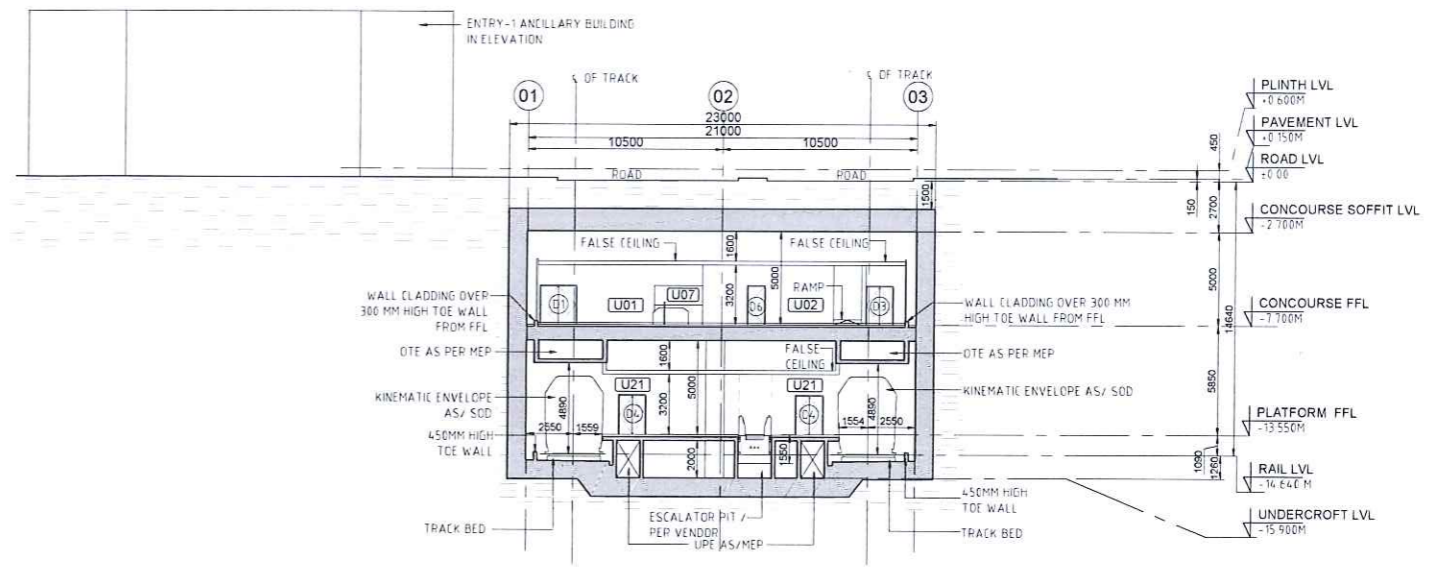
PROJECT TITLE
UTTAR PRADESH METRO RAIL CORPORATION LTD
(Formerly known as Lucknow Metro Rail Corporation Ltd.)
KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1

PREPARED	NAME	SIGNATURE	DRAWING TITLE
DRAWN BY	D.GUPTA		NAVEEN MARKET STATION
DESIGNED BY	M.FURWAR		UNDERCROFT LEVEL PLAN
CHECKED BY	N.CHATURVEDI		SCALE AS SHOWN
APPROVED BY	ASHISH K.		DATE OF ISSUE 15.05.2020
			STAGE TENDER DESIGN
			DRG NO. KNPDD01-TDR-NMK-ARC-PLN-14254
			REV R1

ARCHITECTURE



SECTION-AA
SCALE-1200

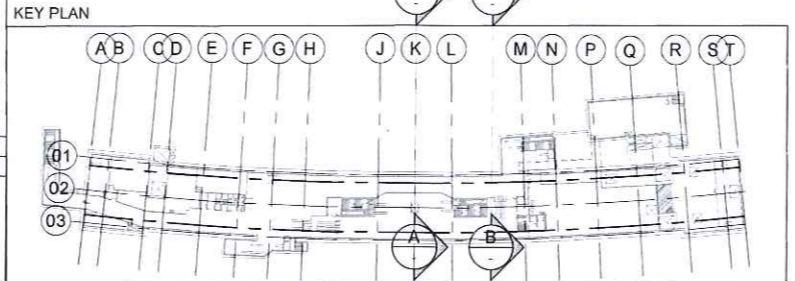


SECTION-BB
SCALE-1200

S.NO	ROOM CODE	ROOM NAME
1	U01	UNPAID AREA CONCOURSE
2	U02	PAID AREA CONCOURSE
3	U07	EFO
4	U21	PLATFORM PUBLIC AREA

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REVISION LOG R1:
1. UPDATED AS PER REVISED FLOOR PLANS.



REFERENCE DRAWINGS	
Drawing Number	Description



AGAK CONSORTIUM
GENERAL CONSULTANT
B3/3-4, D3/34-37, LMRC - GC TOWER,
OPP. TO GOMTI NAGAR BUS DEPOT,
VIBHUTI KHAND, LUCKNOW - 226010.



DETAIL DESIGN CONSULTANT
SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
VATIKA MINDSCAPES, TOWER-B, 12/3,
MATHURA ROAD, NH-2, SECTOR-27/D,
FARIDABAD, HARYANA-121013
PH: 0129 668 5600
SUBSIDIARY OF:
SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

TENDER DRAWING

NOTICE OF 'NO OBJECTIONS' FROM EMPLOYER

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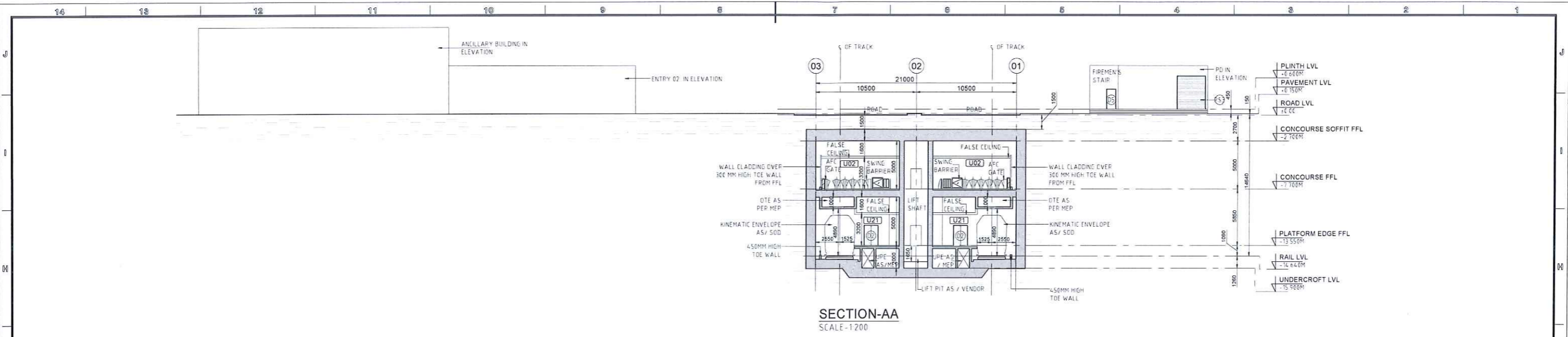
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CE/STRU - GC			<input type="checkbox"/> NOWC	CE DESIGN - UPMRC		
CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRC		
				CPM-UPMRC		

PROJECT TITLE
UTTAR PRADESH METRO RAIL CORPORATION LTD
(Formerly known as Lucknow Metro Rail Corporation Ltd.)
KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1

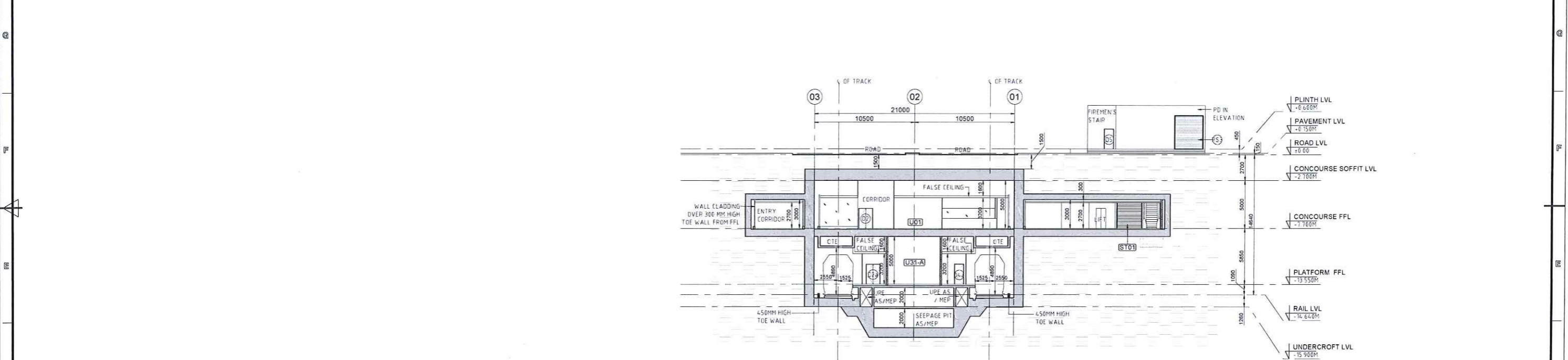
PREPARED	NAME	SIGNATURE	DRAWING TITLE
			CHUNNIGANJ STATION
DRAWN BY	K.PANDEY		CROSS SECTIONS
DESIGNED BY	M.PURWAR		
CHECKED BY	N.CHATURVEDI		SCALE AS SHOWN
APPROVED BY	Ashish.K		DATE OF ISSUE 1.06.2020
			STAGE TENDER DESIGN
			DRG NO KNPDD01-TDR-NMK-ARC-CRS-14255
			REV R1



REV.	PARTICULARS	DRN.	CHD.	VER.	DATE
01	TENDER SUBMISSION	N.TANZOI	M.PURWAR	N.CHATURVEDI	1.06.2020
02	TENDER SUBMISSION	N.TANZOI	M.PURWAR	N.CHATURVEDI	1.06.2020



SECTION-AA
SCALE-1:200

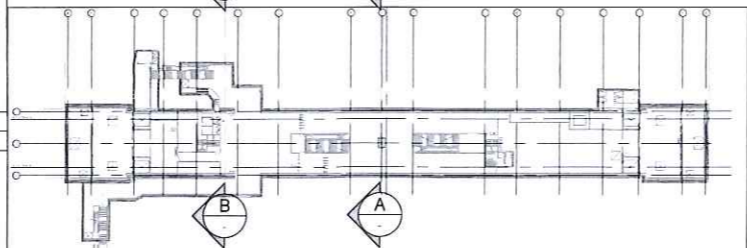


SECTION-BB
SCALE-1:200

PLATFORM	ROOM CODE	ROOM NAME
1	U01	PLATFORM PUBLIC AREA
2	U01-A	SEEPAGE ROOM-1

- NOTES :-**
1. ALL DIMENSIONS ARE IN MM, UNLESS NOTED OTHERWISE
 2. ALL DIMENSIONS ARE TO BE READ AS MENTIONED ON THE DRAWINGS & NOT TO BE MEASURED
 3. ANY DISCREPANCY THUS ARRIVED MUST BE BROUGHT TO THE NOTICE OF THE CONSULTANT
 4. ALL STRUCTURE ELEMENTS SIZES & THICKNESS MAY VARY AS PER STRUCTURE DETAIL DRAWINGS.
 5. ALL FINISHES ARE SUBJECT TO UPMRC/GC APPROVAL
 6. DRAINAGE DETAIL SHALL BE REFERRED FROM MEP DETAIL DRAWINGS
 7. ALL THE FIXING AND MEMBER SIZING ARE INDICATIVE AND TO BE CONFIRMED AS PER MANUFACTURER'S REQUIREMENT
 8. THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL, STRUCTURAL, PLUMBING & ELECTRICAL DRAWINGS

KEY PLAN



AGAK CONSORTIUM
GENERAL CONSULTANT
B3-2-4 D3-34-37 LMRC - GC TOWER,
OPP. TO GOMTI NAGAR BUS DEPOT,
VIBHUTI KHAND, LUCKNOW - 226010.



DETAIL DESIGN CONSULTANT
SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
VATIKA MINDSCAPES, TOWER-B, 12/3,
MATHURA ROAD, NH-2, SECTOR-27/D,
FARIDABAD, HARYANA-121013
PH: 0129 668 5600
SUBSIDIARY OF:
SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

REVISION LOG R1 : 1. UPDATED AS PER REVISED FLOOR PLANS						TENDER DRAWING
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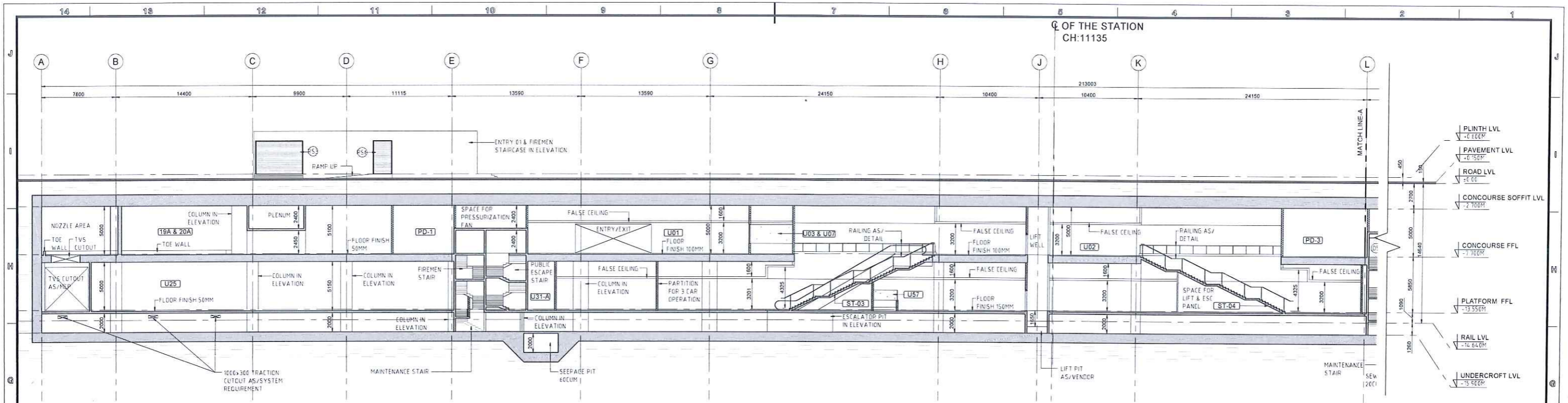
NOTICE OF NO OBJECTIONS' FROM EMPLOYER						
NOTICE OF NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES HOWEVER THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAIL DESIGN CONSULTANT .						
GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE	SIGNATURE
CA/MARCH - GC			<input type="checkbox"/> NOC	DY.CA-UPMRC		
CE/STRU - GC			<input type="checkbox"/> NOWC	CE DESIGN - UPMRC		
CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRC		
				CPM-UPMRC		

PROJECT TITLE
UTTAR PRADESH METRO RAIL CORPORATION LTD
(Formerly known as Lucknow Metro Rail Corporation Ltd.)
KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1

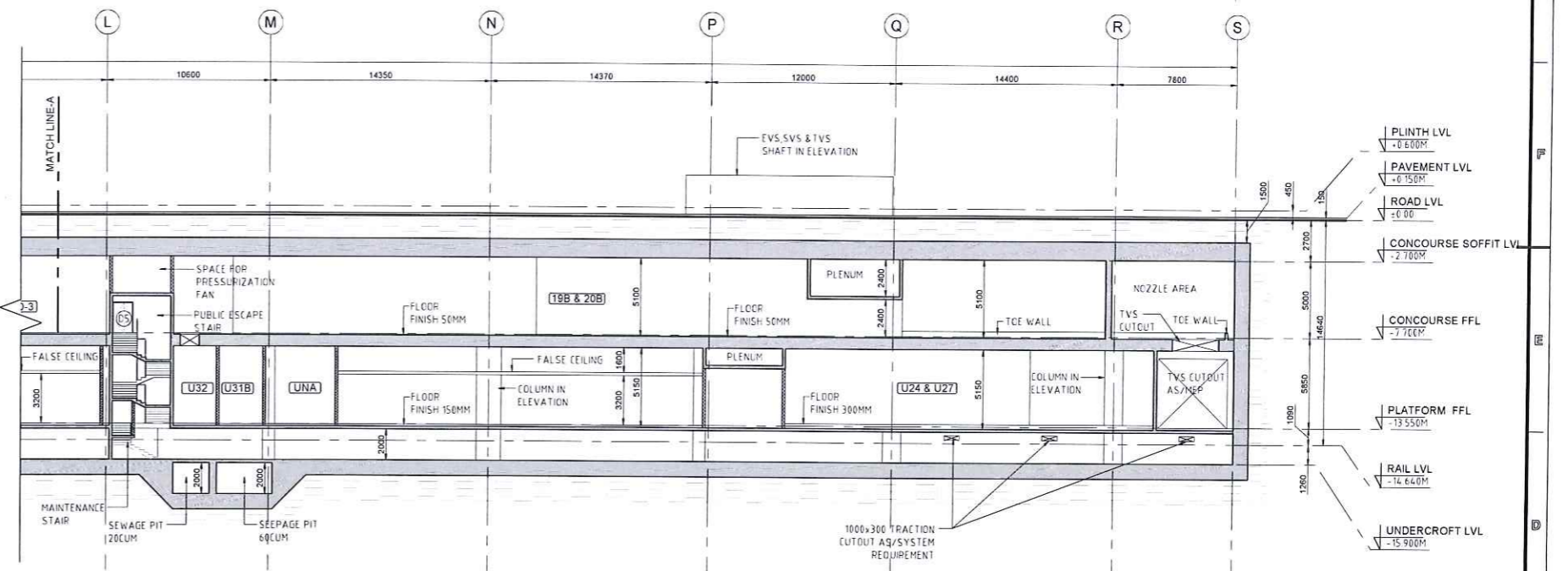
PREPARED	NAME	SIGNATURE	DRAWING TITLE
DRAWN BY	K.PANDEY		NAVEEN MARKET STATION
DESIGNED BY	M.PURWAR		CROSS SECTIONS
CHECKED BY	N.CHATURVEDI		SCALE AS SHOWN
APPROVED BY	Ashish K		DATE OF ISSUE 15.05.2020
			STAGE TENDER DESIGN
			DRG NO KNPDD01-TDR-NMK-ARC-CRS-14255



REV.	PARTICULARS	DRN.	CHD.	VER.	DATE
R1					



SECTION-MM (PART-1)
SCALE 1:200



SECTION-MM (PART-2)
SCALE 1:200

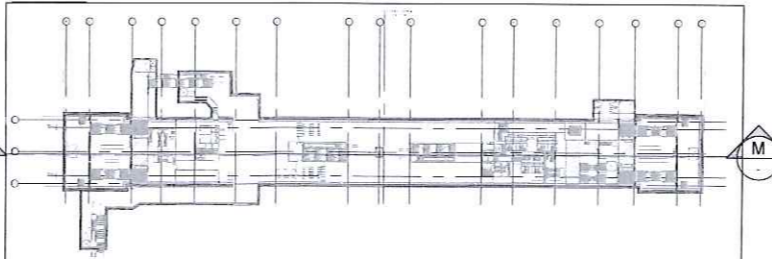
CONCOURSE		PLATFORM	
S.NO	ROOM CODE	S.NO	ROOM CODE
1	NOZZEL-1 (LEFT HAND SIDE)	1	U21
2	NOZZEL-2 (RIGHT HAND SIDE)	2	U22
3	U19A/U20A	3	U23
4	U05	4	U24
5	U03 & U07	5	U25
6	U15	6	U26
7	U19B/U20B	7	U27
8	U01	8	U28
9	U02	9	U29
10	U09	10	U30
11	PD1	11	U31
12	PD2	12	U32
13	PD3	13	U33

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 - THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL, STRUCTURAL, PLUMBING & ELECTRICAL DRAWINGS

* AVAILABILITY OF LAND FOR PROPOSED ENTRIES NEEDS TO BE CONFIRMED BY UPMRC
 * LEVELS PROPOSED IN ENTIRE STATION BY KEEPING ROAD LEVEL OF 350 MM.
 * LENGTH OF ENTRY STAIRCASE / ESCALATOR MAY VARY AS PER SPOT LEVEL AROUND ENTRY STRUCTURE

REFERENCE DRAWINGS	
Drawing Number	Description

KEY PLAN



DETAIL DESIGN CONSULTANT



SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
 VATIKA MINDSCAPES, TOWER-B, 12/3,
 FARIDABAD, HARYANA-121013
 PH: 0129 668 5600
 SUBSIDIARY OF:
 SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

PREPARED
 DRAWN BY
 DESIGNED BY
 CHECKED BY
 APPROVED BY

REVISION LOG R1:
 1. UPDATED AS PER REVISED FLOOR PLANS

NOTICE OF 'NO OBJECTIONS' FROM EMPLOYER

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GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE	SIGNATURE
CA/ARCH - GC			<input type="checkbox"/> NOC	DY.CA- UPMRC		
CE/STRU - GC			<input type="checkbox"/> NOWC	CE DESIGN - UPMRC		
CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRC		
				CPM-UPMRC		

PROJECT TITLE
UTTAR PRADESH METRO RAIL CORPORATION LTD
 (Formerly known as Lucknow Metro Rail Corporation Ltd.)
 KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1

DRAWING TITLE
NAVEEN MARKET STATION
LONGITUDINAL SECTION

SCALE AS SHOWN
 DATE OF ISSUE 15.05.2020
 STAGE TENDER DESIGN

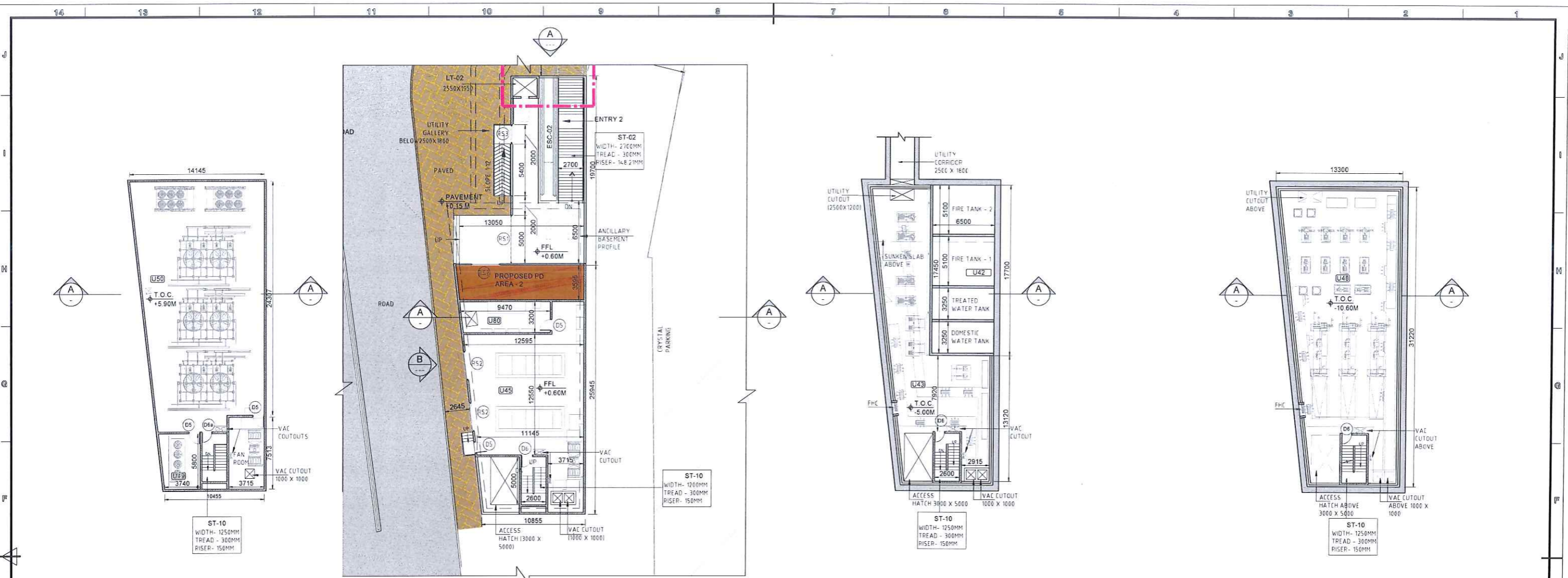
DRG NO. KNPDD01-TDR-NMK-ARC-LGS-14256
 REV R1



AGAK CONSORTIUM
 GENERAL CONSULTANT
 B3/5-4, D3/24-37, LMRG - GC TOWER,
 OPP. TO GOVTI NAGAR BUS DEPOT,
 VIBHUTI KHAND, LUCKNOW-226010.



REV	PARTICULARS	DRN.	CHD.	VER.	DATE
R1	TENDER SLEWISSON.	K.PANDEY	N.FLURWAR	N.CHATURVEDI	24.05.2020
RC	TENDER SLEWISSON.	D. GUPTA	M.FLURWAR	N.CHATURVEDI	18.05.2020



COOLING TOWER LEVEL PLAN
SCALE - 1:200

GROUND LEVEL PLAN
SCALE - 1:200

PUMP ROOM LEVEL PLAN
SCALE - 1:200

CHILLER PLANT LEVEL PLAN
SCALE - 1:200

ABBREVIATIONS :-

- LT - LIFT
- ESC - ESCALATOR
- ST - STAIRCASE
- PD - PROPERTY DEVELOPMENT

LEGEND

1	BLOCKWORK
2	CONCRETE WORK
3	GLASS WALL / WINDOW

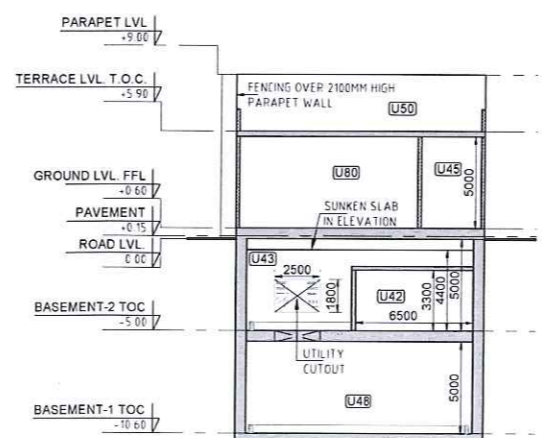
- NOTES :-**
- ALL DIMENSIONS ARE IN MM, UNLESS NOTED OTHERWISE
 - THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT STRUCTURAL, MEP, SYSTEM, VENDOR, FIRE FIGHTING & TRAFFIC MANAGEMENT DRAWINGS.
 - ANY DISCREPANCY THIS ARRIVED MUST BE BROUGHT TO THE NOTICE OF THE CONSULTANT.
 - STRUCTURE SYSTEM SHOWN IS INDICATIVE. REFER STRUCTURE DRAWING FOR ALL STRUCTURE MEMBER SIZES TO BE DETAIL BY CONTRACTOR AT LATER STAGE.
 - THIS DRAWINGS HAVE BEEN DEVELOPED IN CONFORMITY TO DPR, SOD, NBC, UPMRC & OTHER LOCAL BODY REQUIREMENT.
 - ROOM SIZES PROVIDED AS PER CONCERN DISCIPLINE REQUIREMENT. THIS MAY CHANGE AT THE TIME OF DETAIL DESIGN.
 - ESCALATOR PIT, LIFT SHAFT & LIFT PIT SIZE ARE SHOWN AS PER THE ELEVATED STATION AND ARE SUBJECTED TO VENDOR'S REQUIREMENT.
 - TRACK CENTRE TO PLATFORM EDGE DISTANCE & PLATFORM HEIGHT ARE PROVIDED AS PER FINAL SOD (REVISED ON 06.02.20).
 - STAIRCASE SIZE & THEIR NOS. SHOWN AS PER RIDERSHIP REQUIREMENT. REFERENCE RECEIVED WITH DPR.
 - ROOM SIZE, HEIGHTS DOORSIZE AND CUTOUT DIMENSIONS BY RELEVANT DISCIPLINES OF ENGINEERING.
 - MINIMUM HORIZONTAL DISTANCE MAINTAINED FROM PLATFORM EDGE TO ANY STRUCTURE AS PER SOD.
 - FLOOR FINISH THICKNESS OF CONCOURSE & PLATFORM SHOWN AS PER GC MAIL DATED 14.05.20.
 - CONCOURSE SHALL BE POINT OF SAFETY AS PER CLAUSE REF J-5.1 D ECAVATION TIME, PART-4 FIRE LIFE & SAFETY OF NBC 2016 VOL 1.
 - LOCATION OF FHC HOSE CABINET, FIRE EXTINGUISHER & CUTOUT IS TENTATIVE AND SHALL BE REFERRED BY MEP DWG.
 - STATION BOX SIZE PROPOSED AS PER DISCUSSION WITH UPMRC.
 - SYSTEM WIDE RELATED ROOM SIZES & FLOOR LEVELS MAY VARY & SHALL BE AS PER SYSTEM WIDE CONTRACTOR REQUIREMENT.
 - NO OF AFC GATES, TOM COUNTERS DFMD GATE SHOWN ARE TENTATIVE MAY BE CHANGE IN DETAIL DESIGN STAGE AS PER FINAL SYSTEM WIDE REQUIREMENT.
 - NO OF AFC GATES MARKED AS PER EMERGENCY CONDITION CALCULATION I.E. @ 50 P/MIN. HOWEVER, AS PER DPR (REV- DEC 2017) AFC GATES NO. MARKED IN NORMAL CONDITION I.E. @ 35 P/MIN. PLANNING OF UNPAID & PAID AREA MAY REVISE AS PER AFC GATES REQUIREMENT MENTIONED IN DPR.
 - LOCATION, NO & SIZE OF EARTH MAT, CLEAN EARTH, EPR, LDB & MEP RELATED CUTOUT SHALL BE REFERRED BY MEP DWG.
 - CLEAR HT BETWEEN CONCOURSE & PLATFORM IS PROVIDED AS PER MEP REQUIREMENT.
 - PD AREAS ON CONCOURSE & GROUND MARKED TENTATIVELY & SAME SHALL BE REVISED AS PER UPMRC REQUIREMENT.
 - ENTRY/EXIT LOCATION, ANCILLARY LOCATION, PD AREA ON GROUND SHOWN IN DISCUSSION WITH UPMRC.
 - EQUIPMENT DELIVERY ROUTE FOR MEP ROOMS & ANCILLARY AREAS SHALL BE AS PER MEP REQUIREMENT.
 - PASSENGER CAR DROP OFF BUS DROP OFF NO. OF PARKINGS FOR (2/4 WHEELER), BUS BAYS, PEDESTRIAN CROSSING, FOOT PATH, ROADS SHOWN IN THIS PLAN ARE TENTATIVE & SHALL BE FINALIZED IN CONJUNCTION WITH TRANSPORT INTEGRATION DRAWINGS.
 - ALL FINISHES ARE SUBJECTED TO UPMRC/GC APPROVAL.
 - DRAINAGE DETAIL SHALL BE REFERRED FROM MEP DETAIL DRAWINGS.
 - MEP ROOM EQUIPMENT LAYOUT, MEP CUTOUTS & LOCATION OF DEMOUNTABLE PANELS SHALL BE REFERRED FROM MEP DRAWINGS.
 - FILLING OVER ROOF MAY INCREASE OR DECREASE AS PER ACTUAL SITE CONDITION/UTILITIES. THIS MAY RESULT INTO CHANGE IN VERTICAL LEVELS OF STATIONS.
 - AVAILABILITY OF LAND FOR PROPOSED ENTRIES NEEDS TO BE CONFIRMED BY UPMRC.
 - LEVELS PROPOSED IN ENTIRE STATION BY KEEPING ROAD LEVEL OF 400 MM.
 - LENGTH OF ENTRY STAIRCASE / ESCALATOR MAY VARIES AS PER SPOT LEVEL AROUND ENTRY STRUCTURE.

LEGENDS :-

- ROAD
- FOOTPATH
- PROPOSED P.D.
- STATION BOX
- SUBWAY
- SHAFT ROUTING
- KERB LINE

DOOR SCHEDULE

DOOR NO	WIDTH (IN MM)	LINTEL HEIGHT FROM FFL (IN MM)	FIRE RATING	REMARKS
D5	1200	2100	--	--
D6	1000	2100	FS-90	--
D6a	1000	2100	--	--
RS1	3000	3000	--	ROLLING SHUTTER
RS2	3000	3000	--	ROLLING SHUTTER
RS3	2000	3000	--	ROLLING SHUTTER



SECTION AA
SCALE - 1:200

ANCILLARY BUILDING GROUND FLOOR						
S.NO	ROOM CODE	ROOM NAME	LENGTH	WIDTH	AREA sqm	REMARKS
1	U45	DG ROOM (Enclosed)			174.43	Irregular
2	U40	DG PANEL ROOM			29.73	Irregular
3		PROPOSED PROPERTY DEVELOPMENT 1			90	Irregular
4		PROPOSED PROPERTY DEVELOPMENT 2			50	Irregular
ANCILLARY BUILDING FIRST FLOOR						
S.NO	ROOM CODE	ROOM NAME	LENGTH	WIDTH	AREA sqm	REMARKS
1	U50	COOLING TOWER			113.425	Irregular
2	U49	DOSING PLANT ROOM			23.63	Irregular
2		FAN ROOM	3.7	7.5	27.75	Irregular
ANCILLARY BUILDING CONCOURSE						
S.NO	ROOM CODE	ROOM NAME	LENGTH	WIDTH	AREA sqm	REMARKS
1	U42	WATER TANK	6.5	17.45	113.425	Irregular
2	U43	PUMP ROOM			178.53	Irregular
ANCILLARY BUILDING PLATFORM						
S.NO	ROOM CODE	ROOM NAME	LENGTH	WIDTH	AREA sqm	REMARKS
1	U48	CHILLER PLANT ROOM			288.37	Irregular
UTILITY GALLERY SIZE 2.5MX1.8M						

TENDER DRAWING

NOTICE OF 'NO OBJECTIONS' FROM EMPLOYER

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GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE	SIGNATURE
CA/ARCH - GC			<input type="checkbox"/> NCC			DY.CA - UPMRCL
CE/STRU - GC			<input type="checkbox"/> NCWC			CE DESIGN - UPMRCL
CE/EM - GC			<input type="checkbox"/> RESUBMIT			DY.CE CIVIL - UPMRCL
						CPM-UPMRC

PROJECT TITLE

UTTAR PRADESH METRO RAIL CORPORATION LTD
(Formerly known as Lucknow Metro Rail Corporation Ltd.)
KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1

PREPARED: NAME, SIGNATURE, DRAWING TITLE

DRAWN BY: D. GUPTA, SIGNATURE, NAME

DESIGNED BY: M. PURWAR, SIGNATURE, NAME

CHECKED BY: N. CHATURVEDI, SIGNATURE, NAME

APPROVED BY: ASHSH. K., SIGNATURE, NAME

SCALE: AS SHOWN, DATE OF ISSUE: 15.05.2020, STAGE: TENDER DESIGN

DRG NO: KNPDD01-TDR-NMK-ARC-PLN-14257, REV: R1

UPMRC

AGAK CONSORTIUM
GENERAL CONSULTANT
E3-34, D3-34-37, LMRC - GC TOWER,
OPP. TO GCMTI MAGAR BUS DEPOT,
VIBHUTI KHAND, LUCKNOW - 226010.

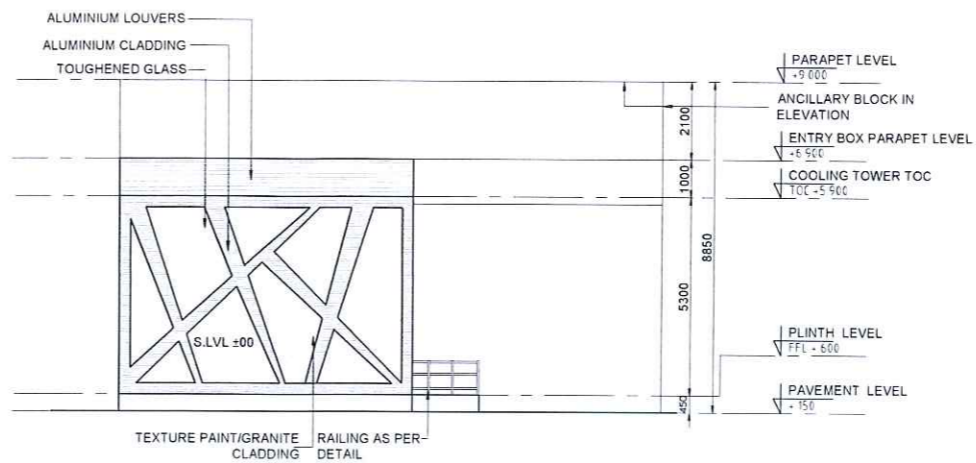


SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
VATIKA MINDSCAPES, TOWER-B, 12/3,
MATHURA ROAD, NH-2, SECTOR-27/D,
FARIDABAD, HARYANA-121013
PH: 0129 668 5600
SUBSIDIARY OF:
SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

REVISION LOG R1

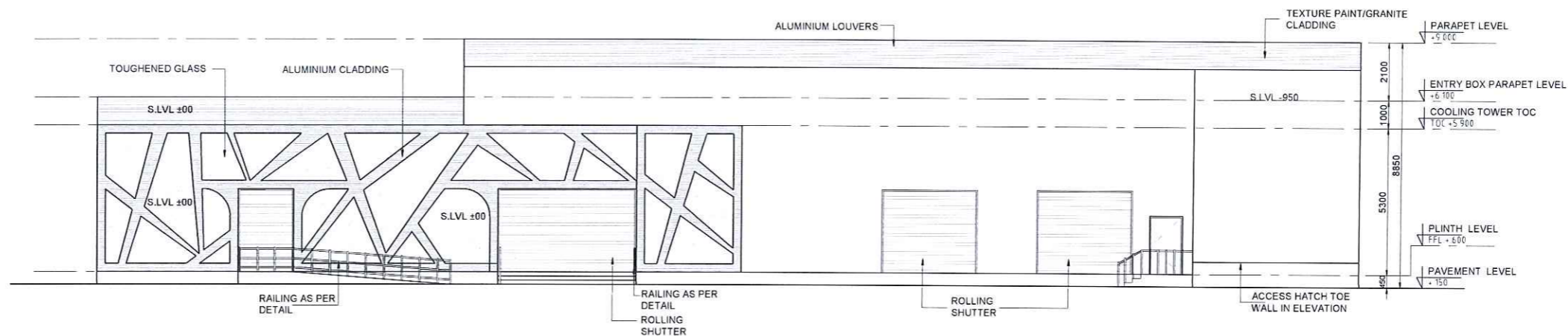
1. REVISED LAYOUT AS PER MEP REQUIREMENTS

REV.	PARTICULARS	DRN.	CHD.	VER.	DATE
R1	REVISED TOWER ELEVATION	D. GUPTA	M. PURWAR	N. CHATURVEDI	24.05.2020
R0	TENDER SUBMISSION	D. GUPTA	M. PURWAR	N. CHATURVEDI	15.05.2020



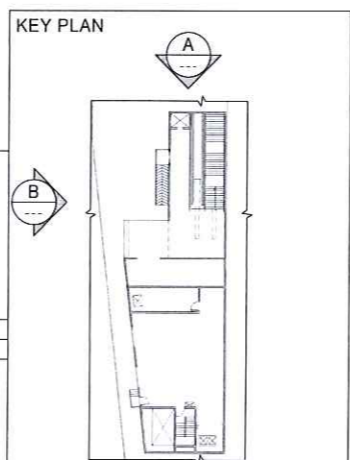
ELEVATION A

SCALE - 1:100



ELEVATION B

SCALE - 1:100



LEGEND	
1	TEXTURE PAINT GRANITE/CLADDING
2	ALUMINIUM LOUVER
3	ALUMINIUM CLADDING
4	TOUGHENED GLASS

REVISION LOG:R1

1. UPDATED AS /REVISED FLOOR PLAN.

ABBREVIATIONS :-
S.LVL - SIGHT LEVEL
TOC - TOP OF CONCRETE

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 9. ROAD LEVEL ASSUMED ±00.

REFERENCE DRAWINGS	
Drawing Number	Description



AGAK CONSORTIUM
GENERAL CONSULTANT
B3-3-4, D3-34-37, LMRC - GC TOWER
OPP. TO GOMTI NAGAR BUS DEPOT,
VIBHUTI KHAND, LUCKNOW - 226010.

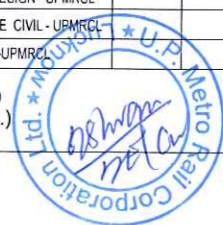
DETAIL DESIGN CONSULTANT



SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
VATIKA MINDSCAPES, TOWER-B, 12/3,
MATHURA ROAD, NH-2, SECTOR-27/D,
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PH: 0129 668 5600
SUBSIDIARY OF:
SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

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				CPM-UPMRC		

PROJECT TITLE						
UTTAR PRADESH METRO RAIL CORPORATION LTD (Formerly known as Lucknow Metro Rail Corporation Ltd.) KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1						
PREPARED	NAME	SIGNATURE	DRAWING TITLE	SCALE	DATE OF ISSUE	STAGE
			NAVEEN MARKET STATION	AS SHOWN	15.05.2020	TENDER DESIGN
DRAWN BY	MUZAMMIL		ENTRY & ANCILLARY ELEVATIONS			
DESIGNED BY	M PURWAR					
CHECKED BY	N. CHATURVEDI					
APPROVED BY	ASHISH K					
				DRG NO	KNPDD01-TDR-NMK-ARC-ELE-14258	

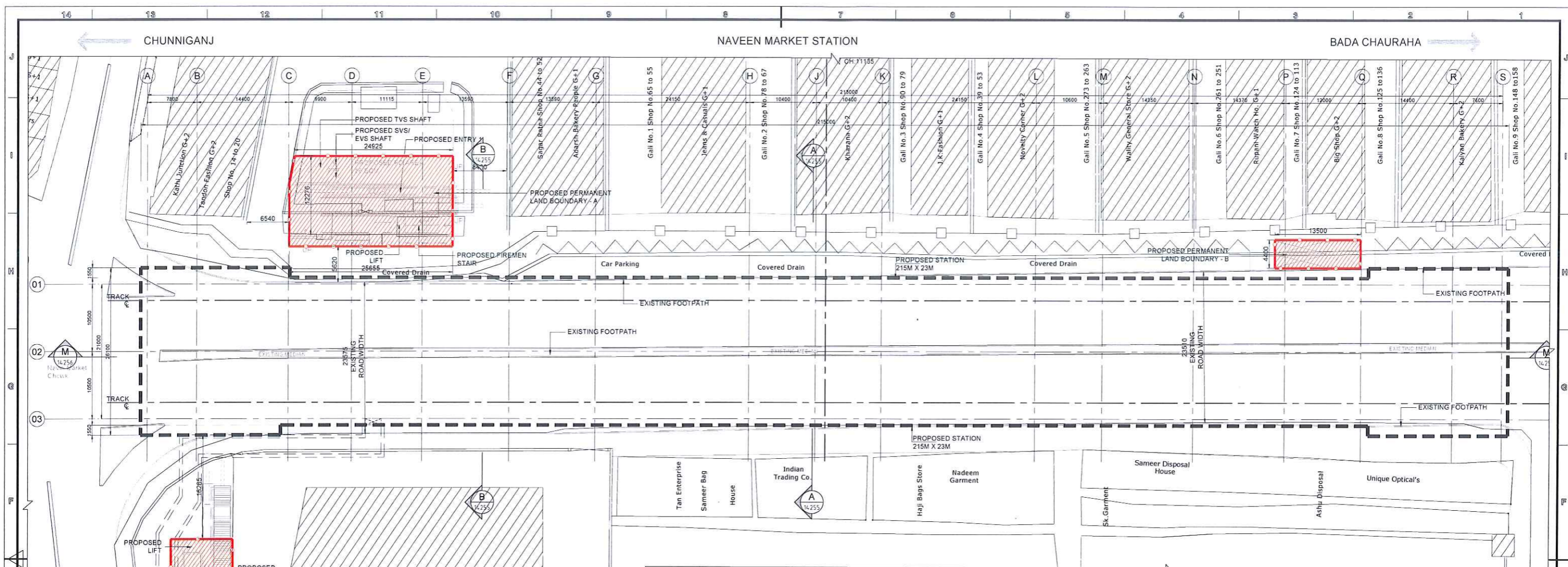


TENDER DRAWING

ARCHITECTURE

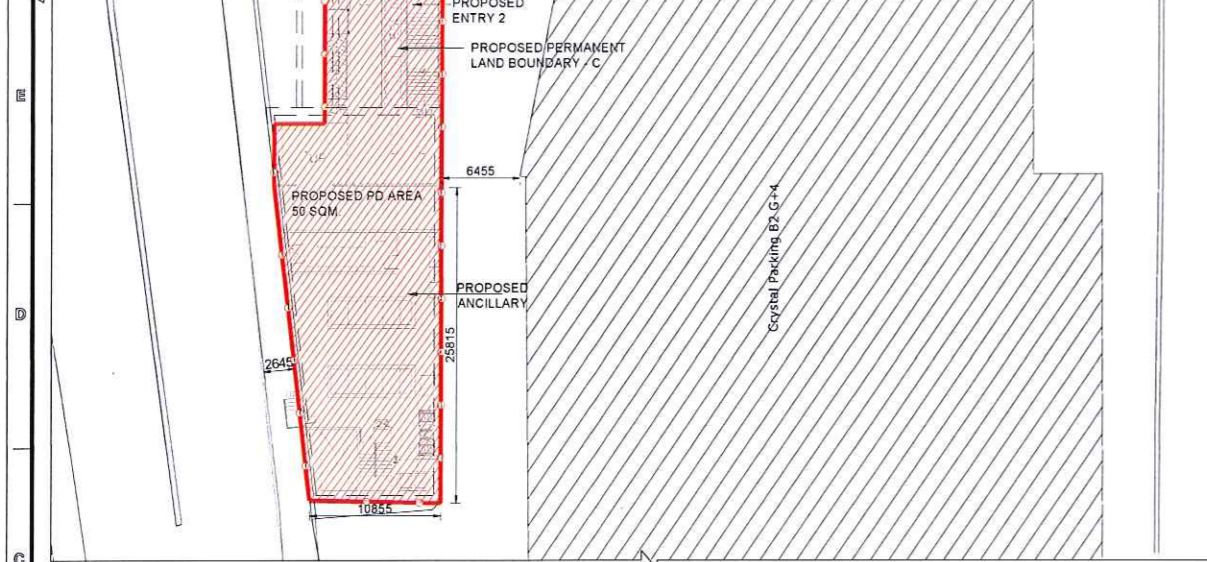
REV.	PARTICULARS	DRN.	CHD.	VER.	DATE
R1	REVISED TENDER SUBMISSION	MUZAMMIL	M PURWAR	N. CHATURVEDI	24.05.2020
R2	TENDER SUBMISSION	D. GUPTA	M PURWAR	D. SENGUPTA	15.05.2020

REV R1



INSERTION LEVEL PLAN

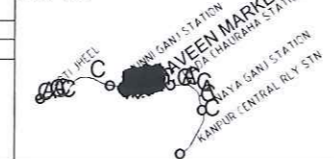
SCALE - 1:300



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 - THIS DRAWINGS HAVE BEEN DEVELOPED IN CONFORMITY TO DPR, SOD, NBC, UPMRC & OTHER LOCAL BODY REQUIREMENT.
 - THE STATION LOCATION SHOWN AS PER ALIGNMENT DRAWING RECEIVED FROM UPMRC DATED 22.06.2020.
 - ESCALATOR PIT, LIFT SHAFT & LIFT PIT SIZE ARE SHOWN AS PER THE ELEVATED STATION AND ARE SUBJECT TO VENDOR'S REQUIREMENT.
 - TRACK CENTRE TO PLATFORM EDGE DISTANCE & PLATFORM HEIGHT ARE PROVIDED AS PER FINAL SOD (REVISED ON 06.02.20).
 - STAIRCASE SIZE & THEIR NOS. SHOWN AS PER RIDERSHIP REQUIREMENT. REFERENCE RECEIVED WITH DPR.
 - ROOM SIZE, HEIGHTS DOOR SIZE AND CUTOFF DIMENSIONS BY RELEVANT DISCIPLINES OF ENGINEERING.
 - ROOM SIZES PROVIDED AS PER CONCERN DISCIPLINE REQUIREMENT. THIS MAY CHANGE AT THE TIME OF DETAIL DESIGN.
 - FLOOR FINISH THICKNESS OF CONCOURSE & PLATFORM SHOWN AS PER GC MAIL DATED 14.05.20.
 - CONCOURSE SHALL BE POINT OF SAFETY AS PER CLAUSE REF J-5.1.D. ECAVATION TIME PART-4 FIRE LIFE & SAFETY OF NBC 2016 VOL 1.
 - LOCATION OF FHC HOSE CABINET FIRE EXTINGUISHER & CUTOFF IS TENTATIVE AND SHALL BE REFERRED BY MEP DWG.
 - MINIMUM HORIZONTAL DISTANCE MAINTAINED FROM PLATFORM EDGE TO ANY STRUCTURE AS PER SOD.
 - STATION BOX SIZE PROPOSED AS PER DISCUSSION WITH UPMRC.
 - SYSTEM WIDE RELATED ROOM SIZES & FLOOR LEVELS MAY VARY & SHALL BE AS PER SYSTEM WIDE CONTRACTOR REQUIREMENT.
 - NO. OF AFC GATES, TOM COUNTERS, DFMD GATE SHOWN ARE TENTATIVE MAY BE CHANGE IN DETAIL DESIGN STAGE AS PER FINAL SYSTEM WIDE REQUIREMENT.
 - NO. OF AFC GATES MARKED AS PER EMERGENCY CONDITION CALCULATION I.E @ 50 P/MIN HOWEVER, AS PER DPR (REV. DEC 2017) AFC GATES NO MARKED IN NORMAL CONDITION I.E @ 35 P/MIN. PLANNING OF UNPAID & PAID AREA MAY REVISE AS PER AFC GATES REQUIREMENT MENTIONED IN DPR.
 - LOCATION, NO & SIZE OF EARTH MAT, CLEAN EARTH, EPR, LDB & MEP RELATED CUTOFF SHALL BE REFERRED BY MEP DWG.
 - CLEAR HT. BETWEEN CONCOURSE & PLATFORM IS PROVIDED AS PER MEP REQUIREMENT.
 - PD AREAS ON CONCOURSE & GROUND MARKED TENTATIVELY & SAME SHALL BE REVISED AS PER UPMRC REQUIREMENT.
 - ENTRY/EXIT LOCATION, ANCILLARY LOCATION, PD AREA ON GROUND SHOWN IN DISCUSSION WITH UPMRC.
 - EQUIPMENT DELIVERY ROUTE FOR MEP ROOMS & ANCILLARY AREAS SHALL BE AS PER MEP REQUIREMENT.
 - PASSENGER CAR DROP OFF, BUS DROP OFF, NO. OF PARKINGS FOR (2/4 WHEELER), BUS BAYS, PEDESTRIAN CROSSING, FOOT PATH, ROADS SHOWN IN THIS PLAN ARE TENTATIVE & SHALL BE FINALIZED IN CONJUNCTION WITH TRANSPORT INTEGRATION DRAWINGS.
 - ALL FINISHES ARE SUBJECT TO UPMRC/GC APPROVAL.
 - DRAINAGE DETAIL SHALL BE REFERRED FROM MEP DETAIL DRAWINGS.
 - MEP ROOM EQUIPMENT LAYOUT, MEP CUTOFFS & LOCATION OF DEMOUNTABLE PANELS SHALL BE REFERRED FROM MEP DRAWINGS.
 - FILLING OVER ROOF MAY INCREASE OR DECREASE AS PER ACTUAL SITE CONDITION/UTILITIES. THIS MAY RESULT INTO CHANGE IN VERTICAL LEVELS OF STATIONS.

NOTE:
1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH GROUND LEVEL PLAN (DRAWING NO KNPDD01-TDR-NMK-ARC-PLN-14251)

KEY MAP



PROPOSED PERMANENT LAND BOUNDARY	AREA (IN SQ.MT.)
A	359.29
B	56.40
C	531.24

LEGEND:
[Red Hatched Box] PROPOSED PERMANENT LAND BOUNDARY

ABBREVIATIONS :-
 LT - LIFT
 ESC - ESCALATOR
 ST - STAIRCASE
 PD - PROPERTY DEVELOPMENT

LEGEND

1	BLOCKWORK
2	CONCRETE WORK
3	GLASS WALL / WINDOW

REVISION LOG R1:
1. UPDATED AS PER REVISED GROUND PLAN.

REFERENCE DRAWINGS

Drawing Number	Description

REV.	PARTICULARS	DRN.	CHD.	VER.	DATE
R1	REVISED TEL/CEP & ELEVATION	D. GUPTA	M. FURWAR	N. CHATURVEDI	24.04.2022
R0	TENDER SUBMISSION	D. GUPTA	M. FURWAR	N. CHATURVEDI	12.02.2020



AGAK CONSORTIUM
GENERAL CONSULTANT
B3-3-4, D3-34-37, LMRC - GC TOWER,
OPP. TO GCMTI NAGAR BUS DEPOT,
VIBHUTI KHAND, LUCKNOW-226010.

DETAIL DESIGN CONSULTANT



SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
VATIKA MINDSCAPES, TOWER-B, 12/3,
MATHURA ROAD, NH-2, SECTOR-27/D,
FARIDABAD, HARYANA-121013
PH: 0129 668 5600
SUBSIDIARY OF:
SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

PREPARED
NAME: D. GUPTA
SIGNATURE: [Signature]

DRAWN BY
M. FURWAR
SIGNATURE: [Signature]

DESIGNED BY
N. CHATURVEDI
SIGNATURE: [Signature]

CHECKED BY
ASHISH K.
SIGNATURE: [Signature]

PROJECT TITLE
UTTAR PRADESH METRO RAIL CORPORATION LTD
(Formerly known as Lucknow Metro Rail Corporation Ltd.)
KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1

DRAWING TITLE
NAVEEN MARKET STATION
INSERTION LEVEL PLANS

SCALE
AS SHOWN

DATE OF ISSUE
15.05.2020

STAGE
TENDER DESIGN

DRG NO
KNPDD01-TDR-NMK-ARC-PLN-14259

NOTICE OF NO OBJECTION FROM EMPLOYER

NOTICE OF NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES HOWEVER THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAIL DESIGN CONSULTANT.

GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE	SIGNATURE
CA/MARCH - GC			<input type="checkbox"/> NOC	DY.CA- UPMRCL		
CE/STRU - GC			<input type="checkbox"/> NCWC	CE DESIGN - UPMRCL		
CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRCL		
				CPM-UPMRC		

PROJECT TITLE
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KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1

DRAWING TITLE
NAVEEN MARKET STATION
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AS SHOWN

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15.05.2020

STAGE
TENDER DESIGN

DRG NO
KNPDD01-TDR-NMK-ARC-PLN-14259

REV
R1



DRAWING LIST - BADA CHAURAHA STATION			
S.NO.	DRAWING NO.	DRAWING TITLE	REV. NO.
1	KNPDD01-TDR-BCH-ARC-LIS-14500	DRAWING LIST	R1
2	KNPDD01-TDR-BCH-ARC-PLN-14501	GROUND LEVEL PLAN	R1
3	KNPDD01-TDR-BCH-ARC-PLN-14502	CONCOURSE LEVEL PLAN	R1
4	KNPDD01-TDR-BCH-ARC-PLN-14503	PLATFORM LEVEL PLAN	R1
5	KNPDD01-TDR-BCH-ARC-PLN-14504	UNDERCROFT LEVEL PLAN	R1
6	KNPDD01-TDR-BCH-ARC-CRS-14505	CROSS SECTION	R1
7	KNPDD01-TDR-BCH-ARC-LGS-14506	LONGITUDINAL SECTION	R1
8	KNPDD01-TDR-BCH-ARC-PLN-14507	ANCILLARY BUILDING PLANS & SECTIONS	R1
9	KNPDD01-TDR-BCH-ARC-ELE-14508	ENTRY & ANCILLARY ELEVATIONS	R1
10	KNPDD01-TDR-BCH-ARC-PLN-14509	INSERTION LEVEL PLAN	R1

TENDER DRAWING

NOTICE OF 'NO OBJECTIONS' FROM EMPLOYER						
NOTICE OF NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES HOWEVER THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAIL DESIGN CONSULTANT.						
GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE	SIGNATURE
CA/ARCH - GC			<input type="checkbox"/> NOC	DY.CA- UPMRCL		
CE/STRU - GC			<input type="checkbox"/> NOWC	CE DESIGN - UPMRCL		
CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRCL		
				CPM-UPMRC		
PROJECT TITLE						
UTTAR PRADESH METRO RAIL CORPORATION LTD (Formerly known as Lucknow Metro Rail Corporation Ltd.)						
KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1						
PREPARED	NAME	SIGNATURE	DRAWING TITLE			
DRAWN BY	MCHABRA	<i>MChabra</i>	BADACHAURAHA STATION			
DESIGNED BY	M.PURWAR	<i>M.Purwar</i>	DRAWING LIST			
CHECKED BY	N.CHATURVEDI	<i>N.Chaturvedi</i>	SCALE	DATE OF ISSUE	STAGE	
APPROVED BY	ASHSHK.	<i>Ashshk</i>	AS SHOWN	15.05.2020	TENDER DESIGN	
			DRG NO.	KNPDD01-TDR-BCH-ARC-LIS-14500	REV	R1



* AVAILABILITY OF LAND FOR PROPOSED ENTRIES NEEDS TO BE CONFIRMED BY UPMRC.
* LEVELS PROPOSED BY ENTIRE STATION BY KEEPING ROAD LEVEL OF 450 MM.
* LENGTH OF ENTRY STAIRCASE / ESCALATOR MAY VARIES AS PER SPOT LEVEL AROUND ENTRY STRUCTURE

REFERENCE DRAWINGS	
Drawing Number	Description



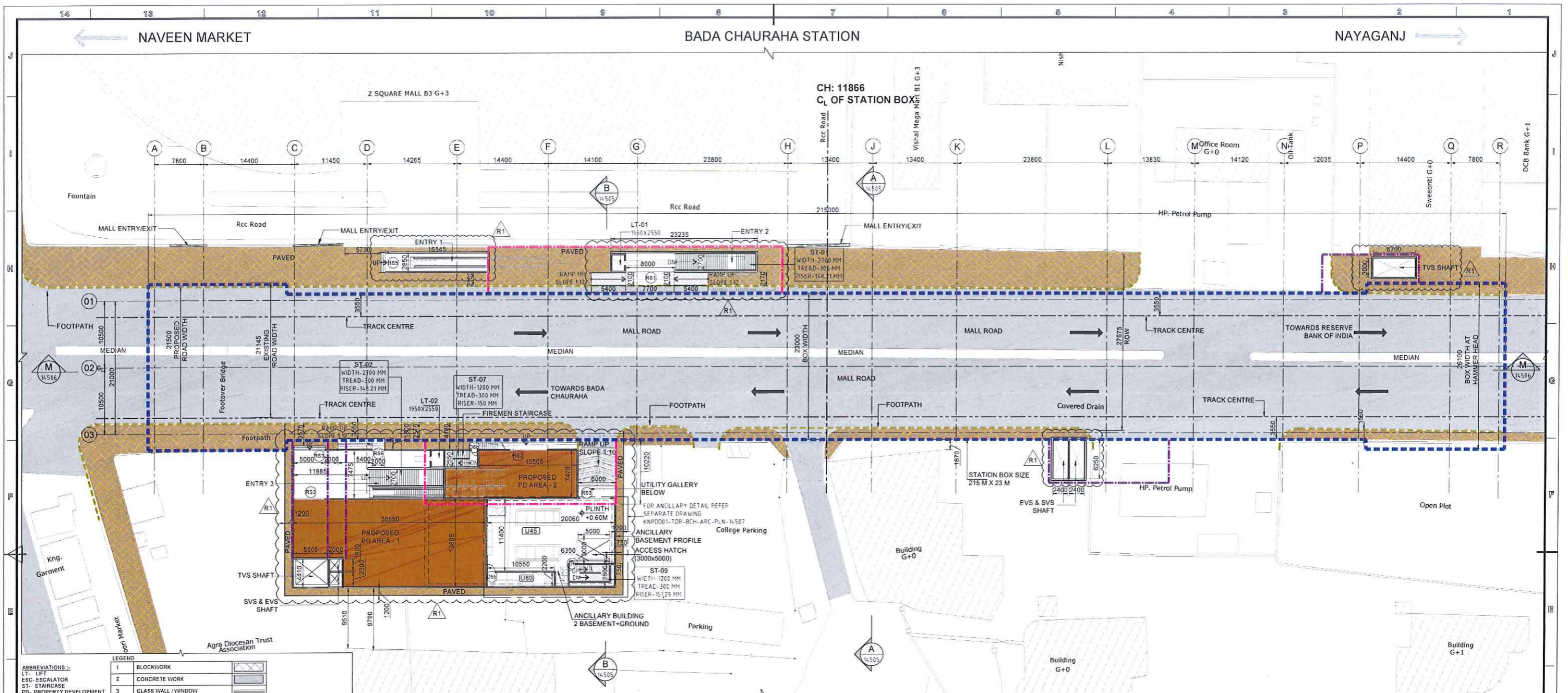
AGAK CONSORTIUM
GENERAL CONSULTANT
E33-4, D334-37, LMRC - GC TOWER,
OPP. TO GOVTI NAGAR BUS DEPOT,
VIBHUTI KHAND, LUCKNOW-226010.



DETAIL DESIGN CONSULTANT
SYSTRA
SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
VATIKA MINDSCAPES, TOWER-B, 12/3,
MATHURA ROAD, NH-2, SECTOR-27/D,
FARIDABAD, HARYANA-121013
PH: 0129 668 5600
SUBSIDIARY OF:
SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

REV.	PARTICULARS	DRN.	CHD.	VER.	DATE
R1	REVISED TENDER ELEVATIONS	M.CHABRA	M.PURWAR	N.CHATURVEDI	24.05.2020
R0	TENDER ELEVATIONS	N.CHATURVEDI	M.PURWAR	M.CHABRA	15.05.2020

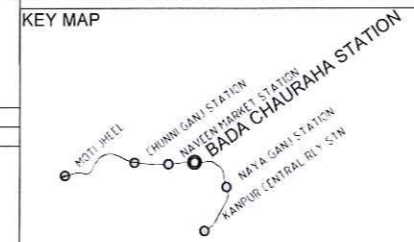
ARCHITECTURE



GROUND LEVEL PLAN

SCALE - 1:300

DOOR SCHEDULE				
DOOR NO.	WIDTH (IN MM)	LINTEL HEIGHT FROM FFL (IN MM)	FIRE RATING	REMARKS
D5b	1200	2100	-	-
D6	1000	2100	FS-80	-
D6b	1000	2100	-	-
RS1	7500	3000	-	ROLLING SHUTTER
RS2	6000	3000	-	ROLLING SHUTTER
RS3	5000	3000	-	ROLLING SHUTTER
RS4	3000	3000	-	ROLLING SHUTTER
RS5	2850	3000	-	ROLLING SHUTTER
RS6	2000	3000	-	ROLLING SHUTTER



ABBREVIATIONS :-

LT - LIFT	1	BLOCKWORK
ESC - ESCALATOR	2	CONCRETE WORK
ST - STAIRCASE	3	GLASS WALL / WINDOW
PD - PROPERTY DEVELOPMENT		

- NOTES :-**
1. ALL DIMENSIONS ARE IN MM, UNLESS NOTED OTHERWISE
 2. ALL DIMENSIONS ARE TO BE READ AS MENTIONED ON THE DRAWINGS & NOT TO BE MEASURED
 3. THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT STRUCTURAL, MEP, SYSTEM, VENDOR, FIRE FIGHTING & TRAFFIC MANAGEMENT DRAWINGS
 4. ANY DISCREPANCY THIS ARRIVED MUST BE BROUGHT TO THE NOTICE OF THE CONSULTANT
 5. STRUCTURE SYSTEM SHOWN IS INDICATIVE. REFER STRUCTURE DRAWING FOR ALL STRUCTURE MEMBER SIZES TO BE DETAIL BY CONTRACTOR AT LATER STAGE
 6. THIS DRAWINGS HAVE BEEN DEVELOPED IN CONFORMITY TO DPR, SOD, NBC, UPMRCL & OTHER LOCAL BODY REQUIREMENT.
 7. THE STATION LOCATION SHOWN AS PER ALIGNMENT DRAWING RECEIVED FROM UPMRCL DATED 22.06.2020
 8. ESCALATOR PIT, LIFT SHAFT & LIFT PIT SIZE ARE SHOWN AS PER THE ELEVATED STATION AND ARE SUBJECT TO VENDOR'S REQUIREMENT
 9. TRACK CENTRE TO PLATFORM EDGE DISTANCE & PLATFORM HEIGHT ARE PROVIDED AS PER FINAL SOD (REVISED ON 06.02.20)
 10. STAIRCASE SIZE & THEIR NOS. SHOWN AS PER RIDERSHIP REQUIREMENT. REFERENCE RECEIVED WITH DPR
 11. ROOM SIZE, HEIGHTS, DOOR SIZE AND CUTOUT DIMENSIONS BY RELEVANT DISCIPLINES OF ENGINEERING
 12. ROOM SIZES PROVIDED AS PER CONCERN DISCIPLINE REQUIREMENT. THIS MAY CHANGE AT THE TIME OF DETAIL DESIGN
 13. FLOOR FINISH THICKNESS OF CONCOURSE & PLATFORM SHOWN AS PER GC MAIL DATED 14.05.20
 14. CONCOURSE SHALL BE POINT OF SAFETY AS PER CLAUSE REF. J-5.1 D. EVACUATION TIME PART-4 FIRE LIFE & SAFETY OF NBC 2016 VOL 1
 15. LOCATION OF FHG HOSE CABINET, FIRE EXTINGUISHER & CUTOUT IS TENTATIVE AND SHALL BE REFERRED BY MEP DWG
 16. MINIMUM HORIZONTAL DISTANCE MAINTAINED FROM PLATFORM EDGE TO ANY STRUCTURE AS PER SOD
 17. STATION BOX SIZE PROPOSED AS PER DISCUSSION WITH UPMRCL
 18. SYSTEM WIDE RELATED ROOM SIZES & FLOOR LEVELS MAY VARY & SHALL BE AS PER SYSTEM WIDE CONTRACTOR REQUIREMENT
 19. NO OF AFC GATES, TOM COUNTERS, DMFD GATE SHOWN ARE TENTATIVE MAY BE CHANGE IN DETAIL DESIGN STAGE AS PER FINAL SYSTEM WIDE REQUIREMENT
 20. NO OF AFC GATES MARKED AS PER EMERGENCY CONDITION CALCULATION I.E @ 30 P/MIN. HOWEVER, AS PER DPR (REV-DEC 2017) AFC GATES NO. MARKED IN NORMAL CONDITION I.E @ 35 P/MIN. PLANNING OF UNPAID & PAID AREA MAY REVISE AS PER AFC GATES REQUIREMENT MENTIONED IN DPR
 21. LOCATION, NO & SIZE OF EARTH MAT, CLEAN EARTH, EPR, LDB & MEP RELATED CUTOUT SHALL BE REFERRED BY MEP DWG
 22. CLEAR HT. BETWEEN CONCOURSE & PLATFORM IS PROVIDED AS PER MEP REQUIREMENT
 23. PD AREAS ON CONCOURSE & GROUND MARKED TENTATIVELY & SAME SHALL BE REVISED AS PER UPMRCL REQUIREMENT
 24. ENTRY/EXIT LOCATION, ANCILLARY LOCATION, PD AREA ON GROUND SHOWN IN DISCUSSION WITH UPMRCL
 25. EQUIPMENT DELIVERY ROUTE FOR MEP ROOMS & ANCILLARY AREAS SHALL BE AS PER MEP REQUIREMENT
 26. PASSENGER CAR DROP OFF, BUS DROP OFF NO. OF PARKINGS FOR (2/4 WHEELER), BUS BAYS, PEDESTRIAN CROSSING, FOOT PATH, ROADS SHOWN IN THIS PLAN ARE TENTATIVE & SHALL BE FINALIZED IN CONJUNCTION WITH TRANSPORT INTEGRATION DRAWINGS
 27. ALL FINISHES ARE SUBJECT TO UPMRCL/GC APPROVAL
 28. DRAINAGE DETAIL SHALL BE REFERRED FROM MEP DETAIL DRAWINGS
 29. MEP ROOM EQUIPMENT LAYOUT, MEP CUTOUTS & LOCATION OF DEMOUNTABLE PANELS SHALL BE REFERRED FROM MEP DRAWINGS
 30. FILLING OVER ROOF MAY INCREASE OR DECREASE AS PER ACTUAL SITE CONDITION/UTILITIES. THIS MAY RESULT INTO CHANGE IN VERTICAL LEVELS OF STATIONS

REVISIONS

REV.	NO.	PARTICULARS	DRN.	CHD.	VER.	DATE
	P1	REVISED TEL/CEP ELEVATION	M.CHABRA	M.PURWAR	L.CHATURVEDI	24.08.2020
	REV	TEL/CEP ELEVATION	K.TARCOY	M.PURWAR	L.CHATURVEDI	15.02.2022

- REVISION LOG R1 :**
1. ENTRY - 1 WALLS ALIGNED WITH ABOVE GROUND ELEMENTS OF ENTRY - 2.
 2. ENTRY - 2 STAIRCASE AND LIFT ORGANIZED INTO SINGLE CANOPY.
 3. ENTRY - 3 STAIRCASE, ESCALATOR AND LIFT ORGANIZED INTO SINGLE CANOPY.
 4. ANCILLARY BUILDING POSITION, ACCESS & LAYOUT REVISED.
 5. LOCATION AND SIZE OF SVS, EVS & TVS SHAFTS REVISED.
 6. DOOR SCHEDULE REVISED.

NOTICE OF 'NO OBJECTIONS' FROM EMPLOYER

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GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE	SIGNATURE
CA/ARCH - GC			<input type="checkbox"/> NCC	DY.CA-UPMRC		
CE/STRU - GC			<input type="checkbox"/> NCWC	CE DESIGN - UPMRC		
CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRC		
				CPM-UPMRC		

PROJECT TITLE
UTTAR PRADESH METRO RAIL CORPORATION LTD
(Formerly known as Lucknow Metro Rail Corporation Ltd.)
KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1

DRAWING TITLE
BADA CHAURAHA STATION
GROUND LEVEL PLAN

LEGEND :

- ROAD
- FOOTPATH
- FUTURE P.D.
- STATION BOX
- SUBWAY
- SHAFT ROUTING
- KERB LINE

PREPARED NAME: _____ SIGNATURE: _____

DRAWN BY M.CHABRA

DESIGNED BY M.PURWAR

CHECKED BY N.CHATURVEDI

APPROVED BY ASHEKH.

SCALE AS SHOWN

DATE OF ISSUE 15.05.2020

STAGE TENDER DESIGN

DRG NO. KNPDD01-TDR-BCH-ARC-PLN-14501

REV R1

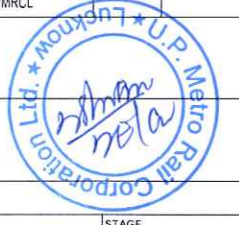
AGAK CONSORTIUM
GENERAL CONSULTANT
B3/3-4, D334-37, LMRC - GC TOWER,
OPP. TO GOMTI NAGAR BUS DEPOT,
VIEHTU KHAND, LUCKNOW-226010.

UPMRC



DETAIL DESIGN CONSULTANT

SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
VATIKA MINDSCAPES, TOWER-B, 12/3,
MATHURA ROAD, NH-2, SECTOR-27/D,
FARIDABAD, HARYANA-121013
PH: 0129 668 5600
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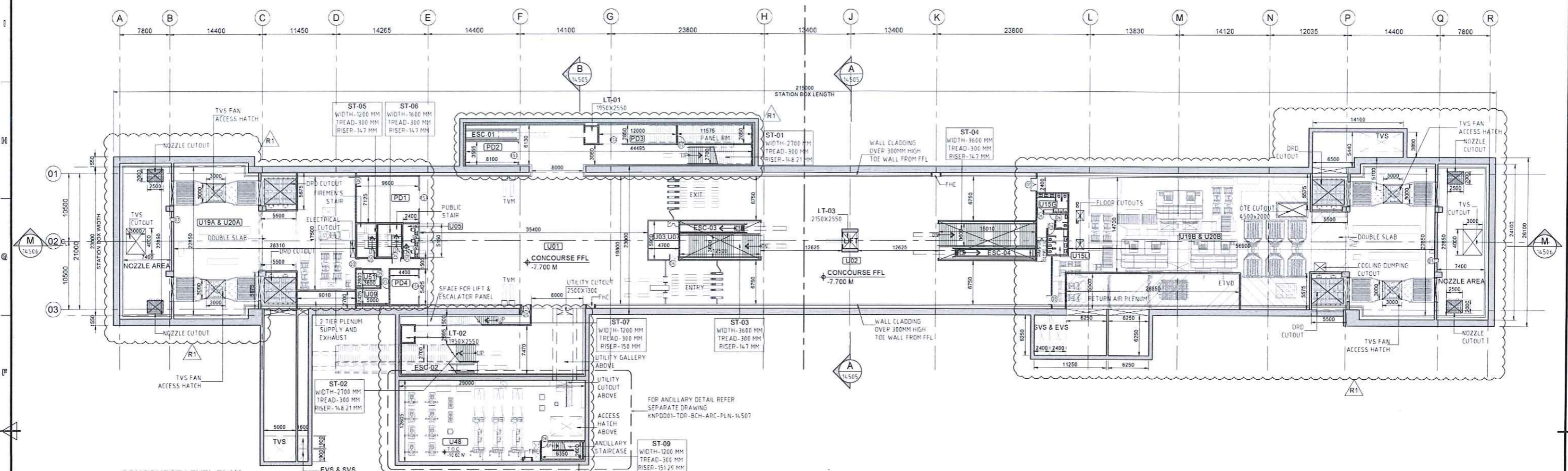


NAVEEN MARKET

BADA CHAURAHA STATION

NAYAGANJ

CH: 11866
CL OF STATION BOX



CONCOURSE LEVEL PLAN
SCALE: 1:300

ABBREVIATIONS:
 LT- LIFT
 ESC- ESCALATOR
 ST- STAIRCASE
 PD- PROPERTY DEVELOPMENT

LEGEND

1	BLOCKWORK
2	CONCRETE WORK
3	GLASS WALL / WINDOW

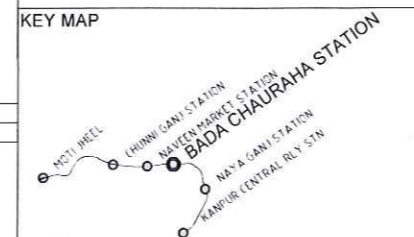
- NOTES:**
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 - THIS DRAWINGS HAVE BEEN DEVELOPED IN CONFORMITY TO DPR, SOD, NBC, UPMRC & OTHER LOCAL BODY REQUIREMENT.
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 - ESCALATOR PIT, LIFT SHAFT & LIFT PIT SIZE ARE SHOWN AS PER THE ELEVATED STATION AND ARE SUBJECT TO VENDOR'S REQUIREMENT.
 - TRACK CENTRE TO PLATFORM EDGE DISTANCE & PLATFORM HEIGHT ARE PROVIDED AS PER FINAL SOD (REVISED ON 06.02.20).
 - STAIRCASE SIZE & THEIR NOS. SHOWN AS PER RIDERSHIP REQUIREMENT. REFERENCE RECEIVED WITH DPR.
 - ROOM SIZE, HEIGHTS, DOOR SIZE AND CUTOFF DIMENSIONS BY RELEVANT DISCIPLINES OF ENGINEERING.
 - FLOOR FINISH THICKNESS OF CONCOURSE & PLATFORM SHOWN AS PER GC MAIL DATED 14.05.20.
 - CONCOURSE SHALL BE POINT OF SAFETY AS PER CLAUSE REF J-5.1. D. EVACUATION TIME, PART-4 FIRE LIFE & SAFETY OF NBC 2016 VOL 1.
 - LOCATION OF FHC HOSE CABINET, FIRE EXTINGUISHER & CUTOFF IS TENTATIVE AND SHALL BE REFERRED BY MEP DWG.
 - MINIMUM HORIZONTAL DISTANCE MAINTAINED FROM PLATFORM EDGE TO ANY STRUCTURE AS PER SOD.
 - STATION BOX SIZE PROPOSED AS PER DISCUSSION WITH UPMRC.
 - SYSTEM WIDE RELATED ROOM SIZES & FLOOR LEVELS MAY VARY & SHALL BE AS PER SYSTEM WIDE CONTRACTOR REQUIREMENT.
 - NO OF AFC GATES, TOM COUNTERS DFMD GATE SHOWN ARE TENTATIVE MAY BE CHANGE IN DETAIL DESIGN STAGE AS PER FINAL SYSTEM WIDE REQUIREMENT.
 - NO OF AFC GATES MARKED AS PER EMERGENCY CONDITION CALCULATION I.E. @ 50 P/MIN. HOWEVER, AS PER DPR (REV-DEC 2017) AFC GATES NO. MARKED IN NORMAL CONDITION I.E. @ 35 P/MIN. PLANNING OF UNPAID & PAID AREA MAY REVISE AS PER AFC GATES REQUIREMENT MENTIONED IN DPR.
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 - PD AREAS ON CONCOURSE & GROUND MARKED TENTATIVELY & SAME SHALL BE REVISED AS PER UPMRC REQUIREMENT.
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 - FILLING OVER ROOF MAY INCREASE OR DECREASE AS PER ACTUAL SITE CONDITION UTILITIES. THIS MAY RESULT INTO CHANGE IN VERTICAL LEVELS OF STATIONS.
 - AVAILABILITY OF LAND FOR PROPOSED ENTRIES NEEDS TO BE CONFIRMED BY UPMRC.
 - LEVELS PROPOSED IN ENTIRE STATION BY KEEPING ROAD LEVEL OF 400 MM.
 - LENGTH OF ENTRY STAIRCASE / ESCALATOR MAY VARIES AS PER SPOT LEVEL AROUND ENTRY STRUCTURE.

CONCOURSE

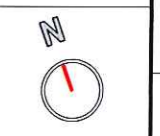
S.NO	ROOM CODE	ROOM NAME	LENGTH	WIDTH	AREA sqm
1		NOZZEL-1 (LEFT HAND SIDE)	7.4	22.85	169.09
2		NOZZEL-2 (RIGHT HAND SIDE)	7.4	22.85	169.09
3	U19A/U20A	ECS/TVS FAN ROOM			594.12
4	U05	TOM	2.4	5.15	12.36
5	U03 & U07	SCR & EFO	4.7	5.9	27.73
6	U15	TOILET			50
7	U19B/U20B	ECS/TVS FAN ROOM			1191.11
8	U01	UNPAID AREA CONCOURSE			772.23
9	U02	PAID AREA CONCOURSE			894
10	U09	SECURITY ROOM	5	2.42	12.10
11	U51	EMERGENCY EQUIPMENT ROOM	3.6	2.8	10.08
12	PD1	PROPERTY DEVELOPMENT	9.6	7.12	68.35
13	PD2	PROPERTY DEVELOPMENT	8.1	3.55	28.76
14	PD3	PROPERTY DEVELOPMENT	12	2.85	34.20
15	PD4	PROPERTY DEVELOPMENT	4.4	5.42	23.85

DOOR SCHEDULE

DOOR NO	WIDTH (IN MM)	LINTEL HEIGHT FROM FFL (IN MM)	FIRE RATING	REMARKS
D1	2000	2500	FS-90	BOH AREA
D2	1500	2500	FS-180	BOH AREA
D3	1500	2500	FS-90	BOH AREA
D4	1500	2100	FS-90	--
D5	1200	2100	FS-90	--
D5a	1200	2100	FS-180	BOH AREA
D6	1000	2100	FS-90	--
D7	750	2100	FS-90	BOH AREA
RS4	3000	3000	--	ROLLING SHUTTER



- REVISION LOG R1:**
- ARRANGEMENT OF TECHNICAL ROOMS & PD REVISED.
 - STATION ENTRANCE OPENINGS INCREASED TO 8 METERS.
 - B.O.H. AREA ON BOTH THE SIDES REVISED.
 - TOILET BLOCK LOCATION REVISED.
 - LOCATION AND SIZE OF SVS, EVS & TVS SHAFTS REVISED.
 - WIDTH OF BOTH THE SUBWAYS INCREASED.
 - UTILITY GALLERY SIZE REVISED.
 - PANEL ROOM ADDED BESIDES PD3.
 - DOOR SCHEDULE REVISED WITH FIRE RATING INDICATED.



TENDER DRAWING

NOTICE OF 'NO OBJECTIONS' FROM EMPLOYER

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GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE	SIGNATURE
CA/ARCH - GC			<input type="checkbox"/> NOC	DY.CA - UPMRCL		
CE/STRU - GC			<input type="checkbox"/> NOWC	CE DESIGN - UPMRCL		
CE/EAM - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRCL		
				CPM-UPMRC		

PROJECT TITLE
UTTAR PRADESH METRO RAIL CORPORATION LTD
 (Formerly known as Lucknow Metro Rail Corporation Ltd.)
 KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1

PREPARED	NAME	SIGNATURE	DRAWING TITLE
DRAWN BY	M.CHABRA	<i>Mehak</i>	BADA CHAURAHA STATION
DESIGNED BY	M.PURWAR	<i>Apurva</i>	CONCOURSE LEVEL PLAN
CHECKED BY	NCHATURVEDI	<i>Nishant</i>	SCALE AS SHOWN
APPROVED BY	ASHISH K.	<i>Ashish</i>	DATE OF ISSUE 15.05.2020
			STAGE TENDER DESIGN
			DRG NO KNPDD01-TDR-ECH-ARC-PLN-14502
			REV R1



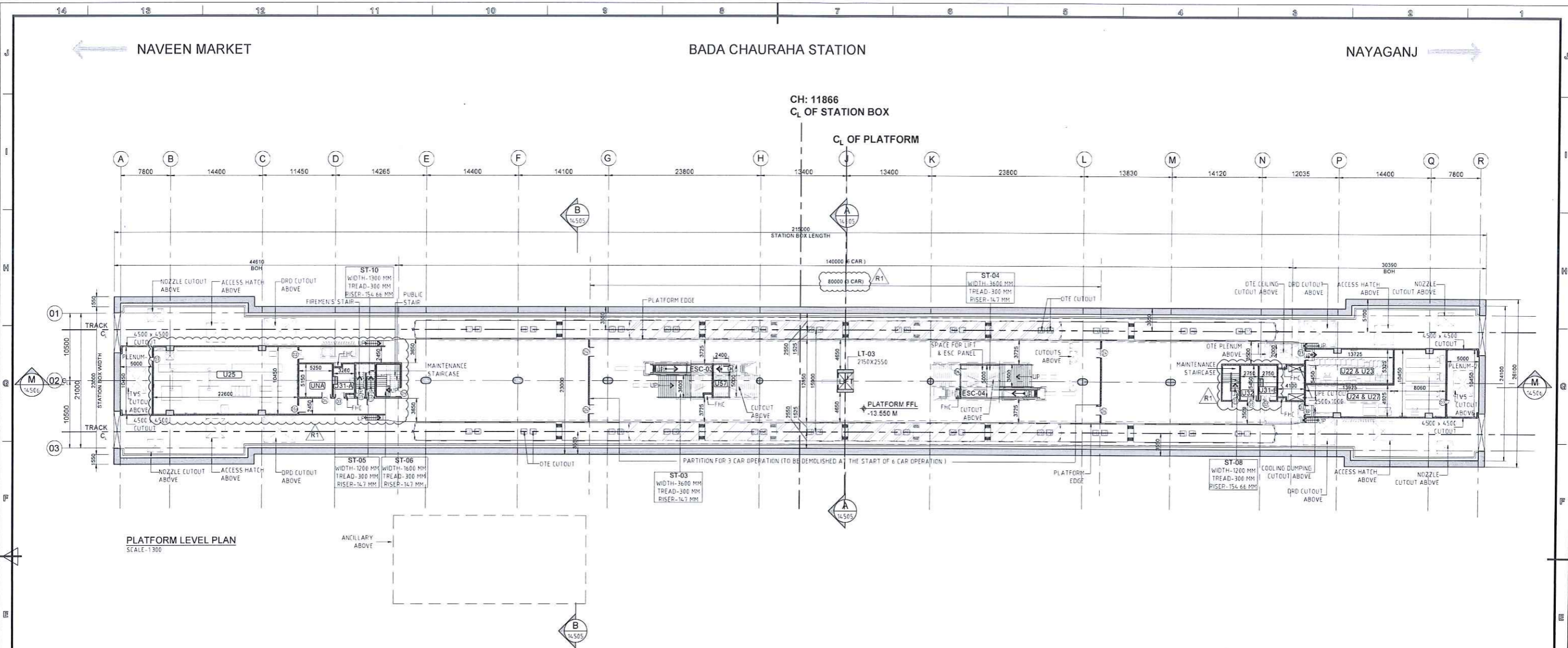
AGAK CONSORTIUM
 GENERAL CONSULTANT
 B3/3-4, D3/34-37, UMR - GC TOWER,
 C/PF, TO GOMTI NAGAR BUS DEPOT,
 VIBHUTI KHAND, LUCKNOW-226010.



SYSTRA
 DETAIL DESIGN CONSULTANT
 SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
 VATIKA MINDSCAPES, TOWER-B, 12/3,
 MATHURA ROAD, NH-2, SECTOR-27/D,
 FARIDABAD, HARYANA-121013
 PH: 0129 668 5600
 SUBSIDIARY OF:
 SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009



ARCHITECTURE



PLATFORM LEVEL PLAN
SCALE: 1:300

LEGEND

1	BLOCKWORK	
2	CONCRETE WORK	
3	GLASS WALL / WINDOW	

- NOTES:**
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 - THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT STRUCTURAL, MEP, SYSTEM, VENDOR, FIRE FIGHTING & TRAFFIC MANAGEMENT DRAWINGS.
 - ANY DISCREPANCY THUS ARRIVED MUST BE BROUGHT TO THE NOTICE OF THE CONSULTANT.
 - STRUCTURE SYSTEM SHOWN IS INDICATIVE. REFER STRUCTURE DRAWING FOR ALL STRUCTURE MEMBER SIZES TO BE DETAIL BY CONTRACTOR AT LATER STAGE.
 - THIS DRAWINGS HAVE BEEN DEVELOPED IN CONFORMITY TO DPR, SOD, NBC, UPMRC & OTHER LOCAL BODY REQUIREMENT.
 - THE STATION LOCATION SHOWN AS PER ALIGNMENT DRAWING RECEIVED FROM UPMRC DATED 22.06.2020.
 - ESCALATOR PIT, LIFT SHAFT & LIFT PIT SIZE ARE SHOWN AS PER THE ELEVATED STATION AND ARE SUBJECT TO VENDOR'S REQUIREMENT.
 - TRACK CENTRE TO PLATFORM EDGE DISTANCE & PLATFORM HEIGHT ARE PROVIDED AS PER FINAL SOD (REVISED ON 06.02.20).
 - STAIRCASE SIZE & THEIR NOS. SHOWN AS PER RIDERSHIP REQUIREMENT. REFERENCE RECEIVED WITH DPR.
 - ROOM SIZE, HEIGHTS DOOR/SIZE AND CUTOUT DIMENSIONS BY RELEVANT DISCIPLINES OF ENGINEERING.
 - ROOM SIZES PROVIDED AS PER CONCERN DISCIPLINE REQUIREMENT. THIS MAY CHANGE AT THE TIME OF DETAIL DESIGN.
 - FLOOR FINISH THICKNESS OF CONCOURSE & PLATFORM SHOWN AS PER GC MAIL DATED 14.05.20.
 - PD AREAS ON CONCOURSE & GROUND MARKED TENTATIVELY & SAME SHALL BE REVISED AS PER UPMRC REQUIREMENT.
 - LOCATION OF FHC HOSE CABINET, FIRE EXTINGUISHER & CUTOUT IS TENTATIVE AND SHALL BE REFERRED BY MEP DWG.
 - MINIMUM HORIZONTAL DISTANCE MAINTAINED FROM PLATFORM EDGE TO ANY STRUCTURE AS PER SOD.
 - STATION BOX SIZE PROPOSED AS PER DISCUSSION WITH UPMRC.
 - SYSTEM WIDE RELATED ROOM SIZES & FLOOR LEVELS MAY VARY & SHALL BE AS PER SYSTEM WIDE CONTRACTOR REQUIREMENT.
 - NO. OF AFC GATES, TOM COUNTERS, DMG GATE SHOWN ARE TENTATIVE MAY BE CHANGE IN DETAIL DESIGN STAGE AS PER FINAL SYSTEM WIDE REQUIREMENT.
 - NO. OF AFC GATES MARKED AS PER EMERGENCY CONDITION CALCULATION I.E. @ 50 P/MIN. HOWEVER, AS PER DPR (REV. DEC 2017) AFC GATES NO. MARKED IN NORMAL CONDITION I.E. @ 35 P/MIN. PLANNING OF UNPAID & PAID AREA MAY REVISE AS PER AFC GATES REQUIREMENT MENTIONED IN DPR.
 - LOCATION, NO. & SIZE OF EARTH MAT, CLEAN EARTH, EPR, LDB & MEP RELATED CUTOUT SHALL BE REFERRED BY MEP DWG.
 - CLEAR HT. BETWEEN CONCOURSE & PLATFORM IS PROVIDED AS PER MEP REQUIREMENT.
 - PD AREAS ON CONCOURSE & GROUND MARKED TENTATIVELY & SAME SHALL BE REVISED AS PER UPMRC REQUIREMENT.
 - ENTRY/EXIT LOCATION, ANCILLARY LOCATION, PD AREA ON GROUND SHOWN IN DISCUSSION WITH UPMRC.
 - EQUIPMENT DELIVERY ROUTE FOR MEP ROOMS & ANCILLARY AREAS SHALL BE AS PER MEP REQUIREMENT.
 - PASSENGER CAR DROP OFF, BUS DROP OFF, NO. OF PARKINGS FOR (24 WHEELER), BUS BAYS, PEDESTRIAN CROSSING, FOOT PATH, ROADS SHOWN IN THIS PLAN ARE TENTATIVE & SHALL BE FINALIZED IN CONJUNCTION WITH TRANSPORT INTEGRATION APPROVAL.
 - ALL FINISHES ARE SUBJECT TO UPMRC APPROVAL.
 - DRAINAGE DETAIL SHALL BE REFERRED FROM MEP DETAIL DRAWINGS.
 - MEP ROOM EQUIPMENT LAYOUT, MEP CUTOUTS & LOCATION OF DEMOUNTABLE PANELS SHALL BE REFERRED FROM MEP DRAWINGS.
 - FILLING OVER ROOF MAY INCREASE OR DECREASE AS PER ACTUAL SITE CONDITIONALITIES. THIS MAY RESULT INTO CHANGE IN VERTICAL LEVELS OF STATIONS.

S.NO	ROOM CODE	ROOM NAME	LENGTH	WIDTH	AREA sqm
1	U21	PLATFORM PUBLIC AREA			1607.5
2		TVS PLENUM -1	5	10.45	52.25
3	U25	ASS	22.6	10.45	236.17
4	U31-A	SEEPAGE ROOM-1	3.26	5.15	16.789
5	UNA	SPARE ROOM	5.25	5.15	27.0
6	U32	SEEWAGE	2.75	5.45	15.0
7	U31-B	SEEPAGE ROOM-2	2.75	5.45	15.0
8	U22&U23	SER & TER COMBINED	13.72	5.32	73.0
9	U27&U24	UPS BATTERY ROOM			152.82
10		TVS PLENUM -2	5	10.45	52.25
11	U57	PLATFORM SUPERVISOR BOOTH	2.4	5	12

DOOR NO	WIDTH (IN MM)	LINTEL HEIGHT FROM FFL (IN MM)	FIRE RATING	REMARKS
D1	2000	2500	FS-90	BOH AREA
D2	1500	2500	FS-180	BOH AREA
D3	1500	2500	FS-90	BOH AREA
D4	1500	2100	FS-90	--
D5	1200	2100	FS-90	--
D5a	1200	2100	FS-180	BOH AREA
D6	1000	2100	FS-90	--
D7	750	2100	FS-90	BOH AREA

- REVISION LOG R1:**
- BUFFER SPACE FOR 3 CAR TRAIN INCREASED TO 80 METERS
 - ARRANGEMENT & SIZE OF TECHNICAL ROOMS & STAIRCASE REVISED IN BOTH THE SIDES
 - CDMA & GSM ROOM REMOVED, UNA PROVIDED.
 - DOOR SCHEDULE REVISED WITH FIRE RATING INDICATED.

KEY MAP



REV.	DATE	BY	CHKD.	VER.	DATE
R1	15.05.2020	M. CHABRA	M. PURIAR	N. CHATURVEDI	15.05.2020
R2	15.05.2020	N. CHATURVEDI	M. PURIAR	N. CHATURVEDI	15.05.2020

Drawing Number	Description



AGAK CONSORTIUM
GENERAL CONSULTANT
B33-4, D334-37, LMRC - GC TOWER,
OPP. TO GOMTI NAGAR BUS DEPOT,
VIBHUTI KHAND, LUCKNOW - 226010.



DETAIL DESIGN CONSULTANT
SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
VATIKA MINDSCAPES, TOWER-B, 12/3,
MATHURA ROAD, NH-2, SECTOR-27/D,
FARIDABAD, HARYANA-121013
PH: 0129 668 5600
SUBSIDIARY OF:
SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

PREPARED BY: M. CHABRA
DRAWN BY: M. PURIAR
DESIGNED BY: M. PURIAR
CHECKED BY: N. CHATURVEDI
APPROVED BY: ASHESH K.

NAME: M. CHABRA
SIGNATURE: [Signature]
NAME: M. PURIAR
SIGNATURE: [Signature]
NAME: N. CHATURVEDI
SIGNATURE: [Signature]
NAME: ASHESH K.
SIGNATURE: [Signature]

GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE	SIGNATURE
CA/ARCH - GC			<input type="checkbox"/> NOC	DY.CA-UPMRC		
CE/STRU - GC			<input type="checkbox"/> NOWC	CE DESIGN - UPMRC		
CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRC		
				CPM-UPMRC		

PROJECT TITLE: **UTTAR PRADESH METRO RAIL CORPORATION LTD**
(Formerly known as Lucknow Metro Rail Corporation Ltd.)
KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1

DRAWING TITLE: **BADA CHAURAHA STATION PLATFORM LEVEL PLAN**

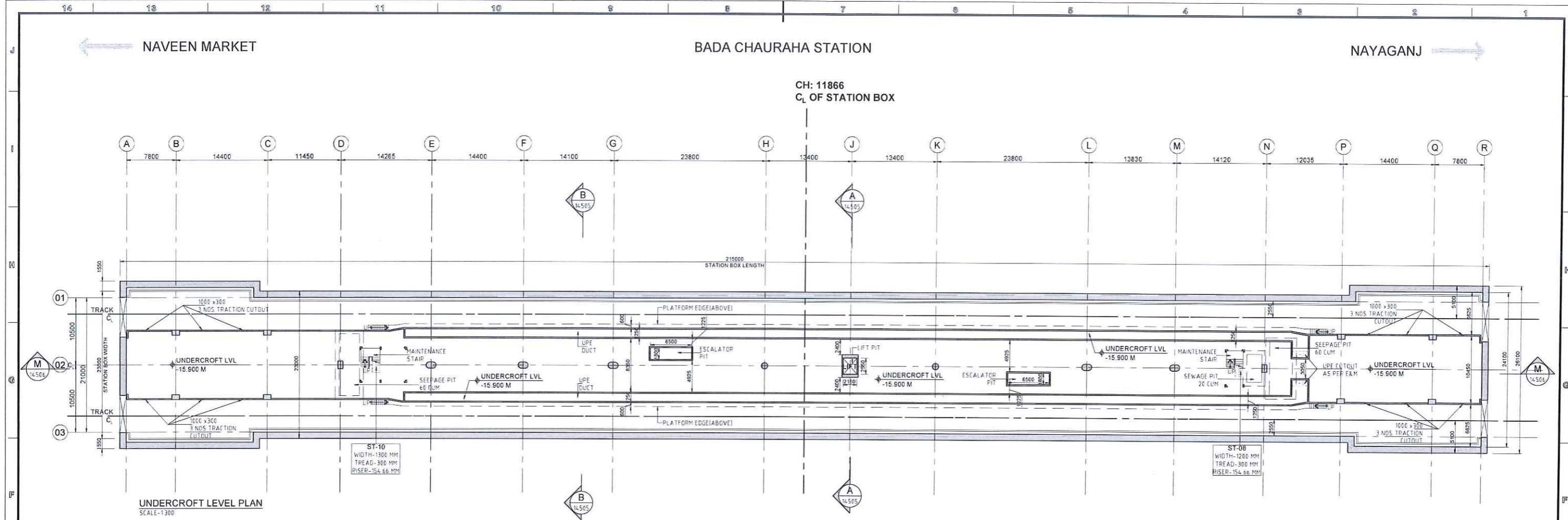
SCALE: AS SHOWN
DATE OF ISSUE: 15.05.2020
STAGE: TENDER DESIGN

DRG NO: KNPDD01-TDR-ECH-ARC-PLN-14503

REV: R1

TENDER DRAWING





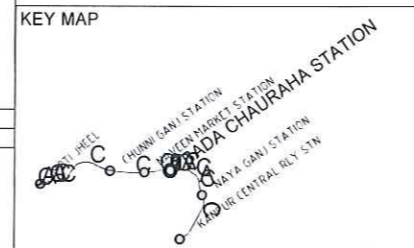
UNDERCROFT LEVEL PLAN
SCALE-1/300

ABBREVIATIONS :-

LT- LIFT	1	BLOCKWORK	
ESC- ESCALATOR	2	CONCRETE WORK	
ST- STAIRCASE	3	GLASS WALL / WINDOW	
PD- PROPERTY DEVELOPMENT			

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 - ANY DISCREPANCY THIS ARRIVED MUST BE BROUGHT TO THE NOTICE OF THE CONSULTANT
 - STRUCTURE SYSTEM SHOWN IS INDICATIVE. REFER STRUCTURE DRAWING FOR ALL STRUCTURE MEMBER SIZES TO BE DETAIL BY CONTRACTOR AT LATER STAGE
 - THIS DRAWINGS HAVE BEEN DEVELOPED IN CONFORMITY TO DPR, SOD, NBC, UPMRC & OTHER LOCAL BODY REQUIREMENT
 - THE STATION LOCATION SHOWN AS PER ALIGNMENT DRAWING RECEIVED FROM UPMRC DATED 22.06.2020
 - ESCALATOR PIT, LIFT SHAFT & LIFT PIT SIZE ARE SHOWN AS PER THE ELEVATED STATION AND ARE SUBJECT TO VENDOR'S REQUIREMENT
 - TRACK CENTRE TO PLATFORM EDGE DISTANCE & PLATFORM HEIGHT ARE PROVIDED AS PER FINAL SOD (REVISED ON 06.02.20)
 - STAIRCASE SIZE & THEIR NOS. SHOWN AS PER RIDERSHIP REQUIREMENT. REFERENCE RECEIVED WITH DPR
 - ROOM SIZE, HEIGHTS DOOR SIZE AND CUTOUT DIMENSIONS BY RELEVANT DISCIPLINES OF ENGINEERING
 - ROOM SIZES PROVIDED AS PER CONCERN DISCIPLINE REQUIREMENT. THIS MAY CHANGE AT THE TIME OF DETAIL DESIGN
 - FLOOR FINISH THICKNESS OF CONCOURSE & PLATFORM SHOWN AS PER GC MAIL DATED 14.05.20
 - CONCOURSE SHALL BE POINT OF SAFETY AS PER CLAUSE REF J-5.1 D ECAVATION TIME PART-4 FIRE LIFE & SAFETY OF NBC 2016 VOL 1
 - LOCATION OF FHC HOSE CABINET FIRE EXTINGUISHER & CUTOUT IS TENTATIVE AND SHALL BE REFERRED BY MEP DWG
 - MINIMUM HORIZONTAL DISTANCE MAINTAINED FROM PLATFORM EDGE TO ANY STRUCTURE AS PER SOD
 - STATION BOX SIZE PROPOSED AS PER DISCUSSION WITH UPMRC
 - SYSTEM WIDE RELATED ROOM SIZES & FLOOR LEVELS MAY VARY & SHALL BE AS PER SYSTEM WIDE CONTRACTOR REQUIREMENT
 - NO OF AFC GATES, TOM COUNTERS OF MID GATE SHOWN ARE TENTATIVE MAY BE CHANGE IN DETAIL DESIGN STAGE AS PER FINAL SYSTEM WIDE REQUIREMENT
 - NO OF AFC GATES MARKED AS PER EMERGENCY CONDITION CALCULATION I.E @ 50 PPMIN. HOWEVER, AS PER DPR (REV. DEC 2017) AFC GATES NO. MARKED IN NORMAL CONDITION I.E @ 35 PPMIN. PLANNING OF UNPAID & PAID AREA MAY REVISE AS PER AFC GATES REQUIREMENT MENTIONED IN DPR
 - LOCATION, NO. & SIZE OF EARTH MAT, CLEAN EARTH, EPR, LDB & MEP RELATED CUTOUT SHALL BE REFERRED BY MEP DWG
 - CLEAR HT. BETWEEN CONCOURSE & PLATFORM IS PROVIDED AS PER MEP REQUIREMENT
 - PD AREAS ON CONCOURSE & GROUND MARKED TENTATIVELY & SAME SHALL BE REVISED AS PER UPMRC REQUIREMENT
 - ENTRY/EXIT LOCATION, ANCILLARY LOCATION, PD AREA ON GROUND SHOWN IN DISCUSSION WITH UPMRC
 - EQUIPMENT DELIVERY ROUTE FOR MEP ROOMS & ANCILLARY AREAS SHALL BE AS PER MEP REQUIREMENT
 - PASSENGER CAR DROP OFF BUS DROP OFF, NO. OF PARKINGS FOR (2/4 WHEELER), BUS BAYS, PEDESTRIAN CROSSING, FOOT PATH, ROADS SHOWN IN THIS PLAN ARE TENTATIVE & SHALL BE FINALIZED IN CONJUNCTION WITH TRANSPORT INTEGRATION DRAWINGS
 - ALL FINISHES ARE SUBJECT TO UPMRC/GC APPROVAL
 - DRAINAGE DETAIL SHALL BE REFERRED FROM MEP DETAIL DRAWINGS
 - MEP ROOM EQUIPMENT LAYOUT, MEP CUTOUTS & LOCATION OF DEMOUNTABLE PANELS SHALL BE REFERRED FROM MEP DRAWINGS
 - FILLING OVER ROOF MAY INCREASE OR DECREASE AS PER ACTUAL SITE CONDITION/UTILITIES. THIS MAY RESULT INTO CHANGE IN VERTICAL LEVELS OF STATIONS

* AVAILABILITY OF LAND FOR PROPOSED ENTRIES NEEDS TO BE CONFIRMED BY UPMRC
 * LEVELS PROCESSED IN ENTIRE STATION, BY KEEPING ROAD LEVEL OF 400 MM.
 * LENGTH OF ENTRY STAIRCASE / ESCALATOR MAY VARY AS PER SPOT LEVEL AROUND ENTRY STRUCTURE



REVISION LOG R1 :

1. LOCATION OF MAINTENANCE STAIRCASE, SEWAGE & SEEPAGE PITS UPDATED AS PER PLATFORM LEVEL PLAN
--

NOTICE OF NO OBJECTIONS FROM EMPLOYER

NOTICE OF NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES HOWEVER THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAIL DESIGN CONSULTANT.

GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE	SIGNATURE
CA/ARCH - GC			<input type="checkbox"/> NOC	DY.CA- UPMRC		
CE/STRU - GC			<input type="checkbox"/> NOWC	CE DESIGN - UPMRC		
CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRC		
				CPM-UPMRC		

PROJECT TITLE
UTTAR PRADESH METRO RAIL CORPORATION LTD
 (Formerly known as Lucknow Metro Rail Corporation Ltd.)
 KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1

PREPARED	NAME	SIGNATURE	DRAWING TITLE
			BADA CHAURAHA STATION
DRAWN BY	M.CHHABRA		UNDERCROFT LEVEL PLAN
DESIGNED BY	M.PURWAR		
CHECKED BY	N.CHATURVEDI		SCALE AS SHOWN
APPROVED BY	ASHISH K.		DATE OF ISSUE 15.05.2020

DRG NO. KNPDD01-TDR-ECH-ARC-PLN-14504

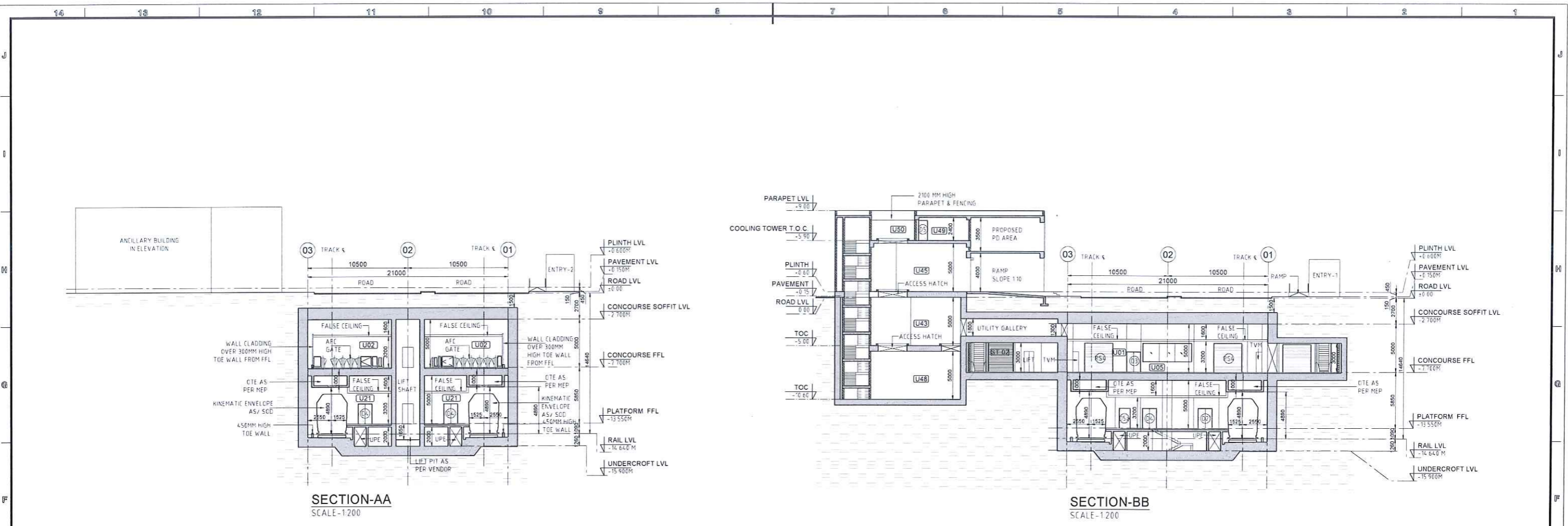
UPMRC

AGAK CONSORTIUM
 GENERAL CONSULTANT
 E3/3-4, D3/34-37, LMRC - GC TOWER,
 OPP. TO GOMTI NAGAR BUS DEPOT,
 VIBHUTI KHAND, LUCKNOW-226016.

SYSTRA

DETAIL DESIGN CONSULTANT
 SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
 VATIKA MINDSCAPES, TOWER-B, 12/3,
 MATHURA ROAD, NH-2, SECTOR-27/D,
 FARIDABAD, HARYANA-121013
 PH: 0129 668 5600
 SUBSIDIARY OF:
 SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

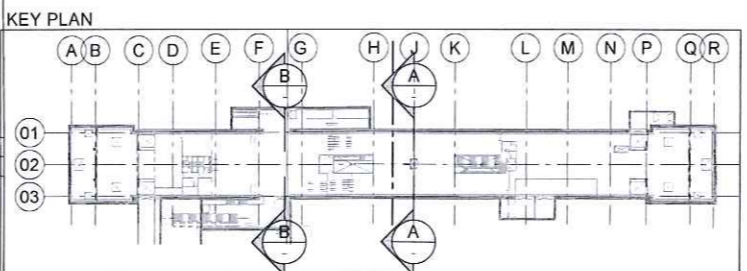




PLATFORM	
S.NO	ROOM CODE
1	U21
PLATFORM PUBLIC AREA	
CONCOURSE	
S.NO	ROOM CODE
1	U01
2	U02
3	U05
UNPAID AREA CONCOURSE	
PAID AREA CONCOURSE	
TOM	
ANCILLARY BUILDING GROUND FLOOR	
S.NO	ROOM CODE
1	U45
DG ROOM	
ANCILLARY BUILDING FIRST FLOOR	
S.NO	ROOM CODE
1	U50
2	U49
3	
COOLING TOWER	
DOSING PLANT ROOM	
PROPOSED PD AREA	
ANCILLARY BUILDING CONCOURSE LEVEL	
S.NO	ROOM CODE
1	U43
PUMP ROOM	
ANCILLARY BUILDING PLATFORM LEVEL	
S.NO	ROOM CODE
1	U48
CHILLER PLANT ROOM	
UTILITY GALLERY SIZE 2.5M X 1.8M	

NOTES :-

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5. ALL FINISHES ARE SUBJECT TO UPMRCL/GC APPROVAL
6. DRAINAGE DETAIL SHALL BE REFERRED FROM MEP DETAIL DRAWINGS
7. ALL THE FIXING AND MEMBER SIZING ARE INDICATIVE AND TO BE CONFIRMED AS PER MANUFACTURER'S REQUIREMENT
8. THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL, STRUCTURAL, PLUMBING & ELECTRICAL DRAWINGS.



REFERENCE DRAWINGS	
Drawing Number	Description



AGAK CONSORTIUM
GENERAL CONSULTANT
E33-4, D334-37, LMRC - GC TOWER,
OPP. TO GOMTI NAGAR BUS DEPOT,
VIEHTHI KHAND, LUCKNOW-226010.



SYSTRA
DETAIL DESIGN CONSULTANT
SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
VATIKA MINDSCAPES, TOWER-B, 12/3,
MATHURA ROAD, NH-2, SECTOR-27/D,
FARIDABAD, HARYANA-121013
PH: 0129 668 5600
SUBSIDIARY OF:
SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

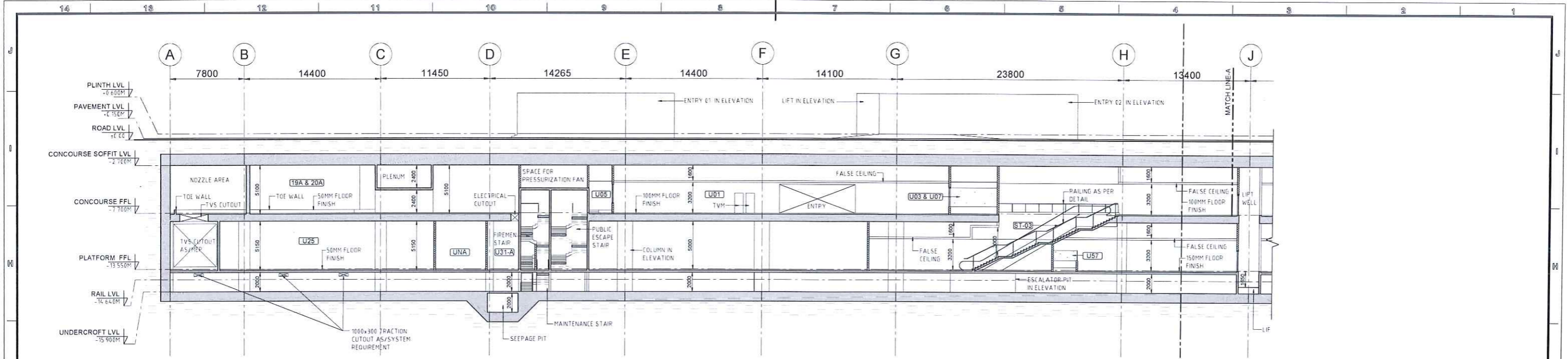
REVISION LOG R1 :						TENDER DRAWING	
1. UPDATED AS PER REVISED FLOOR PLANS							

NOTICE OF NO OBJECTIONS FROM EMPLOYER						
NOTICE OF NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES HOWEVER THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAIL DESIGN CONSULTANT.						
GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRCL-SIGN OFF	DATE	SIGNATURE
CA/ARCH - GC			<input type="checkbox"/> NOC	DY.CA-UPMRCL		
CE/STRU - GC			<input type="checkbox"/> NOWC	CE DESIGN - UPMRCL		
CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRCL		
				CPM-UPMRCL		

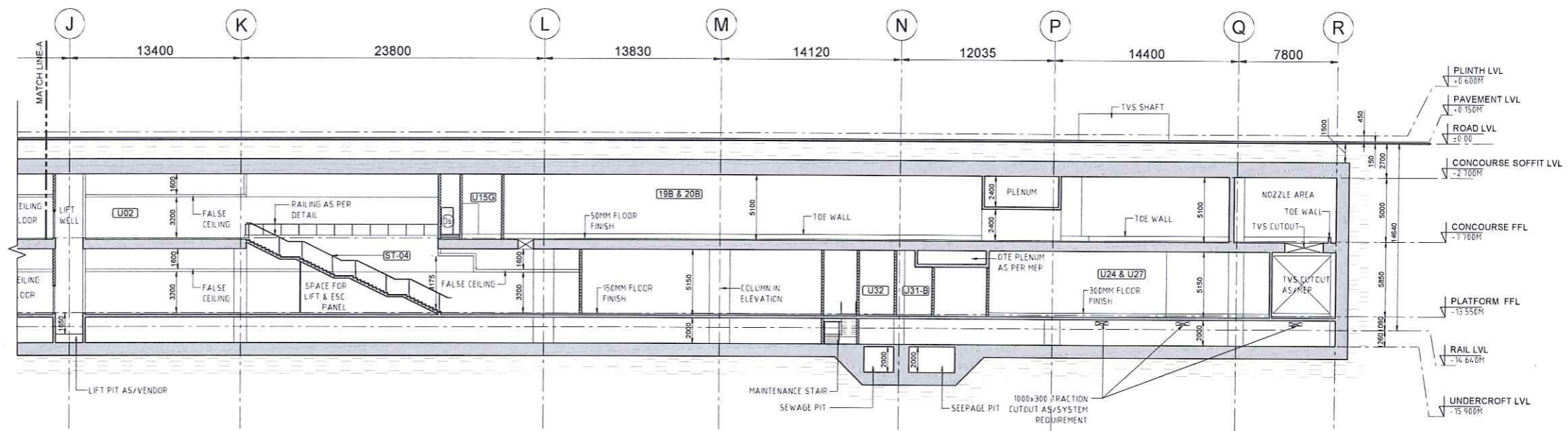
PROJECT TITLE						
UTTAR PRADESH METRO RAIL CORPORATION LTD (Formerly known as Lucknow Metro Rail Corporation Ltd.) KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1						
DRAWING TITLE						
BADACHAURAH STATION						
CROSS SECTIONS						
PREPARED	NAME	SIGNATURE	SCALE	DATE OF ISSUE	STAGE	
DRAWN BY	MCHABRA	<i>MChabra</i>	AS SHOWN	15.05.2020	TENDER DESIGN	
DESIGNED BY	M.FURWAR	<i>M.Furwar</i>				
CHECKED BY	N.CHATURVEDI	<i>N.Chaturvedi</i>				
APPROVED BY	ASHIKH	<i>Ashikh</i>				
DRAWING NO			KNPDD01-TDR-BCH-ARC-CRS-14505			
						REV R1



REV	PARTICULARS	DRN.	CHD.	VER.	DATE
R1	REVISED TENDER SUBMISSION	MCHABRA	M.FURWAR	CHATURVEDI	24.02.2020
R2	TENDER SUBMISSION	K. TADOKI	M.FURWAR	CHATURVEDI	13.02.2020

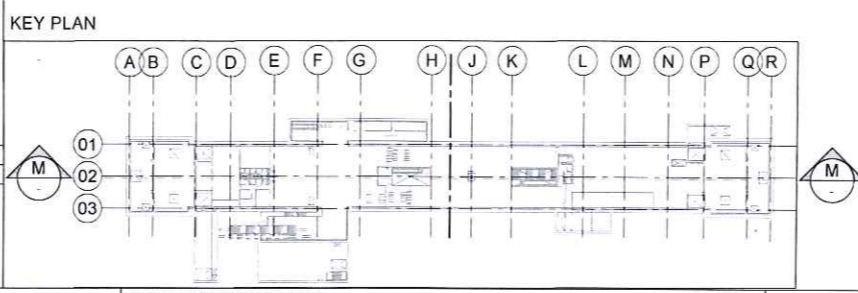


SECTION-MM
SCALE 1:200



CONCOURSE		PLATFORM	
S.NO	ROOM CODE	S.NO	ROOM CODE
1	NOZZEL -1 (LEFT HAND SIDE)	1	U21
2	NOZZEL -2 (RIGHT HAND SIDE)	2	U25
3	U19A/U20A	3	U26
4	U05	4	U31-A
5	U03 & U07	5	UNA
6	U15	6	U32
7	U19B/U20B	7	U31-B
8	U01	8	U22&U23
9	U02	9	U27&U24
10	U09	10	U25
11	U51	11	U57
12	P01		
13	P02		
14	P03		
15	P04		

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REV.	PARTICULARS	DRN.	CHD.	VER.	DATE
R1	REVISED TOP/CEP ELEVATIONS	K. PANDEY	N. FLURWAR	D. CHATURVEDI	24.08.2020
R0	TOP/CEP ELEVATIONS	D.G.L.P.T.	N. FLURWAR	D. CHATURVEDI	18.08.2020

REFERENCE DRAWINGS	
Drawing Number	Description



AGAK CONSORTIUM
GENERAL CONSULTANT
B33-4 D334-37, LMRC - GC TOWER,
OPP. TO GOMTI NAGAR BUS DEPOT,
VIHUTI KHAND, LUCKNOW-226010.



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PH: 0129 668 5600
SUBSIDIARY OF:
SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

PREPARED	NAME	SIGNATURE
DRAWN BY	K. PANDEY	
DESIGNED BY	M. FLURWAR	
CHECKED BY	N. CHATURVEDI	
APPROVED BY	ASHISH K	

REVISION LOG R1 :
1. UPDATED AS PER REVISED FLOOR PLANS.

TENDER DRAWING

NOTICE OF 'NO OBJECTIONS' FROM EMPLOYER

NOTICE OF NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES HOWEVER THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAIL DESIGN CONSULTANT.

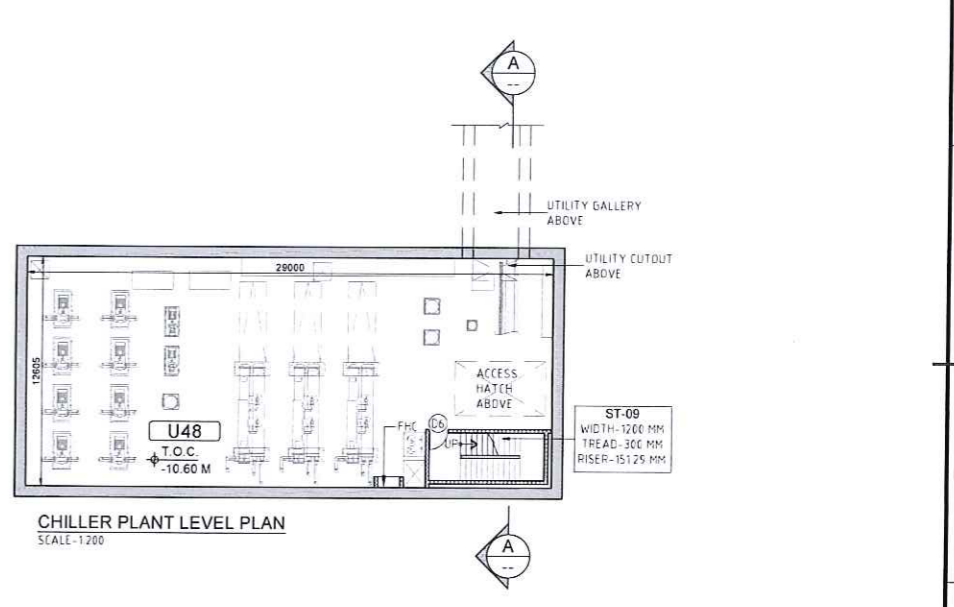
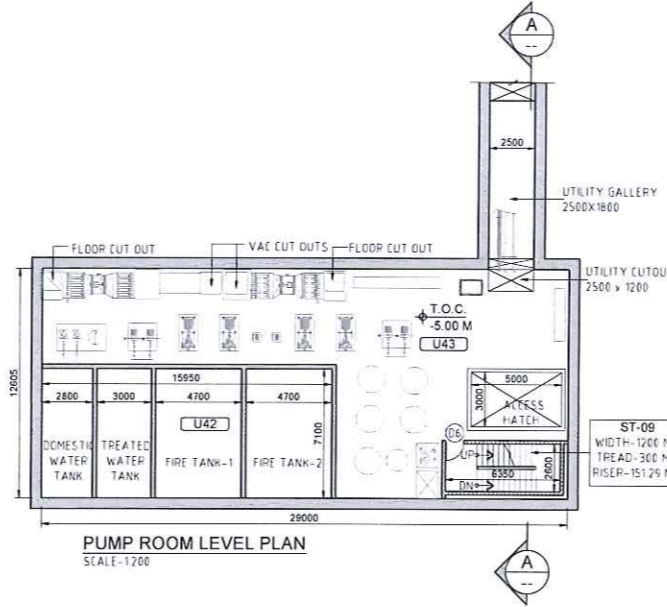
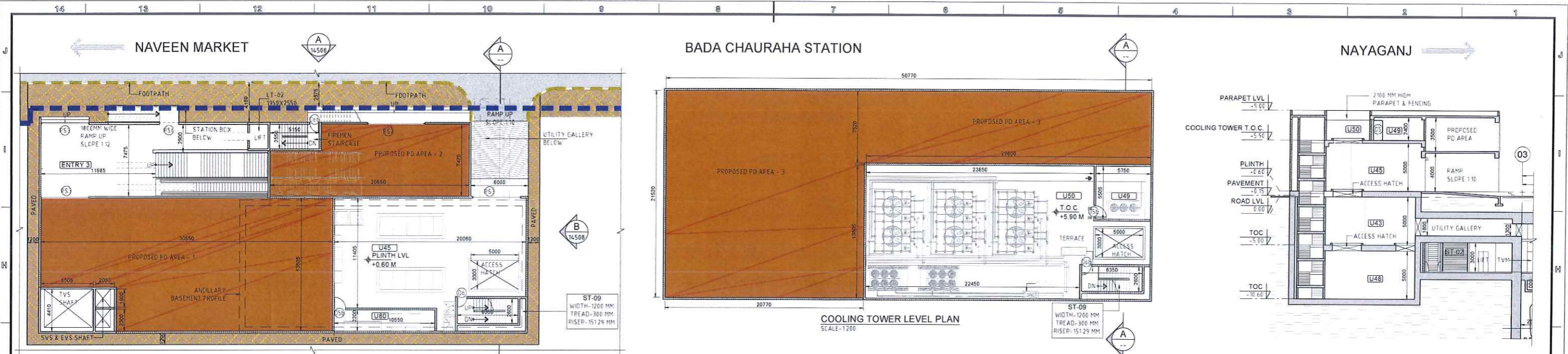
GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE	SIGNATURE
CA/MARCH - GC			<input type="checkbox"/> NOC	DY.CA - UPMRC		
CE/STRU - GC			<input type="checkbox"/> NOWC	CE DESIGN - UPMRC		
CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRC		
				CPM-UPMRC		

PROJECT TITLE
UTTAR PRADESH METRO RAIL CORPORATION LTD
(Formerly known as Lucknow Metro Rail Corporation Ltd.)
KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1

DRAWING TITLE
BADA CHAURAHA STATION
LONG SECTION

SCALE AS SHOWN DATE OF ISSUE 15.05.2020 STAGE TENDER DESIGN

DRG NO. KNPDD01-TDR-ECH-ARC-LGS-14506 REV. R1



LEGEND

1	BLOCKWORK	
2	CONCRETE WORK	
3	GLASS WALL / WINDOW	

ABBREVIATIONS :-

LT- LIFT
ESC- ESCALATOR
ST- STAIRCASE
PD- PROPERTY DEVELOPMENT

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 - ANY DISCREPANCY THIS ARRIVED MUST BE BROUGHT TO THE NOTICE OF THE CONSULTANT.
 - STRUCTURE SYSTEM SHOWN IS INDICATIVE. REFER STRUCTURE DRAWING FOR ALL STRUCTURE MEMBER SIZES TO BE DETAIL BY CONTRACTOR AT LATER STAGE.
 - THIS DRAWINGS HAVE BEEN DEVELOPED IN CONFORMITY TO DPR, SOD, NBC, UPMRC & OTHER LOCAL BODY REQUIREMENT.
 - THE STATION LOCATION SHOWN AS PER ALIGNMENT DRAWING RECEIVED FROM UPMRC DATED 22.06.2020.
 - ESCALATOR PIT, LIFT SHAFT & LIFT PIT SIZE ARE SHOWN AS PER THE ELEVATED STATION AND ARE SUBJECT TO VENDOR'S REQUIREMENT.
 - TRACK CENTRE TO PLATFORM EDGE DISTANCE & PLATFORM HEIGHT ARE PROVIDED AS PER FINAL SOD (REVISED ON 06.02.20).
 - STAIRCASE SIZE & THEIR NOS. SHOWN AS PER RIDERSHIP REQUIREMENT. REFERENCE RECEIVED WITH DPR.
 - ROOM SIZE, HEIGHTS DOOR SIZE AND CUTOUT DIMENSIONS BY RELEVANT DISCIPLINES OF ENGINEERING.
 - ROOM SIZES PROVIDED AS PER CONCERN DISCIPLINE REQUIREMENT. THIS MAY CHANGE AT THE TIME OF DETAIL DESIGN.
 - FLOOR FINISH THICKNESS OF CONCOURSE & PLATFORM IS PROVIDED AS PER GC MAIL DATED 14.05.20.
 - NO. OF AFC GATES, TOM COUNTERS OF GATE SHOWN ARE TENTATIVE MAY BE CHANGE IN DETAIL DESIGN STAGE AS PER FINAL SYSTEM WIDE REQUIREMENT.
 - NO. OF AFC GATES MARKED AS PER EMERGENCY CONDITION CALCULATION I.E. @ 50 P/MIN. HOWEVER, AS PER DPR (REV. DEC 2017) AFC GATES NO. MARKED IN NORMAL CONDITION I.E. @ 35 P/MIN. PLANNING OF UNPAID & PAID AREA MAY REVISE AS PER AFC GATES REQUIREMENT MENTIONED IN DPR.
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 - PD AREAS ON CONCOURSE & GROUND MARKED TENTATIVELY & SAME SHALL BE REVISED AS PER UPMRC REQUIREMENT.
 - ENTRY/EXIT LOCATION, ANCILLARY LOCATION, PD AREA ON GROUND SHOWN IN DISCUSSION WITH UPMRC.
 - EQUIPMENT DELIVERY ROUTE FOR MEP ROOMS & ANCILLARY AREAS SHALL BE AS PER MEP REQUIREMENT.
 - PASSENGER CAR DROP OFF BUS DROP OFF NO. OF PARKINGS FOR (24 WHEELER), BUS BAYS, PEDESTRIAN CROSSING, FOOT PATH, ROADS SHOWN IN THIS PLAN ARE TENTATIVE & SHALL BE FINALIZED IN CONJUNCTION WITH TRANSPORT INTEGRATION DRAWINGS.
 - ALL FINISHES ARE SUBJECT TO UPMRC/GC APPROVAL.
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ANCILLARY BUILDING GROUND FLOOR

S.NO.	ROOM CODE	ROOM NAME	LENGTH	WIDTH	AREA sqm
1	U45	DG ROOM			210
2	U80	DG PANEL ROOM	10.55	2.2	23.21
3		PROPOSED PD AREA - 1			385
4		PROPOSED PD AREA - 2			141

ANCILLARY BUILDING FIRST FLOOR

S.NO.	ROOM CODE	ROOM NAME	LENGTH	WIDTH	AREA sqm
1	U50	COOLING TOWER	23.85	13.8	329.13
2	U49	DOSING PLANT ROOM	5.75	5.5	31.63
3		PROPOSED PD AREA - 3			672.5

ANCILLARY BUILDING CONCOURSE LEVEL

S.NO.	ROOM CODE	ROOM NAME	LENGTH	WIDTH	AREA sqm
1	U42	WATER TANK	15.95	7.1	113.25
2	U43	PUMP ROOM			209.24

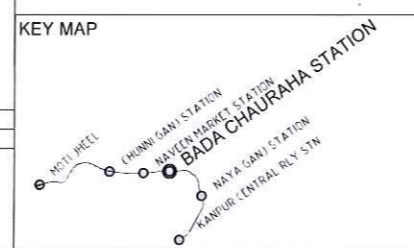
ANCILLARY BUILDING PLATFORM LEVEL

S.NO.	ROOM CODE	ROOM NAME	LENGTH	WIDTH	AREA sqm
1	U48	CHILLER PLANT ROOM	29	12.6	365.40

UTILITY GALLERY SIZE 2.5M X 1.8M

DOOR SCHEDULE

DOOR NO.	WIDTH (IN MM)	LINTEL HEIGHT FROM FFL (IN MM)	FIRE RATING	REMARKS
D5b	1200	2100	--	--
D6	1000	2100	FS-90	--
D6b	1000	2100	--	--
RS2	6000	3000	--	ROLLING SHUTTER
RS3	5000	3000	--	ROLLING SHUTTER
RS6	2000	3000	--	ROLLING SHUTTER



LEGEND

- ROAD
- FOOTPATH
- FUTURE P.D.
- STATION BOX
- SUBWAY
- SHAFT ROUTING
- KERB LINE

REVISION LOG R1

1.	REVISED LAYOUT AS PER MEP REQUIREMENTS.
----	---

TENDER DRAWING

NOTICE OF NO OBJECTIONS FROM EMPLOYER

NOTICE OF NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES HOWEVER THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAIL DESIGN CONSULTANT.

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				CPM-UPMRC		

PROJECT TITLE

UTTAR PRADESH METRO RAIL CORPORATION LTD
(Formerly known as Lucknow Metro Rail Corporation Ltd.)
KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1

PREPARED	NAME	SIGNATURE	DRAWING TITLE
	M.CHABRA		BADA CHAURAHA STATION
DRAWN BY	M.PURWAR		ANCILLARY BUILDING PLANS & SECTIONS
DESIGNED BY	N.CHATURVEDI		
CHECKED BY	ASHISH K.		
APPROVED BY			

SCALE AS SHOWN DATE OF ISSUE 15.05.2020 STAGE TENDER DESIGN

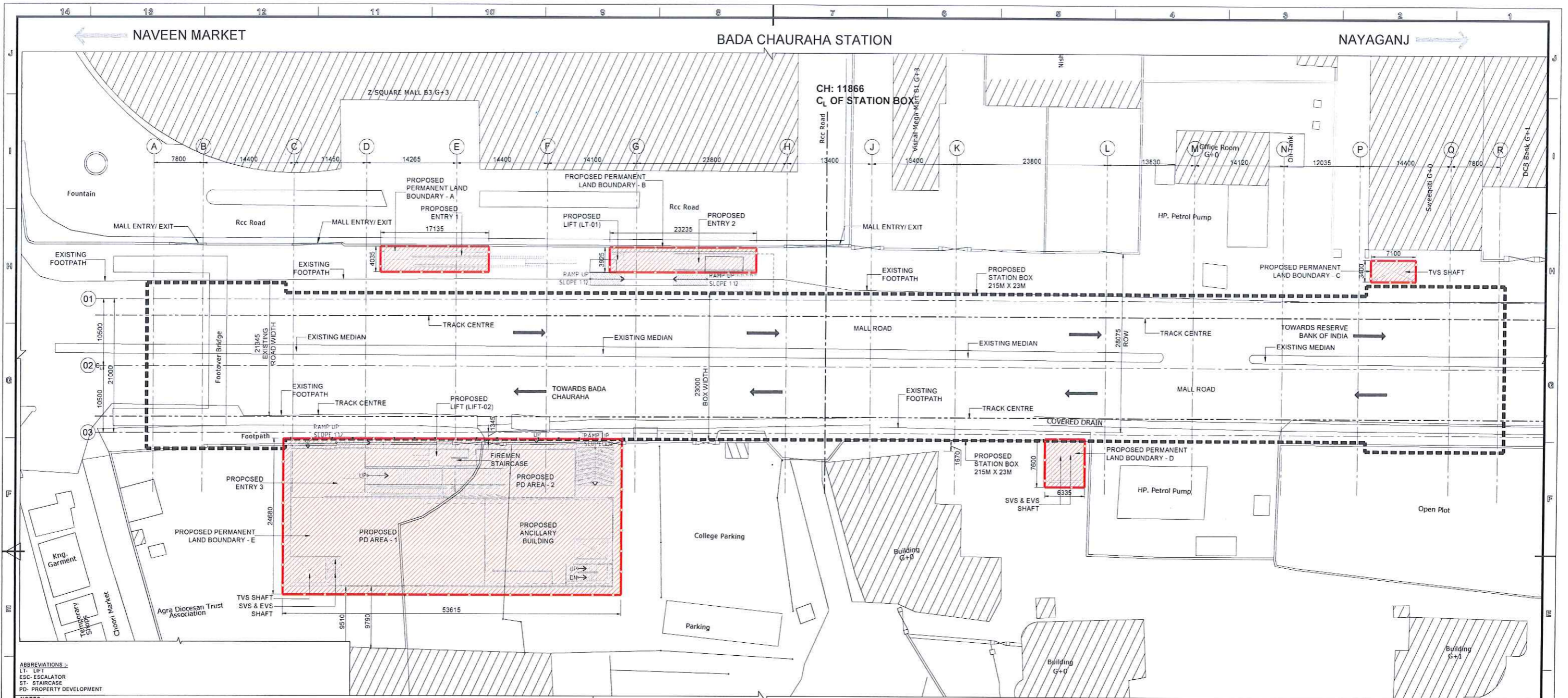
DRG NO. KNPDD01-TDR-BCH-ARC-PLN-14507 REV R1

UPMRC

AGAK CONSORTIUM
GENERAL CONSULTANT
E3-4, D3-34-37, LMRC - GC TOWER,
OPP. TO GOMTI NAGAR BUS DEPOT,
VIBHUTI KHAND, LUCKNOW-226010.

SYSTRA
DETAIL DESIGN CONSULTANT
SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
VATIKA MINDSCAPES, TOWER-B, 12/3,
MATHURA ROAD, NH-2, SECTOR-27/D,
FARIDABAD, HARYANA-121013
PH: 0129 668 5600
SUBSIDIARY OF:
SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

REV.	REVISION	DATE	DRN.	CHD.	VER.	DATE
01	REVISED TENDER ELEVATION	24.05.2020	M.CHABRA	M.PURWAR	N.CHATURVEDI	24.05.2020
02	REVISED ELEVATION	12.02.2020	N.TALWAR	M.PURWAR	N.CHATURVEDI	12.02.2020



INSERTION LEVEL PLAN

SCALE - 1:300

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 14. CONCOURSE SHALL BE POINT OF SAFETY AS PER CLAUSE REF J-5.1 D. CAUTION TIME PART-4 FIRE LIFE & SAFETY OF NBC 2016 VOL 1.
 15. LOCATION OF FHC HOSE CABINET, FIRE EXTINGUISHER & CUTOUT IS TENTATIVE AND SHALL BE REFERRED BY MEP DWG.
 16. MINIMUM HORIZONTAL DISTANCE MAINTAINED FROM PLATFORM EDGE TO ANY STRUCTURE AS PER SOD.
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KEY MAP



PROPOSED PERMANENT LAND BOUNDARY DETAIL

PROPOSED PERMANENT LAND BOUNDARY	AREA (IN SQ. MT.)
A	69
B	90.77
C	24.14
D	48.14
E	1323.30

LEGEND:
 PROPOSED PERMANENT LAND BOUNDARY

ABBREVIATIONS:
 LT- LIFT
 ESC- ESCALATOR
 ST- STAIRCASE
 PD- PROPERTY DEVELOPMENT

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REFERENCE DRAWINGS

Drawing Number	Description

UPMRC

AGAK CONSORTIUM
 GENERAL CONSULTANT
 B3-4, D3-34-37, LMRC - GC TOWER,
 OPP. TO GOMTI NAGAR BUS DEPOT,
 VIHUTI KHAND, LUCKNOW -226010.

SYSTRA
 DETAIL DESIGN CONSULTANT
 SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
 VATIKA MINDSCAPES, TOWER-B, 12/3,
 MATHURA ROAD, NH-2, SECTOR-27/D,
 FARIDABAD, HARYANA-121013
 PH: 0129 668 5600
 SUBSIDIARY OF:
 SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

REVISION LOG R1:
 1. UPDATED AS PER REVISED GROUND FLOOR PLAN.

REVISION LOG R1:

GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE	SIGNATURE
CA/ARCH - GC			<input type="checkbox"/> NOC	DY.CA-UPMRC		
CE/STRU - GC			<input type="checkbox"/> NOWC	CE DESIGN - UPMRC		
CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRC		
				CPM-UPMRC		

PROJECT TITLE:
UTTAR PRADESH METRO RAIL CORPORATION LTD
 (Formerly known as Lucknow Metro Rail Corporation Ltd.)
 KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1

PREPARED: NAME: M.CHABRA, SIGNATURE: [Signature], DATE: 03.06.2020

DRAWN BY: M.PURWAR, SIGNATURE: [Signature]

DESIGNED BY: M.PURWAR, SIGNATURE: [Signature]

CHECKED BY: N.CHATURVEDI, SIGNATURE: [Signature]

APPROVED BY: ASHISH K., SIGNATURE: [Signature]

SCALE: AS SHOWN

DATE OF ISSUE: 03.06.2020

STAGE: TENDER DESIGN

DRG NO: KNPDD01-TDR-CH-ARC-PLN-14509

REV: R1

TENDER DRAWING

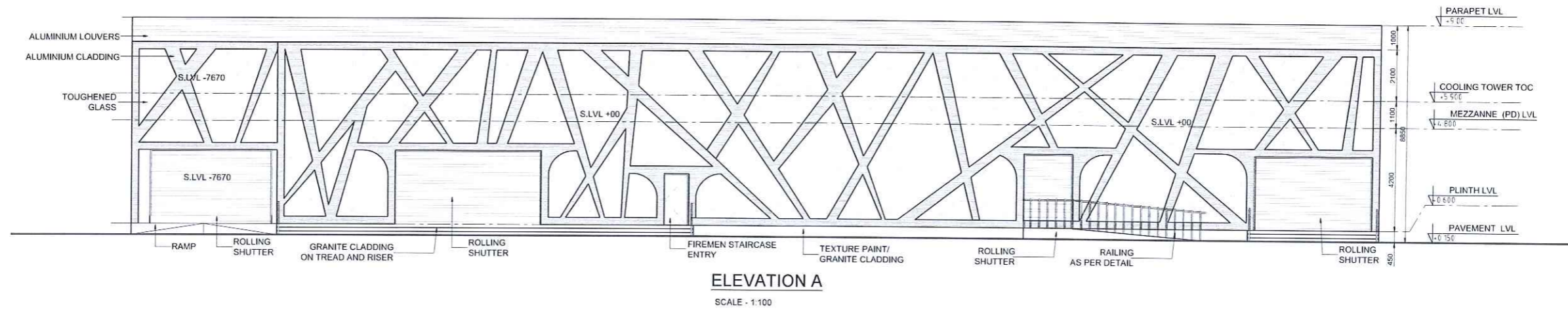
NOTICE OF NO OBJECTIONS FROM EMPLOYER

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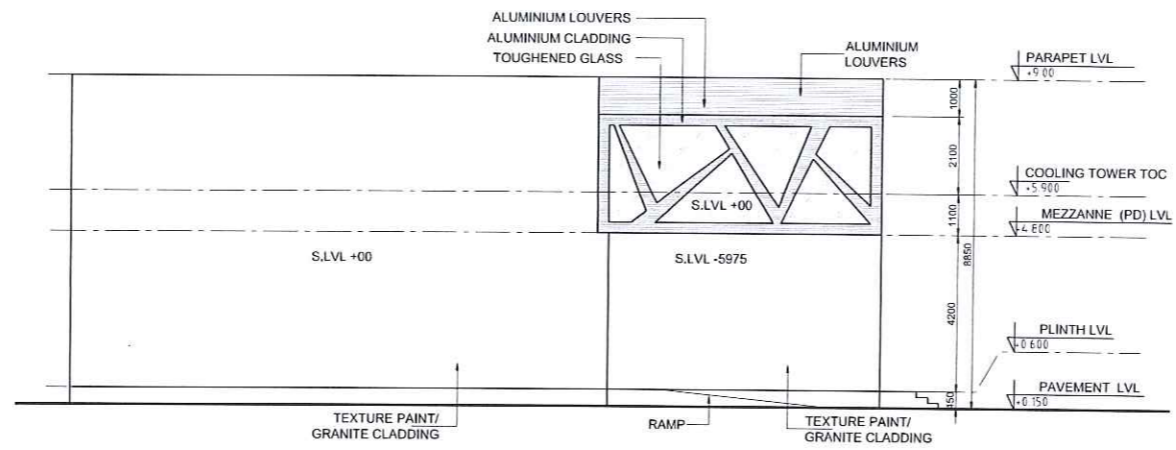
UPMRC

U.P. Metro Rail Corporation Ltd.

ARCHITECTURE



ELEVATION A
SCALE - 1:100



ELEVATION B
SCALE - 1:100

LEGEND	
1	TEXTURE PAINT GRANITE-CLADDING
2	ALUMINIUM LOUVER
3	ALUMINIUM CLADDING
4	TOUGHENED GLASS

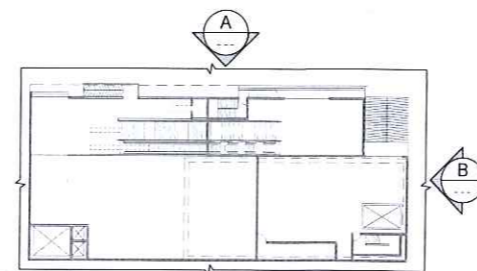
REVISION LOG:R1

- 1. UPDATED AS /REVISED FLOOR PLAN.

ABBREVIATIONS :-
S.LVL-SIGHT LEVEL
TOC- TOP OF CONCRETE

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 - 8 THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL, STRUCTURAL, PLUMBING & ELECTRICAL DRAWINGS.
 - 9 ROAD LEVEL ASSUMED 400.

KEY PLAN



REFERENCE DRAWINGS	
Drawing Number	Description



AGAK CONSORTIUM
GENERAL CONSULTANT
B3-4, D3-24-37, LMRC - GC TOWER
OFF. TO GOMTI NAGAR BUS DEPOT,
VIBHUTI KHAND, LUCKNOW-226010.

DETAIL DESIGN CONSULTANT



SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
VATIKA MINDSCAPES, TOWER-B, 12/3,
MATHURA ROAD, NH-2, SECTOR-27/D,
FARIDABAD, HARYANA-121013
PH: 0129 668 5600
SUBSIDIARY OF:
SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

PREPARED	NAME	SIGNATURE
DRAWN BY	MUZAMMIL	<i>Muzammil</i>
DESIGNED BY	M PURWAR	<i>M Purwar</i>
CHECKED BY	N. CHATURVEDI	<i>N. Chaturvedi</i>
APPROVED BY	ASHISH K	<i>Ashish K</i>

TENDER DRAWING

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CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRCL		
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PROJECT TITLE
UTTAR PRADESH METRO RAIL CORPORATION LTD
(Formerly known as Lucknow Metro Rail Corporation Ltd.)
KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1

NAME	SIGNATURE	DRAWING TITLE
		BADA CHAURAHA STATION
		ENTRY & ANCILLARY ELEVATIONS

SCALE AS SHOWN DATE OF ISSUE 15.05.2020 STAGE TENDER DESIGN

DRG NO KNPDD01-TDR-BCH-ARC-ELE-14508 REV R1

REV.	PARTICULARS	DRN.	CHD.	VER.	DATE
R1	REVISED TENDER SUBMISSION	MUZAMMIL	M. PURWAR	N. CHATURVEDI	24.05.2020
R0	TENDER SUBMISSION	K. TANDON	M. PURWAR	D. SCWAMA	15.05.2020

DRAWING LIST - NAYAGANJ STATION			
S.NO.	DRAWING NO.	DRAWING TITLE	REV. NO.
1	KNPDD01-TDR-NGJ-ARC-LIS-15000	DRAWING LIST	R1
2	KNPDD01-TDR-NGJ-ARC-PLN-15001	GROUND LEVEL PLAN	R1
3	KNPDD01-TDR-NGJ-ARC-PLN-15002	CONCOURSE LEVEL PLAN	R1
4	KNPDD01-TDR-NGJ-ARC-PLN-15003	PLATFORM LEVEL PLAN	R1
5	KNPDD01-TDR-NGJ-ARC-PLN-15004	UNDERCROFT LEVEL PLAN	R1
6	KNPDD01-TDR-NGJ-ARC-CRS-15005	CROSS SECTION	R1
7	KNPDD01-TDR-NGJ-ARC-LGS-15006	LONGITUDINAL SECTION	R1
8	KNPDD01-TDR-NGJ-ARC-PLN-15007	ANCILLARY BUILDING PLANS & SECTIONS	R1
9	KNPDD01-TDR-NGJ-ARC-ELE-15008	ENTRY & ANCILLARY ELEVATIONS	R1
10	KNPDD01-TDR-NGJ-ARC-PLN-15009	INSERTION LEVEL PLAN	R1

REV.	PARTICULARS	DRN.	CHD.	VER.	DATE
R1	REVISED TENDER ELEVATIONS	SPLRABH	M.PURWAR	N.CHATURVEDI	24.04.2020
R2	TENDER ELEVATIONS	SPLRABH	M.PURWAR	N.CHATURVEDI	22.02.2020

REFERENCE DRAWINGS	
Drawing Number	Description



AGAK CONSORTIUM
GENERAL CONSULTANT
B3/3-4, D3/34-37, LMRC - GC TOWER
OPP. TO GOMTI NAGAR BUS DEPOT,
VIBHUTI KHAND, LUCKNOW - 226010.

DETAIL DESIGN CONSULTANT



SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
VATIKA MINDSCAPES, TOWER-B, 12/3,
MATHURA ROAD, NH-2, SECTOR-27/D,
FARIDABAD, HARYANA-121013
PH: 0129 668 5600
SUBSIDIARY OF:
SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

PREPARED
DRAWN BY
DESIGNED BY
CHECKED BY
APPROVED BY

NAME
SIGNATURE
NAME
SIGNATURE
NAME
SIGNATURE
NAME
SIGNATURE

DRAWING TITLE
NAYAGANJ STATION
DRAWING LIST

SCALE AS SHOWN
DATE OF ISSUE 22.05.2020
STAGE TENDER DESIGN
DRG NO. KNPDD01-TDR-NGJ-ARC-LIS-15000
REV R1



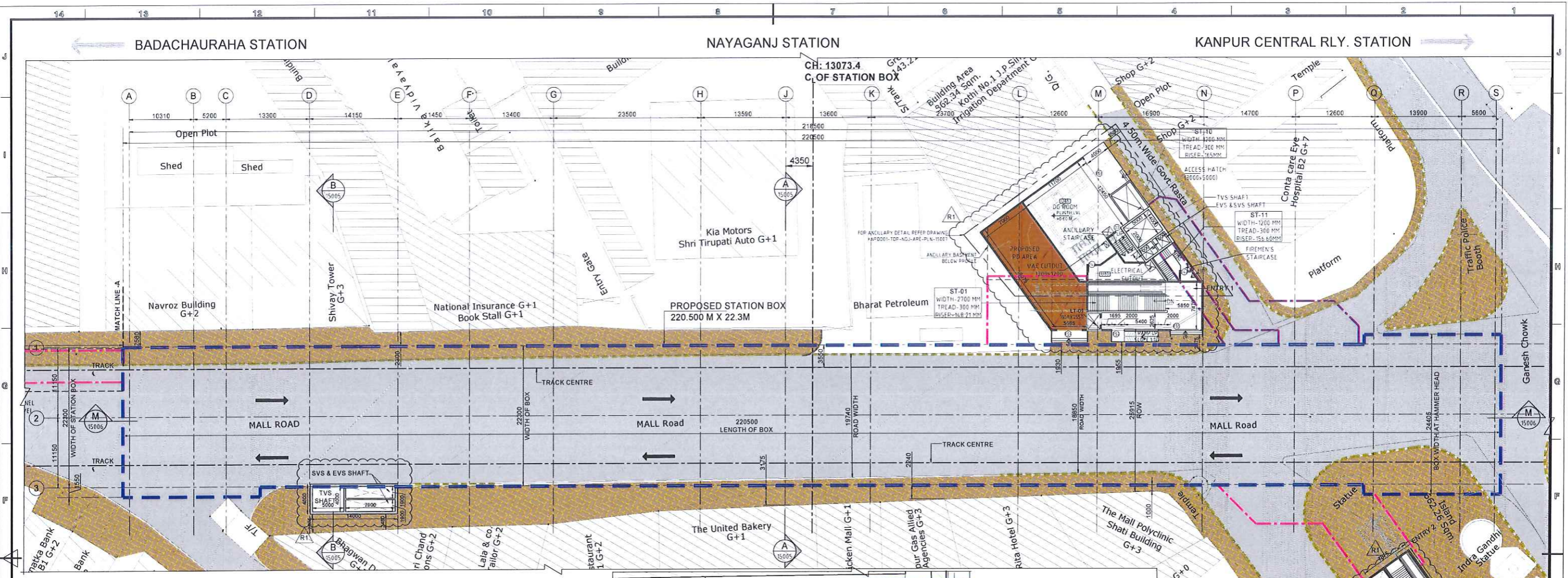
TENDER DRAWING

NOTICE OF 'NO OBJECTIONS' FROM EMPLOYER

NOTICE OF NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES HOWEVER THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAIL DESIGN CONSULTANT.

GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRCL-SIGN OFF	DATE	SIGNATURE
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CE/STRU - GC			<input type="checkbox"/> NOWC	CE DESIGN - UPMRCL		
CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRCL		
				CPM-UPMRCL		

PROJECT TITLE
UTTAR PRADESH METRO RAIL CORPORATION LTD
(Formerly known as Lucknow Metro Rail Corporation Ltd.)
KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1



GROUND LEVEL PLAN

SCALE - 1:300

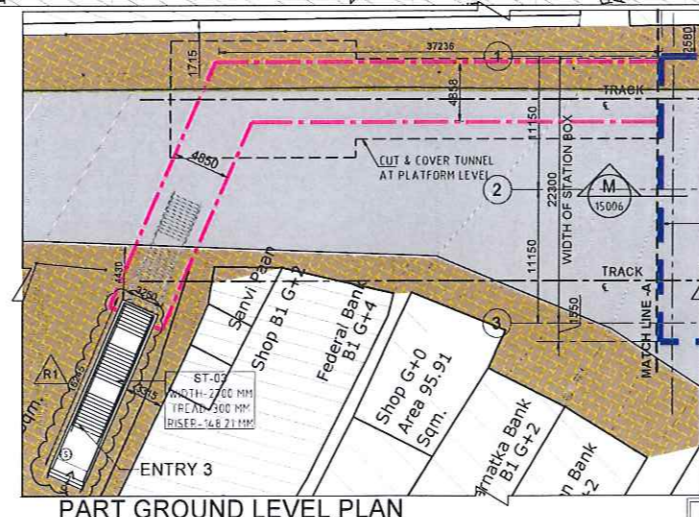
REVISION LOG - R1

1. LOCATION OF ENTRY-3 REVISED
2. LOCATION & SIZE OF TVS EVS & SVS SHAFT REVISED
3. ANCILLARY BUILDING LAYOUT REVISED
4. LOCATION OF ENTRY-2 REVISED
5. STAIRCASE AND LIFT REARRANGE INTO SINGLE CANOPY
6. DOOR SCHEDULE REVISED

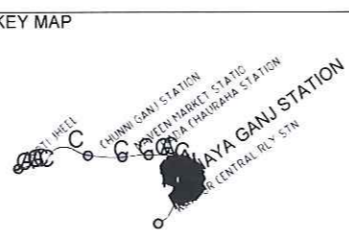
ABBREVIATIONS :-

LT - LIFT	1	BLOCKWORK
ESC - ESCALATOR	2	CONCRETE WORK
ST - STAIRCASE	3	GLASS WALL / WINDOW
PD - PROPERTY DEVELOPMENT		

- NOTES :-**
1. ALL DIMENSIONS ARE IN MM. UNLESS NOTED OTHERWISE
 2. ALL DIMENSIONS ARE TO BE READ AS MENTIONED ON THE DRAWINGS & NOT TO BE MEASURED
 3. THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT STRUCTURAL, MEP, SYSTEM, VENDOR, FIRE FIGHTING & TRAFFIC MANAGEMENT DRAWINGS
 4. ANY DISCREPANCY THIS ARRIVED MUST BE BROUGHT TO THE NOTICE OF THE CONSULTANT
 5. STRUCTURE SYSTEM SHOWN IS INDICATIVE. REFER STRUCTURE DRAWING FOR ALL STRUCTURE MEMBER SIZES TO BE DETAIL BY CONTRACTOR AT LATER STAGE
 6. THIS DRAWINGS HAVE BEEN DEVELOPED IN CONFORMITY TO DPR, SOD, NBC, UPMRC & OTHER LOCAL BODY REQUIREMENT
 7. THE STATION LOCATION SHOWN AS PER ALIGNMENT DRAWING RECEIVED FROM UPMRC DATED 22.06.2020
 8. ESCALATOR PIT, LIFT SHAFT & LIFT PIT SIZE ARE SHOWN AS PER THE ELEVATED STATION AND ARE SUBJECT TO VENDOR'S REQUIREMENT
 9. TRACK CENTRE TO PLATFORM EDGE DISTANCE & PLATFORM HEIGHT ARE PROVIDED AS PER FINAL SOD (REVISED ON 06.02.20)
 10. STAIRCASE SIZE & THEIR NOS. SHOWN AS PER RIDERSHIP REQUIREMENT. REFERENCE RECEIVED WITH DPR
 11. ROOM SIZE, HEIGHTS DOOR/SIZE AND CUTOFF DIMENSIONS BY RELEVANT DISCIPLINES OF ENGINEERING
 12. ROOM SIZES PROVIDED AS PER CONCERN DISCIPLINE REQUIREMENT. THIS MAY CHANGE AT THE TIME OF DETAIL DESIGN
 13. FLOOR FINISH THICKNESS OF CONCOURSE & PLATFORM SHOWN AS PER GC MAIL DATED 14.05.20
 14. CONCOURSE SHALL BE POINT OF SAFETY AS PER CLAUSE REF. J-5.1 D. EVACUATION TIME, PART-4 FIRE LIFE & SAFETY OF NBC 2016 VOL.1
 15. LOCATION OF FHC HOSE CABINET, FIRE EXTINGUISHER & CUTOFF IS TENTATIVE AND SHALL BE REFERRED BY MEP DWG
 16. MINIMUM HORIZONTAL DISTANCE MAINTAINED FROM PLATFORM EDGE TO ANY STRUCTURE AS PER SOD
 17. STATION BOX SIZE PROPOSED AS PER DISCUSSION WITH UPMRC
 18. SYSTEM WIDE RELATED ROOM SIZES & FLOOR LEVELS MAY VARY & SHALL BE AS PER SYSTEM WIDE CONTRACTOR REQUIREMENT
 19. NO OF AFC GATES, TOM COUNTERS, DFMD GATE SHOWN ARE TENTATIVE MAY BE CHANGE IN DETAIL DESIGN STAGE AS PER FINAL SYSTEM WIDE REQUIREMENT
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 21. LOCATION, NO & SIZE OF EARTH MAT, CLEAN EARTH, EPR, LDB & MEP RELATED CUTOFF SHALL BE REFERRED BY MEP DWG
 22. CLEAR HT BETWEEN CONCOURSE & PLATFORM IS PROVIDED AS PER MEP REQUIREMENT
 23. PD AREAS ON CONCOURSE & GROUND MARKED TENTATIVELY & SAME SHALL BE REVISED AS PER UPMRC REQUIREMENT
 24. ENTRY/EXIT LOCATION, ANCILLARY LOCATION, PD AREA ON GROUND SHOWN IN DISCUSSION WITH UPMRC
 25. EQUIPMENT DELIVERY ROUTE FOR MEP ROOMS & ANCILLARY AREAS SHALL BE AS PER MEP REQUIREMENT
 26. PASSENGER CAR DROP OFF BUS DROP OFF OF PARKINGS FOR (2/4 WHEELER), BUS BAYS, PEDESTRIAN CROSSING, FOOT PATH, ROADS SHOWN IN THIS PLAN ARE TENTATIVE & SHALL BE FINALIZED IN CONJUNCTION WITH TRANSPORT INTEGRATION DRAWINGS
 27. ALL FINISHES ARE SUBJECT TO UPMRC/GC APPROVAL
 28. DRAINAGE DETAIL SHALL BE REFERRED FROM MEP DETAIL DRAWINGS
 29. MEP ROOM EQUIPMENT LAYOUT, MEP CUTOFFS & LOCATION OF DEMOUNTABLE PANELS SHALL BE REFERRED FROM MEP DRAWINGS
 30. FILLING OVER ROOF MAY INCREASE OR DECREASE AS PER ACTUAL SITE CONDITION/UTILITIES. THIS MAY RESULT INTO CHANGE IN VERTICAL LEVELS OF STATIONS



PART GROUND LEVEL PLAN
SCALE - 1:300



DOOR SCHEDULE

DOOR NO.	WIDTH (MM)	HEIGHT (MM)	FIRE RATING	REMARKS
RE-1	2000	4000		REGULATED SHOPPERS
RE-2	2000	4000		REGULATED SHOPPERS
RE-3	4000	4000		REGULATED SHOPPERS
RE-4	4000	4000		REGULATED SHOPPERS
RE-5	2000	4000		REGULATED SHOPPERS
RE-6	2000	4000		REGULATED SHOPPERS

ANCILLARY BUILDING GROUND FLOOR

S.NO	ROOM CODE	ROOM NAME	LENGTH	WIDTH	AREA sqm
1	U45	DG ROOM			190.39
2	U80	DG PANEL ROOM			33.75
3		PROPOSED PD AREA			163

- LEGEND :**
- ROAD
 - FOOTPATH
 - FUTURE P.D.
 - STATION BOX
 - SUBWAY
 - SHAFT ROUTING
 - KERB LINE

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GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE	SIGNATURE
CA/MARCH - GC			<input type="checkbox"/> NOC			DY.CA-UPMRC
CE/STRU - GC			<input type="checkbox"/> NOWC			CE DESIGN - UPMRC
CE/E&M - GC			<input type="checkbox"/> RESUBMIT			DY.CE CIVIL - UPMRC
						CPM-UPMRC

PROJECT TITLE
UTTAR PRADESH METRO RAIL CORPORATION LTD
(Formerly known as Lucknow Metro Rail Corporation Ltd.)
KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1

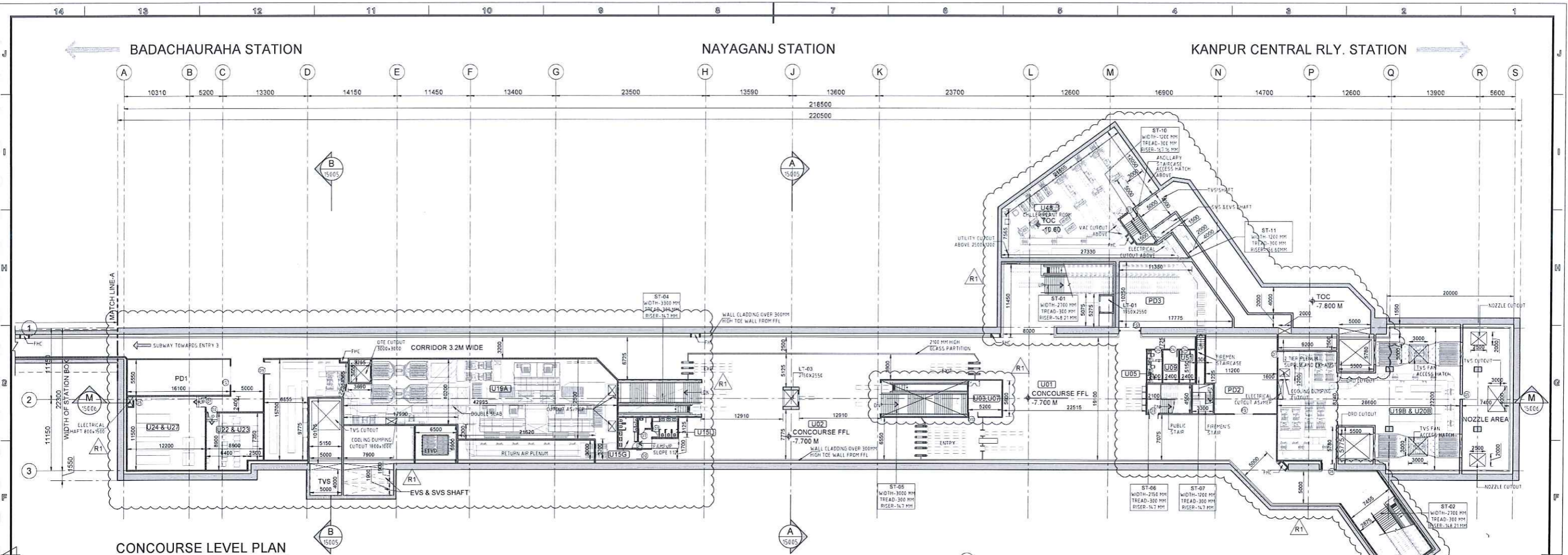
PREPARED	NAME	SIGNATURE	DRAWING TITLE
	SAURABH		NAYAGANJ STATION
	M.PURWAR		GROUND LEVEL PLAN
	N. CHATURVEDI		
	ASHESHK		

REV.	PARTICULARS	DRN.	CHD.	VER.	DATE
R1	REVISED TOPIC ELEVEN	SALRABH	M.PURWAR	N. CHATURVEDI	24.08.2020
REV.	TOPIC ELEVEN	SALRABH	M.PURWAR	N. CHATURVEDI	22.08.2020

AGAK CONSORTIUM
GENERAL CONSULTANT
E3-34 D3-34-37, LMRC - GC TOWER,
OPF. TO GOMTI NAGAR BUS DEPOT,
VIBHUTI KHAND, LUCKNOW-226010.

SYSTRA
DETAIL DESIGN CONSULTANT
SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
VATIKA MINDSCAPES, TOWER-B, 12/3,
MATHURA ROAD, NH-2, SECTOR-27/D,
FARIDABAD, HARYANA-121013
PH. 0129 668 5600
SUBSIDIARY OF:
SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

UPMRC
LUCKNOW METRO RAIL CORPORATION LTD.



CONCOURSE LEVEL PLAN
SCALE 1:300

REVISION LOG - R1

1. LOCATION OF ENTRY-3 REVISED TO PERMANENT LAND BOUNDARY SHARED BY UPMRC.
2. LAYOUTS OF TECHNICAL ROOM REVISED.
3. LOCATION & SIZE OF TVS, EVS & SVS SHAFT REVISED.
4. LOCATION OF STAIRCASE ST-04 & 05 REVISED.
5. TOILET LAYOUT REVISED.
6. AREA OF U-07 & 03 REVISED.
7. ANCILLARY BUILDING LAYOUT REVISED.
8. PUBLIC & FIREMEN STAIRCASE LOCATION REVISED.
9. LOCATION OF ENTRY-2 REVISED.
10. FIREMEN CORRIDOR LOCATION REVISED.

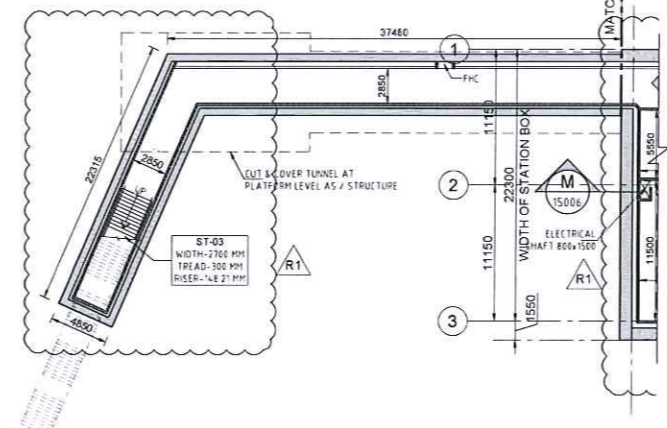
ABBREVIATIONS:

LT-	LIFT
ESC-	ESCALATOR
ST-	STAIRCASE
PD-	PROPERTY DEVELOPMENT

LEGEND

1	BLOCKWORK	
2	CONCRETE WORK	
3	GLASS WALL / WINDOW	

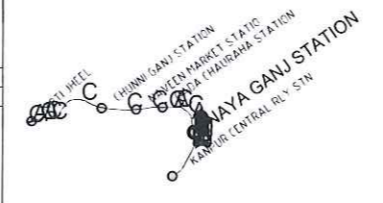
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PART PLAN CONCOURSE LEVEL PLAN
SCALE 1:300

CONCOURSE					
S.NO	ROOM CODE	ROOM NAME	LENGTH	WIDTH	AREA sqm
1	U22&U23	SER & TER COMBINED			75.33
2	U24&U27	UPS BATTERY ROOM	12.2	11.5	140.30
3	U19A	ECS/TVS FAN ROOM			872.06
4	U15	TOILET			45
5	U01	UNPAID AREA CONCOURSE			1175
6	U02	PAID AREA CONCOURSE			596.7
7	U03 & U07	SCR & EFO	5.2	5.3	27.56
8	U05	TOM	2.3	5.15	11.85
9	U09	SECURITY ROOM	2.4	5.15	12.36
10	U51	EMERGENCY EQUIPMENT ROOM	2.4	5.15	12.36
11		NOZZEL - (RIGHT HAND SIDE)	7.4	22.2	164.28
12	U19B/U20B	ECS/TVS FAN ROOM			580.38
13	PD1	PROPERTY DEVELOPMENT	16.075	5.55	89.22
14	PD2	PROPERTY DEVELOPMENT			125.80
15	PD3	PROPERTY DEVELOPMENT			154.00

KEY MAP



DOOR SCHEDULE

DOOR NO	WIDTH (IN MM)	LINTEL HEIGHT FROM FFL (IN MM)	FIRE RATING	REMARKS
D1	1500	2500	FS-180	BOH AREA
D2	1500	2500	FS-90	BOH AREA
D3	1500	2100	FS-90	-
D4	1200	2100	FS-90	-
D5	750	2100	FS-90	BOH AREA
D6	2000	2500	FS-90	BOH AREA
D7	1000	2100	FS-90	BOH AREA
D10	1500	2100	FS-90	BOH AREA
R51	3000	3000	-	GLASS DOOR

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				CPM-UPMRC		

PROJECT TITLE
UTTAR PRADESH METRO RAIL CORPORATION LTD
(Formerly known as Lucknow Metro Rail Corporation Ltd.)
KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1

PREPARED: NAME, SIGNATURE, DRAWING TITLE
DRAWN BY: SAURABH, SIGNATURE, NAYAGANJ STATION
DESIGNED BY: M.PURVUR, SIGNATURE, CONCOURSE LEVEL PLAN
CHECKED BY: N. CHATURVEDI, SIGNATURE, SCALE AS SHOWN, DATE OF ISSUE 22.05.2020, STAGE TENDER DESIGN
APPROVED BY: ASHSHK, SIGNATURE, DRG NO KNPDD01-TDR-NGJ-ARC-PLN-15002, REV R1

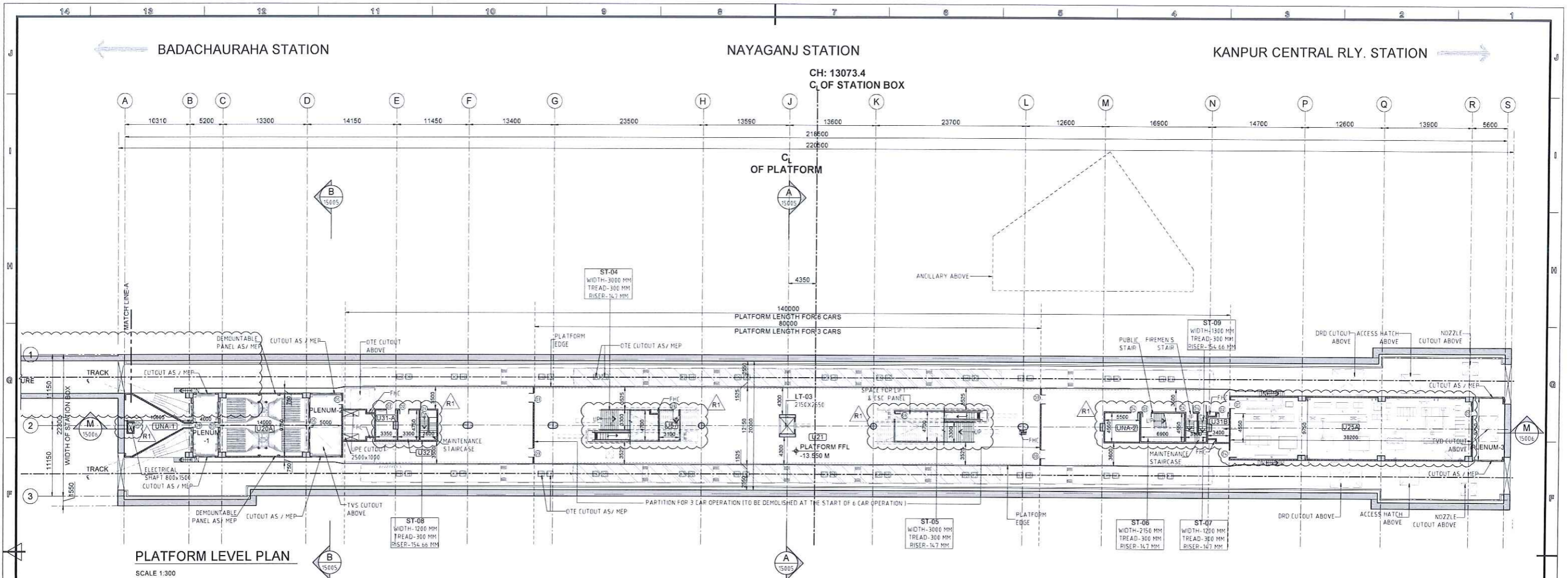
REV.	PARTICULARS	DRN.	CHD.	VER.	DATE
R1	REVISED TENDER SUBMISSION	SAURABH	M.PURVUR	N. CHATURVEDI	24.05.2020
R0	TENDER SUBMISSION	SAURABH	M.PURVUR	N. CHATURVEDI	22.05.2020



AGAK CONSORTIUM
GENERAL CONSULTANT
E3-34, E3-34-37, LIRIC - GC TOWER,
OPP. TO GOMTI NAGAR BUS DEPOT,
VIHUTI KHAND, LUCKNOW-226010.

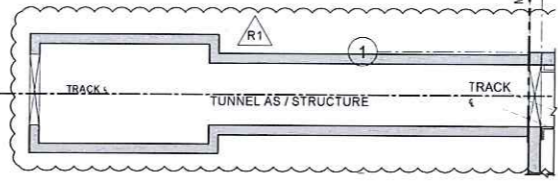
DETAIL DESIGN CONSULTANT
SYSTRA
SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
VATIKA MINDSCAPES, TOWER-B, 12/3,
MATHURA ROAD, NH-2, SECTOR-27/D,
FARIDABAD, HARYANA-121013
PH: 0129 668 5600
SUBSIDIARY OF:
SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

ARCHITECTURE



PLATFORM LEVEL PLAN

SCALE 1:300



PART PLATFORM LEVEL PLAN

SCALE 1:300

LEGEND

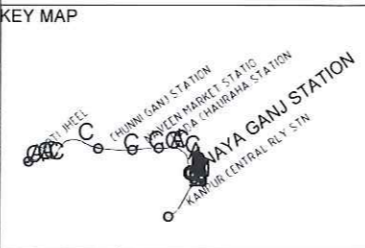
1	BLOCKWORK	
2	CONCRETE WORK	
3	GLASS WALL / WINDOW	

- ABBREVIATIONS :-**
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 19. NO. OF AFC GATES, TOM COUNTERS, DFMD GATE SHOWN ARE TENTATIVE MAY BE CHANGE IN DETAIL DESIGN STAGE AS PER FINAL SYSTEM WIDE REQUIREMENT
 20. NO. OF AFC GATES MARKED AS PER EMERGENCY CONDITION CALCULATION I.E. @ 50 P/MIN. HOWEVER, AS PER DPR (REV. DEC 2017) AFC GATES NO. MARKED IN NORMAL CONDITION I.E. @ 35 P/MIN. PLANNING OF UNPAID & PAID AREA MAY REVISE AS PER AFC GATES REQUIREMENT MENTIONED IN DPR
 21. LOCATION, NO. & SIZE OF EARTH MAT, CLEAN EARTH, EPR, LDB & MEP RELATED CUTOUT SHALL BE REFERRED BY MEP DWG
 22. CLEAR HT. BETWEEN CONCOURSE & PLATFORM IS PROVIDED AS PER MEP REQUIREMENT
 23. PD AREAS ON CONCOURSE & GROUND MARKED TENTATIVELY & SAME SHALL BE REVISED AS PER UPMRC REQUIREMENT
 24. ENTRY/EXIT LOCATION, ANCILLARY LOCATION, PD AREA ON GROUND SHOWN IN DISCUSSION WITH UPMRC
 25. EQUIPMENT DELIVERY ROUTE FOR MEP ROOMS & ANCILLARY AREAS SHALL BE AS PER MEP REQUIREMENT
 26. PASSENGER CAR DROP OFF BUS DROP OFF NO. OF PARKINGS FOR (24 WHEELER), BUS BAYS, PEDESTRIAN CROSSING, FOOT PATH, ROADS SHOWN IN THIS PLAN ARE TENTATIVE & SHALL BE FINALIZED IN CONJUNCTION WITH TRANSPORT INTEGRATION DRAWINGS
 27. ALL FINISHES ARE SUBJECT TO UPMRC/GC APPROVAL
 28. DRAINAGE DETAIL SHALL BE REFERRED FROM MEP DETAIL DRAWINGS
 29. MEP ROOM EQUIPMENT LAYOUT, MEP CUTOUTS & LOCATION OF DEMOUNTABLE PANELS SHALL BE REFERRED FROM MEP DRAWINGS
 30. FILLING OVER ROOF MAY INCREASE OR DECREASE AS PER ACTUAL SITE CONDITIONS UTILITIES. THIS MAY RESULT INTO CHANGE IN VERTICAL LEVELS OF STATIONS

- REVISION LOG - R1**
1. HAMMER HEAD EXTENDED NEAR GRID 1-A FROM STATION BOX TO TUNNEL EXTENDED AS / SITE CONSTRAINTS & STRUCTURE REQUIREMENT.
 2. SEWAGE & SEEPAGE ROOM LOCATION REVISED.
 3. LOCATION OF STAIRCASE ST-04 & 05 REVISED.
 4. PUBLIC & FIREMEN STAIRCASE LOCATION REVISED.
 5. TECHNICAL ROOM SIZE REVISED.

DOOR SCHEDULE

DOOR NO.	WIDTH (IN MM)	LINTEL HEIGHT FROM FFL (IN MM)	FIRE RATING	REMARKS
D1	1500	2500	FS-180	BOH AREA
D2	1500	2500	FS-90	BOH AREA
D3	1500	2100	FS-90	--
D4	1200	2100	FS-90	--
D5	750	2100	FS-90	BOH AREA
D9	1000	2100		GLASS DOOR



PLATFORM

S.NO	ROOM CODE	ROOM NAME	LENGTH	WIDTH	AREA sqm
1	U21	PLATFORM PUBLIC AREA			1393.17
2	U20A	TVS FAN ROOM	14	9.75	136.5
3	U31-A	SEEWAGE ROOM-1	3.35	4.745	15.90
4	U32	SEEWAGE ROOM	3.3	4.745	15.66
5	UNA-1				54.9
6	U31-B	SEEWAGE ROOM-2	3.4	4.55	15.47
7	U-25A	ASS/TSS	38.2	9.75	372.45
8	UNA-2				25.03
9	PLENUM-1				38.2
10	PLENUM-2				48.75
11	PLENUM-3				48.75
12	U57	PLATFORM SUPERVISOR BOOTH	3.5	4.7	16.45

NOTICE OF 'NO OBJECTIONS' FROM EMPLOYER

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GC / ARCH - GC	DATE	SIGNATURE	APP. STATUS	UPMRC SIGN OFF	DATE	SIGNATURE
CA/ARCH - GC			<input type="checkbox"/> NOC	DY.CA- UPMRCL		
CE/STRU - GC			<input type="checkbox"/> NOWC	CE DESIGN - UPMRCL		
CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRCL		
				CPM-UPMRC		

PROJECT TITLE
UTTAR PRADESH METRO RAIL CORPORATION LTD
 (Formerly known as Lucknow Metro Rail Corporation Ltd.)
 KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1

DRAWING TITLE
 NAYAGANJ STATION
 PLATFORM LEVEL PLAN

PREPARED	NAME	SIGNATURE	DATE
	SAURABH		
DRAWN BY	NAME	SIGNATURE	DATE
	M FURWAR		
DESIGNED BY	NAME	SIGNATURE	DATE
	N. CHATURVEDI		
CHECKED BY	NAME	SIGNATURE	DATE
	ASHISH K		
APPROVED BY	NAME	SIGNATURE	DATE
	ASHISH K		

SCALE AS SHOWN
 DATE OF ISSUE 22.05.2020
 STAGE TENDER DESIGN
 DRG NO. KNPDD01-TDR-NGJ-ARC-PLN-15003
 REV R1



AGAK CONSORTIUM
 GENERAL CONSULTANT
 B3-34, D3-34-37, LMRC - GC TOWER,
 OPP. TO GOMTI NAGAR BUS DEPOT,
 VIBHUTI KHAND, LUCKNOW-226010.

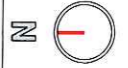


SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
 VATIKA MINDSCAPES, TOWER-B, 12/3,
 MATHURA ROAD, NH-2, SECTOR-27/D,
 FARIDABAD, HARYANA-121013
 PH: 0129 668 5600
 SUBSIDIARY OF:
 SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

REVISIONS

REV.	REVISIONS	DRN.	CHD.	VER.	DATE
R1	REVISED TELECOM ELEVATIONS.	SALRABH	V.FURWAR	J. CHATURVEDI	24.05.2020
RC	TELECOM ELEVATIONS.	SALRABH	V.FURWAR	J. CHATURVEDI	22.05.2020

TENDER DRAWING



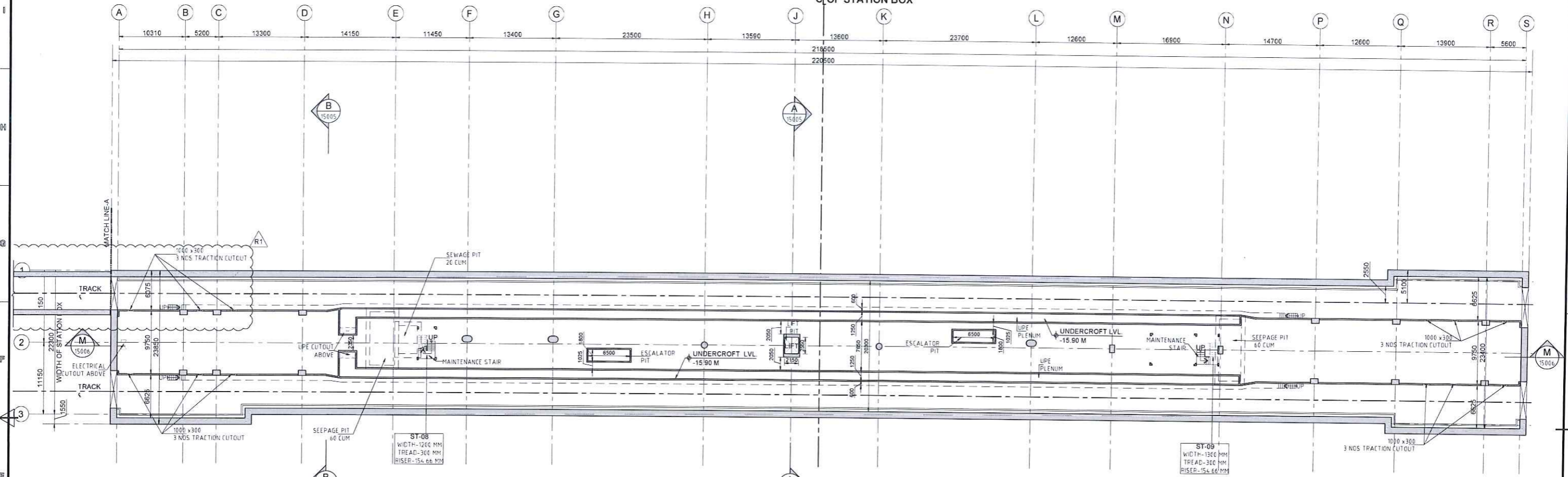
ARCHITECTURE

BADACHAURAHA STATION

NAYAGANJ STATION

KANPUR CENTRAL RLY. STATION

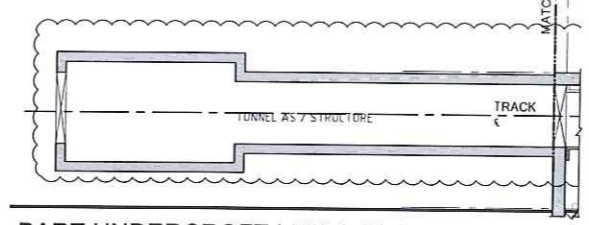
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C.OF STATION BOX



UNDERCROFT LEVEL PLAN

SCALE - 1:300

REVISION LOG - R1



PART UNDERCROFT LEVEL PLAN

SCALE - 1:300

ABBREVIATIONS :

LT	LIFT
ESC	ESCALATOR
ST	STAIRCASE
PD	PROPERTY DEVELOPMENT

LEGEND

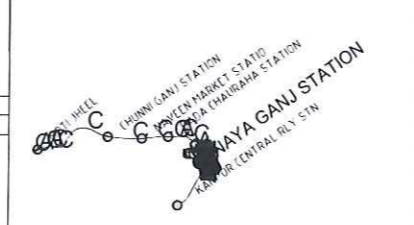
1	BLOCKWORK	
2	CONCRETE WORK	
3	GLASS WALL / WINDOW	

- HAMMER HEAD EXTENDED NEAR GRID 1-A FROM STATION BOX TO TUNNEL EXTENDED AS / SITE CONSTRAINTS & STRUCTURE REQUIREMENT.
- LOCATION OF MAINTENANCE STAIRCASE, SEWAGE & SEEPAGE PITS UPDATED AS PER PLATFORM LEVEL PLAN.

- NOTES :
- ALL DIMENSIONS ARE IN MM, UNLESS NOTED OTHERWISE
 - ALL DIMENSIONS ARE TO BE READ AS MENTIONED ON THE DRAWINGS & NOT TO BE MEASURED
 - THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT STRUCTURAL, MEP, SYSTEM, VENDOR, FIRE FIGHTING & TRAFFIC MANAGEMENT DRAWINGS
 - ANY DISCREPANCY THUS ARRIVED MUST BE BROUGHT TO THE NOTICE OF THE CONSULTANT
 - STRUCTURE SYSTEM SHOWN IS INDICATIVE. REFER STRUCTURE DRAWING FOR ALL STRUCTURE MEMBER SIZES TO BE DETAIL BY CONTRACTOR AT LATER STAGE
 - THIS DRAWINGS HAVE BEEN DEVELOPED IN CONFORMITY TO DPR, SOD, NBC, UPMRC & OTHER LOCAL BODY REQUIREMENT.
 - THE STATION LOCATION SHOWN AS PER ALIGNMENT DRAWING RECEIVED FROM UPMRC DATED 22.06.2020
 - ESCALATOR PIT, LIFT SHAFT & LIFT PIT SIZE ARE SHOWN AS PER THE ELEVATED STATION AND ARE SUBJECT TO VENDOR'S REQUIREMENT.
 - TRACK CENTRE TO PLATFORM EDGE DISTANCE & PLATFORM HEIGHT ARE PROVIDED AS PER FINAL SOD (REVISED ON 06.02.20)
 - STAIRCASE SIZE & THEIR NOS. SHOWN AS PER RIDERSHIP REQUIREMENT. REFERENCE RECEIVED WITH DPR
 - ROOM SIZE, HEIGHTS DOOR/SIZE AND CUTOUT DIMENSIONS BY RELEVANT DISCIPLINES OF ENGINEERING
 - ROOM SIZES PROVIDED AS PER CONCERN DISCIPLINE REQUIREMENT. THIS MAY CHANGE AT THE TIME OF DETAIL DESIGN
 - FLOOR FINISH THICKNESS OF CONCOURSE & PLATFORM SHOWN AS PER GC MAIL DATED 14.05.20
 - CONCOURSE SHALL BE POINT OF SAFETY AS PER CLAUSE REF. J-5.1.0 EXCAVATION TIME PART 4 FIRE LIFE & SAFETY OF NBC 2016 VOL 1
 - LOCATION OF FHC HOSE CABINET, FIRE EXTINGUISHER & CUTOUT IS TENTATIVE AND SHALL BE REFERRED BY MEP DWG
 - MINIMUM HORIZONTAL DISTANCE MAINTAINED FROM PLATFORM EDGE TO ANY STRUCTURE AS PER SOD
 - STATION BOX SIZE PROPOSED AS PER DISCUSSION WITH UPMRC
 - SYSTEM WIDE RELATED ROOM SIZES & FLOOR LEVELS MAY VARY & SHALL BE AS PER SYSTEM WIDE CONTRACTOR REQUIREMENT
 - NO. OF AFC GATES, TONN COUNTERS, DMDO GATE SHOWN ARE TENTATIVE MAY BE CHANGE IN DETAIL DESIGN STAGE AS PER FINAL SYSTEM WIDE REQUIREMENT
 - NO. OF AFC GATES MARKED AS PER EMERGENCY CONDITION CALCULATION I.E @ 50 P/MIN. HOWEVER, AS PER DPR (REV. DEC 2017) AFC GATES NO. MARKED IN NORMAL CONDITION I.E @ 35 P/MIN. PLANNING OF UNPAID & PAID AREA MAY REVISE AS PER AFC GATES REQUIREMENT MENTIONED IN DPR
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 - PD AREAS ON CONCOURSE & GROUND MARKED TENTATIVELY & SAME SHALL BE REVISED AS PER UPMRC REQUIREMENT
 - ENTRY/EXIT LOCATION, ANCILLARY LOCATION, PD AREA ON GROUND SHOWN IN DISCUSSION WITH UPMRC
 - EQUIPMENT DELIVERY ROUTE FOR MEP ROOMS & ANCILLARY AREAS SHALL BE AS PER MEP REQUIREMENT
 - PASSENGER CAR DROP OFF, BUS DROP OFF NO. OF PARKINGS FOR (24 WHEELER), BUS BAYS, PEDESTRIAN CROSSING, FOOT PATH, ROADS SHOWN IN THIS PLAN ARE TENTATIVE & SHALL BE FINALIZED IN CONJUNCTION WITH TRANSPORT INTEGRATION DRAWINGS
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 - DRAINAGE DETAIL SHALL BE REFERRED FROM MEP DETAIL DRAWINGS
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 - FILLING OVER ROOF MAY INCREASE OR DECREASE AS PER ACTUAL SITE CONDITIONALITIES. THIS MAY RESULT INTO CHANGE IN VERTICAL LEVELS OF STATIONS

* AVAILABILITY OF LAND FOR PROPOSED ENTRIES NEEDS TO BE CONFIRMED BY UPMRC
 * LEVELS PROPOSED IN ENTIRE STATION BY KEEPING ROAD LEVEL OF ±0.00 M.M.
 * LENGTH OF ENTRY STAIRCASE / ESCALATOR MAY VARIES AS PER SPOT LEVEL AROUND ENTRY STRUCTURE

KEY MAP



TENDER DRAWING

NOTICE OF NO OBJECTIONS FROM EMPLOYER

NOTICE OF NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES HOWEVER THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAIL DESIGN CONSULTANT.

GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE	SIGNATURE
CA/ARCH - GC			<input type="checkbox"/> NOC	DY.CA-UPMRC		
CE/STRU - GC			<input type="checkbox"/> NOWC	CE DESIGN - UPMRC		
CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRC		
				CPM-UPMRC		

PROJECT TITLE
UTTAR PRADESH METRO RAIL CORPORATION LTD
 (Formerly known as Lucknow Metro Rail Corporation Ltd.)
 KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1

PREPARED	NAME	SIGNATURE	DRAWING TITLE
DRAWN BY	SAURABH		NAYAGANJ STATION UNDERCROFT LEVEL PLAN
DESIGNED BY	M PURWAR		
CHECKED BY	N. CHATURVEDI		SCALE AS SHOWN DATE OF ISSUE 22.05.2020 STAGE TENDER DESIGN
APPROVED BY	ASHSHK		DRG NO. KNPDD01-TDR-NGJ-ARC-PLN-15004 REV R1

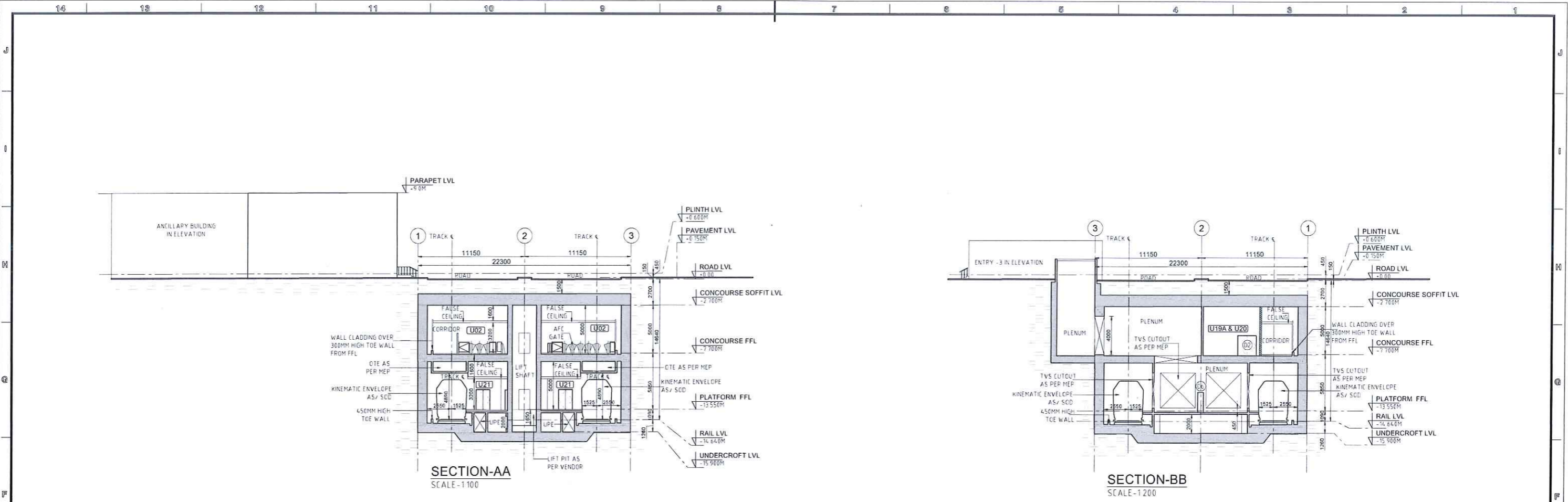


AGAK CONSORTIUM
 GENERAL CONSULTANT
 B3-34, D33-37, LMRC - GC TOWER,
 OPP. TO GOMTI NAGAR BUS DEPOT,
 VIBHUTI KHAND, LUCKNOW - 226010.



DETAIL DESIGN CONSULTANT
SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
 VATIKA MINDSCAPES, TOWER-B, 12/3,
 MATHURA ROAD, NH-2, SECTOR-27/D,
 FARIDABAD, HARYANA-121013
 PH: 0129 668 5600
 SUBSIDIARY OF:
 SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

REV.	PARTICULARS	DRN.	CHD.	VER.	DATE
R1	REVISED TENDER S.E. DIVISION	SALPABH	M.F.L.R./J.S.	N.Chaturvedi	24.05.2020
R2	TECHNICAL S.E. DIVISION	SALPABH	M.F.L.R./J.S.	N.Chaturvedi	22.05.2020

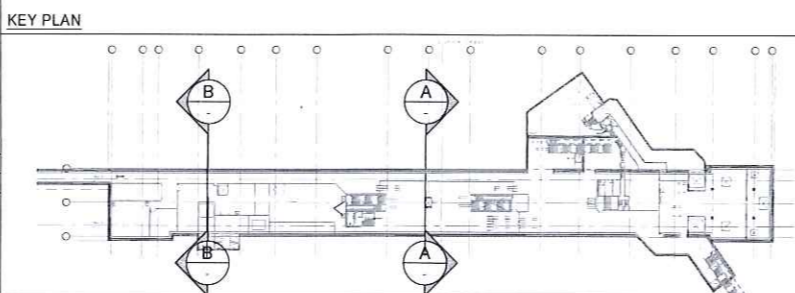


REVISION LOG-R1

1. UPDATED AS PER REVISED FLOOR PLAN.

S.NO	ROOM CODE	ROOM NAME
1	U02	PAID AREA CONCOURSE
2	U21	PLATFORM PUBLIC AREA
3	U19A/U20A	ECS/TVS FAN ROOM

- NOTES :-
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 2. ALL DIMENSIONS ARE TO BE READ AS MENTIONED ON THE DRAWINGS & NOT TO BE MEASURED.
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 5. ALL FINISHES ARE SUBJECT TO UPMRCL APPROVAL
 6. DRAINAGE DETAIL SHALL BE REFERRED FROM MEP DETAIL DRAWINGS
 7. ALL THE FIXING AND MEMBER SIZING ARE INDICATIVE AND TO BE CONFIRMED AS PER MANUFACTURER'S REQUIREMENT
 8. THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL, STRUCTURAL, PLUMBING & ELECTRICAL DRAWINGS



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GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE	SIGNATURE
CA/ARCH - GC			<input type="checkbox"/> NOC	DY.CA- UPMRCL		
CE/STRU - GC			<input type="checkbox"/> NOWC	CE DESIGN - UPMRCL		
CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRCL		
				CPM-UPMRC		

REV.	PARTICULARS	DRN.	CHD.	VER.	DATE
R1	REVISED TOP/CEILING ELEVATION	SALRABH	V. FLURWAR	N. CHATURVEDI	24.05.2020
R2	TOP/CEILING ELEVATION	SALRABH	N. FLURWAR	N. CHATURVEDI	22.05.2020

REFERENCE DRAWINGS	
Drawing Number	Description



AGAK CONSORTIUM
GENERAL CONSULTANT
B3/3-4, D3/34-37, LMRC - GC TOWER,
OPP. TO GOMTI NAGAR BUS DEPOT,
VIBHUTI KHAND, LUCKNOW -226010.



DETAIL DESIGN CONSULTANT
SYSTRA
SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
VATIKA MINDSCAPES, TOWER-B, 12/3,
MATHURA ROAD, NH-2, SECTOR-27/D,
FARIDABAD, HARYANA-121013
PH: 0129 668 5600
SUBSIDIARY OF:
SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

PREPARED	NAME	SIGNATURE	DRAWING TITLE
	SAURABH		NAYAGANJ STATION
	M. FLURWAR		CROSS SECTIONS
CHECKED BY	N. CHATURVEDI		SCALE AS SHOWN
APPROVED BY	ASHISH K.		DATE OF ISSUE 22.05.2020
			STAGE TENDER DESIGN
			DRG NO. KNPD01-TDR-NGJ-ARC-CRS-15005

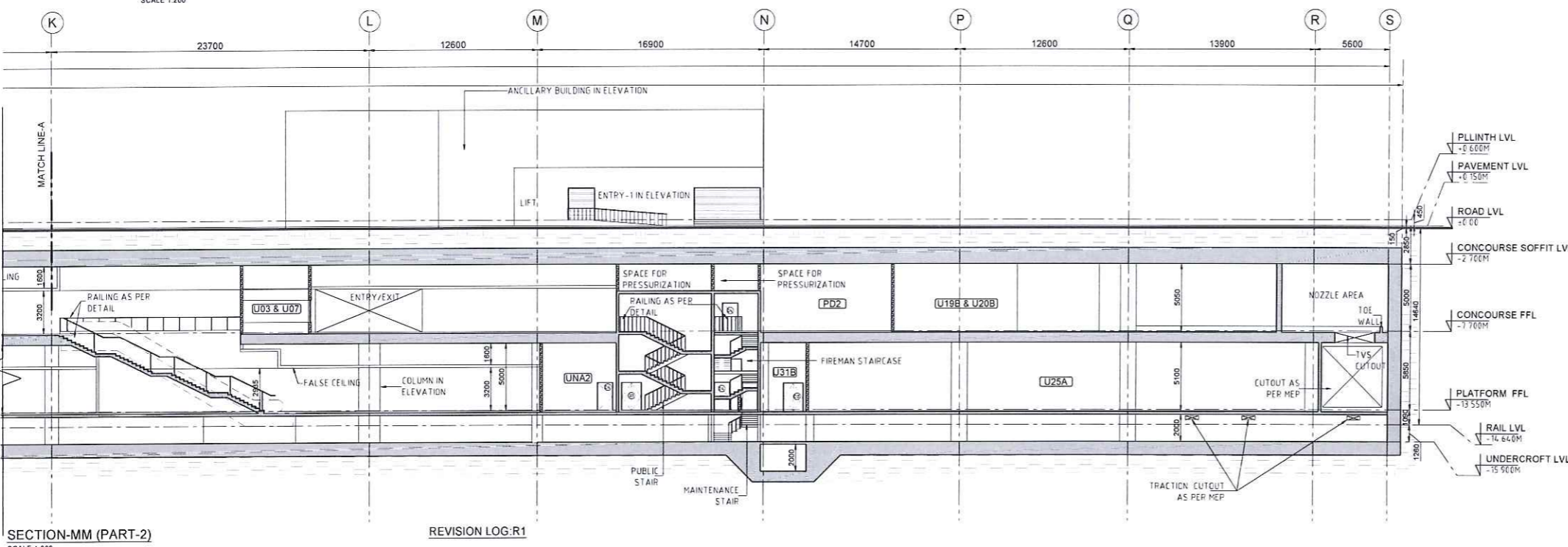
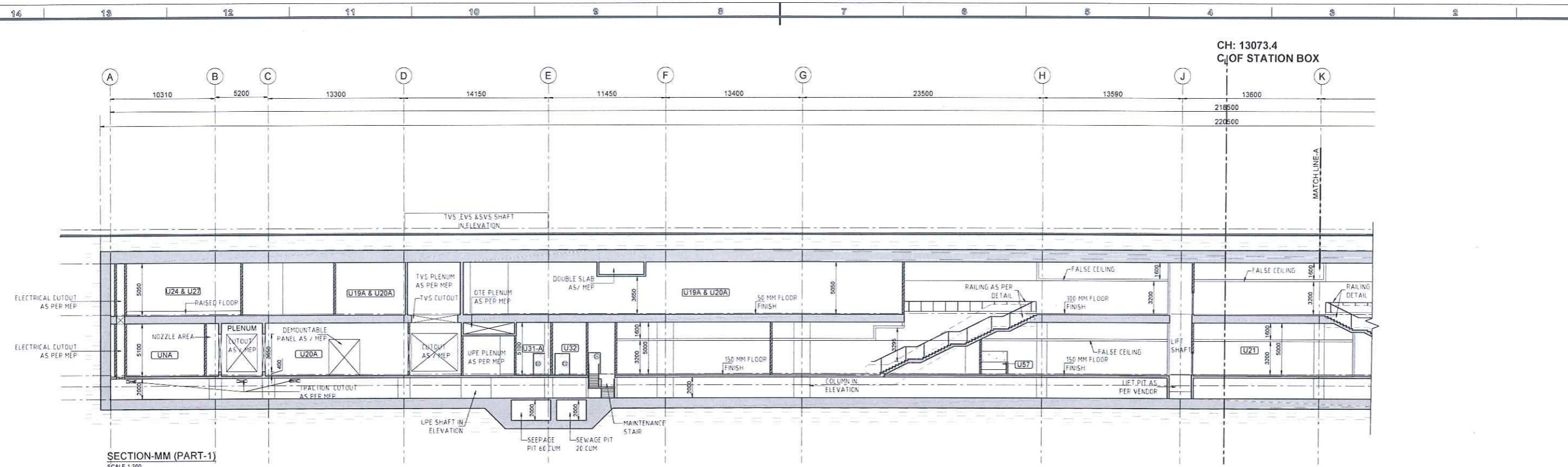


TENDER DRAWING

ARCHITECTURE

REV. R1

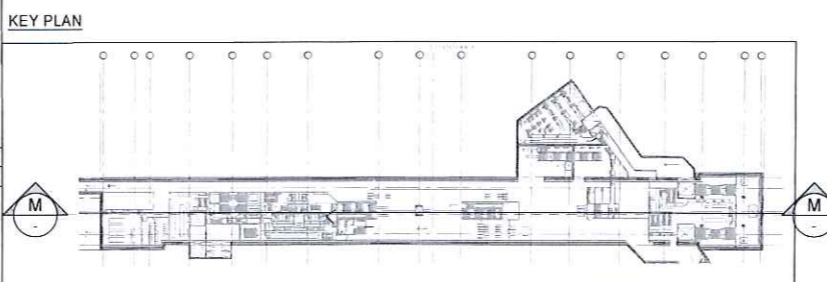
CH: 13073.4
C₁ OF STATION BOX



REVISION LOG: R1
1. UPDATED AS /REVISED FLOOR PLAN.

CONCOURSE			PLATFORM		
S.NO	ROOM CODE	ROOM NAME	S.NO	ROOM CODE	ROOM NAME
1	U22&U23	SER & TER COMBINED	1	U21	PLATFORM PUBLIC AREA
2	U24&U27	UPS BATTERY ROOM	2	U20A	TVS FAN ROOM
3	U19A	ECS/TVS FAN ROOM	3	U31-A	SEEPAGE ROOM-1
4	U15	TOILET PUBLIC	4	U32	SEWAGE ROOM
5	U01	UNPAID AREA CONCOURSE	5	UNA-1	SPARE ROOM
6	U02	PAID AREA CONCOURSE	6	U31-B	SEEPAGE ROOM-2
7	U03 & U07	SCR & EFO	7	U-25A	ASS/TSS
8	U05	TOM	8	UNA-2	SPARE ROOM
9	U09	SECURITY ROOM	9	PLENUM-1	
10	U51	EMERGENCY EQUIPMENT ROOM	10	PLENUM-2	
11		NOZZEL - (RIGHT HAND SIDE)	11	PLENUM-3	
12	U19B/U20B	ECS/TVS FAN ROOM	12	U57	PLATFORM SUPERVISOR BOOTH
13	PD1	PROPERTY DEVELOPMENT			
14	PD2	PROPERTY DEVELOPMENT			
UTILITY GALLERY SIZE 2.5M X 1.8M					

NOTES :-
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GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE	SIGNATURE
CA/ARCH - GC			<input type="checkbox"/> NOC	DY.CA- UPMRCL		
CE/STRU - GC			<input type="checkbox"/> NOWC	CE DESIGN - UPMRCL		
CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRCL		
				CPM-UPMRC		

REV.	PARTICULARS	DRN.	CHD.	VER.	DATE
R1	REVISED TOWER ELEVATION	SAL RAJH	M. PURWAR	N. CHATURVEDI	24.05.2020
R0	TOWER ELEVATION	SAL RAJH	M. PURWAR	N. CHATURVEDI	20.05.2020

REFERENCE DRAWINGS

Drawing Number	Description

AGAK CONSORTIUM
 GENERAL CONSULTANT
 B33-4, D33-34-37, UMRG - GC TOWER,
 OPP. TO GOMTI NAGAR BUS DEPOT,
 VIBHUTI KHAND, LUCKNOW-226010.

DETAIL DESIGN CONSULTANT

SYSTRA

SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
 VATIKA MINDSCAPES, TOWER-B, 12/3,
 MATHURA ROAD, NH-2, SECTOR-27/D,
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 PH: 0129 668 5600
 SUBSIDIARY OF:
 SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009


PROJECT TITLE
UTTAR PRADESH METRO RAIL CORPORATION LTD
 (Formerly known as Lucknow Metro Rail Corporation Ltd.)
 KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1

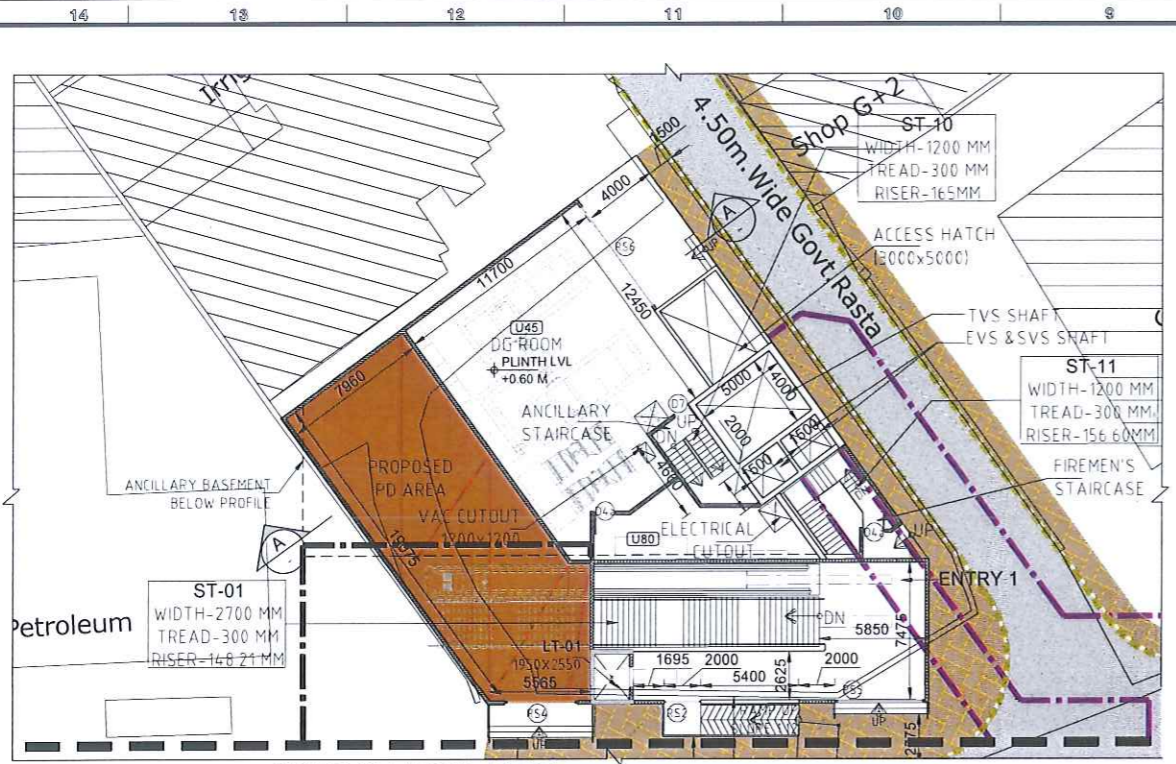
PREPARED BY: SAURABH
 DRAWN BY: M PURWAR
 DESIGNED BY: N. CHATURVEDI
 CHECKED BY: ASHISHK

DRAWING TITLE
NAYAGANJ STATION
LONG SECTION

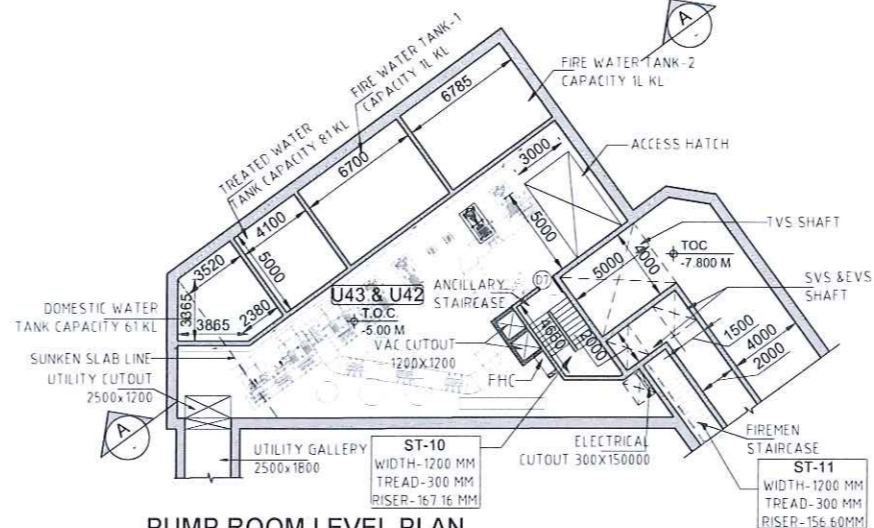
SCALE: AS SHOWN
 DATE OF ISSUE: 22.05.2020
 STAGE: TENDER DESIGN

DRG NO: KNPDD01-TDR-NG-ARC-LGS-15006
 REV: R1

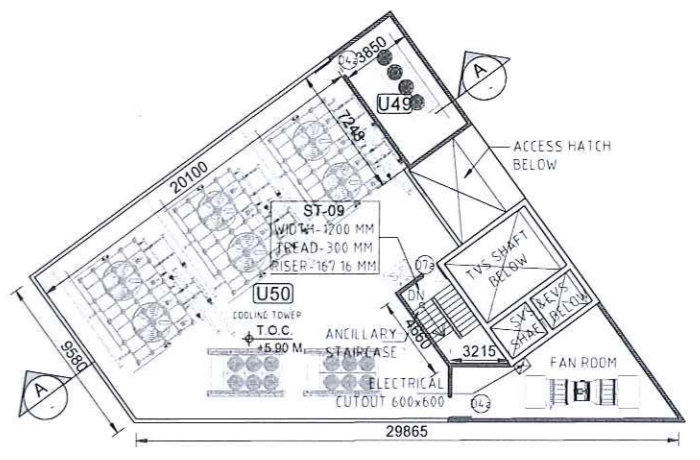




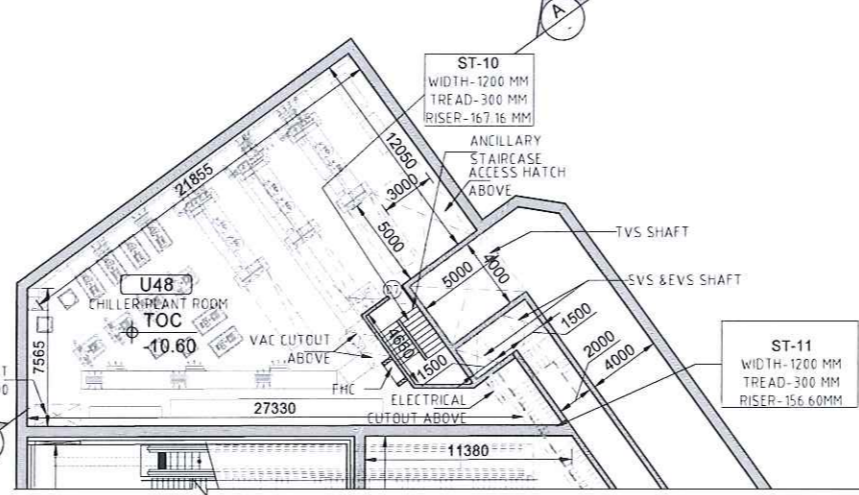
DG ROOM LEVEL PLAN
SCALE - 1:200



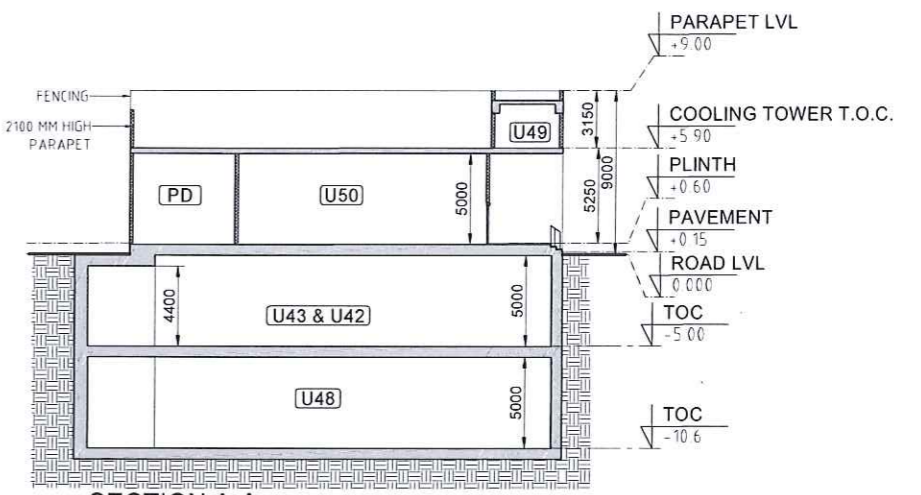
PUMP ROOM LEVEL PLAN
SCALE - 1:200



COOLING TOWER ROOM LEVEL PLAN
SCALE - 1:200



CHILLER PLANT ROOM LEVEL PLAN
SCALE - 1:200



SECTION A-A
SCALE - 1:100

LEGEND

1	BLOCKWORK	
2	CONCRETE WORK	
3	GLASS WALL / WINDOW	

REVISION LOG-R1

1.	REVISED LAYOUT AS/ MEP REQUIREMENTS.
----	--------------------------------------

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 - STRUCTURE SYSTEM SHOWN IS INDICATIVE. REFER STRUCTURE DRAWING FOR ALL STRUCTURE MEMBER SIZES TO BE DETAIL BY CONTRACTOR AT LATER STAGE.
 - THIS DRAWINGS HAVE BEEN DEVELOPED IN CONFORMITY TO DPR, SOD, NBC, UPMRC & OTHER LOCAL BODY REQUIREMENT.
 - THE STATION LOCATION SHOWN AS PER ALIGNMENT DRAWING RECEIVED FROM UPMRC DATED 22.06.2020.
 - ESCALATOR PIT, LIFT SHAFT & LIFT PIT SIZE ARE SHOWN AS PER THE ELEVATED STATION AND ARE SUBJECT TO VENDOR'S REQUIREMENT.
 - TRACK CENTRE TO PLATFORM EDGE DISTANCE & PLATFORM HEIGHT ARE PROVIDED AS PER FINAL SOD (REVISED ON 06.02.20).
 - STAIRCASE SIZE & THEIR NOS. SHOWN AS PER RIDERSHIP REQUIREMENT. REFERENCE RECEIVED WITH DPR.
 - ROOM SIZE, HEIGHTS DOOR/SIZE AND CUTOUT DIMENSIONS BY RELEVANT DISCIPLINES OF ENGINEERING.
 - ROOM SIZES PROVIDED AS PER CONCERN DISCIPLINE REQUIREMENT. THIS MAY CHANGE AT THE TIME OF DETAIL DESIGN.
 - FLOOR FINISH THICKNESS OF CONCOURSE & PLATFORM SHOWN AS PER GC MAL DATED 14.05.20.
 - CONCOURSE SHALL BE POINT OF SAFETY AS PER CLAUSE REF J-5.1 D EXCAVATION TIME PART-4 FIRE LIFE & SAFETY OF NBC 2016 VOL 1.
 - LOCATION OF FHC HOSE CABINET, FIRE EXTINGUISHER & CUTOUT IS TENTATIVE AND SHALL BE REFERRED BY MEP DWG.
 - MINIMUM HORIZONTAL DISTANCE MAINTAINED FROM PLATFORM EDGE TO ANY STRUCTURE AS PER SOD.
 - STATION BOX SIZE PROPOSED AS PER DISCUSSION WITH UPMRC.
 - SYSTEM WIDE RELATED ROOM SIZES & FLOOR LEVELS MAY VARY & SHALL BE AS PER SYSTEM WIDE CONTRACTOR REQUIREMENT.
 - NO. OF AFC GATES, TOM COUNTERS, FMD GATE SHOWN ARE TENTATIVE MAY BE CHANGE IN DETAIL DESIGN STAGE AS PER FINAL SYSTEM WIDE REQUIREMENT.
 - NO. OF AFC GATES MARKED AS PER EMERGENCY CONDITION CALCULATION I.E. @ 50 P/MIN. HOWEVER, AS PER DPR (REV. DEC 2017) AFC GATES NO. MARKED IN NORMAL CONDITION I.E. @ 35 P/MIN. PLANNING OF UNPAID & PAID AREA MAY REVISE AS PER AFC GATES REQUIREMENT MENTIONED IN DPR.
 - LOCATION, NO. & SIZE OF EARTH MAT, CLEAN EARTH, EPR, LDB & MEP RELATED CUTOUT SHALL BE REFERRED BY MEP DWG.
 - CLEAR HT. BETWEEN CONCOURSE & PLATFORM IS PROVIDED AS PER MEP REQUIREMENT.
 - PD AREAS ON CONCOURSE & GROUND MARKED TENTATIVELY & SAME SHALL BE REVISED AS PER UPMRC REQUIREMENT.
 - ENTRY/EXIT LOCATION, ANCILLARY LOCATION, PD AREA ON GROUND SHOWN IN DISCUSSION WITH UPMRC.
 - EQUIPMENT DELIVERY ROUTE FOR MEP ROOMS & ANCILLARY AREAS SHALL BE AS PER MEP REQUIREMENT.
 - PASSENGER CAR DROP OFF, BUS DROP OFF, NO. OF PARKINGS FOR (24 WHEELER), BUS BAYS, PEDESTRIAN CROSSING, FOOT PATH, ROADS SHOWN IN THIS PLAN ARE TENTATIVE & SHALL BE FINALIZED IN CONJUNCTION WITH TRANSPORT INTEGRATION DRAWINGS.
 - ALL FINISHES ARE SUBJECT TO UPMRC/GC APPROVAL.
 - DRAINAGE DETAIL SHALL BE REFERRED FROM MEP DETAIL DRAWINGS.
 - MEP ROOM EQUIPMENT LAYOUT, MEP CUTOUTS & LOCATION OF DEMOUNTABLE PANELS SHALL BE REFERRED FROM MEP DRAWINGS.
 - FILLING OVER ROOF MAY INCREASE OR DECREASE AS PER ACTUAL SITE CONDITION/UTILITIES. THIS MAY RESULT INTO CHANGE IN VERTICAL LEVELS OF STATIONS.

LEGEND

	ROAD
	FOOTPATH
	FUTURE PD
	STATION BOX
	SUBWAY
	SHAFT ROUTING
	KERB LINE

DOOR SCHEDULE

DOOR NO.	WIDTH (IN MM)	LINTEL HEIGHT FROM FFL (IN MM)	FIRE RATING	REMARKS
D4a	1200	2100	--	--
D7	1000	2100	FS-90	--
RS2	2000	4000	--	ROLLING SHUTTER
RS4	4000	4000	--	ROLLING SHUTTER
RS5	5000	4000	--	ROLLING SHUTTER
RS6	7250	4000	--	ROLLING SHUTTER

ANCILLARY BUILDING GROUND FLOOR

S.NO	ROOM CODE	ROOM NAME	LENGTH	WIDTH	AREA sqm
1	U45	DG ROOM			167
2	U80	DG PANEL ROOM			30.3

ANCILLARY BUILDING FIRST FLOOR

S.NO	ROOM CODE	ROOM NAME	LENGTH	WIDTH	AREA sqm
1	U50	COOLING TOWER			405.00
2	U49	DOSING PLANT ROOM			12.8

ANCILLARY BUILDING CONCOURSE LEVEL

S.NO	ROOM CODE	ROOM NAME	LENGTH	WIDTH	AREA sqm
1	U42	WATER TANK			139.05
2	U43	PUMP ROOM			275.18

ANCILLARY BUILDING PLATFORM LEVEL

S.NO	ROOM CODE	ROOM NAME	LENGTH	WIDTH	AREA sqm
1	U48	CHILLER PLANT ROOM			437

UTILITY GALLERY SIZE 3M X 1.3M

UPMRC

AGAK CONSORTIUM
GENERAL CONSULTANT
E3/4, D3/34-37, LMRC - GC TOWER,
OPP. TO GOMTI NAGAR BUS DEPOT,
VIBHUTI KHAND, LUCKNOW-226010.

SYSTRA
DETAIL DESIGN CONSULTANT

SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
VATIKA MINDSCAPES, TOWER-B, 12/3,
MATHURA ROAD, NH-2, SECTOR-27/D,
FARIDABAD, HARYANA-121013
PH: 0129 668 5600
SUBSIDIARY OF:
SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

PREPARED SAURABH
DRAWN BY M. PUNJWAR
DESIGNED BY N. CHATURVEDI
CHECKED BY ASHISH K
APPROVED BY

NOTICE OF NO OBJECTIONS FROM EMPLOYER

NOTICE OF NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES HOWEVER THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAIL DESIGN CONSULTANT.

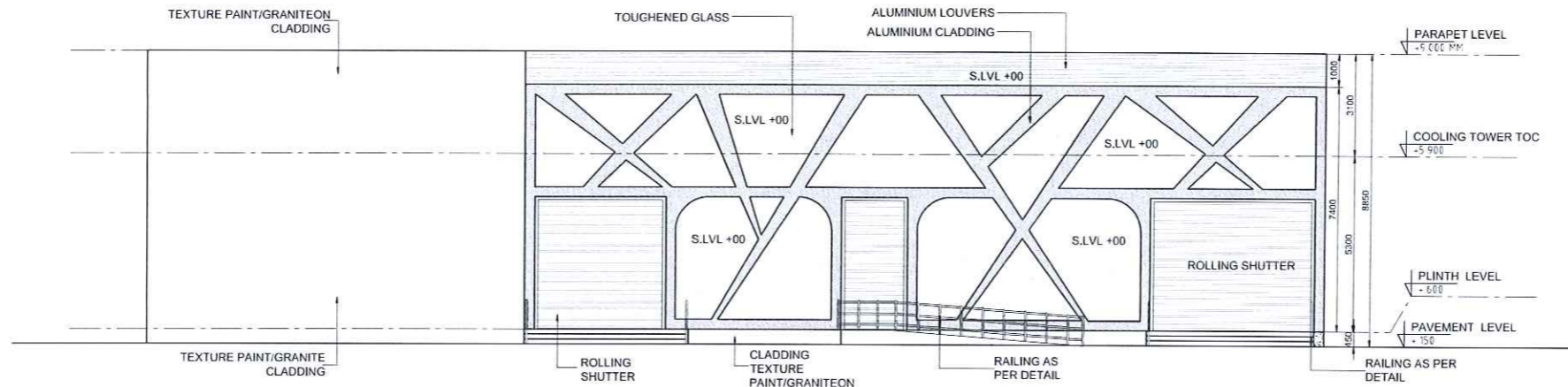
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CE/STRU - GC			<input type="checkbox"/> NOWC	CE DESIGN- UPMRC		
CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRC		
				CPM-UPMRC		

PROJECT TITLE
UTTAR PRADESH METRO RAIL CORPORATION LTD
(Formerly known as Lucknow Metro Rail Corporation Ltd.)
KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1

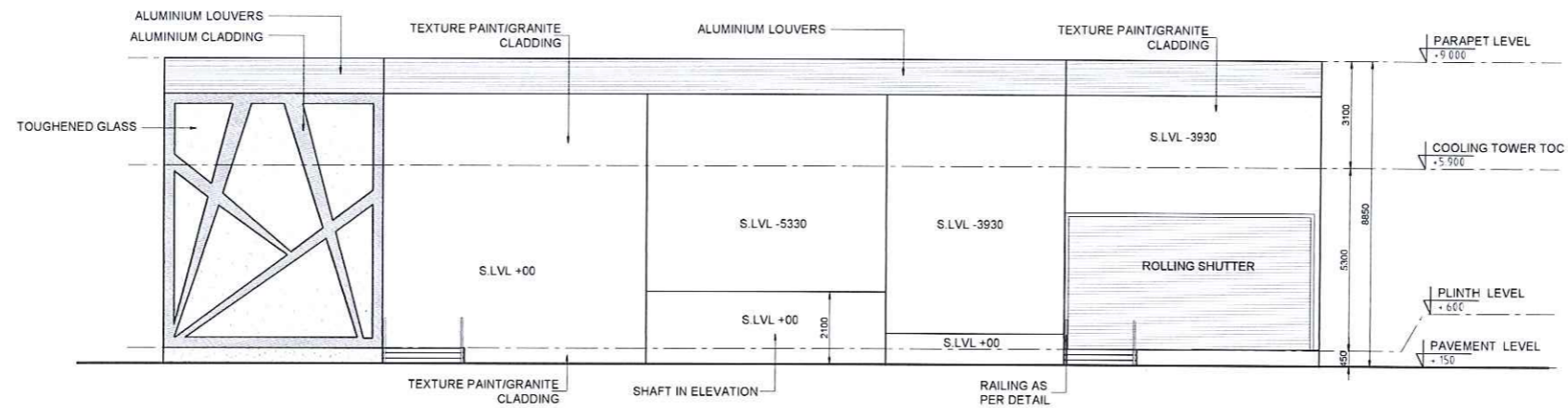
DRAWING TITLE
NAYAGANJ STATION
ANCILLARY BUILDING PLANS AND SECTION

SCALE AS SHOWN
DATE OF ISSUE 22.05.2020
STAGE TENDER DESIGN

DRG NO. KNPDD01-TDR-NG-I-ARC-PLN-15007
REV R1



ELEVATION A
SCALE - 1:100



ELEVATION B
SCALE - 1:100

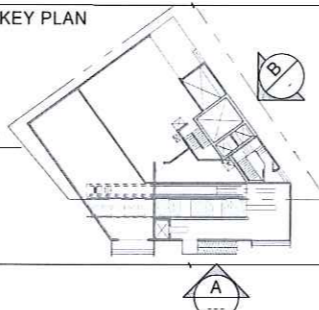
LEGEND	
1	TEXTURE PAINT GRANITE/CLADDING
2	ALUMINIUM LOUVER
3	ALUMINIUM CLADDING
4	TOUGHENED GLASS

REVISION LOG:R1

1. UPDATED AS /REVISED FLOOR PLAN.

- NOTES :-**
1. ALL DIMENSIONS ARE IN MM. UNLESS NOTED OTHERWISE
 2. ALL DIMENSIONS ARE TO BE READ AS MENTIONED ON THE DRAWINGS & NOT TO BE MEASURED
 3. ANY DISCREPANCY THIS ARRIVED MUST BE BROUGHT TO THE NOTICE OF THE CONSULTANT
 4. ALL STRUCTURE ELEMENTS SIZES & THICKNESS MAY VARY AS PER STRUCTURE DETAIL DRAWINGS
 5. ALL FINISHES ARE SUBJECT TO UPMRC/IGC APPROVAL
 6. DRAINAGE DETAIL SHALL BE REFERRED FROM MEP DETAIL DRAWINGS
 7. ALL THE FIXING AND MEMBER SIZING ARE INDICATIVE AND TO BE CONFIRMED AS PER MANUFACTURER'S REQUIREMENT
 8. THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL, STRUCTURAL, PLUMBING & ELECTRICAL DRAWINGS
 9. ROAD LEVEL ASSUMED 100.

KEY PLAN



REFERENCE DRAWINGS	
Drawing Number	Description



AGAK CONSORTIUM
GENERAL CONSULTANT
B3-24, D3-34-37, LMRC - GC TOWER,
OFF. TO GOMTI NAGAR BUS DEPOT,
VIBHUTI KHAND, LUCKNOW-226010.

DETAIL DESIGN CONSULTANT



SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
VATIKA MINDSCAPES, TOWER-B, 12/3,
MATHURA ROAD, NH-2, SECTOR-27/D,
FARIDABAD, HARYANA-121013
PH: 0129 668 5600
SUBSIDIARY OF:
SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

PREPARED
DRAWN BY
DESIGNED BY
CHECKED BY
APPROVED BY

NAME	SIGNATURE
MUZZAMIL	<i>Muzamil</i>
M. PURWAR	<i>Purwar</i>
H. CHATURVEDI	<i>Chaturvedi</i>
ASHISHK	<i>Ashishk</i>

DRAWING TITLE
NAYAGANJ STATION
ENTRY & ANCILLARY ELEVATIONS

SCALE AS SHOWN
DATE OF ISSUE 22.05.2020
STAGE TENDER DESIGN

DRG NO. KNPDD01-TDR-NGJ-ARC-ELE-15008
REV R1

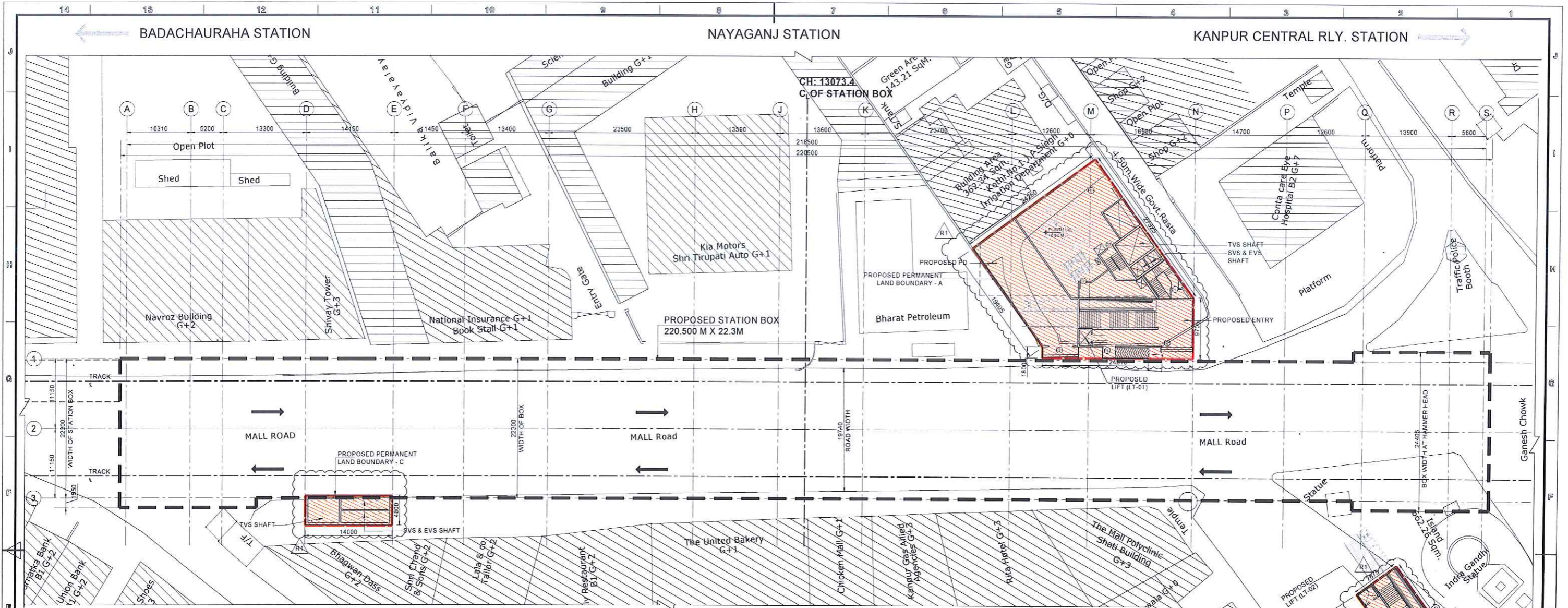
NOTICE OF 'NO OBJECTIONS' FROM EMPLOYER					
NOTICE OF NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES HOWEVER THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAIL DESIGN CONSULTANT.					
GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	SIGNATURE
CA/ARCH - GC			<input type="checkbox"/> NOC	DY.CA- UPMRCL	
CE/STRU - GC			<input type="checkbox"/> NO/C	CE DESIGN - UPMRCL	
CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRCL	
				CPM-UPMRC	

PROJECT TITLE
UTTAR PRADESH METRO RAIL CORPORATION LTD
(Formerly known as Lucknow Metro Rail Corporation Ltd.)
KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1



TENDER DRAWING

ARCHITECTURE



INSERTION LEVEL PLAN

SCALE - 1:300

LEGEND

1	BLOCKWORK	
2	CONCRETE WORK	
3	GLASS WALL / WINDOW	

ABBREVIATIONS :-
 LT - LIFT
 ESC - ESCALATOR
 ST - STAIRCASE
 PD - PROPERTY DEVELOPMENT

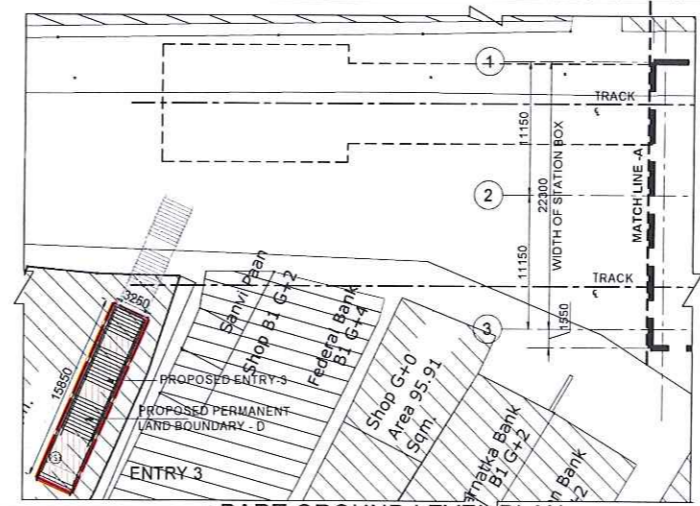
- REVISION LOG R1:**
1. UPDATED AS / REVISED GROUND LEVEL PLAN
- NOTE:**
1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH GROUND LEVEL PLAN (DRAWING NO KNPDD01-TDR-NGJ-ARC-PLN-15001)

- NOTES :-**
1. ALL DIMENSIONS ARE IN MM. UNLESS NOTED OTHERWISE.
 2. ALL DIMENSIONS ARE TO BE READ AS MENTIONED ON THE DRAWINGS & NOT TO BE MEASURED.
 3. THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT STRUCTURAL, MEP, SYSTEM, VENDOR, FIRE FIGHTING & TRAFFIC MANAGEMENT DRAWINGS.
 4. ANY DISCREPANCY THIS ARRIVED MUST BE BROUGHT TO THE NOTICE OF THE CONSULTANT.
 5. STRUCTURE SYSTEM SHOWN IS INDICATIVE. REFER STRUCTURE DRAWING FOR ALL STRUCTURE MEMBER SIZES TO BE DETAIL BY CONTRACTOR AT LATER STAGE.
 6. THIS DRAWINGS HAVE BEEN DEVELOPED IN CONFORMITY TO DPR, SOD, NBC, UPMRC & OTHER LOCAL BODY REQUIREMENT.
 7. THE STATION LOCATION SHOWN AS PER ALIGNMENT DRAWING RECEIVED FROM UPMRC DATED 22.06.2020
 8. ESCALATOR PIT, LIFT SHAFT & LIFT PIT SIZE ARE SHOWN AS PER THE ELEVATED STATION AND ARE SUBJECT TO VENDOR'S REQUIREMENT.
 9. TRACK CENTRE TO PLATFORM EDGE DISTANCE & PLATFORM HEIGHT ARE PROVIDED AS PER FINAL SOD (REVISED ON 06.02.20).
 10. STAIRCASE SIZE & THEIR NOS. SHOWN AS PER RIDERSHIP REQUIREMENT. REFERENCE RECEIVED WITH DPR
 11. ROOM SIZE, HEIGHTS DOOR/SIZE AND CUTOUT DIMENSIONS BY RELEVANT DISCIPLINES OF ENGINEERING.
 12. ROOM SIZES PROVIDED AS PER CONCERN DISCIPLINE REQUIREMENT. THIS MAY CHANGE AT THE TIME OF DETAIL DESIGN.
 13. FLOOR FINISH THICKNESS OF CONCOURSE & PLATFORM SHOWN AS PER GC MAIL DATED 14.05.20
 14. CONCOURSE SHALL BE POINT OF SAFETY AS PER CLAUSE REF J-5.1 D.ECAVATION TIME, PART-4 FIRE LIFE & SAFETY OF NBC 2016 VOL 1
 15. LOCATION OF FHC HOSE CABINET, FIRE EXTINGUISHER & CUTOUT IS TENTATIVE AND SHALL BE REFERRED BY MEP DWG
 16. MINIMUM HORIZONTAL DISTANCE MAINTAINED FROM PLATFORM EDGE TO ANY STRUCTURE AS PER SOD
 17. STATION BOX SIZE PROPOSED AS PER DISCUSSION WITH UPMRC
 18. SYSTEM WIDE RELATED ROOM SIZES & FLOOR LEVELS MAY VARY & SHALL BE AS PER SYSTEM WIDE CONTRACTOR REQUIREMENT.
 19. NO OF AFC GATES, TOM COUNTERS, DFMD GATE SHOWN ARE TENTATIVE MAY BE CHANGE IN DETAIL DESIGN STAGE AS PER FINAL SYSTEM WIDE REQUIREMENT.
 20. NO OF AFC GATES MARKED AS PER EMERGENCY CONDITION CALCULATION I.E @ 50 P/MIN. HOWEVER, AS PER DPR (REV. DEC 2017) AFC GATES NO. MARKED IN NORMAL CONDITION I.E @ 35 P/MIN. PLANNING OF UNPAID & PAID AREA MAY REVISE AS PER AFC GATES REQUIREMENT MENTIONED IN DPR
 21. LOCATION, NO & SIZE OF EARTH MAT, CLEAN EARTH, EPR, LDB & MEP RELATED CUTOUT SHALL BE REFERRED BY MEP DWG
 22. CLEAR HT. BETWEEN CONCOURSE & PLATFORM IS PROVIDED AS PER MEP REQUIREMENT
 23. PD AREAS ON CONCOURSE & GROUND MARKED TENTATIVELY & SAME SHALL BE REVISED AS PER UPMRC REQUIREMENT
 24. ENTRY/EXIT LOCATION, ANCILLARY LOCATION, PD AREA ON GROUND SHOWN IN DISCUSSION WITH UPMRC
 25. EQUIPMENT DELIVERY ROUTE FOR MEP ROOMS & ANCILLARY AREAS SHALL BE AS PER MEP REQUIREMENT
 26. PASSENGER CAR DROP OFF, BUS DROP OFF, NO. OF PARKINGS FOR (24 WHEELER), BUS BAYS, PEDESTRIAN CROSSING, FOOT PATH, ROADS SHOWN IN THIS PLAN ARE TENTATIVE & SHALL BE FINALIZED IN CONJUNCTION WITH TRANSPORT INTEGRATION DRAWINGS
 27. ALL FINISHES ARE SUBJECT TO UPMRC/GC APPROVAL
 28. DRAINAGE DETAIL SHALL BE REFERRED FROM MEP DETAIL DRAWINGS
 29. MEP ROOM EQUIPMENT LAYOUT, MEP CUTOUTS & LOCATION OF DEMOUNTABLE PANELS SHALL BE REFERRED FROM MEP DRAWINGS
 30. FILLING OVER ROOF MAY INCREASE OR DECREASE AS PER ACTUAL SITE CONDITIONALITIES. THIS MAY RESULT INTO CHANGE IN VERTICAL LEVELS OF STATIONS

* AVAILABILITY OF LAND FOR PROPOSED ENTRIES NEEDS TO BE CONFIRMED BY UPMRC
 * LEVELS PROPOSED IN ENTIRE STATION BY KEEPING ROAD LEVEL OF 100 MM.
 * LENGTH OF ENTRY STAIRCASE / ESCALATOR MAY VARY AS PER SPOT LEVEL AROUND ENTRY STRUCTURE

REFERENCE DRAWINGS

Drawing Number	Description



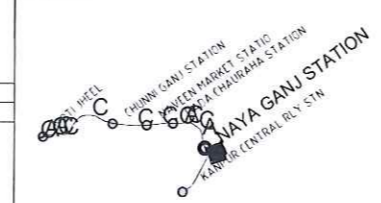
PART GROUND LEVEL PLAN

SCALE - 1:300

PROPOSED PERMANENT LAND BOUNDARY	AREA (IN SQ. MT.)
A	706.30
B	162.67
C	67.20
D	51.50

LEGEND:

KEY MAP



TENDER DRAWING

NOTICE OF 'NO OBJECTIONS' FROM EMPLOYER

NOTICE OF NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES HOWEVER THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAIL DESIGN CONSULTANT.

GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE	SIGNATURE
CAIARCH - GC			<input type="checkbox"/> NOC	DY.CA- UPMRC		
CE/STRU - GC			<input type="checkbox"/> NOWC	CE DESIGN - UPMRC		
CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRC		
				CPM-UPMRC		

PROJECT TITLE
UTTAR PRADESH METRO RAIL CORPORATION LTD
 (Formerly known as Lucknow Metro Rail Corporation Ltd.)
 KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1

PREPARED	NAME	SIGNATURE	DRAWING TITLE
			NAYAGANJ STATION
DRAWN BY	SAURABH		INSERTION LEVEL PLAN
DESIGNED BY	M PURWAR		
CHECKED BY	N. CHATURVEDI		
APPROVED BY	Ashish.K		

SCALE AS SHOWN DATE OF ISSUE 03.06.2020 STAGE TENDER DESIGN

DRG NO KNPDD01-TDR-NGJ-ARC-PLN-15009 REV R0



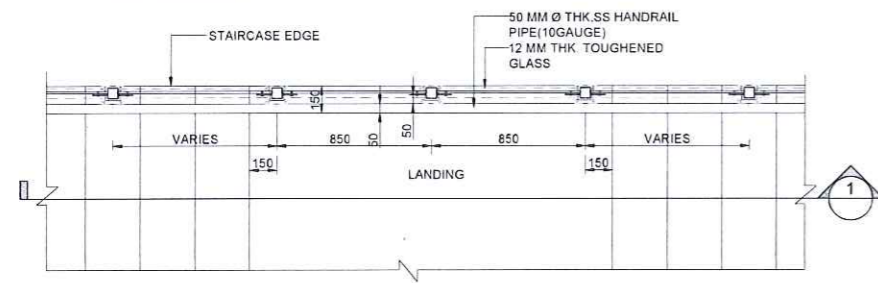
AGAK CONSORTIUM
 GENERAL CONSULTANT
 E3-34, D3-34-37, LMRC - GC TOWER,
 OPP. TO GOMTI NAGAR, SUB. DEPOT,
 VIBHUTI KHAND, LUCKNOW-226016.



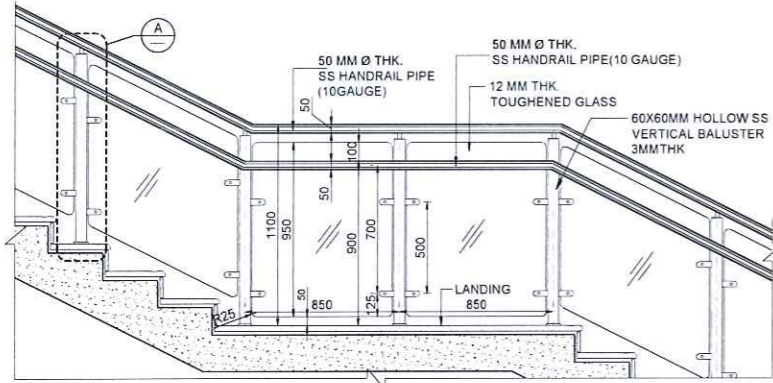
DETAIL DESIGN CONSULTANT
SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
 VATIKA MINDSCAPES, TOWER-B, 12/3,
 MATHURA ROAD, NH-2, SECTOR-27/D,
 FARIDABAD, HARYANA-121013
 PH: 0129 668 5600
 SUBSIDIARY OF:
 SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009



PUBLIC STAIRCASE

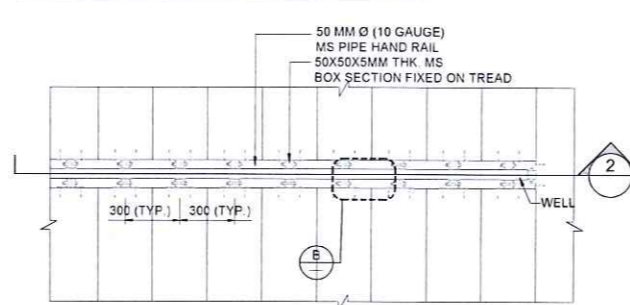


PLAN (PUBLIC STAIRCASE)
Scale-1:20

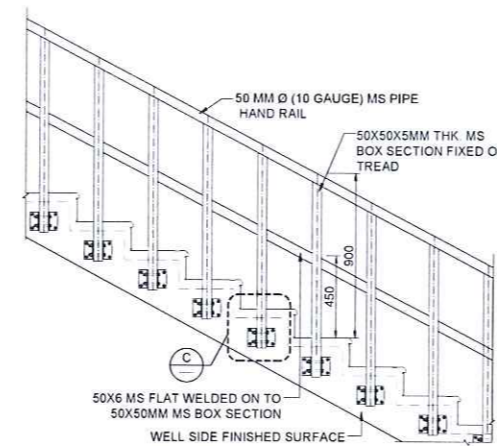


SECTION-1
Scale-1:20

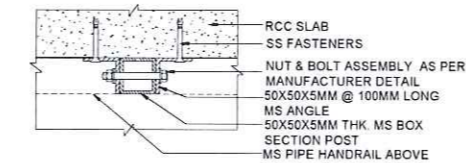
PUBLIC ESCAPE & FIREMAN STAIRCASE



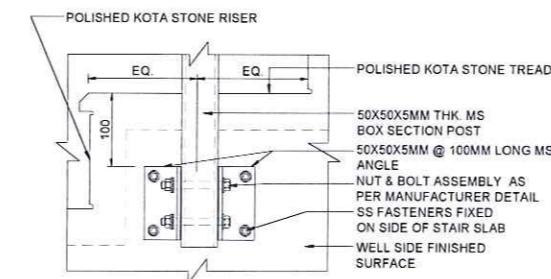
PLAN (PUBLIC ESCAPE & FIREMEN STAIRCASE)
Scale-1:20



ELEVATION-2
Scale-1:20

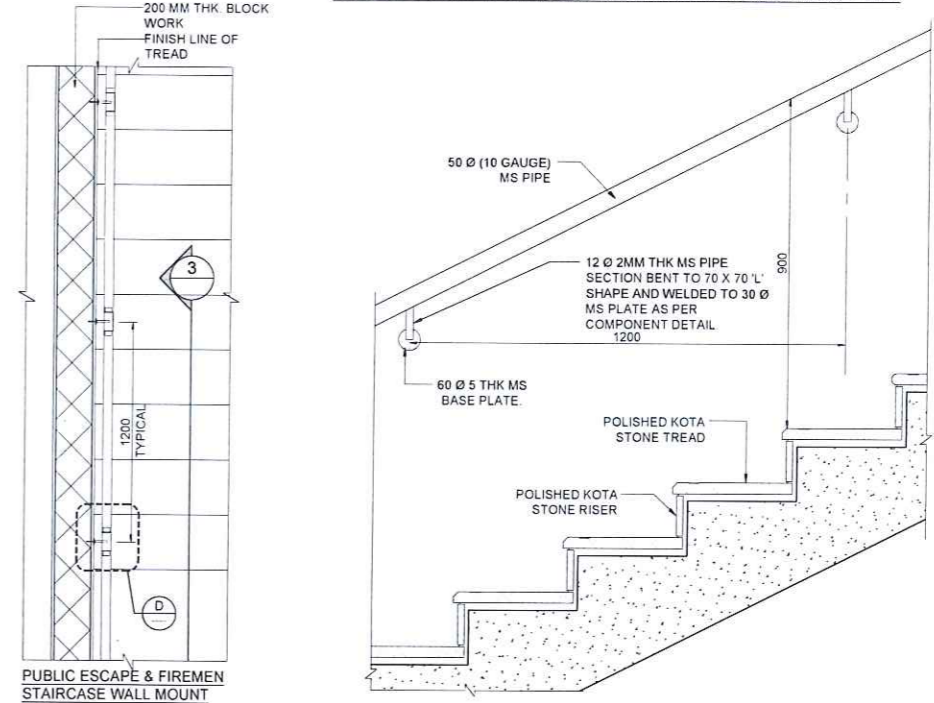


DETAIL-B
Scale-1:5



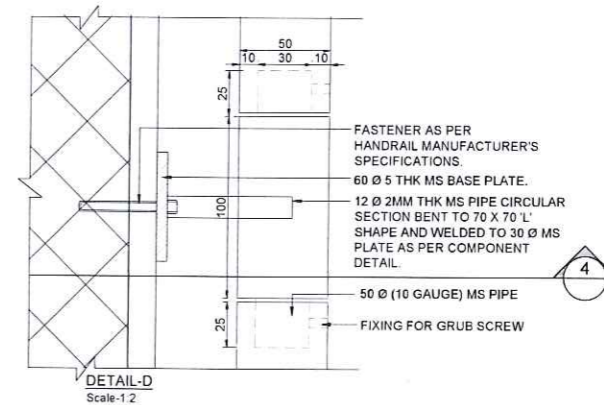
DETAIL-C
Scale-1:5

PUBLIC ESCAPE & FIREMEN STAIRCASE WALL MOUNTED

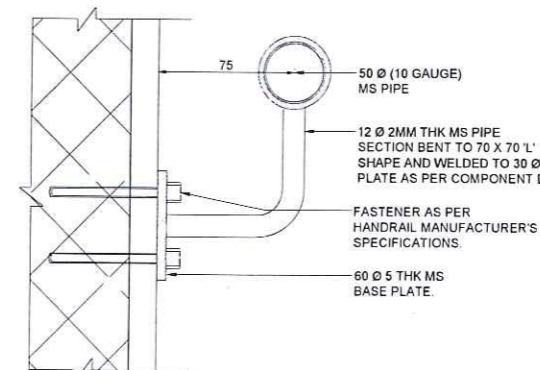


SECTIONAL ELEVATION-3
Scale-1:10

PUBLIC ESCAPE & FIREMEN STAIRCASE WALL MOUNT PLAN
Scale-1:20



DETAIL-D
Scale-1:2



NOTES:-
 1. ALL DIMENSIONS ARE IN MM, UNLESS NOTED OTHERWISE
 2. ALL DIMENSIONS ARE TO BE READ AS MENTIONED ON THE DRAWINGS & NOT TO BE MEASURED
 3. ANY DISCREPANCY THUS ARRIVED MUST BE BROUGHT TO THE NOTICE OF THE CONSULTANT.
 4. ALL STRUCTURE ELEMENTS SIZES & THICKNESS MAY VARY AS PER STRUCTURE DETAIL DRAWINGS.
 5. ALL FINISHES ARE SUBJECTED TO UPMRC/GC APPROVAL
 6. DRAINAGE DETAIL SHALL BE REFERRED FROM MEP DETAIL DRAWINGS
 7. ALL THE FIXING AND MEMBER SIZING ARE INDICATIVE AND TO BE CONFIRMED AS PER MANUFACTURER'S REQUIREMENT.
 8. THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL, STRUCTURAL, PLUMBING & ELECTRICAL DRAWINGS.

REFERENCE DRAWINGS	
Drawing Number	Description

REVISION LOG:R1
 1. UPDATED AS /REVISED FLOOR PLAN.



AGAK CONSORTIUM
 GENERAL CONSULTANT
 B3/3-4, D3/34-37, LMRC - GC TOWER,
 OPP. TO GOMTI NAGAR BUS DEPOT,
 VIBHUTI KHAND, LUCKNOW -226010.



SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
 VATIKA MINDSCAPES, TOWER-B, 12/3,
 MATHURA ROAD, NH-2, SECTOR-27/D,
 FARIDABAD, HARYANA-121013
 PH: 0129 668 5600
 SUBSIDIARY OF:
 SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

PREPARED	NAME	SIGNATURE	DRAWING TITLE
			TYPICAL DETAILS
			TYPICAL RAILING DETAILS

CHECKED BY	DATE	SIGNATURE	SCALE	DATE OF ISSUE	STAGE
			AS SHOWN	22/05/2020	TENDER DESIGN

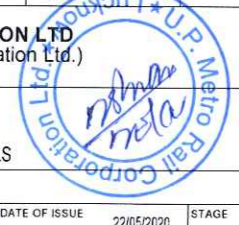
APPROVED BY	DATE	SIGNATURE	DRG NO
			KNPDD01-TDR-UG0-ARC-DET-18752

TENDER DRAWING

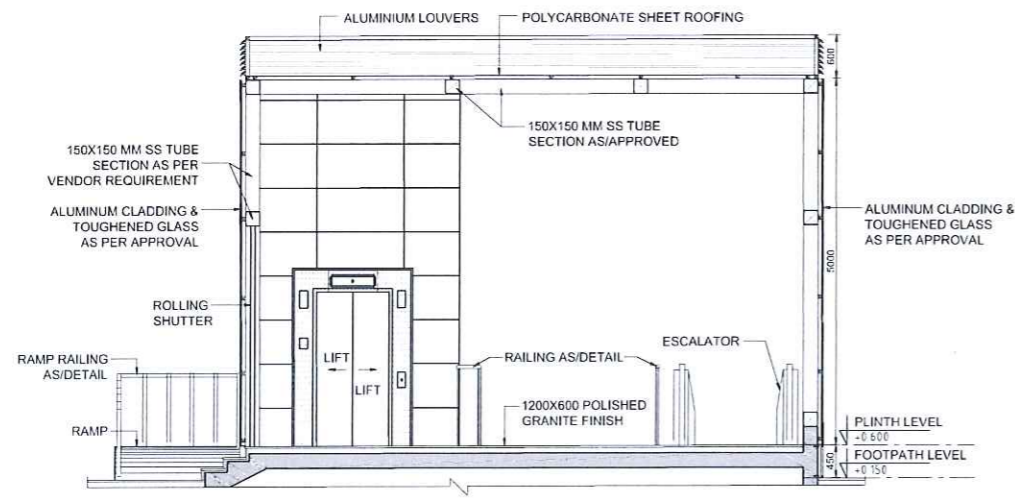
SECTION-4 NOTICE OF 'NO OBJECTIONS' FROM EMPLOYER
 Scale-1:2 NOTICE OF NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES HOWEVER THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAIL DESIGN CONSULTANT.

GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE	SIGNATURE
CA/ARCH - GC			<input type="checkbox"/> NCC	DY.CA - UPMRC		
CE/STRU - GC			<input type="checkbox"/> NCWC	CE DESIGN - UPMRC		
CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRC		

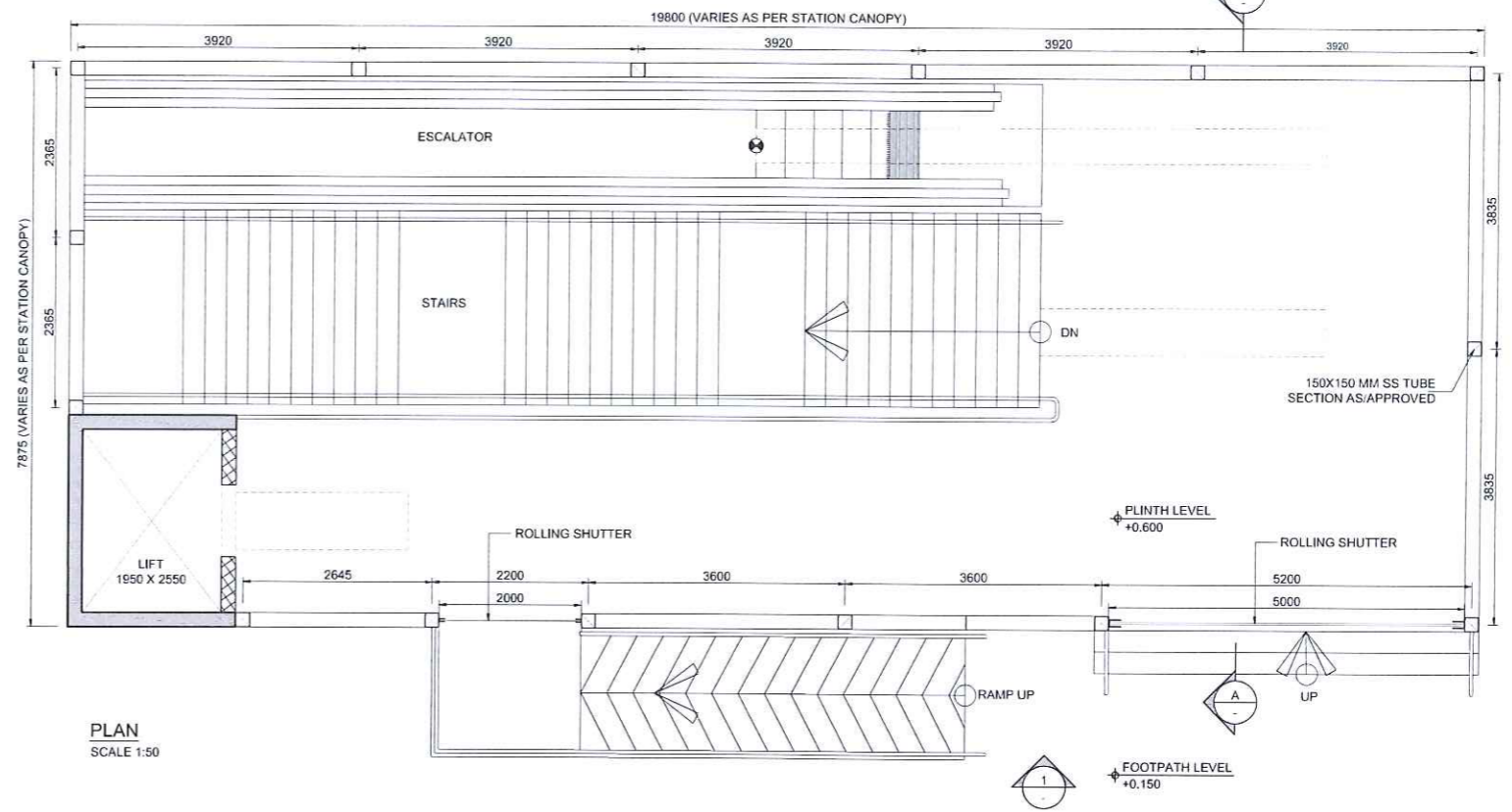
PROJECT TITLE
UTTAR PRADESH METRO RAIL CORPORATION LTD
 (Formerly known as Lucknow Metro Rail Corporation Ltd.)
 KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1



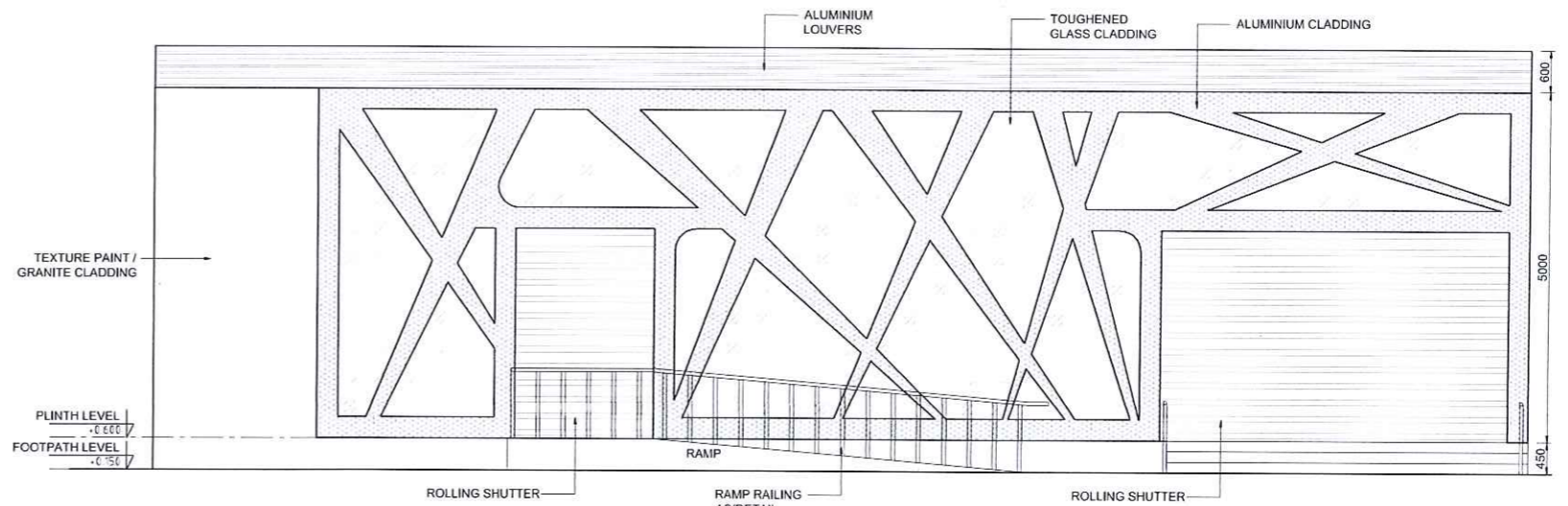
REV.	PARTICULARS	DRN.	CHD.	VER.	DATE



SECTION A-A
SCALE 1:50



PLAN
SCALE 1:50



ELEVATION-1
SCALE 1:50

- NOTES :-
- LIFT SHAFT & LIFT PIT SIZE ARE SUBJECTED TO VENDOR'S REQUIREMENT.
 - LIFT & ENTRANCE CANOPY SIZES MAY VARY AS PER GROUND LOCATION.

- NOTES :-
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 - ALL THE FIXING AND MEMBER SIZING ARE INDICATIVE AND TO BE CONFIRMED AS PER MANUFACTURER'S REQUIREMENT.
 - THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL, STRUCTURAL, PLUMBING & ELECTRICAL DRAWINGS.

REFERENCE DRAWINGS	
Drawing Number	Description

REVISION LOG R1

1.	ENTRANCE CANOPY DETAIL REVISED
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AGAC CONSORTIUM
GENERAL CONSULTANT
E3-34, D3-34-37, LMRC - GC TOWER,
OPP. TO GOVTI NAGAR BUS DEPOT,
VIBHUTI KHAND, LUCKNOW-226010.



DETAIL DESIGN CONSULTANT
SYSTRA
SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
VATIKA MINDSCAPES, TOWER-B, 12/3,
MATHURA ROAD, NH-2, SECTOR-27/D,
FARIDABAD, HARYANA-121013
PH: 0129 668 5600
SUBSIDIARY OF:
SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

PREPARED	NAME	SIGNATURE
DRAWN BY	ARJUN	<i>Arjun</i>
DESIGNED BY	M. FLURWAR	<i>M. Flurwar</i>
CHECKED BY	N. CHATURVEDI	<i>N. Chaturvedi</i>
APPROVED BY	ASHISH K	<i>Ashish K</i>

DRAWING TITLE		TENDER DESIGN	
TYPICAL DETAILS		TYPICAL LIFT AND ENTRANCE CANOPY DETAIL	
SCALE	AS SHOWN	DATE OF ISSUE	22/05/2020
DRG NO.	KNPDD01-TDR-UGO-ARC-DET-16753	STAGE	TENDER DESIGN
REV	R1		

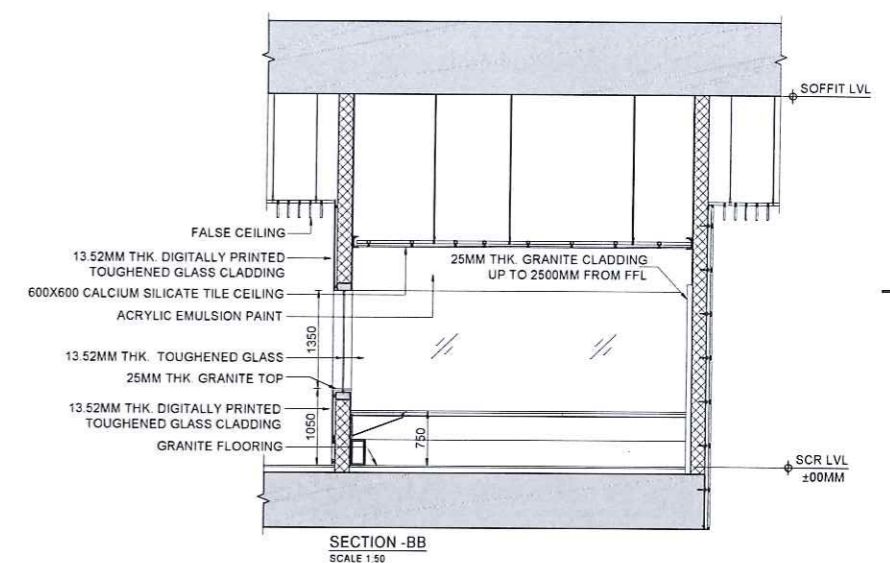
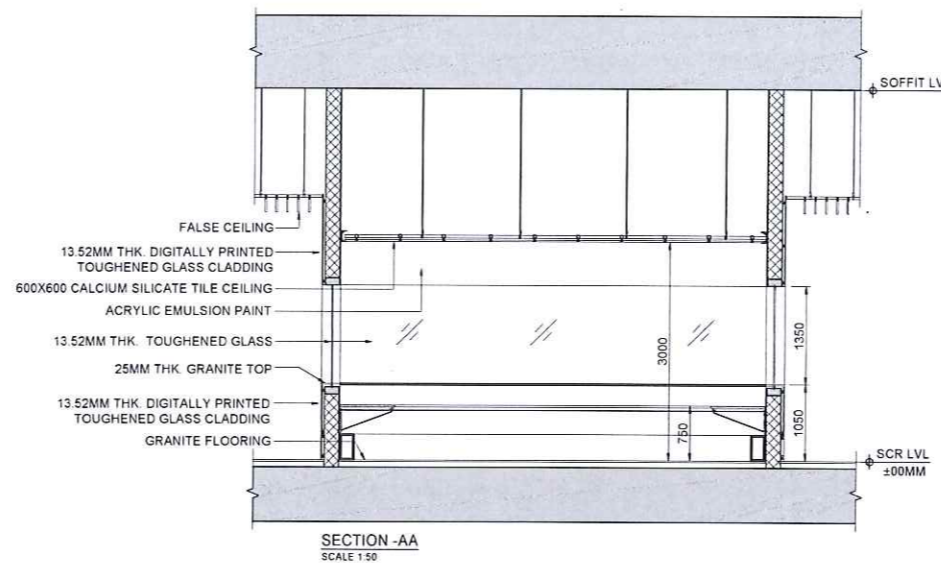
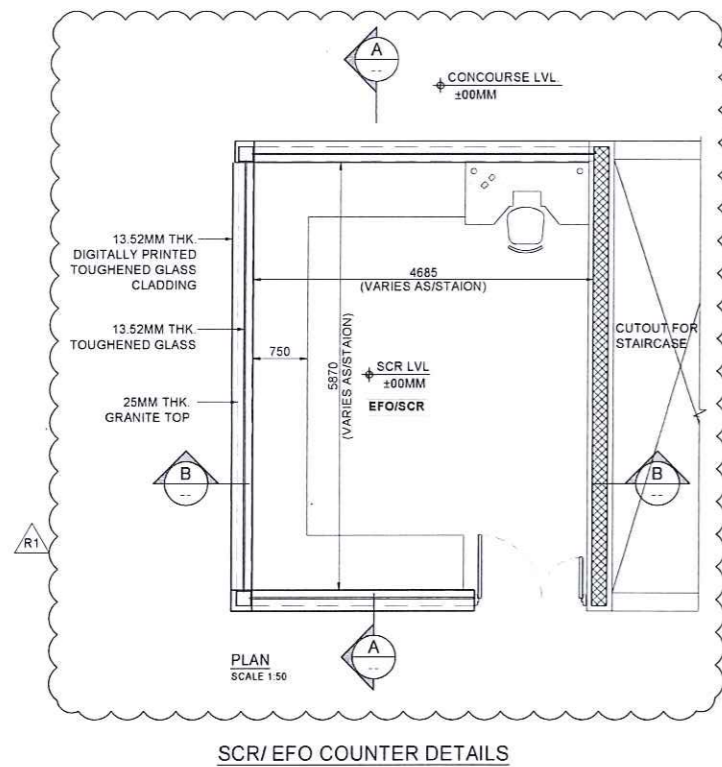
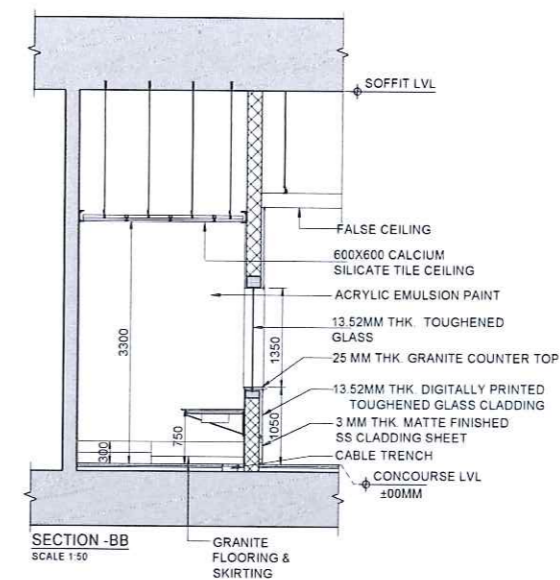
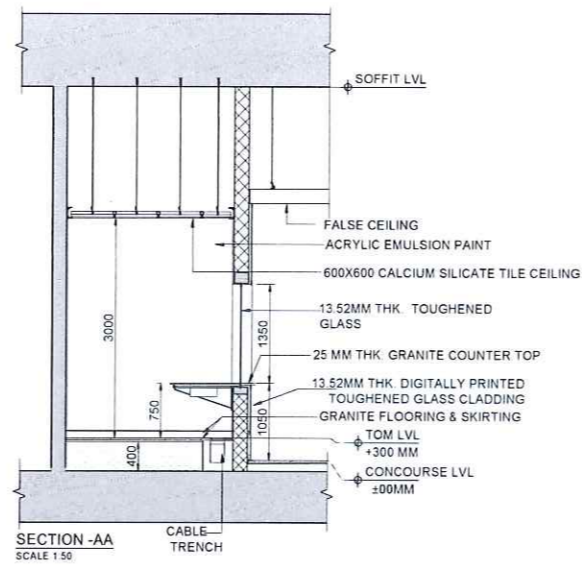
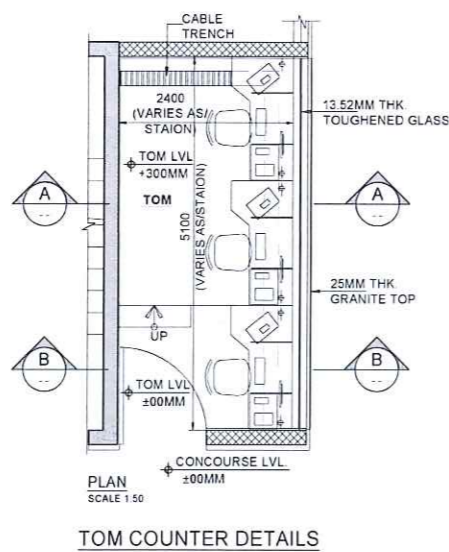
TENDER DRAWING

NOTICE OF 'NO OBJECTIONS' FROM EMPLOYER						
NOTICE OF NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES HOWEVER THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAIL DESIGN CONSULTANT.						
GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE	SIGNATURE
CA/ARCH - GC			<input type="checkbox"/> NOC	DY.CA-UPMRC		
CE/STRU - GC			<input type="checkbox"/> NOWC	CE DESIGN - UPMRC		
CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRC		
				CPM-UPMRC		

PROJECT TITLE
UTTAR PRADESH METRO RAIL CORPORATION LTD
(Formerly known as Lucknow Metro Rail Corporation Ltd.)
KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1



ARCHITECTURE



- NOTES :-**
1. SYSTEM WIDE RELATED ROOM SIZES & FLOOR LEVELS MAY VARY & SHALL BE AS PER SYSTEM WIDE CONTRACTOR REQUIREMENT.
 2. TABLE QUANTITY IN TOM & SCR ROOM SHALL BE AS PER SYSTEM WIDE CONTRACTOR.

- NOTES :-**
1. ALL DIMENSIONS ARE IN MM, UNLESS NOTED OTHERWISE
 2. ALL DIMENSIONS ARE TO BE READ AS MENTIONED ON THE DRAWINGS & NOT TO BE MEASURED
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 8. THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL, STRUCTURAL, PLUMBING & ELECTRICAL DRAWINGS

REFERENCE DRAWINGS	
Drawing Number	Description

- REVISION LOG-R1**
1. SCR/ EFO ROOM SIZE REVISED AS PER CONCOURSE PLANS



AGAK CONSORTIUM
GENERAL CONSULTANT
E33-4, D334-37, LMRG - GC TOWER,
OFF. TO GOMTI NAGAR BUS DEPOT,
VIEHUTI KHAND, LUCKNOW-226010.



SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
VATIKA MINDSCAPES, TOWER-B, 12/3,
MATHURA ROAD, NH-2, SECTOR-27/D,
FARIDABAD, HARYANA-121013
PH: 0129 668 5600
SUBSIDIARY OF:
SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

PREPARED
DRAWN BY
DESIGNED BY
CHECKED BY
APPROVED BY

NAME
SIGNATURE

DRAWING TITLE
TYPICAL DETAILS
TYPICAL DETAIL OF COUNTER (SCR, TOM)

SCALE AS SHOWN
DATE OF ISSUE 22/05/2020
STAGE TENDER DESIGN
DRG NO KNPDD01-TDR-UGC-ARC-DET-19754



TENDER DRAWING

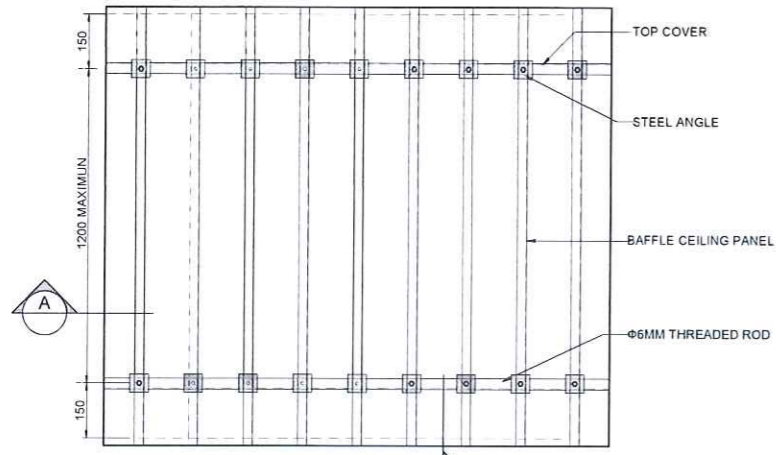
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CE/STRU - GC			<input type="checkbox"/> NOWC	CE DESIGN - UPMRC		
CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRC		
				CPM-UPMRC		

PROJECT TITLE
UTTAR PRADESH METRO RAIL CORPORATION LTD
(Formerly known as Lucknow Metro Rail Corporation Ltd.)
KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1

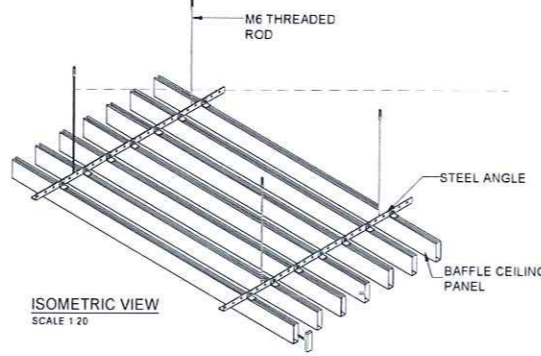
REV	PARTICULARS	DRN.	CHD.	VER.	DATE
R1	REVISED TENDER SUBMISSION	ARUN		N. CHATURVEDI	24.08.2020
R0	TENDER SUBMISSION			N. CHATURVEDI	22.05.2020

ARCHITECTURE

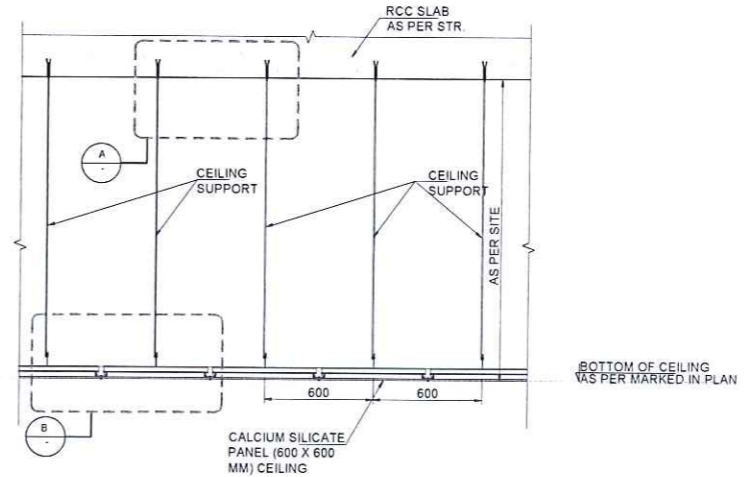
REV R1



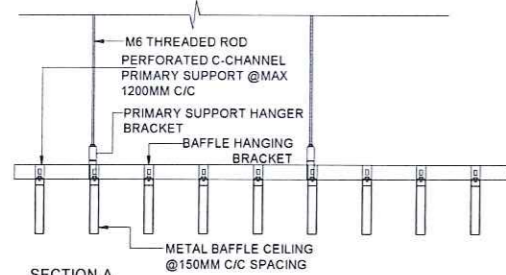
TYPICAL LAYOUT OF BAFFLE CEILING
SCALE 1:10



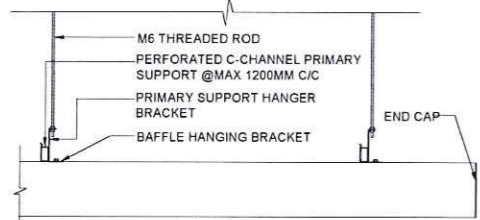
ISOMETRIC VIEW
SCALE 1:20



CALCIUM SILICATE PANEL CEILING DETAIL
SCALE 1:20

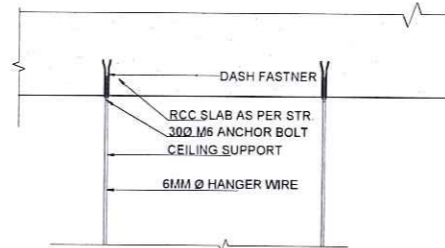


SECTION-A
SCALE 1:10

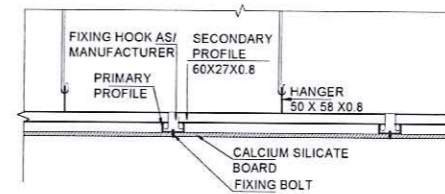


SECTION-B
SCALE 1:10

TYPICAL DETAILS OF BAFFLE CEILING



DETAIL-A
SCALE 1:10



DETAIL-B
SCALE 1:10

TYPICAL DETAILS OF CALCIUM SILICATE PANEL CEILING

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REFERENCE DRAWINGS					
Drawing Number	Description				

REV.	PARTICULARS	DRN.	CHD.	VER.	DATE
R1	REVISED TO: CE/STRUC.	ARUN	M. PURNAR	N. CHATURVEDI	24.08.2020
R2	REVISED TO: ELEVATION	M. PURNAR	N. CHATURVEDI		22.08.2020



AGAK CONSORTIUM
 GENERAL CONSULTANT
 E3/2-4, D3/34-37, LMRC - GC TOWER
 OFF. TO GOMTI NAGAR BUS DEPOT,
 VIEHUTI KHAND, LUCKNOW - 226010.



DETAIL DESIGN CONSULTANT
SYSTRA
 SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
 VATIKA MINDSCAPES, TOWER-B, 12/3,
 MATHURA ROAD, NH-2, SECTOR-27/D,
 FARIDABAD, HARYANA-121013
 PH: 0129 668 5600
 SUBSIDIARY OF:
 SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

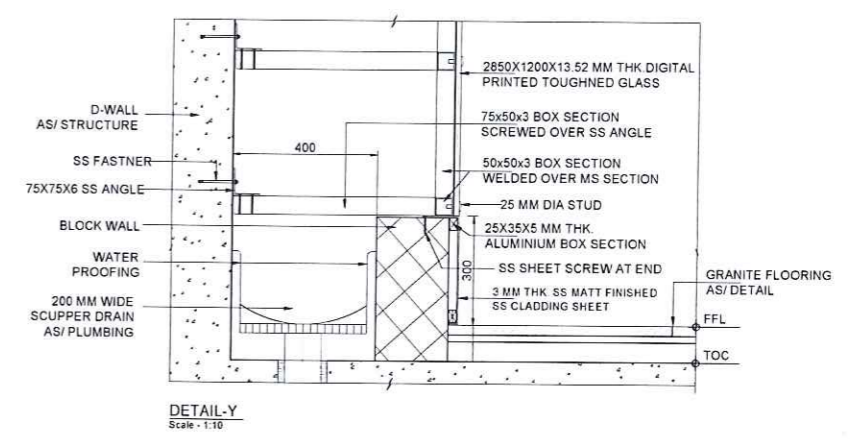
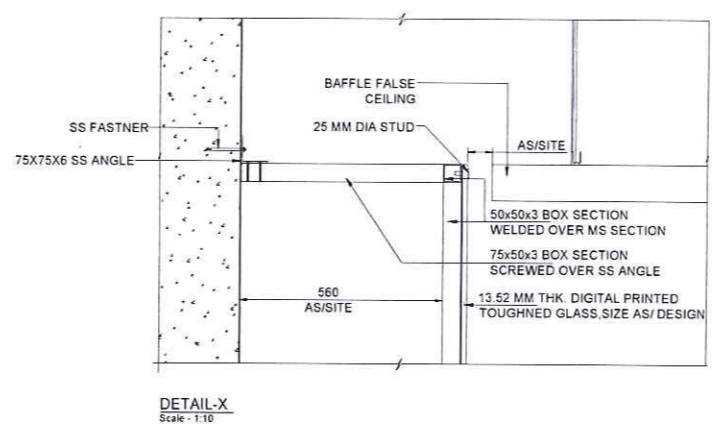
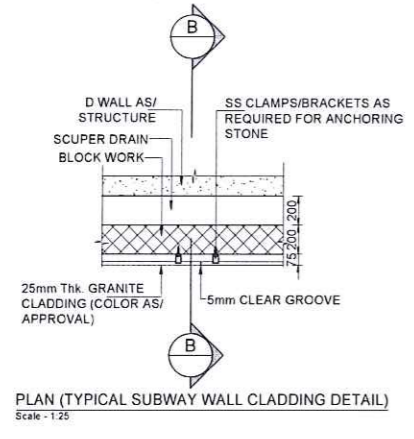
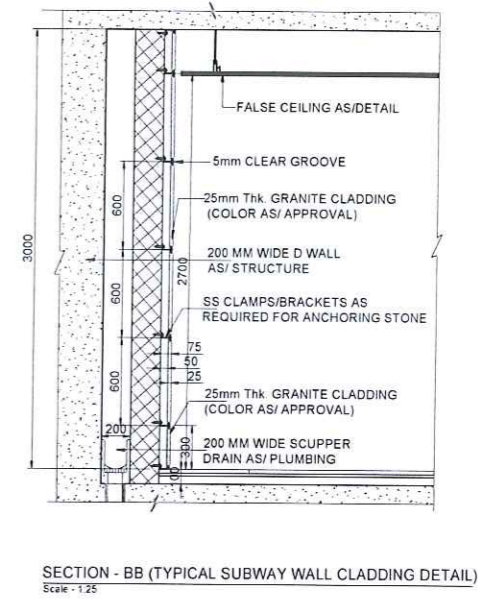
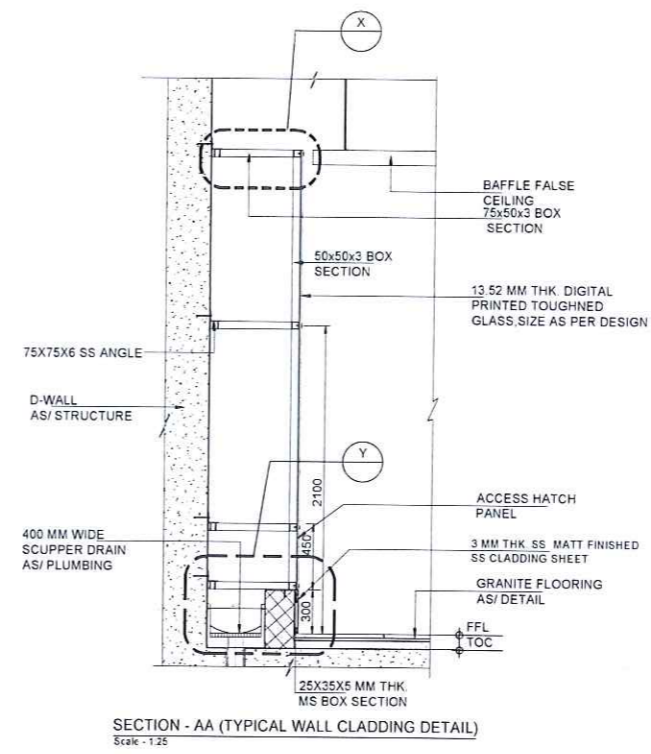
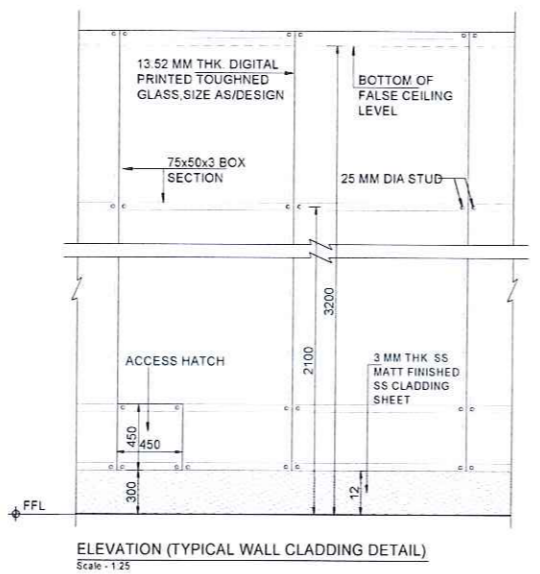
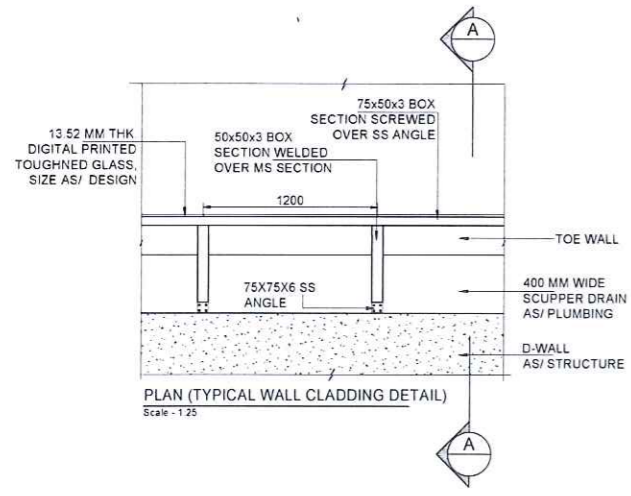
PREPARED	NAME	SIGNATURE	DRAWING TITLE
DRAWN BY	ARUN	<i>[Signature]</i>	TYPICAL DETAILS
DESIGNED BY	M. PURNAR	<i>[Signature]</i>	TYPICAL FALSE CEILING DETAIL
CHECKED BY	N. CHATURVEDI	<i>[Signature]</i>	
APPROVED BY	ASHISH K.	<i>[Signature]</i>	

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GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE	SIGNATURE
CA/ARCH - GC			<input type="checkbox"/> NOC	DY.CA-UPMRC		
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CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRC		
				CPM-UPMRC		
PROJECT TITLE						
UTTAR PRADESH METRO RAIL CORPORATION LTD (Formerly known as Lucknow Metro Rail Corporation Ltd.) KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1						
SCALE AS SHOWN			DATE OF ISSUE		STAGE	
22/05/2020			TENDER DESIGN			
DRG NO KNPDD01-TDR-UGC-ARC-DET-19755				REV R1		



TENDER DRAWING

ARCHITECTURE



- NOTES :-**
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REV.	PARTICULARS	DRN.	CHD.	VER.	DATE	REFERENCE DRAWINGS	
						Drawing Number	Description



AGAK CONSORTIUM
 GENERAL CONSULTANT
 E3/4, D3/34-37, LMRC - GC TOWER
 OPP. TO GOMTI NAGAR BUS DEPOT
 VIEHUTI KHAND, LUCKNOW-226010.



SYSTRA
 DETAIL DESIGN CONSULTANT
 SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
 VATIKA MINDSCAPES, TOWER-B, 12/3,
 MATHURA ROAD, NH-2, SECTOR-27/D,
 FARIDABAD, HARYANA-121013
 PH: 0129 668 5600
 SUBSIDIARY OF:
 SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

TENDER DRAWING

NOTICE OF 'NO OBJECTIONS' FROM EMPLOYER

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GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE	SIGNATURE
CA/ARCH - GC			<input type="checkbox"/> NOC	DY.CA- UPMRC		
CE/STRU - GC			<input type="checkbox"/> NCWC	CE DESIGN - UPMRC		
CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRC		
				CPM-UPMRC		

PROJECT TITLE
UTTAR PRADESH METRO RAIL CORPORATION LTD
 (Formerly known as Lucknow Metro Rail Corporation Ltd.)
 KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1

PREPARED	NAME	SIGNATURE	DRAWING TITLE
			TYPICAL DETAILS
DRAWN BY	ARJUN		TYPICAL WALL CLADDING DETAIL
DESIGNED BY	M. PURWAR		
CHECKED BY	N. CHATURVEDI		
APPROVED BY	ASHISH K		

SCALE AS SHOWN DATE OF ISSUE 22/05/2020 STAGE TENDER DESIGN

DRG NO KNPDD01-TDR-UG0-ARC-DET-19756 REV R1

S. No.	Room Name/ Spaces	FLOOR	WALL / PARAPET / FASCIA	CEILING/ ROOF	SKIRTING/ COPING
		Finish	Finish	Finish	Finish (Ht. from FFL.)
GROUND LEVEL					
1	Station Entrance Lobby and Passageway Connecting Unpaid Public Area	P.C.C + Cement Mortar + 25 mm thick Polished granite, Size 1200 X 600 + Tactile tiles- SS strips	25 mm thick Granite cladding upto False Ceiling Lvl. as per pattern, Size 600X1200	Calcium Silicate Board + Acrylic Emulsion Paint+ Non perforated metal Panel sheet	-
2	Station Entry Canopy	-	3mm thick SS sheet over S.S Tubular Structure + Toughened Glass 13.5mm thk. size as per design	Glass Roof/Poly carbonate sheet /SS sheet as per approved design & details	-
3	Lift lobby	P.C.C + Cement Mortar + 25 mm thick Polished granite, Size 1200 X 600 + Tactile tiles- SS studs	25 mm thk Granite cladding . Size 600x1200+SS handrail on ramp + Toughened laminated glass	Toughened glass canopy /Polycarbonate sheet fixed over ms frame with SS sheet as per drawing	-
4	Vent Shaft	-	Cement Plaster + Anti Dust Sealer on internal surface + Texture Paint/ 25mm thick polished Granite cladding on external side + MS fencing around shafts	MS Mesh cover on top	-
5	External Development	Interlocking Paver Blocks + Kerb Stone	-	-	-
CONCOURSE LEVEL					
1	Staircases (Concourse to Ground)	25mm thick Honed Granite for tread & landing + 18mm thk Mirror Polish Granite for riser + Stainless Steel railing with Toughened Glass as per detail	25 mm thick Granite cladding upto top. Size 600x1200	Cement Plaster + Acrylic Emulsion Paint	-
2	Unpaid Public Area	P.C.C + Cement Mortar + 25 mm thick Polished granite as per approved colour and pattern. Size 1200x600 + Tactile tiles- SS strips+ Glass Barmer as per detail	13.52 mm thick Digitally Printed Toughened Glass, Size as per design / 25 mm thick Granite cladding upto False Ceiling Lvl. as per pattern. Size 600X1200	Linear Baffle, Length 3600mm + Calcium Silicate Board + Acrylic Emulsion Paint	300 mm high S.S Sheet cladding in matt finish/ 25mm thick granite
3	Concourse Paid Public Area	P.C.C + Cement Mortar + 25 mm thick Polished granite as per approved colour and pattern. Size 1200x600 + Tactile tiles- SS studs+Glass Barrier as per detail	13.52 mm thick Digitally Printed Toughened Glass, Size as per design/ 25 mm thick Granite cladding upto False Ceiling Lvl. as per pattern. Size 600X1200	Linear Baffle, Length 3600mm + Calcium Silicate Board + Acrylic Emulsion Paint	300 mm high S.S Sheet cladding in matt finish/ 25mm thick granite
4	Station Control Room & EFO	P.C.C + Cement Mortar + 25 mm thick Polished granite as per approved colour and pattern. Size 1200x600	25 mm thk polished Granite cladding upto 2500mm height . Size 600mmx1200mm +Cement Plaster finished with Acrylic Emulsion paint +25 mm thick Granite countertop + 13.52mm thick fire rated toughened glass above the counter+13.52 mm thk Digitally Printed Toughened Glass on exterior wall . Size as per design	Calcium Silicate Tile . Size 600x600	300 mm high 25mm thick granite
5	Ticket Office	Raised Filled Floor with Light weight foam concrete (400mm high from TOC)+ 25 mm thick Polished granite as per approved colour and pattern. Size 1200x600	Cement Plaster finished with Acrylic Emulsion paint +25 mm thk Granite countertop + Clear toughened laminated above counter+13.52 mm thk Digitally Printed Toughened Glass on exterior wall . Size as per design+ art work as per approval	Calcium Silicate Tile . Size 600x600	100 mm high Granite skirting
6	Security Room	P.C.C + Cement Mortar + Vitrified Tiles. Size 600x600	Cement Plaster+ Acrylic Emulsion paint	Cement Plaster+ Acrylic Emulsion paint	100 mm high Vitrified Tiles
7	DB Panel Room	P.C.C + 52mm thick Hardonite floor	Cement Plaster + Anti Dust Sealer Coat on Concrete/ Blockwork	Anti Dust Sealer Coat on Concrete	-
8	ECS & TVS Room	P.C.C + 52mm thick Hardonite floor	Anti Dust Sealer Coat on Concrete / Blockwork	Anti Dust Sealer Coat on Concrete	-
9	Tunnel Ventilation Plant Room+ECS including Air Plenum Shafts & Nozzle Area	P.C.C + 52mm thick Hardonite floor	Anti Dust Sealer Coat on Concrete / Blockwork	Anti Dust Sealer Coat on Concrete	-

S. No.	Room Name/ Spaces	FLOOR	WALL / PARAPET / FASCIA	CEILING/ ROOF	SKIRTING/ COPING
		Finish	Finish	Finish	Finish (Ht. from FFL.)
10	Public Escape stairs	25mm thk Polished Kota for tread & landing +20mm thk Polished Kota for riser + MS Handrails as per details.	Cement Plaster + Acrylic Emulsion Paint	Cement Plaster + Acrylic Emulsion Paint	100 high Polished Kota Stone
11	Firemen's Staircase	25mm thk Polished Kota for tread & landing +20mm thk Polished Kota for riser + MS Handrails as per details.	Cement Plaster + Acrylic Emulsion Paint	Cement Plaster + Acrylic Emulsion Paint	100 high Polished Kota Stone
12	Staircases (Concourse to Platform)	25 mm thk Honed Granite for tread & landing + 18mm thk Mirror Polish Granite for riser + Stainless Steel railing with Toughened Glass as per detail	-	-	-
13	Property Development Area	P.C.C + Concrete Screed	Cement Plaster + OBD+ Glazed partition	Cement Plaster + OBD	-
15	Lift shaft	-	13.52 mm thick clear Fire rated toughened laminated Glass panels as per design	-	-
16	Toilets(public and handicapped)	Filled Floor with Light weight foam concret +P.C.C +Cement Mortar+ Anti Skid Vitrified Tiles. Size 600x600	HPL Toilet Parition, 2100 mm high + Lacquered glass 12 mm thk + cement fiber board up to false ceiling + 25 mm thk Granite countertop as per design + 8 mm thick Ceramic Tiles	Calcium Silicate Tile . Size 600x600	100 mm high ceramic tile/ 300 mm high SS cladding
PLATFORM LEVEL					
1	DB Panel Room	P.C.C + 52mm thick Hardonite floor	Cement Plaster + Anti Dust Sealer Coat on Concrete/ Blockwork	Anti Dust Sealer Coat on Concrete	-
2	Platform Area (including columns)	Concrete screed + Cement Mortar+ Adhesive + 60mm thick Flamed Granite at Edge, size 1200x600mm + Compressible filler + 100 mm wide Yellow visibility vitrified tile + 25mm thick Polished granite. Size 600x1200 + Tactile tiles - SS strips	4mm thk SS cladding around Columns + 13.52 mm thick Digitally Printed Toughened Glass. Size as per design+ 25 mm thick Granite cladding upto False Ceiling Lvl. as per pattern. Size 600X1200	Linear Baffle, Length 3600mm + Calcium Silicate Board + Acrylic Emulsion Paint	300 mm high SS cladding / 25mm thick Granite
3	Track side wall	-	Anti Dust Sealer Coat on concrete Blockwall + GRC JALI panel as per detail	-	-
4	TSS/ASS	P.C.C + 52mm thick Hardonite floor	Cement Plaster + Anti Dust Sealer Coat on Concrete/ Blockwork	Anti Dust Sealer Coat on Concrete	-
5	UPS Battery Room for S&T and station	Raised Access Floor with UDL Panel and HPL finish (400mm high from TOC). Panel size 600x600+ 25mm thk Polished Kota for tread +20mm thk Polished Kota for riser+ Anti-dust sealer coat on concrete surface	Cement Plaster + Anti Dust Sealer Coat on Concrete/ Blockwork	Anti Dust Sealer Coat on Concrete	300 mm High skirting Vitrified Tile
6	Seepage Pump Room	P.C.C + 52mm thick Hardonite floor	Cement Plaster + Anti Dust Sealer Coat on Concrete/ Blockwork	Anti Dust Sealer Coat on Concrete	-
7	Sewage Pump Room	P.C.C + 52mm thick Hardonite floor	Cement Plaster + Anti Dust Sealer Coat on Concrete/ Blockwork	Anti Dust Sealer Coat on Concrete	-
8	SER & TER	Raised Access Floor with UDL Panel and HPL finish (400mm high from TOC). Panel size 600x600+ 25mm thk Polished Kota for tread +20mm thk Polished Kota for riser+ Anti-dust sealer coat on concrete surface	Cement Plaster + Anti Dust Sealer Coat on Concrete/ Blockwork	Anti Dust Sealer Coat on Concrete	300 mm High skirting Vitrified Tile

- NOTES :-**
1. ROOM SIZES PROVIDED AS PER CONFIRMATION RECEIVED FROM GC VIA MAIL DATED 14.05.20
2. FINISHING SCHEDULE HAS BEEN PREPARED BASED ON MAIL RECEIVED FROM UPMRC/GC DATED 16.05.20

REFERENCE DRAWINGS	
Drawing Number	Description



AGAK CONSORTIUM
GENERAL CONSULTANT
B3-34, D3-34-37, LMR - GC TOWER
OPP. TO GOMTI NAGAR BUS DEPOT,
VIBHUTI KHAND, LUCKNOW-226010.



SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
VATIKA MINDSCAPES, TOWER-B, 12/3,
MATHURA ROAD, NH-2, SECTOR-27/D,
FARIDABAD, HARYANA-121013
PH: 0129 668 5600
SUBSIDIARY OF:
SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

TENDER DRAWING

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GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE	SIGNATURE
CA/ARCH - GC			<input type="checkbox"/> NOC	DY.CA- UPMRCL		
CE/STRU - GC			<input type="checkbox"/> NOWC	CE DESIGN - UPMRCL		
CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRCL		
				CPM-UPMRC		

PROJECT TITLE
UTTAR PRADESH METRO RAIL CORPORATION LTD
(Formerly known as Lucknow Metro Rail Corporation Ltd.)
KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1

PREPARED	NAME	SIGNATURE	DRAWING TITLE
			FINISHES SCHEDULE (SHEET 1 OF 2)
DRAWN BY	ARJUN	<i>[Signature]</i>	
DESIGNED BY	M. PURWAR	<i>[Signature]</i>	
CHECKED BY	N. CHATURVEDI	<i>[Signature]</i>	SCALE N.T.S
APPROVED BY	ASHISH K	<i>[Signature]</i>	DATE OF ISSUE 13/05/2020

DRG NO. KNPDD01-TDR-UGO-ARC-SCH-19757

REV R2

REV.	PARTICULARS	DRN.	CHD.	VER.	DATE
R1	REVISION FOR UPDATES	ARJUN	M. PURWAR	N. CHATURVEDI	14.05.2020
R2	REVISION FOR GC COMMENTS	N. CHATURVEDI	M. PURWAR	N. CHATURVEDI	16.05.2020
R3	REVISION FOR UPDATES	N. CHATURVEDI	M. PURWAR	N. CHATURVEDI	14.05.2020

S. No.	Room Name/ Spaces	FLOOR	WALL / PARAPET / FASCIA	CEILING/ ROOF	SKIRTING/ COPING
		Finish	Finish	Finish	Finish (Ht. from FFL.)
9	CDMA	P.C.C + 52mm thick Hardonite floor	Cement Plaster + Anti Dust Sealer Coat on Concrete/ Blockwork	Anti Dust Sealer Coat on Concrete	-
10	GSM Room	P.C.C + 52mm thick Hardonite floor	Cement Plaster + Anti Dust Sealer Coat on Concrete/ Blockwork	Anti Dust Sealer Coat on Concrete	-
11	Public Escape Stairs	25mm thk Polished Kota for tread & 25mm thk Polished Kota for landing +20mm thk Polished Kota for riser + MS Handrails as per details.	Cement Plaster + Acrylic Emulsion Paint	Cement Plaster + Acrylic Emulsion Paint	100 high Anti Acidic Vitrified Tile
12	Firemen's Staircase	25mm thk Polished Kota for tread & 25mm thk Polished Kota for landing +20mm thk Polished Kota for riser + MS Handrails as per details.	Cement Plaster + Acrylic Emulsion Paint	Cement Plaster + Acrylic Emulsion Paint	100 high Polished Kota Stone
13	Unallocated Area	P.C.C + Concrete Screed	Cement Plaster + OBD	Cement Plaster + OBD	-
14	UPE & OTE ducts, Cable Galleries and undercroft		Anti Dust Sealer Coat on Concrete / Blockwork	Anti Dust Sealer Coat on Concrete	
ANCILLARY BUILDING					
1	Water Tanks (Upper Basement)	Plaster + waterproofing + Ceramic tile on inner surface, Size 300X 300	Plaster + waterproofing + Ceramic tile on inner surface, Size 300X 300	Plaster + waterproofing	-
2	Pump Room (Upper Basement)	P.C.C + 52mm thick Hardonite floor	Anti Dust Sealer Coat on Concrete / Blockwork	Anti Dust Sealer Coat on Concrete	100 high cement plaster
3	D.G Set Room + DG Panel Room	P.C.C + 52mm thick Hardonite floor	Anti Dust Sealer coat on internal surface + Emulsion paint / Textured paint / Structural glazing + GRC Jali / aluminium louvers on external face as per design	Anti Dust Sealer Coat on Concrete	-
4	Entry Lobby (Combined with Ancillary building)	25 mm Thick Polished granite, Size 1200 X 600	Emulsion paint / Textured paint on internal surface + Structural glazing + GRC Jali / aluminium louvers on external face as per design	Acrylic Emulsion paint	150 mm high 25mm thick Granite
5	PD Room	P.C.C + Concrete Screed	Emulsion paint / Textured paint / Structural glazing + GRC Jali / aluminium louvers on external face as per design	Anti Dust Sealer Coat on Concrete	-
6	Chiller Plant Room (Lower Basement)	P.C.C + 52mm thick Hardonite floor	Cement Plaster + Anti Dust Sealer	Anti Dust Sealer Coat on Concrete	-
7	Dosing Plant Room (Terrace level)	P.C.C + 52mm thick Hardonite floor	Anti Dust Sealer Coat on Concrete / Blockwork	OBD	100 high cement plaster
8	Cooling tower (Terrace level)	P.C.C + 52mm thick Hardonite floor	GRC Jali / aluminium louvers on external face as per design + Water proof cement paint		
9	Ancillary Building Staircase	25mm thk Polished Kota for tread & landing +20mm thk Polished Kota for riser + MS Handrails as per details.	Cement Plaster + OBD	Cement Plaster + OBD	100 mm high Polished Kota Stone
OTHERS					
1	Undercroft level	P.C.C + 52mm thick Hardonite floor	Anti Dust Sealer Coat on Concrete / Blockwork	Anti Dust Sealer Coat on Concrete	-
2	Electrical, Plumbing & Service Shafts		Anti Dust Sealer Coat on Concrete / Blockwork		
3	Maintenance Staircase	25mm thk Polished Kota for tread & landing +20mm thk Polished Kota for riser + MS Handrails as per details.	Cement Plaster + OBD	Cement Plaster + OBD	100 mm high Polished Kota Stone
4	FHC, ECP & LCP Niches,	P.C.C + 52mm thick Hardonite floor	Cement Plaster + Anti Dust Sealer Coat		

- NOTES :-**
- ROOM SIZES PROVIDED AS PER CONFIRMATION RECEIVED FROM GC VIA MAIL DATED 14.05.20.
 - FINISHING SCHEDULE HAS BEEN PREPARED BASED ON MAIL RECEIVED FROM UPMRC/GC DATED 16.05.20.

REFERENCE DRAWINGS	
Drawing Number	Description



AGAK CONSORTIUM
GENERAL CONSULTANT
B3-34 D3-34-37, LMRC - GC TOWER
OPP. TO GOMTI NAGAR BUS DEPOT,
VIEHUTI KHAND, LUCKNOW - 226010.



SYSTRA MVA CONSULTING (INDIA) PVT. LTD.
VATIKA MINDSCAPES, TOWER-B, 12/3,
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FARIDABAD, HARYANA-121013
PH: 0129 668 5600
SUBSIDIARY OF:
SYSTRA S.A. - 5 AVENUE DU COQ - PARIS 75009

PREPARED	NAME	SIGNATURE	DRAWING TITLE
	ARJUN	<i>[Signature]</i>	FINISHES SCHEDULE (SHEET 2 OF 2)
DRAWN BY	ARJUN	<i>[Signature]</i>	
DESIGNED BY	M. PURWAR	<i>[Signature]</i>	
CHECKED BY	N. CHATURVEDI	<i>[Signature]</i>	
APPROVED BY	ASHISH K	<i>[Signature]</i>	

TENDER DRAWING

NOTICE OF NO OBJECTIONS FROM EMPLOYER

NOTICE OF NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES HOWEVER THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAIL DESIGN CONSULTANT.

GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE	SIGNATURE
CA/ARCH - GC			<input type="checkbox"/> NOC	DY.CA-UPMRC		
CE/STRU - GC			<input type="checkbox"/> NOWC	CE DESIGN - UPMRC		
CE/E&M - GC			<input type="checkbox"/> RESUBMIT	DY.CE CIVIL - UPMRC		
				CPM-UPMRC		

PROJECT TITLE
UTTAR PRADESH METRO RAIL CORPORATION LTD
(Formerly known as Lucknow Metro Rail Corporation Ltd.)
KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1



REV.	PARTICULARS	DRN.	CHD.	VER.	DATE
R2	REVISED TENDER SUBMISSION	ARJUN	M. PURWAR	N. CHATURVEDI	24.05.2020
R1	REVISED AS PER GC COMMENT	N. CHATURVEDI	M. PURWAR	N. CHATURVEDI	22.05.2020
R0	TENDER SUBMISSION	N. CHATURVEDI	M. PURWAR	N. CHATURVEDI	14.05.2020

ARCHITECTURE

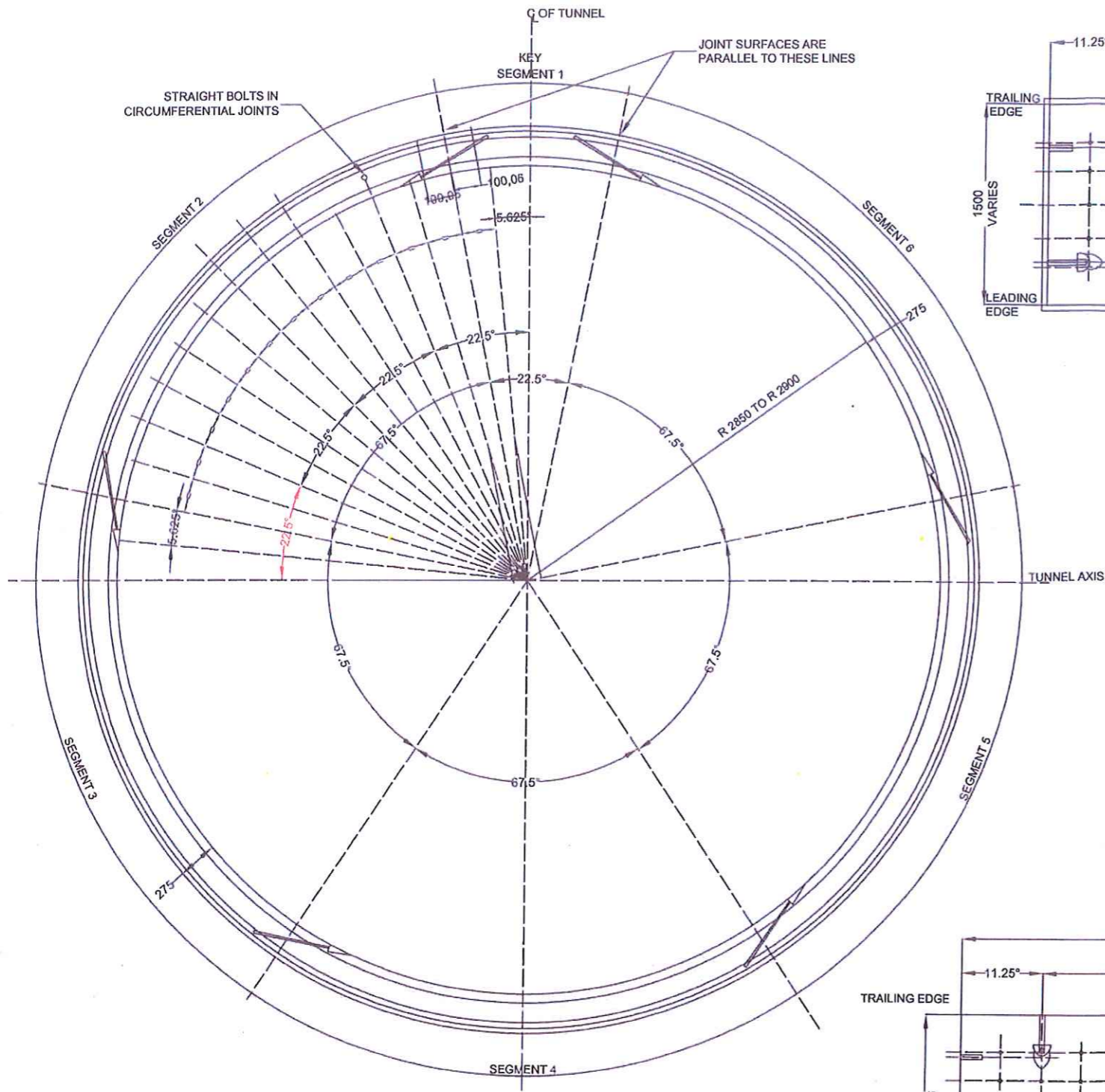
REV R2

KNPCC-05-Design and Construction of Tunnel from start of elevated ramp (after Moti Jheel Metro Station) to end of Nayaganj station including four underground metro stations (viz. Chunniganj, Naveen Market, Bada Chauraha and Nayaganj) and ramp including Architectural finishes, E & M, TVS, ECS etc. on Corridor-1 of Kanpur MRTS Project at Kanpur, Uttar Pradesh, India

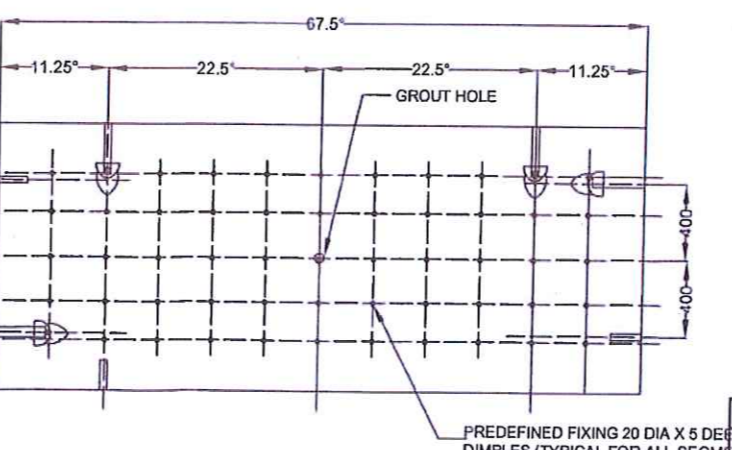
Annexure 3

5.	Construction of concourse slab(Based on proportional progress)		14.0%
	(A) Chunniganj	1.5 <u>3.5</u> %	
	(B) Naveen Market	1.5 <u>3.5</u> %	
	(C) Bada Chauraha	1.5 <u>3.5</u> %	
	(D) Nayaganj	1.5 <u>3.5</u> %	
6.	Construction of first stage concrete if required, cast in situ/precast OTE ducts above track complete (Based on proportional progress).& Laying screed on base slab in under croft as per		6.0%
	(A) Chunniganj	1.5%	
	(B) Naveen Market	1.5%	
	(C) Bada Chauraha	1.5%	
	(D) Nayaganj	1.5%	
7.	Construction of walls, beams & columns , other RCC works and CC block works from concourse up to roof slab (Based on proportional progress)		6.0%
	(A) Chunniganj	1.5%	
	(B) Naveen Market	1.5%	
	(C) Bada Chauraha	1.5%	
	(D) Nayaganj	1.5%	
8.	Construction of all roof slab including RCC work above roof slab including water proofing if any (Based on proportional progress)		10.0%
	(A) Chunniganj	1.5 <u>2.5</u> %	
	(B) Naveen Market	1.5 <u>2.5</u> %	
	(C) Bada Chauraha	1.5 <u>2.5</u> %	
	(D) Nayaganj	1.5 <u>2.5</u> %	
9.	Construction of Entry/Exit structures including subways as required.(Based on proportional		8.0%
	(A) Chunniganj	2%	
	(B) Naveen Market	2%	
	(C) Bada Chauraha	2%	
	(D) Nayaganj	2%	
10.	Construction of complete Ancillary building including interconnection with station.		6.0%

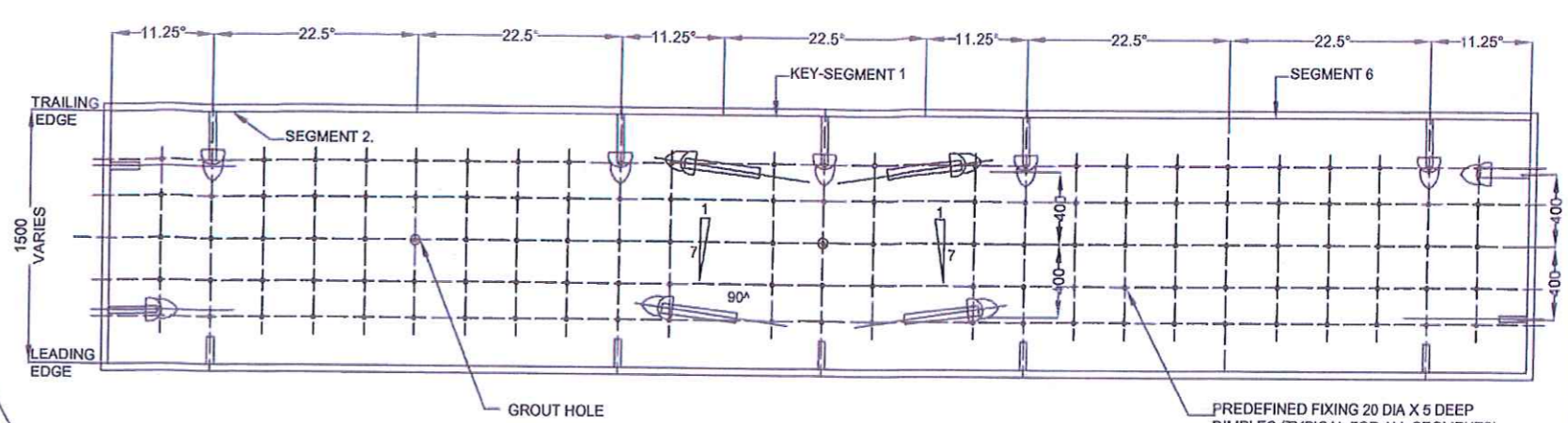




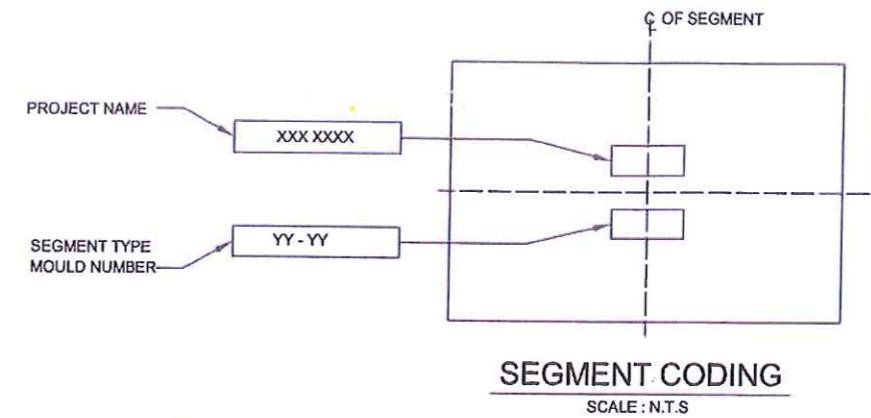
TYPICAL RING ELEVATION
SCALE : 1/25



DEVELOPED PLAN ON INTRADOS OF SEGMENTS 3, 4 & 5
SCALE : 1/25



DEVELOPED PLAN ON INTRADOS OF SEGMENTS 1, 2 & 6
SCALE : 1/25



SEGMENT CODING
SCALE : N.T.S

NOTE :-

1. ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE NOTED, ALL ANGLES IN DEGREES (0° - 360°)
2. CONCRETE-
 - a). MINIMUM GRADE OF CONCRETE SHALL BE AS PER CONTRACT REQUIREMENT.
3. IF THE CONTRACTOR REQUIRES TO DRILL HOLES AT DIMPLES FOR TEMPORARY SUPPORTS OR SERVICES . DRILLED HOLES NEED TO BE SUBSEQUENTLY FILLED WITH CEMENT MORTAR/GROUT TO THE ENGINEER'S ACCEPTANCE WHEN THE TEMPORARY SUPPORTS ARE REMOVED.
4. SEGMENTAL SHALL BE DESIGNED BY CONTRACTOR. THE DETAILS SHOWN IN DRAWING ARE INDICATIVE ONLY.
5. TAPERS SHOWN ARE INDICATIVE AND SHALL BE DETERMINED BY CONTRACTOR AS PER DESIGNED REQUIREMENT.
6. SEGMENTS BOLTS MAY BE OF STAINLESS STEEL OR GALVANIZED. HTS 8.8 GRADE

1. ALL LETTERS TO BE EMBOSSED ON THE INTRADOS SURFACE OF THE SEGMENTS.
2. 'Y' INDICATES CHANGEABLE CHARACTERS.

REFERENCE DRAWINGS	
Drawing Number	Description



DRAWN BY
CHECKED BY
VERIFIED BY
DATE 28/06/2020

NOTICE OF NO OBJECTIONS FROM EMPLOYER		REMARKS	DATE	SIGNATURE
Dy CA UPMRC	REVIEWED & NO OBJECTION MAY BE CONVEYED TO THE CONTRACTOR			
CA UPMRC	BASED ON STAMPED ABOVE THE NO OBJECTION IS ISSUED FOR EXECUTION PURPOSE			
Dy CE/DESIGN UPMRC				
Dy CE/SA UPMRC				
CPM3 UPMRC				

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UTTAR PRADESH METRO RAIL CORPORATION LTD.
KANPUR METRO PROJECT CORRIDOR 1 - UNDERGROUND STATION (KMPCC-05)

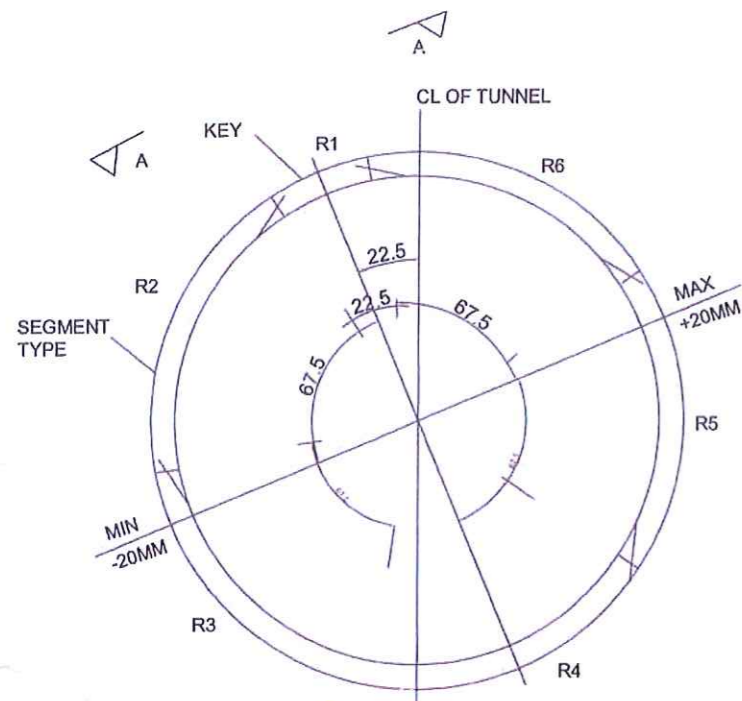
BORED TUNNEL
PRECAST STANDARD SEGMENTS - SHEET 01 OF 02

UPMRC- DESIGN-UG-ST-104
REV R1
SCALE
STATUS TENDER

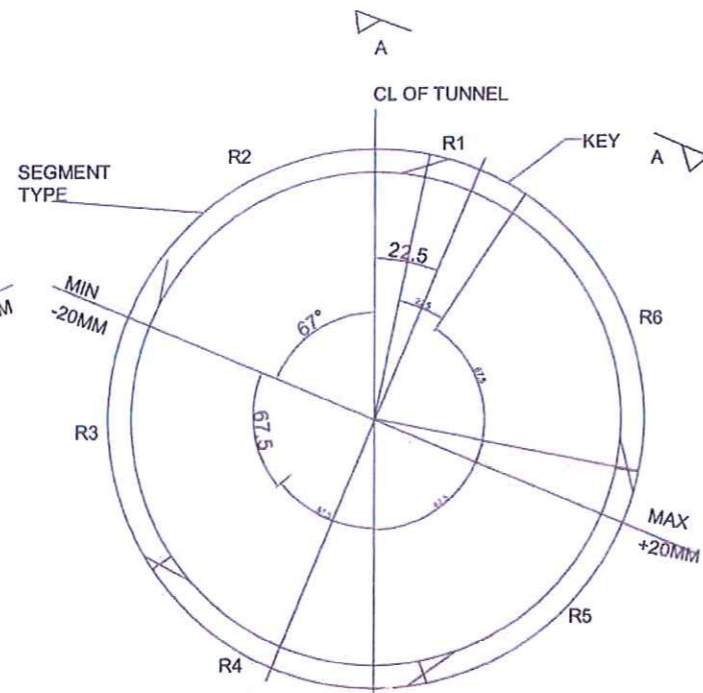
REV.	PARTICULARS	DRN.	CHKD.	VER.	DATE

STRUCTURAL

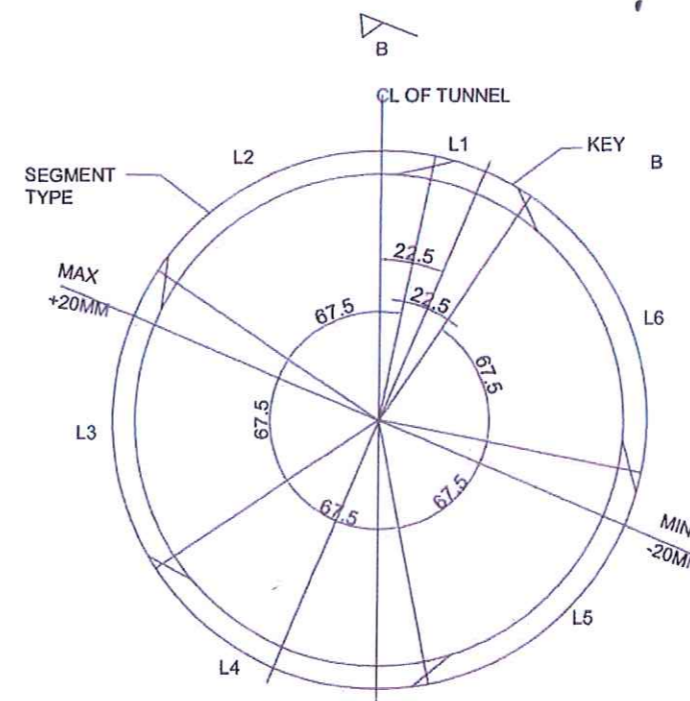
DATEPLOT



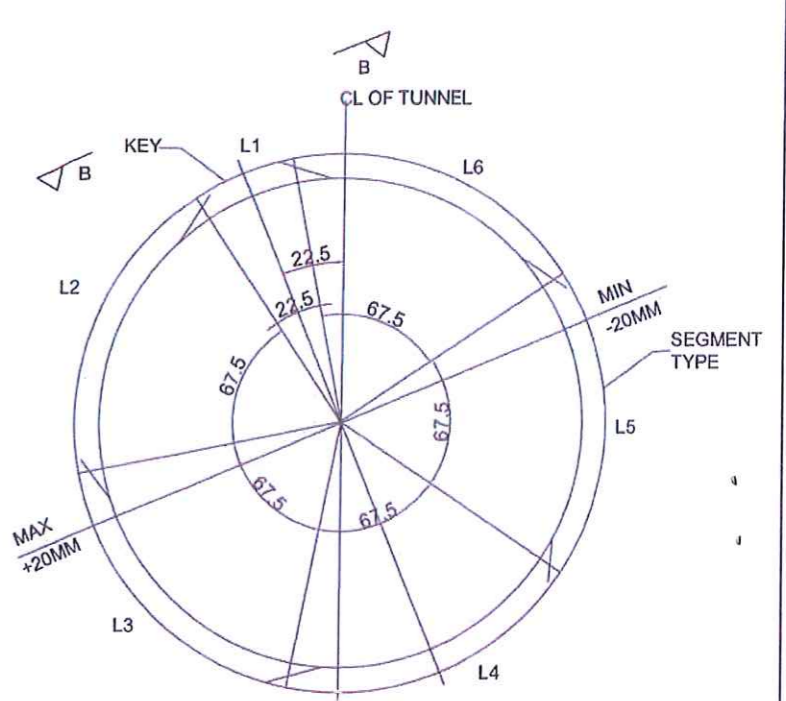
ELEVATION OF RING



ELEVATION OF RING



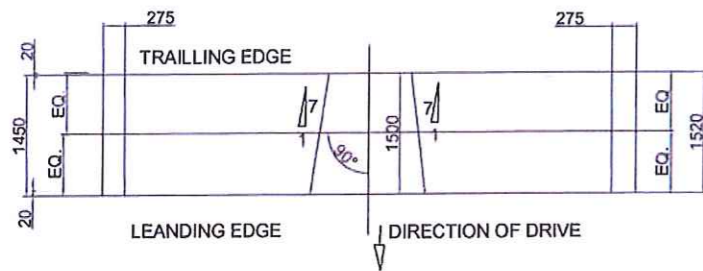
ELEVATION OF RING



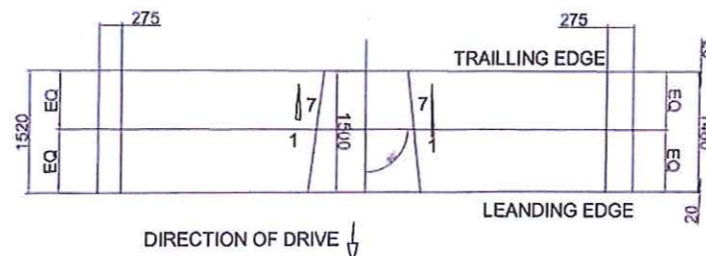
ELEVATION OF RING

RIGHT TAPERED RING
(LOOKING FROM TUNNEL BORING MACHINE)
SCALE 1:50

LEFT TAPERED RING
(LOOKING FROM TUNNEL BORING MACHINE)
SCALE 1:50



VIEW A-A
SCALE 1:50



VIEW B-B
SCALE 1:50

NOTES

- ALL DIMENSION ARE IN MILLIMETERS UNLESS OTHERWISE NOTED, ALL ANGLES IN DEGREES (0-360)
- CONCRETE
- MINIMUM GRADE OF CONCRETE SHALL BE AS PER CONTRACT REQUIREMENT
- IF THE CONTRACTOR REQUIRES TO DRILL HOLES AT DIMPLES FOR TEMPORARY CEMENT MORTAR GROUT TO THE ENGINEER ACCEPTANCE WHEN THE TEMPORARY SUPPORTS ARE REMOVED
- SEGMENTAL SHALL BE CONTRACTOR THE DETAILS SHOWN IN DRAWING ARE INDICATIVE ONLY.
- TAPERS SHOWN ARE INDICATIVE AND SHALL BE DETERMINED BY CONTRACTOR AS PER DESIGNED REQUIREMENT
- THE SEGMENT (INCLUDING THE BOLTS FOR OHE) HAS TO BE DESIGNED FOR 4HR FIRE RATING AS PER IS :456
- SEGMENT BOLTS MAY BE OF STAINLESS STEEL OR GALVANIZED HTS 8.8 GRADE

NOTE:

In case of discrepancy between any Dimension with SOD,SOD will prevail

REFERENCE DRAWINGS	
Drawing Number	Description



TENDER DRAWING

DRAWN BY	
CHECKED BY	
VERIFIED BY	
DATE	20/05/2020

NOTICE OF 'NO OBJECTIONS' FROM EMPLOYER		
NOTICE OF NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES HOWEVER THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAIL DESIGN CONSULTANT.		
REMARKS	DATE	SIGNATURE
Dy CA UPMRC REVIEWED & NO OBJECTION MAY BE CONVEYED TO THE CONTRACTOR		
CA UPMRC BASED ON STAMPED ABOVE THE NO OBJECTION IS ISSUED FOR EXECUTION PURPOSE		
Dy CE/DESIGN UPMRC		
Dy CE/SA UPMRC		
CPM-3 UPMRC		

UTTAR PRADESH METRO RAIL CORPORATION LTD.

KANPUR METRO PROJECT CORRIDOR 1 - UNDERGROUND STATION (KNPCC-06)

BORED TUNNEL

PRECAST STANDARD SEGMENTS - SHEET 02 OF 02

UPMRC- DESIGN-UG-ST-104

R1

SCALE

STATUS TENDER

STRUCTURAL

REV.	PARTICULARS	DRN.	CHKD.	VER.	DATE



SCHEDULE OF DIMENSIONS

FOR

STANDARD GAUGE
(1435 mm)

(750V DC TRACTION SYSTEM WITH THIRD RAIL
BOTTOM CURRENT COLLECTION)

NOVEMBER, 2019

UTTAR PRADESH METRO RAIL CORPORATION LTD
ADMINISTRATIVE BUILDING, VIPIN KHAND,
GOMTI NAGAR, LUCKNOW-226010



Praveen

REVISION NO.	DATE

1	29.07.2020
2	
3	
4	



Pram

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PREAMBLE

The Schedule of Dimensions (SOD) has been prepared for the Kanpur and Agra Metro Rail projects and for other future projects of UPMRCL having Standard Gauge(1435mm), with Third Rail bottom current collection using 750V DC Traction system and front evacuation.

This SOD has been prepared based on the following guiding factors:

1. The SOD has been developed assuming certain coach dimensions and design characteristics as well as track and coach maintenance tolerance. Whenever, a new stock is introduced the track and coach tolerance for maintenance should be laid down. The suitability of the Rolling Stock for operation with these maintenance tolerances should be established and sanction shall be obtained from the competent authority before the operation of the Rolling Stock.
2. The Kinematic Envelope has been developed for 2900 mm wide Rolling Stock and the maximum height of the kinematic envelope is defined as 4200 mm.
3. The clearances are based on the assumption that windows are sealed, and doors are closed during movement/operation of Rolling Stock.
4. Track and Rolling Stock shall be maintained to the tolerances considered for calculation of kinematic envelope.
5. The Structure Gauge indicated in SOD shall not be violated under any circumstances except for platform coping, platform screen doors/gates, hand railing in back of house of platform edge, track access gates, conductor third rail, its feeding arrangement and its support structure etc.
6. The vehicle Kinematic Envelope at wind speed of 70 kmph shall be applied for the platform area on At-Grade, Elevated stations and Nil wind speed for Underground Stations within the confines of stations. At all other location, the Kinematic Envelope corresponding to 100 Kmph wind speed shall be used for determining the structure gauge for Elevated and At-grade sections (outside the station area) and Nil wind speed for underground sections (outside the station area).
7. The speed of trains at platform on Elevated or At Grade Station shall be restricted to 40 KMPH when wind speed is more than 70 KMPH but less than 90 KMPH. Metro operation shall be stopped when wind speed reaches 90 KMPH or more. Continuous recording of wind speed shall be done at critical locations defined by the Metro administration.



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8. Design speed is 90 Kmph and operation speed shall be 80 Kmph (Except at stations). Operating speed at station shall be 70 Kmph. Operating speed in depots shall be 25 Kmph. Operating speed on diverging lines at turnouts having
- (i) Weldable CMS crossing (1 in 9) and thick web switch with 300 m radius of lead curve rail shall be 45 Kmph.
 - (ii) Weldable CMS crossing (1 in 9) and thick web switch with 190 m radius of lead curve rail shall be 35 Kmph.
 - (iii) Weldable CMS crossing (1 in 7) and thick web switch with 190 m radius of lead curve rail shall be 25 Kmph in Ballasted tracks at Depot.
9. No work/workmen/equipments are allowed between vehicle and Structure gauge during operation of trains.
10. Electrical clearance should be measured from Kinematic Envelope of rolling stock.

-----/-----



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UTTAR PRADESH METRO RAIL CORPORATION LTD

**SCHEDULE OF DIMENSIONS
STANDARD GAUGE (1435 mm GAUGE)**

INTRODUCTION

The dimensions given in this Schedule of Dimensions (SOD) are to be observed in all works on 1435 mm gauge (STANDARD GAUGE), unless prior sanction has been obtained from the Railway Board through the Commissioner of Metro Railway safety to execute works which infringe this Schedule of Dimensions.

This Schedule of Dimensions is applicable to Under Ground, Elevated and At-Grade sections of Kanpur and Agra Metro projects and the other future Projects of UPMRCL with 750 Volts D.C. Traction System & Third Rail Bottom Current Collection. The Rolling Stock shall be 2900 mm wide with windows sealed and doors closed while in motion.

The Underground system may be with a Circular Tunnel or Rectangular Box or any other suitable shape while Elevated system may be with suitable Over Ground Structures such as Viaducts/ U- Girders. Both, Under Ground and Elevated Systems shall have suitably designed Ballastless (Direct Fixation Fastenings) Track. For Depot, the track may be Ballasted/Ballastless.

The Schedule of Dimensions (SOD) has been divided into five chapters as under

Chapter-1	-----	General
Chapter-2	-----	Stations & Yards
Chapter-3	-----	Rolling Stock
Chapter-4	-----	Electric Traction



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CHAPTER-I

GENERAL

1.1 SPACING OF TRACKS

1.1.1 Minimum distance, center to center of tracks without any structure between tracks for tangent (straight) track for:

- | | | |
|-----|------------------------------|---------|
| (a) | Under Ground Sections | 3600 mm |
| (b) | Elevated & At-Grade Sections | 3700 mm |

Note: See Appendix-1 for minimum track centers on curves.

1.2 CURVES

1.2.1 Minimum radius of curves (horizontal)

- | | | | |
|-----|-------------------------------------|------|---|
| (a) | On main running lines | | |
| | i) Under Ground Sections | 200 | m |
| | ii) Elevated and At-Grade Sections | 120 | m |
| (b) | Depot and other non-passenger Lines | 120 | m |
| (c) | At passenger platforms | 1000 | m |

1.2.2 Minimum Transition length (horizontal)

- | | | | |
|-----|------------------------------------|----|---|
| (a) | On main running lines | | |
| | i) Under Ground Sections | 15 | m |
| | ii) Elevated and At-Grade Sections | 15 | m |
| (b) | At passenger platforms | 15 | m |

Check Rail/Restraining Rail

- (a) Check rail/Restraining Rail shall be provided on curves on main line where radius is 190m or less. Check rail/Restraining Rail shall not be mandatory for curves in depots, yards and non-passenger lines where speed is less than 25Kmph.
- (b) The clearance between check/restraining rail and running rail shall be suitably decided by metro depending upon study of track vehicle interaction.

1.2.3 Vertical Curve

Minimum radius of vertical curve 1500m



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1.2.4 Cant and Cant Deficiency

- | | | |
|-----|---|--------------|
| (a) | Maximum Cant Gradient | = 1 in 440 |
| (b) | Maximum cant on curves | = 110 mm |
| (c) | Maximum Cant Deficiency | = 85 mm |
| (d) | Maximum rate of change of cant | = 40 mm/ sec |
| (e) | Maximum rate of change of cant deficiency | = 40 mm/ sec |

1.3 GRADIENTS

1.3.1 The maximum grade (compensated) shall be 4%.

Note: (i) There will be no change of gradient in transition portion of curves.
(ii) The gradient will be compensated for curvature at the rate of 0.04% per degree of curve.

1.4 BUILDINGS AND STRUCTURES (OUTSIDE STATION AREA)

1.4.1 Minimum horizontal distance from center of track to any structure (except conductor rail) for heights above rail level on level/constant grade tangent track shall be as under:

(a) Under Ground Sections (Circular & Rectangular box tunnels tunnels)

	<u>Height from rail level</u>	<u>Horizontal distance from C.L. of track</u>
(i)	Up to 348 mm	1680 mm
(ii)	At 348 mm	1554 mm
(iii)	348 mm to 679 mm	1554 mm increasing to 1638 mm
(iv)	679 mm to 885 mm	1638 mm increasing to 1676 mm
(v)	885 mm to 2884 mm	1676 mm increasing to 1729 mm
(vi)	2884 mm to 3320 mm	1729 mm
(vii)	3320 mm to 4064 mm	1729 mm decreasing to 1170 mm
(viii)	4064 mm to 4246 mm	1170 mm decreasing to 1040 mm
(ix)	4246 mm to 4300 mm	1040 mm decreasing to 833 mm

Also refer to Figure No. UPMSG-2(TNL)

(b) Elevated and At-Grade Sections

	<u>Height from rail level</u>	<u>Horizontal distance from C.L. of track</u>
(i)	From RL to 348mm	1730 mm
(ii)	At 348mm	1730 mm decreasing to 1607 mm
(iii)	348mm to 666mm	1607 mm increasing to 1696 mm
(iv)	666 mm to 879 mm	1696 mm increasing to 1736 mm
(v)	879 mm to 2873mm	1736 mm increasing to 1808 mm
(vi)	2873 mm to 3338 mm	1808mm
(vii)	3338 mm to 4058 mm	1808 mm decreasing to 1374 mm
(viii)	4058 mm to 4350 mm	1374 mm decreasing to 1366 mm

Also refer to Figure No. UPMSG-2.



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Notes:

- i) Extra clearance shall be provided for curves as laid down at para 1.7.
- ii) The term 'structure' covers any item including light ones like ladders, isolated posts, cables etc. erected alongside the track.
- iii) For passenger platform refer to para 2.2.1 to 2.2.3 of chapter 2.

1.5 KINEMATIC ENVELOPE

The Kinematic Envelope for level or constant grade tangent track, refer to:

- (a) Figure No. UPMSG-1 for At-Grade and Elevated Sections (Outside Station)
- (b) Figure No. UPMSG-1A for At-Grade and Elevated Sections at Platform.
- (c) Figure No. UPMSG-1 (TNL) for Under Ground Sections (Outside Station)
- (d) Figure No. UPMSG-1A (TNL) for Under Ground Sections at Platform.

1.6 STRUCTURE GAUGE

1.6.1 Underground Sections

The Structure Gauge (Fixed Structure Line) has been arrived at by allowing a minimum clearance of 100 mm to Kinematic Envelope.

Refer to Figure No. UPMSG-2 (TNL) for Structure Gauge for outside stations on level or constant grade tangent track.

Note:

Extra clearance shall be provided for curves as laid down at para 1.7

1.6.2 Elevated Sections

The Structure Gauge (Fixed Structure Line) has been arrived at by allowing minimum clearance of 150 mm to Kinematic Envelope.

Refer to Figure No. UPMSG-2 for Structure Gauge for outside stations on level or constant grade tangent track.

Note:

Extra clearance shall be provided for curves as laid down at para 1.7

1.6.3 At-Grade Sections

The Structure Gauge (Fixed Structure Line) has been arrived at by allowing minimum clearance of 150 mm to Kinematic Envelope.

Refer to Figure No. UPMSG-2 for Structure Gauge for outside stations on level or constant grade tangent track.

Note:

Extra clearance shall be provided for curves as laid down at para 1.7



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1.7 EXTRA CLEARANCES ON CURVES

Following are the extra clearances considered for curves.

Abbreviations used in para 1.7:

C is the distance between centers of bogies in meters,
C₁ is the coach (vehicle) length in meters,
R is the radius of curve in meters,
Ca is the Cant applied in mm,
h is the height from rail level in mm and
g is the distance between centers of rails in mm

1.7.1 INSIDE OF CURVE

(A) Curvature effect

- i) Mid throw at the center of the vehicle = V (in mm) = $125 \times C^2 / R$
- ii) Clearance due to gauge widening on curves

For values of items (i) and (ii) above, refer to Appendix-2A

Note:

Lateral shift of 26 mm due to nosing is included in Kinematic Envelope for tangent track (and as a result, included in Structure Gauge also) shall be subtracted from the total extra clearance worked out as at para 1.7.1(A)-(i) & (ii) above for inside of a curve in case the value of mid throw (V) is equal to or greater than 26 mm. In case the value of mid throw (V) is less than 26 mm, the curvature effect shall be due to widening of the gauge only. (The mid throw minus 26 mm shall be taken as zero). Refer to Appendix-2A.

(B) Clearance for Super elevation

(a) Under Ground (Box Structures), Elevated and At-Grade Sections

The lean 'L' due to Cant at any point at height 'h' above rail level is given by:

$$L = Ca \times h/g \text{ (all in mm)}$$

For values of Structure Gauge (E_1) for inside of a curve with cant effect only, (as shown in Figure No. UPMSG-4), refer to:

- (i) Appendix -3 (TNL) for Under Ground Sections
- (ii) Appendix -3 for At-Grade and Elevated Sections

(b) Circular Tunnels

In the case of Circular Tunnel, the cant is provided by raising the outer rail and suitably shifting the center of the Circular Tunnel towards inside of curve and upwards. This has same effect as assuming rotation of the Circular Tunnel about midpoint of top of inner rail resulting in shift of Tunnel center laterally towards inside of curve and also vertically upwards.



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For values of horizontal and vertical shifts of center of Circular Tunnel for different values of cant, refer to Appendix-4 and Figure No. UPMSG-3.

(C) **Clearance for vertical curve (vertical throw)**

Vertical Throw V_1 and V_2 (in mm) for vertical curve shall be calculated as under:

$$\begin{aligned} V_1 \text{ (with vehicle center in sag or vehicle end on summit)} &= 125 \times C^2 / R \\ V_2 \text{ (with vehicle center on summit or vehicle end in sag)} \\ &= (125 \times C_1^2 / R) - (125 \times C^2 / R) \end{aligned}$$

Values of vertical throw due to vertical curves of different radii are given in Figure- UPMSG-5.

1.7.2 OUTSIDE OF CURVE

(A) **Curvature effect**

- i) End throw at the end of vehicle = V_0 (in mm)
= $[125 \times C_1^2 / R] - [125 \times C^2 / R]$
- ii) Clearance due to gauge widening on curves
- iii) Additional nosing due to gauge widening on curves

The values of items (i) to (iii) are shown in Appendix-2B.

(B) **Clearance for Super elevation**

(a) **Underground (Box structure), Elevated, and At-Grade**

The lean 'L' due to Cant at any point at height 'h' above rail level is given by:

$$L = (-) C_a \times h/g \text{ (all in mm)}$$

(-) ve sign indicates relief due to cant or reduction in clearance required.

Note:

Full relief for lean due to cant (C_a) is to be taken into account only for calculation of track spacing without any structure between tracks. In case there is a structure adjacent to track, relief for lean is to be taken into account only if the cant provided is greater than 50 mm and shall be limited to a value = $(C_a - 50) \times h/g$.

Values of Structure Gauge (F_1) on outside of curve with cant effect only (as shown in Figure No. UPMSG-4), refer to:

- i) Appendix 3 (TNL) for Under Ground Sections
- ii) Appendix 3 for Elevated and At-Grade Sections



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(b) **Circular Tunnels**

In the case of Circular Tunnel, the cant is provided by raising the outer rail and suitably shifting the center of the Circular Tunnel towards inside of curve and upwards. This has same effect as assuming rotation of the Circular Tunnel about midpoint of top of inner rail resulting in shift of Tunnel center laterally towards inside of curve and also vertically upwards.

For values of horizontal and vertical shifts of center of Circular Tunnel, for different values of cant, refer to Appendix-4 and Figure No. UPMSG-3.

(C) **Clearance for vertical curve (vertical throw)**

The provisions at para 1.7.1 (C) above shall be applicable in this case also.

1.8 MINIMUM TRACK SPACING ON CURVES

Under Ground, Elevated and At-Grade Sections

The worst case will be when the end of a bogie carriage on the inner track is opposite the center of a similar carriage on the outer track.

1.8.1 Without any structure between tracks

The minimum track spacing on curves without any structure between tracks shall be the sum of the following:

- a) (E + F),
- b) T₁ (Extra lateral clearance due to curvature on inside of curve),
- c) T₂ (Extra lateral clearance due to curvature on outside of curve),
- d) Minimum clearance between adjacent Kinematic Envelopes stipulated is as under:
 - i) 200 mm for Under-Ground Sections
 - ii) 300 mm for Elevated and At-Grade Sections.

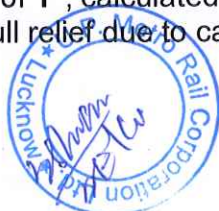
Where,

'E' is the distance from vertical axis of center line of canted track to canted Kinematic Envelope on inside of curve at a height 'h' (from rail level) for a given cant (Figure No. UPMSG-4A) and

'F' is the distance from vertical axis of center line of canted track to canted Kinematic Envelope on outside of curve at a height 'h' (from rail level) for a given cant (Figure No. UPMSG-4A).

Notes:

- i) The value of 'F', calculated from the formula at Figure No. UPMSG-4A includes full relief due to cant.



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- ii) The sum of 'E' and 'F' for same height (which are with cant effect only), shall be the maximum of values calculated for various heights from rail level.

For values of E, F, T₁ and T₂, refer to the Appendices as shown below:

<u>SECTIONS</u>	<u>For E & F</u>	<u>For T₁ & T₂</u>
i) Under Ground	3A (TNL)	2A & 2B
ii) Elevated and At-Grade	3A	2A & 2B

1.8.2 With a structure between adjacent tracks

The minimum track spacing on curves with a structure between tracks shall be the sum of the following:

- (E₁ + T₁) Minimum clearance to the structure from center line of track on inside of curve (for outer track),
- (F₁ + T₂) Minimum clearance to the structure from center line of track on outside of curve (for inner track),
- Width of structure between adjacent tracks (measured across the tracks).

Where,

E₁ is the horizontal distance from vertical axis of center line of track to canted Structure Gauge on inside of curve for a given cant (Figure No. UPMSG-4),

F₁ is the horizontal distance from vertical axis of center line of track to canted Structure Gauge on outside of curve for a given cant (Figure No. UPMSG-4),

T₁ is extra lateral clearance due to curvature on inside of curve and

T₂ is extra lateral clearance due to curvature on outside of curve

Notes:

- The values of 'E₁' and 'F₁' for a given cant Ca, shall each be the maximum of values at different heights of structure from rail level. In case the cant provided is greater than 50 mm on inner track, the value of F₁ shall be for the cant of (Ca-50) mm. In case the cant provided is 50 mm or less on inner track, the value of F₁ shall be for ZERO cant.
- Minimum track spacing, so worked out with a structure between the adjacent tracks shall not be less than that calculated as per para 1.8.1 for tracks without any structure between adjacent tracks.

For values of E₁, F₁, T₁ and T₂, refer to the Appendices as shown below:

<u>SECTIONS</u>	<u>For E₁ & F₁</u>	<u>For T₁ & T₂</u>
i) Under Ground	3 (TNL)	2A & 2B
ii) Elevated and At-Grade	3	2A & 2B



1.9 WALKWAY (If Provided):

- | | |
|-------------------------------|-----------|
| (a) Minimum width of walkway | = 610 mm |
| (b) Minimum height of walkway | = 1000 mm |
| (c) Maximum height of Walkway | = 1200 mm |

Notes: Extra allowance shall be provided for curves, as laid down at para 1.7

- (i) Maximum and minimum heights of walkway on curves are above inner rail.
- (ii) No structure other than signaling and minor signaling telecom equipment post, shall be permitted within the minimum width of walkway.
- (iii) Minimum clearance to walkway at the nearest edge from kinetic envelope shall be of 100mm for underground section.
- (iv) Walkway should be used by Metro inspection groups only in non-operation period.

1.10 DERAILMENT GUARD

- (a) Derailment Guard should be provided on inside/outside of running rail on viaduct as well as in tunnel and at grade section at locations specified by the Metro Railway. In tunnel, the derailment guard should preferably be provided inside the track so that it permits less sway of coach towards tunnel wall in case of derailment.

Note:

Location for providing Derailment Guard in single track tunnel.

1. Entry of tunnel 200 m from tunnel portal outside the tunnel to 50 m inside the tunnel.
2. Exit of tunnel 50 m from inside of tunnel portal to 200 m outside of tunnel
3. In curved track having radius 500 m or less including transition portion but excluding location where check rail is provided.
4. Covering location of all-important insulation e.g. Location of any substation or hazardous structure inside the tunnel, etc. damage to which in the assessment of the metro rail administration can result into serious loss of life or / and infrastructure as a result of relevant in tunnel.

The above is subject to the condition that metro railway shall carry of the risk assessment analysis for derailment in the tunnel and ensure that the



maintenance practices in the maintenance manual as per the risk assessment mitigation plan.

- (b) Lateral Clearance between the running rail and the derailment Guard should be 210 ± 30 mm. It shall not be lower than 25mm below the top of running rail and should be clear of the rail fastenings to permit installation, replacement and maintenance.

Note:

In case of Double Resilient Base Plate Assembly Fastening System as approved by MOR, the lateral clearance between running rail and the derailment guard shall be 250 ± 20 mm. This fastening system, If used in tunnels having multiple tracks, Metro Administration should ensure that KE for adjacent track is not infringed so long as the wheels of any derailed vehicle are within the main rail and derailment guard.



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CHAPTER - 2
STATIONS

2.1 SPACING OF TRACKS AT STATIONS

Minimum spacing of tracks at station on straight and on curve of radius of 1000M and flatter, without any structure between tracks

- (a) Under Ground Sections 3600 mm
- (b) Elevated & At-Grade Sections 3700 mm

2.2 PLATFORMS

2.2.1 Maximum horizontal distance from center of track to face of passenger platform coping

- (a) For elevated/At-Grade section 1535 mm
- (b) For underground Section 1525 mm

2.2.2 Minimum horizontal distance from center of track to face of passenger platform coping

- (a) For elevated/At-Grade section 1530 mm
- (b) For underground Section 1520 mm

Notes:

- i) Platform faces shall be flared away smoothly from the center line of the track at either end for a distance of 1500 mm beyond passenger area so as to give from center of track a dimension:
 - 1575 ± 5 for Under Ground Stations
 - 1590 ± 5 for At-Grade and Elevated Stations
- ii) For additional clearance for platforms on curves, refer to para 2.7
- iii) The track access gates at the end of platform up to a height of one smeter from top of platform shall not infringe the Kinematic Envelope.

2.2.3 Height above rail level for passenger platform:

	<u>Maximum</u>	<u>Minimum</u>
(a) At-Grade	1085 mm	1075 mm
(b) Elevated/Under Ground	1095 m	1085 mm

2.2.4 (a) Minimum horizontal distance of any isolated structure on a passenger platform from the edge of coping 2500mm

(b) Minimum horizontal distance of any continuous structure on a passenger platform from the edge of coping 3000mm



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line based on track geometry and other considerations, if required. In case of turnout installed on curved track, the minimum distance for commencement of vertical curve or another horizontal curve shall be 15m for Ballastless track. Turnout shall not be laid on transition curve.

- (iv) The limit of turnout for above purposes shall be taken from Stock Rail Joint (SRJ) to end (i.e. heel) of crossing for Ballastless track. For Ballasted track, it shall be from SRJ to last common sleeper behind end of crossing.
- (v) The maximum permissible gradient on turnout and the location of turnout with respect to vertical/horizontal curves in vicinity shall be confirmed from rolling stock supplier for the negotiability of rolling stock.
- (vi) The above stipulations shall also be applicable for turnout to be laid outside station limit, if any.

2.4 POINTS & CROSSING

2.4.1	Maximum clearance of check rail opposite nose of crossing	44 mm
2.4.2	Minimum clearance of check rail opposite nose of crossing	41 mm
2.4.3	Minimum clearance between switch rail and stock rail at heel of switch	52 mm
2.4.4	Maximum clearance of wing rail at nose of crossing	44 mm
2.4.5	Minimum clearance of wing rail at nose of crossings.	41 mm
2.4.6	Minimum clearance between toe of open switch and stock rail.	160 mm
	"The point Machine shall be provided considering the above value of "160mm"	
2.4.7	Minimum radius of curvature for slip points, turnouts and crossover roads.	140 m
2.4.8	Minimum angle of crossing (ordinary)	1 in 7
2.4.9	Diamond crossings not to be flatter than	1 in 4.5

Notes:

- i) The above restrictions shall not apply to moveable diamond crossings.
- ii) There must be no change of super elevation (of outer over inner rail) between points 18 meters outside toe of switch rail and nose of crossings



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respectively, except in the case of special crossing leading to snag dead ends or under circumstances as provided for in item 2.5 below.

2.4.10 Minimum length of tongue rail 9000mm

2.5 SUPERELEVATION AND SPEED AT STATIONS ON CURVES WITH TURNOUTS OF CONTRARY AND SIMILAR FLEXURE.

2.5.1 Main Line:

Subject to the permissible run through speed based on the standard of interlocking, the equilibrium superelevation, calculated for the speed of the fastest train may be reduced by a maximum amount of 85mm without reducing speed on the main line.

2.5.2 Turnouts:

(a) Curves of contrary flexure

The equilibrium superelevation (**s**) in mm should be =
 $(1510 / 127) (V^2 / R)$

Where, R = radius of turnout in meters and V is speed on turnout in Km/h.
The permissible negative superelevation on the turnout (which is also the actual superelevation of the main line) may then be = $(85 - s)$ mm

(b) Curves of Similar flexure

The question of reduction or otherwise of superelevation on the main line must necessarily be determined by the administration concerned. In the case of a reverse curve close behind the crossing of a turnout, the superelevation may be run out at the maximum of 1 mm in 440 mm.

2.6 INTERLOCKING AND SIGNAL GEAR

Maximum height above rail level of any part of interlocking or signal gear on either side of centre of track subject to the restrictions embodied in Note below shall be as under:

(a) For Under Ground Stations

- From CL of track to 1730 mm 0 mm

(b) For At-Grade and Elevated Stations

- From C.L. of track to 1730 mm 0 mm



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Notes:

Except for check rails of ordinary and diamond crossings, or wing rails and point rails of crossings leading to snag dead ends, or such parts of signalling gear as are required to be actuated by the wheels, no track fittings shall project above rail level for a distance of 216 mm outside and 51 mm inside the gauge face of the rail.

2.7 ADDITIONAL CLEARANCE FOR PLATFORMS ON CURVES

The additional clearance for platforms on curves shall be provided as shown at Appendix-5. To maintain minimum stepping distance as per norms, elastic gap filler will be provided for safety of passengers at the platform (If required).

Note:

As the minimum radius of curve for stations is 1000 meters, there will be no super elevation and gauge widening on passenger platform lines.



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CHAPTER-3
ROLLING STOCK

3.1 PASSENGER ELECTRIC MULTIPLE UNITS

S.N.		
1.	(a) Length of the coach body (Maximum including end fairings)	22010mm
1.	(b) Maximum length over couplers	23000 mm
1.	(c) The maximum width of the vehicle	2900 mm
2.	Distance between bogie centers	14850± 250 mm
3.	Maximum Distance apart between any two adjacent axles:	12900 mm
4.	Length of rigid wheelbase for single bogie	2200 to 2500 mm
5.	Kinematic Envelope for level tangent track (i) For Underground Sections (ii) For Underground section at platform (iii) For At-Grade and Elevated Sections (iv) For At-Grade and Elevated Sections at platform	Figure No. UPMSG-1 (TNL) Figure No. UPMSG-1A(TNL) Figure No. UPMSG-1 Figure No. UPMSG-1A
6.	Minimum clearance above rail level of fully loaded vehicle for bogie mounted equipment excluding current collection device (CCD) (vide note #) under worst* condition (*The worst condition means wheels with maximum tread wear and with maximum deflection or broken primary springs) and dynamic condition. #Note: The Current Collection Device (CCD) for worst condition (*the worst condition means wheels with maximum tread wear and primary springs with maximum deflection or broken) in retracted position shall have a net minimum clearance of 25mm above Rail level.	50 mm [#]
7.	Minimum clearance above rail level under of fully loaded vehicle for body mounted equipment under worst** condition (**The 'worst condition' means deflated secondary air springs, wheels with maximum tread wear and	102 mm



	with maximum deflection or broken primary springs) and dynamic condition.	
8	Wheel (Dimension as per Appendix B of UIC 510-2) a) Maximum wheel gauge back to back distance b) Minimum wheel gauge back to back distance	1360 mm 1358 mm
9.	a) Maximum diameter on the tread (measured at 70 mm from wheel gauge face) b) Minimum diameter on the tread (measured at 70 mm from wheel gauge face)	860 mm 780 mm
10.	a) Minimum projection for flange of new wheel (measured at 70 mm from wheel gauge face) b) Maximum projection for flange of worn wheel (measured at 70 mm from wheel gauge face)	28 mm 36 mm
11.	a) Maximum thickness of flange of wheel (measured at 18 mm from outer edge of Flange) b) Minimum thickness of flange of wheel (measured at 18 mm from outer edge of Flange)	32.5 mm 22 mm
12.	Width of wheel	135 ± 1 mm
13.	Incline of tread	1 in 20
14.	Floor Height a) Maximum height above rail level for floor of any unloaded vehicle b) Minimum height above rail level for floor of fully loaded normal vehicle	1130 mm 1100 mm
15.	a) Maximum height of centre coupler above rail level for unloaded vehicle b) Minimum height of centre coupler above rail level for fully loaded vehicle	815 mm 740 mm



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3.2 LOCOMOTIVES AND ENGINEERING SERVICE VEHICLES

Other items of rolling stock, viz shunting locomotives, maintenance and inspection cars, emergency re-railing van, track machines, etc., used on Uttar Pradesh Metro System (where these cars would be plying) will conform with the Kinematic Envelope of the Passenger Electric Multiple Units as shown in Figure No UPMSG – 1 (TNL) for Under Ground sections, Figure No. UPMSG - 1 for Elevated and At-Grade sections, Figure No. UPMSG-1A(TNL) for Underground sections at Platform and Figure No. UPMSG-1A for Elevated and At Grade sections at Platform.

CHAPTER 4

ELECTRIC TRACTION -750/DC, THIRD RAIL WITH BOTTOM CURRENT COLLECTION

- | | | |
|-------|--|--------|
| 4.1.1 | (a) Minimum height from rail level to current collecting Surface of the conductor rail. | 148mm |
| | (b) Maximum height from rail level to current collecting Surface of the conductor rail including worn-out condition | 164mm |
| 4.1.2 | (a) Distance of center line of the conductor rail from the track center | 1485mm |
| | (b) Tolerance of above | ±5mm |
| 4.1.3 | Minimum clearance between the bottom of the shroud and the Bottom of the conductor rail. | 18mm |
| 4.1.4 | Maximum distance between the center line of the conductor Rail and the outer edge of the shroud structure. | 90mm |
| 4.1.5 | (a) Minimum clearance between live parts of third rail and the Structure in static and dynamic conditions as per IEC 60913 | 25mm |
| | (b) Minimum clearance between live parts of conductor rail And vehicle body as per IEC 60913 | 25mm |



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APPENDIX-1

**PERMISSIBLE SPEED, CANT AND
MINIMUM TRACK SPACING ON CURVES
UNDERGROUND (TUNNELS), ELEVATED AND
AT- GRADE SECTIONS**

(REFERENCE: PARA 1.1)

RADIUS OF CURVE	CANT	MAXIMUM PERMISSIBLE SPEED	MINIMUM DISTANCE BETWEEN ADJACENT TRACKS	
			BALLASTLESS	
			UNDERGROUND	ELEVATED & AT-GRADE
metres	mm	kmph	mm	mm
≥ 3000	10	80	3600	3700
2800	15	80	3600	3700
2400	15	80	3600	3700
2000	20	80	3600	3700
1600	25	80	3600	3700
1500	25	80	3600	3700
1400	30	80	3600	3700
1200	35	80	3600	3700
1000	40	80	3600	3700
800	50	80	3600	3700
600	65	80	3600	3750
500	75	80	3600	3750
450	90	80	3650	3800
400	110	80	3650	3800
350	110	75	3650	3800
300	110	70	3700	3850
200	110	55	3800	3950
190	110	55	NA	4000
150	110	50	NA	4050
120	110	45	NA	4150

Notes:

- (a) The track spacing shown in the table above is without any column/structure between two tracks and is with equal cant both for outer and inner tracks.
- (b) Track spacing shown in the table above is not applicable to stations which should be calculated depending on specific requirement but the spacing should not be less than the spacing stipulated in para 2.1.
- (c) For in between radius, more sharper radius is to be adopted to arrive in required track spacing.
- (d) Cant provided is limited to desirable value of 110mm.
- (e) Maximum cant deficiency is 85mm.



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APPENDIX-2A
EXTRA HORIZONTAL SHIFT ON CURVES
(CURVATURE EFFECT)
INSIDE OF CURVE

REFERENCE: PARA 1.7.1

RADIUS	MID THROW (28500/R)	NOSING INCLUDED IN K.E./STRUCTURE GAUGE FOR TANGENT TRACK	EXTRA GAUGE WIDENING ON CURVES	EXTRA HORIZONTAL SHIFT ON CURVE	REMARKS
(metres)	(mm)	(mm)	(mm)	(mm)	
(R)	(V)	(N)	(G)	(T1)	
120	237.5	26	9	221	(G) EXTRA GAUGE TOLERANCE ON CURVES SHARPER THAN 1000 M RADIUS: 9 mm FOR CURVES WITH RADIUS SHARPER THAN 500 M RADIUS AND 5 mm FOR CURVES OF WITH RADIUS OF 500 M TO LESS THAN 1000 M
150	190.0	26	9	173	
175	162.9	26	9	146	
190	150.0	26	9	133	
200	142.5	26	9	126	
250	114.0	26	9	97	
300	95.0	26	9	78	
350	81.4	26	9	64	
400	71.3	26	9	54	
450	63.3	26	9	46	
500	57.0	26	5	36	
550	51.8	26	5	31	
600	47.5	26	5	27	
650	43.8	26	5	23	
700	40.7	26	5	20	
750	38.0	26	5	17	
800	35.6	26	5	15	
850	33.5	26	5	13	
900	31.7	26	5	11	
950	30.0	26	5	9	
1000	28.5	26	0	3	
1100	25.9	26	0	0	
1200	23.8	26	0	0	
1300	21.9	26	0	0	
1400	20.4	26	0	0	
1500	19.0	26	0	0	
1600	17.8	26	0	0	
1700	16.8	26	0	0	
1800	15.8	26	0	0	
1900	15.0	26	0	0	
2000	14.3	26	0	0	
2200	13.0	26	0	0	
2400	11.9	26	0	0	
2600	11.0	26	0	0	
2800	10.2	26	0	0	
more	9.5	26	0	0	

Mid throw (in mm) $V = (125 \times C^2)/R = 28500/R$

Where 'C' is the distance between bogie centres = $14.850+0.250 = 15.100$ m OR $14.850-0.250 = 14.600$ m

The worst case will be with $C = 15.100$ m

'R' is the radius of curve in metres



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APPENDIX-2B
EXTRA HORIZONTAL SHIFT ON CURVES
(CURVATURE EFFECT)
OUTSIDE OF CURVE

REFERENCE: PARA 1.7.2

RADIUS	END THROW (33525/R)	EXTRA GAUGE WIDENING ON CURVES	EXTRA NOSING DUE TO EXTRA GAUGE TOLERANCE	EXTRA HORIZONTAL SHIFT ON CURVE	REMARKS
(metres)	(mm)	(mm)	(mm)	(mm)	
(R)	(V0)	(G)	(EN)	(T2)	
120	279.4	9	2.3	291	(G) EXTRA GAUGE TOLERANCE ON CURVES SHARPER THAN 1000 M RADIUS: 9 mm FOR CURVES WITH RADIUS SHARPER THAN 500 M RADIUS AND 5 mm FOR CURVES OF WITH RADIUS OF 500 M TO LESS THAN 1000 M
150	223.5	9	2.3	235	
175	191.6	9	2.3	203	
190	176.4	9	2.3	188	
200	167.6	9	2.3	179	
250	134.1	9	2.3	145	
300	111.8	9	2.3	123	
350	95.8	9	2.3	107	
400	83.8	9	2.3	95	
450	74.5	9	2.3	86	
500	67.1	5	1.3	73	
550	61.0	5	1.3	67	
600	55.9	5	1.3	62	
650	51.6	5	1.3	58	
700	47.9	5	1.3	54	
750	44.7	5	1.3	51	
800	41.9	5	1.3	48	
850	39.4	5	1.3	46	
900	37.3	5	1.3	44	
950	35.3	5	1.3	42	
1000	33.5	0	0.0	34	
1100	30.5	0	0.0	30	
1200	27.9	0	0.0	28	
1300	25.8	0	0.0	26	
1400	23.9	0	0.0	24	
1500	22.4	0	0.0	22	
1600	21.0	0	0.0	21	
1700	19.7	0	0.0	20	
1800	18.6	0	0.0	19	
1900	17.6	0	0.0	18	
2000	16.8	0	0.0	17	
2200	15.2	0	0.0	15	
2400	14.0	0	0.0	14	
2600	12.9	0	0.0	13	
2800	12.0	0	0.0	12	
3000 or more	11.2	0	0.0	11	

T2=V0+G+EN

EN=Gx 0.251986301

End throw (in mm) $V = (125 \times C^2) / R - (125 \times C^2) / R = 33525 / R$

Where 'C' is the distance between bogie centres = 14.850+0.250 = 15.100 m OR 14.850-0.250 = 14.600 m

The worst case will be with C = 14.6000 m

'C1' is the length of coach in metres = 21.940 m and R is the radius of curve in metres



Proven

APPENDIX-3
CANT EFFECT ON STRUCTURE GAUGE - HORIZONTAL
AT-GRADE AND ELEVATED SECTIONS
 (REFERENCE PARA 1.8.2)

ALL FIGURES ARE IN (mm)

Cant	Height above rail level measured perpendicular to plane of track		h= 348		h= 379		h= 2873		h= 3338		h= 4058		h= 4350									
	sin α	cos α	E1	F1	H1	H2	E1	F1	H1	H2	E1	F1	H1	H2	E1	F1	H1	H2				
110	0.073	0.997	1751	1700	1058	805	2012	1594	3052	2789	2046	1560	3516	3252	1666	1075	4202	4002	1679	1045	4493	4294
105	0.070	0.998	1750	1702	1050	809	2003	1604	3044	2793	2036	1572	3508	3257	1653	1088	4196	4005	1665	1060	4487	4297
100	0.066	0.998	1749	1703	1042	812	1994	1614	3036	2797	2025	1583	3500	3261	1640	1102	4190	4008	1651	1075	4481	4300
95	0.063	0.998	1748	1705	1034	816	1985	1624	3029	2801	2014	1594	3493	3265	1627	1116	4184	4011	1637	1090	4475	4303
90	0.060	0.998	1748	1706	1026	819	1976	1634	3021	2805	2004	1606	3485	3269	1613	1130	4178	4014	1623	1104	4469	4306
85	0.056	0.998	1747	1708	1018	822	1967	1643	3013	2809	1993	1617	3477	3273	1600	1143	4171	4017	1609	1119	4462	4309
80	0.053	0.999	1746	1709	1010	826	1958	1653	3005	2813	1982	1629	3469	3278	1587	1157	4165	4020	1595	1134	4456	4312
75	0.050	0.999	1745	1711	1002	829	1948	1663	2997	2817	1972	1640	3461	3282	1574	1171	4159	4022	1580	1148	4450	4314
70	0.046	0.999	1744	1712	994	833	1939	1673	2989	2821	1961	1651	3453	3286	1561	1184	4152	4025	1566	1163	4444	4317
65	0.043	0.999	1743	1713	985	836	1930	1683	2981	2825	1950	1663	3445	3290	1547	1198	4146	4028	1552	1177	4437	4320
60	0.040	0.999	1742	1715	977	839	1921	1692	2973	2829	1939	1674	3437	3294	1534	1212	4139	4030	1538	1192	4431	4322
55	0.036	0.999	1742	1716	969	843	1911	1702	2964	2833	1928	1685	3429	3297	1521	1225	4133	4033	1524	1207	4424	4325
50	0.033	0.999	1741	1718	961	846	1902	1712	2956	2837	1918	1696	3421	3301	1508	1239	4126	4035	1509	1221	4418	4327
45	0.030	1.000	1740	1719	953	849	1893	1722	2948	2840	1907	1708	3413	3305	1494	1252	4120	4038	1495	1236	4411	4330
40	0.026	1.000	1739	1720	945	853	1883	1731	2940	2844	1896	1719	3405	3309	1481	1266	4113	4040	1481	1250	4405	4332
35	0.023	1.000	1738	1721	937	856	1874	1741	2932	2848	1885	1730	3397	3313	1468	1280	4106	4043	1466	1265	4398	4335
30	0.020	1.000	1737	1723	928	859	1865	1751	2923	2852	1874	1741	3388	3316	1454	1293	4099	4045	1452	1279	4391	4337
25	0.017	1.000	1736	1724	920	863	1855	1760	2915	2855	1863	1752	3380	3320	1441	1307	4093	4047	1438	1294	4385	4339
20	0.013	1.000	1734	1725	912	866	1846	1770	2907	2859	1852	1764	3372	3324	1428	1320	4086	4049	1423	1308	4378	4342
15	0.010	1.000	1733	1726	904	869	1836	1779	2898	2862	1841	1775	3363	3327	1414	1334	4079	4052	1409	1323	4371	4344
10	0.007	1.000	1732	1728	895	872	1827	1789	2890	2866	1830	1786	3355	3331	1401	1347	4072	4054	1395	1337	4364	4346
5	0.003	1.000	1731	1729	887	876	1818	1798	2881	2869	1819	1797	3346	3334	1387	1361	4065	4056	1380	1352	4357	4348
0	0.000	1.000	1730	1730	879	879	1808	1808	2873	2873	1808	1808	3338	3338	1374	1374	4058	4058	1366	1366	4350	4350

REFER TO DRAWING NO. UPMSG-4
 $E1 = [Ab - (h \times \tan \alpha)] \times \cos \alpha$
 $F1 = [Ab - (h \times \tan \alpha)] \times \cos \alpha$
 $H1 = (Ca/2) + (h/\cos \alpha) - (Ab - h \times \tan \alpha) \times \sin \alpha$
 $H2 = (Ca/2) + (h/\cos \alpha) - (Ab - h \times \tan \alpha) \times \sin \alpha$
 ab=Abs: Distance from centre line of vehicle to Structure Gauge for tangent track at height 'h' from rail level.
 ac=Distance from vertical centre line of canted track to Structure Gauge for tangent track at height 'h' from rail level.
 bc= h x tan α: Lateral increment due to cant (measured along the line parallel to line joining the top of rails).



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APPENDIX-3(TNL)
CANT EFFECT ON STRUCTURE GAUGE- HORIZONTAL
UNDERGROUND SECTIONS (RECTANGULAR BOX/TUNNEL)
(REFERENCE: PARA 1.8.2)

ALL FIGURES ARE IN (mm)

Cant	Height above rail level measured perpendicular to plane of track		h= 348		h= 885		h= 2884		h= 3320		h= 4246		h= 4300													
	sin α	cos α	E1	F1	H1	H2	E1	F1	H1	H2	E1	F1	H1	H2	E1	F1	H1	H2								
110	0.4178	0.9073	1701	1650	524	280	1736	1607	1060	816	1934	1514	3057	2805	1966	1483	3492	3240	1347	728	4365	4214	1144	518	4404	4283
105	0.3987	0.9198	1700	1652	516	283	1733	1610	1052	819	1925	1524	3050	2809	1956	1494	3485	3244	1333	742	4351	4216	1130	532	4400	4284
100	0.3797	0.9328	1699	1653	508	286	1731	1614	1044	822	1916	1534	3042	2813	1945	1505	3477	3248	1319	757	4356	4218	1116	546	4396	4285
95	0.3607	0.9463	1699	1655	501	289	1728	1617	1036	825	1907	1544	3035	2817	1934	1517	3470	3252	1305	771	4351	4220	1102	561	4391	4287
90	0.3417	0.9600	1698	1656	493	292	1726	1620	1028	829	1898	1554	3027	2821	1924	1528	3462	3256	1291	785	4345	4221	1088	575	4387	4288
85	0.3227	0.9740	1697	1658	485	295	1723	1624	1020	832	1889	1564	3019	2825	1913	1539	3455	3260	1277	799	4340	4223	1074	590	4383	4289
80	0.3037	0.9880	1696	1659	477	299	1721	1627	1013	835	1879	1574	3012	2828	1902	1551	3447	3264	1263	814	4335	4225	1060	604	4378	4290
75	0.2847	0.9999	1695	1661	469	302	1718	1630	1005	838	1870	1584	3004	2832	1892	1562	3439	3268	1250	828	4330	4227	1046	618	4374	4291
70	0.2657	0.9999	1694	1662	461	305	1715	1633	997	841	1861	1593	2996	2836	1881	1573	3432	3271	1236	842	4325	4228	1031	633	4369	4292
65	0.2467	0.9999	1693	1663	452	308	1713	1636	989	845	1852	1603	2988	2839	1870	1584	3424	3275	1222	856	4319	4230	1017	647	4364	4293
60	0.2277	0.9999	1693	1665	444	311	1710	1640	981	848	1842	1613	2980	2843	1860	1596	3416	3279	1208	870	4314	4231	1003	661	4360	4294
55	0.2087	0.9999	1692	1666	436	314	1707	1643	973	851	1833	1623	2973	2847	1849	1607	3408	3282	1194	885	4309	4233	989	676	4355	4294
50	0.1898	0.9999	1691	1668	428	317	1704	1646	965	854	1824	1633	2965	2850	1838	1618	3400	3286	1180	899	4303	4234	975	690	4350	4295
45	0.1708	0.9999	1690	1669	420	320	1702	1649	957	857	1814	1642	2957	2854	1827	1629	3393	3289	1166	913	4298	4236	961	704	4345	4296
40	0.1518	0.9999	1689	1670	412	323	1699	1652	949	860	1805	1652	2949	2857	1816	1640	3385	3293	1152	927	4292	4237	947	719	4341	4296
35	0.1328	0.9999	1688	1671	404	326	1696	1655	941	863	1795	1662	2941	2861	1805	1652	3377	3297	1138	941	4286	4238	932	733	4336	4297
30	0.1138	0.9999	1687	1673	396	330	1693	1658	933	867	1786	1671	2933	2864	1795	1663	3369	3300	1124	955	4281	4239	918	747	4331	4298
25	0.0949	0.9999	1686	1674	388	333	1690	1661	925	870	1777	1681	2925	2867	1784	1674	3361	3303	1110	970	4275	4241	904	762	4326	4298
20	0.0759	0.9999	1684	1675	380	336	1688	1664	917	873	1767	1691	2917	2871	1773	1685	3353	3307	1096	984	4269	4242	890	776	4321	4299
15	0.0569	0.9999	1683	1676	372	339	1685	1667	909	876	1758	1700	2909	2874	1762	1696	3345	3310	1082	998	4264	4243	876	790	4316	4299
10	0.0379	0.9999	1682	1678	364	342	1682	1670	901	879	1748	1710	2900	2877	1751	1707	3336	3313	1068	1012	4258	4244	861	805	4310	4299
5	0.0190	0.9999	1681	1679	356	345	1679	1673	893	882	1739	1719	2892	2881	1740	1718	3328	3317	1054	1026	4252	4245	847	819	4305	4300
0	0.0000	0.9999	1680	1680	348	348	1676	1676	885	885	1729	1729	2884	2884	1729	1729	3320	3320	1040	1040	4246	4246	833	833	4300	4300



REFER TO DRAWING NO. UPMSG-4

$E1 = [Ab + h \times \tan \alpha] \times \cos \alpha$
 $F1 = [Ab - h \times \tan \alpha] \times \cos \alpha$
 $H1 = (Ca/2) + (h/\cos \alpha) \times (Ab - h \times \tan \alpha) \times \sin \alpha$
 $H2 = (Ca/2) + (h/\cos \alpha) \times (Ab + h \times \tan \alpha) \times \sin \alpha$
 $ab = Ab =$ Distance from centre line of vehicle to Structure Gauge for tangent track at height 'h' from rail level.
 $ac =$ Distance from centre line of canted track to Structure Gauge for tangent track at height 'h' from rail level.
 $bc = h \times \tan \alpha =$ Lateral increment due to cant (measured along the line parallel to line joining the top of rails).

Pro

APPENDIX-3A
CANT EFFECT ON KINEMATIC ENVELOPE - HORIZONTAL
AT-GRADE AND ELEVATED SECTIONS

(REFERENCE : PARA 1.8.1)
 ALL FIGURES ARE IN (mm)

Cant	Angle α	Height above rail level measured perpendicular to plane of track			h= 348			h= 895			h= 2876			h= 3296			h= 4014			h= 4200								
		sin α	cos α	tan α	E	F	H1	H2	E	F	H1	H2	E	F	H1	H2	E	F	H1	H2	E	F	H1	H2				
110	4.178	0.073	0.997	0.070	1472	1422	508	296	1647	1517	1063	832	1863	1444	3044	2803	1894	1413	3463	3221	1514	929	4148	3969	1523	911	4333	4155
105	3.987	0.070	0.998	0.070	1472	1423	501	299	1644	1520	1056	835	1854	1454	3037	2806	1883	1425	3456	3225	1501	943	4142	3972	1509	925	4327	4157
100	3.797	0.066	0.998	0.066	1471	1425	493	301	1642	1523	1048	838	1845	1464	3029	2810	1873	1436	3449	3229	1488	956	4136	3974	1495	939	4322	4160
95	3.607	0.063	0.998	0.063	1470	1426	486	304	1639	1527	1041	841	1836	1474	3022	2813	1862	1447	3441	3233	1475	970	4131	3976	1482	953	4316	4162
90	3.417	0.060	0.998	0.060	1469	1428	479	306	1637	1530	1033	844	1826	1484	3015	2817	1852	1459	3434	3236	1462	984	4125	3979	1468	967	4310	4165
85	3.227	0.056	0.998	0.056	1468	1429	472	308	1634	1533	1025	847	1817	1493	3007	2821	1841	1470	3427	3240	1449	997	4119	3981	1454	982	4305	4167
80	3.037	0.053	0.999	0.053	1467	1431	464	311	1631	1536	1018	850	1808	1503	3000	2824	1830	1481	3419	3244	1436	1011	4113	3983	1441	996	4299	4169
75	2.847	0.050	0.999	0.050	1466	1432	457	313	1628	1540	1010	853	1799	1513	2992	2828	1820	1492	3412	3247	1423	1024	4107	3986	1427	1010	4293	4172
70	2.657	0.046	0.999	0.046	1466	1433	450	315	1626	1543	1003	856	1790	1523	2985	2831	1809	1503	3404	3251	1410	1038	4101	3988	1413	1024	4287	4174
65	2.467	0.043	0.999	0.043	1465	1435	443	318	1623	1546	995	858	1780	1533	2977	2834	1798	1515	3397	3254	1397	1051	4096	3990	1400	1038	4281	4176
60	2.277	0.040	0.999	0.040	1464	1436	435	320	1620	1549	987	861	1771	1542	2970	2838	1788	1526	3389	3258	1384	1065	4090	3992	1386	1052	4275	4178
55	2.087	0.036	0.999	0.036	1463	1437	428	322	1618	1552	980	864	1762	1552	2962	2841	1777	1537	3382	3261	1370	1078	4083	3994	1372	1066	4269	4180
50	1.898	0.033	0.999	0.033	1462	1439	421	325	1615	1555	972	867	1752	1562	2954	2845	1766	1548	3374	3264	1357	1091	4077	3996	1358	1080	4263	4182
45	1.708	0.030	1.000	0.030	1461	1440	414	327	1612	1559	964	870	1743	1572	2947	2848	1755	1559	3366	3268	1344	1105	4071	3998	1345	1094	4257	4184
40	1.518	0.026	1.000	0.026	1460	1441	406	329	1609	1562	957	873	1734	1581	2939	2851	1745	1570	3359	3271	1331	1118	4065	4000	1331	1108	4251	4186
35	1.328	0.023	1.000	0.023	1459	1443	399	332	1606	1565	949	875	1724	1591	2931	2854	1734	1581	3351	3274	1318	1132	4059	4002	1317	1122	4245	4188
30	1.138	0.020	1.000	0.020	1458	1444	392	334	1603	1568	941	878	1715	1601	2923	2857	1723	1592	3343	3277	1305	1145	4053	4004	1303	1136	4238	4190
25	0.949	0.017	1.000	0.017	1457	1445	384	336	1601	1571	934	881	1705	1610	2916	2861	1712	1603	3335	3281	1291	1158	4046	4006	1289	1150	4232	4192
20	0.759	0.013	1.000	0.013	1455	1446	377	339	1598	1574	926	884	1696	1620	2908	2864	1702	1614	3328	3284	1278	1172	4040	4007	1276	1164	4226	4193
15	0.569	0.010	1.000	0.010	1454	1447	370	341	1595	1577	918	887	1686	1629	2900	2867	1691	1625	3320	3287	1265	1185	4033	4009	1272	1178	4219	4195
10	0.379	0.007	1.000	0.007	1453	1449	363	343	1592	1580	910	889	1677	1639	2892	2870	1680	1636	3312	3290	1252	1198	4027	4011	1248	1192	4213	4197
5	0.190	0.003	1.000	0.003	1452	1450	355	346	1589	1583	903	892	1668	1648	2884	2873	1669	1647	3304	3293	1238	1212	4021	4012	1234	1206	4207	4198
0	0.000	0.000	1.000	0.000	1451	1451	348	348	1586	1586	895	895	1658	1658	2876	2876	1658	1658	3296	3296	1225	1225	4014	4014	1220	1220	4200	4200



REFER TO DRAWING NO. UPMSG-4A

$E=[AB+(h \times \tan \alpha)] \times \cos \alpha$

$F=[AB-(h \times \tan \alpha)] \times \cos \alpha$

$H1=(Ca/2)+(h \times \cos \alpha)+(Ab-h \times \tan \alpha) \times \sin \alpha$

$H2=(Ca/2)-(h \times \cos \alpha)-(Ab+h \times \tan \alpha) \times \sin \alpha$

ab=Ab= Distance from centre line of vehicle to Kinematic Envelope for tangent track at height 'h' from rail level.

ac=Distance from centre line of canted track to Kinematic Envelope for tangent track at height 'h' from rail level.

bc= h x tan α = Lateral increment due to cant (measured along the line joining the top of rails).

APPENDIX-3A(TNL)
CANT EFFECT ON KINEMATIC ENVELOPE - HORIZONTAL
UNDERGROUND SECTIONS (RECTANGULAR BOX TUNNEL)
 (REFERENCE : PARA 1.8.1)

ALL FIGURES ARE IN (mm)

Cant	Height above rail level measured perpendicular to plane of track		h= 348		h= 895		h= 2885		h= 3287		h= 4158		h= 4200	
	sin α	cos α	E	F	H1	H2	E	F	H1	H2	E	F	H1	H2
110	0.478	0.073	1472	1422	508	833	1835	1415	3051	2814	1864	1385	3452	4131
105	0.397	0.070	1472	1423	501	836	1826	1424	3044	2817	1854	1396	3445	4132
100	0.317	0.066	1471	1425	493	839	1816	1434	3037	2821	1843	1408	3438	4134
95	0.237	0.063	1470	1426	486	842	1807	1444	3029	2824	1833	1419	3430	4136
90	0.157	0.060	1469	1428	479	844	1798	1454	3022	2828	1822	1430	3423	4137
85	0.077	0.056	1468	1429	472	847	1789	1464	3015	2831	1811	1441	3416	4139
80	0.000	0.053	1467	1431	464	850	1780	1474	3007	2835	1801	1453	3409	4140
75	0.000	0.050	1466	1432	457	853	1770	1484	3000	2838	1790	1464	3401	4142
70	0.000	0.046	1466	1433	450	856	1761	1494	2992	2841	1780	1475	3394	4143
65	0.000	0.043	1465	1435	443	859	1752	1503	2985	2845	1769	1486	3387	4144
60	0.000	0.040	1464	1436	435	862	1742	1513	2977	2848	1758	1497	3379	4146
55	0.000	0.036	1463	1437	428	865	1733	1523	2970	2851	1748	1508	3372	4148
50	0.000	0.033	1462	1439	421	867	1724	1533	2962	2854	1737	1519	3364	4149
45	0.000	0.030	1461	1440	414	870	1714	1542	2955	2858	1726	1530	3357	4151
40	0.000	0.026	1460	1441	406	873	1705	1552	2947	2861	1716	1541	3349	4152
35	0.000	0.023	1459	1443	399	876	1695	1562	2939	2864	1705	1552	3341	4154
30	0.000	0.020	1458	1444	392	879	1686	1571	2932	2867	1694	1563	3334	4155
25	0.000	0.017	1457	1445	384	881	1677	1581	2924	2870	1683	1574	3326	4157
20	0.000	0.013	1455	1446	377	884	1667	1591	2916	2873	1672	1585	3318	4158
15	0.000	0.010	1454	1447	370	887	1658	1600	2909	2876	1662	1596	3311	4159
10	0.000	0.007	1453	1449	363	890	1648	1610	2901	2879	1651	1607	3303	4160
5	0.000	0.003	1452	1450	355	892	1639	1619	2893	2882	1640	1618	3295	4161
0	0.000	0.000	1451	1451	348	895	1629	1629	2885	2885	1629	1629	3287	4162



REFER TO DRAWING NO. UPMSG-4A

$E = (Ab + h \times \tan \alpha) \times \cos \alpha$

$F = (Ab - h \times \tan \alpha) \times \cos \alpha$

$H1 = (Ca/2) - (h/\cos \alpha) + (Ab - h \times \tan \alpha) \times \sin \alpha$

$H2 = (Ca/2) + (h/\cos \alpha) - (Ab + h \times \tan \alpha) \times \sin \alpha$

ab=Ab= Distance from centre line of vehicle to Kinematic Envelope for tangent track at height 'h' from rail level.

ac=Ab= Distance from centre line of canted track to Kinematic Envelope for tangent track at height 'h' from rail level.

bc= h x tan α= Lateral increment due to cant (measured along the line parallel to line joining the top of rails).

APPENDIX-4
LATERAL AND VERTICAL SHIFT OF CENTRE OF CIRCULAR TUNNEL
FOR DIFFERENT CANT VALUES
(WITH D1 = 630 mm)

REFER TO FIGURE UPMSG-3 AND PARA: 1.7.1(B)(b) & 1.7.2(B)(b)

ALL FIGURES ARE IN (mm)

Cant (mm)	Sin $\alpha =$ cant/g, g=1510	Angle α in degrees	$\tan \theta =$ (r-D1)/(g/2)	Angle θ in degrees	Lateral shift of tunnel centre=X	Vertical shift of tunnel centre=Y	REMARKS
110	0.0728	4.1776	2.8742	70.8159	160	49	<p>(a) The cant is provided by raising the outer rail which will mean, rotating the tunnel about the mid point of top of inner rail.</p> <p>(b) 'X' is lateral shift of the centre of tunnel towards inside of curve $X = \{ 2 \times (r-D1) / \sin \theta \} \times \{ \sin a/2 \} \times \cos (90-\theta-a/2)$</p> <p>(c) 'Y' is vertical shift of the centre of tunnel upwards $Y = \{ 2 \times (r-D1) / \sin \theta \} \times \{ \sin a/2 \} \times \sin (90-\theta-a/2)$</p> <p>'r' is internal radius of the circular tunnel=5600/2=2800 mm D1 = depth from rail level to invert of circular tunnel=630 mm a = angle of rotation=sin-1 (Cant/g) and $\theta =$ angle subtended by line joining top of two rails and the line joining mid point of top of inner rail and the centre of circular tunnel $= \tan^{-1} [(r-D1)/(g/2)]$ in degrees =70.81587171 g= Centre to centre of rails = 1435+75=1510 mm</p>
105	0.0695	3.9874	2.8742	70.8159	153	47	
100	0.0662	3.7972	2.8742	70.8159	145	45	
95	0.0629	3.6071	2.8742	70.8159	138	43	
90	0.0596	3.4170	2.8742	70.8159	131	41	
85	0.0563	3.2270	2.8742	70.8159	123	39	
80	0.0530	3.0370	2.8742	70.8159	116	37	
75	0.0497	2.8470	2.8742	70.8159	109	35	
70	0.0464	2.6570	2.8742	70.8159	101	33	
65	0.0430	2.4671	2.8742	70.8159	94	30	
60	0.0397	2.2773	2.8742	70.8159	87	28	
55	0.0364	2.0874	2.8742	70.8159	80	26	
50	0.0331	1.8976	2.8742	70.8159	72	24	
45	0.0298	1.7077	2.8742	70.8159	65	22	
40	0.0265	1.5179	2.8742	70.8159	58	19	
35	0.0232	1.3282	2.8742	70.8159	51	17	
30	0.0199	1.1384	2.8742	70.8159	43	15	
25	0.0166	0.9486	2.8742	70.8159	36	12	
20	0.0132	0.7589	2.8742	70.8159	29	10	
15	0.0099	0.5692	2.8742	70.8159	22	7	
10	0.0066	0.3794	2.8742	70.8159	14	5	
5	0.0033	0.1897	2.8742	70.8159	7	2	
0	0.0000	0.0000	2.8742	70.8159	0	0	



APPENDIX-5
ADDITIONAL CLEARANCE FOR PLATFORMS ON CURVES
UNDER GROUND, ELEVATED AND AT GRADE STATIONS

(REFERENCE: PARA 2.7)

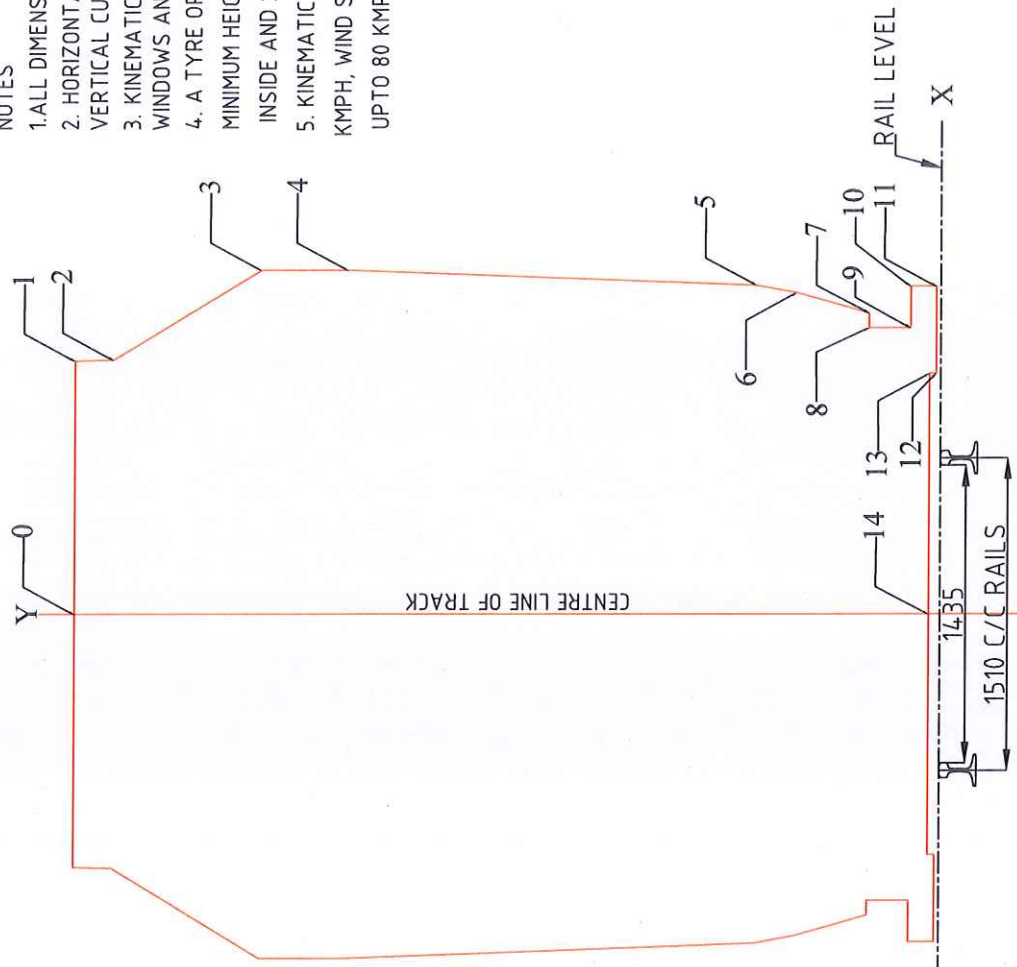
RADIUS (meters)	CANT Ca (mm)	EXTRA ALLOWANCE (mm) FOR PASSENGER PLATFORM		REMARKS
		INSIDE OF CURVE	OUTSIDE OF CURVE	
3000	0	10	11	Extra Allowance for curves
2800	0	10	12	(a) Inside of curve = Mid throw = $28500/R$
2600	0	11	13	Outside of curve = End throw = $33525/R$
2400	0	12	14	Please see Appendix 2A & 2B.
2200	0	13	15	Additional sway (nosing Effect) has been neglected in the calculation as a measure of additional safety to passengers.
2000	0	14	17	
1800	0	16	19	
1700	0	17	20	
1600	0	18	21	
1500	0	19	22	
1400	0	20	24	
1300	0	22	26	
1200	0	24	28	
1100	0	26	30	
1000	0	29	34	



Pr...

NOTES

1. ALL DIMENSIONS ARE IN mm.
2. HORIZONTAL AND VERTICAL CLEARANCE DUE TO CURVES INCLUDING VERTICAL CURVES AND CANT SHALL BE EXTRA.
3. KINEMATIC ENVELOPE IS VALID FOR VEHICLES WITH SEALED WINDOWS AND DOORS CLOSED WHILE IN MOTION.
4. A TYRE OR ATTACHMENT OF A WHEEL MAY PROJECT BELOW THE MINIMUM HEIGHT OF KINEMATIC ENVELOPE FOR A DISTANCE OF 51 mm INSIDE AND 216 mm OUTSIDE OF THE GAUGE FACE OF THE RAIL.
5. KINEMATIC ENVELOPE IS VALID FOR THE MAXIMUM SPEED OF 90 KMPH, WIND SPEED OF 100 KMPH AND OPERATING SPEED UPTO 80 KMPH.



CO-ORDINATES		
SL.NO.	X	Y
0	0	4200
1	1220	4200
2	1225	4014
3	1658	3296
4	1658	2876
5	1586	895
6	1550	700
7	1451	348
8	1380	348
9	1380	148
10	1580	148
11	1580	25
12	1160	25
13	1160	56
14	0	56

AT GRADE AND ELEVATED SECTIONS

750 V D.C. TRACTION


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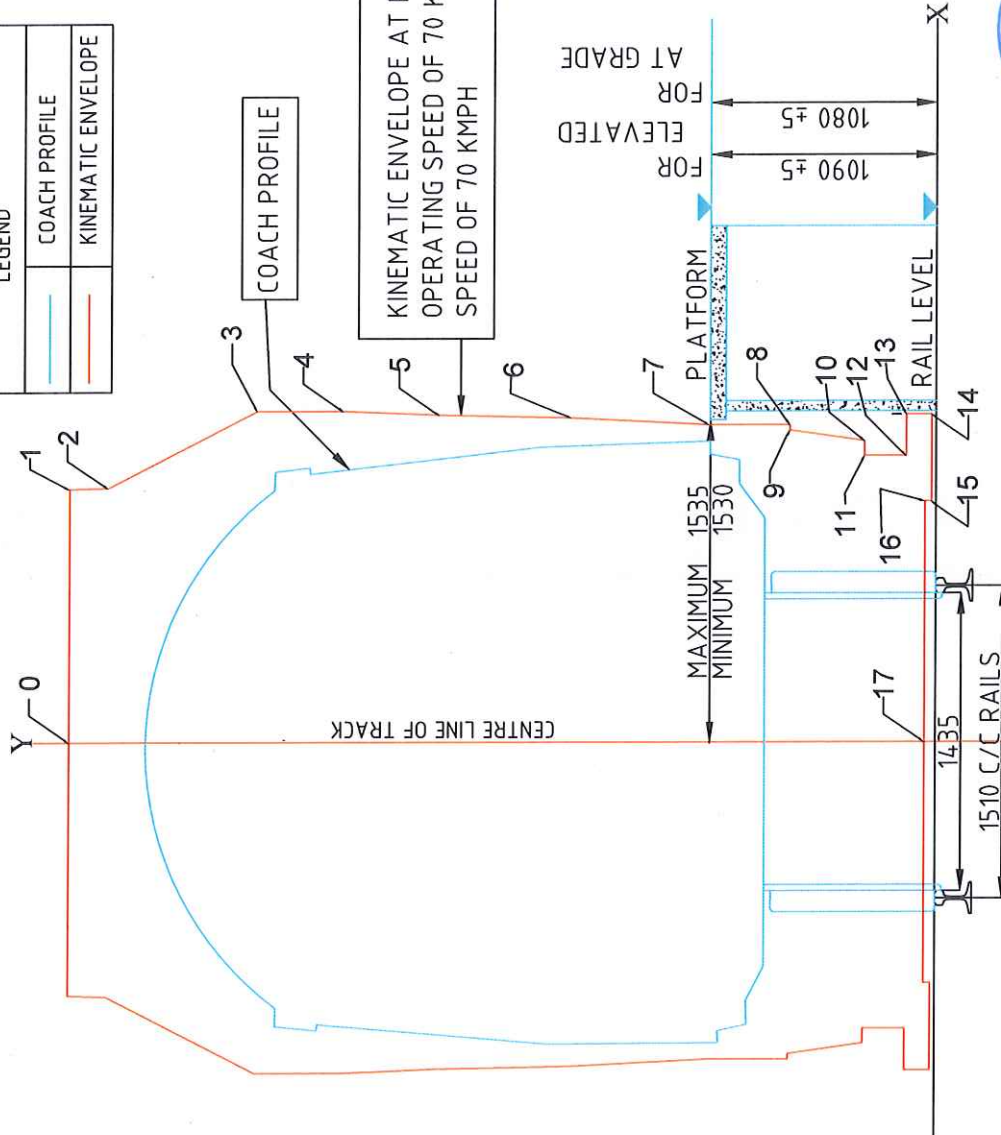


KINEMATIC ENVELOPE AT-GRADE AND ELEVATED SECTIONS (OUTSIDE STATION) ON LEVEL OR CONSTANT GRADE TANGENT TRACK	UTTAR PRADESH METRO RAIL PROJECT CORPORATION LTD.	DATE 31-10-2019	FIGURE No. UPMRG-1
		STANDARD GAUGE (1435 mm)	SCALE NOT TO SCALE
			REF: PARA 15(b) & 3.13(iii)
			PAGE NO: 28

NOTES:

1. ALL DIMENSIONS ARE IN mm.
2. HORIZONTAL AND VERTICAL CLEARANCE DUE TO CURVES INCLUDING VERTICAL CURVES AND CANT SHALL BE EXTRA.
3. KINEMATIC ENVELOPE IS VALID FOR VEHICLES WITH SEALED WINDOWS AND DOORS CLOSED WHILE IN MOTION.
4. KINEMATIC ENVELOPE IS VALID FOR 70 KMPH OPERATING SPEED & WIND SPEED OF 70 KMPH.

LEGEND	
	COACH PROFILE
	KINEMATIC ENVELOPE



AT GRADE AND ELEVATED SECTIONS PLATFORM



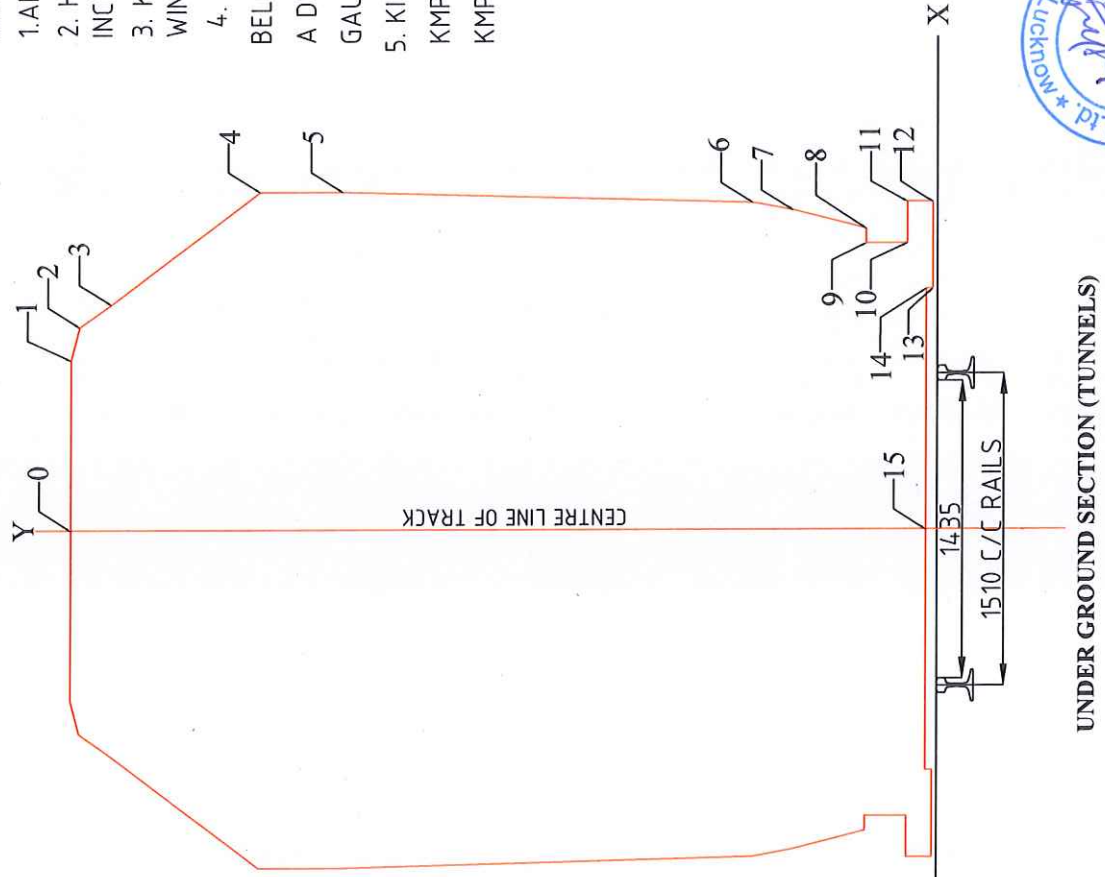
CO-ORDINATES		
SL.NO.	X	Y
0	0	4200
1	1220	4200
2	1225	4014
3	1595	3296
4	1595	2876
5	1575	2410
6	1563	1768
7	1528	1095
8	1528	710
9	1502	710
10	1451	348
11	1380	348
12	1380	148
13	1580	148
14	1580	25
15	1160	25
16	1160	56
17	0	56

750 V.D.C. TRACTION

STANDARD GAUGE (1435 mm)	DATE 31-10-2019	FIGURE No. UPMSC-1A
	SCALE: NOT TO SCALE	REF: PARA 15.(b) & 3.1.3.(iv)
UTTAR PRADESH METRO RAIL PROJECT CORPORATION LTD.		PAGE NO: 29
KINEMATIC ENVELOPE AT-GRADE/ELEVATED SECTIONS ON LEVEL OR CONSTANT GRADE TANGENT TRACK		

NOTES

1. ALL DIMENSIONS ARE IN mm.
2. HORIZONTAL AND VERTICAL CLEARANCE DUE TO CURVES INCLUDING VERTICAL CURVES AND CANT SHALL BE EXTRA.
3. KINEMATIC ENVELOPE IS VALID FOR VEHICLES WITH SEALED WINDOWS AND DOORS CLOSED WHILE IN MOTION.
4. A TYRE OR ATTACHMENT OF A WHEEL MAY PROJECT BELOW THE MINIMUM HEIGHT OF KINEMATIC ENVELOPE FOR A DISTANCE OF 51 mm INSIDE AND 216 mm OUTSIDE OF THE GAUGE FACE OF THE RAIL.
5. KINEMATIC ENVELOPE IS VALID FOR THE MAXIMUM SPEED OF 90 KMPH, WIND SPEED OF 0 KMPH AND OPERATING SPEED UP TO 80 KMPH.



CO-ORDINATES		
SL.NO.	X	Y
0	0	4200
1	820	4200
2	980	4158
3	1089	4005
4	1629	3287
5	1629	2885
6	1576	895
7	1540	700
8	1451	348
9	1380	348
10	1380	148
11	1580	148
12	1580	25
13	1160	25
14	1160	56
15	0	56



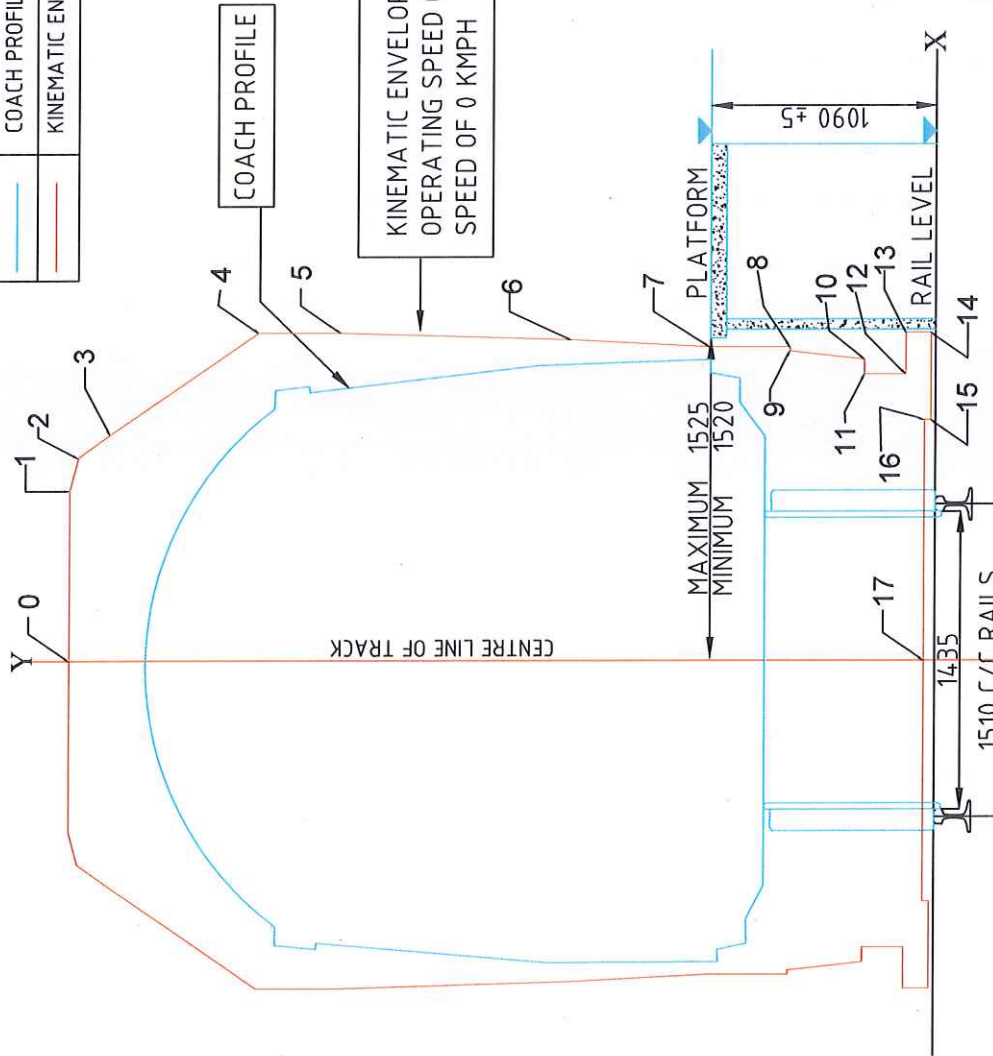
UNDER GROUND SECTION (TUNNELS)

750 V.D.C. TRACTION		DATE 31-10-2019	FIGURE No. UPPSSG-ITNUJ
STANDARD GAUGE (1435 mm)		SCALE: NOT TO SCALE	REF: PARA 15HJ & 3.13H)
KINEMATIC ENVELOPE UNDER GROUND SECTION (TUNNELS) (OUTSIDE STATION) ON LEVEL OR CONSTANT GRADE TANGENT TRACK		UTTAR PRADESH METRO RAIL PROJECT CORPORATION LTD.	
		PAGE NO: 30	

NOTES

1. ALL DIMENSIONS ARE IN mm.
2. HORIZONTAL AND VERTICAL CLEARANCE DUE TO CURVES INCLUDING VERTICAL CURVES AND CANT SHALL BE EXTRA.
3. KINEMATIC ENVELOPE IS VALID FOR VEHICLES WITH SEALED WINDOWS AND DOORS CLOSED WHILE IN MOTION.
4. KINEMATIC ENVELOPE IS VALID FOR 70 KMPH OPERATING SPEED & WIND SPEED OF 0 KMPH.

LEGEND	
	COACH PROFILE
	KINEMATIC ENVELOPE



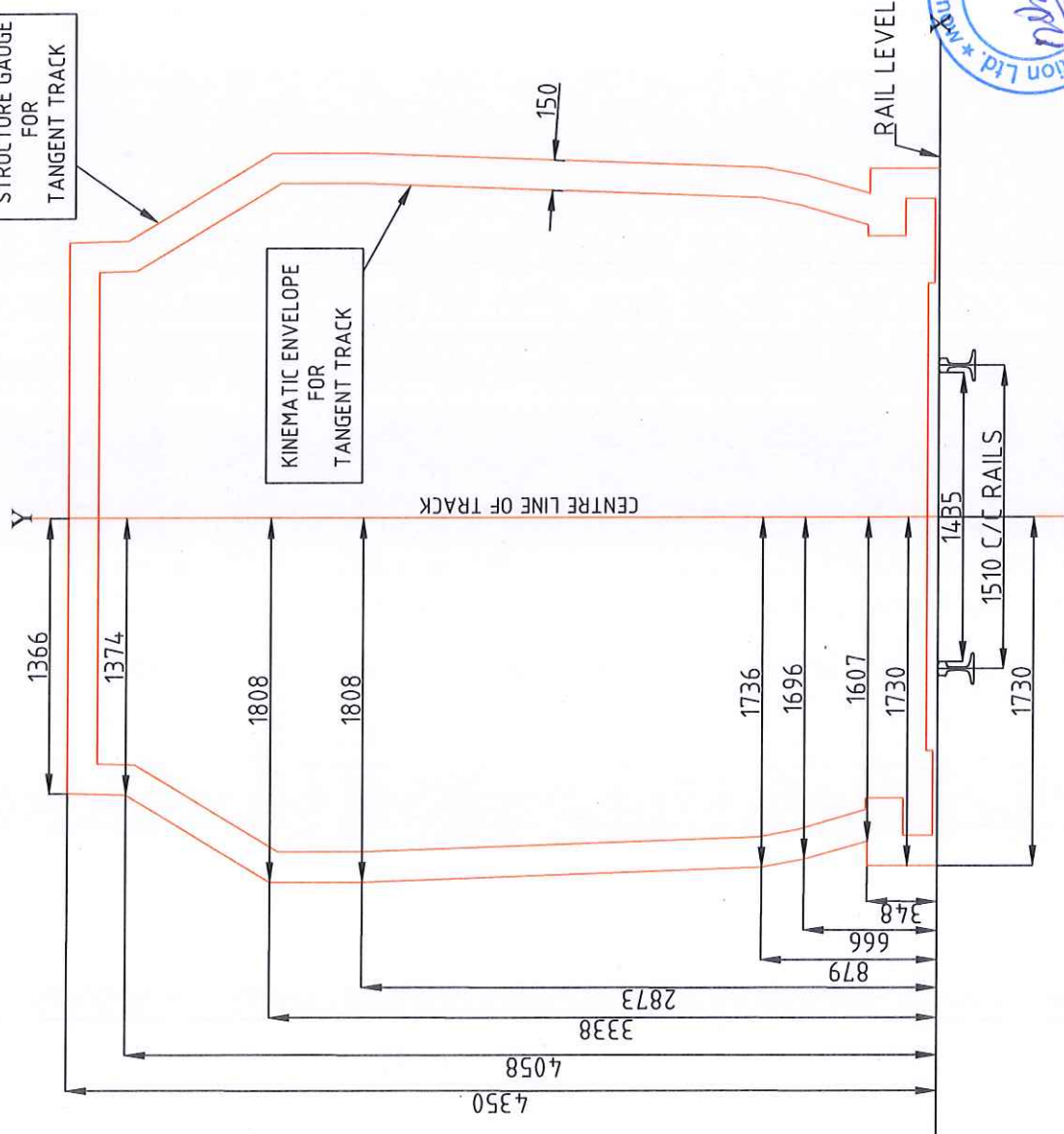
CO-ORDINATES		
SL.NO.	X	Y
0	0	4200
1	820	4200
2	980	4158
3	1089	4005
4	1579	3287
5	1579	2885
6	1546	1768
7	1511	1095
8	1511	710
9	1491	710
10	1451	348
11	1380	348
12	1380	148
13	1580	148
14	1580	25
15	1160	25
16	1160	56
17	0	56

UNDER GROUND SECTION (TUNNELS) PLATFORM

750 V D.C. TRACTION	DATE 31-10-2019	FIGURE No. UPMSC-INTNU
	STANDARD GAUGE (1435 mm)	REF: PARA 15(d) & 31.3(i)
UTTAR PRADESH METRO RAIL PROJECT CORPORATION LTD.		SCALE: NOT TO SCALE
KINEMATIC ENVELOPE UNDER GROUND SECTION AT PLATFORM ON LEVEL OR CONSTANT GRADE TANGENT TRACK		PAGE NO: 31

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STRUCTURE GAUGE FOR TANGENT TRACK



AT GRADE AND ELEVATED SECTIONS

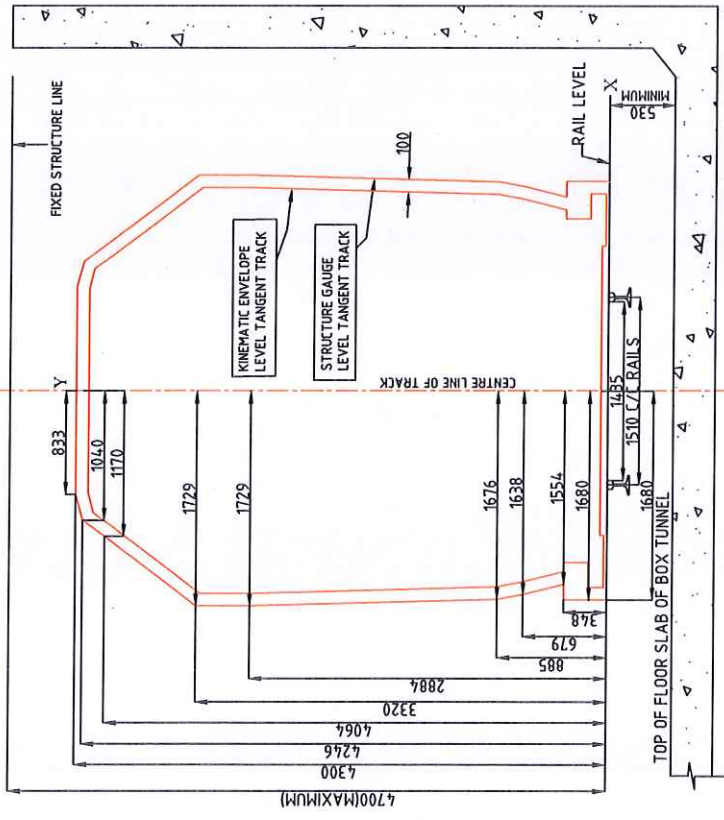
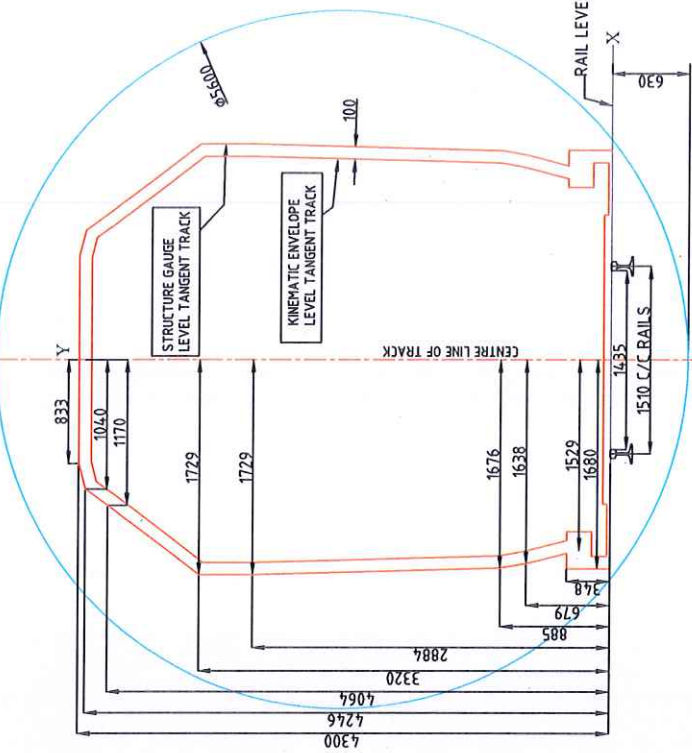


- NOTES
1. ALL DIMENSIONS ARE IN mm.
 2. MINIMUM CLEARANCE BETWEEN KINEMATIC ENVELOPE AND STRUCTURE GAUGE WILL BE 150 mm. MINIMUM ELECTRICAL CLEARANCE OF 100 mm SHALL BE MAINTAINED BETWEEN 750 V DC LIVE PARTS & THE EARTHED STRUCTURES.
 3. THE KINEMATIC ENVELOPE & STRUCTURE GAUGE ARE VALID FOR ROLLING STOCK WITH SEALED WINDOWS & DOORS CLOSED WHILE IN MOTION.
 4. HORIZONTAL & VERTICAL CLEARANCE DUE TO CURVES INCLUDING VERTICAL CURVE & CANT SHALL BE EXTRA.
 5. FOR KINEMATIC ENVELOPE, REFER TO FIGURE-UPMSG-1
 6. THE STRUCTURE GAUGE IS VALID FOR MAXIMUM SPEED OF 90 KMPH, OPERATING SPEED UPTO 80 KMPH & WIND SPEED OF 70KMPH.

CO-ORDINATES		
SL.NO.	X	Y
0	0	4350
1	1366	4350
2	1374	4058
3	1808	3338
4	1808	2873
5	1736	879
6	1696	666
7	1593	348
8	1730	348
9	1730	0

NOTES

1. ALL DIMENSIONS ARE IN mm
2. KINEMATIC ENVELOPE AND STRUCTURE GAUGE ARE VALID FOR VEHICLES WITH SEALED WINDOWS AND DOORS CLOSED WHILE IN MOTION.
3. STRUCTURE GAUGE FOR CURVE DOES NOT INCLUDE LATERAL SHIFT (LEAN) DUE TO CANT.
4. HORIZONTAL AND VERTICAL CLEARANCE DUE TO CURVES INCLUDING VERTICAL CURVES AND CANT SHALL BE EXTRA.
5. CANT WILL BE PROVIDED BY RAISING OUTER RAIL ONLY AND SHIFTING OF THE CENTRE OF THE CIRCULAR TUNNEL TOWARDS INSIDE OF THE CURVE AND UPWARDS. THIS WILL BE SAME AS ROTATING THE CIRCULAR TUNNEL ABOUT THE MID POINT OF TOP OF INNER RAIL.
6. MINIMUM CLEARANCE BETWEEN KINEMATIC ENVELOPE AND STRUCTURE GAUGE=100 mm.
7. VERTICAL THROW DUE TO VERTICAL CURVE HAS NOT BEEN SHOWN IN THE FIGURE AND SHALL BE EXTRA.
8. FOR DETAILS OF KINEMATIC ENVELOPE, REFER TO FIGURE No. UPMSG-1(TNL).



CO-ORDINATES

SL.NO.	X	Y
0	0	4300
1	833	4300
2	1040	4246
3	1170	4064
4	1729	3320
5	1729	2884
6	1676	885
7	1638	679
8	1529	348
9	1680	348
10	1680	0

CIRCULAR TUNNEL
5600mm DIA

RECTANGULAR BOX
TUNNEL



Praveen

$$\tan \theta = (r - D_1) / (g/2)$$

$$\theta = \tan^{-1} [(r - D_1) / (g/2)]$$

$$\sin \alpha = \text{cant} / g$$

$$\alpha = \sin^{-1} (\text{cant} / g)$$

$$\text{Chord } C_1 C_2 = 2 \times [(r - D_1) / \sin \theta] \times (\sin \alpha / 2)$$

$$X = C_1 C_2 \times \cos (90 - \theta - \alpha / 2)$$

$$Y = 2 \times [(r - D_1) / \sin \theta] \times (\sin \alpha / 2) \times \cos (90 - \theta - \alpha / 2)$$

$$Y = 2 \times [(r - D_1) / \sin \theta] \times (\sin \alpha / 2) \times \sin (90 - \theta - \alpha / 2)$$

Where 'r' is internal radius of tunnel.

D_1 = depth from rail level to invert of tunnel

g = distance between centres of rails

= 1510mm

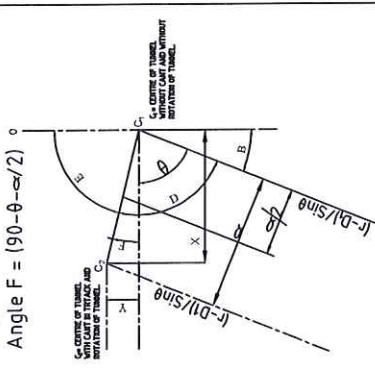
DETAIL AT CENTRE OF TUNNEL

$$\text{Angle } B = (90 - \theta)$$

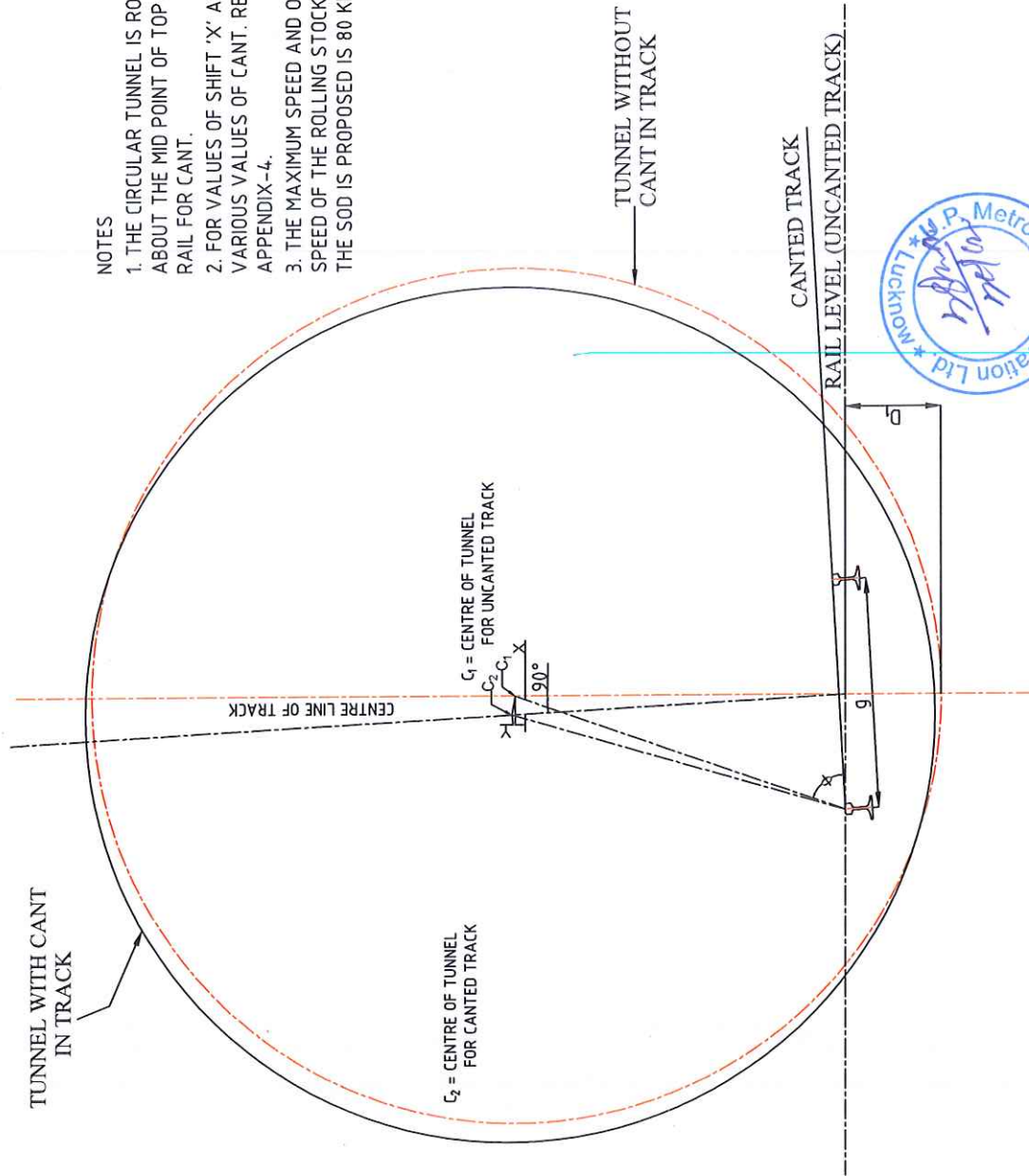
$$\text{Angle } D = (90 - \alpha / 2)$$

$$\text{Angle } E = (\theta + \alpha / 2)$$

$$\text{Angle } F = (90 - \theta - \alpha / 2)^\circ$$



TUNNEL WITH CANT IN TRACK



NOTES

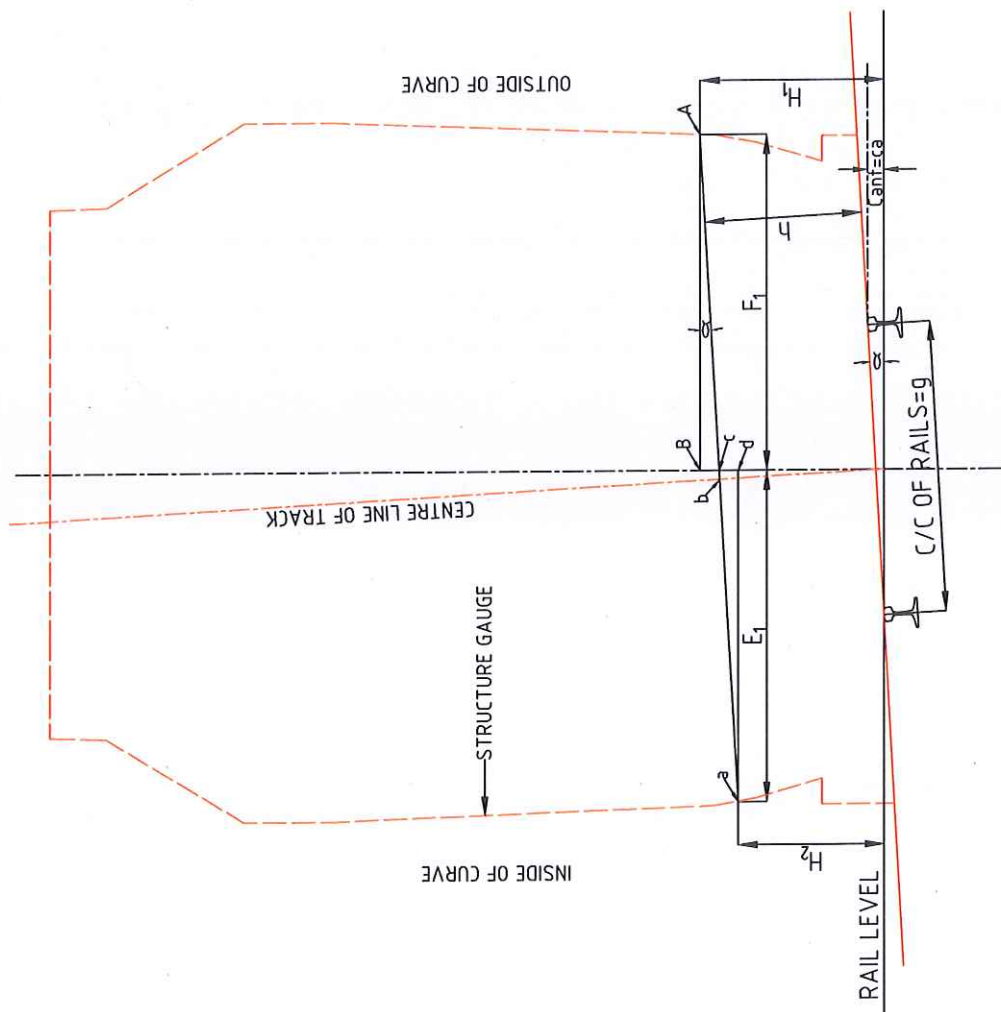
1. THE CIRCULAR TUNNEL IS ROTATED ABOUT THE MID POINT OF TOP OF INNER RAIL FOR CANT.
2. FOR VALUES OF SHIFT 'X' AND 'Y' FOR VARIOUS VALUES OF CANT. REFER TO APPENDIX-4.
3. THE MAXIMUM SPEED AND OPERATING SPEED OF THE ROLLING STOCK FOR WHICH THE SOD IS PROPOSED IS 80 KMPH.



Praveen

750 V D.C. TRACTION

SHIFT OF THE CENTRE OF CIRCULAR TUNNEL DUE TO ROTATION OF TUNNEL TO PROVIDE CANT	UTTAR PRADESH METRO RAIL PROJECT CORPORATION LTD.	STANDARD GAUGE (1435 mm)	DATE 31-10-2019	FIGURE No. UPHSC-3
			SCALE NOT TO SCALE	REF: PARA 17.1(B)(b) & 17.2(B)(b)
			PAGE NO. 34	



$ab =$ Distance from centreline of track to structure gauge for tangent track at height 'h'
 $\sin \alpha = \text{cant} / g$
 $g = 1510 \text{ mm}$
 $Ca =$ Cant applied
 $E_1 = [ab + h \tan \alpha] \times \cos \alpha$
 $F_1 = [ab - h \tan \alpha] \times \cos \alpha$
 $H_1 = (Ca/2) + (h / \cos \alpha) + (Ab - h \tan \alpha) \times \sin \alpha$
 $H_2 = (Ca/2) + (h / \cos \alpha) - (Ab + h \tan \alpha) \times \sin \alpha$
 For values of E_1 , F_1 , H_1 and H_2 , refer to Appendix 3 and 3 (TNL).

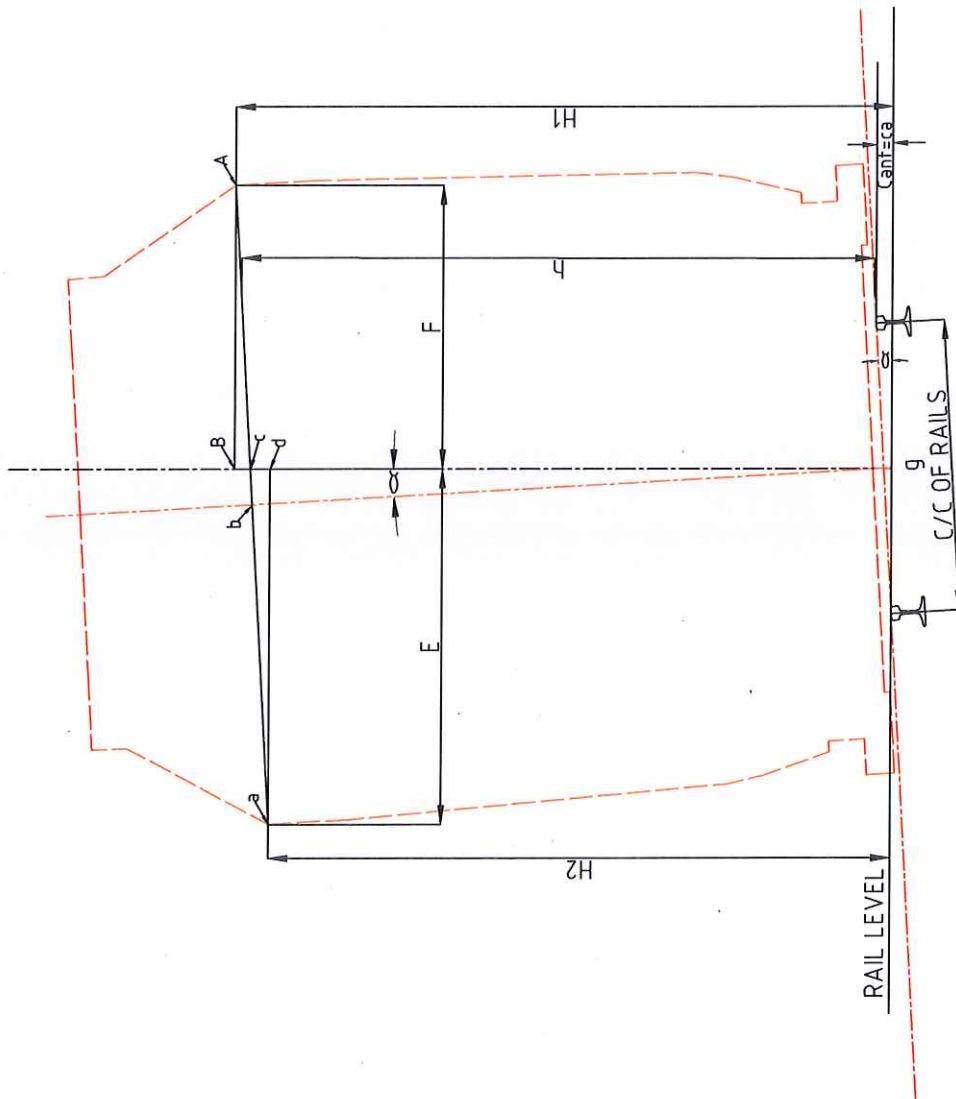
NOTES

1. STRUCTURE GAUGE FOR AT-GRADE/ELEVATED SECTION HAS BEEN SHOWN AS A TYPICAL FIGURE.
2. THE FORMULA FOR E_1, F_1, H_1 AND H_2 SHOWN THIS FIGURE WILL ALSO APPLY TO UNDER GROUND BOX TUNNELS.
3. KINEMATIC ENVELOPE IS VALID FOR THE MAXIMUM SPEED OF 90 KMPH, WIND SPEED OF 70 KMPH AND OPERATING SPEED UPTO 80 KMPH



Praveen

750 V D.C. TRACTION		FIGURE No. UPPSG-4
UTTAR PRADESH METRO RAIL PROJECT CORPORATION LTD.		DATE 31-10-2019
EFFECT OF CANT ON STRUCTURE GAUGE	STANDARD GAUGE (1435 mm)	REF. PARA 18.2
	SCALE N/D TO SCALE	PAGE NO. 35



ab = Ab = Distance from centreline of track to kinematic envelope for tangent track at height 'h'

$$\sin \alpha = \text{cant} / g$$

$$g = 1510 \text{ mm}$$

Ca = Cant applied

$$E_1 = [ab + h \times \tan \alpha] \times \cos \alpha$$

$$F_1 = [ab - h \times \tan \alpha] \times \cos \alpha$$

$$H_1 = (Ca/2) + (h / \cos \alpha) + (Ab - h \times \tan \alpha) \times \sin \alpha$$

$$H_2 = (Ca/2) + (h / \cos \alpha) - (Ab + h \times \tan \alpha) \times \sin \alpha$$

For values of E_1 , F_1 , H_1 and H_2 , refer to Appendix 3A and 3A (TNL).

NOTES

1. KINEMATIC ENVELOPE FOR AT- GRADE/ELEVATED SECTION HAS BEEN SHOWN AS A TYPICAL FIGURE.
2. THE FORMULA FOR E_1, F_1, H_1 AND H_2 SHOWN THIS FIGURE WILL ALSO APPLY TO UNDER GROUND BOX TUNNELS.



Praveen

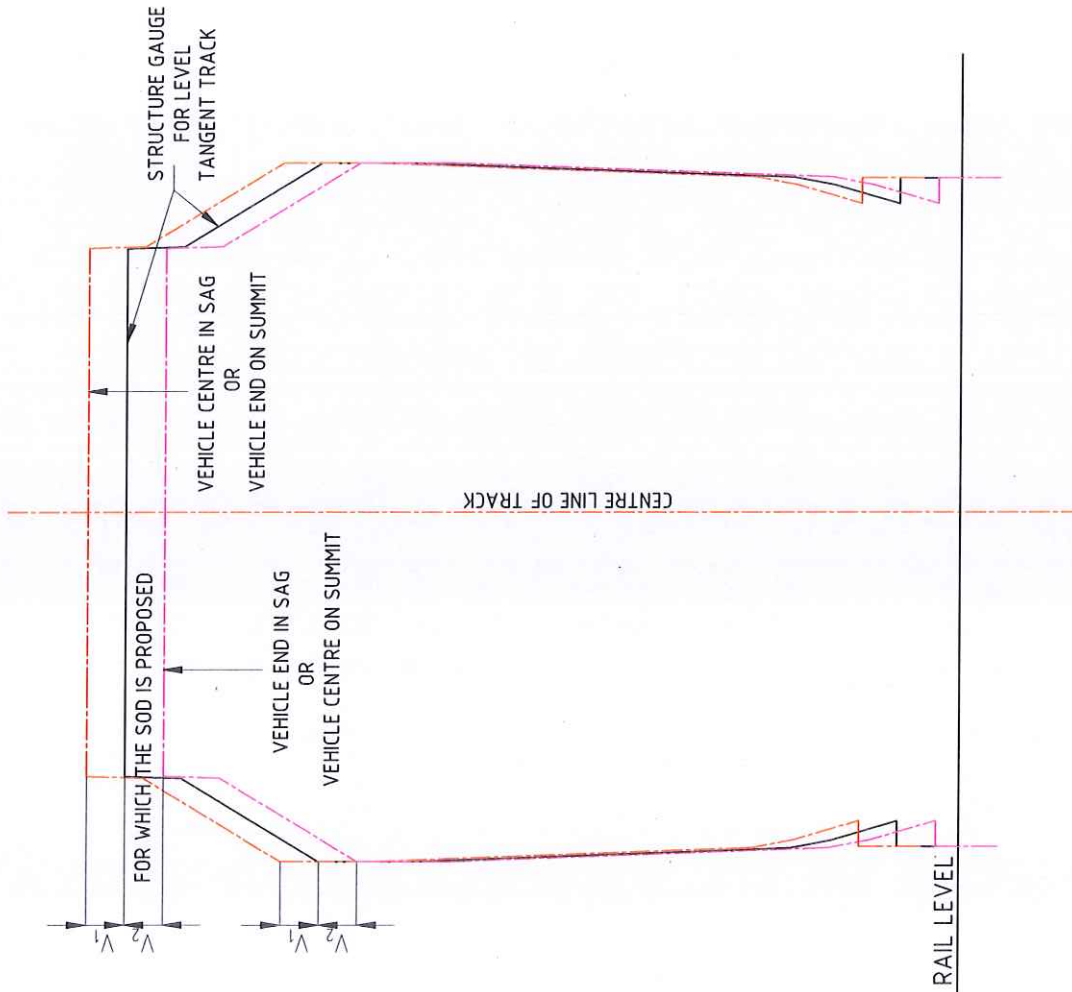
750 V D.C. TRACTION

UTTAR PRADESH METRO RAIL PROJECT CORPORATION LTD.	DATE 31-10-2019	FIGURE No. UPMSSG-4A
	STANDARD GAUGE (1435 mm)	REF. PARA 1.8.1
	SCALE NOT TO SCALE	PAGE NO. 36

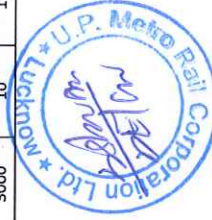
EFFECT OF CANT ON KINEMATIC ENVELOPE

NOTES

1. THE FIGURE IS TYPICAL AND WILL APPLY TO UNDER GROUND ELEVATED AND AT-GRADE SECTIONS.
2. VALID FOR MAXIMUM SPEED OF 90 KMPH AND OPERATING SPEED OF 80 KMPH.



RADIUS OF VERTICAL CURVE (M)	VERTICAL THROW	
	V ₁ (mm)	V ₂ (mm)
1500	19	22
1600	18	21
1700	17	20
1800	16	19
1900	15	18
2000	14	17
2100	14	16
2200	13	15
2300	12	15
2400	12	14
2500	11	14
2600	11	13
2700	11	12
2800	10	12
2900	10	12
3000	10	11



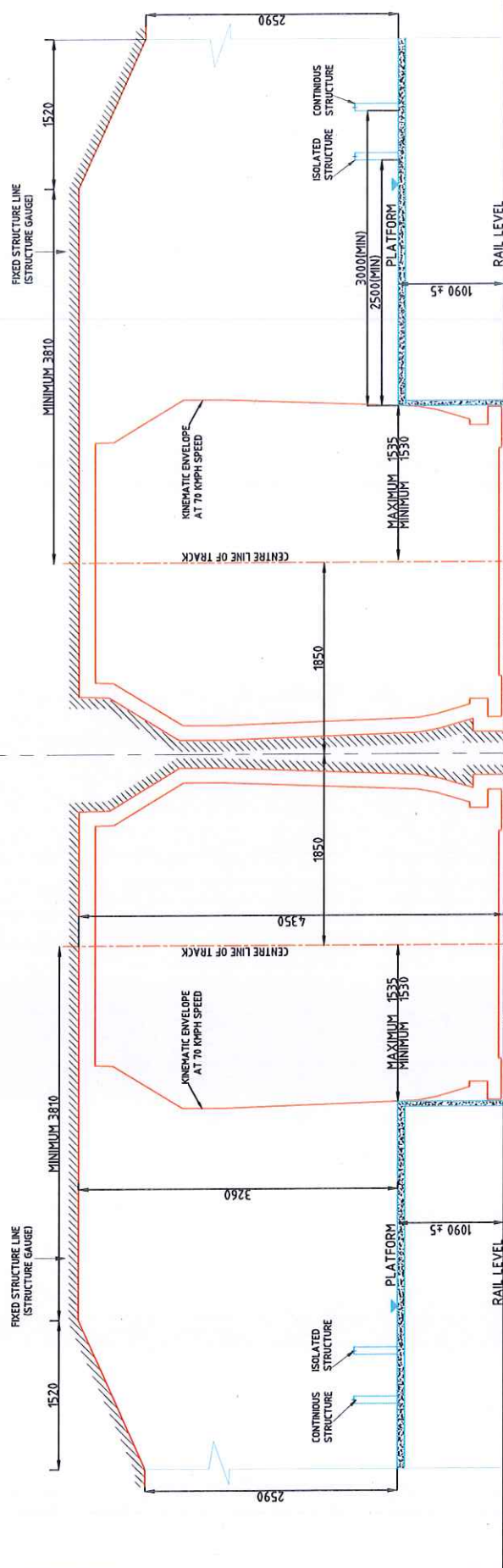
Praveen

750 V.D.C. TRACTION

UTTAR PRADESH METRO RAIL PROJECT CORPORATION LTD.	DATE 31-10-2019	FIGURE No. UPM56-5
	SCALE NOT TO SCALE	REF. PARA 17.101 & 17.202
EFFECT OF VERTICAL CURVE ON STRUCTURE GAUGE	STANDARD GAUGE (1435 mm)	PAGE NO. 37

NOTES

1. ALL DIMENSIONS ARE IN mm.
2. CLEARANCE FOR CURVE SHALL BE EXTRA. HOWEVER THE TRACK CENTRES AT STATION WILL NOT INCREASE WITH CURVES OF RADIUS OF 1000 M & ABOVE.
3. STRUCTURE GAUGE IS VALID FOR VEHICLES WITH SEALED WINDOWS & DOORS CLOSED WHILE IN MOTION.



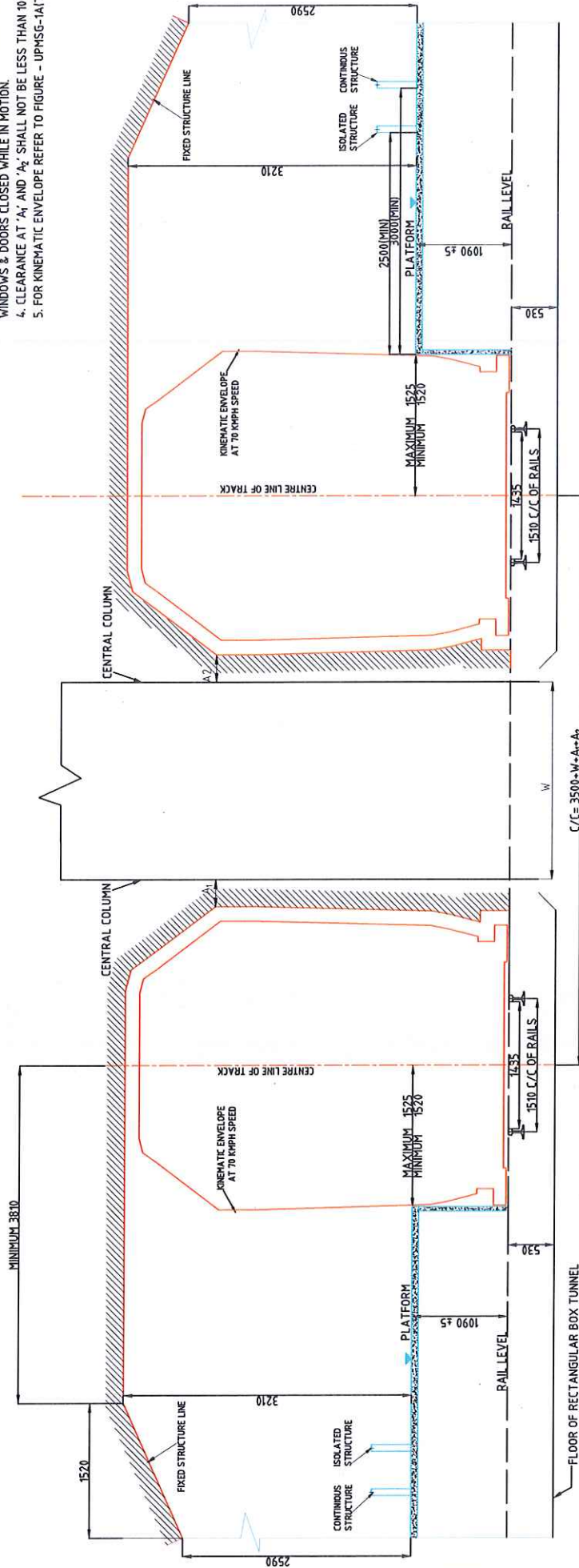
Praveen

750 V D.C. TRACTION

STRUCTURE GAUGE AT ELEVATED/AT-GRADE STATION WITH SIDE PLATFORMS OR AT CONSTANT GRADE TANGENT TRACK	UTTAR PRADESH METRO RAIL PROJECT CORPORATION LTD.	DATE 31-10-2019 FIGURE NO. IPPMSG-6 REF: PARA 2.25 SCALE: NOT TO SCALE PAGE NO: 38
	STANDARD GAUGE (1435 mm)	

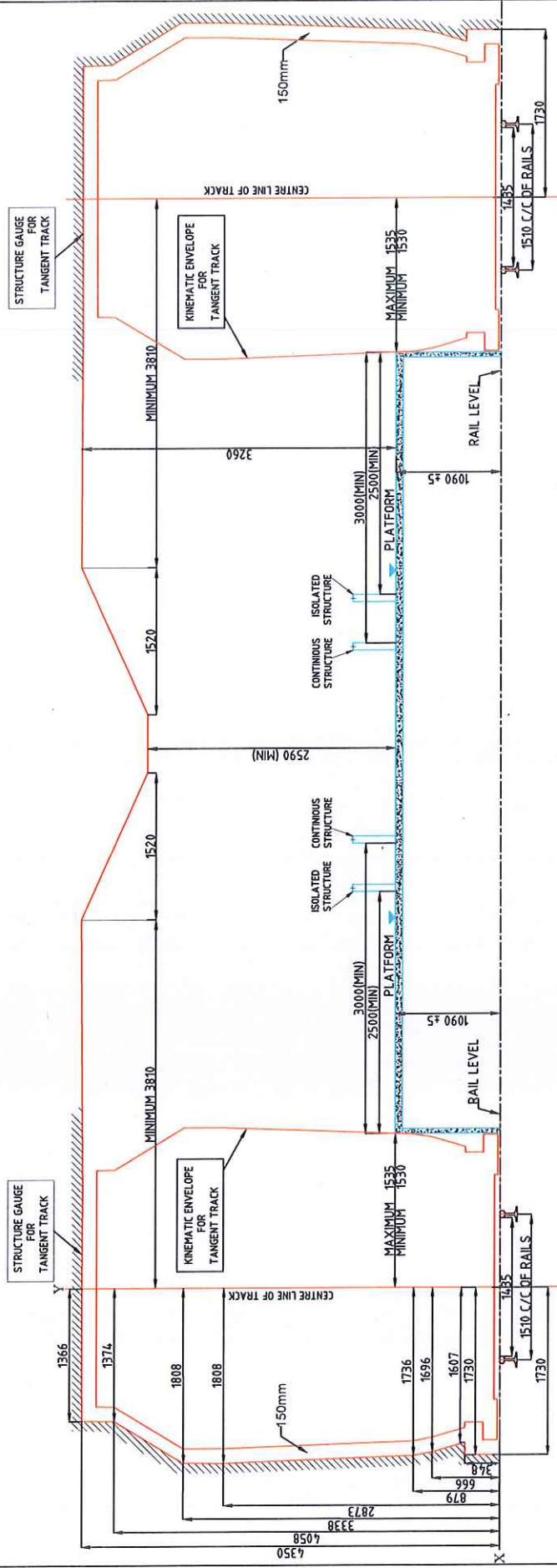
NOTES

1. ALL DIMENSIONS ARE IN mm.
2. FOR STATION ON CURVE EXTRA CLEARANCE FOR CURVATURE SHALL BE PROVIDED.
3. THE STRUCTURE GAUGE IS VALID FOR VEHICLES WITH SEALED WINDOWS & DOORS CLOSED WHILE IN MOTION.
4. CLEARANCE AT 'A1' AND 'A2' SHALL NOT BE LESS THAN 100 MM.
5. FOR KINEMATIC ENVELOPE REFER TO FIGURE - UPM5G-1A1TN1J



Praveen

750 V.D.C. TRACTION		FIGURE No. UPM5G-6TN1J
DATE 31-10-2019	STANDARD GAUGE (1435 mm)	REF: PARA 2.2.5
SCALE: NOT TO SCALE	UTTAR PRADESH METRO RAIL PROJECT CORPORATION LTD.	PAGE NO: 39
STRUCTURE GAUGE AT UNDER GROUND STATION WITH SIDE PLATFORMS RECTANGULAR BOX TUNNEL LEVEL OR CONSTANT GRADE TANGENT TRACK.		



NOTES

1. ALL DIMENSIONS ARE IN mm.
2. CLEARANCE FOR CURVE SHALL BE EXTRA.
3. STRUCTURE GAUGE IS VALID FOR VEHICLES WITH SEALED WINDOWS & DOORS CLOSED WHILE IN MOTION.

TYPICAL FOR 8.0 m WIDE ISLAND PLATFORM

CO-ORDINATES

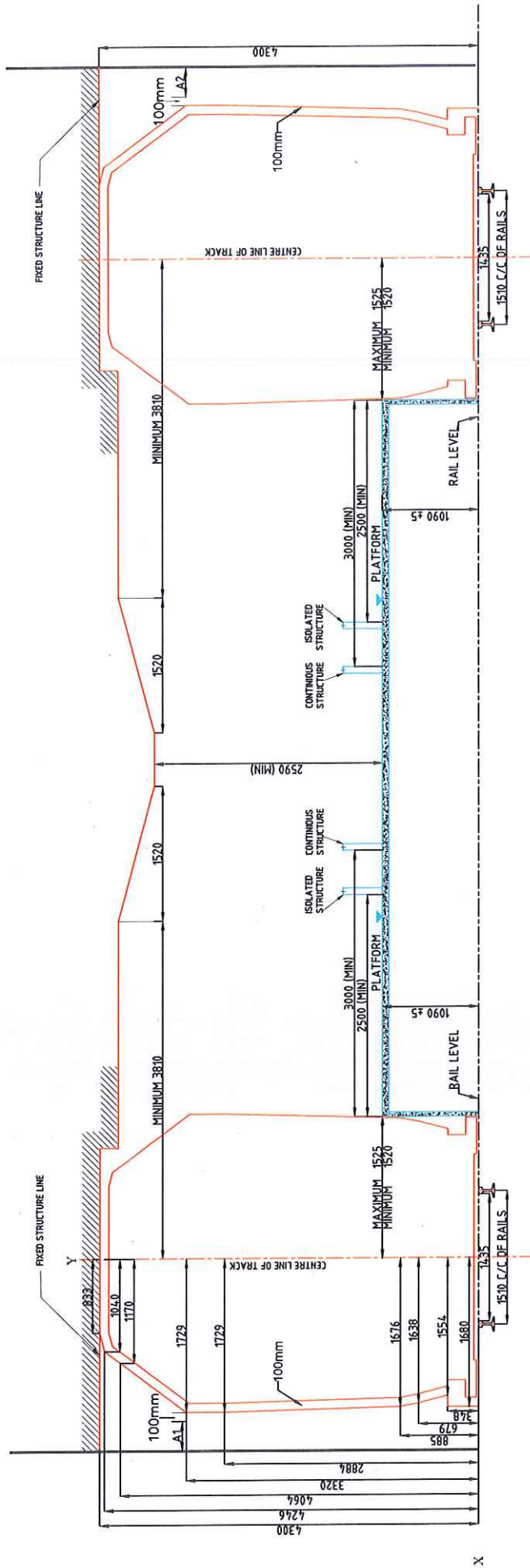
X	0	1366	1374	1808	1736	1696	1607	1730	1730
Y	4350	4350	4058	3338	2873	879	666	348	0

750 V.D.C. TRACTION

STRUCTURE GAUGE AT ELEVATED/AT-GRADE STATION WITH ISLAND PLATFORMS LEVEL OR CONSTANT GAUGE TANGENT TRACK	STANDARD GAUGE (1435 mm)	DATE 31-10-2019	FIGURE No. UPMSC-7
	UTTAR PRADESH METRO RAIL-PROJECT CORPORATION LTD.	SCALE NOT TO SCALE	REF. PARA 2.25
			PAGE NO. 4.0



Pr...



TYPICAL FOR 8.0 m WIDE ISLAND PLATFORM

- NOTES
1. ALL DIMENSIONS ARE IN mm.
 2. CLEARANCE FOR CURVE SHALL BE EXTRA.
 3. STRUCTURE GAUGE IS VALID FOR VEHICLES WITH SEALED WINDOWS & DOORS CLOSED WHILE IN MOTION.
 4. CLEARANCES AT 'A1' & 'A2' SHALL NOT BE LESS THAN 100 MM.

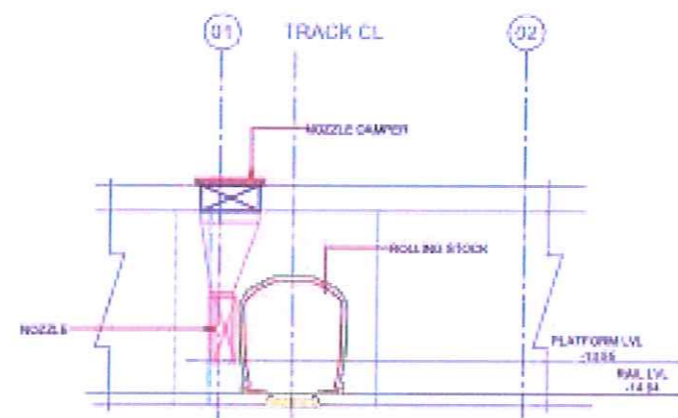
CO-ORDINATES

X	0	833	1040	1170	1729	1729	1676	1680	1680
Y	4300	4300	4246	4064	2884	2884	885	348	0

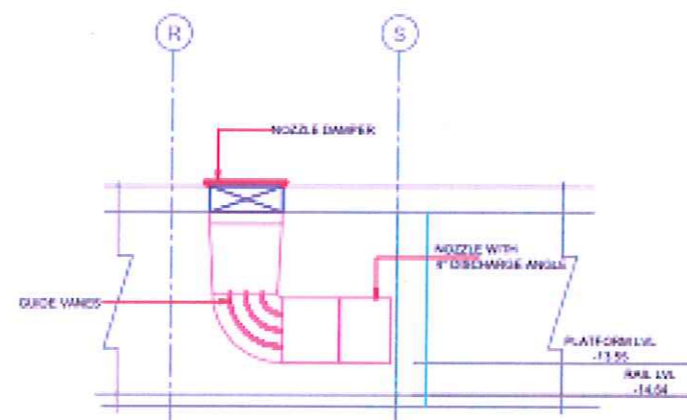


Pro

Typical nozzle Schematic



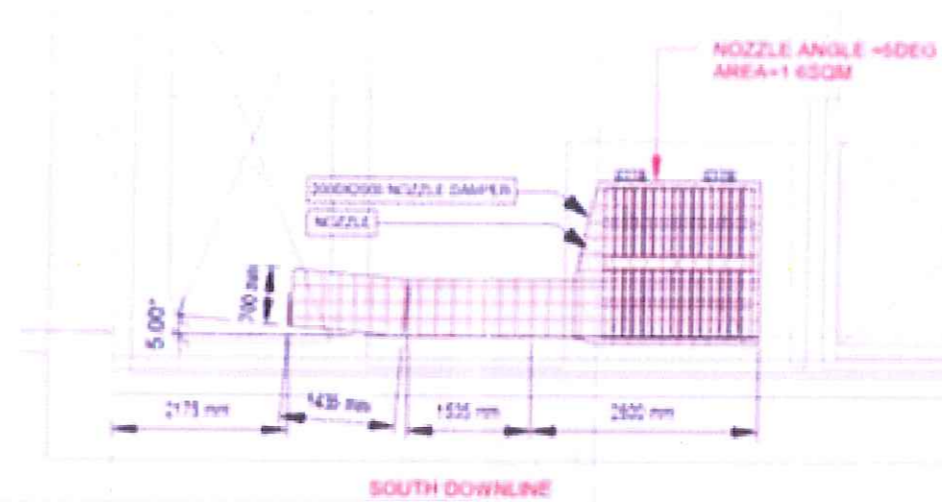
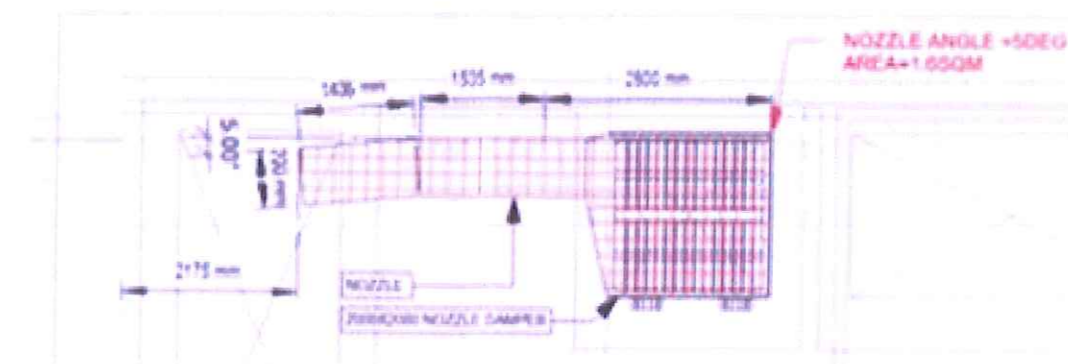
SECTION C - C
SCALE - 1/300



SECTION D - D
SCALE - 1/300

TENDER DRAWING

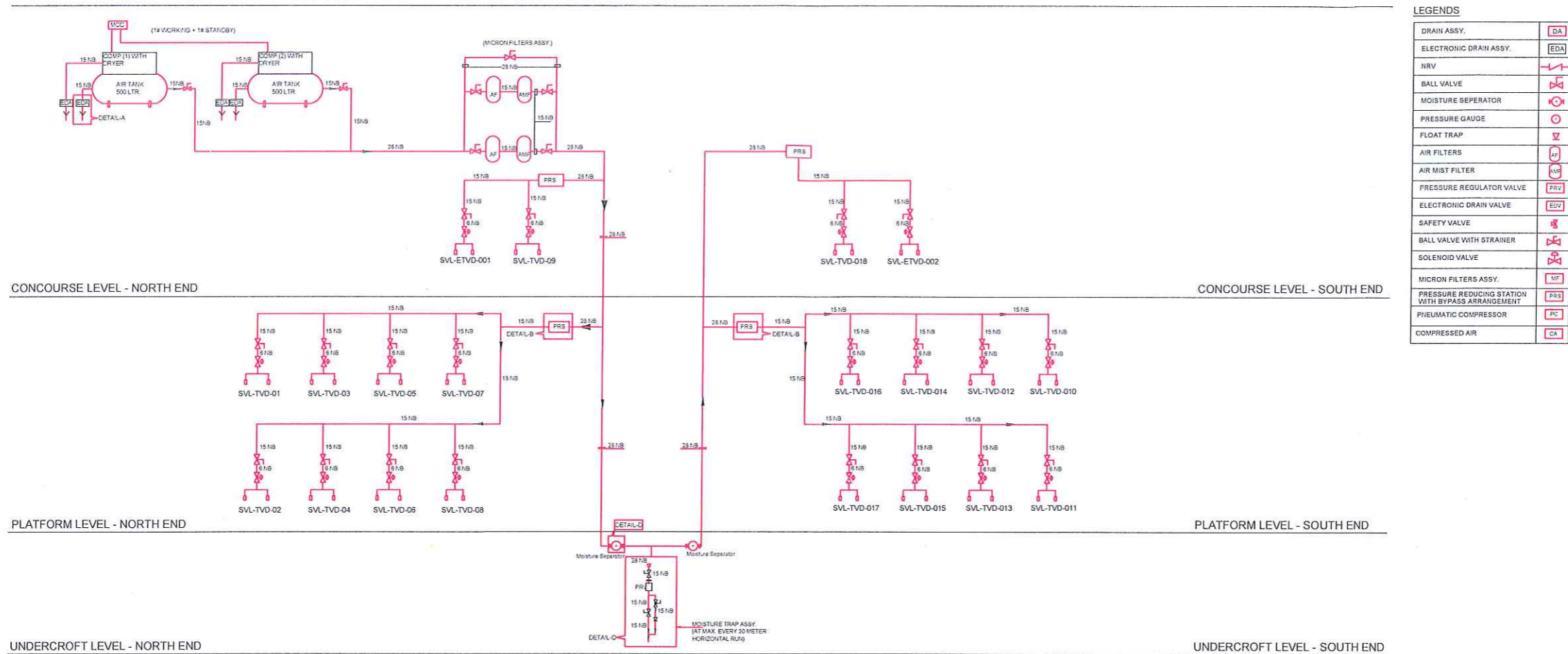
Section View from platform



Plan View from concourse

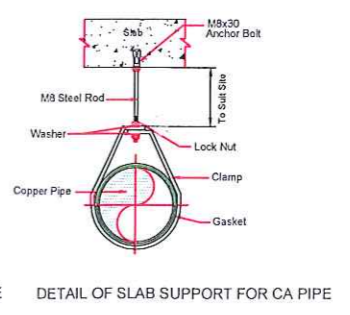
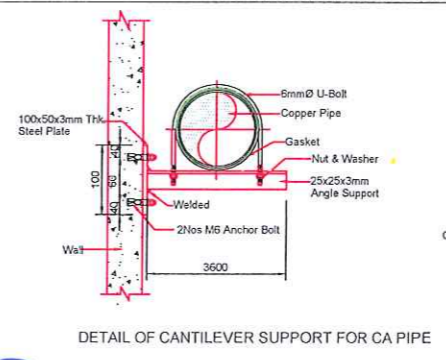
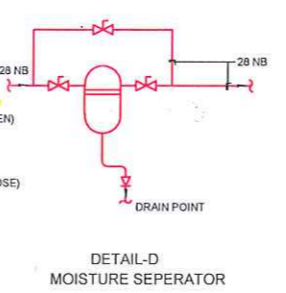
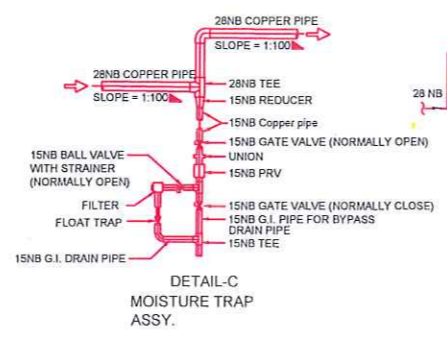
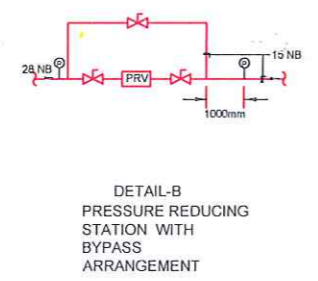
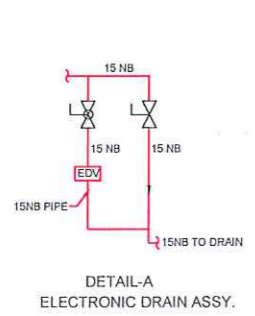
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LEGENDS

DRAIN ASSY.	DA
ELECTRONIC DRAIN ASSY.	EDA
NRV	NRV
BALL VALVE	BV
MOISTURE SEPERATOR	MS
PRESSURE GAUGE	PG
FLOAT TRAP	FT
AIR FILTERS	AF
AIR MIST FILTER	AMF
PRESSURE REGULATOR VALVE	PRV
ELECTRONIC DRAIN VALVE	EDV
SAFETY VALVE	SV
BALL VALVE WITH STRAINER	BV-S
SOLENOID VALVE	SV
MICRON FILTERS ASSY.	MF
PRESSURE REDUCING STATION WITH BYPASS ARRANGEMENT	PRS
PNEUMATIC COMPRESSOR	PC
COMPRESSED AIR	CA



PR
CEE/Project-5

NOTICE INVITING TENDER (NIT)

1.1 GENERAL

1.1.1 NAME OF WORK:

Uttar Pradesh Metro Rail Corporation (UPMRC) Ltd. invites Open Tenders on international competitive basis from eligible applicants from all countries and all areas, who fulfill qualification criteria as stipulated in clause 1.1.4 of NIT, for the work "KNPCC-05- Design and Construction of Tunnel from start of elevated ramp (after Moti Jheel Metro Station) to end of Nayaganj station including four underground metro stations (viz. Chunniganj, Naveen Market, Bada Chauraha and Nayaganj) and ramp including Architectural finishes, E&M, TVS, ECS etc. on Corridor-1 of Kanpur MRTS Project at Kanpur, Uttar Pradesh, India".

The brief scope of the work and site information is provided in ITT Clause A1 & Employer's Requirements (Volume -3).

1.1.2 KEY DETAILS:

Approximate cost of work	INR 1400 Crores
Tender Security amount	INR 14.00 Crores
Completion period of the Work	36 months
Tender documents on sale	From 10.07.2020 to 10.08.2020.(between 09:30 Hrs to 17:30 Hrs) on working days
Cost of Tender documents	23,600/- (inclusive of 18% GST) (Demand Draft on a scheduled commercial bank based in India in favour of "Uttar Pradesh Metro Rail Corporation Ltd") payable at Lucknow.
Last date of Seeking Clarification	13.08.2020
Pre-bid Meeting	13.08.2020 @ 15:00 Hrs
Last date of issuing addendum	26.08.2020 01.09.2020.
Date & time of Submission of Tender	18.09.2020 @ 15:00 Hrs. 30.09.2020 @ 15:00 Hrs
Date & time of opening of Tender	18.09.2020 @ 15:30 Hrs. 30.09.2020 @ 15:30 Hrs.
Authority and place for purchase of tender documents, seeking clarifications and submission of completed tender documents	Chief Engineer (Contract), Uttar Pradesh Metro Rail Corporation, Administrative Building, Vipin Khand, Gomti Nagar, Near Dr.Bhimrao Ambedkar Samajik Parivartan Sthal, Lucknow-226010, Uttar Pradesh, India Email: cecontract@upmrc@gmail.com

- Tenderer (or atleast one member in case of JV/Consortium) should have carried out at least one "similar work"* of value **Rs. 483.00 Crores** or more in India or in a country outside their own country.

*"Similar Work" for this contract shall be work of construction of Tunnel by shield TBM in urban environment with finished internal dia. of more than 5.0 m with or without underground metro station in urban environment.

- The bidder should have minimum experience of having constructed a total of minimum of 2.5 km of tunnel length by shield TBM in urban environment (In case of twin tunnel each tunnel shall be counted as a separate Tunnel for calculation of length of tunnel) with finished internal dia. of more than 5.0 m (including completed portion of ongoing works) with or without underground metro station in urban environment (each having plan area of at least 4000 **4500** sqm) using cut & cover method. This requirement has to be met through one/two/three similar works of value mentioned in clause 1.1.4.2A.1 (i),(ii) &(iii) respectively.

A.2: Work experience of E&M Works (Detail Engineering, Supply, Installation, Testing and Commissioning of Electrical and Mechanical system including Fire and Hydraulic system) for U/G Metro Station/s

One single E&M work of value **Rs. 25 Crores** or more for Detailed Engineering, Supply, Installation, Testing and commissioning of Electrical and Mechanical system including Fire and Hydraulic system for Metro Rail / Railway / Airport / Infrastructure projects / Commercial Projects / Industrial plants.

- Tenderer (or atleast one member in case of JV/Consortium) should have carried out the above work of value **Rs. 25 Crores** or more in India or in a country outside their own country.

A.3: Work experience ECS & TVS work (Design verification, Detail Engineering, Supply, Installation, Testing and Commissioning of Environment Control System (ECS) And Tunnel Ventilation System (TVS)) for U/G Metro Station/s

One single ECS & TVS work of value **Rs.25 Crores** or more for Design verification, Detail Engineering, Supply, Installation, Testing and Commissioning of Environment Control System (ECS) / Tunnel Ventilation System (TVS) for Metro Rail / Railway /Airport / Infrastructure projects / Commercial Projects.

- Tenderer (or atleast one member in case of JV/Consortium) should have carried out the above work of value **Rs. 25 Crores** or more in India or in a country outside their own country.

Notes:

- The tenderer shall submit details of work executed by them in the Performa of **Annexure-1** for the works to be considered for qualification of work experience criteria. Documentary proof such as completion certificates from client clearly indicating the nature/scope of work, actual completion cost and actual date of

Inclusions Exclusions	/ 11.1.1	<p>i) Unless otherwise stated in the Special Conditions of Contract, the Contract Price, subjected to any adjustment thereto in accordance with the Contract, shall be inclusive of all taxes (except Goods and Service Tax –GST), duties, levies, cess, royalties, etc. and all other incidental charges required to fulfil the tender conditions. The quoted price shall be inclusive of all taxes, duties, levies, cess royalties, etc. and all other incidental charges (except GST) payable by UPMRC under any law, including on a reverse charge basis which is either existing or may be implemented.</p> <p>ii) The Contract Price shall include all Statutory deductions to be effected by UPMRC under the Statutory laws (eg Income Tax TDS, Labour Cess etc.).</p> <p>iii) Nothing extra shall be payable over the quoted rates, notwithstanding any provision to the contrary in any law for the time being in force, save and except what is specifically provided in General or Special Conditions of Contract.</p> <p>iv) The reimbursement (as per this Sub-clause) of whatsoever nature shall be provided only for Permanent Works. No reimbursement (as per this Sub-clause) shall be provided for Temporary Works and fuel.</p>
Maintaining Records and Availing Exemptions	11.1.2	<p>i) In the event of exemption of any other cess/levy being granted by the Government in respect of the Works, the benefit of the same shall be passed on to Employer. The Contractor shall therefore maintain meticulous records of all the taxes and duties paid and provide the same as and when required by the Employer, so that the Employer is able to avail the reimbursement for which UPMRC may issue a procedure order separately. Alternatively, the Employer may direct the Contractor to get the reimbursements based on exemption certificates / government's order and it shall be obligatory on part of the Contractor to get the reimbursements from the statutory authorities and pass on the benefit to UPMRC.</p> <p>ii) In case of Contractor's failure in availing the exemptions as stipulated above, the recovery of equivalent amount will be made from Contractor's dues.</p>
<u>Adjust in Contract Price</u>	<u>11.1.3</u>	<u>Adjustment in contract price on account of inflation shall be done only if a "Price Variation Formula" is given in the special conditions of contract otherwise it will be a fixed price contract.</u>
<u>Change in Taxes/Duty</u>	<u>11.1.4</u>	<u>The Contract Price shall not be adjusted to take into account any increase or decrease in cost resulting from any change in taxes, duties, levies from the last date of submission of the Tender to the completion date including the date of the extended period of Contract unless a contrary provision exists in Special Conditions of Contract</u>
Advances	11.2	
Mobilisation Advance	11.2.1	<p>Mobilisation Advance shall be generally 5% of original contract value payable in two equals instalments or as mentioned in the Special Conditions of Contract. The first instalment shall be paid after mobilisation has started and next instalment shall be paid after satisfactory utilization of earlier instalment.</p> <p>Mobilisation advance shall be paid interest free against acceptable Bank Guarantee from a scheduled commercial bank in India. The value of Bank Guarantee taken towards security of "Mobilisation advance"</p>

Amount

4.2.1

- (i) ~~Within 30 days of receipt of the Letter of Acceptance, the successful Tenderer shall furnish Performance Security in the form of a bank guarantee from a scheduled Indian/Foreign bank in India acceptable to the Employer for an amount of ten per cent of the Contract value in types and proportions of currencies in which the Contract Price is payable. The approved form provided in the 'Instructions to Tenderers' documents or any other form approved by the Employer shall be used for Bank Guarantee. The Bank Guarantee shall be valid up to 3 months beyond the Defect Liability Period. In case the contract value exceeds beyond 25% of the original contract value, the contractor shall have to submit additional performance security.~~

- (ii) ~~Whenever the contract value exceeds beyond 25% of the original contract value either due to employer's variation or due to contractor's variation, the contractor shall submit additional performance security equal to an amount of 10% of the variation reduced by an amount equal to 5% of the work already certified as completed by the Engineer-in-Charge on the date of variation subject to a maximum limit of 10% of the variation amount. If there is a negative variation in contract of more than 25% at any stage, the contractor has the choice to reduce the Performance Security according to the revised contract value.~~



- (iii) No additional performance security will be required to be submitted if the variation is within 25% of the original contract value.

Within 30 days from date of issue of the Letter of Acceptance, the successful Tenderer shall furnish Performance Security, for an amount of ten per cent of the Contract value in types and proportions of currencies in which the Contract Price is payable either in the form of a Bank Draft, FDR or in the form of a Bank Guarantee from a branch in India of a scheduled foreign bank or from a scheduled commercial bank in India acceptable to the Employer. In case the Contractor fails to submit the requisite Performance Security within 30 days from the date of issue of LOA, the Contract shall be annulled duly forfeiting Tender Security and other dues, if any payable against the Contract. The failed Contractor shall be debarred not only from participating in re-tender for that work but also in any other tender of UPMRC for a period of one year from date of issue of LOA. The approved form provided in the "Instructions to Tenderers" shall be used for Bank Guarantee.

The successful Tenderer shall have the following options for submission of Performance Security;

- i) Performance Security for an amount of 10% of Contract value, if the same is in the form of Bank Guarantee/FDR, it shall be valid up to 6 months beyond the Defect Liability Period, or
- ii) Performance Security in the form of two Bank Guarantees/FDRs, each for an amount of 5% of Contract Value with one Bank Guarantee/FDR valid up to 6 months beyond the date of completion of work and second Bank Guarantee/FDR valid up to 6 months beyond the Defect Liability Period, or
- iii) One part of Performance Security for an amount of 5% of Contract value, if the same is in the form of Bank Guarantee/FDR, it shall be valid up to 6 months beyond the Defect Liability Period. For 2nd part of Performance Security for an amount of 5% of Contract value, amount shall be deducted at the rate of 5% of the gross amount of each running on-account bill, The Performance Security so deducted from running on-account bill, shall be released on completion of entire work in terms of Clause 4.2.3(i) of CCC. After achieving every 25% of financial progress w.r.t. Original Contract Value, Contractor can ask for release of such amount deducted towards Performance Security on submission of Bank Guarantee/FDR for an equal amount with validity up to 6 months beyond the date of completion Of work. The Contractor shall always have the option during the currency of Contract to submit 2nd part of Performance Security for an amount of 5% of Contract value in the form of Bank Guarantee/FDR with validity up to 6 months beyond the date of completion of work. In such a case, further deduction of Performance Security amount from running on-account bill shall be stopped and the amount deducted towards Performance Security shall be released.



In case, if Contract is terminated due to Contractor's default in terms of GCC Clause 13.2, the full 10% Performance Security amount shall be forfeited. Shortfall amount, if any, shall be recovered by the Employer from monies due to the Contractor under the Contract including, without limitation, and the Employer shall have the power to recover any balance from monies due to the Contractor under any other Contract the Employer and the Contractor.

In case the Contract value exceeds beyond 25% of the Original Contract Value, the Contractor shall have to submit additional Performance Security as follows:.

- (a) If variation amount on plus side exceeds 25% of the Original Contract Value either due to Employer's variation or due to Contractor's variation, the Contractor shall submit additional performance security equal to an amount of 10% of the variation amount exceeding 25% of the Original Contract Value.
- (b) No additional Performance Security will be required to be submitted if the variation amount on plus side is within 25% of the Original Contract Value.

Forfeiture	4.2.2	Failure of the successful Tenderer to furnish the required Performance Security shall be a ground for the annulment of the award of Contract and forfeiture of the tender security.
Release	4.2.3	<p>The whole of the Performance Security amount shall be liable to be forfeited by the Employer at the discretion of the Employer, in the event of any breach of contract on the part of the Contractor.</p> <ol style="list-style-type: none">i) On completion of the entire work, one half of the Performance Security shall be refunded to the Contractor, on issue of Taking over Certificate by the Engineer, in accordance with Sub-Clause 9.1 and 9.2 of these conditions. This shall not relieve the Contractor from his obligations and liabilities, to make good that may be detected during the Defects Liability Period.ii) The balance amount shall become due and shall be paid to the Contractor on signing of the Performance Certificate after the expiry of the final Defects Liability Period as per Clause 10.9 of these conditions.



completion for such work should be submitted. **The offers submitted without this documentary proof shall not be evaluated.** In case the work is executed for private client, copy of work order, bill of quantities, bill wise details of payment received certified by C.A(Chartered Accountant), T.D.S (Tax Deducted at Source)certificates for all payments received and copy of final/last bill paid by client shall be submitted.

- Value of successfully completed portion of any ongoing work up to 30.06.2020 will also be considered for qualification of work experience criteria.
- For completed works, value of work done shall be updated to 30.06.2020 price level assuming 5% inflation for Indian Rupees every year and 2% for foreign currency portions per year. **Selling rate of exchange at the close of business of the State Bank of India on the day twenty-eight days before the latest date of Tender Submittal shall be considered for calculating equivalent value in INR.**
- In case of joint venture / Consortium, full value the work, if done by the same joint venture or any of members of the Joint Venture shall be considered. However, if the work done by them in any other JV/consortium, value of work as per his percentage participation in that JV shall be considered.
- Criterion for work experience for "Shield tunneling and construction of underground station by cut & cover method" (Para A.1) shall be satisfied by a single entity/JV/ Consortium.
- Criterion for work experience for "E&M works" (Para A.2) shall be satisfied by the tenderer himself **or a subcontractor**.
- Similarly, criterion for work experience for "ECS & TVS work" (Para A.3) shall be satisfied by the tenderer himself **or a subcontractor**.
- Subcontractor/s for "E&M works" and "ECS & TVS work" may be the same or different.
- A JV partner can participate in only one of the bidding JV/Consortium while a subcontractor for "E&M"/ "ECS&TVS" can participate with different/ multiple Tenderers.
- In case the bidder or their "ECS & TVS" Sub contractor does not have the experience as required in para A.3.2 for "ECS & TVS work", **Support documents** from specialist vendor/designer in support of having such experience confirming their willingness with the bidder/sub-contractor for **meeting the requirement of clause A.3.2** shall be submitted along with the bid. The name of specialist vendor/designer for BMS work of "E&M" and "ECS&TVS" shall also be submitted with bid.
- **In case the bidder cites a work experience which includes both "E&M" and "ECS & TVS" works, the breakup of the two will be clearly indicated in Annexure-1 of NIT.**

B. - Financial Standing: The tenderers will be qualified only if they have minimum financial capabilities as below:

(i) **T1 – Liquidity:** The tenderer must have liquidity equal to cash flow requirement of value **Rs. 57.52 Crores** for the contract.

a) The liquidity shall be ascertained from Net Working Capital {Current Assets – (current liabilities + provisions)} as per latest audited balance sheet and/or from the Banking reference(s).

Office,
Executive Engineer,
Ground Water Department,
127/W-1/69, Saket Nagar, Kanpur

Letter.no:-293 / G.W.D.KNP/T-9g Dated:-Kanpur, Aug, 27 2019

Sub:- Providing Ground Water Level Data For Design Of Corridor-1 & Corridor-2 Of Kanpur Metro Rail Project.

To,
AGM/Consultancy,
Lucknow Metro Rail Corporation Limited,
Administrative Building, Vipin Khand, Gomti Nagar, Lucknow-226010

Sir,

With Reference of Your Letter No. LMRC /CONSULTANCY/KANPUR/Misc/2019/3911 Dated 16.07.2019 above Mentioned subject. As per your letter I am Sending You Ground Water Level Data for design of Corridor-1 & Corridor-2 of Kanpur Metro Rail Project.

Encl: As Above.


Executive Engineer

Letter No: _____ /G.W.D.KNP./T-9g/As Dated

Copy to:

Vice Chairman, Kanpur Development Authority/Nodal Officer, Kanpur Metro Rail Project.

Executive Engineer

CPM-2

AGM (cash)
02/09/19

L.M. Systra.
22/09


4/9/19



1 Corridor 1- IIT KANPUR TO NAUBASTA. (WATER LEVEL)

Dist	NAHT	CITY TOWN AREA	PRM_01	PRM_02	PRM_03	PRM_04	PRM_05	PRM_06	PRM_07	PRM_08	PRM_09	PRM_10	PRM_11	PRM_12	PRM_13	PRM_14	PRM_15	PRM_16	PRM_17	PRM_18	PRM_19								
KANPUR	HT KANPUR		10.25	10.05	10.70	10.65	11.85	10.50	11.15	10.50	11.20	10.92	11.70	11.78	10.35	9.70	10.10	10.45	11.25	11.80	11.70	12.50	12.84	14.03	12.82	13.95			
KANPUR	N SUG INST KANPUR		13.40	13.25	13.80	13.65	14.78	14.60	13.98	13.50	14.25	13.95	15.65	15.15	15.95	15.45	16.05	15.60	16.45	15.70	16.45	18.80	18.20	19.60	18.60	19.22	17.15	18.01	
KANPUR	GOV ENRINT POLYTECHNIC KANPUR		13.40	13.25	13.45	13.50	14.60	13.38	14.50	14.45	14.50	14.10	14.98	13.15	13.80	13.30	14.00	11.05	11.05	10.87	11.75	11.84	13.00	12.85	13.62	14.50	13.70	13.65	
KANPUR	AVAS VIKAS K. T. KANPUR G T ROAD LHS		17.45	17.30	18.50	18.05	18.05	18.60	18.15	18.45	18.45	17.90	17.55	17.10	17.55	17.48	18.15	17.27	17.05	17.95	18.02	18.83	19.55	20.20	20.18	20.15	21.55	22.15	
KANPUR	DALUWA ANUSANDHAN KENDRA KANPUR		20.80	21.90	22.25	23.00	24.05	21.30	23.10	22.45	23.70	22.22	23.50	21.93	23.95	22.55	24.00	22.20	22.95	23.54	23.63	24.40	24.15	24.05	24.85	24.21	24.31	26.54	26.19
KANPUR	CS AZAD AG. TECH INSTITUTE NANWAGGANI		15.50	15.40	16.25	16.80	17.80	17.50	19.40	18.20	18.60	17.80	19.45	18.25	19.10	19.00	19.42	19.52	19.42	20.75	21.38	23.70	24.15	24.05	24.85	24.11	26.81	29.10	30.8
KANPUR	S G INTER COLLEGE WALY NAGAR NEAR SUBJE MANDI		21.45	22.05	23.90	23.85	24.50	25.85	26.55	28.00	26.65	28.55	28.82	28.90	28.45	25.75	26.65	27.35	28.50	27.20	27.40	27.85	29.60	26.30	27.40	27.85	29.95	30.55	30.85
KANPUR	UPSIDO DUYOGNAG KALPI ROAD		17.85	17.85	18.70	18.95	20.05	19.55	20.20	20.01	20.85	20.45	23.10	22.85	24.10	23.80	25.53	24.90	24.90	27.80	27.55	27.40	27.25	27.80	27.55	28.70	30.35	30.15	31.7
KANPUR	L I C PRAYAG VAL NAGAR		18.05	18.05	18.95	18.95	20.05	19.55	20.20	20.01	20.85	20.45	23.10	22.85	24.10	23.80	25.53	24.90	24.90	27.80	27.55	27.40	27.25	27.80	27.55	28.70	30.35	30.15	31.7
KANPUR	PRAG DAIRY NIBALA NAGAR		16.05	16.45	17.60	17.50	18.50	17.20	19.10	19.05	19.90	19.12	20.35	20.05	20.45	20.45	21.40	21.35	21.85	22.50	22.80	23.65	23.95	23.05	23.75	25.43	43.42	48.08	48.31

2 Corridor 2- AGRICULTURE UNIVERSITY TO BARRA-2. (WATER LEVEL)

Dist	NAHT	CITY TOWN AREA	PRM_01	PRM_02	PRM_03	PRM_04	PRM_05	PRM_06	PRM_07	PRM_08	PRM_09	PRM_10	PRM_11	PRM_12	PRM_13	PRM_14	PRM_15	PRM_16	PRM_17	PRM_18	PRM_19									
KANPUR	C O O OFFICE KANPUR (NEV)		20.80	21.90	23.25	23.00	24.05	21.30	23.10	22.45	23.70	22.22	23.50	21.93	23.95	22.55	24.00	22.20	22.95	23.54	23.63	24.40	24.15	24.05	24.85	24.21	24.31	26.54	26.19	
KANPUR	CS AZAD AG. TECH INSTITUTE NANWAGGANI		20.80	20.90	23.00	22.25	23.25	22.20	23.05	22.50	24.28	23.95	24.55	23.95	25.05	26.00	25.80	26.58	26.58	28.15	26.43	26.57	27.67	27.65	27.75	27.65	28.50	28.40	28.75	
KANPUR	COMMISSIONER CAMP OFFICE CIVIL LINES		11.92	12.45	14.00	13.50	14.45	12.80	14.20	13.55	14.65	13.55	14.10				13.70	24.90	14.54	14.70	15.18	15.18	16.80	15.32	15.80	15.88	16.69	15.31	18.77	
KANPUR	COMMISSIONER OFFICE CIVIL LINES		16.57	17.20	18.20	18.05	18.75	18.35	19.05	19.00	19.70	18.90						13.70	24.90	14.54	14.70	15.18	15.18	16.80	15.32	15.80	15.88	16.69	15.31	18.77
KANPUR	CHACHA-NENHU HOSPITAL BANSH MANDI		10.25	9.40	10.40	9.90	11.20	9.85	10.15	10.35	11.35	11.00	11.20	10.50	11.85	11.32	12.05	10.98	11.90	11.65	12.02	12.25	12.75	12.45	12.85	12.40	13.25	12.55	12.70	
KANPUR	E. E OFFICE CAMPUS (SRI DIV. 25- CONTONMENT		20.42	20.80	21.40	22.40	23.85	21.90	22.50	22.40	23.45	23.00	25.10	25.10	26.35	26.12	27.80	27.60	27.85	28.20	28.75	29.60	30.15	30.05	31.30	31.00	32.15	32.14	33.22	
KANPUR	POLICE STATION BABULPURA		21.65	22.30	23.90	23.60	26.00	16.90	16.90	16.90	16.90	16.90	16.90	16.90	16.90	16.90	16.90	16.90	16.90	16.90	16.90	16.90	16.90	16.90	16.90	16.90	16.90	16.90	16.90	16.90
KANPUR	FOREST DEPARTMENT MIDVA NAGAR KANPUR		13.15	13.05	15.20	15.00	16.95	15.90	16.82	17.15	16.95																			
KANPUR	J P A C CAMPUS SHYAM NAGAR		7.90	7.95	8.50	8.60	9.50	8.20	8.60	8.30	10.52	10.35	10.55	9.75	11.30	12.65	13.10	10.95	11.05	11.50	12.65	12.50	13.60	13.50	14.10	13.83	15.09	13.80	15.02	
KANPUR	CHITRA DIPREE COLLEGE MAARPUR ROAD		7.50	8.80	8.15	9.93	10.45	9.50	10.05	10.00	10.80																			
KANPUR	M S Y DEGREE COLLEGE MAARPUR		7.50	8.80	8.15	9.93	10.45	9.50	10.05	10.00	10.80																			



EMPLOYER'S REQUIREMENTS – FUNCTIONAL: Part 1: Civil

Objective

The objective of the contract is the design, construction, completion, testing and commissioning of the permanent works by the Contractor (including without limitation, the design, construction and removal of the Temporary Works) and the rectification of defects appearing in Permanent Works in the manner and to the standards and within the time stipulated by the Contract. In full recognition of this objective, and with full acceptance of the obligations, liabilities and risks which may be involved, the Contractor shall undertake the execution of the Works.

1. GENERAL

- (1) The design and performance of the Permanent Works shall comply with the specific core requirements contained in these Employer's Requirements -Functional.
- (2) The design of the Permanent Works shall be developed in accordance with these Employer's Requirements - Functional, the Contractor's Technical Proposals and the other requirements of the Contract.
- (3) The Permanent Works shall be designed and constructed to the highest standards available using proven up-to-date good Engineering practices. **The Specification shall in any case not specify standards which, in the Engineer's opinion, are less than or inferior to those described in the Outline Design Specifications (Design Criteria) and Outline Construction Specifications contained in the Tender Documents.** Construction shall be carried out employing the procedures established by the Contractor in his Quality, Safety Health and Environmental management plans.
- (4) The Contractor shall be responsible for obtaining all necessary approvals from the relevant Public/Government/Local/Statutory or any agencies in the design and construction of the works.

2. SCOPE OF WORKS

2.1 Scope under Lump Sum Price (Schedule A):

The scope of work in brief is given below but the scope also includes all other requirements stipulated in various parts/volumes of the contract document including appendices and annexure. Entire scope of work shall be included in the lump sum price (Schedule A of BOQ) except those items which have been included in the Schedule B, C & D in the item 2.2 of Employer's Requirement (Functional: Part 1 - Civil)

1. Design and construction of structural part of four underground stations namely Chunniganj, Naveen Market, Bada Chauraha and Nayaganj metro stations by Cut & Cover method along with entry/ exit structures, subways and associated structures such as ancillary buildings, Utilities galleries, AC plant room, ASS rooms, TVF rooms, system rooms and all other rooms, shafts, pump houses, water tanks, diesel generator set room or enclosure etc. as shown in the tender drawings.
2. Design and Construction of Tunnel by Shield TBM, in Soil / Rock Strata from start of elevated ramp (after Moti Jheel Metro Station) to Nayaganj (as shown in the tender drawings) connecting Chunniganj, Naveen Market, Bada Chauraha and Nayaganj underground metro stations including cross passages & sumps.
3. Design and Construction of underground and elevated ramps and tunnel by Cut & Cover method, in Soil/Rock Strata as shown in the tender drawings.
 - a) There will be provision of niche in either roof slab or wall of the cut and cover tunnel as per the design and location provided by the ventilation contractor.
 - b) There will be two middle walls in the Cut & Cover tunnel near the junction with TBM tunnel for some distance followed by single middle wall near the junction with ramp.

- c) There will be provision of sump at the junction of ramp and Cut & Cover tunnel. Design and construction of drainage, sump and connection with the nearest municipal drain is covered under the scope of Schedule-A of contract. The drainage scheme shall take into account the discharge from elevated and underground ramp.
- d) Providing & fixing of security grills with MS frame on the underground ramp as per the details shown in tender drawings is covered under the scope of Schedule-A of contract. MS grill shall be painted with Epoxy Paint of suitable shade.
4. The contractor shall plan launching/ retrieving shaft/s inside the station box unless otherwise shown in the General Alignment Drawings and properly integrate the tunnel structure with the proposed station. TBMs working in adjoining underground section between Nayaganj and Kanpur Central Railway Station (under different contract i.e. KNPCC-06) shall be retrieved in/near station box of Nayaganj station. Contractor shall do necessary interface with KNPCC-06 in this regard.
5. All diversion/strengthening/protection works of the drain/nallah passing across and in the vicinity of the alignment.
6. Construction of the four underground stations/sub-ways/ramps has to be done under the existing roads by cut & cover method under busy and congested traffic conditions. The work has to be carried out without significantly affecting the traffic. Contractor shall develop appropriate construction methodology and sequence so that at any stage of construction at least 2 lanes of carriageway including footpath remain open to traffic at all times.
For compliance of above, the scope of work shall include all related/associated temporary works including provision of temporary steel decking over cut and cover structures under roadways to allow uninterrupted flow of traffic and construction and maintenance of temporary diversion roads and services for traffic diversion as required.
7. Diversion of chartered utilities and support of chartered as well as unchartered utilities during construction including maintenance of diverted/supported chartered utilities. Besides utilities indicated in the tender drawings, all above ground utilities infringing with the work sites with their underground and above ground connections such as cables, pipes, transformers, Poles, electric panels, substations, masts, manholes etc. shall also be deemed as chartered utility. The maintenance of diverted/supported utilities shall be from the start of construction till handing over it to the concerned utility owning agency.
8. Water proofing of all underground structures and roof of above ground structures as mentioned in section 10 of Outline construction specification.
9. Providing & Fixing Shear Connectors/key for Installation of the Rail Track in Ramp, Tunnel and Station Areas. (Refer Drawing. No. UPMRC-Design).
10. Provision of two deep tube-wells of 5-6 m³/hour yield for each station including submersible pumps of required capacity, including connecting them to main water supply pipe work including providing safe RCC channel for laying of these water supply pipes on road/ footpath with complete accessibility for easy maintenance of pipes without disturbing road/footpath.
11. Design and layout of tunnel drainage system.
12. Make provision in structures for fire detection and suppression system and all other building services and designated contractor services.
13. Make provision for accommodating the requirements for LV and MV supply routes and cable galleries / cable ways for all the cableways at the station and in the tunnel. Installation of embedded pipes as per the requirement of system contractors. However, pipes shall either be issued by UPMRC or by other system contractor (s) free of cost.
14. Supply, delivery and installation, functional testing, and handover of earth mat Civil contractor.
15. Supply & Installation of the embedded pipes of water, sewage and drainage works as per requirement. All sump pits shall be covered with proper RCC slab and manholes shall be covered with heavy duty G.I. gratings including MS ladder/ steps for access. Drains at Ancillary building shall be covered with proper heavy duty G.I. gratings. MS Gratings/steps shall be painted with Epoxy Paint of suitable shade.

16. Providing and Fixing of walkway shall be as per Tender Drawing no. UPMRC-DESIGN-UG-ST-107, UPMRC-DESIGN-UG-ST-112, UPMRC-DESIGN-UG-ST-113, UPMRC-DESIGN-UG-ST-114. Width of walkway in the underground portion, should be minimum of 600mm but should not be extended to the structural gauge with bare minimum construction clearance say – 10/+10 mm. Extension of walkway to structural gauge in elevated portion will involve change of parapet design. The surface of walkway shall be with chequered plate without grating. Design strength of walkway should be minimum 500kg/sqm. Railing to be provided on tunnel wall side for hand support. Wherever there is an interchange in the walkway side i.e. from left hand side of the train movement direction in the elevated portion to the centre portion of the tunnel ramp to rail level to be provided with the grade of 1 in 15.
17. Demolition of existing structures, roads, utilities and other services required for the work. **Demolition/dismantling of any existing structures (below & above ground level), roads, footpath, RCC drain or any type of drain, Pipe, cables, culvert, kerb stone, pavers, central verge, boundary wall, grill, gate, railing, fencing, signage's, underground tanks, any overhead & underground utilities, street lighting, transformer, signalling system, bus shelters, FOB, building and any other services etc. required for the work and disposal of same as directed by Engineer.**
 - a) **The restoration/relocation of structures dismantled/removed with the retrieved or new material as per the requirement and location of the owning agency is covered under the scope of Schedule-A of the contract.**
 - b) **Tenderer must visit the site and ascertain actual magnitude of quantum of work involved in dismantling and restoration of structures and nothing shall be payable on this account.**
 - c) **Retrieved materials obtained from demolition/dismantling of structures or utilities shall be the property of the contractor.**
18. Survey, instrumentation, ground treatment, ground and building monitoring, risk analysis, settlement prediction, preventive and corrective actions.
19. Traffic management along the worksite including works like Road works, footpaths and other services required in connection with traffic management and maintenance during construction period. Also, reinstatement to original condition wherever Road diversion has been made outside original road which will include reconstruction of structure demolition for traffic management
20. Providing mechanised autoclaved fly ash lime Bricks/ common burnt clay brick/ Cement Concrete Block/ autoclaved aerated cement block works in walls etc. as shown in the drawings. Providing screed concrete at the undercroft level as per the details shown in the tender drawings if required.
21. Reinstatement /Restoration of any structure/ roads/services (such as street lighting, signalling system, bus stand, footpath including kerb stone, boundary wall, buildings horticulture work and any other work) after completion of works only for the area where excavation has been done for construction of station box, entries, tunnel and original soil has been disturbed and area occupied by the contractor for construction activities. This reinstatement will be as per current standards being used by the road/services owning agency for similar roads.
22. First stage concrete to tunnel inverts including shear connectors/keys in the tunnel and station areas.
23. Underpinning, **ground improvement, strengthening** and protection of existing buildings and structures wherever required.
24. Design and construction of foundation for fire pump, chiller plant, **ECS, TVF, ASS room** and other such equipments.
25. The contractor will be required to provide access through cut and cover tunnel and station structures from ground level to track level. The access will be for lowering rails, sleepers, vehicles and concreting for laying Track, pulling cables and installing designated contractor's equipment in consultation with track & other system contractors. The size of the opening is to be not less than 5.0 m wide by 20 m long in tunnel structure. The openings are to be closed off by the contractor on completion of the access related works.



26. Sufficient number of dewatering systems with drainage pump arrangements shall be provided at all work sites.
27. The arrangement of temporary pumping of the seepage/sewage water etc. from the sewage/seepage sumps till the period stipulated in interface management given in Appendix-2D of Employers Requirement.
28. Providing and erecting, **grouting and fire sealing** of Overhead Traction Exhaust (OTE) ducts.
29. The Contractor shall be responsible for obtaining relevant certificates or clearance from local civic authorities viz. fire clearance etc.
30. The following works are to be designed, supplied, installed and commissioned by others with whom the Contractor shall co-ordinate all interface requirements at design stage and during his construction and integrated testing activities. However, making provisions for all these services including all openings/cut outs shall be in the scope of present contract.
 - Lifts and Escalators
 - Railway Electrification and HV power supplies
 - ~~Water Supply in the Tunnel~~
 - Auxiliary substations upto **HT Transformer** main LT panel
 - **HT** SCADA and UPS ~~to some defined equipment provided by others~~
 - Track work
 - Signalling, Telecommunications,
 - Automatic Fare Collection
 - Rolling Stock
 - ~~Tunnel Ventilation~~
31. For Fire compartmentalisation the leftover openings/ cut-outs shall have to be sealed with fire sealant to the requirements of fire safety standards & satisfaction of Engineer.
32. Designing, Providing and fixing MS hoisting hooks for lifts, Escalators, ASS rooms etc as per the requirement of designated contractor and removal of the same after the completion of work, if required. **Permanent hooks shall be painted with Epoxy Paint of suitable shade.**
33. Fulfilling all requirements stipulated in interface management given in Appendix-2D.
34. Providing and fixing security grills/railing on the underground ramp as per the details shown in tender drawings.
35. Alignment passes below/through nallahs/drains and below/adjacent to basements and foundations of buildings/religious structures/pumping stations/petrol pumps/balconies/other structures. Contractor has to take adequate strengthening measures to ensure the safety of the existing foundation of the structures. The contractor should ensure that the design and construction should be carried out with adequate measures for the safety of these structures. The contractor shall make necessary arrangement to monitor the existing structure for any type of deformation. Any of the construction activity shall be planned without affecting the operations of the existing system. Proper strengthening of the soil mass adjacent to the piers/piles may also be required to ensure proper stability of the piers/piles.
36. Construction of foundation for fire pump, chiller plant and equipment.

2.2 Scope of work under Schedule B, C & D of BOQ

- a. All Architectural finishing works as shown in tender drawings and as per BOQ. In case of difference in item given in BOQ and as shown in drawings, the contractor shall bring it to the notice of the Engineer & work shall be done only as per written instructions.
- b. Supply, Installation & Fixing of pipes for water, sewage & drainage works and its connection to drainage and sewage of civic authority as per approved plan.



- c. Diversion of all uncharted utilities as per approved plan and their maintenance.
- d. The dumping of earth beyond 20 Km. shall be paid as per relevant DSR 2018 item as mentioned in appendix-2A of Employer Requirement (Vol.3).
- e. Tree cutting, plantation, transplantation and any other horticulture work.
- f. Providing and fixing of Fire doors along with locks and other accessories. Tenderer to note that these doors are to be provided at the time of handing over of room as per key dates and in case of delay in procurement of fire rated doors, the contractor will have to provide temporary doors with locking arrangement without any additional cost to UPMRC to achieve the key date.
- g. Construction of **new** footpath and street furniture like street lighting, traffic signals and **signages outside the work area of the contractor** and horticulture work after final restoration of roads.
- h. Construction of roads and structures other than those covered in relevant items of Para 2.1 of "Employer's Requirement (Functional -Part 1)".
- i. Scope of work under Schedule D shall be as per "Employer's Requirement (General: Part 2 & Functional: Part 2)" and as per Bill of Quantities (Volume 7 of Tender Document).

2.3 VARIATION (Applicable for Schedule 'A': Lump-sum portion of the Works)

(i) Tunnel: In case of variation in the length (on either side i.e. increase or decrease) of tunnel to be constructed by a particular method with respect to the length shown in tender drawing, the total value of tunnel to be constructed by respective method as mentioned in subheads A2 & A3 will get modified accordingly on prorata basis of the length.

For example: Length of tunnel by TBM as per Tender = Lt

Length of tunnel as per actual execution = Le

Value of Schedule A2 as per Tender = A2t

Modified Value of A2 as per actual execution = A2e

So, A2e = A2t x Le/Lt

(ii) Under Ground Ramp: In case of variation in the length (on either side i.e. increase or decrease) of Under Ground Ramp to be constructed by a particular method with respect to the length shown in tender drawing, the total value of Under Ground Ramp to be constructed by respective method as mentioned in subheads A4 will get modified accordingly on prorata basis of the length.

For example:

Length of Under Ground Ramp as per Tender=Lr

Length of Under Ground Ramp as per actual execution = Le

Value of Schedule A4 as per Tender = A4t

Modified Value of A4 as per actual execution = A4e

So, A4e = A4t x Le/Lr

(iii) Station: In case of variation in the floor area of any station on either side i.e. increase or decrease with respect to the area shown in the tender drawings, the total value of station as mentioned in subhead A5 will get modified accordingly on prorata basis of floor area.

3. ALIGNMENT OF TRACKWAYS



- A05.3.5 The pump set shall be with horizontal/vertical split case type as per the data sheet/Bill of Quantities.
- A05.3.6 The pump casing shall be high density cast iron or cast steel volute design machined to a close tolerance.
- A05.3.7 The shaft shall be of high tensile steel mounted in generously sized bearings.
- A05.3.8 The impeller shall be of Bronze and should be properly balanced.
- A05.3.9 The shafts seal shall be of mechanical type to withstand leakage at high working pressure of 12 kg/cm².
- A05.3.10 A suitable flexible coupling shall be provided to connect the pump and the motor
- A05.3.11. The base plate shall be suitable for mounting the motors and the pumps.

A05.4. VARIABLE SPEED ~~SECONDARY~~ PRIMARY CHILLED WATER PUMPING SYSTEM

A05.4.1 General

The scope of this section comprise the supply, erection, testing and commissioning of variable speed ~~secondary~~ primary chilled water pumping system conforming to these specifications as per Equipment Schedule.

System shall consist of the following:

- 1 ~~Secondary~~ Primary pumps of type and capacity as specified in Equipment Schedule.
- 2 Programmable logic pump controller.
- 3 Adjustable frequency drives with manual by pass.
- 4 Remote sensor / transmitter.
- 5 Other items as required to properly execute the sequence of operation.

A05.4.2 ~~SECONDARY~~ PRIMARY PUMPS



- A05.4.2.1 The capacity of secondary **primary** chilled water pumps shall be in accordance with Equipment Schedule and Schedule of Quantities.
- A05.4.2.2 The pumps shall be of split casing/Inline type. Pump casing shall be close-grained cast iron of heavy section, horizontal/vertical split, making possible complete servicing of rotating parts without breaking piping or motor connections. Motor to pump connection shall be of the smooth entry to impeller and increased efficiency. Impeller shall be bronze or gun metal, double suction, enclose type, hydraulically balanced and passages smooth-finished for minimum friction and maximum efficiency. Shaft shall be stainless steel, protected by gunmetal sleeves extending through stuffing boxes. Stuffing boxes shall be supported in ball/journal bearings, grease lubricated, contained in easily removable housing. Pumps shall be fitted with an air valve, two grease lubricators, drain plug and water seal connections. Mechanical seals shall be provided with all pumps.
- A05.4.2.3 Pump motor shall be energy efficient having the efficiency class of EFF-1/**(Equivalent Standard)**, totally enclosed, fan-cooled, class-F insulation and suitable for operation on AFD. Motor shall be specially designed for quiet operation and its speed shall not exceed 1450 rpm. The motor rating shall be such as to ensure non overloading of the motor throughout its capacity range. Motor shall be suitable for 3-phase 415 + 10% volts, variable frequency power supply.
- A05.4.2.4 Pump base shall be of size suitable for the pump, motor and shaft and shall be constructed of cast iron or welded steel. Flexible coupling shall be protected by a guard mounted on the common base.
- A05.4.2.5 The pump shall be installed on a concrete foundation as shown in Approved-for-Construction shop drawings.
- A05.4.2.6 Each pump shall be provided with certified performance curves showing power absorbed and corresponding flow rates by varying the speed. The tests shall be done at factory and may be witnessed by Consultant/Owner.
- A05.4.2.7 Split casing pumps, prior to testing shall be aligned with a dial indicator within 0.05mm.
- A05.4.2.8 Pump performance curves and power consumption with operating points clearly indicated shall be submitted and verified at the time of testing and commissioning of the installation.
- A05.4.2.9 Pump performance shall be computed from the pump curves provided by manufacturer. All pumps shall be tested at factory as per relevant codes.

A05.4.3 PUMP LOGIC CONTROLLER



Section 1.5 - LOADS AND REQUIREMENTS

RAILWAY LIVE LOADS

1.5.1 General

The railway loading applied to structures on the Project shall be as per "Modern rolling stock" type, with the two following axle configurations as in figure 1.5.1. Dead loads shall be used that are in accordance with IRS Bridge Rules and IS 456 (for buildings) and IS 875-1 for unit weights of materials.

1.5.2 Nominal Loads

Note that the loading due to Rolling Stock may be modified after the proposed rolling stock design has been finalized. The design vehicle is shown in Figure 1.5.1.

For the purpose of computing stresses and deformations, the following loads and consequential effects shall be taken into account as applicable.

Dead loads	DL
Live loads	LL
Dynamic effects	DI
Forces due to curvature or eccentricity of track	CF
Temperature effects	T
Longitudinal forces	LF
Racking forces	RF
Forces on parapets	
Wind pressure effect	WL
Earth Pressure	EP
Water Pressure	WP
Forces and effect due to earthquake	EQ
Erection forces and effects	DEL
Buoyancy	B
Differential settlement	DS
<u>One Strut Failure</u>	<u>OSF</u>

conform with IS 1893 and guidelines mentioned below. Racking Force parameters elaborated in Annexure- "A" attached with the Outline Design Specification (ODS) are for guidance only to elaborate method. Properties of soil etc. shall be adopted after due investigation as agreed by Engineer.

Seismic event reporting and recording devices shall be provided to advise of and record a seismic event of sufficient intensity to cause potential damage to facilities. The devices shall be installed at intervals and locations to provide comprehensive coverage of the Metro Rail System. Unless otherwise directed by the Fire / Life Safety Committee, devices shall be set to be triggered when ground movement occurs that is equivalent to that of an intensity Modified Mercalli VII event. Seismic alarms shall be annunciated at OCCB.

1.5.7.1 Guidelines:

1. For all buried structures an incremental dynamic load should be applied using the methods outline in **Section 1.5.7.2**.
2. Perform a seismic racking analysis using the procedures outlined in **Annexure-1** based on an Operating Design Earthquake (ODE) level event.
3. Consider the worst-case loading condition from 1 and 2 to produce an envelope of seismic effects on the structure. Combine these effects with other appropriate design loads using the load combinations suggested in **Section 1.5.3**.
4. A seismic racking analysis for both ODE (0.12 g **PGA**) and MDE (0.24g **PGA**) shall be undertaken as per Hashash *et. al*.
5. Owing to the fact that the design level earthquake implied in the Indian Code and ODS is likely to be exceeded, ductility reinforcement in accordance with the provisions of IS 13920 is considered necessary to ensure adequate performance during a severe earthquake event.
6. In preparing specifications for backfilling beside cut-and-cover structures attention needs to be paid to method of compaction to ensure the seismic performance of these structures is not adversely affected.



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Annexure-18

2.	415 V Switch board (No. according to design)
3.	AC Switch board (1 No.)
4.	Aux. Services Transformers (Accord. Employer's Requirements)
5.	Inverter (1 No. if installed) and Batteries

A minimum 10 kPa udl has to be applied, unless individual loads exceed this.

Note:

The design of the station structure shall take into account the dimensions and weights of the actual equipment to be used. Maximum of the actual load of equipment and the loads given in 1.5.12 should be taken for design

- 2) In the design of the station structure due account shall be taken of all loadings resulting from the
- 3) method and route to be taken for the installation and subsequent removal and replacement of the
- 4) various items of plant and equipment.

1.5.14 Air Pressure

From trains entering and leaving stations:

- 1.5 kPa at tunnel entrance and through platform
- 1.5 kPa in tunnel ventilation shafts and plenums
- 0.5 kPa elsewhere

1.5.15 OSF

The temporary structures shall be checked for the effects of a ' One strut/Anchor failure' condition. A condition of a single strut failing at any location when all the strut and Wallers are installed shall be evaluated in Ultimate limit state condition with load factor of 1.05.



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Annexure-19

- 50 kPa at the existing or design ground level.
- Hydrostatic pressures ignoring pore pressure relief obtained by any seepage into the tunnel. Ground Water Table assumed to be 4m above the maximum water.
 - Level observed in the past 20 years from Central Water Commission in the vicinity of the site. If not available, it shall be based on pro-data basis. However, additional check has to be performed for lowest water table also.
 - Loads and load changes due to known construction activity in the vicinity of the tunnel, such as the excavation of underpasses, basements, pile groups, bridges, diaphragm walls and cable ground anchors.
 - The design of the tunnel linings shall take into account the proximity of the tunnels one to another, the sequence and timing of construction and the proximity of adjacent structures and utility services.
 - For construction stage design water table can be taken as maximum water table in boreholes in that area + 2m.

Load Combinations

The design forces will be derived based on following load factors.

Load Combination	Dead Load(DL)		Imposed Load(IL)		Ground and Water Loads		Seismic Loads ⁴ (EQ)
	Adverse	Beneficial	Adverse	Beneficial	Adverse	Beneficial	
1. DL + IL	1.5	-	1.5	-	1.5	-	-
2. DL + EQ	1.5	0.9	-	-	-	-	1.5
3. DL + IL + EQ	1.2	-	1.2	-	1.2	-	1.2
4. Collision/ Accidental	1.5	1.0	1.5	-	1.5	1.0	-

Notes :-

- Load Combination 4 will be used in checking temporary works proposals and checking the structure during temporary construction stages. The imposed load is the construction-imposed load.
- For checking structures at the extreme water levels, the reduced partial factors of safety for water loads are to be 1.1.
- Structural steel design load combinations and partial factors of safety for the design of structural steelwork are to be in accordance with IS 800-code of practice for the structural use of steel work.
- Earthquake loads are reversible.
- 50 % imposed load is to be used in line with the building mass calculated for seismic loads in load case 2 & 3.
- Creep, shrinkage, temperature and differential settlement are not considered in combination with the lateral loads at ultimate limit state. Creep and shrinkage effects will usually be minor for building type structures, no specific calculation will be necessary for ultimate limit state.
- (**) For those structural members which are load bearing during the construction stage and subsequently form part of the permanent Works, the serviceability Limit State (SLS) checks shall be carried out both for "Construction" and "Service/optional" stages.

Load Factor for SLS Case

Load Combination	Dead Load	Imposed Load	Ground & Water Loads
DL + IL	1.0	1.0	1.0
DL + EQ	1.0	-	-
DL + IL + EQ	1.0	1.0	1.0

2.7.6 Flotation

For flotation check, the water table is assumed to coincide with the Ground level.

Where the bored tunnels are relatively shallow they shall be checked for the possibility of flotation due to differential water pressure at representative typical locations.

The Contractor shall include in the design of the bored tunnel structures suitable methods for countering the uplift due to displaced water

2.7.7 Heave and Settlement

All tunnel designs shall be checked against flotation and heave in accordance with the methods specified above. Wherever these checks indicate a critical case the Contractor, at shall carry out a more rigorous analysis. Such analysis shall clearly show the factor of safety achieved by the design and shall be to the consent of the Engineer.

2.7.8 Tunnel Lining

The permanent tunnel linings shall be bolted segmental precast concrete, except in case of cross-passages, enlargement of tunnel and junction of cut & cover and bored tunnel where cast-in-situ lining shall be used.

Alternative types of lining may be proposed subject to the consent of the Engineer.

The Contractor shall take into account, inter alia, the following when considering the design of lining

- The internal diameter shall take account of the need to accommodate the



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The size, layout and period of occupation of road space at this access shaft shall be included in the Contractor's submissions for consent.

Annexure-20

2.7.17 Underpinning of Existing Structures

Where the construction of tunnels or other underground works would necessitate removal of existing support or foundations to existing structures the Contractor shall carry out investigations of the extent of the existing works, their design and loading conditions. The Contractor shall design and carry out such works as are necessary to maintain the integrity of the structure at all times including its design life. No work shall commence prior to the consent of the Engineer being given. Cost of design and provision of any support/strengthening of such structures will be deemed as included in the Contractor's Price.

2.7.18 Cross Passages

~~"Passenger emergency evacuation design for cross passages between running tunnels which are constructed by either cut and cover or bored method shall be in accordance with the requirements of NFPA 130(latest version) as follows:-~~

- ~~(a) The distance from a station or from a mid-tunnel escape shaft to a cross passage shall be not be greater than 244 m.~~
- ~~(b) The distance between adjacent cross passages shall not be greater than 244 m.~~
- ~~(c) In specific cases spacing of 244 m can go up to 250 m to reduce the number of cross passages between two stations.~~
- ~~(d) Track cross-overs shall not be considered as cross passages.~~

Passenger emergency evacuation design for cross passages between running tunnels which are constructed by either cut and cover or bored method shall be in accordance with the requirements of National Building Code 2016 or latest.

The locations of cross passages have, wherever possible, shall be chosen to avoid critical sections of the alignment where their construction could have an adverse effect on adjacent structures.

The openings into the running tunnels shall have a width of 1.2 m and a height of 2.1 m. Throughout the cross passage a minimum headroom of 2.1 m shall be maintained over a width of 1.2 m.

The openings into the running tunnels shall be as specified in NBC 2016 or latest.

The cross-passage floor screed shall be laid to fall and drain into the running tunnel drainage system. Floor level shall correspond with the level of the tunnel escape route.



2.8.3 Diaphragm Walling

General

The Contractor shall prepare and submit to the Engineer for his consent a detailed design including calculations schedules and drawings for each proposed diaphragm wall installation, prior to the commencement of such works. Design should take into account the following;

- i. Earth Pressure
- ii. Hydrostatic Pressure (Ground Water Table assumed to be 4m above the maximum water level observed in the past 20 years from Central Water Commission in the vicinity of the site.)
- iii. Decking Load
- iv. Surcharge Load (A surcharge load of 24 kN/m² shall be applied at ground level and IRC loading at GL for Roof Slab)
- v. Supporting Arrangements Any
- vi. Other incidental load
- vii. For construction stage design water table can be taken as maximum water table in boreholes in that area + 2m

Minimum grade of concrete shall be M40.

Method Statement

The Contractor shall prepare a method statement giving the full details of materials, plant and operations involved in the construction of diaphragm walls. This shall be incorporated into the design submission for consent and shall include details of:

- i. The formation of the joints between panels and installation of water stops;
- ii. The method of producing the durable concrete with admixtures. The sequence of excavation and concreting of panels;
- iii. The methods of monitoring and checking the stability of neighbouring properties, highways, utilities and other underground structures;
- iv. The methods of monitoring and checking tolerances associated with the diaphragm wall panels;
- v. The methods of monitoring and checking the stability of the diaphragm wall trench;
- vi. The mixing, transporting and placing equipment for the bentonite slurry;
- vii. The method of disposal of contaminated bentonite slurry;
- viii. The type, source, chemical and physical properties of the bentonite to be used;
- ix. The dimensions and details of guide walls;



shall be incorporated in the Contractor's design. The measure(s) chosen shall suit the particular conditions and the method of construction and may include: Integration of D/wall with structure;

- i. Toeing-in of the base slab into the surrounding ground;
- ii. increasing the dead weight of the structure by:
- iii. thickening of structural members;
- iv. providing an extra thickness of concrete beneath the base slab tied into the structural base slab;
- v. extending the diaphragm walls;
- vi. providing counterweights in parts of the structure with high density material;
- vii. The provision of tension piles. For this case the use of secant piled wall can be considered.

It will not normally be acceptable to modify the vertical alignment of the tunnels solely to counteract flotation forces. The use of ground anchors as a permanent measure to counteract flotation forces will not be permitted.

The contractor shall check all proposed cut and cover structures (including ramps, cut and cover tunnels, box structures, stations etc) for the possibility of floatation due to differential water pressure and shall design each and every underground structure such that the factors of safety against floatation are achieved for all load cases. An additional check in ULS condition considering all load factors to be 1.0 shall also be performed to ensure that the structure satisfy the strength criteria (capacity check) during the floatation condition. Seismic forces shall not be considered in this case.

Where the base slab is toed-in to the surrounding ground a partial safety factor of 2.0 shall be applied to the shear resistance of the ground above the toe and the adhesion factor shall not apply. The value of the weight of ground above the toe shall be calculated as for the backfill material.

The value of the weight of any additional thickness of concrete shall take account of the increased volume of water displaced.

The Contractor shall ensure that his method and sequence of construction is such that an adequate resistance to uplift is maintained at all times and shall put forward his proposal to this effect.

2.8.5 Cracking of Concrete

Anti-crack reinforcement shall be provided in all walls and slabs in both faces in each direction having more than 250 mm thick to distribute cracking arising from shrinkage, early thermal and temperature effects.

Recommendations given in Clause 3.9.4.19 of Part 1 of BS 8110 shall be followed with



the modification that reinforcement on each face in each direction should be at least:

for grades 500D and below: 0.125% of the concrete cross-sectional area

In addition, spacing between the bars should not be greater than 150 mm.

Generally, pairing of bars and more than one layer of bars is not preferred for such structures. It is preferred that smaller diameter bars in any direction are placed at closer intervals to prevent early thermal and shrinkage cracks.

2.8.6 Crack Width

Clauses 2.2.3.4.1 of Part I and 3.2.4 of Part 2 of BS 8110 shall be modified such that for member face exposed to earth and ground water, the calculated maximum crack width shall not exceed 0.2 mm irrespective of whether any additional protections, such as waterproofing membrane, are provided to the members at the exposed face of the structure. Provisions shall be made to ensure that calculated width of cracks due to early thermal cracking is not more than 0.2 mm.

Permissible crack width

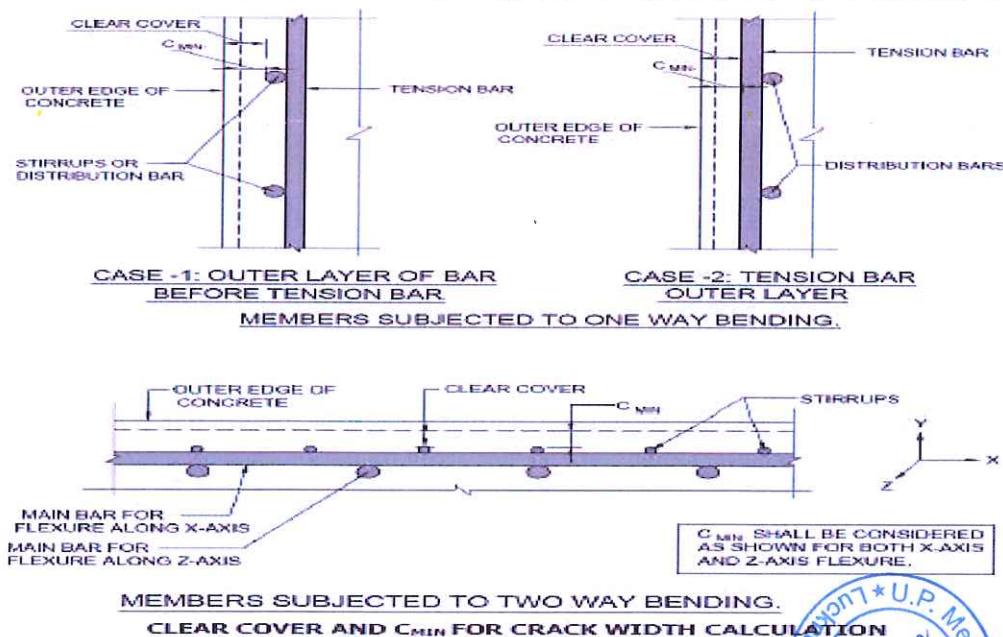
1. For Members in Contact with Soil: -
 - 0.2mm for soil face
 - 0.3 mm for inner face
2. For Members not in Contact with Soil: -
 - 0.3 mm
3. For Water Tanks: -
 - 0.2 mm

The crack width has to be checked at the minimum cover required from 120 years durability requirement from the outermost rebar.

The following additional points to be included:

The stress level in steel $< 0.8 f_y$ and in concrete $< 0.45 F_{ck}$ also need to ensure for all stages (including construction stage)

For members subjected to one way/two way bending below sketch should be followed: -



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Annexure 24

SCHEDULE- B

Annexure-B 2

Architectural Finishing Works (NON DSR ITEMS)

SUMMARY

S.NO.	ITEMS	AMOUNT (Rs.)
	ARCHITECTURAL FINISHING WORK	
1	WOOD WORKS	6,80,279.04
2	GRANITE/STONE/TILE WORKS	12,49,39,926.25 11,54,43,708.17
3	FLOORING WORKS	3,59,17,133.98 3,36,03,933.98
4	FINISHING WORKS	1,03,52,150.00
5	SUSPENDED CEILING WORKS	12,19,95,600.00
6	METAL WORKS	11,36,00,863.24
7	GLASS WORKS	6,00,32,021.28
8	MISCELLANEOUS WORKS	2,57,03,167.84 4,12,75,623.34
9	SITE DEVELOPMENT WORKS	37,63,038.00 0.00
	Total of Schedule-B(Civil, Architectural finishing, External Development including Horticulture works)	49,69,84,179.63 49,69,84,179.05
Note:- The rates are considered for all height, lead and lift etc. unless otherwise specified.		



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Annexure 25

2.3	Providing and fixing 30 mm thick Honed Granite Stone on Staircase treads and landings including bull nosing, (rounding the nose and making groove in tread) of steps not exceeding 32 cm in width of any approved colour and shade (Jeerawal white or any as approved by engineer-in-charge), size and pattern, (sample of granite stone shall be approved by Engineer-in-charge) using cement mortar 1:4 (1 cement : 4 coarse sand), laid and jointed with cement slurry and pointing with white cement slurry admixed with pigment of matching shade, including rubbing, curing and polishing etc. as per specifications and relevant architectural drawings.	Sqm	1600.00	4666.43	7466288.00
2.3.1	Extra for Darker shade Jet black / Lakha Red or any as approved by engineer-in-charge.	Sqm	400.00	646.67	258668.00
2.4	Providing and laying 18mm thick mirror polished Granite stone in risers of approved colour, size and pattern(sample of granite stone shall be approved by Engineer in charge) over 12mm thick bed of cement mortar 1:4(1 cement:4 coarse sand) and jointed with neat cement slurry mixed with pigment to match the shade of granite stone complete as per specification and relevant drawing.	SQM	800.00	2152.80	1722240.00
2.4.1	Extra for Darker shade Jet black / Lakha Red or any as approved by engineer-in-charge.	SQM	200.00	646.67	129334.00
2.5	Providing and fixing 25 mm thick Polished (Polished up to diamond level and sample should be approved by Engineer-in-Charge) Granite Stone Cladding on Wall of size up to and equal to 1200 mm x 600 mm of any light colour and shade (Jeerawal white or any as approved by engineer-in-charge),using cement mortar 1:4 (1 cement : 4 coarse sand), laid and jointed with cement slurry and pointing with white cement slurry admixed with pigment of matching shade, including rubbing, curing and polishing etc. and should be fixed with Stainless Steel Pins or cramps at all cornices of stones. The Rates include all T&P and materials including Stainless Steel pins or cramps,	SQM	7000.00 4853.54	4424.13	30968910.00 21472691.92



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2.11	Providing & Fixing of Glass Reinforced Concrete (G.R.C) Jalli 40mm thick in approved size, pattern, design, thickness and color of M/S UniStone make or equivalent to be fixed on/between RCC/Block work Column or Structural Steel work with 'Dry fixing' method with all appropriate steel frame work, Stainless Steel (SS - 304) 'L' shaped Clamps, dash fasteners and pins including anchoring, lifting, scaffolding etc. complete as per architectural drawing and manufacture specification The Screens should be made from '53 grade' White Portland Cement manufactured by 'JK Cement' or equivalent, Quartz, Fine Silica Sand, Alkali Resistant Glass Fiber manufactured by 'Saint Gobain' or equivalent, Super Plasticizers manufactured by 'BASF' or equivalent, Polymers manufactured by 'BASF' or equivalent and U.V resistant Synthetic inorganic pigments should be used for pigmentation manufactured by 'BAYFERROX (Germany)' or equivalent. The material casting should take place in Synthetic Rubber / FRP Mould manufactured by 'Reckli' or equivalent.	Sqm	3000.00	4500.00	13500000.00
	Total sub head Granite/Stone/Tile Work				124939926.25 115443708.17
3	FLOORING WORKS				
3.1	Providing and fixing access raised floor of light grade of minimum 15 KN/m2 UDL panels manufactured from pressed formed corrosion resistant galvanised steel with total overwrap of one piece top, sides and bottom flange encapsulating high performance cementitious board case stiched and with a panel to cater in the size 600 x 600 mm. The panel has to be placed on the pedestal made from all solid steel construction, galvanised plated consisting of stringers, an anti-vibrational head cap with cruciform upstands and four panels locating studs, positively clipped pedestal clipped to the steel base plate. The pedestal cap shall have an electrical conductor plate for discipation of static electricity. The steel base plate of the pedestal shall be fixed on the sub-floor with Epoxy pedestal				

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	adhesive and/or mechanical fixing with fasteners (8mm X 75mm). The Access floor should be able to take a point load of minimum 2.5 KN over 25 mm sq. and UDL of minimum 15 KN/sq. mtr. The panel shall be finished with high abrasion, anti static HPL of formica colour Y606 having fire rating as per BS 476 clause 5, 6 & 7 complete as per specifications				
3.1.1	Upto 450mm high cavity floor	SQM	400.00	4,003.16	1601264.00
3.2	Providing and fixing of Tactile indicator made from SS- 304 grade stainless steel with mirror finish . This Tactile should be rich / best quality. All the indicator shall be installed into correctly drilled holes and place using suitable adhesive. All the indicators shall be aligned properly. Note: - The rates include all materials, Labours, tools, plant and equipment. Nothing shall be paid extra.				
3.2.1	Warning Tactile indicator – Shall be installed on the walking surface in a raised grid pattern of 'dots' or studs. They shall be placed at center to center placing of 61mm, measured along one side of a square arrangement. Minimum 10 studs to be placed in direction perpendicular to the direction of travel. Size – 35mm dia. x 4.5mm ht Underside - 10mm dia stem.	Each	35000.0 0	102.22 93.78	3577700.00 3282300.00
3.2.2	Directional Tactile indicator – They shall be installed on walking surface, consisting of series of raised bar, oriented in line with direction of travel as per approved drawing. Min 4 bars to be placed in direction perpendicular to distance of travel. Size – 35mm wide x 4.5mm high x 288mm long Underside – 3x15mm,	Each	45000.0 0	543.06 498.22	24437700.00 22419900.00
3.3	Providing and fixing heavy duty vitrified tiles of thickness between and equal to 15 mm to 17 mm on floor of any colour and shade as approved by Engineer-in-Charge. The tile should be fixed with chemical adhesive of approved make (BAL Endura / Duo-Bond / Laticrete Baber of diamond rated). The floor tile should be used with minimum gap by using spacer and the gap should be properly grouted with transparent epoxy				

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	grout of make (BAL Endura / Duo-Bond / Laticrete Baber of diamond rated), complete in all respect and as per specification and relevant architectural drawings. Before laying of the tile the Contractor should prepare smooth surface with level and gradients required for drainage system, well coordinated with cable trenches, raceways, hume pipe and any utility as per approved combined services drawings and should take approval from Engineer-in Charge. The rates include all materials (Heavy duty tile, Chemical Adhesive, epoxy grout, spacer and any if required), Labours, tools, plant and equipment surface preparation include free from efflorescence, laitance, dirt and other loose material. Nothing shall be paid extra.				
3.3.1	Heavy Duty Tile (Size: 1200 mm x 100 mm) of Yellow Colour	Sqm	120.00	2307.50	276900.00
3.4	Providing and Laying of Foam Concrete under Raised Floor as / of density 1200kg/cum.	Cum	180.00	4,403.56	792640.80
3.5	Supply & Fixing homogeneous & abrasion resistant Vinyl flooring 1.6mm thick of desired shade & in desired patterns, in TER,SER and S&T using suitable adhesive to give smooth & even floor with all labour, material etc as required for proper completion of work.	Sqm	420.82	548.76	230929.18
3.6	10mm thick marble chips flooring rubbed and polished to granolithic finish with Epoxy terrazzo.	Sqm	1000.00	5,000.00	5000000.00
	Total sub head Flooring Works				35917133.98 33603933.98
4	FINISHING WORKS				
4.1	Applying two coats (maximum 8 sqm/liter per coat with minimum 125 micron wet film thickness per coat) of two-part , high build, solvent free water emulsified epoxy resin based anti-dust concrete sealer coating on fair-faced block work/brick work and concrete surface inclusive of surface preparation over primer coat/initial coat as per manufacture's recommendation. all complete as per specification.	SQM	55000.00	160.17	8809350.00

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	angle down into the tube, the dome also features a moisture control system, allowing any trapped moisture to escape. Interior to be fitted with fire rated with fire rated diffuser fitted in solid suspended ceiling all complete as per drawing and direction of Engineer-in-Charge.				
8.7	Digital UV printing over glass/SS sandwiched panels/ metal sheets/ tiles etc. designed as desired and using original UV 8 colours inks with 29 picolite spectra galaxy print head or equivalent, double deposition of ink, on vacuum table of size bigger than 2500X1500 for precision holding of metal sheet etc including the cost of transportation, loading and unloading etc complete as per architectural drawing and direction of Engineer in Charge. Printing shall be smooth/textured as directed.	Sqm	4000.00	3700.12	14800480.00
8.8	Provided and fixing face mounted single sided illuminated Ad-panel made from quarter circular shaped top & bottom aluminium profiles, Aluminium CNC milled/routed endcaps, bulging polycarbonate sheeting with vinyl message and strip LED & waterproof ballast. The Signage shall be fixed using anchor fasteners on fixing surface. The Signage shall have an easy mechanism of removing the content/Information for inspection and access of the services. Internal signs shall be IP52 and external signs shall be IP65 certified as per graphic.				
	size 3600mmX1800mm	No.	60.00	100000.00	6000000.00
8.9	Providing and Fixing 15mm thick engineered marble cladding (engineered marble sample as approved by engineer-in-charge) of size upto and equal to 1200 mm x 3000 mm of colour and shade as approved by engineer-in-charge. The engineered marble stone cladding shall be on MS Frame with stainless steel clamps/pins as approved by engineer-in-charge. The item includes engineered marble stone, SS Clamp/pins etc. but not inclusive of MS Frame. The rates include all materials, Labours, tools, plant and	sqm	2000.00	4800.00	9600000.00



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	equipment. The cost of MS Frame shall be paid under relevant DSR - 2018 Item separately.				
8.10	Providing and painting DECO PU paint of approved brand and shade over M.S Structure two or more coats to given an even shade, including one coat of primer, preparation of surface using automotive putty, thinner etc. surface duly emery papered to give a perfectly smooth and even prepared surface before painting etc. complete in all respect as per satisfaction of Engineer-in-charge. The rate includes all materials, Labour, tools, plants and equipment. Nothing shall be paid extra on this item	sqm	1200.00	2477.03	2972436.00
8.11	Ceramic coating over glass/SS sandwiched panels/ metal sheets/ tiles etc. designed as desired and using ceramic coating on toughened glass to achieve any colour and shade as approved by engineer-in-charge on toughened glass of any thickness. It is including the cost of transportation, loading and unloading etc complete as per architectural drawing and direction of Engineer in Charge. Printing shall be smooth/ textured as directed by the engineer-in-charge.	Sqm	2000.013	1500.00	3000019.50
	Total sub head Miscellaneous works				25703167.84 41275623.34
9	SITE DEVELOPMENT WORKS				
9.1	Construction of GSB by providing close grade material, spreading in uniform layers with motor grader on prepared surface, mixing by mix in palce method with vibratory roller to achieve the desired density complete.	Cum	300.00 0.00	1868.18	560454.00 0.00
9.2	Providing and laying Ready mix concrete of grade M15 for external development works.	Cum	600.00 0.00	5337.64	3202584.00 0.00
	Total of Site Development works				3763038.00 0.00



Memorial Well



TENDER DRAWING

PROJECT TITLE
UTTAR PRADESH METRO RAIL CORPORATION LTD
 (Formerly known as Lucknow Metro Rail Corporation Ltd.)
 KNPDD01-IIT KANPUR-NAUBASTA CORRIDOR-1

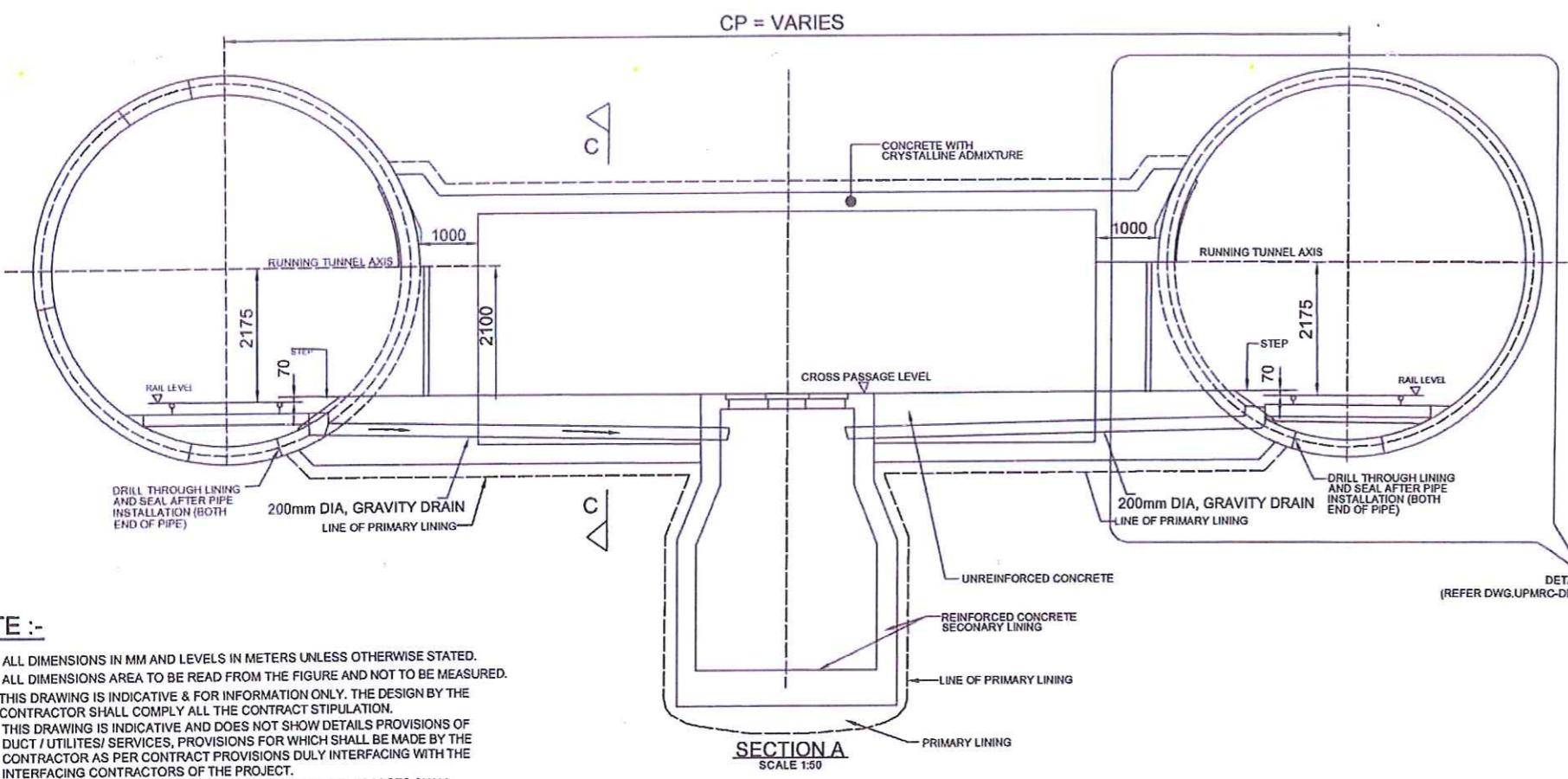
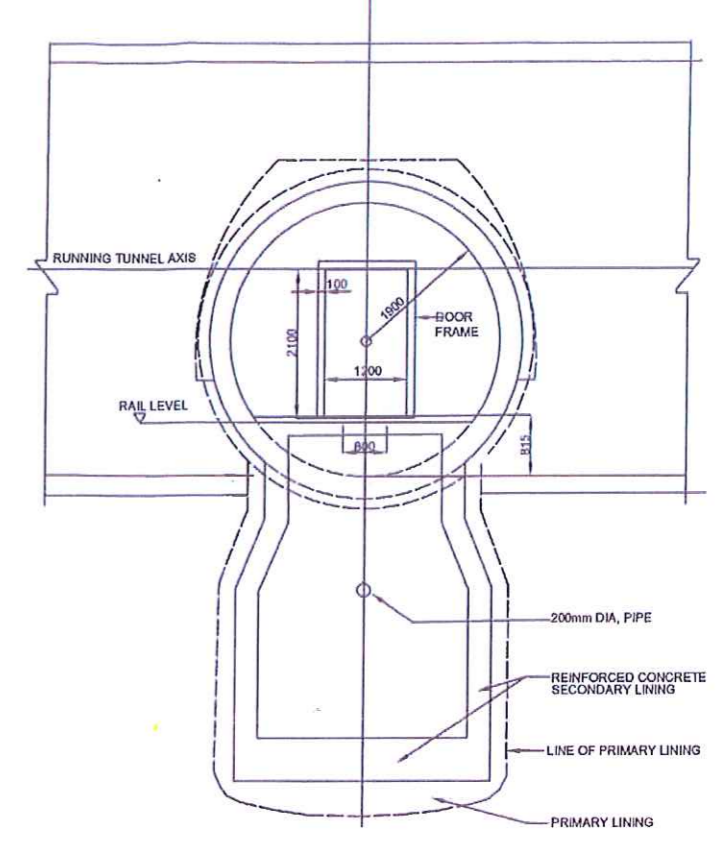
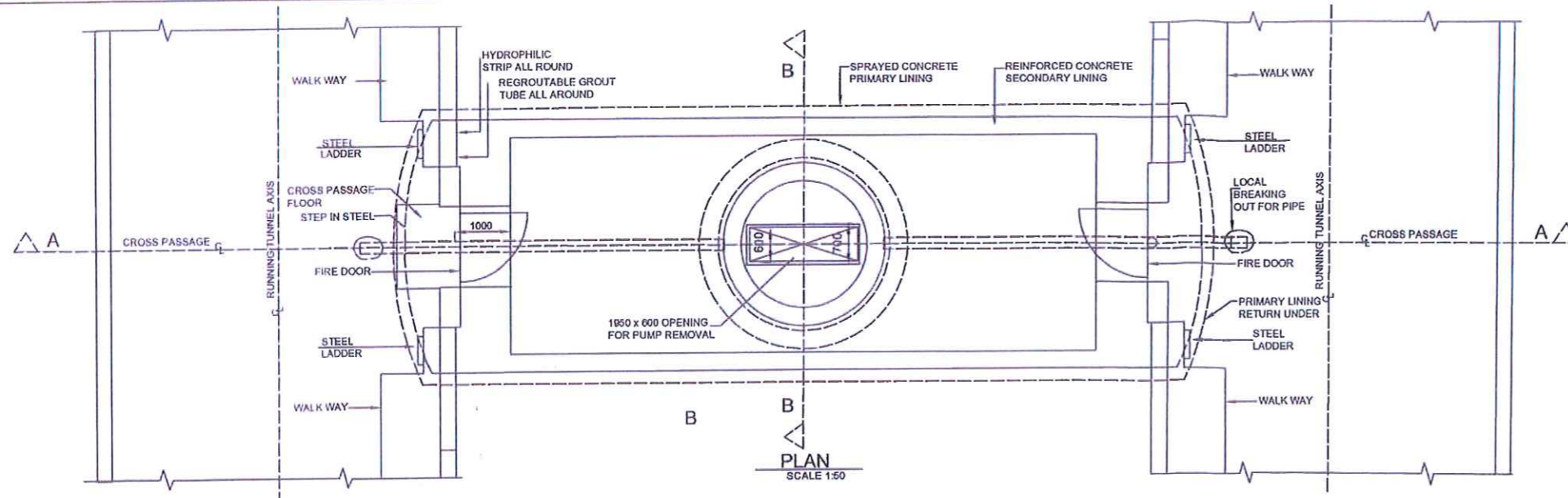




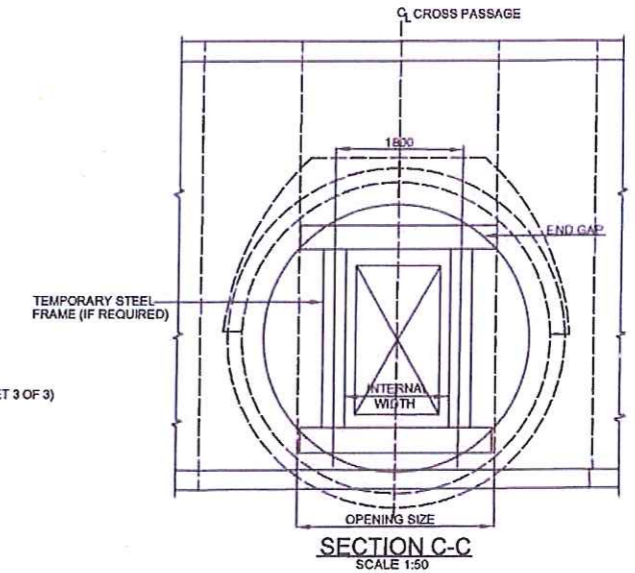
NOTICE OF NO OBJECTION FROM EMPLOYER						
NOTICE OF NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES HOWEVER THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAIL DESIGN CONSULTANT.						
GC - REVIEW	DATE	SIGNATURE	APP. STATUS	UPMRC-SIGN OFF	DATE	SIGNATURE
CA/ARCH - GC			<input type="checkbox"/> NOC	DY.CA-UPMRC		
CE/STRU - GC			<input type="checkbox"/> NOWC	CE DESIGN - UPMRC		
				DY.CE CIVIL - UPMRC		

PREPARED	NAME	SIGNATURE
DRAWN BY		
DESIGNED BY		
CHECKED BY		
APPROVED BY		

DRAWING TITLE			
GENERAL ALIGNMENT DRAWING (Sheet-07 of 07)			
(Centre Line)			
SCALE	AS SHOWN	DATE OF ISSUE	STAGE
DRG.NO.	UPMRC/PH-1/KNPCC-05/GAD/SHEET 8		REV. NO.



SECTION B-B
SCALE 1:50



SECTION C-C
SCALE 1:50

NOTE :-

1. ALL DIMENSIONS IN MM AND LEVELS IN METERS UNLESS OTHERWISE STATED.
2. ALL DIMENSIONS AREA TO BE READ FROM THE FIGURE AND NOT TO BE MEASURED.
3. THIS DRAWING IS INDICATIVE & FOR INFORMATION ONLY. THE DESIGN BY THE CONTRACTOR SHALL COMPLY ALL THE CONTRACT STIPULATION.
4. THIS DRAWING IS INDICATIVE AND DOES NOT SHOW DETAILS PROVISIONS OF DUCT / UTILITES/ SERVICES, PROVISIONS FOR WHICH SHALL BE MADE BY THE CONTRACTOR AS PER CONTRACT PROVISIONS DULY INTERFACING WITH THE INTERFACING CONTRACTORS OF THE PROJECT.
5. THE NUMBER, LOCATION AND SETTING OUT OF CROSS - PASSAGES SHALL COMPLY WITH THE CONTRACT SRIPULATIONS.
6. CONTRACTOR SHALL ALSO ENSURE THAT HIS PROPOSAL & DESIGN COMPLY WITH ALL THE PROVISIONS OF THE APPROVED SCHEDULE OF DIMENSIONS (SOD) OF THE PROJECT.
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8. TRACK STRUCTURE / ARRANGEMENT SHOWN IN THE DRAWING IS INDICATIVE.
9. MINIMUM INTERNAL CLEAR DIMENSION OF CROSS PASSAGE SHALL BE 1700mm WIDE x 2250mm WIDTH EXCLUDING CONSTRUCTION TOLERANCE.

REFERENCE DRAWINGS	
Drawing Number	Description

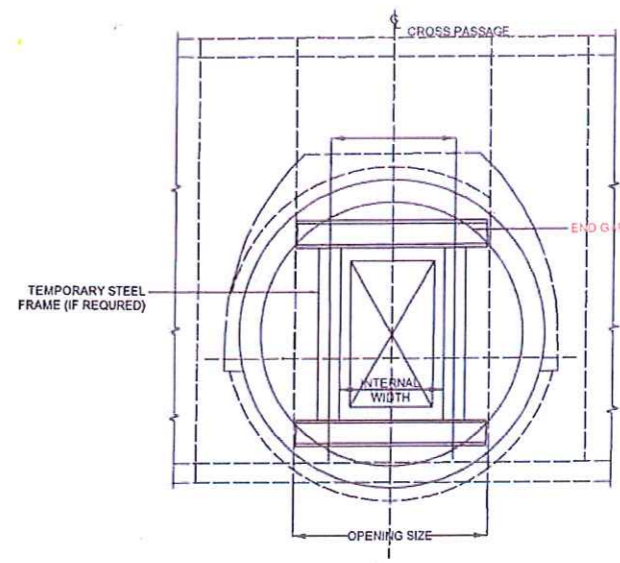
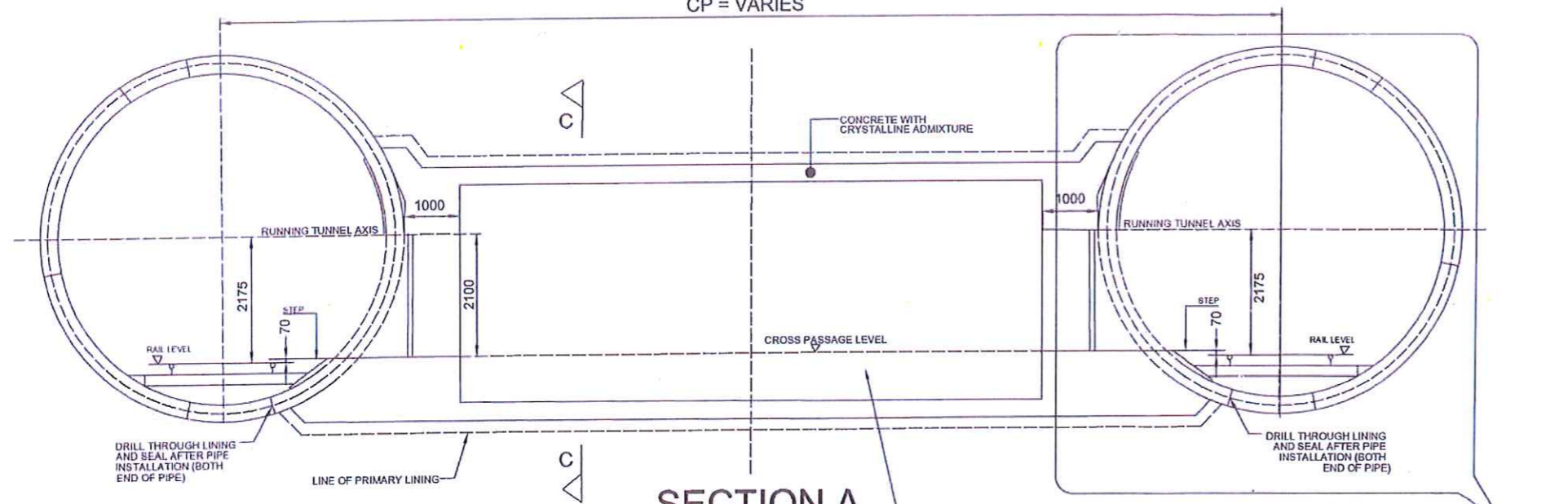
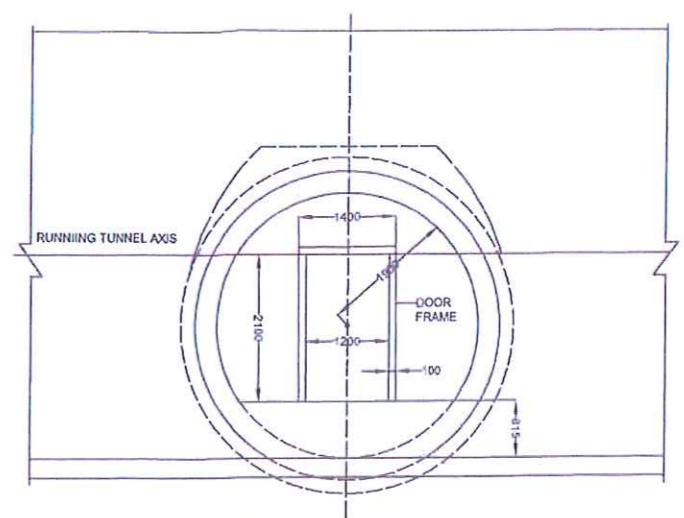
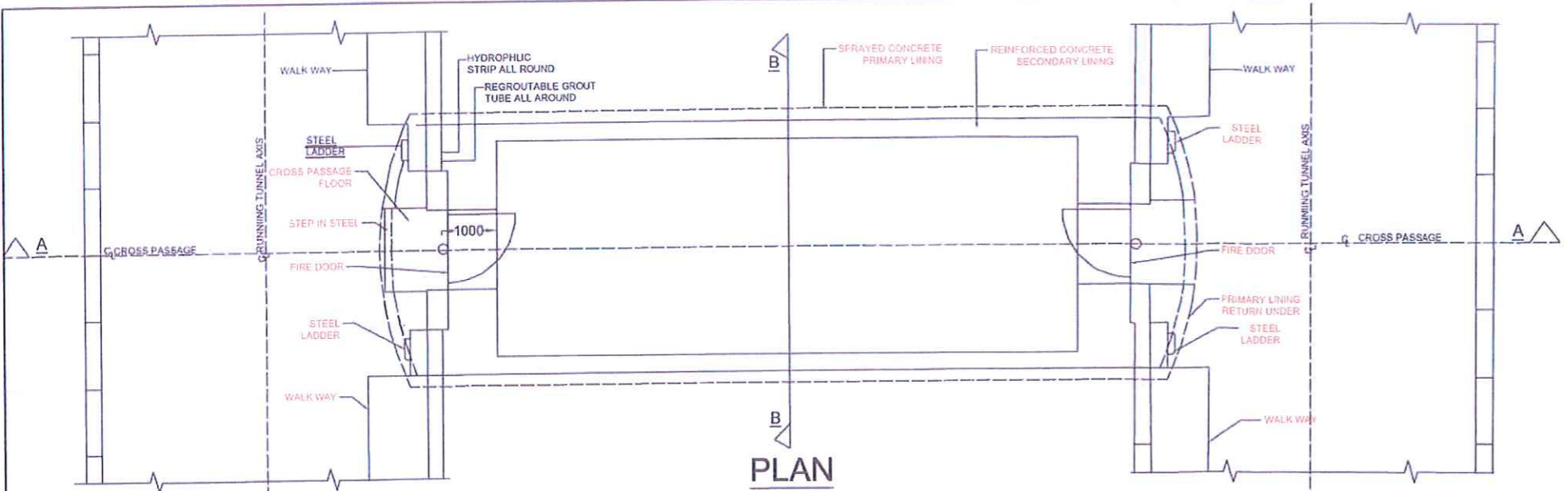


DRAWN BY	
CHECKED BY	
VERIFIED BY	
DATE	28/05/2020

NOTICE OF 'NO OBJECTIONS' FROM EMPLOYER		
NOTICE OF NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES HOWEVER THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAIL DESIGN CONSULTANT.		
REMARKS	DATE	SIGNATURE
Dy CA UPMRC CA UPMRC Dy CE/DESIGN UPMRC Dy CE/SA UPMRC CPM-3 UPMRC	REVIEWED & NO OBJECTION MAY BE CONVEYED TO THE CONTRACTOR BASED ON STAMPED ABOVE THE NO OBJECTION IS ISSUED FOR EXECUTION PURPOSE	 [Signature]
UTTAR PRADESH METRO RAIL CORPORATION LTD. KANPUR METRO PROJECT CORRIDOR 1 - UNDERGROUND STATION (KNPCC-05) CROSS PASSAGE WITH SUMP DETAILS SHEET 01 OF 03 UPMRC- DESIGN-UG-ST-105 REV. R1 SCALE STATUS TENDER		

REV.	PARTICULARS	DRW.	CHD.	VER.	DATE

STRUCTURAL



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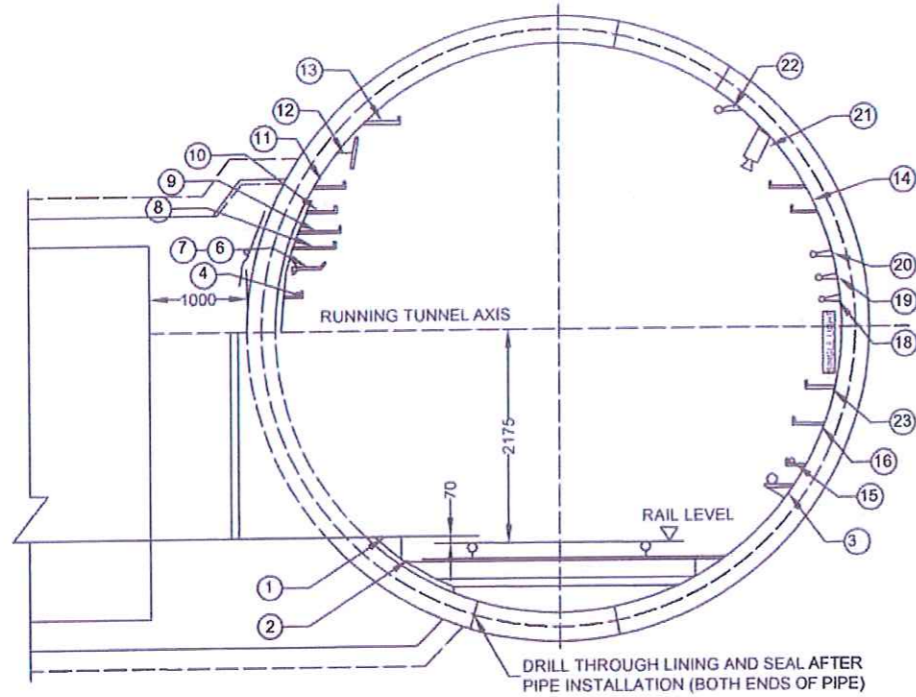


DRAWN BY	
CHECKED BY	
VERIFIED BY	
DATE	20/02/2020

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UTTAR PRADESH METRO RAIL CORPORATION LTD. KANPUR METRO PROJECT CORRIDOR 1 - UNDERGROUND STATION (KMPCC-05)		
CROSS PASSAGE DETAILS		
SHEET 02 OF 03		
UPMRC- DESIGN-UG-ST-105	REV. R1	SCALE: TENDER

REV.	PARTICULARS	DRN.	C.D.	VER.	DATE

STRUCTURAL



DETAIL -X
SCALE 1:50

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SCHEDULE OF TUNNEL SERVICES IN TUNNEL SECTION AT CONSTANT GRADE TRACK LOCATION (INDICATIVE ONLY)

SR.NO	BRACKET SIZE IN mm.	LEVEL IN mm FROM TOP OF RAIL	SERVICES
1.	200	-	33KV CABLES 3x1C400 SQ mm>
2.	150	-	33KV CONTROL CABLE
3.	-	535	200mm. DIA RAW WATER PIPE
4.	150	1300	800mm. DIA SUMP RISER PIPE
5.	-	1540	FIRE HYDRANT PIPE 150mm DIA WITH VALVE AT EVERY 50 METERS
6.	2320	2320	TUNNEL POWER SOCKET CABLE
7.	-	2320	EMERGENCY TELEPHONE BESIDES CROSS PASSAGE DOOR LOCATION
8.	200	3150	TELECOM DATA
9.	200	3350	TELECOM POWER/OFC
10.	150	3560	TUNNEL EARTH CONDUCTOR -1x240 sqmm BARE STRANDED
11.	200	3720	CABLE FOR LIGHT FIXTURE.
12.	-	3870	LIGHT FIXTURE.
13.	200	4050	SUMP CONTROL CIRCUIT & SUMP POWER CABLE
14.	2 NOS. 200	3625, 3790	SUPPLY CABLE FOR BOOSTER FAN
15.	100	820	RADIAX CABLE
16.	2 NOS. 200	1165, 1365	SIGNALING CABLES
17.	-	-	NOT USED
18.	-	2450	G. S. M
19.	-	2750	C. D. M. A
20.	-	3050	TETRA
21.	-	4200	CCTV ANTENNA
22.	-	4535	LINEAR HEAT DETECTION CABLE
23.	-	1630	SIGNALING LIGHT

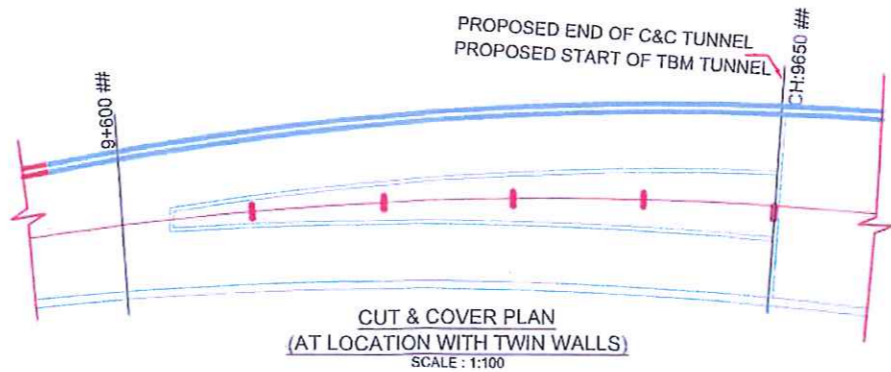
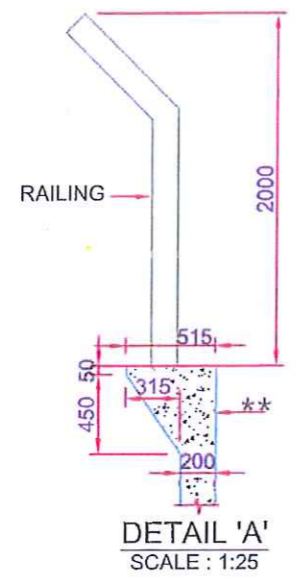
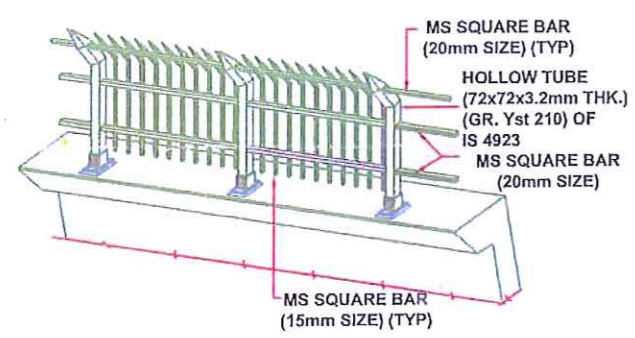
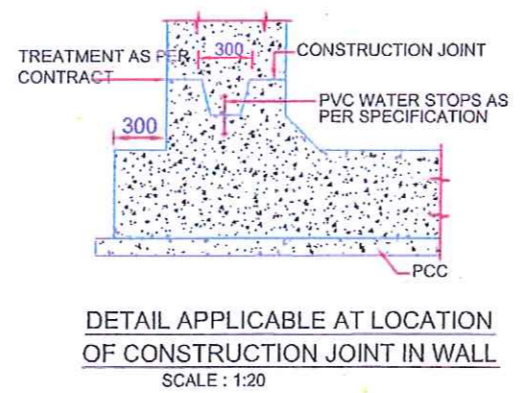
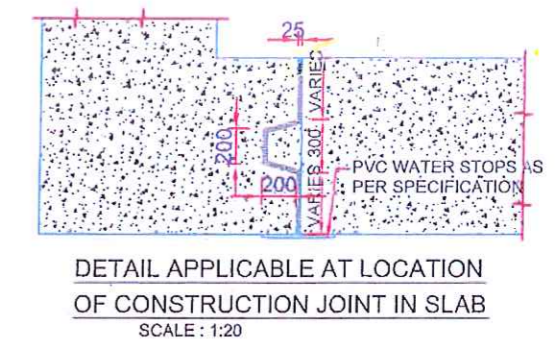
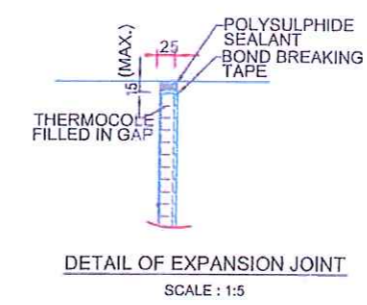
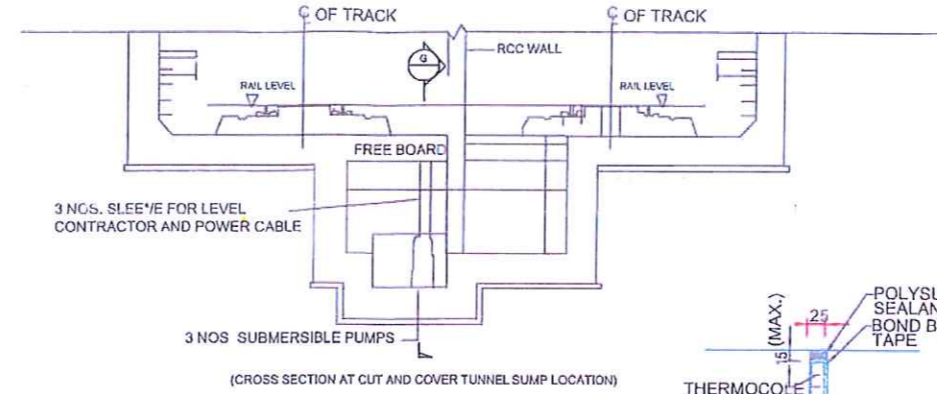
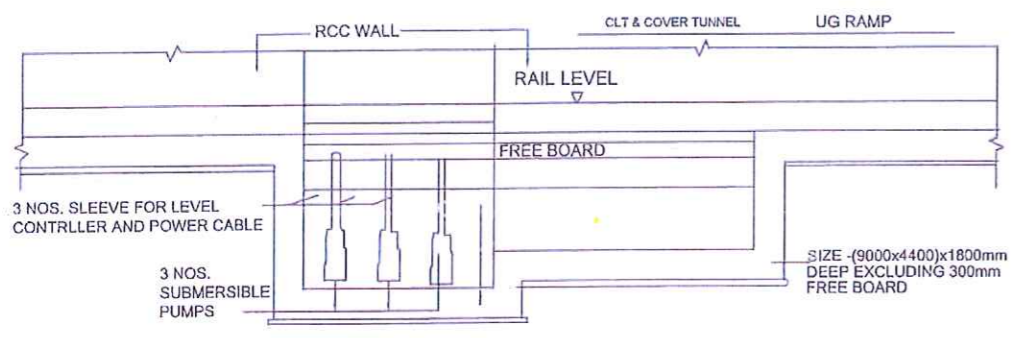
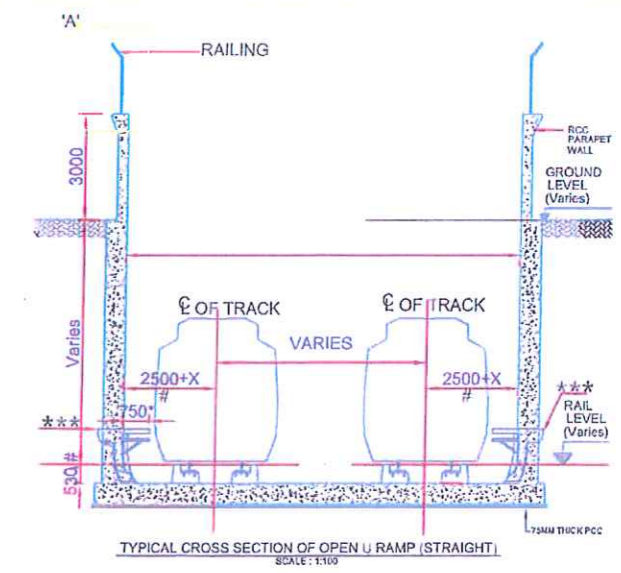
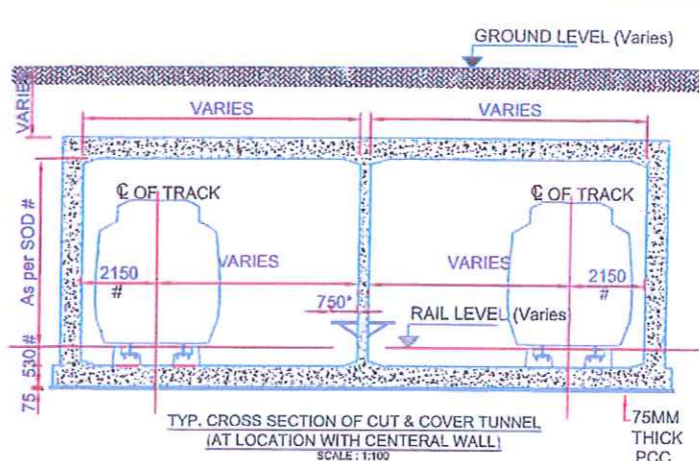
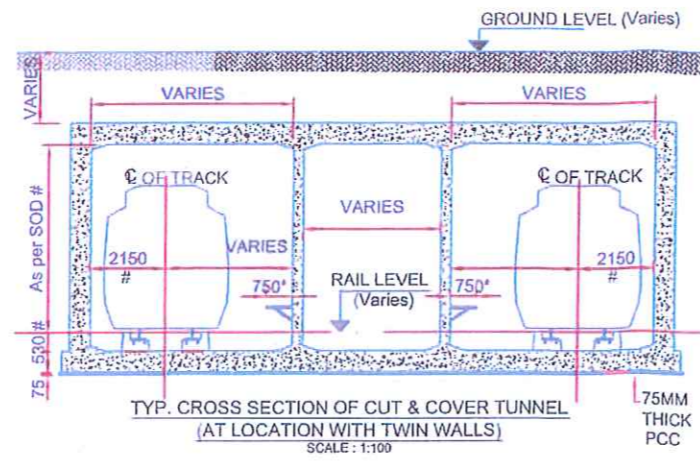
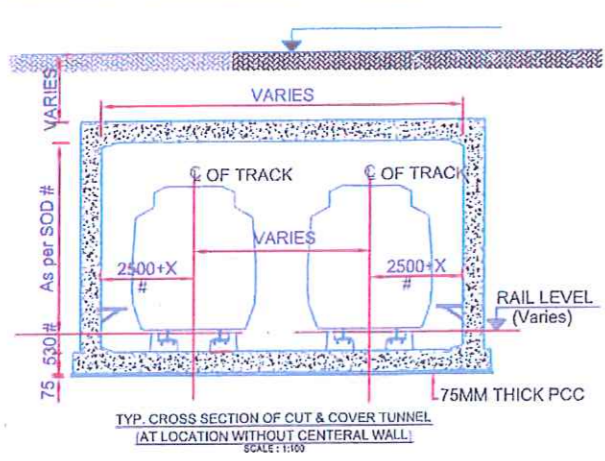
REFERENCE DRAWINGS	
Drawing Number	Description



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SIGNATURE	
UTTAR PRADESH METRO RAIL CORPORATION LTD. KANPUR METRO PROJECT CORRIDOR 1 - UNDERGROUND STATION (KMPCC-05)	
CROSS PASSAGE DETAILS	
SHEET 03 OF 03	
UPMRC- DESIGN-UG-ST-105	REV. R1
DATE 28/05/2020	STATUS TENDER

REV.	PARTICULARS	DRN.	CHD.	VER.	DATE

STRUCTURAL



* TO BE VARIED SUBJECT TO STRUCTURE GAUGE
x ADDITIONAL CLEARANCE ON CURVES AS PER SOD
** SHAPE OF OHE PARAPET WALL IS INDICATIVE AND
SHALL BE AS PER UPMRC REQUIREMENT
*** INTERFACE DETAIL IS INDICATIVE & WILL BE FINALIZED
AS PER DETAIL DESIGN

DIMENSIONS MARKED ARE TENTATIVE AND SHOULD
BE AS PER FINAL SOD.
CHAINAGE ARE TENTATIVE AND SHALL BE AS PER SERVICES REQUIREMENT.

- NOTE:
1. ALL DIMENSION ARE IN MM.
 2. FOR DRAINAGE PURPOSE, CONTRACTOR SHALL PROVIDE THE LOCATION OF SUMP PIT AT C&C AND RAMP INTERFACE. SIZE OF SUMP PIT SHALL BE DESIGNED BY CONTRACTOR BASED ON RAINFALL INTENSITY AS PER CONTRACT REQUIREMENT.
 3. INTERMEDIATE WALLS (SINGLE/ DOUBLE) SHALL BE PROVIDED AS PER SOD CRITERIA AND SERVICES REQUIREMENTS, WHICH CONTRACTOR CAN DECIDE ACCORDINGLY.

NOTE:
In case of discrepancy between any Dimension with SOD, SOD will prevail

REFERENCE DRAWINGS	
Drawing Number	Description

REV.	PARTICULARS	CON.	CHK.	VER.	DATE



TENDER DRAWING

DRAWN BY	
CHECKED BY	
VERIFIED BY	
DATE	

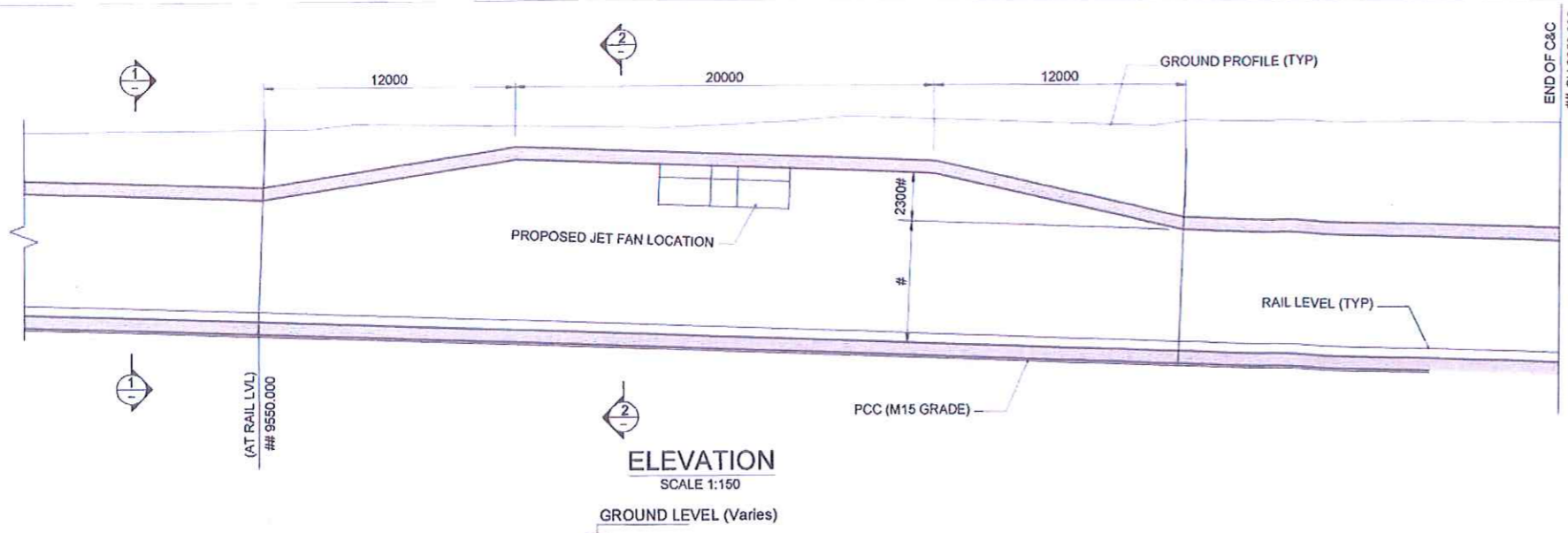
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Dy CA UPMRC REVIEWED & NO OBJECTION MAY BE CONVEYED TO THE CONTRACTOR		
CA UPMRC BASED ON STAMPED ABOVE THE NO OBJECTION IS ISSUED FOR EXECUTION PURPOSE		
Dy CE/3A UPMRC		
CPM-3 UPMRC		

UTTAR PRADESH METRO RAIL CORPORATION LTD.
KANPUR METRO PROJECT CORRIDOR 1 - UNDERGROUND STATION (KNPCC-05)

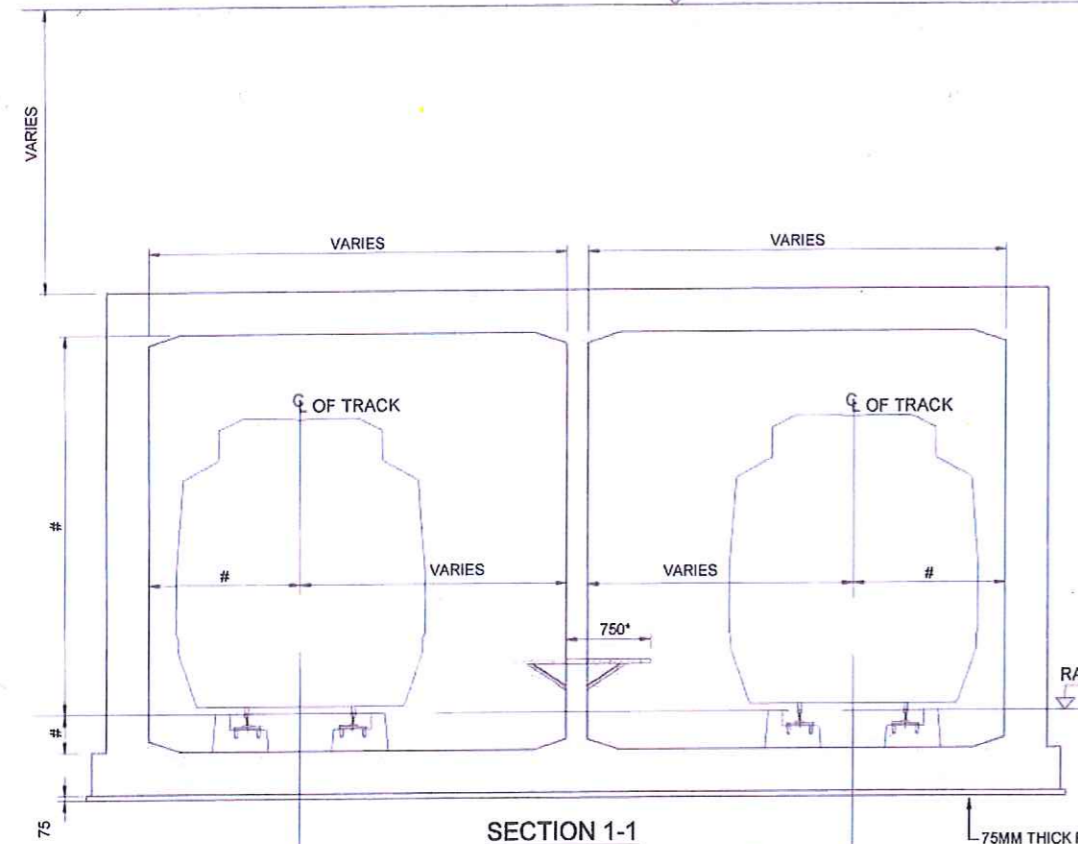
GENERAL ARRANGEMENT FOR CUT & COVER
RAMP - CROSS SECTION

UPMRC- DESIGN-UG-ST-115
R1 NTS
STATUS TENDER

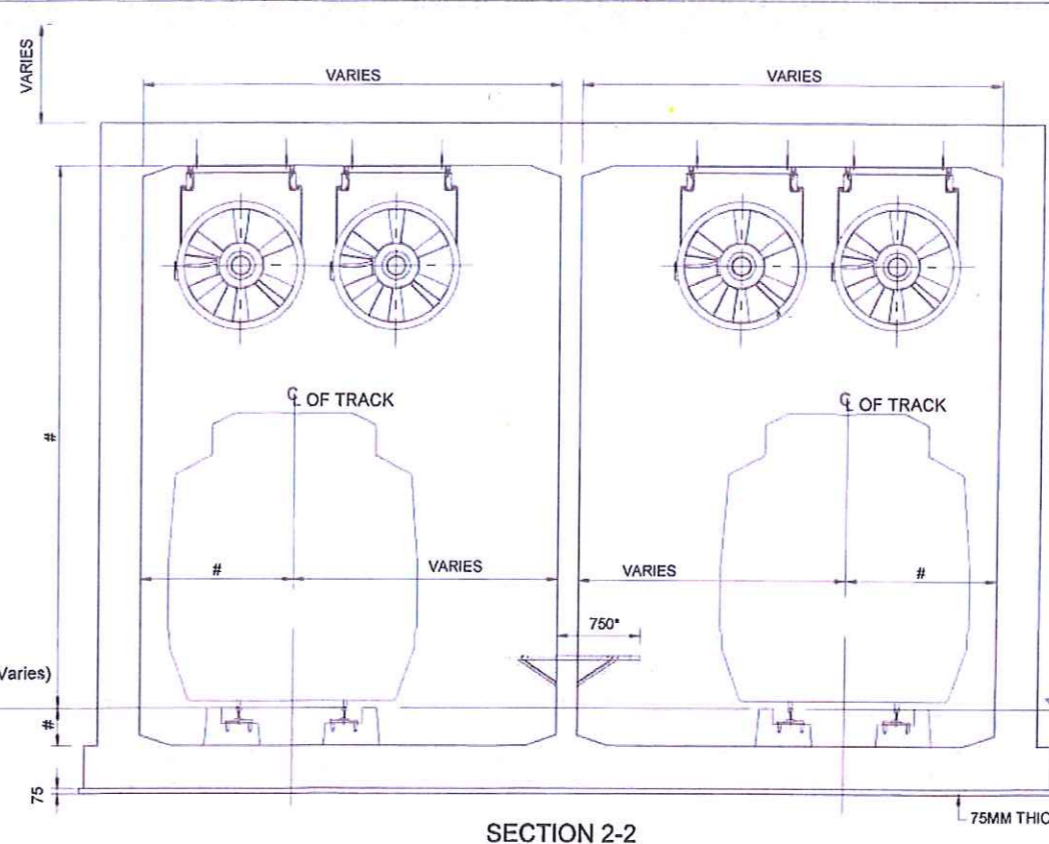
STRUCTURAL



ELEVATION
SCALE 1:150



SECTION 1-1
TYP. CROSS SECTION OF CUT & COVER TUNNEL
SCALE : 1:50

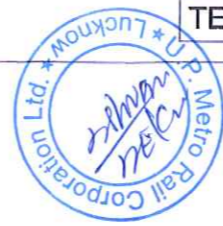


SECTION 2-2
TYP. CROSS SECTION OF CUT & COVER TUNNEL
(AT NICHE LOCATION)
SCALE : 1:50

DIMENSIONS SHALL BE AS PER FINAL SOD.
CHAINAGE ARE TENTATIVE AND SHALL BE AS PER SERVICES REQUIREMENT

- NOTE:**
1. ALL DIMENSION ARE IN MM.
 2. DIMENSION INDICATED ARE TENTATIVE ONLY.
 3. FOR DRAINAGE PURPOSE, CONTRACTOR SHALL PROVIDE THE LOCATION OF SUMP PIT AT C&C AND RAMP INTERFACE. SIZE OF SUMP PIT SHALL BE DESIGNED BY CONTRACTOR BASED ON RAINFALL INTENSITY AS PER CONTRACT REQUIREMENT.
 4. SIZE AND LOCATION OF NICHE SHALL BE FINALIZED AS PER SES / SERVICES DESIGNS.
 5. INTERMEDIATE WALLS (SINGLE/ DOUBLE) SHALL BE PROVIDED AS PER SOD CRITERIA AND SERVICES REQUIREMENTS, WHICH CONTRACTOR CAN DECIDE ACCORDINGLY.

REFERENCE DRAWINGS	
Drawing Number	Description



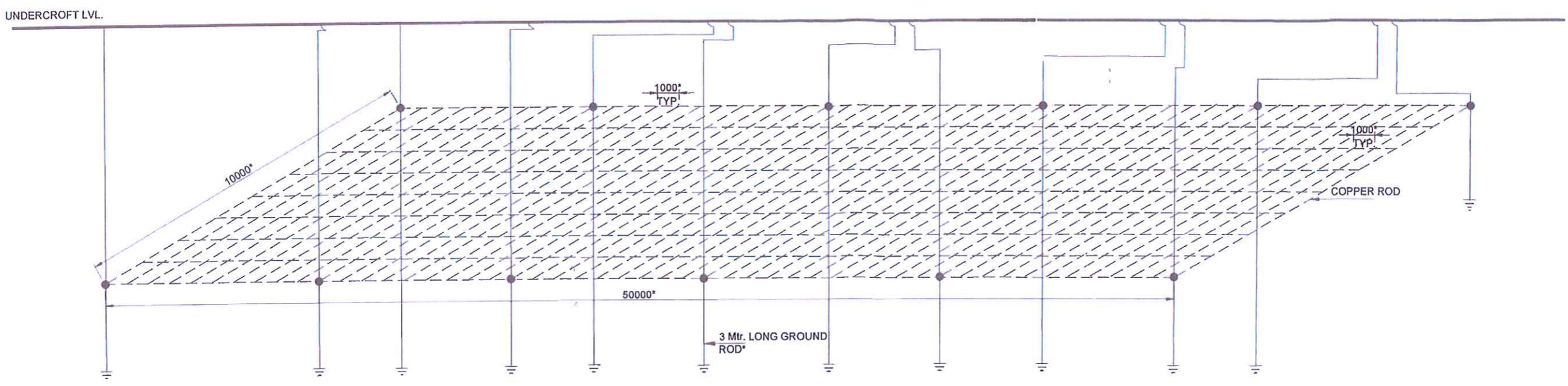
TENDER DRAWING

DRAWN BY
CHECKED BY
VERIFIED BY
DATE 21/07/2020

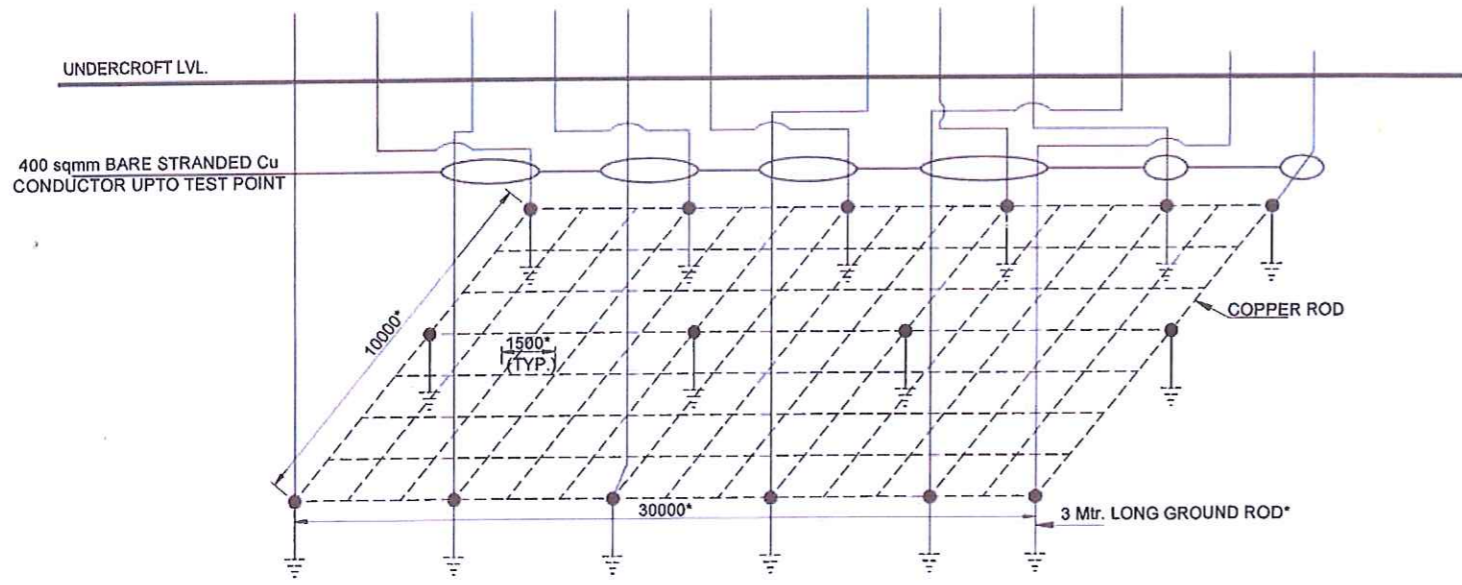
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CEE UPMRC BASED ON STAMPED ABOVE THE NO OBJECTION			
CPM UPMRC IS ISSUED FOR EXECUTION PURPOSE			
UTTAR PRADESH METRO RAIL CORPORATION LTD. KANPUR METRO PROJECT CORRIDOR 1 - UNDERGROUND STATION (KNPCC-05)			
GENERAL ARRANGEMENT FOR BOX AT NICHE LOCATION			
CROSS SECTION			
## UPMRC- DESIGN-UG-ST-116	REV. R0	SCALE. NTS	STATUS. TENDER

REV.	PARTICULARS	DRN.	CHK.	VER.	DATE

STRUCTURAL



CLEAN EARTH MAT BELOW UNDERCROFT LEVEL



MAIN EARTH MAT FOR ASS BELOW UNDERCROFT LEVEL

* DIMENSIONS ARE TENTATIVE, SHALL BE AS PER DETAIL DESIGN.

NOTE:

1. ALL DIMENSION ARE IN MM.
2. EARTHING TO BE DONE AS PER IEEE-80.
3. EARTHING MAT TO BE BURRIED 300mm BELOW PCC LEVEL.
4. JOINTS AT CROSSING AND TAPPINGS SHALL BE BRAZED TO HAVE GOOD ELECTRICAL CONNECTIONS.
5. COMBINED EARTH RESISTANCE & INDIVIDUAL ELECTRODE'S EARTH RESISTANCE SHALL BE MEASURED & SHALL CONFIRM AS FOLLOWS:
 - a. COMBINED EARTH RESISTANCE: <1 OHM FOR MAIN EARTH & <0.5 OHM FOR CLEAN EARTH SYSTEM.
 - b. EARTH RESISTANCE OF INDIVIDUAL ELECTRODE: <10 OHM.
6. THE LAYOUT OF EARTH GRID CONDUCTOR MAY BE SUITABLY CHANGED TO AVOID FOULING WITH COLUMNS / FOUNDATION DURING ACTUAL CONSTRUCTION.
7. RISERS TO BE PROJECTED AROUND 500mm ABOVE FINISHED FLOOR LEVEL.
8. MINIMUM SEPARATION BETWEEN THE CLEAN EARTH AND MAIN EARTH SHOULD BE 20 METER.

NOTE-

1. CONNECTIVITY OF PLCs ARE SHOWN IN CLEAN EARTH SCHEMATIC DRAWINGS.

REFERENCE DRAWINGS	
Drawing Number	Description



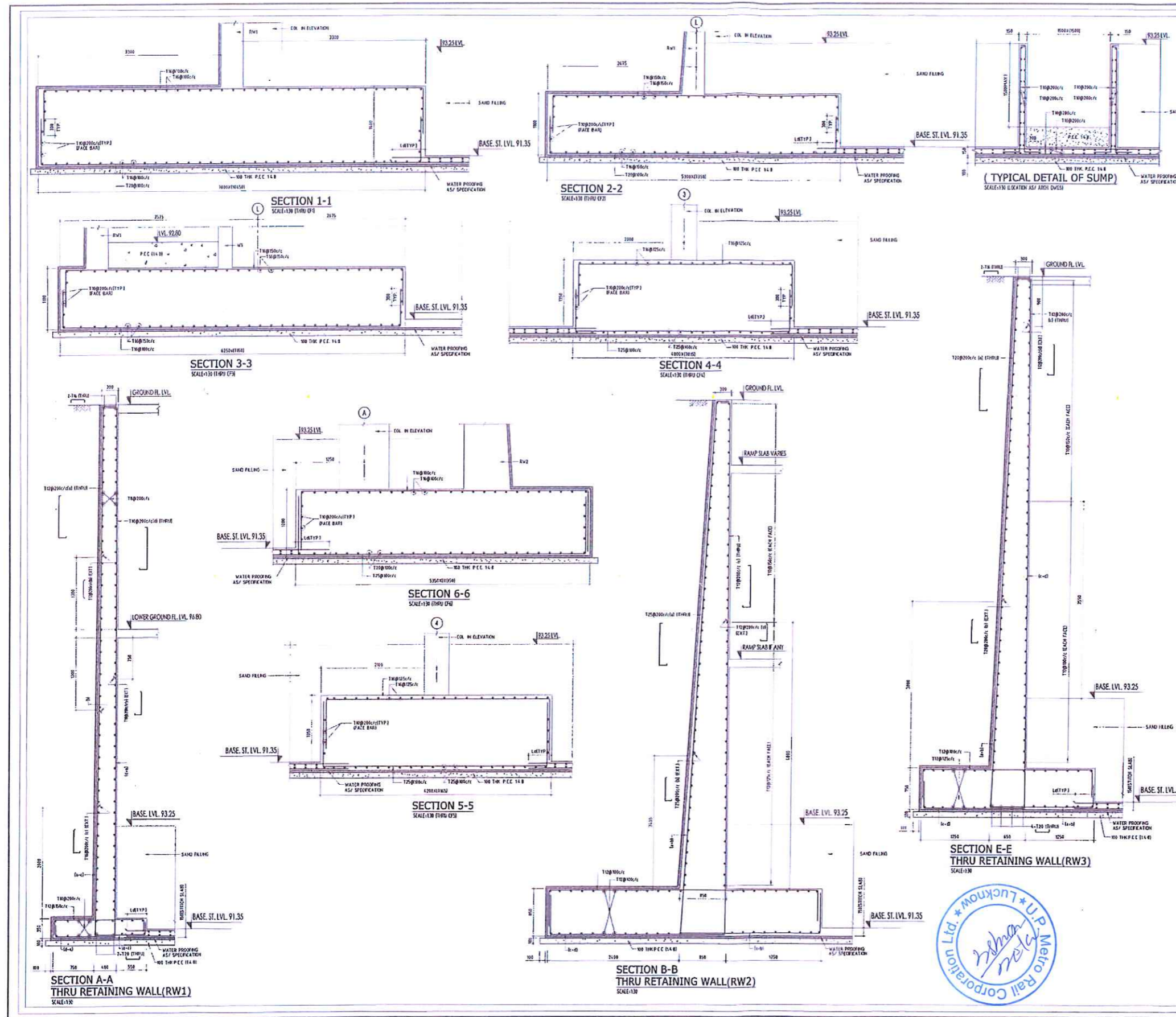
TENDER DRAWING

DRAWN BY
CHECKED BY
VERIFIED BY
DATE 21/09/2020

NOTICE OF 'NO OBJECTIONS' FROM EMPLOYER			
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UTTAR PRADESH METRO RAIL CORPORATION LTD. KANPUR METRO PROJECT CORRIDOR 1 - UNDERGROUND STATION (KNPCC-05)			
GENERAL ARRANGEMENT FOR CLEAN AND MAIN EARTH MAT			
PLAN			
UPMRC- DESIGN-UG-ST-117	REV. R0	SCALE. N.T.S.	STATUS TENDER

REV.	PARTICULARS	DRN.	CHK.	VER.	DATE

STRUCTURAL



NOTES

GENERAL

01. DO NOT SCALE THE DRAWING. FOLLOW ONLY DIMENSIONS.

02. ALL DIMENSIONS GIVEN IN THIS DRAWING ARE IN MILLIMETERS.

03. ALL STRUCTURAL DRAWINGS SHOULD BE READ IN CONJUNCTION WITH RELEVANT ARCHITECTURAL DRAWINGS. ANY DISCREPANCY OR AMBIGUITY IN EITHER SHOULD BE BROUGHT TO THE NOTICE OF THE CONSULTANT OR THE ARCHITECT.

04. UNO STANDS FOR UNLESS NOTED OTHERWISE.

CONCRETE

C1. USE CONCRETE GRADE M-25 UNLESS NOTED OTHERWISE.

C2. ALL RCC WORK SHALL BE CASTED OUT AS PER IS 456:2000.

REINFORCING STEEL

R1. ALL REINFORCING STEEL WILL BE OF TESTED QUALITY CONFORMING TO IS 1786 LATEST.

R2. REFER TO THE HIGH YIELD STRENGTH DEFORMED BARS WITH YIELD STRENGTH OF 500 N/mm².

R3. MINIMUM COVER TO REINFORCEMENT SHALL BE

- * FOUNDATION 50 mm ALL AROUND
- * COLUMN 40 mm ALL AROUND
- * BEAM 25 mm ALL AROUND
- * SLAB 20 mm TOP & BOTTOM
- * PILE & PILECAP 75 mm

R4. LAP LENGTH & DEVELOPMENT LENGTH TO BE 50% OF BAR MINIMUM.

R5. BAR BEND IN SHORTER DIRECTION SHALL BE BELOW.

R6. IN BEAMS, FIRST STEPLAP SHALL BE AT NO MORE THAN 40% FROM FACE OF THE SUPPORTED MEMBER.

R7. IN BEAMS TOP BARS ARE NOT TO BE REPLACED IN THE END QUARTERS OF THE SPAN, AND THE BOTTOM BARS ARE NOT TO BE SPLICED AT MIDSPAN OF THE SPAN.

BRICK

B1. THE MINIMUM CRUSHING STRENGTH OF BRICKS SHALL BE 70 N/mm². ALL BRICKS SHALL BE SOUND, HARD, WELL BURNED WITH UNIFORM SIZE AND SHAPE.

B2. THE MORTAR USED SHALL CONFORM TO IS 2250 (MORTAR) IN 2300A. WALLS SHALL BE IN 1:4 C/M.

B3. MORTAR BEDDING IN 1:4 C/M WALLS SHALL BE IN 1:4 C/M WITH 2 BARS OF 6mm DIA IN EVERY FOURTH LAYER AND CONTINUED INTO THE INTERSECTING WALLS.

B4. IN CASE OF ALL NON-LOAD BEARING WALLS COMING UNDER THE SLAB OR BEAM, THE LAST COURSE SHALL BE BUILT AFTER THE FORMWORK OF THE SLAB OR BEAM IS REMOVED.

CONSTRUCTION PRACTICE

P1. IT IS MANDATORY TO REMOVE ALL LOOSE SOIL TILL THE FIRM SOIL IS REACHED.

P2. BACK FILLING AROUND THE FOUNDATIONS SHALL BE CARRIED OUT USING SOIL, SAND WITHOUT GRAVEL AND PEBBLES.

P3. IT IS ADVISABLE TO ALLOW STANDING WATER IN THE EDGEMOAT. TRIPCOBS FOR 24 HOURS. WHEN THE SURFACE IS GENERALLY SANDY, TRIPCOBS SHALL BE CARRIED OUT WITH AT LEAST 6 TO 8 PASSES.

P4. BACK FILLING OF SANDHOLD WALLS SHALL BE DONE ONLY AFTER THE ROOF SLAB HAS BEEN DEPROFFED.

P5. IN NORMAL CIRCUMSTANCES AND WHERE PORTLAND POZZOLAN CEMENT IS USED FORMS MAY GENERALLY BE REMOVED AFTER THE EXPIRY OF THE FOLLOWING PERIODS

- * WALLS, COLUMNS AND VERTICAL FACES OF ALL MEMBERS - 24 TO 36 HOURS
- * SLAB (PROFF LEFT UNDER) - 3 DAYS
- * BEAM (PROFFS LEFT UNDER) - 7 DAYS
- * REMOVAL OF PROFFS UNDER SLABS - SPRAWLING UP TO 4000 - 7 DAYS
- * SPRAWLING OVER 4000 - 14 DAYS
- * REMOVAL OF PROFFS UNDER BEAMS - SPRAWLING UP TO 1000 - 14 DAYS
- * SPRAWLING OVER 1000 - 21 DAYS

P6. WHERE POSSIBLE, THE FORMWORK SHALL BE LEFT LONGER, AS IT WOULD ASSIST CURING.

P7. THE CENTERING SUPPORTING THE OVERHANGING STRUCTURAL MEMBERS SHALL NOT BE REMOVED UNTIL SUFFICIENT BALANCING LOAD OVER THE BEARING HAS BEEN ATTAINED BY BUILDING MASSWORK OR OTHERWISE.

P8. THE CENTERING OF CANTILEVER BEAMS & SLABS SHALL BE REMOVED STARTING FROM OVERHANGING EDGE.

P9. UNLESS OTHERWISE INDICATED IN THE DRAWING, CONSTRUCTION JOINTS IN FLOORS SHALL BE LOCATED NEAR THE MID SPAN OF STRUCTURAL MEMBERS (BEAMS, SECONDARY BEAMS) UNLESS A SECONDARY BEAM INTERSECTS A MAIN BEAM AT THIS POINT IN WHICH CASE, THE JOINTS IN THE MAIN BEAM SHALL BE OFFSET BY DISTANCE EQUAL TO TWICE THE WIDTH OF THAT SECONDARY BEAM. WHILE POURING CONCRETE, THE MAXIMUM FREE FALL SHALL NOT BE MORE THAN 1500 mm TO AVOID SEGREGATION.

SPECIFIC TO JOB

J1. THE FOUNDATIONS HAVE BEEN DESIGNED FOR A GROSS BEARING CAPACITY OF SOIL AS 300 N/mm².

J2. S.D.C. TO BE VERIFIED AT SITE PRIOR TO EXECUTION.

Rev	Date	Description	Drawn By	Checked By	No. of Copies
R1	03.05.18	GENERALLY REVISED	SUNIL		

PROJECT NAVEEN MARKET MULTILEVEL CAR PARKING KANPUR

CLIENT M. S. GANPATI MEGA BUILDERS

STRUCTURAL ENGINEERS

ROARK CONSULTING ENGINEERS

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DRAWING TITLE

FOUNDATION & RETAINING WALL DETAILS

WORKING DRAWING

DRG No: S-NM-02
 DRAWN BY: SUNIL
 DESIGN BY: ABHISEK
 DATE: 26.03.2016
 SCALE: As Shown
 PROJECT NO: 1548



REV.	REVISIONS	DATE



NOTICE OF NO OBJECTION FROM EMPLOYER IS BEING ACCORDED FOR DESIGN PRINCIPLES HOWEVER THE OVERALL RESPONSIBILITY FOR THE DESIGN ACCURACY LIES WITH THE DETAIL DESIGN CONSULTANT.

REMARKS	DATE
Dy CA UPMRC REVIEWED & NO OBJECTION MAY BE CONVEYED TO THE CONTRACTOR	
CA UPMRC BASED ON STAMPED ABOVE THE NO OBJECTION IS ISSUED FOR EXECUTION PURPOSE	
Dy CE/DESIGN UPMRC	
Dy CE/SA UPMRC	
CPM-3 UPMRC	

UTTAR PRADESH METRO RAIL CORPORATION LTD.

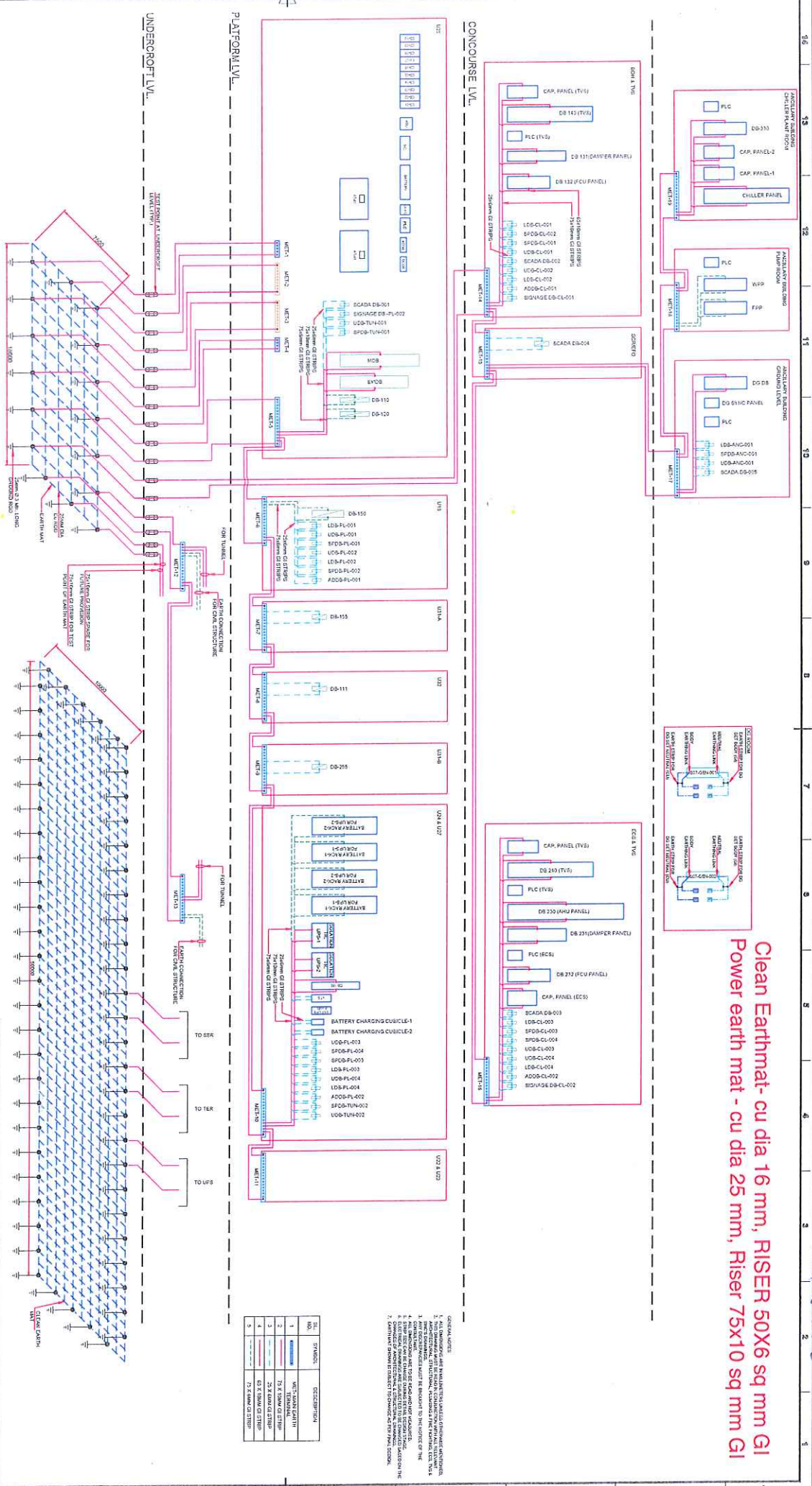
KANPUR METRO PROJECT CORRIDOR 1 - UNDERGROUND STATION (KMPCC-05)

BASEMENT WALL & FOUNDATION DRAWING OF CRYSTAL PARKING ADJACENT TO NAVEEN MARKET STATION

DRG No	UPMRC- KNPCC-05-NMK-KCP-01
SCALE	R0
STATUS	TENDER

STRUCTURAL

Clean Earthmat- cu dia 16 mm, RISER 50X6 sq mm GI
Power earth mat - cu dia 25 mm, Riser 75x10 sq mm GI



EARTHING SCHEMATIC DIAGRAM
SCALE: NTS

1. ALL DIMENSIONS ARE IN METERS.
2. ALL DIMENSIONS ARE TO BE EXCEPTED UNLESS SPECIFIED OTHERWISE.
3. THE DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL, STRUCTURAL, MECHANICAL, ELECTRICAL, AND SANITARY DRAWINGS.
4. ANY DIMENSIONS NOT SHOWN IN THIS DRAWING SHALL BE AS PER THE RELEVANT DRAWING.

REV.	DATE	BY	CHK.	REASON





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NO.	DATE	BY	CHK.	REASON

NO.	DATE	BY	CHK.	REASON



NO.	DATE	BY	CHK.	REASON