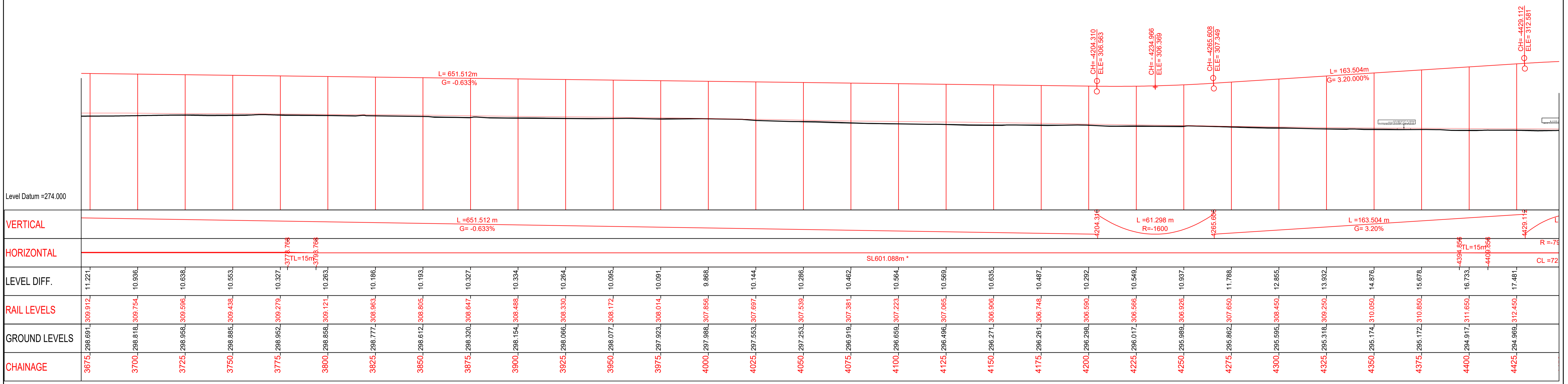
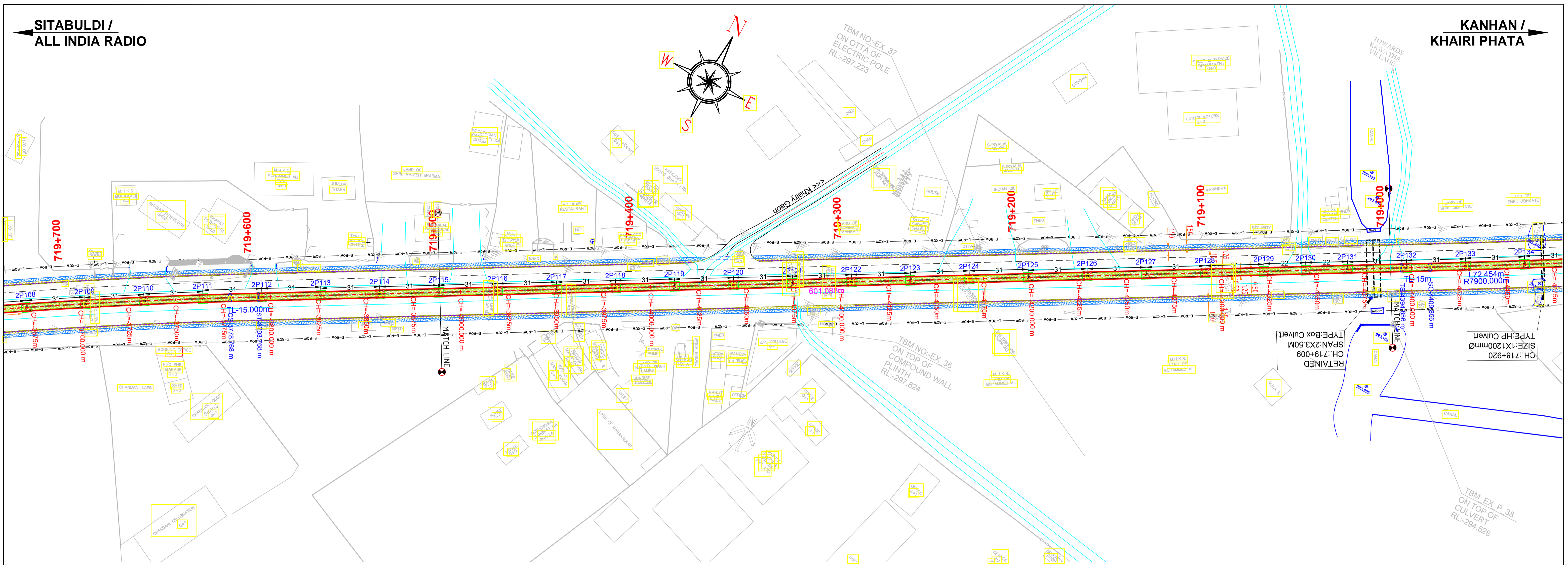
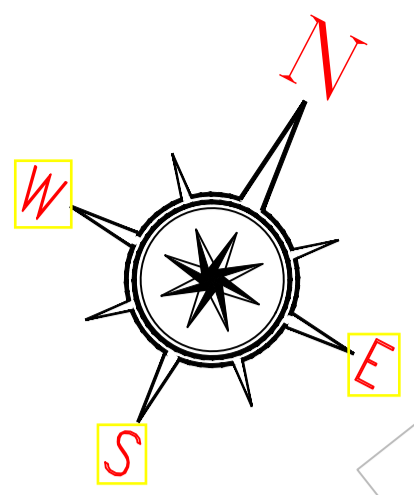


SITABULDI / ALL INDIA RADIO

KANHAN / KHAIRI PHATA



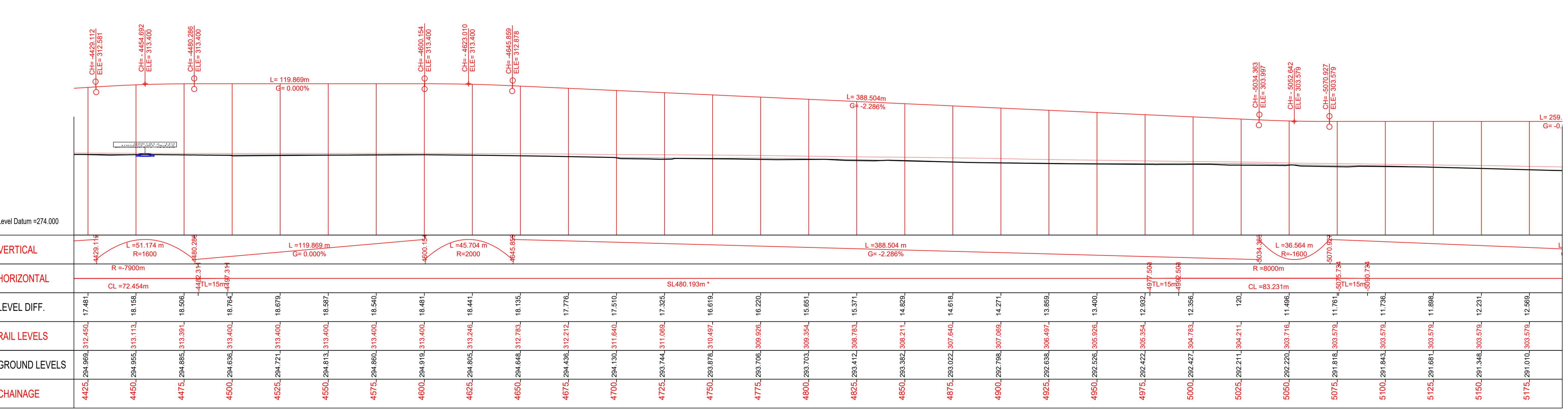
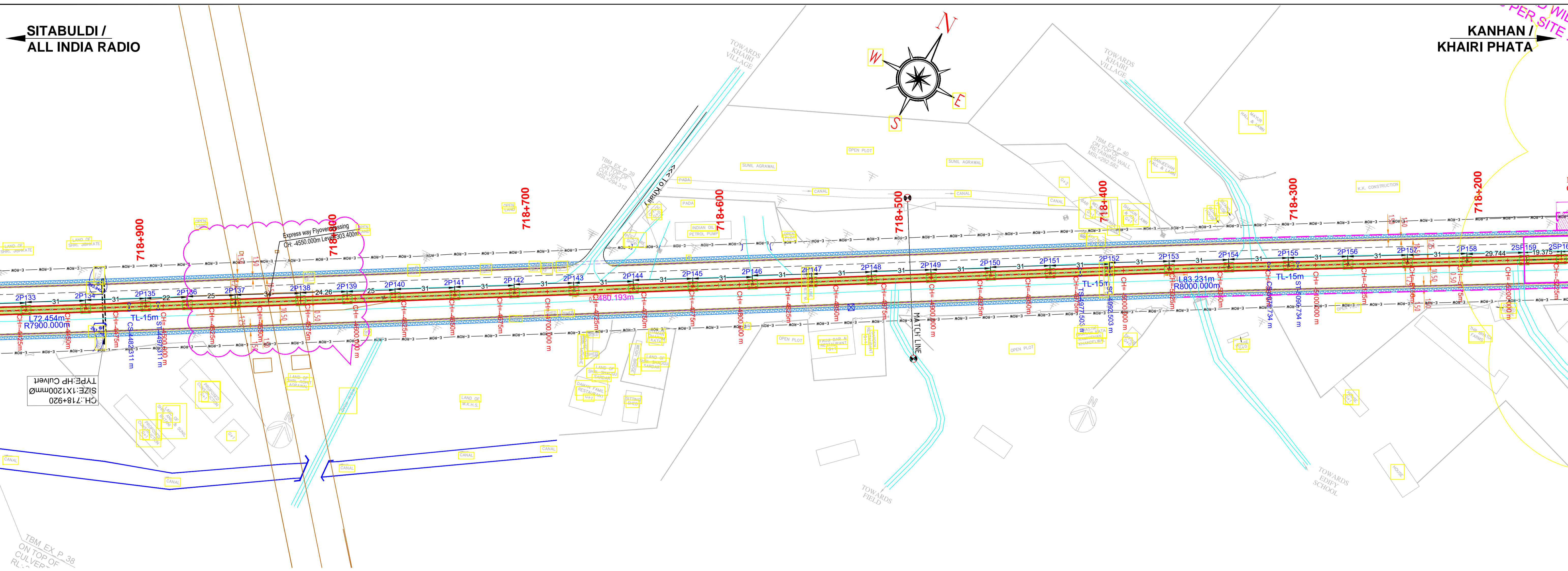
**ELEVATED SECTION**

- VAADUCT EDGE
- CL OF VAADUCT
- VAADUCT EDGE

- LEGEND**
- Existing work shown in GREY.
  - Proposed Work shown in RED.
  - Median/Paver block of 3m in median shown in GREEN.
  - Footpath shown Color 152.

**MAHARASHTRA METRO RAIL CORPORATION LIMITED**  
**METRO BHAVAN, INFRONT OF DR. BABASAHEB AMBEDKAR COLLEGE, DEEKSHABHOOMI, NAGPUR - 4400010**

Project Name: <b>NAGPUR METRO RAIL PROJECT PHASE-II</b>	
TITLE: <b>PLAN &amp; PROFILE OF REACH 2A</b> AUTOMOTIVE SQUARE TO KANHAN RIVER	
Updated Month: <b>September 2023</b>	Scale: H=1:1000 V=1:500
Revision No. <b>01</b>	Revision date <b>04/09/2023</b>
DWG NO. <b>MM/PIg/NIT/NGP PH-II/2A/R1/2023</b>	SHEET NO.: <b>05 OF 17</b>



**ELEVATED SECTION**

— VADUCT EDGE

- - - CL OF VADUCT

— VADUCT EDGE

**LEGEND**

- Existing work shown in GREY.
- Proposed Work shown in RED.
- Median/Paver block of 3m in median shown in GREEN.
- Footpath shown Color 152.

**MAHARASHTRA METRO RAIL CORPORATION LIMITED**  
METRO BHAVAN, INFRONT OF DR. BABASAHEB AMBEDKAR COLLEGE, DEEKSHABHOOMI, NAGPUR - 4400010

Project Name: **NAGPUR METRO RAIL PROJECT PHASE-II**

TITLE: **PLAN & PROFILE OF REACH 2A**  
AUTOMOTIVE SQUARE TO KANHAN RIVER

DWG NO. MM/PIg/NIT/NGP PH-II/2A/R1/2023

Updated Month: **September 2023**

Scale: H=1:1000, V=1:500

Revision No. **01**

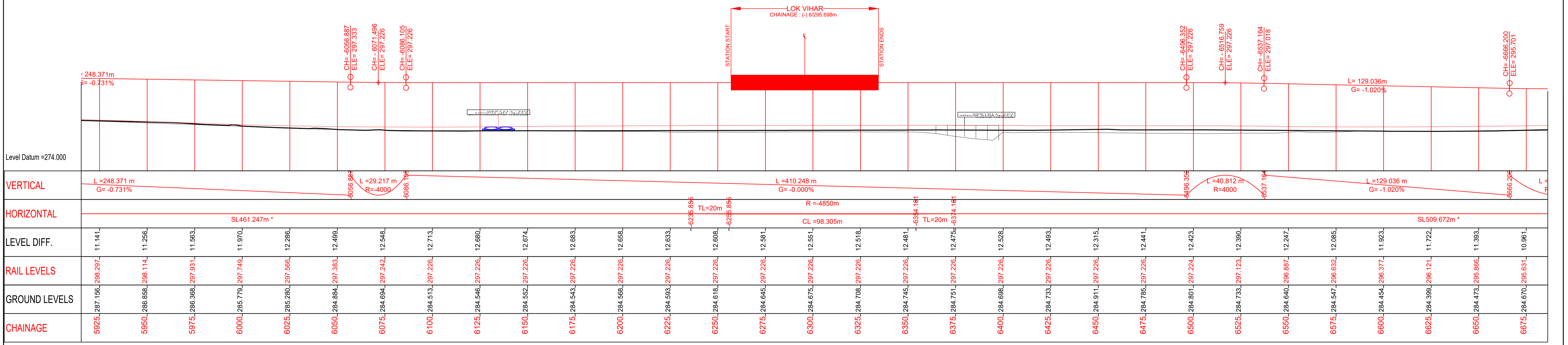
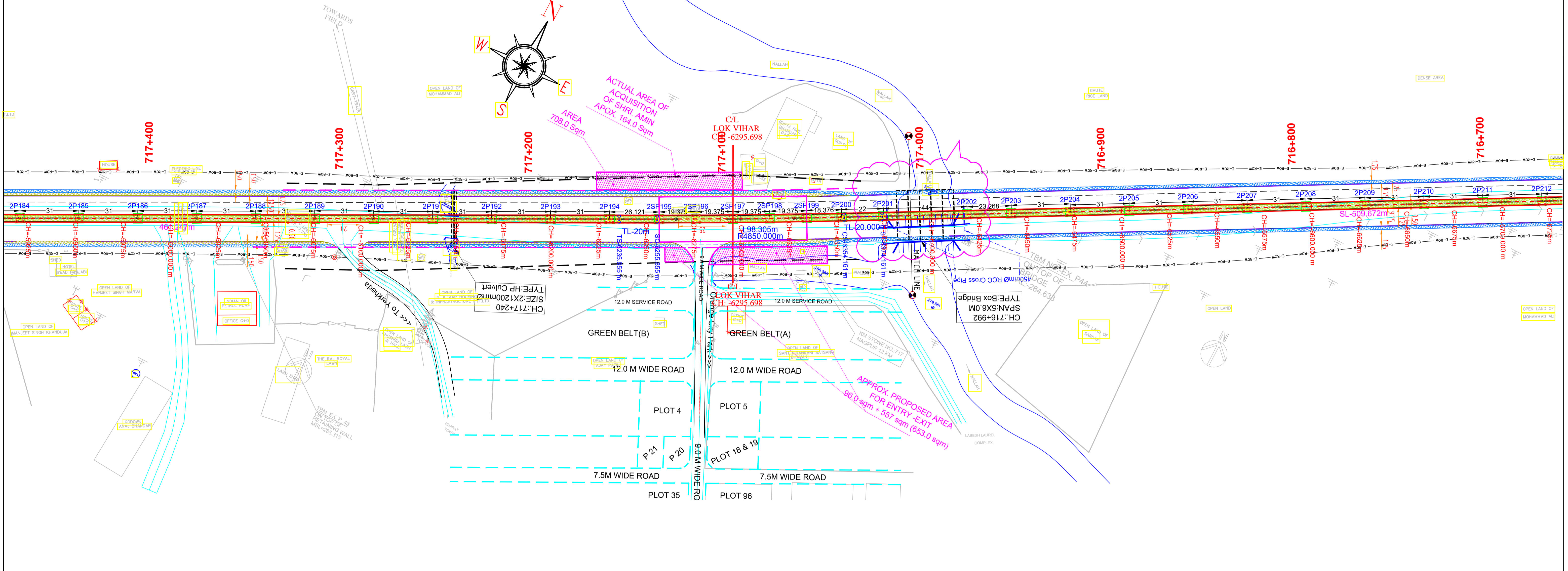
Revision date: **04/09/2023**

SHEET NO.: **06 OF 17**



SITABULDI / LOK VIHAR

KANHAN / LEKHA NAGAR



**ELEVATED SECTION**

- VAQUCT EDGE
- CL OF VAQUCT
- VAQUCT EDGE

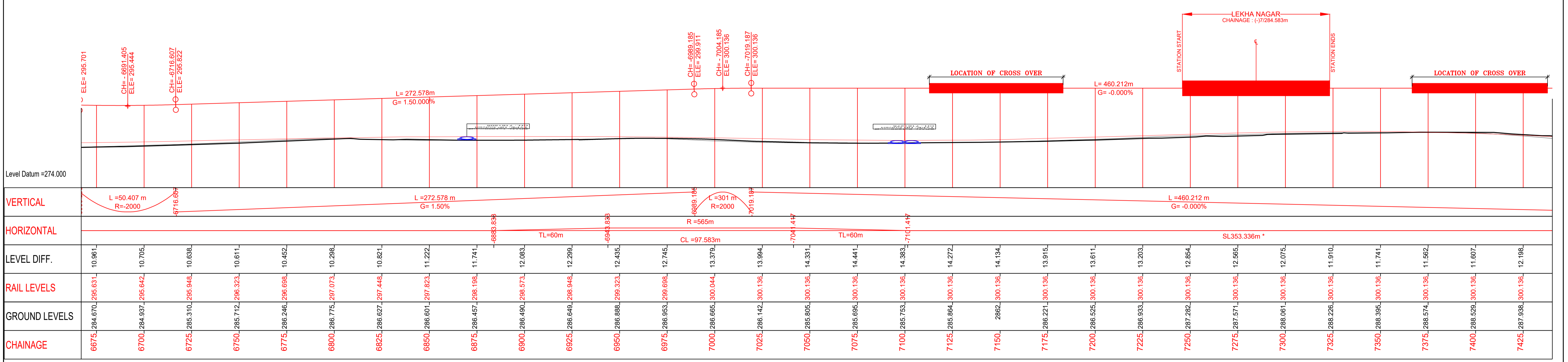
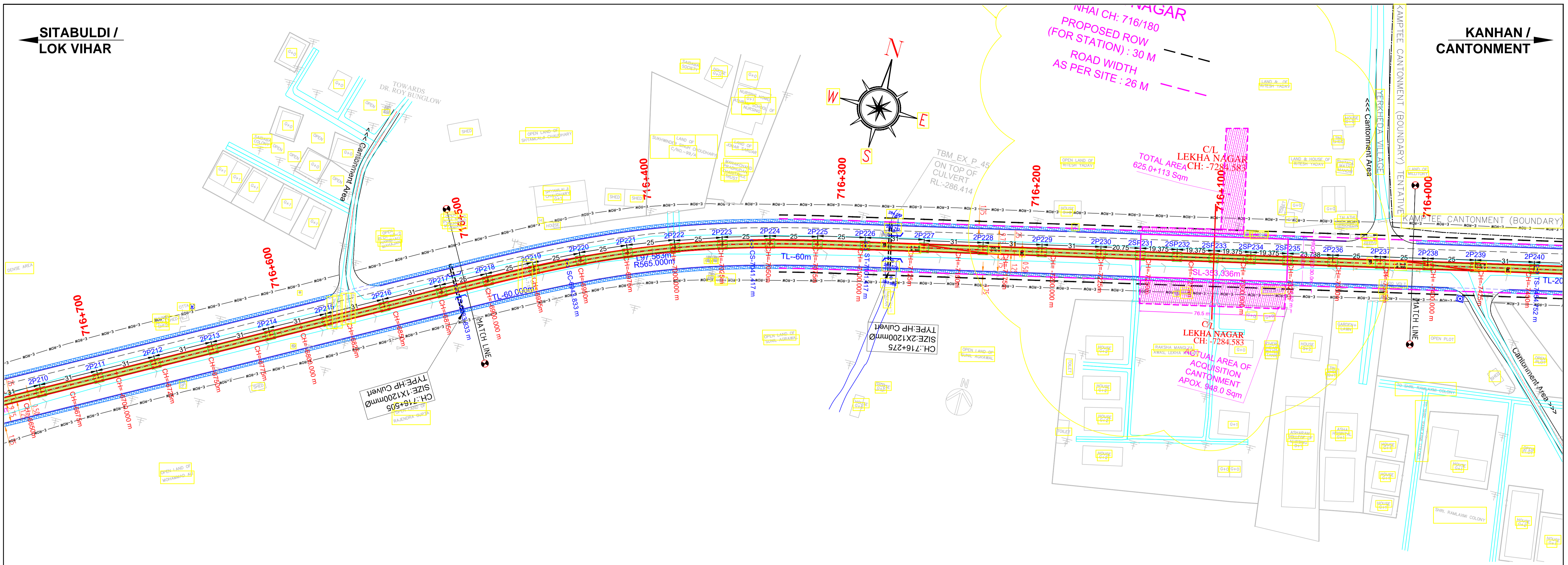
- LEGEND**
- Existing work shown in GREY.
  - Proposed Work shown in RED.
  - Median/Paver block of 3m in median shown in GREEN.
  - Footpath shown Color 152.

माझी मेट्रो  
  
**MAHARASHTRA METRO RAIL CORPORATION LIMITED**  
 METRO BHAVAN, INFRONT OF DR. BABASAHEB AMBEDKAR COLLEGE, DEEKSHABHOOMI, NAGPUR- 4400010

Project Name: <b>NAGPUR METRO RAIL PROJECT PHASE-II</b>	
TITLE: <b>PLAN &amp; PROFILE OF REACH 2A</b> AUTOMOTIVE SQUARE TO KANHAN RIVER	
Updated Month: <b>September 2023</b>	Scale: H=1:1000 V=1:500
Revision No. <b>01</b>	Revision date <b>04/09/2023</b>
DWG NO. <b>MM/PIg/NIT/NGP PH-II/2A/R1/2023</b>	AUTOMOTIVE SQUARE TO KANHAN RIVER (2A)
SHEET NO.: 08 OF 17	

SITABULDI / LOK VIHAR

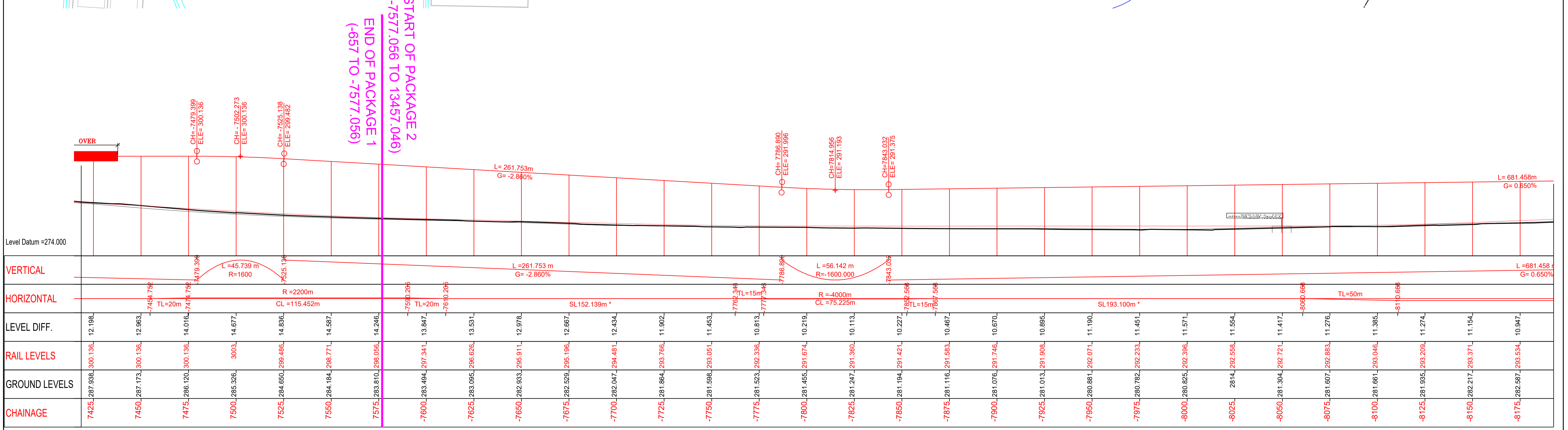
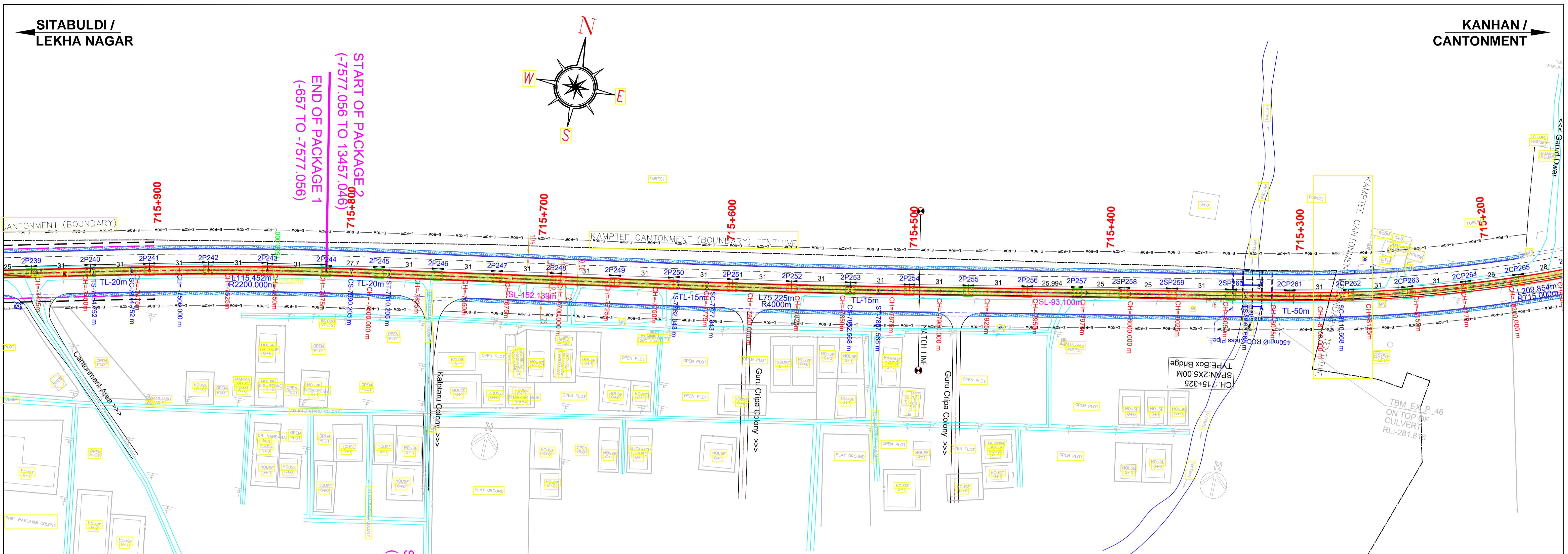
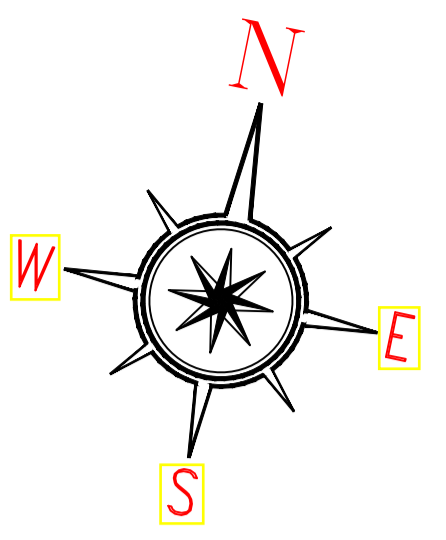
KANHAN / CANTONMENT



<b>ELEVATED SECTION</b> 	<b>LEGEND</b> 1. Existing work shown in GREY. 2. Proposed Work shown in RED. 3. Median/Paver block of 3m in median shown in GREEN. 4. Footpath shown Color 152.	 <b>MAHARASHTRA METRO RAIL CORPORATION LIMITED</b> METRO BHAVAN, INFRONT OF DR. BABASAHEB AMBEDKAR COLLEGE, DEEKSHABHOOMI, NAGPUR- 4400010	Project Name: <b>NAGPUR METRO RAIL PROJECT PHASE-II</b>	
			TITLE: <b>PLAN &amp; PROFILE OF REACH 2A</b> <b>AUTOMOTIVE SQUARE TO KANHAN RIVER</b>	
			Updated Month: <b>September 2023</b>	Scale: H=1:1000 V=1:500
		DWG NO. <b>MM/PIg/NIT/NGP PH-II/2A/R1/2023</b>	Revision No. <b>01</b>	Revision date <b>04/09/2023</b>
			<b>AUTOMOTIVE SQUARE TO KANHAN RIVER (2A)</b>	
			SHEET NO.: 09 OF 17	

SITABULDI / LEKHA NAGAR

KANHAN / CANTONMENT



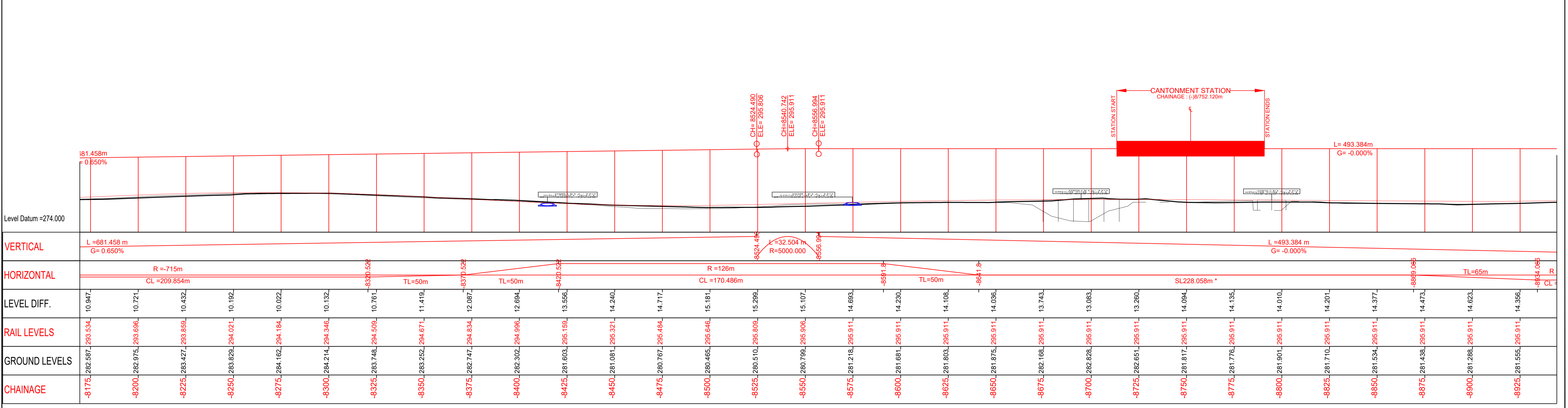
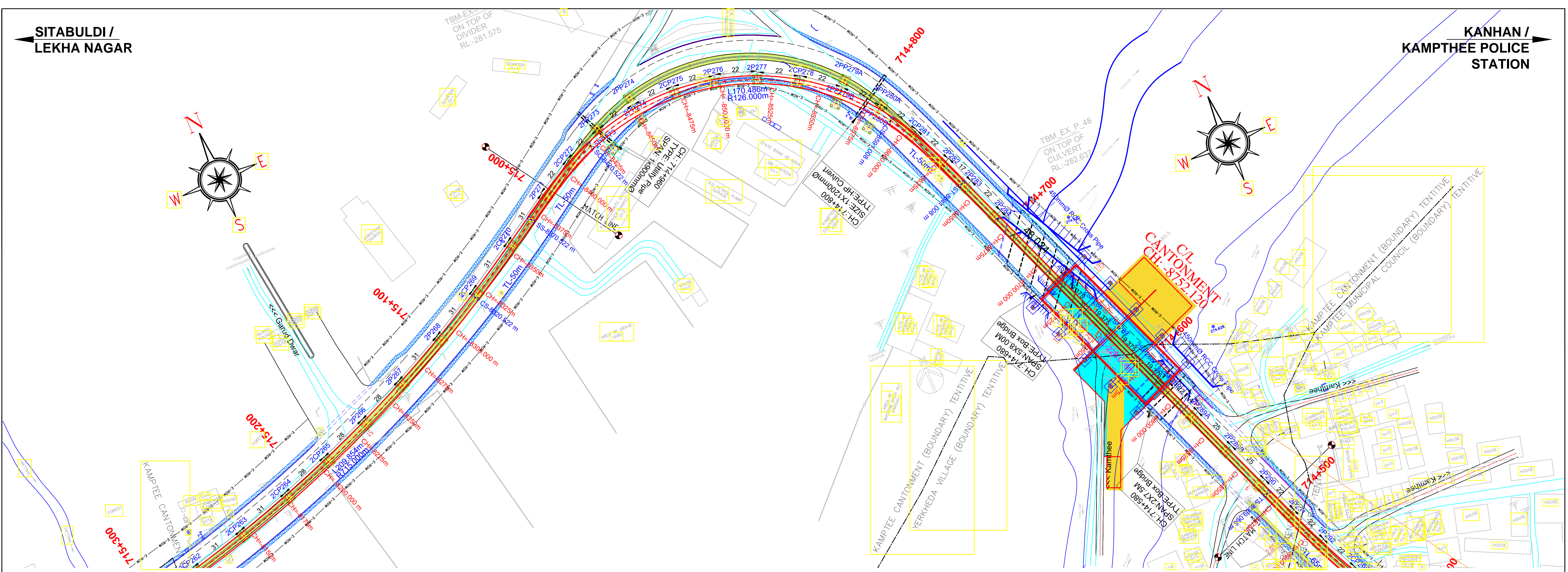
**ELEVATED SECTION**

**LEGEND**

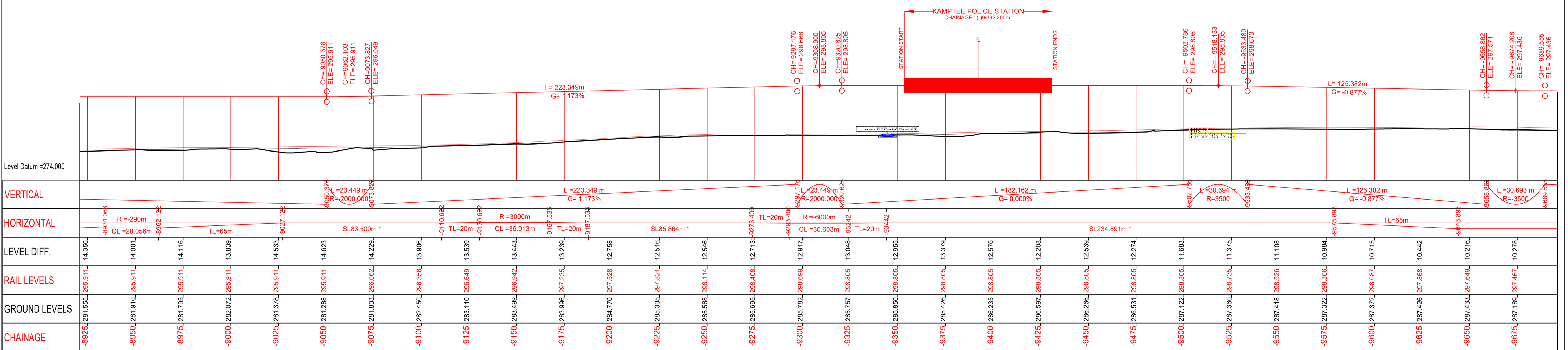
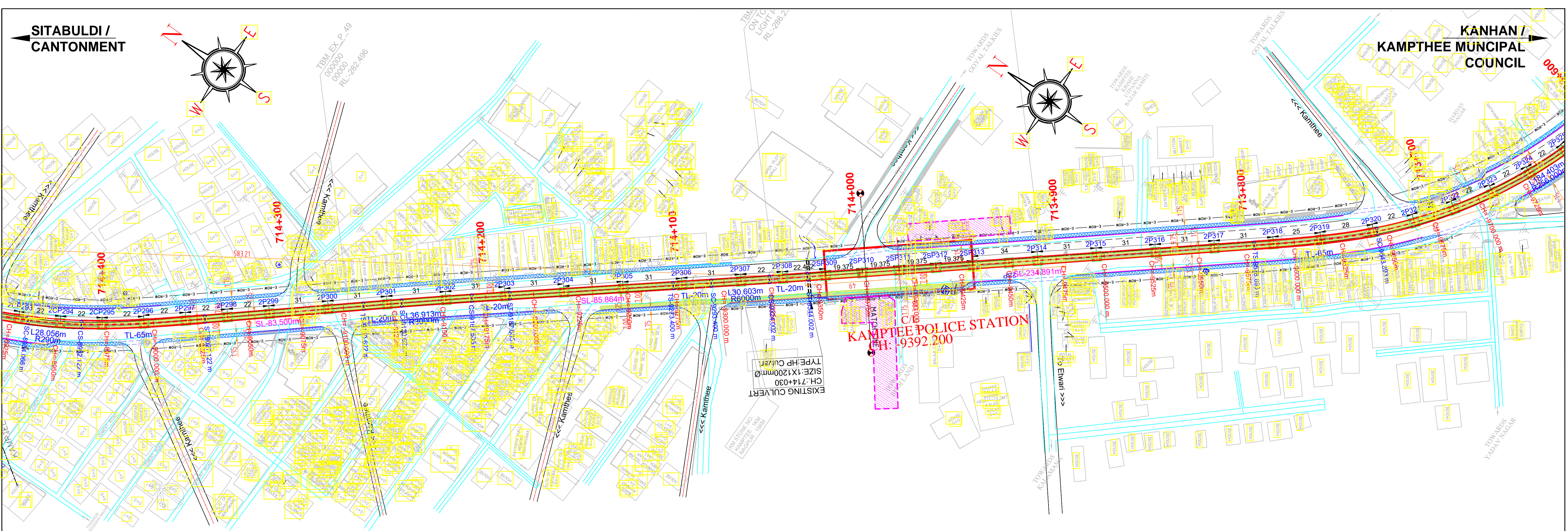
- Existing work shown in GREY.
- Proposed Work shown in RED.
- Median/Paver block of 3m in median shown in GREEN.
- Footpath shown Color 152.

**MAHARASHTRA METRO RAIL CORPORATION LIMITED**  
**METRO BHAVAN, INFRONT OF DR. BABASAHEB AMBEDKAR COLLEGE, DEEKSHABHOOMI, NAGPUR- 4400010**

Project Name: <b>NAGPUR METRO RAIL PROJECT PHASE-II</b>	
TITLE: <b>PLAN &amp; PROFILE OF REACH 2A</b> AUTOMOTIVE SQUARE TO KANHAN RIVER	
Updated Month: <b>September 2023</b>	Scale: H=1:1000 V=1:500
Revision No. <b>01</b>	Revision date <b>04/09/2023</b>
DWG NO. <b>MM/PIg/NIT/NGP PH-II/2A/R1/2023</b>	SHEET NO.: <b>10 OF 17</b>



<p><b>ELEVATED SECTION</b></p> <p>--- VADOOT ROSE --- CL OF TRACK --- VADOOT FLOOR</p>	<p><b>LEGEND</b></p> <ol style="list-style-type: none"> <li>Existing work shown in GREY.</li> <li>Proposed Work shown in RED.</li> <li>Median/Paver block of 3m in median shown in GREEN.</li> <li>Footpath shown Color 152.</li> </ol>	<p><b>MAHARASHTRA METRO RAIL CORPORATION LIMITED</b> METRO BHAVAN, INFRONT OF DR. BABASAHEB AMBEDKAR COLLEGE, DEEKSHABHOOMI, NAGPUR- 4400010</p>	<p>Project Name: <b>NAGPUR METRO RAIL PROJECT PHASE-II</b></p>	
			<p>TITLE: <b>PLAN &amp; PROFILE OF REACH 2A</b> <b>AUTOMOTIVE SQUARE TO KANHAN RIVER</b></p>	
<p>DWG NO. MM/PIg/NIT/NGP PH-II/2A/R1/2023</p>		<p>Updated Month: <b>September 2023</b></p>		
<p>Scale: H=1:1000 V=1:500</p>		<p>Revision No. <b>01</b></p>	<p>Revision date <b>04/09/2023</b></p>	
<p>AUTOMOTIVE SQUARE TO KANHAN RIVER (2A)</p>		<p>SHEET NO.: <b>11 OF 17</b></p>		



**ELEVATED SECTION**

- PROPOSED ROSE
- EXISTING ROSE
- 150 CM OF PAVEMENT
- 150 CM OF FOOTPATH

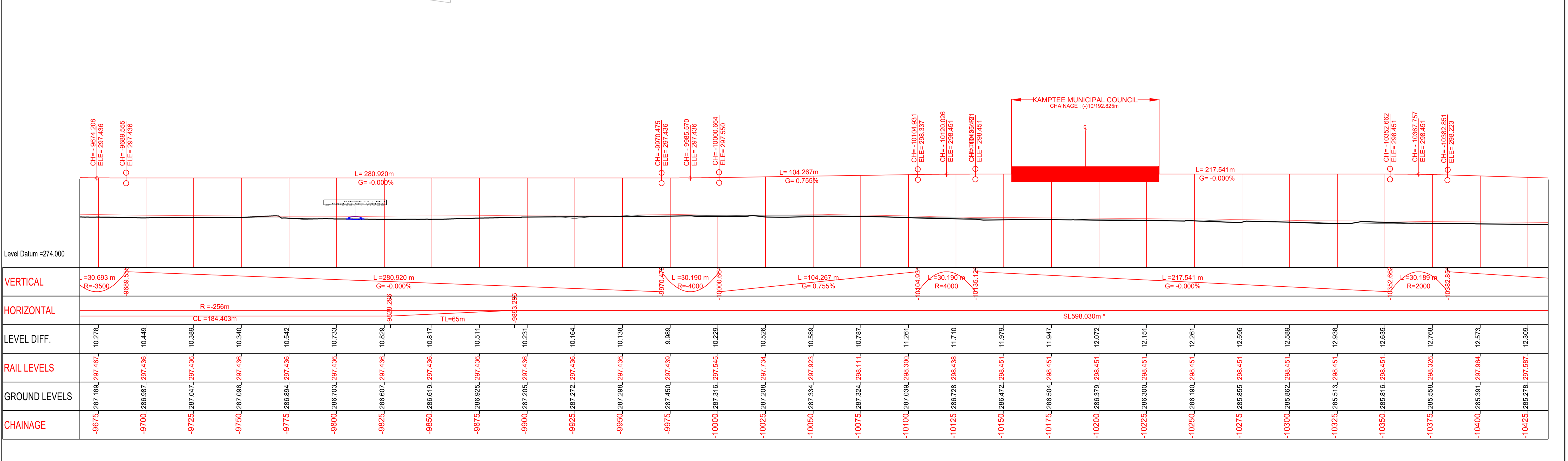
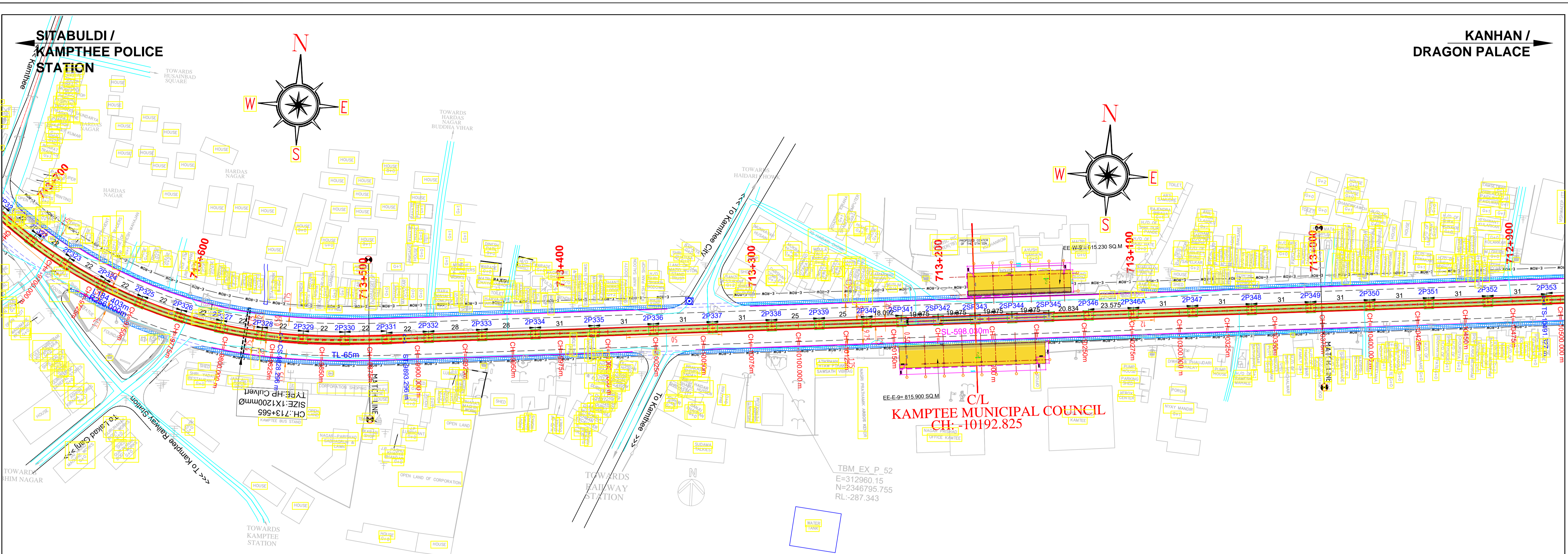
- LEGEND**
- Existing work shown in GREY.
  - Proposed Work shown in RED.
  - Median/Paver block of 3m in median shown in GREEN.
  - Footpath shown Color 152.



**MAHARASHTRA METRO RAIL CORPORATION LIMITED**  
**METRO BHAVAN, INFRONT OF DR. BABASAHEB AMBEDKAR COLLEGE, DEEKSHABHOOMI, NAGPUR - 4400010**

Project Name: <b>NAGPUR METRO RAIL PROJECT PHASE-II</b>	
TITLE: <b>PLAN &amp; PROFILE OF REACH 2A</b> <b>AUTOMOTIVE SQUARE TO KANHAN RIVER</b>	
Updated Month: <b>September 2023</b>	Revision No. <b>01</b>
Scale: <b>H=1:1000</b> <b>V=1:500</b>	Revision date: <b>04/09/2023</b>
DWG NO. <b>MM/Plg/NIT/NGP PH-II/2A/R1/2023</b>	SHEET NO.: <b>12 OF 17</b>





**ELEVATED SECTION**

--- PROPOSED TRACK

--- EXISTING TRACK

--- MEDIAN/PAPER BLOCK

--- FOOTPATH

**LEGEND**

- Existing work shown in GREY.
- Proposed Work shown in RED.
- Median/Paper block of 3m in median shown in GREEN.
- Footpath shown Color 152.

**MAHARASHTRA METRO RAIL CORPORATION LIMITED**  
**METRO BHAVAN, INFRONT OF DR. BABASAHEB AMBEDKAR COLLEGE, DEEKSHABHOOMI, NAGPUR- 4400010**

Project Name: **NAGPUR METRO RAIL PROJECT PHASE-II**

TITLE: **PLAN & PROFILE OF REACH 2A**  
**AUTOMOTIVE SQUARE TO KANHAN RIVER**

DWG NO. **MM/Plg/NIT/NGP PH-II/2A/R1/2023**

Updated Month: **September 2023**

Scale: **H=1:1000**  
**V=1:500**

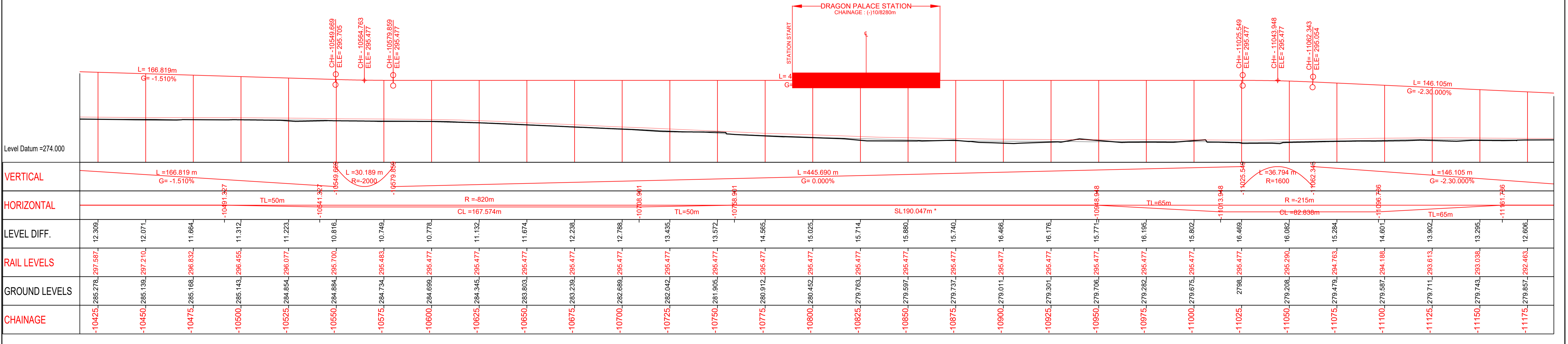
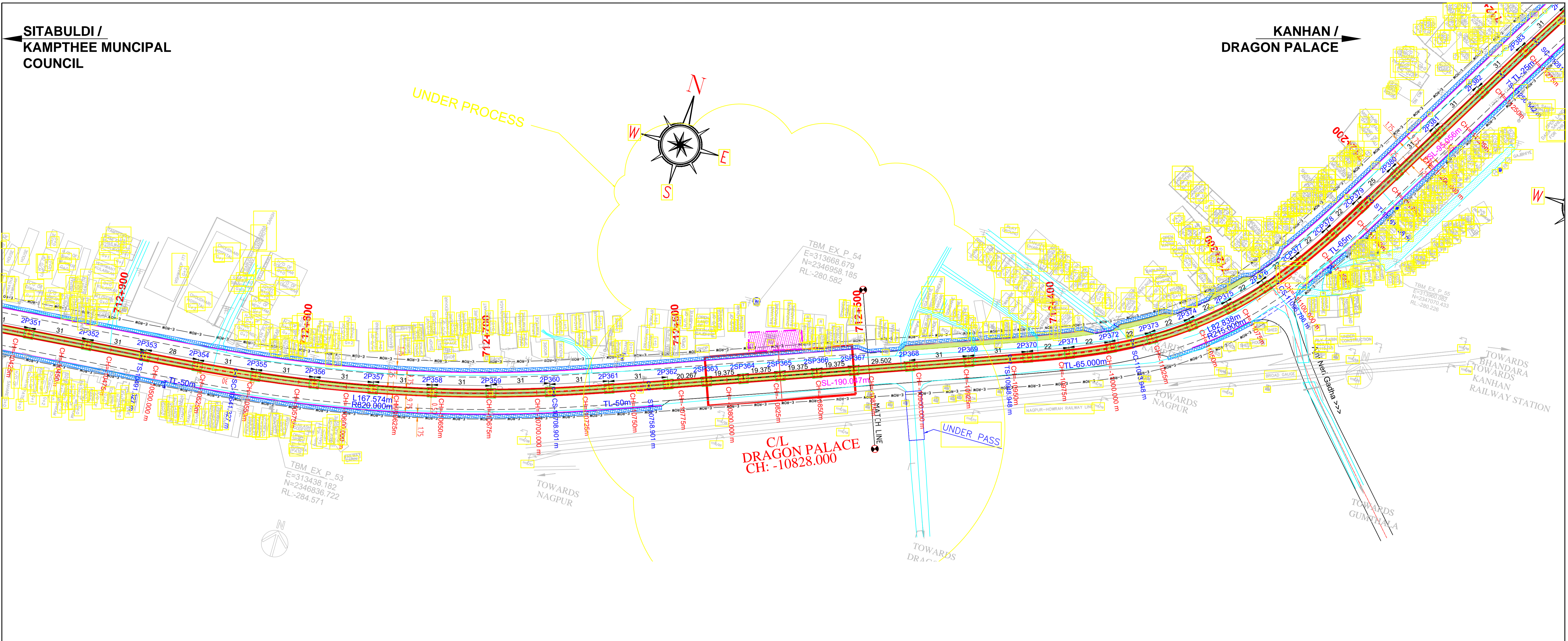
Revision No. **01**

Revision date: **04/09/2023**

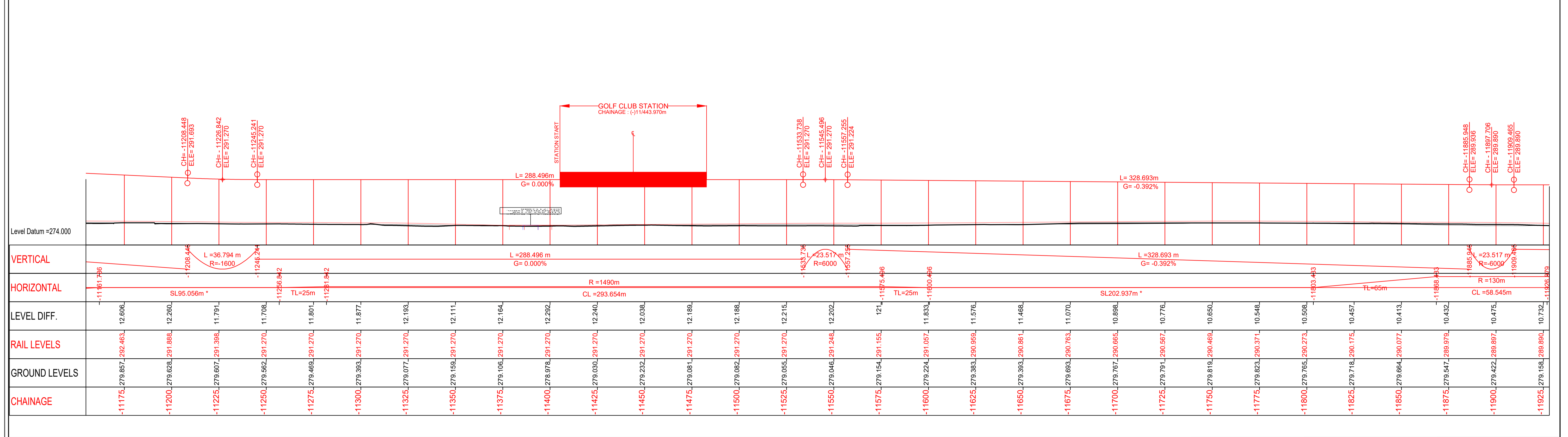
SHEET NO.: **13 OF 17**

SITABULDI / KAMPTHEE MUNICIPAL COUNCIL

KANHAN / DRAGON PALACE



<p><b>ELEVATED SECTION</b></p>	<p><b>LEGEND</b></p> <ol style="list-style-type: none"> <li>Existing work shown in GREY.</li> <li>Proposed Work shown in RED.</li> <li>Median/Paver block of 3m in median shown in GREEN.</li> <li>Footpath shown Color 152.</li> </ol>	<p><b>MAHARASHTRA METRO RAIL CORPORATION LIMITED</b>  <b>METRO BHAVAN, INFRONT OF DR. BABASAHEB AMBEDKAR COLLEGE, DEEKSHABHOOMI, NAGPUR- 4400010</b></p>	<p>Project Name: <b>NAGPUR METRO RAIL PROJECT PHASE-II</b></p>	
			<p>TITLE: <b>PLAN &amp; PROFILE OF REACH 2A</b>  <b>AUTOMOTIVE SQUARE TO KANHAN RIVER</b></p>	
<p>DWG NO. <b>MM/PIg/NIT/NGP PH-II/2A/R1/2023</b></p>		<p>Updated Month <b>September 2023</b></p>		<p>Scale: H=1:1000 V=1:500</p>
		<p>Revision No. <b>01</b></p>		<p>Revision date <b>04/09/2023</b></p>
		<p><b>AUTOMOTIVE SQUARE TO KANHAN RIVER (2A)</b></p>		<p>SHEET NO.: <b>14 OF 17</b></p>



**ELEVATED SECTION**

--- PROPOSED ROSE  
 --- EXISTING ROSE  
 --- CHAINAGE  
 --- ROAD PROFILE

**LEGEND**

- Existing work shown in GREY.
- Proposed Work shown in RED.
- Median/Paver block of 3m in median shown in GREEN.
- Footpath shown Color 152.

**MAHARASHTRA METRO RAIL CORPORATION LIMITED**  
 METRO BHAVAN, INFRONT OF DR. BABASAHEB AMBEDKAR COLLEGE, DEEKSHABHOOMI, NAGPUR- 4400010

Project Name: **NAGPUR METRO RAIL PROJECT PHASE-II**

TITLE: **PLAN & PROFILE OF REACH 2A**  
**AUTOMOTIVE SQUARE TO KANHAN RIVER**

DWG NO. MM/Plg/NIT/NGP PH-II/2A/R1/2023

Updated Month: **September 2023**

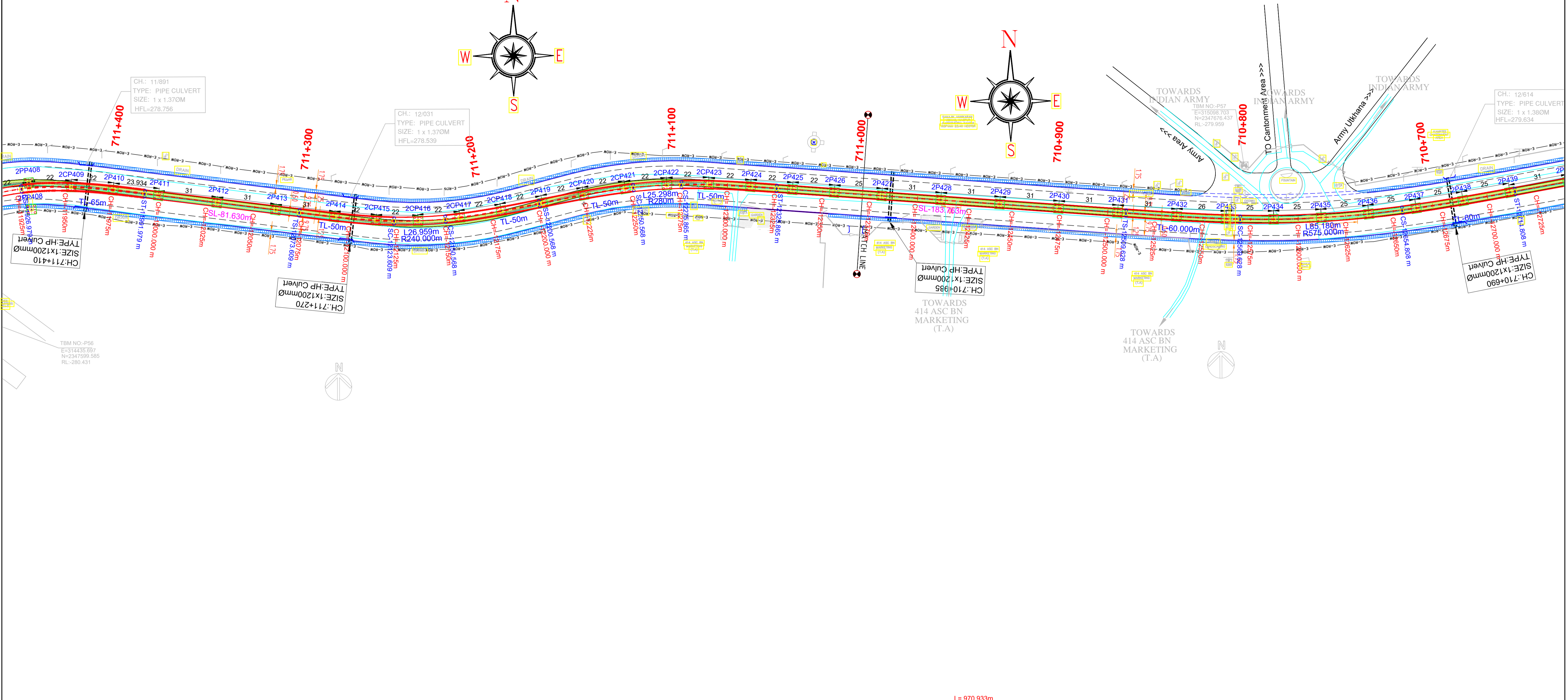
Scale: H=1:1000 V=1:500

Revision No. **01** | Revision date **04/09/2023**

SHEET NO.: **15 OF 17**

SITABULDI / DRAGON PALACE

KANHAN / KANHAN RIVER



Level Datum = 274.000																														
VERTICAL	L = 970.933m G = -0.000%																													
HORIZONTAL	L = 970.933 m G = -0.000%																													
LEVEL DIFF.	10.732	10.795	10.792	10.716	10.737	10.794	10.851	10.873	10.728	10.775	10.513	10.389	10.303	10.313	10.705	10.626	10.733	10.784	10.759	10.839	10.716	10.664	10.726	10.668	10.665	10.603	10.497	10.435	10.166	10.214
RAIL LEVELS	289.890	289.890	289.890	289.890	289.890	289.890	289.890	289.890	289.890	289.890	289.890	289.890	289.890	289.890	289.890	289.890	289.890	289.890	289.890	289.890	289.890	289.890	289.890	289.890	289.890	289.890	289.890	289.890	289.890	289.890
GROUND LEVELS	279.158	279.095	279.088	279.174	279.153	279.086	279.039	279.017	279.162	279.115	279.377	279.501	279.567	279.577	279.185	279.264	279.157	279.106	279.131	279.051	279.174	279.164	279.226	279.164	279.227	279.232	279.225	279.455	279.724	279.676
CHAINAGE	-11925.279	-11950.279	-11975.279	-12000.279	-12025.279	-12050.279	-12075.279	-12100.279	-12125.279	-12150.279	-12175.279	-12200.279	-12225.279	-12250.279	-12275.279	-12300.279	-12325.279	-12350.279	-12375.279	-12400.279	-12425.279	-12450.279	-12475.279	-12500.279	-12525.279	-12550.279	-12575.279	-12600.279	-12625.279	-12650.279

**ELEVATED SECTION**

**LEGEND**

- Existing work shown in GREY.
- Proposed Work shown in RED.
- Median/Paver block of 3m in median shown in GREEN.
- Footpath shown Color 152.

माझी मेट्रो  
NAGPUR METRO

**MAHARASHTRA METRO RAIL CORPORATION LIMITED**  
METRO BHAVAN, INFRONT OF DR. BABASAHEB AMBEDKAR COLLEGE, DEEKSHABHOOMI, NAGPUR- 4400010

Project Name: **NAGPUR METRO RAIL PROJECT PHASE-II**

TITLE: **PLAN & PROFILE OF REACH 2A**  
**AUTOMOTIVE SQUARE TO KANHAN RIVER**

Updated Month: **September 2023**

Scale: H=1:1000 V=1:500 A1

Revision No. **01** Revision date **04/09/2023**

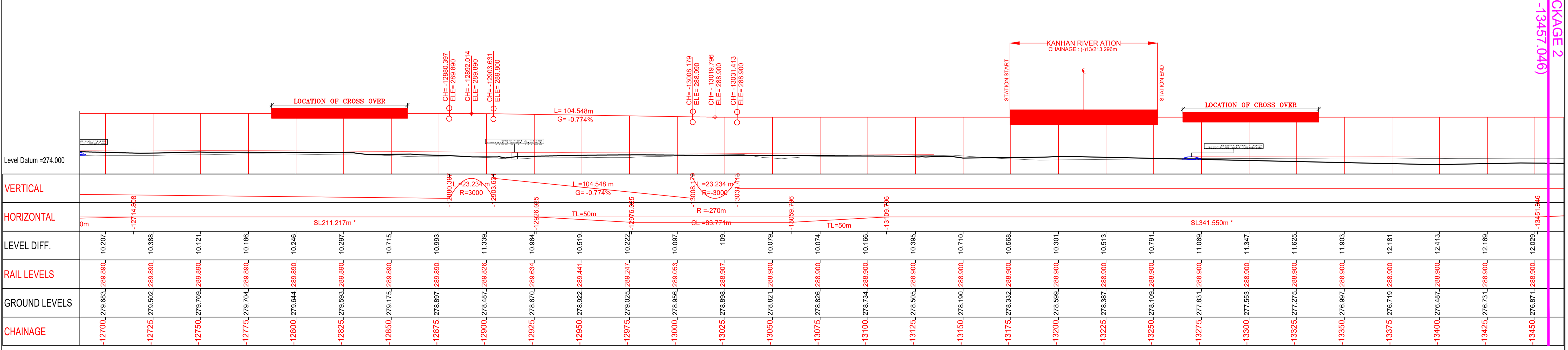
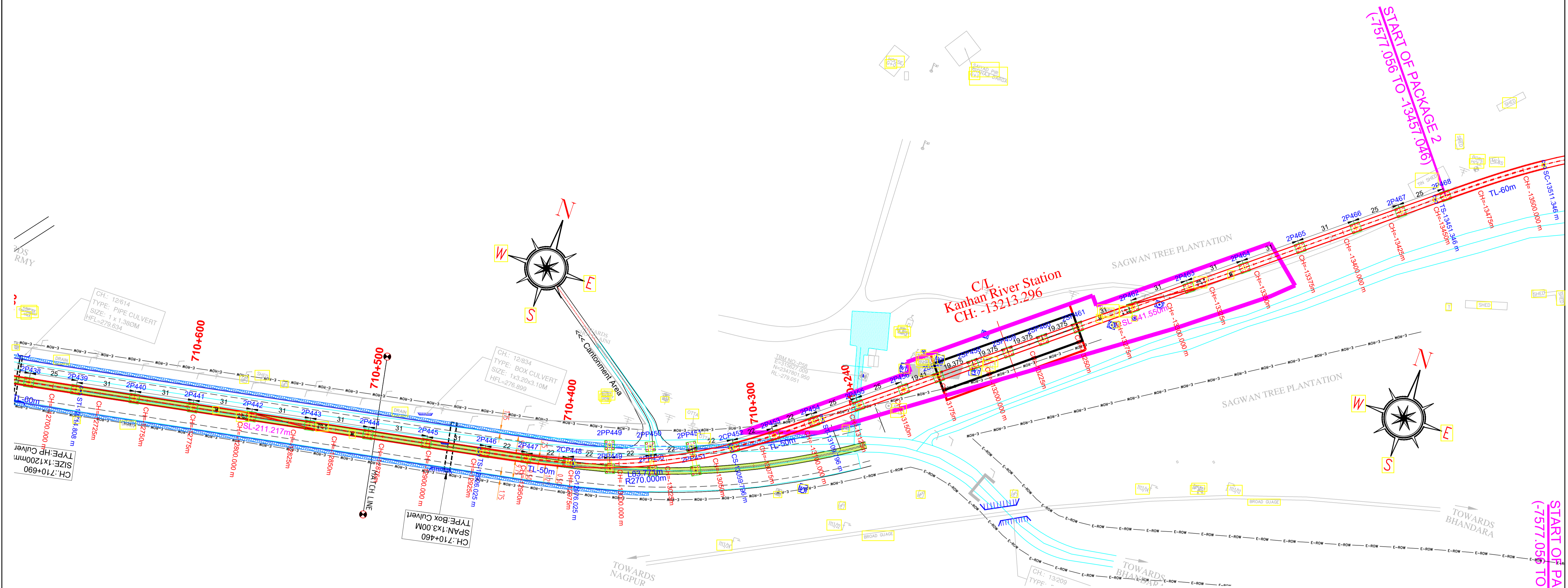
DWG NO. **MM/PIg/NIT/NGP PH-II/2A/R1/2023**

**AUTOMOTIVE SQUARE TO KANHAN RIVER (2A)**

SHEET NO.: **16 OF 17**

SITABULDI / GOLF CLUB

KANHAN



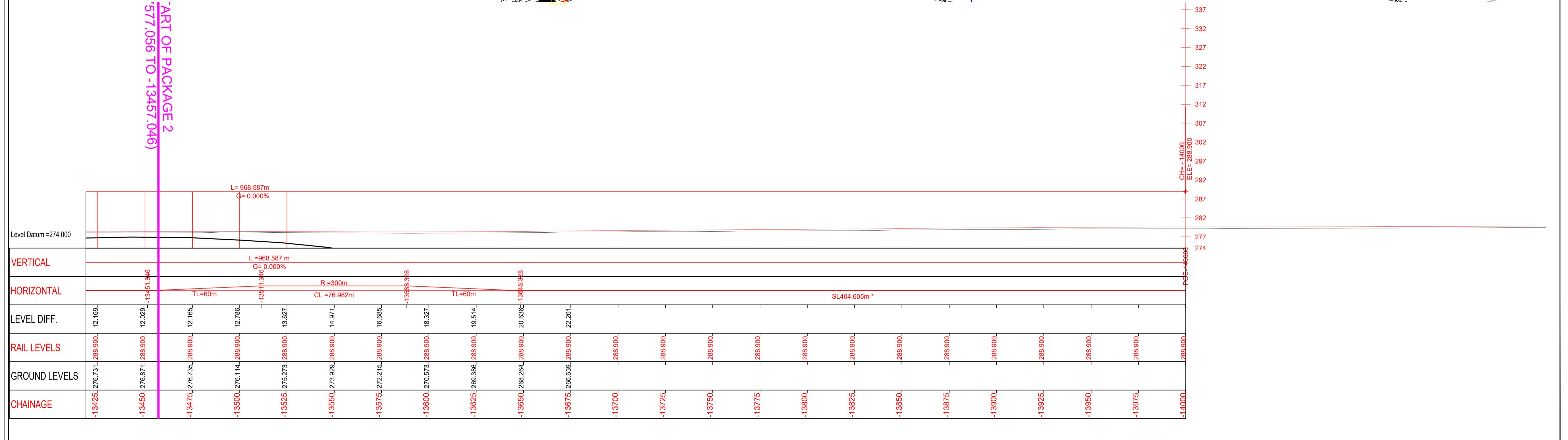
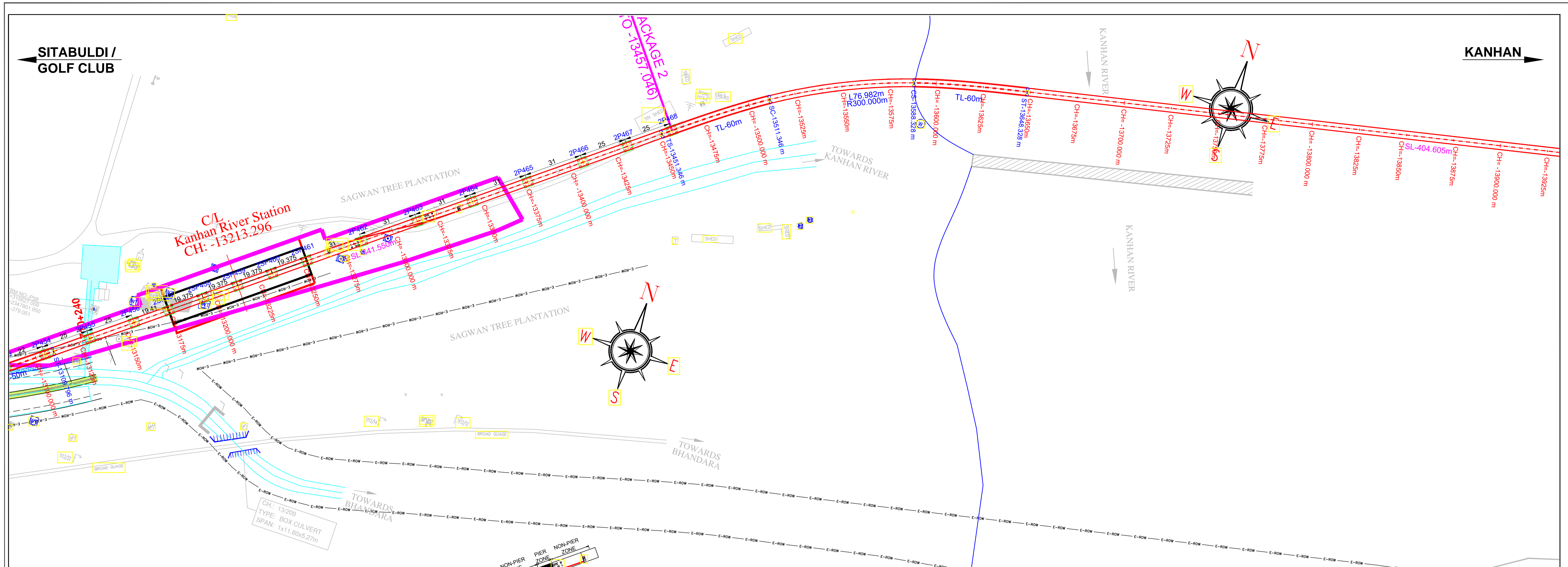
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10.388	289.890	279.502	-12725.279.502
10.121	289.890	279.769	-12750.279.769
10.186	289.890	279.704	-12775.279.704
10.246	289.890	279.644	-12800.279.644
10.297	289.890	279.593	-12825.279.593
10.715	289.890	279.175	-12850.279.175
10.983	289.890	278.897	-12875.278.897
11.339	289.826	278.487	-12900.278.487
10.864	289.634	278.670	-12925.278.670
10.519	289.441	278.922	-12950.278.922
10.222	289.247	279.025	-12975.279.025
10.097	289.053	278.956	-13000.278.956
1.08	288.907	278.898	-13025.278.898
10.079	288.900	278.821	-13050.278.821
10.074	288.900	278.826	-13075.278.826
10.166	288.900	278.734	-13100.278.734
10.385	288.900	278.505	-13125.278.505
10.710	288.900	278.190	-13150.278.190
10.568	288.900	278.332	-13175.278.332
10.301	288.900	278.599	-13200.278.599
10.513	288.900	278.387	-13225.278.387
10.791	288.900	278.109	-13250.278.109
11.069	288.900	277.831	-13275.277.831
11.347	288.900	277.553	-13300.277.553
11.625	288.900	277.275	-13325.277.275
11.903	288.900	276.997	-13350.276.997
12.181	288.900	276.719	-13375.276.719
12.413	288.900	276.487	-13400.276.487
12.169	288.900	276.731	-13425.276.731
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**ELEVATED SECTION**

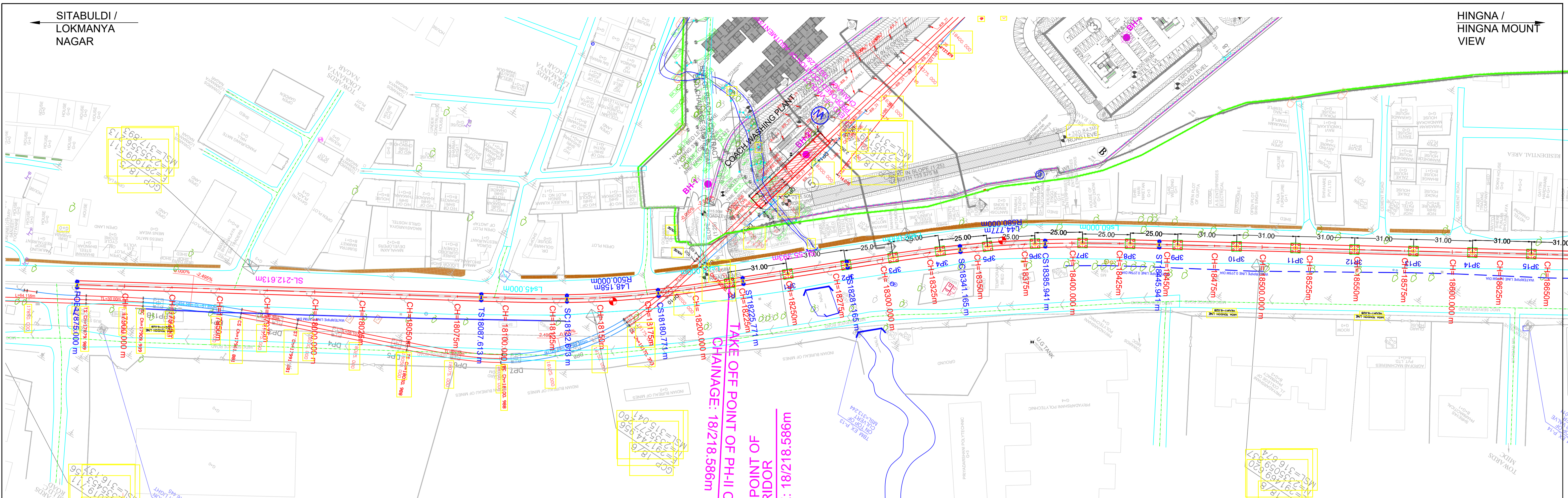
- LEGEND**
- Existing work shown in GREY.
  - Proposed Work shown in RED.
  - Median/Paver block of 3m in median shown in GREEN.
  - Footpath shown Color 152.

माझी मेट्रो  
  
**MAHARASHTRA METRO RAIL CORPORATION LIMITED**  
 METRO BHAVAN, INFRONT OF DR. BABASAHEB AMBEDKAR COLLEGE, DEEKSHABHOOMI, NAGPUR- 4400010

Project Name: <b>NAGPUR METRO RAIL PROJECT PHASE-II</b>	
TITLE: <b>PLAN &amp; PROFILE OF REACH 2A</b> AUTOMOTIVE SQUARE TO KANHAN RIVER	
Updated Month: <b>September 2023</b>	Revision No. <b>01</b>
Scale: <b>H=1:1000</b> V=1:500	Revision date: <b>04/09/2023</b>
DWG NO. <b>MM/PIg/NIT/NGP PH-II/2A/R1/2023</b>	SHEET NO.: <b>17 OF 17</b>



<b>ELEVATED SECTION</b> 	<b>LEGEND</b> 1. Existing work shown in GREY. 2. Proposed Work shown in RED. 3. Median/Paver block of 3m in median shown in GREEN. 4. Footpath shown Color 152.	 <b>MAHARASHTRA METRO RAIL CORPORATION LIMITED</b> METRO BHAVAN, INFRONT OF DR. BABASAHEB AMBEDKAR COLLEGE, DEEKSHABHOOMI, NAGPUR- 4400010	Project Name: <b>NAGPUR METRO RAIL PROJECT PHASE-II</b>	
			TITLE: <b>PLAN &amp; PROFILE OF REACH 2A</b> <b>AUTOMOTIVE SQUARE TO KANHAN RIVER</b>	
			Updated Month: <b>September 2023</b>	Scale: H=1:1000 V=1:500 A1
		DWG NO. <b>MM/Plg/NIT/NGP PH-II/2A/R1/2023</b>	Revision No. <b>01</b>	Revision date <b>04/09/2023</b>
			AUTOMOTIVE SQUARE TO KANHAN RIVER (2A)	SHEET NO.: <b>18 OF 17</b>




VERTICAL_ALIGN	17875	17900	17925	17950	17975	18000	18025	18050	18075	18100	18125	18150	18175	18200	18225	18250	18275	18300	18325	18350	18375	18400	18425	18450	18475	18500	18525	18550	18575	18600	18625
DIFF. IN ELE.	12.872	12.857	13.189	13.761	14.516	15.360	16.282	17.286	18.003	18.422	18.676	18.865	19.116	19.322	19.433	19.327	19.006	18.708	18.259	17.697	17.000	16.304	15.750	15.014	14.281	13.313	12.863	12.205	11.928	11.278	
RAIL LEVELS	329.550	329.726	330.281	330.946	331.612	332.278	332.943	333.566	333.843	333.850	333.850	333.850	333.850	333.850	333.850	333.792	333.428	332.991	332.554	332.116	331.679	331.242	330.804	330.369	330.110	330.110	330.110	330.110	330.110	330.110	330.110
GROUND LEVELS	316.678	316.869	317.092	317.185	317.096	316.918	316.661	316.280	315.840	315.428	315.174	314.985	314.732	314.528	314.417	314.435	314.422	314.283	314.295	314.419	314.679	314.938	315.054	315.365	315.842	316.363	316.797	317.247	317.905	318.282	318.832
CHAINAGES	17875	17900	17925	17950	17975	18000	18025	18050	18075	18100	18125	18150	18175	18200	18225	18250	18275	18300	18325	18350	18375	18400	18425	18450	18475	18500	18525	18550	18575	18600	18625

**ELEVATED SECTION**

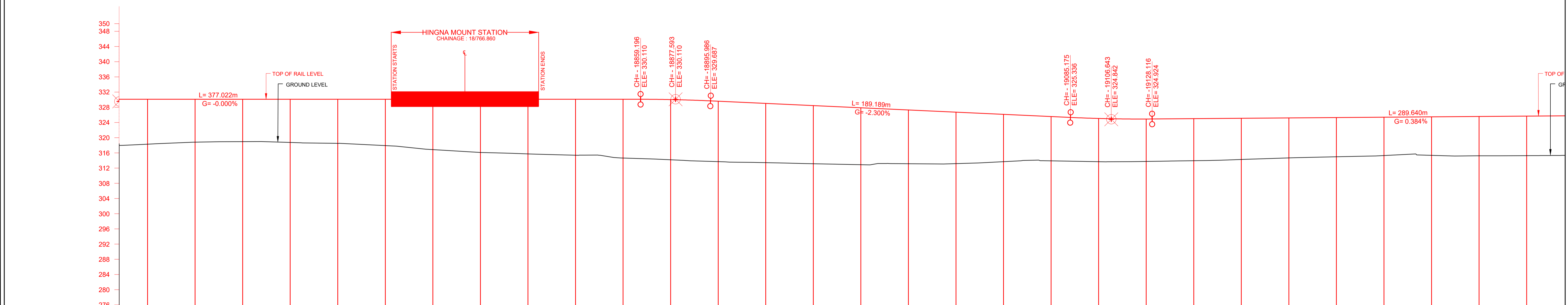
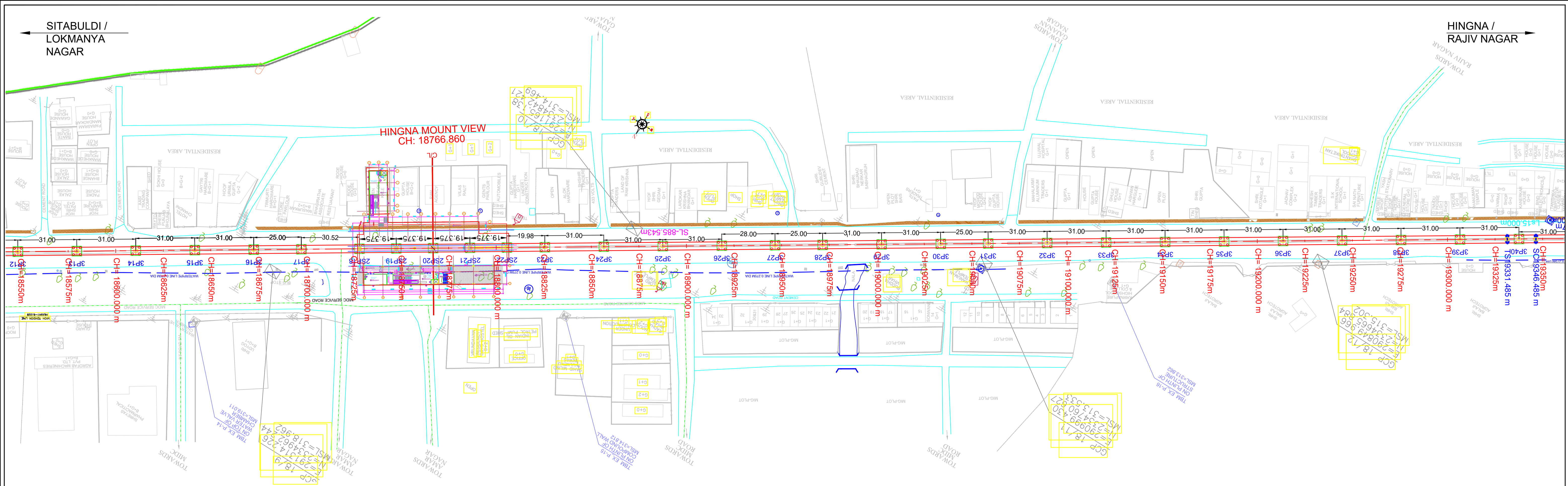
**Note:**

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**MAHARASHTRA METRO RAIL CORPORATION LIMITED**  
 METRO BHAVAN, INFRONT OF DR. BABASAHEB AMBEDKAR COLLEGE, DEEKSHABHOOMI, NAGPUR- 4400010

**Project Name: NAGPUR METRO RAIL PROJECT PHASE-II**  
**TITLE: PLAN & PROFILE OF REACH 3A (FOR TENDER PURPOSE ONLY)**  
 DWG NO. MM/Plg/NIT/NGP PH-II/3A/R3/2023

Updated Month	October 2023	17875M TO 18600M
Scale	H=1:1000 V=1:500 In A1 size	Revision No. R03
Revision date	26/10/2023	SHEET NO.: 01 OF 10



VERTICAL_ALIGN	L=377.022m G=-0.000%		L=36.790m R=1600		L=189.189m G=-2.300%		L=42.941m R=1600		L=289.640m G=0.384%																						
HORIZONTAL_ALIGN	SL885.543m * TRL = 15m																														
DIFF. IN ELE.	11.828	11.278	11.151	11.368	11.612	12.168	13.250	13.995	14.382	14.722	15.468	15.849	15.898	15.587	15.297	14.147	13.547	12.458	11.658	11.380	11.161	11.061	10.838	10.519	10.122	10.343	10.411	10.411			
RAIL LEVELS	330.110	330.110	330.110	330.110	330.110	330.110	330.110	330.110	330.110	330.110	329.595	330.032	329.595	329.020	327.295	326.720	325.570	325.063	324.915	324.915	325.009	325.009	325.105	325.297	325.393	325.489	325.585	325.691	325.691		
GROUND LEVELS	318.282	318.832	318.959	318.742	318.498	317.924	316.880	316.115	315.728	315.388	314.644	314.183	313.697	313.433	313.148	312.888	313.912	313.683	313.754	313.948	314.682	314.988	315.267	315.503	315.303	315.357	315.242	315.270	315.270		
CHAINAGES	18600	18625	18650	18675	18700	18725	18750	18775	18800	18825	18850	18875	18900	18925	18950	18975	19000	19025	19050	19075	19100	19125	19150	19175	19200	19225	19250	19275	19300	19325	19350

**ELEVATED SECTION**

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**MAHARASHTRA METRO RAIL CORPORATION LIMITED**  
**METRO BHAVAN, INFRONT OF DR. BABASAHEB AMBEDKAR COLLEGE, DEEKSHABHOOMI, NAGPUR- 440010**

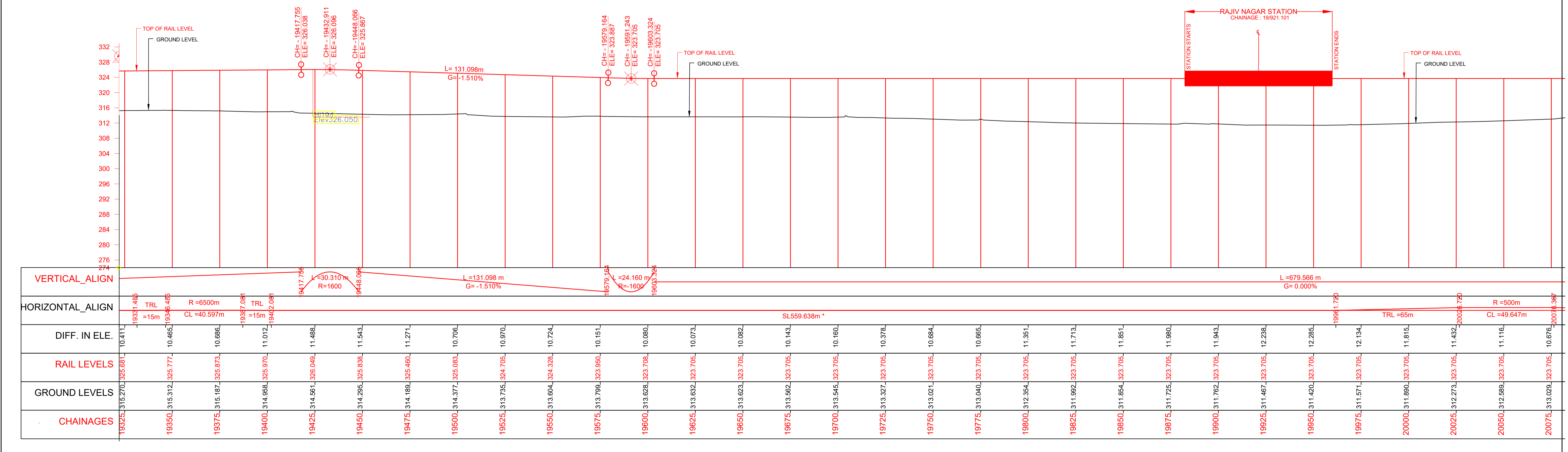
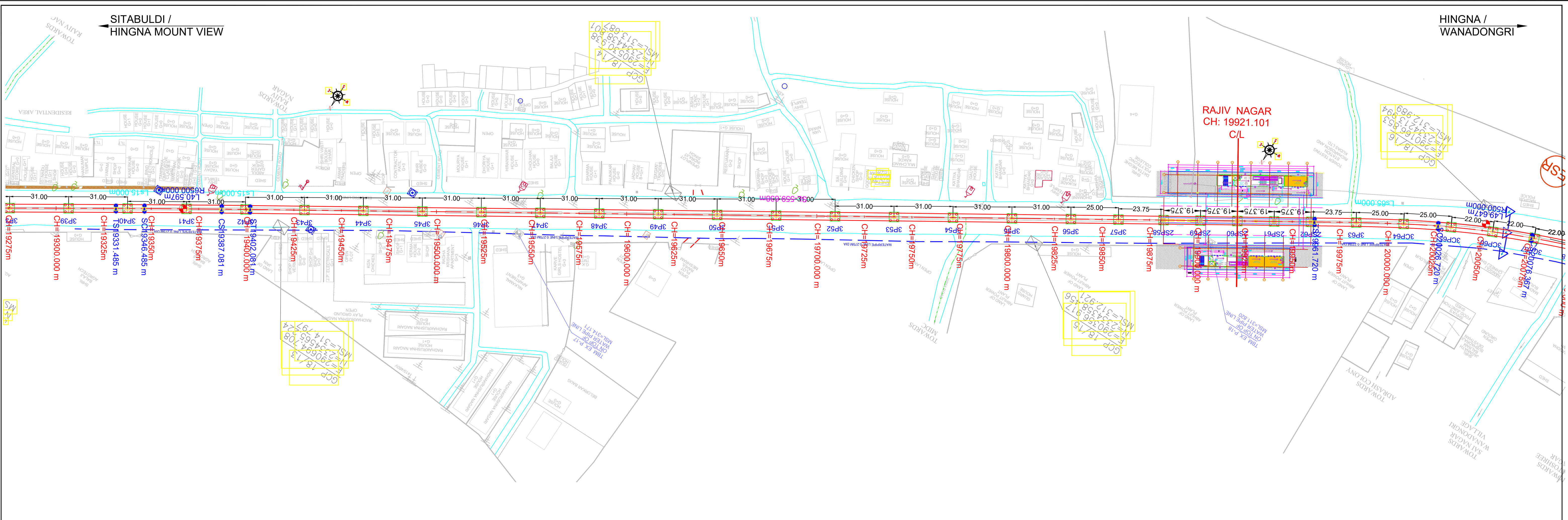
**Project Name: NAGPUR METRO RAIL PROJECT PHASE-II**

**TITLE: PLAN & PROFILE OF REACH 3A (FOR TENDER PURPOSE ONLY)**

DWG NO. MM/PIg/NIT/NGP PH-II/3A/R3/2023

Updated Month	October 2023	18600M TO 19325M
Scale	H=1:1000 V=1:500 In A1 size	Revision No. R03
Revision date	26/10/2023	SHEET NO.: 02 OF 10





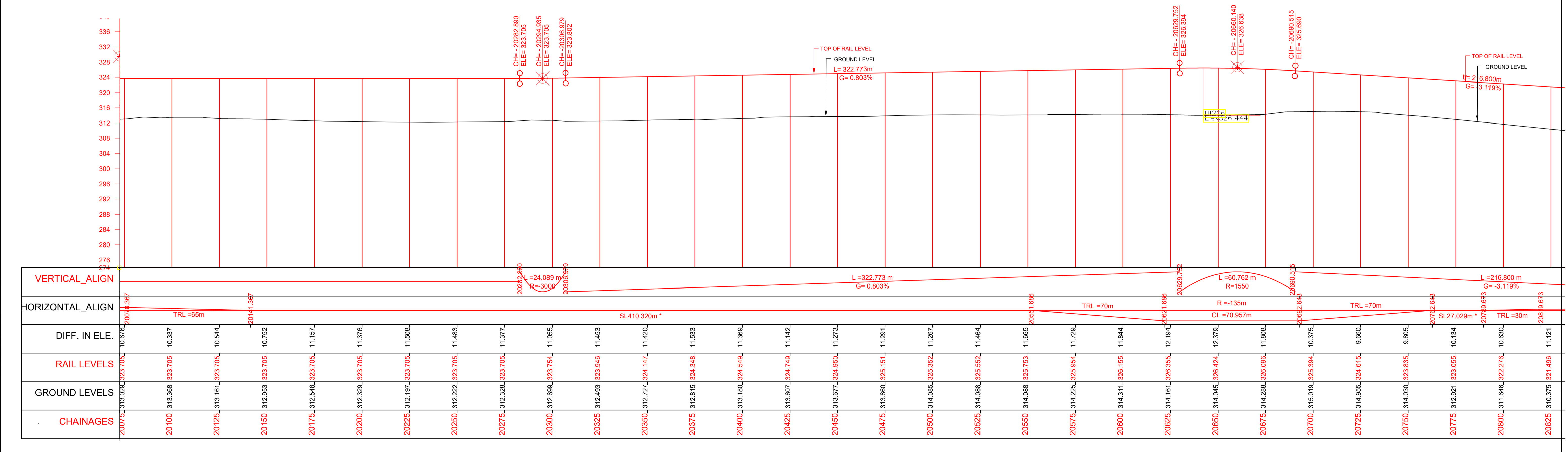
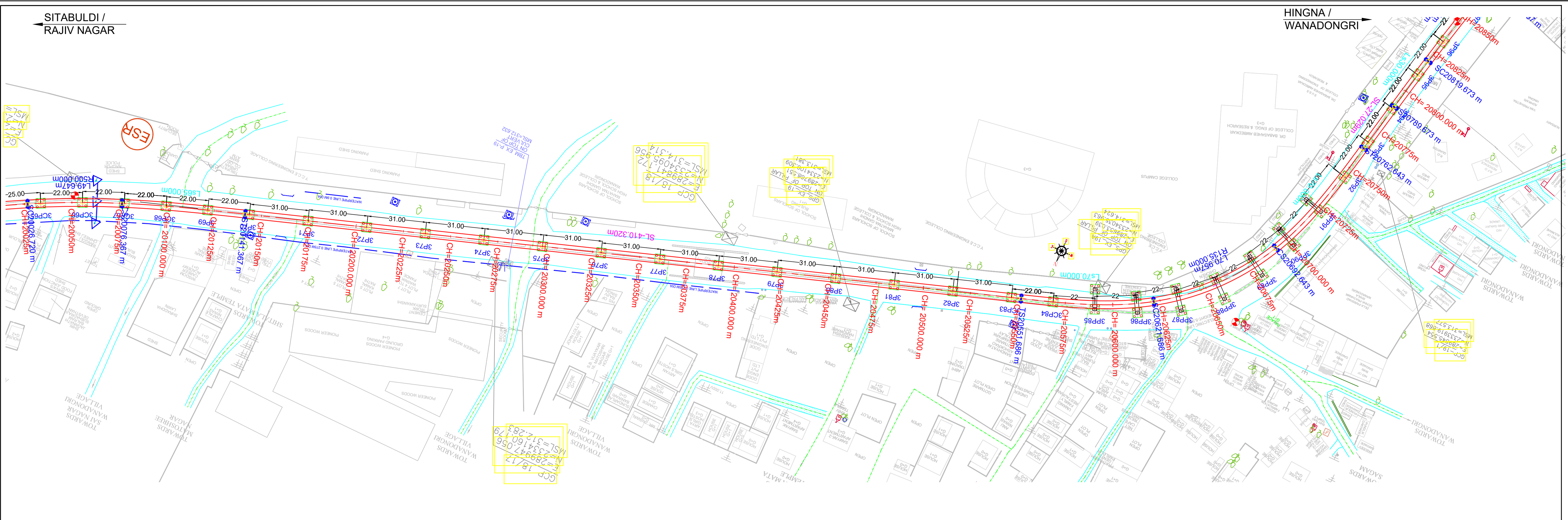
**ELEVATED SECTION**

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**MAHARASHTRA METRO RAIL CORPORATION LIMITED**  
**CETRO BHAVAN, INFRONT OF DR. BABASAHEB AMBEDKAR COLLEGE, DEEKSHABHOOMI, NAGPUR- 4400010**

Project Name: <b>NAGPUR METRO RAIL PROJECT PHASE-II</b>		
TITLE: <b>PLAN &amp; PROFILE OF REACH 3A (FOR TENDER PURPOSE ONLY)</b>		
DWG NO. MM/PIg/NIT/NGP PH-II/3A/R3/2023	Updated Month: <b>October 2023</b>	19325M TO 20075M
Scale: H=1:1000, V=1:500, In A1 size	Revision No. <b>R03</b>	Revision date <b>26/10/2023</b>
HINGNA DEPOT TO HINGNA (3A)		SHEET NO.: <b>03 OF 10</b>



**ELEVATED SECTION**

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**महामेट्रो**  
**MAHARASHTRA METRO RAIL CORPORATION LIMITED**  
**METRO BHAVAN, INFRONT OF DR. BABASAHEB AMBEDKAR COLLEGE, DEEKSHABHOOMI, NAGPUR- 440010**

**Project Name: NAGPUR METRO RAIL PROJECT PHASE-II**

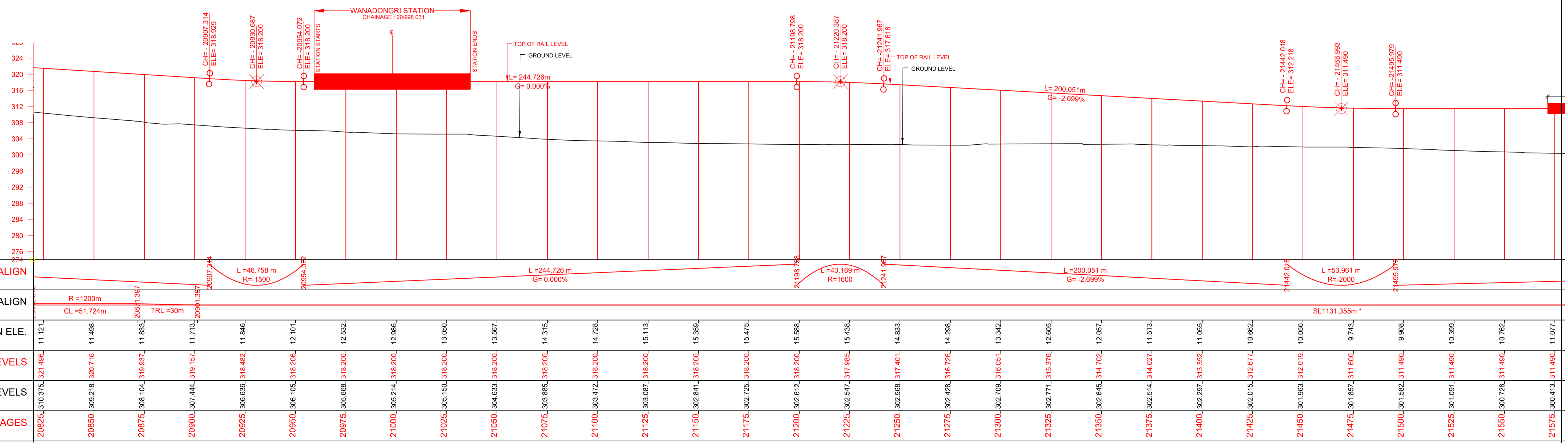
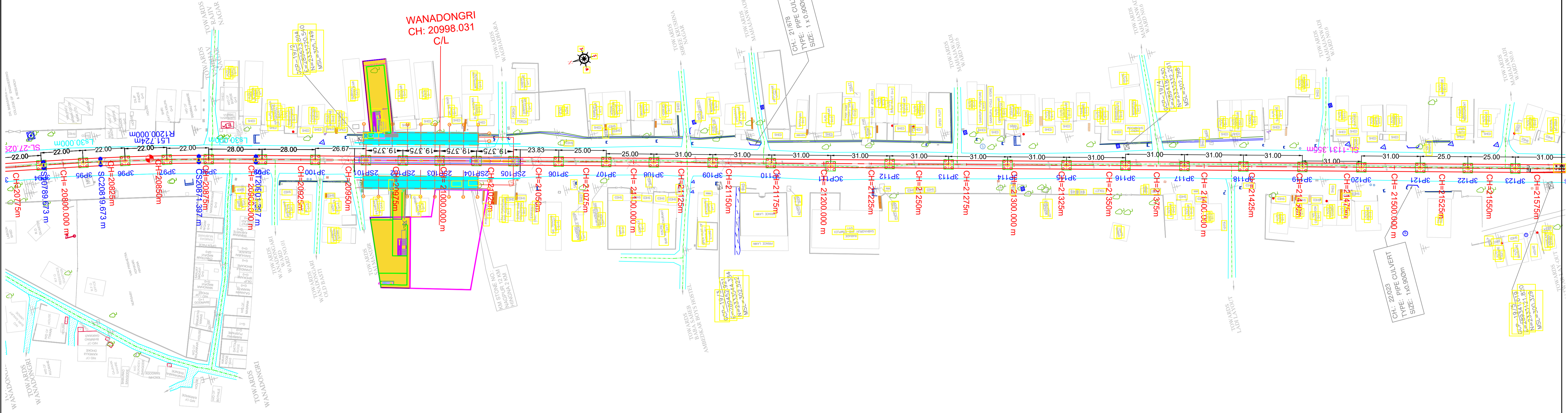
**TITLE: PLAN & PROFILE OF REACH 3A (FOR TENDER PURPOSE ONLY)**

DWG NO. MM/Plg/NIT/NGP PH-II/3A/R3/2023

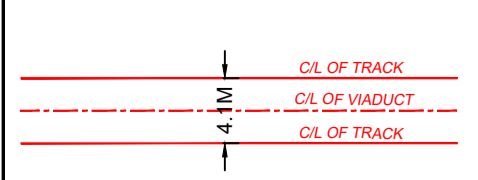
Updated Month	October 2023	20075M TO 20825M
Scale	H=1:1000 V=1:500 in A1 size	Revision No. R03
Revision date	26/10/2023	SHEET NO.: 04 OF 10

SITABULDI / RAJIV NAGAR

HINGNA / APMC



ELEVATED SECTION

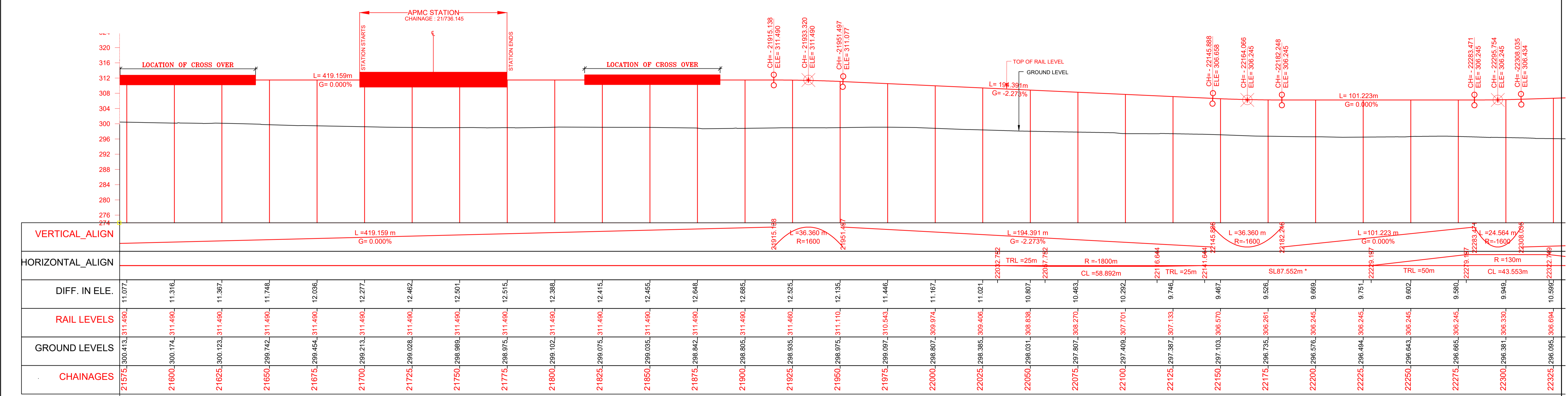
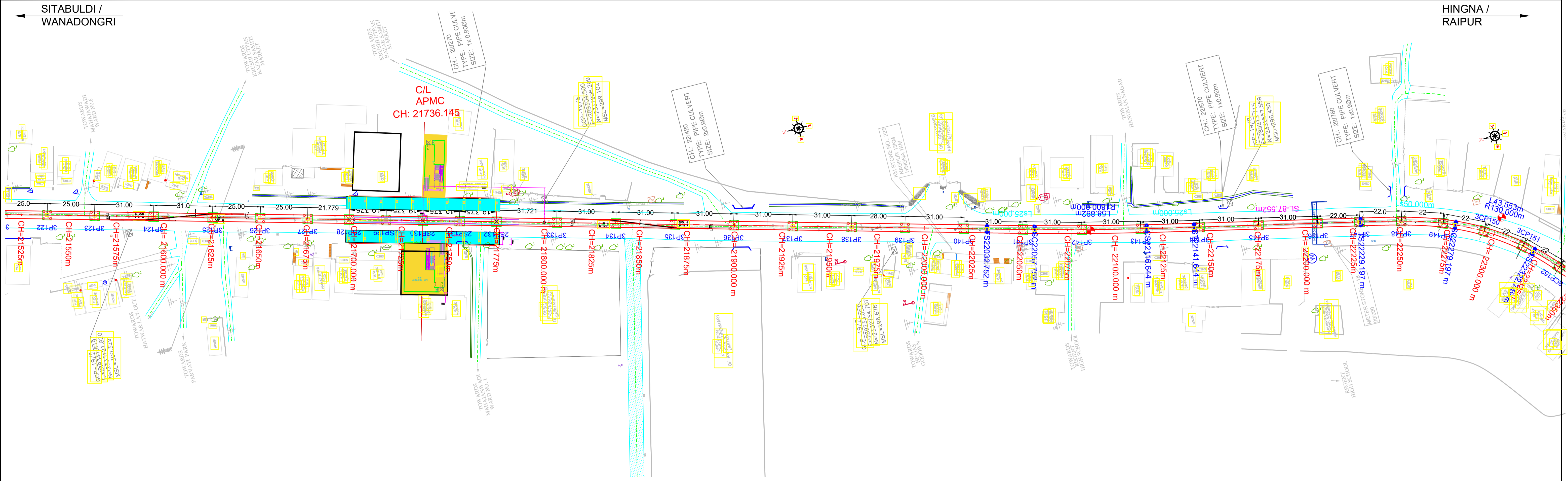


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**MAHARASHTRA METRO RAIL CORPORATION LIMITED**  
 METRO BHAVAN, INFRONT OF DR. BABASAHEB AMBEDKAR COLLEGE, DEEKSHABHOOMI, NAGPUR- 4400010

Project Name: <b>NAGPUR METRO RAIL PROJECT PHASE-II</b>		
TITLE: <b>PLAN &amp; PROFILE OF REACH 3A (FOR TENDER PURPOSE ONLY)</b>		
Updated Month: <b>October 2023</b>	Revision No. <b>R03</b>	Revision date <b>26/10/2023</b>
DWG NO. <b>MM/Plg/NIT/NGP PH-II/3A/R3/2023</b>	<b>HINGNA DEPOT TO HINGNA (3A)</b>	SHEET NO.: <b>05 OF 10</b>



**ELEVATED SECTION**

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**माझी मेट्रो**  
  
**NAGPUR METRO**

**MAHARASHTRA METRO RAIL CORPORATION LIMITED**  
**METRO BHAVAN, INFRONT OF DR. BABASAHEB AMBEDKAR COLLEGE, DEEKSHABHOOMI, NAGPUR- 4400010**

**Project Name: NAGPUR METRO RAIL PROJECT PHASE-II**

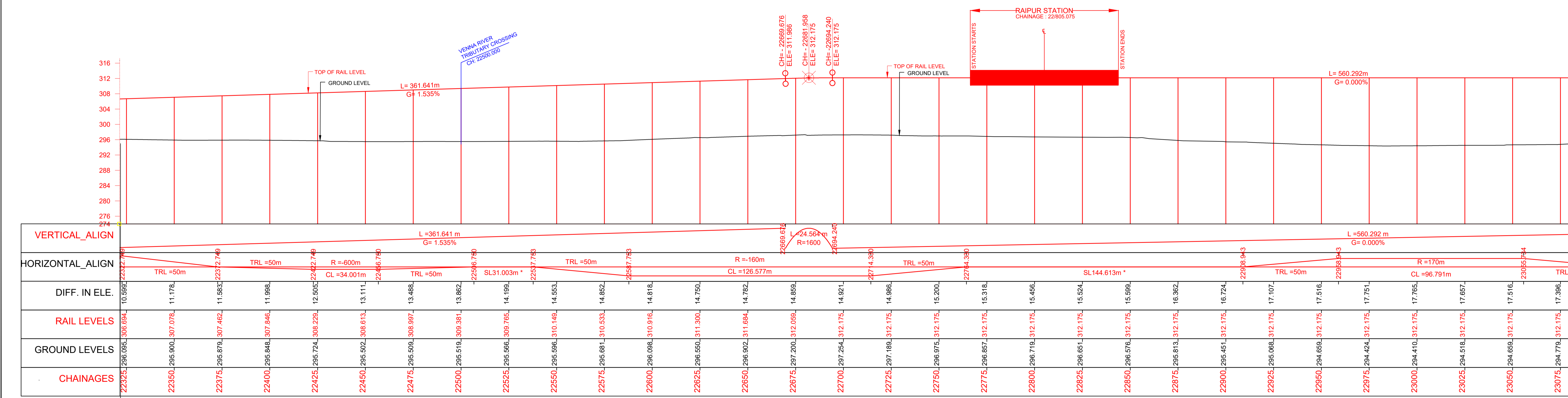
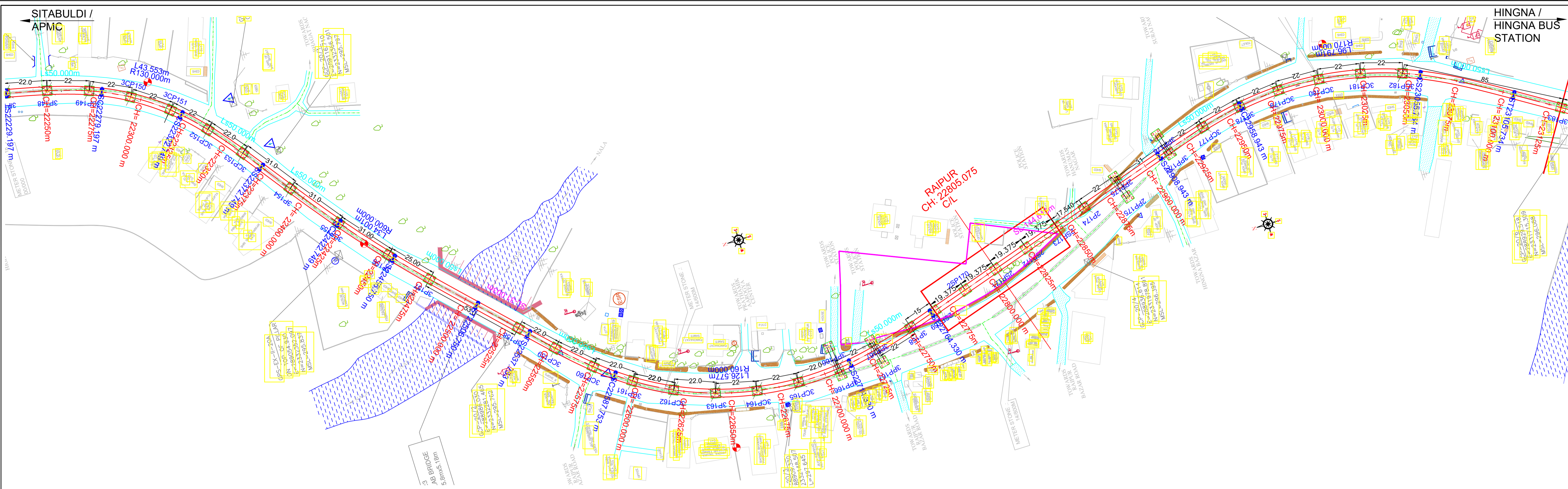
**TITLE: PLAN & PROFILE OF REACH 3A (FOR TENDER PURPOSE ONLY)**

**DWG NO. MM/Plg/NIT/NGP PH-II/3A/R3/2023**

Updated Month	October 2023	21575M TO 22325M
Scale	H=1:1000 M AT SIZE	Revision No. R03
Revision No.	R03	Revision date
		26/10/2023

**HINGNA DEPOT TO HINGNA (3A)**

**SHEET NO.: 06 OF 10**



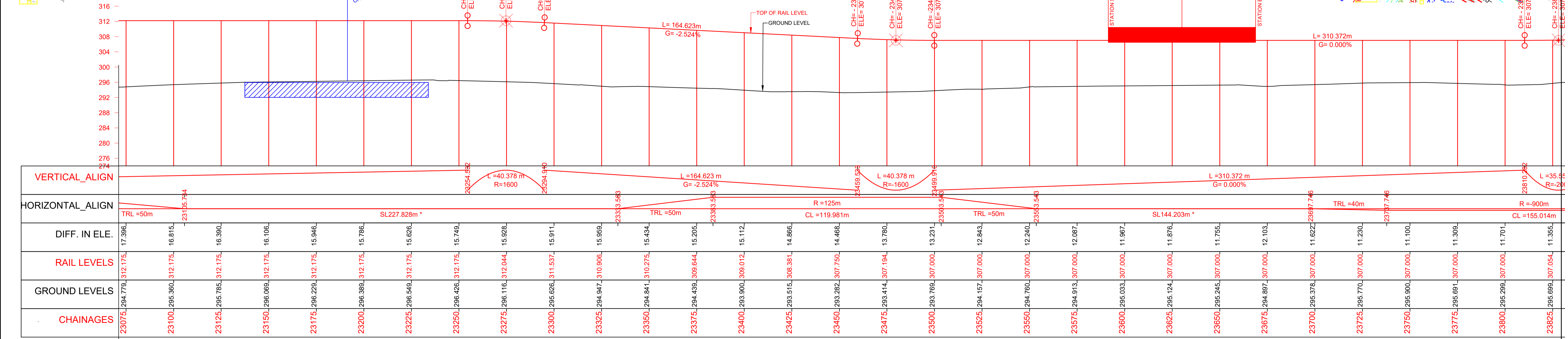
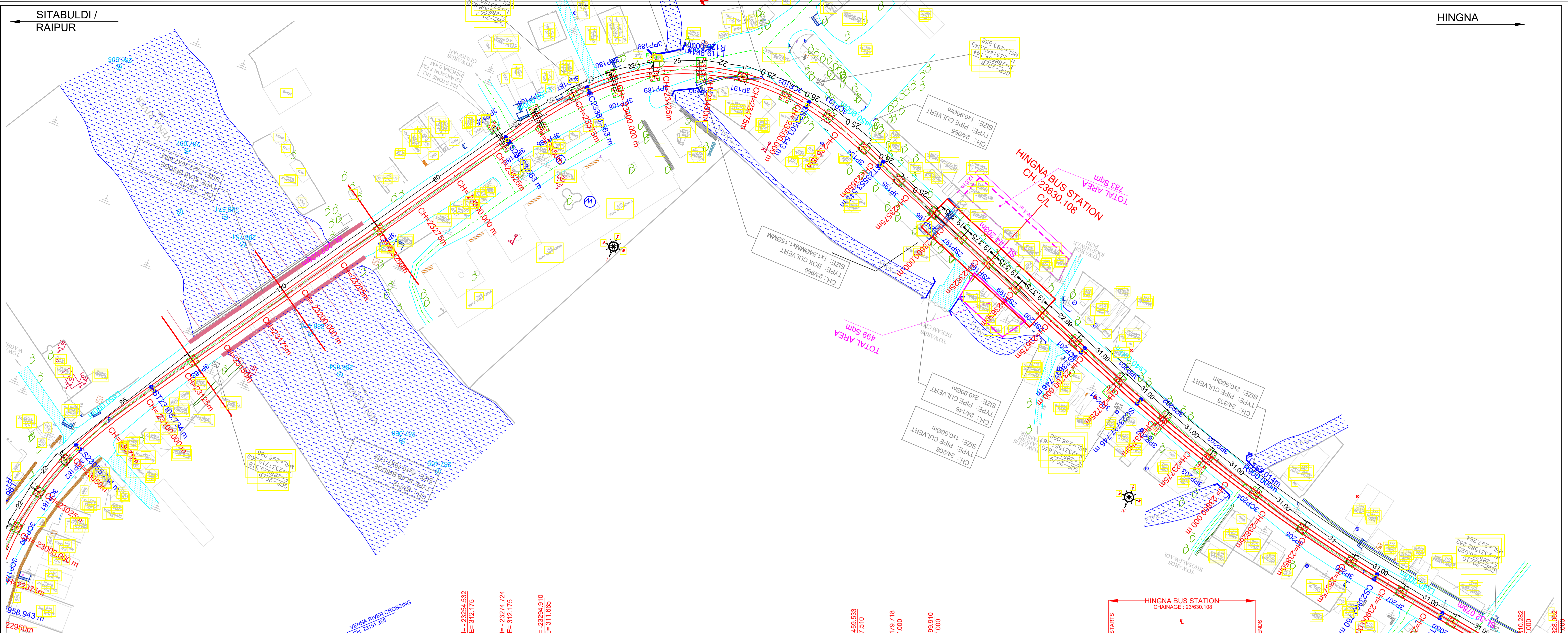
**ELEVATED SECTION**

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**MAHARASHTRA METRO RAIL CORPORATION LIMITED**  
**CETRO BHAVAN, INFRONT OF DR. BABASAHEB AMBEDKAR COLLEGE, DEEKSHABHOOMI, NAGPUR- 4400010**

Project Name: <b>NAGPUR METRO RAIL PROJECT PHASE-II</b>		
TITLE: <b>PLAN &amp; PROFILE OF REACH 3A (FOR TENDER PURPOSE ONLY)</b>		
DWG NO. MM/Plg/NIT/NGP PH-II/3A/R3/2023	Updated Month: <b>October 2023</b>	22325M TO 23075M
Scale: H=1:1000 V=1:500 In A1 size	Revision No. <b>R03</b>	Revision date <b>26/10/2023</b>
HINGNA DEPOT TO HINGNA (3A)		SHEET NO.: <b>07 OF 10</b>



CHAINAGES	GROUND LEVELS	RAIL LEVELS	DIFF. IN ELE.	HORIZONTAL_ALIGN	VERTICAL_ALIGN
23075	294.779	312.175	17.396	TRL=50m	
23100	295.360	312.175	16.815		
23125	295.785	312.175	16.390		
23150	296.069	312.175	16.106		
23175	296.229	312.175	15.946		
23200	296.389	312.175	15.786		
23225	296.549	312.175	15.626		
23250	296.426	312.175	15.749		
23275	296.116	312.044	15.928		
23300	295.626	311.537	15.911		
23325	294.947	310.906	15.959		
23350	294.841	310.275	15.434		
23375	294.439	309.644	15.205		
23400	293.900	309.012	15.112		
23425	293.515	308.381	14.866		
23450	293.282	307.750	14.468		
23475	293.414	307.194	13.780		
23500	293.769	307.000	13.231		
23525	294.157	307.000	12.843		
23550	294.760	307.000	12.240		
23575	294.913	307.000	12.087		
23600	295.033	307.000	11.967		
23625	295.124	307.000	11.876		
23650	295.245	307.000	11.755		
23675	294.897	307.000	12.103		
23700	295.378	307.000	11.622		
23725	295.770	307.000	11.230		
23750	295.900	307.000	11.100		
23775	295.691	307.000	11.309		
23800	295.289	307.000	11.701		
23825	295.699	307.054	11.355		

**ELEVATED SECTION**

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**MAHARASHTRA METRO RAIL CORPORATION LIMITED**  
METRO BHAVAN, INFRONT OF DR. BABASAHEB AMBEDKAR COLLEGE, DEEKSHABHOOMI, NAGPUR- 4400010

**Project Name: NAGPUR METRO RAIL PROJECT PHASE-II**

**TITLE: PLAN & PROFILE OF REACH 3A (FOR TENDER PURPOSE ONLY)**

DWG NO. MM/Plg/NIT/NGP PH-II/3A/R3/2023

Updated Month: **October 2023**

Scale: H=1:1000, V=1:500, in A1 size

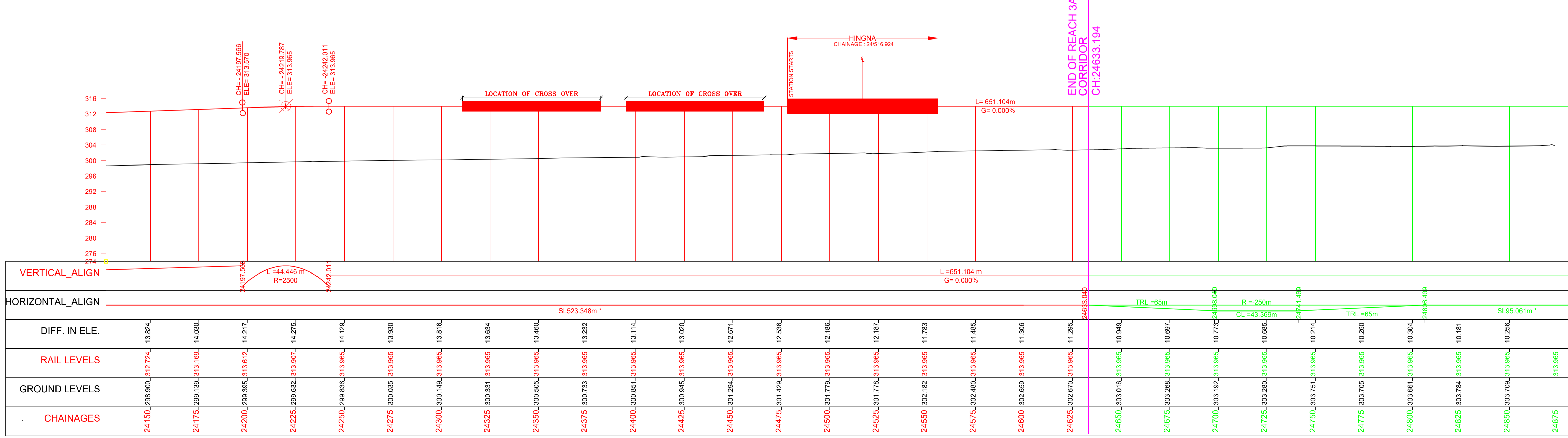
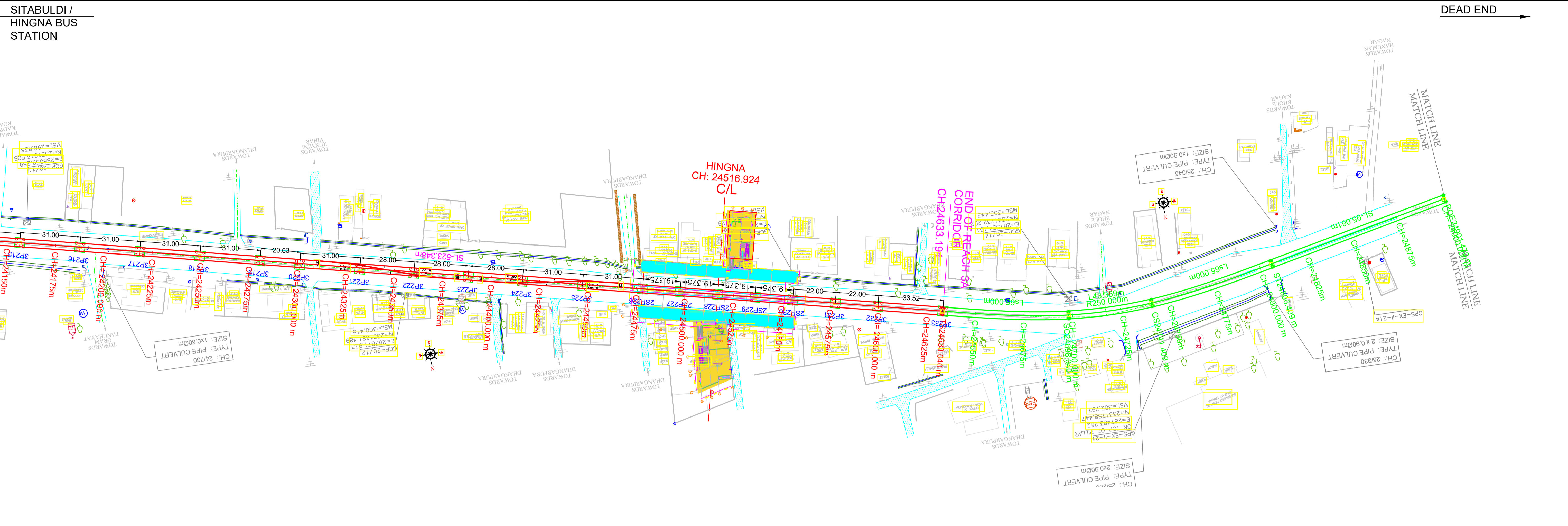
Revision No. **R03**

23075M TO 23825M

Revision date: **26/10/2023**

SHEET NO.: **08 OF 10**





VERTICAL_ALIGN	L=44.446 m R=2500		L=651.104 m G=0.000%																											
HORIZONTAL_ALIGN	SL523.348m*		TRL=65m R=250m CL=43.369m TRL=65m SL95.061m*																											
DIFF. IN ELE.	13.824	14.030	14.217	14.275	14.129	13.990	13.816	13.634	13.460	13.232	13.114	13.020	12.871	12.536	12.166	12.187	11.783	11.485	11.306	11.295	10.940	10.697	10.775	10.260	10.260	10.304	10.181	10.266		
RAIL LEVELS	24150.312.724	24175.313.169	24200.313.612	24225.313.907	24250.313.965	24275.313.965	24300.313.965	24325.313.965	24350.313.965	24375.313.965	24400.313.965	24425.313.965	24450.313.965	24475.313.965	24500.313.965	24525.313.965	24550.313.965	24575.313.965	24600.313.965	24625.313.965	24650.313.965	24675.313.965	24700.313.965	24725.313.965	24750.313.965	24775.313.965	24800.313.965	24825.313.965	24850.313.965	24875.313.965
GROUND LEVELS	24150.298.900	24175.299.139	24200.299.395	24225.299.632	24250.299.836	24275.300.035	24300.300.149	24325.300.331	24350.300.505	24375.300.733	24400.300.851	24425.300.945	24450.301.294	24475.301.429	24500.301.779	24525.301.778	24550.302.182	24575.302.480	24600.302.659	24625.302.670	24650.303.016	24675.303.268	24700.303.192	24725.303.280	24750.303.751	24775.303.705	24800.303.661	24825.303.784	24850.303.709	24875.313.965
CHAINAGES	24150	24175	24200	24225	24250	24275	24300	24325	24350	24375	24400	24425	24450	24475	24500	24525	24550	24575	24600	24625	24650	24675	24700	24725	24750	24775	24800	24825	24850	24875

**ELEVATED SECTION**

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**MAHARASHTRA METRO RAIL CORPORATION LIMITED**  
**METRO BHAVAN, INFRONT OF DR. BABASAHEB AMBEDKAR COLLEGE, DEEKSHABHOOMI, NAGPUR- 4400010**

**Project Name: NAGPUR METRO RAIL PROJECT PHASE-II**

**TITLE: PLAN & PROFILE OF REACH 3A (FOR TENDER PURPOSE ONLY)**

DWG NO. MM/PIg/NIT/NGP PH-II/3A/R3/2023

Updated Month: **October 2023**

Scale: H=1:1000, V=1:500, In A1 size

Revision No. **R03**

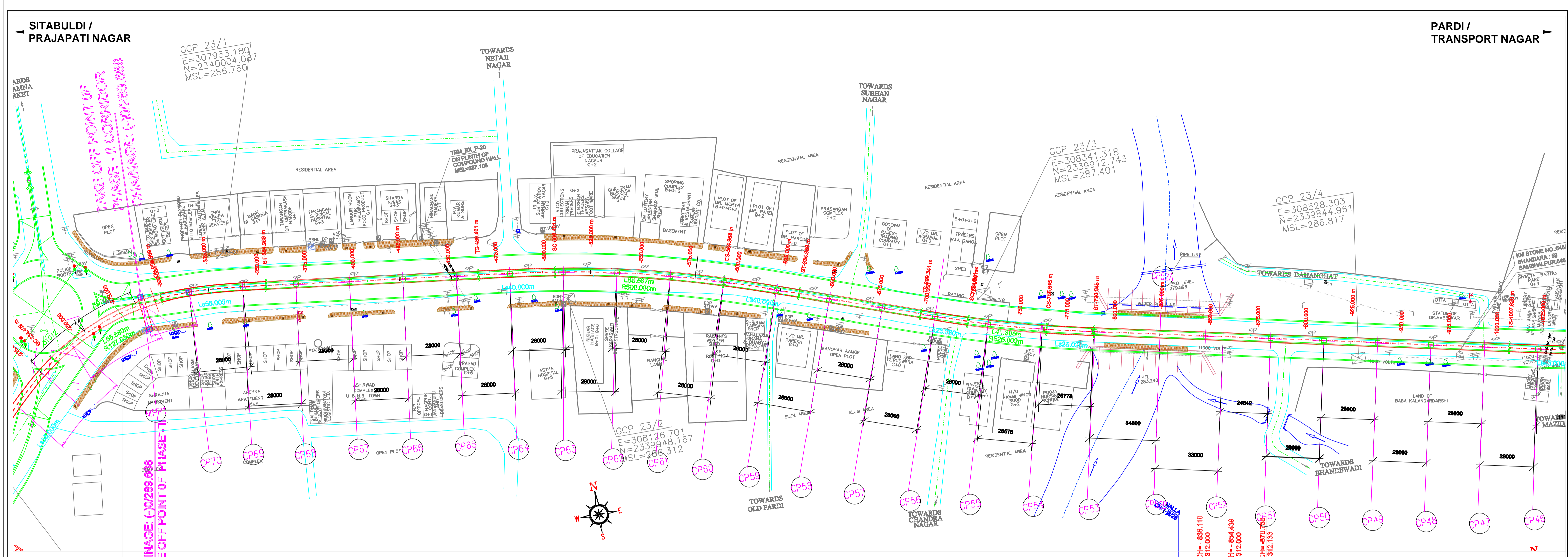
Revision date: **26/10/2023**

24150M TO 24633.194M

**HINGNA DEPOT TO HINGNA (3A)**

SHEET NO.: **10 OF 10**





	L=738.110m G=0.000%																												L=298.033m G=0.816%			
Level Datum =278.000	CP70a	CP71	CP70	CP69	CP68	CP67	CP66	CP65	CP64	CP63	CP62	CP61	CP60	CP59	CP58	CP57	CP56	CP55	CP54	CP53	CP52a	CP52	CP51	CP50	CP49	CP48	CP47	CP46				
Vertical metro rail	L=738.110 m G=0.000%																												L=298.033 m G=0.816%			
Vertical NHAI	K=200.000 L=100.000 P=-0.500% L=200.000 K=-200.000 L=100.000 P=-0.000% L=410.000																															
HORIZONTAL	0m	0m	TRL=55.000m	-354.988	SL111.412m*	-468.404	TRL=40.000m	-508.404	R=600.000m CL=88.567m	-594.988	TRL=40.000m	-634.988	SL84.372m*	-698.344	TRL=25.0m	-726.344	R=525.000m CL=41.305m	-765.645	TRL=25.0m	-790.645	SL217.275m*	-825.000	-854.639	-870.768	-890.000	-910.000	-930.000	-950.000	-970.000	-1000.000	-1025.000	
LEVEL DIFF.	25.282	25.348	25.444	25.518	25.546	25.539	25.565	25.582	25.580	25.581	25.539	25.513	25.527	25.552	25.531	25.143	25.008	24.689	24.356	24.239	24.122	24.082	24.045	24.081	24.373	24.876	25.614	26.225	26.760	27.174	27.429	
RAIL LEVELS	312.000	312.000	312.000	312.000	312.000	312.000	312.000	312.000	312.000	312.000	312.000	312.000	312.000	312.000	312.000	312.000	312.000	312.000	312.000	312.000	312.000	312.000	312.000	312.000	312.018	312.168	312.372	312.576	312.780	312.984	313.188	313.393
NHAI ROAD TOP LEVELS	299.300	299.300	299.301	299.330	299.396	299.505	299.642	299.782	299.922	300.062	300.202	300.342	300.482	300.622	300.762	300.902	300.800	300.800	300.800	300.800	300.800	300.800	300.800	300.800	300.800	300.800	300.800	300.800	300.800	300.800	300.800	300.800
GROUND LEVELS	286.738	286.852	286.556	286.482	286.454	286.461	286.435	286.448	286.440	286.408	286.461	286.467	286.473	286.468	286.678	286.857	286.992	287.341	287.644	287.761	287.878	287.948	287.955	287.927	287.795	287.386	286.982	286.555	286.234	286.014	285.964	
CHAINAGE	-276.000	-300.000	-325.000	-350.000	-375.000	-400.000	-425.000	-450.000	-475.000	-500.000	-525.000	-550.000	-575.000	-600.000	-625.000	-650.000	-675.000	-700.000	-725.000	-750.000	-775.000	-800.000	-825.000	-850.000	-875.000	-900.000	-925.000	-950.000	-975.000	-1000.000	-1025.000	

**ELEVATED SECTION**

**Note:**

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**MAHARASHTRA METRO RAIL CORPORATION LIMITED**  
**METRO BHAVAN, INFROUNT OF DR. BABASAHEB AMBEDKAR COLLEGE, DEEKSHABHOOMI, NAGPUR- 440010**

Project Name: **NAGPUR METRO RAIL PROJECT PHASE-II**

TITLE: **PLAN & PROFILE OF REACH 4A (FOR TENDER PURPOSE ONLY)**

DWG NO. **MM/Pig/NIT/NGP/P-II/4A/R2/2023**

Updated Month: **October 2023**

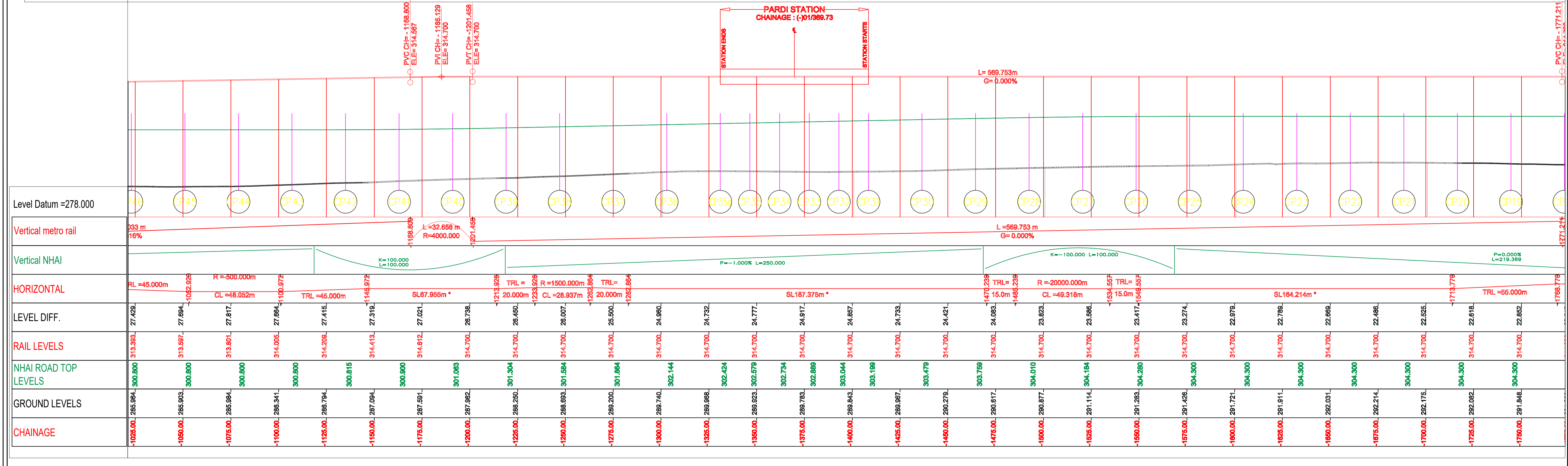
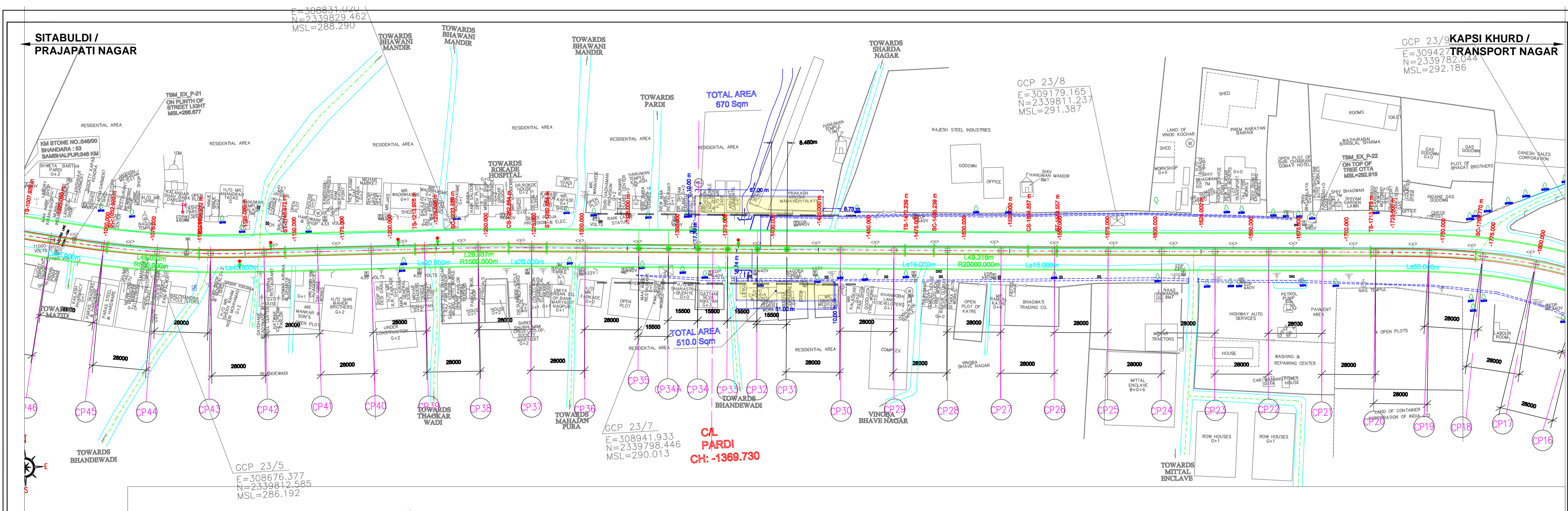
Scale: **H=1:1000 V=1:500**

Revision No. **R02**

Revision date: **26/10/2023**

Project Name: **PRAJAPATI NAGAR TO TRANSPORT NAGAR (4A)**

SHEET NO.: **01 OF 08**



**ELEVATED SECTION**

**Note:-**

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**MAHARASHTRA METRO RAIL CORPORATION LIMITED**  
 METRO BHAVAN, INFRONT OF DR. BABASAHEB AMBEDKAR COLLEGE, DEEKSHABHOOMI, NAGPUR- 4400010

**Project Name: NAGPUR METRO RAIL PROJECT PHASE-II**

**TITLE: PLAN & PROFILE OF REACH 4A (FOR TENDER PURPOSE ONLY)**

Updated Month: **October 2023**

Scale: H=1:1000, V=1:500, Print in A1 Size

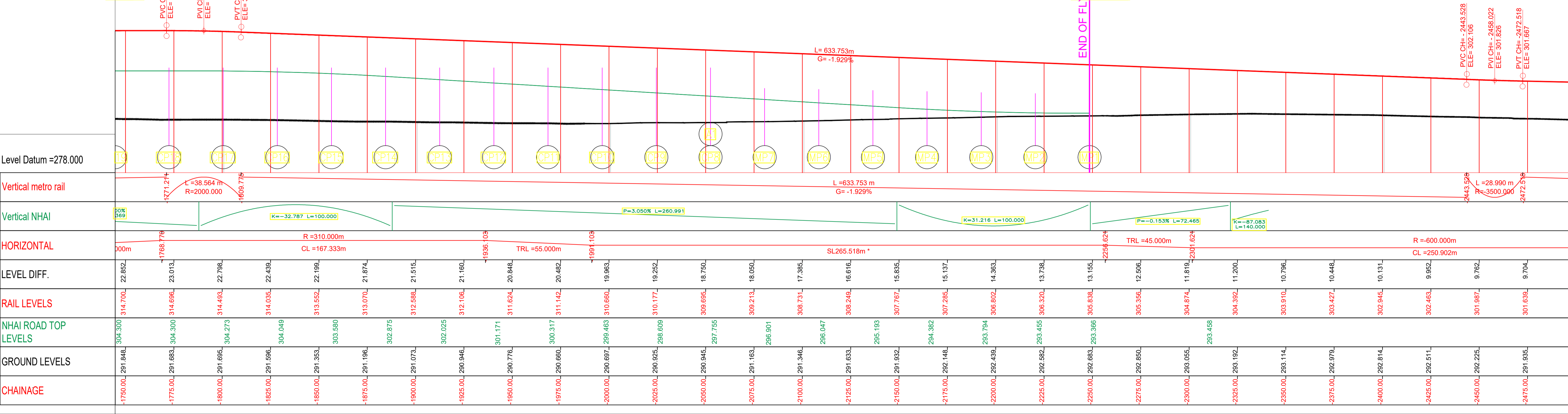
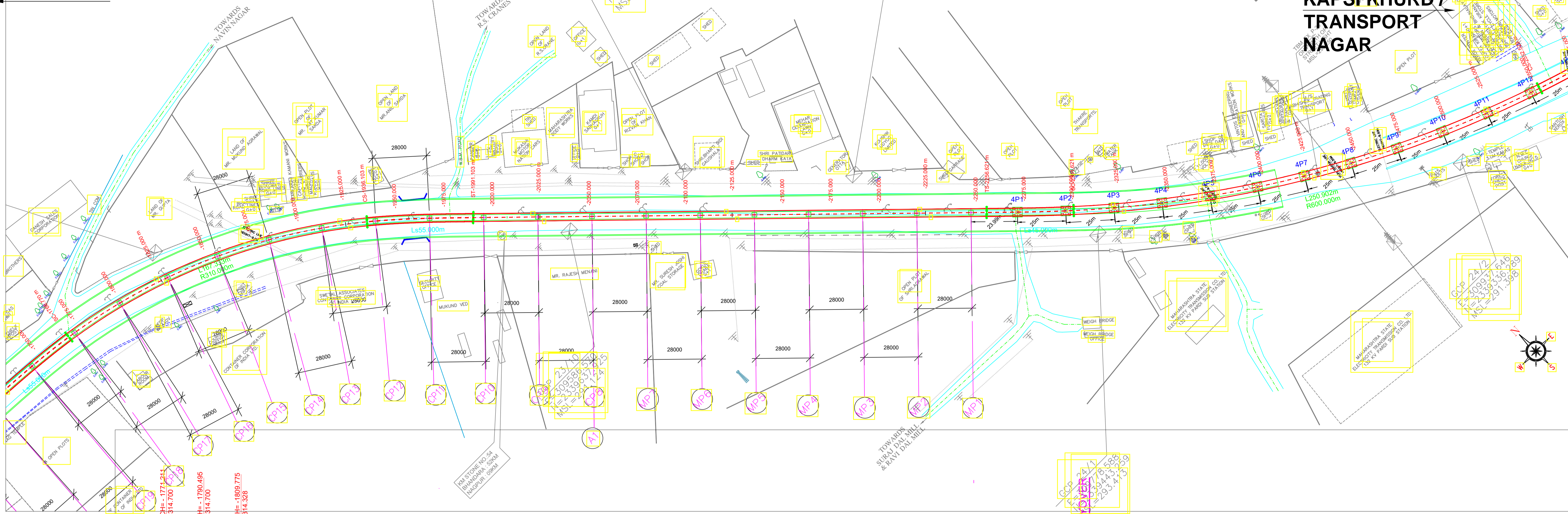
DWG NO. **MM/Pig/NIT/NGP/P-II/4A/R2/2023**

Revision No. **R02**, Revision date **26/10/2023**

SHEET NO.: **02 OF 08**

**SITABULDI / PARDI**


**KAPSI KHURD / TRANSPORT NAGAR**



Level Datum =278.000	22.852	23.013	22.798	22.439	22.199	21.874	21.515	21.160	19.963	19.252	18.750	18.050	17.385	16.616	15.835	15.137	14.363	13.738	13.155	12.506	11.819	11.200	10.796	10.131	9.562	9.762	9.704	
Vertical metro rail	314.700	314.696	314.493	314.035	313.552	313.070	312.588	312.106	311.624	311.142	309.695	308.213	306.731	305.249	303.767	302.285	300.802	300.320	300.838	300.356	304.874	304.392	303.910	302.463	301.987	301.638	301.638	
Vertical Nhai	304.300	304.300	304.273	304.049	303.580	302.875	302.025	301.171	300.317	299.463	298.609	297.755	296.901	296.047	295.193	294.382	293.794	293.455	293.396	293.458	293.055	293.192	293.114	292.979	292.814	292.225	291.935	291.935
HORIZONTAL	000m	-1766.776																										
LEVEL DIFF.																												
RAIL LEVELS																												
Nhai ROAD TOP LEVELS																												
GROUND LEVELS																												
CHAINAGE																												

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**MAHARASHTRA METRO RAIL CORPORATION LIMITED**  
 METRO BHAVAN, INFRONT OF DR. BABASAHEB AMBEDKAR COLLEGE, DEEKSHABHOOMI, NAGPUR- 4400010

Project Name: **NAGPUR METRO RAIL PROJECT PHASE-II**

TITLE: **PLAN & PROFILE OF REACH 4A**  
**(FOR TENDER PURPOSE ONLY)**

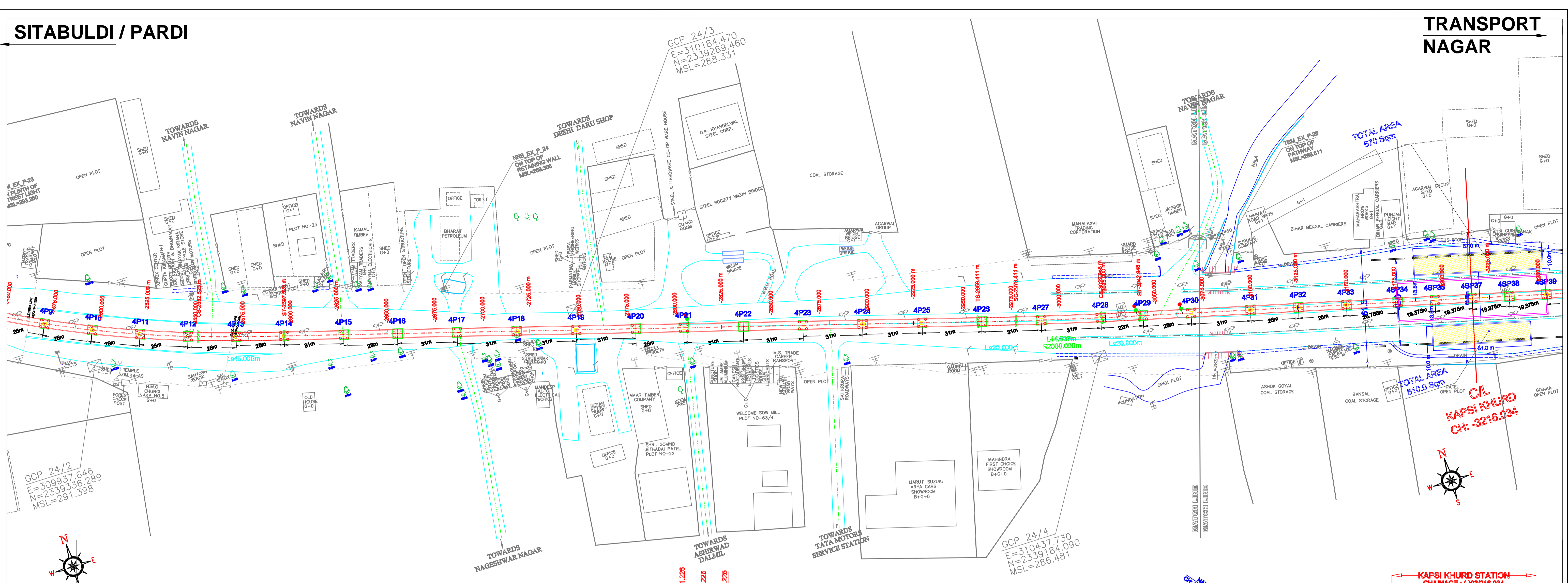
DWG NO. **MM/PIg/NIT/NGP/P-II/4A/R2/2023**

Updated Month: **October 2023**

Scale: H=1:1000, V=1:500, Print in A1 Size

Revision No. **R02** Revision date **26/10/2023**

**PRAJAPATI NAGAR TO TRANSPORT NAGAR (4A)** SHEET NO.: **03 OF 08**



**Note: -**

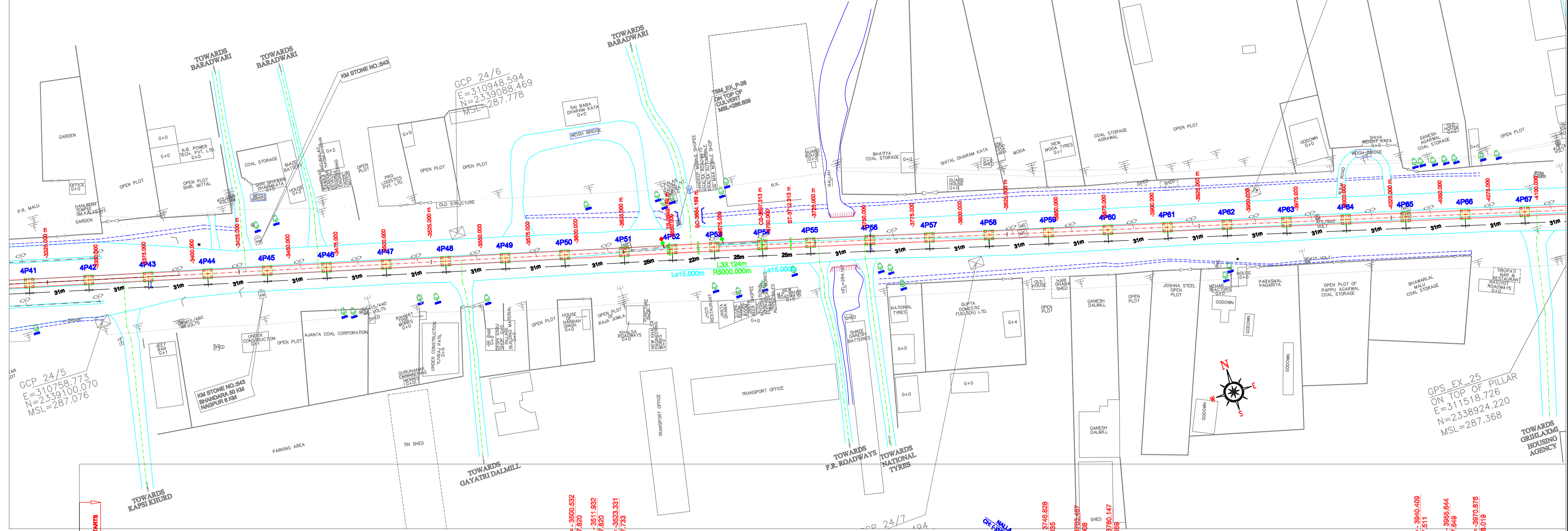
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**MAHARASHTRA METRO RAIL CORPORATION LIMITED**  
 METRO BHAVAN, INFRONT OF DR. BABASAHEB AMBEDKAR COLLEGE, DEEKSHABHOOMI, NAGPUR- 4400010

Project Name: **NAGPUR METRO RAIL PROJECT PHASE-II**  
 TITLE: **PLAN & PROFILE OF REACH 4A**  
**(FOR TENDER PURPOSE ONLY)**  
 DWG NO. **MM/PIg/NIT/NGP/P-II/4A/R2/2023**  
 Updated Month: **October 2023**  
 Scale: H=1:1000, V=1:500, Print in A1 Size  
 Revision No. **R02** Revision date **26/10/2023**  
**PRAJAPATI NAGAR TO TRANSPORT NAGAR (4A)** SHEET NO.: **04OF 08**

# SITABULDI / KAPSI KHURD

# TRANSPORT NAGAR



Level Datum =278.0																																
Vertical metro rail																																
Vertical NHAI																																
HORIZONTAL	<p>SL.606.242m *</p> <p>TRL=15.0m, R=5000.000m, CL=33.124m, TRL=15.0m, TRL=15.0m</p>																															
LEVEL DIFF.	11.492	11.394	11.290	11.092	10.782	10.494	10.194	9.893	9.718	9.650	9.622	9.625	9.530	9.605	9.660	9.842	10.030	10.009	10.067	10.094	10.078	10.192	10.242	10.178	10.194	10.169	10.192	10.200	10.194	10.553	11.041	
RAIL LEVELS	297.820	297.820	297.820	297.820	297.820	297.820	297.820	297.820	297.820	297.820	297.820	297.721	297.631	297.341	297.151	296.961	296.771	296.581	296.391	296.201	296.013	295.819	295.629	295.439	295.249	295.059	294.869	294.679	294.489	294.299	294.109	
NHAI ROAD TOP LEVELS																																
GROUND LEVELS	286.328	286.426	286.580	286.758	287.058	287.396	287.686	287.957	288.101	288.170	288.181	288.096	288.001	287.796	287.491	287.018	286.741	286.572	286.324	286.107	285.935	285.627	285.997	286.286	286.498	286.693	286.848	286.933	287.171	287.427	287.566	287.686
CHAINAGE	-3280.00	-3276.00	-3300.00	-3326.00	-3390.00	-3376.00	-3400.00	-3426.00	-3460.00	-3476.00	-3500.00	-3526.00	-3550.00	-3576.00	-3600.00	-3626.00	-3650.00	-3676.00	-3700.00	-3726.00	-3750.00	-3776.00	-3800.00	-3826.00	-3850.00	-3876.00	-3900.00	-3926.00	-3950.00	-3976.00	-4000.00	

**Note:**

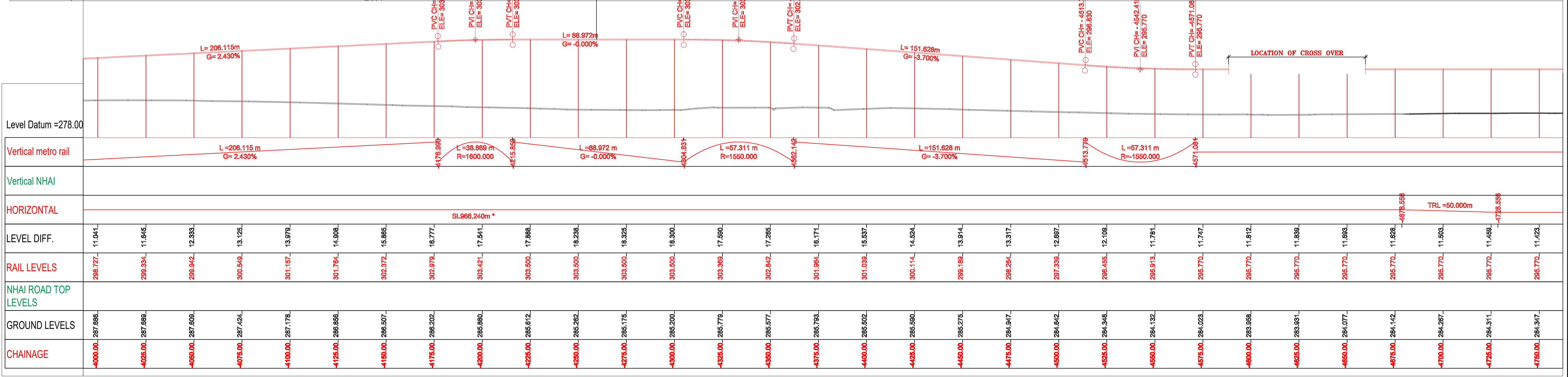
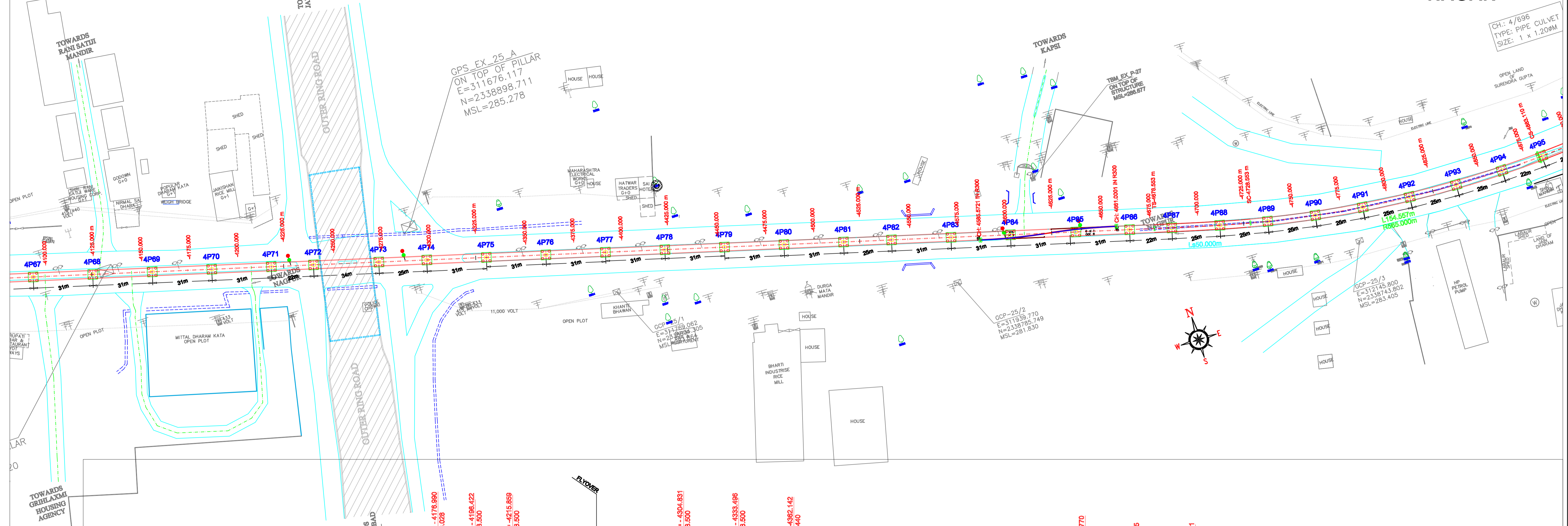
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**MAHARASHTRA METRO RAIL CORPORATION LIMITED**  
 METRO BHAVAN, INFRONT OF DR. BABASAHEB AMBEDKAR COLLEGE, DEEKSHABHOOMI, NAGPUR- 4400010

Project Name: <b>NAGPUR METRO RAIL PROJECT PHASE-II</b>	
TITLE: <b>PLAN &amp; PROFILE OF REACH 4A (FOR TENDER PURPOSE ONLY)</b>	Updated Month: <b>October 2023</b>
DWG NO. <b>MM/PIG/NIT/NGP/P-II/4A/R2/2023</b>	Scale: H=1:1000, V=1:500, Print in A1 Size
<b>PRAJAPATI NAGAR TO TRANSPORT NAGAR (4A)</b>	Revision No. <b>R02</b> , Revision date <b>26/10/2023</b>
SHEET NO.: <b>05OF 08</b>	

SITABULDI / KAPSI KHURD

TRANSPORT NAGAR



**Note:**

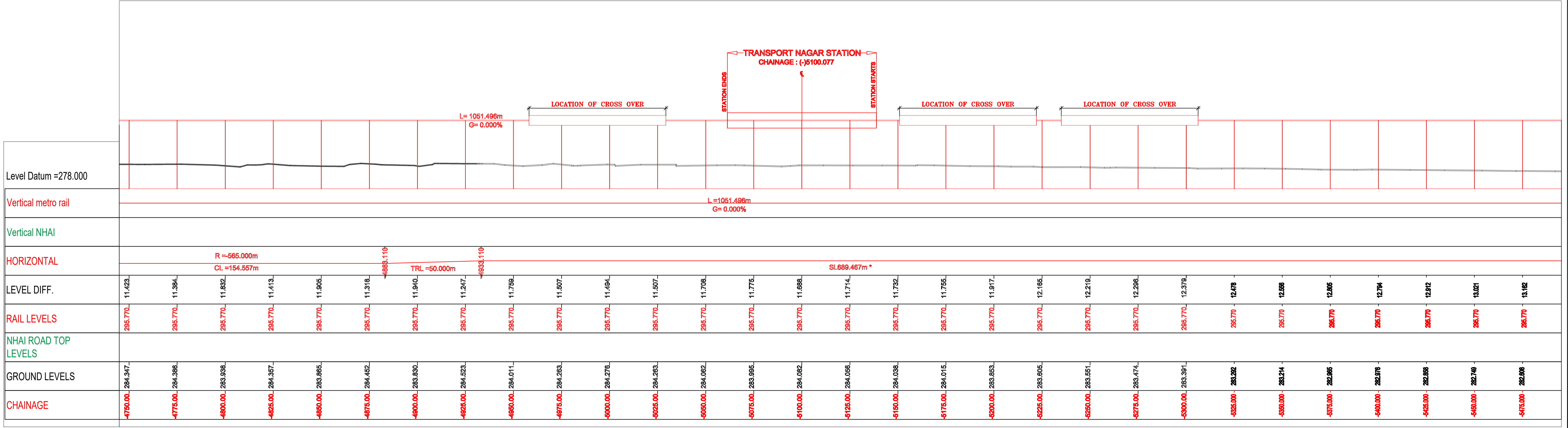
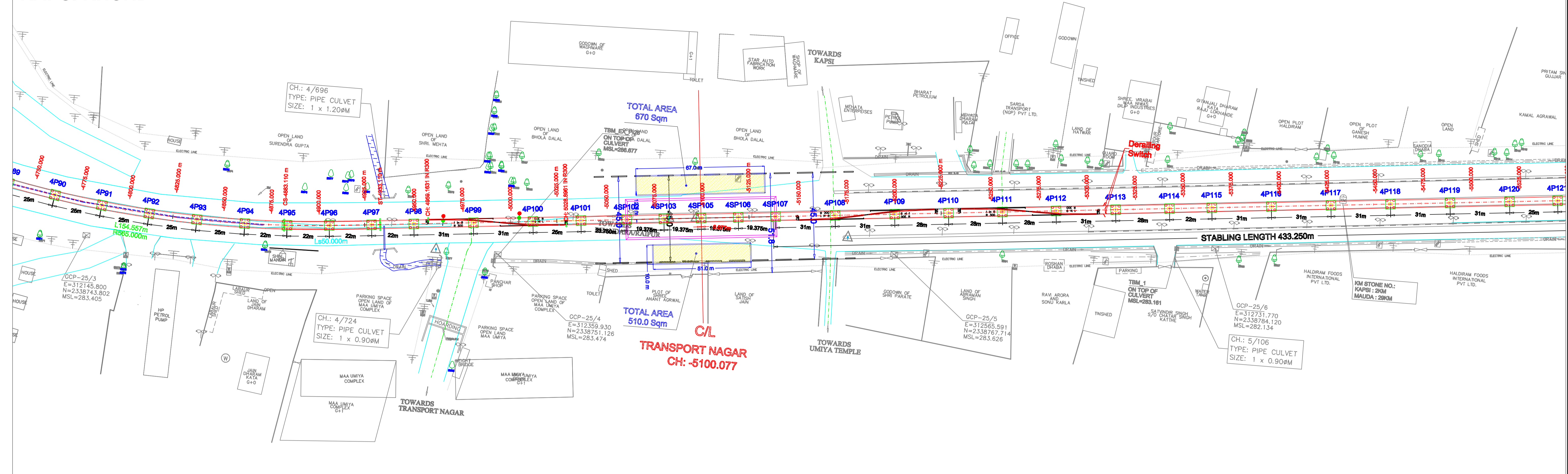
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 METRO BHAVAN, INFRONT OF DR. BABASAHEB AMBEDKAR COLLEGE, DEEKSHABHOOMI, NAGPUR- 4400010

Project Name: **NAGPUR METRO RAIL PROJECT PHASE-II**  
 TITLE: **PLAN & PROFILE OF REACH 4A (FOR TENDER PURPOSE ONLY)**  
 DWG NO.: **MM/PIg/NIT/NGP/P-II/4A/R2/2023**  
 Updated Month: **October 2023**  
 Scale: **H=1:1000, V=1:500**  
 Revision No. **R02** Revision date **26/10/2023**  
 PRAJAPATI NAGAR TO TRANSPORT NAGAR (4A) SHEET NO.: **06 OF 08**

# SITABULDI / KAPSI KHURD

DEAD END



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 METRO BHAVAN, INFRONT OF DR. BABASAHEB AMBEDKAR COLLEGE, DEEKSHABHOOMI, NAGPUR- 4400010

Project Name: **NAGPUR METRO RAIL PROJECT PHASE-II**

TITLE: **PLAN & PROFILE OF REACH 4A (FOR TENDER PURPOSE ONLY)**

DWG NO. **MM/Pig/NIT/NGP/P-II/4A/R2/2023**

Updated Month: **October 2023**

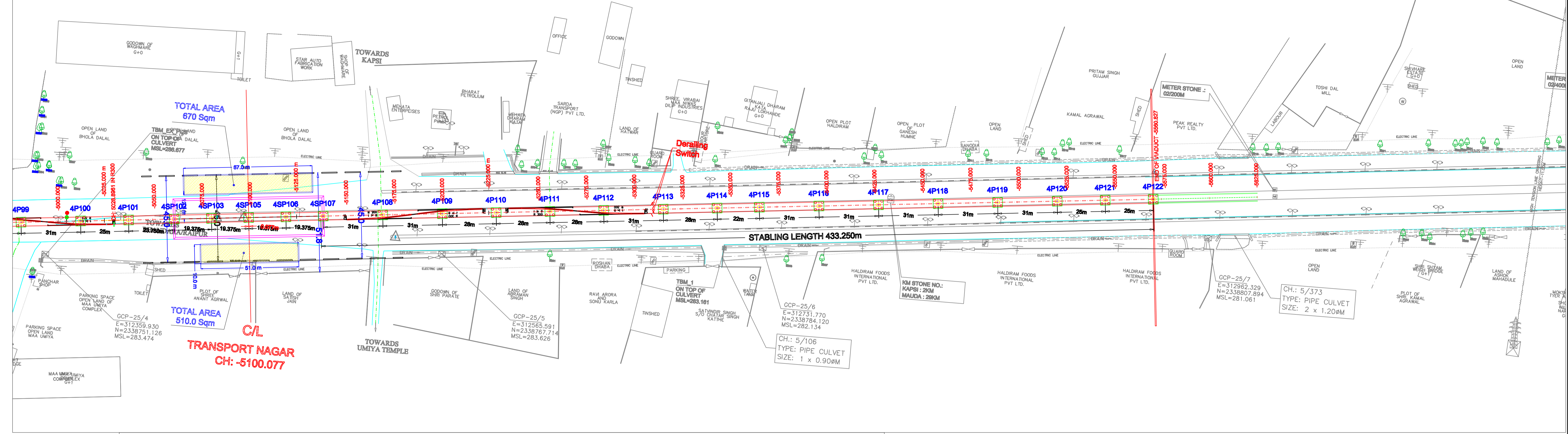
Scale: **H=1:1000, V=1:500, Print in A1 Size**

Revision No. **R02** | Revision date **26/10/2023**

**PRAJAPATI NAGAR TO TRANSPORT NAGAR (4A)** | SHEET NO.: **07 OF 08**

# SITABULDI / KAPSI KHURD

DEAD END



Level Datum =278.000

Vertical metro rail

Vertical NHAI

HORIZONTAL

LEVEL DIFF.	13.182	13.373	13.497	13.896	14.278	14.599	14.743	14.885	14.981	15.127	15.278	15.270	15.275	15.298		
RAIL LEVELS	285.770	285.770	285.770	285.770	285.770	285.770	285.770	285.770	285.770	285.770	285.770	285.770	285.770	285.770		
NHAI ROAD TOP LEVELS																
GROUND LEVELS	282.898	282.897	282.273	281.994	281.482	281.181	281.027	280.875	280.798	280.843	280.482	280.590	280.485	280.472	280.469	280.482
CHAINAGE	-5475.000	-5500.000	-5525.000	-5550.000	-5575.000	-5600.000	-5625.000	-5650.000	-5675.000	-5700.000	-5725.000	-5750.000	-5775.000	-5800.000	-5825.000	-5850.000

END OF REACH 4A  
CH: -5560.827

**ELEVATED SECTION**

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 METRO BHAVAN, INFRONT OF DR. BABASAHEB AMBEDKAR COLLEGE, DEEKSHABHOOMI, NAGPUR- 4400010

Project Name: **NAGPUR METRO RAIL PROJECT PHASE-II**

TITLE: **PLAN & PROFILE OF REACH 4A (FOR TENDER PURPOSE ONLY)**

Updated Month: **October 2023**

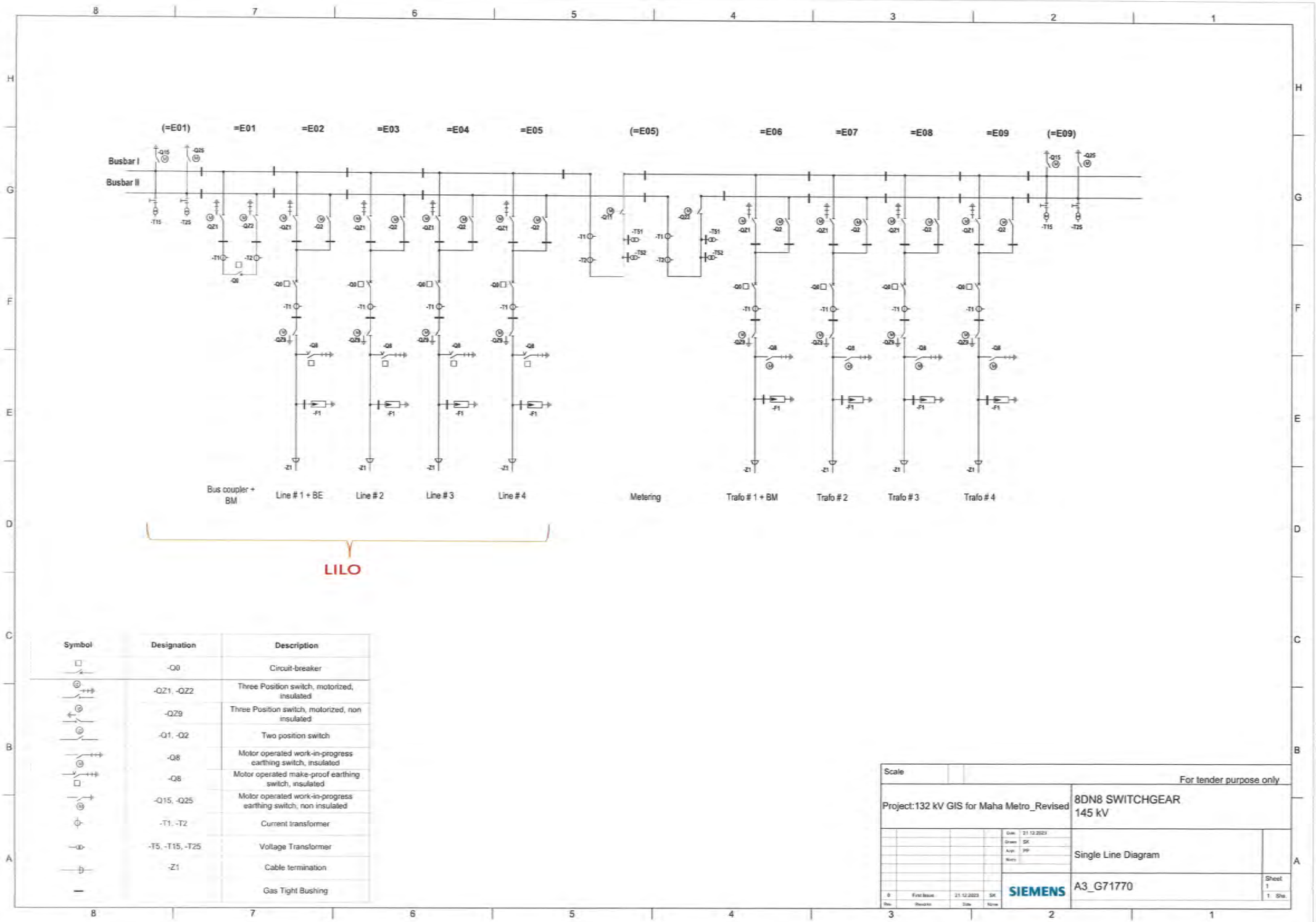
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Revision No. **R02** | Revision date **26/10/2023**

DWG NO. **MM/PIg/NIT/NGP/P-II/4A/R2/2023** | SHEET NO.: **08 OF 08**

PRAJAPATI NAGAR TO TRANSPORT NAGAR (4A)





Symbol	Designation	Description
	-Q0	Circuit-breaker
	-QZ1, -QZ2	Three Position switch, motorized, insulated
	-QZ9	Three Position switch, motorized, non insulated
	-Q1, -Q2	Two position switch
	-Q8	Motor operated work-in-progress earthing switch, insulated
	-Q6	Motor operated make-proof earthing switch, insulated
	-Q15, -Q25	Motor operated work-in-progress earthing switch, non insulated
	-T1, -T2	Current transformer
	-T5, -T15, -T25	Voltage Transformer
	-Z1	Cable termination
		Gas Tight Bushing

Scale		For tender purpose only							
Project: 132 kV GIS for Maha Metro_Revised		8DN8 SWITCHGEAR 145 kV							
		<table border="1"> <tr> <td>Drawn</td> <td>SK</td> </tr> <tr> <td>Appr</td> <td>YIP</td> </tr> <tr> <td>Rev</td> <td></td> </tr> </table>	Drawn	SK	Appr	YIP	Rev		Single Line Diagram
Drawn	SK								
Appr	YIP								
Rev									
		SIEMENS	A3_G71770						
0	First Issue	21.12.2023	SK						
Rev	Revised	Date	Name						
			Sheet 1 of 1						



Indian Electrical & Electronics Manufacturer's Association  
 501, Kakad Chambers P +91 22 2493 0532  
 132, Dr. A. B. Road, Worli, F +91 22 2493 2705  
 Mumbai 400 018 E mumbai@ieema.org  
 India W www.ieema.org

**Cir. No. 09/PVC/MV-HV SWGR/05**

**18<sup>th</sup> July 2022**

To Members of MV-HV Switchgear Division  
 To all State Electricity Boards, Utilities and Other purchasing organizations

**Sub: Final Price Variation Formulae for MV Gas insulated Switchgear (MV GIS)**

Gas Insulated Switchgear (GIS). GIS is high value product with a mix of various domestic and imported raw materials/components and having manufacturing time of around 12-15 months. MV-HV Switchgear division of IEEMA has decided to evolve new PV Clause for **MV Gas insulated Switchgear**.

IEEMA has collected costing data from major manufacturers of MV GIS and arrived at the draft Price Variation Clauses – separate up to 12 KV and 12-36 KV which was circulated vide cir no 01/PVC/MV-HV SWGR dated 3<sup>rd</sup> Jan 2022 to all stake holders for their review/comments.

Only Exchange rate has been considered to represent the imported portion of the GIS in terms of value; which is to be declared and mutually agreed between supplier and purchaser along with basket of currencies with appropriate cost weightages; aggregating to not more than 8 as given in above PV formula.

Since there are no adverse comments received; we are making it operational from 1st June 2022.

We have enclosed PV clauses applicable for MV Gas insulated Switchgear (MV GIS) which are effective from 1st June 2022.

We request and recommend all the users & stakeholders including Utilities, PSUs etc. to incorporate this new PV formulae in all the new tenders/contracts henceforth.

**Director**



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IEEMA(PVC)/ MV GIS- Above 12 KV up to 36 KV

Effective from: 1st June 2022

**PRICE VARIATION CLAUSE FOR MEDIUM VOLTAGE GAS INSULATED SWITCHGEAR (MV GIS)  
 ABOVE 12 KV UPTO & INCLUDING 36 KV**

The price quoted/confirmed is based on the input cost of raw materials/components and labour cost as on the date of quotation and the same is deemed to be related to prices of raw materials and all India average consumer price index number for industrial workers as specified in the price variation clause given below. In case of any variation in these prices and index numbers, the price payable shall be subject to adjustment, up or down in accordance with the following formula:

$$P = \frac{P_0}{100} \left( 16 + 16 \frac{IS}{IS_0} + 8 \frac{S}{S_0} + 18 \frac{Cu}{Cu_0} + 5 \frac{Al}{Al_0} + 6 \frac{ER}{ER_0} + 16 \frac{EC}{EC_0} + 15 \frac{W}{W_0} \right)$$

Wherein,

- P = Price payable as adjusted in accordance with the above formula.
- P<sub>0</sub> = Price quoted/confirmed.
- IS<sub>0</sub> = Price of HR Coil 3.15 mm (refer notes)  
 This price is as applicable for the month, **ONE** month prior to the date of tendering.
- S<sub>0</sub> = Wholesale price index number for 'Stainless steel coils, strips and sheets' (Base: 2011-12=100)  
 (refer notes)  
 This price is as applicable for the month, **THREE** months prior to the date of tendering.
- Cu<sub>0</sub> = Price of CC copper rods (refer notes)  
 This price is as applicable for the month, **ONE** month prior to the date of tendering.
- Al<sub>0</sub> = LME CSP Average of Aluminium (refer notes)  
 This price is as applicable for the month, **ONE** month prior to the date of tendering.
- ER<sub>0</sub> = Price of Epoxy resin (refer notes)  
 This price is as applicable for the month, **ONE** month prior to the date of tendering.
- EC<sub>0</sub> = IEEMA's Banker's selling rate of exchange between foreign currencies prevailing as on first working day (refer notes)  
 This exchange rate is as applicable **ONE** month prior to the date of tendering
- W<sub>0</sub> = All India average consumer price index number for industrial workers, as published by the Labour Bureau, Ministry of Labour, Govt. of India (Base: 2016 = 100)  
 This index number is as applicable for the month, **THREE** months prior to the date of tendering.



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### IEEMA(PVC)/ MV GIS- Above 12 KV up to 36 KV

**Effective from: 1st June 2022**

For example, if date of tendering falls in June 2022, applicable prices of HR Coil ( $IS_0$ ), Copper ( $Cu_0$ ), Aluminium ( $Al_0$ ), Epoxy Resin ( $ER_0$ ) and Exchange rate ( $EC_0$ ) should be as on May 2022 and Wholesale price index number for 'Stainless steel coils, strips and sheets' ( $S_0$ ) and all India average consumer price index no. ( $W_0$ ) should be for the month of March 2022.

The above prices and indices are as published by IEEMA vide circular reference number **IEEMA(PVC)GIS/\_\_\_/\_\_\_ ONE** month prior to the date of tendering.

- IS = Price of HR Coil 3.15 mm (refer notes)  
 This price is as applicable for the month, **ONE** month prior to the date of delivery.
- S = Wholesale price index number for 'Stainless steel coils, strips and sheets' (Base: 2011-12=100) (refer notes)  
 This price is as applicable for the month, **THREE** months prior to the date of delivery.
- Cu = Price of CC copper rods (refer notes)  
 This price is as applicable for the month, **TWO** months prior to the date of delivery.
- Al = LME CSP Average of Aluminium (refer notes)  
 This price is as applicable for the month, **TWO** months prior to the date of delivery.
- ER = Price of Epoxy resin (refer notes)  
 This price is as applicable for the month, **ONE** month prior to the date of delivery.
- EC = IEEMA's Banker's selling rate of exchange between foreign currencies prevailing as on first working day (refer notes)  
 This exchange rate is as applicable **ONE** month prior to the date of delivery.
- W = All India average consumer price index number for industrial workers, as published by the Labour Bureau, Ministry of Labour, Govt. of India (Base: 2016 = 100)  
 This index number is as applicable for the month, **THREE** months prior to the date of delivery.

For example, if date of delivery in terms of clause given below falls in December 2022, applicable prices of HR Coil (IS), Epoxy Resin (ER) and Exchange rate (EC) should be as on November 2022 and Copper (Cu), Aluminium (Al) should be as on October 2022, and Wholesale price index number for 'Stainless steel coils, strips and sheets' (S) and all India average consumer price index no. (W) should be for the month of September 2022.

The above prices and indices are as published by IEEMA vide circular reference number **IEEMA(PVC)GIS/\_\_\_/\_\_\_ ONE** month prior to the date of delivery.



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### IEEMA(PVC)/ MV GIS- Above 12 KV up to 36 KV

**Effective from: 1st June 2022**

The date of delivery is the date on which the MV GIS is notified as being ready for inspection/despatch (in the absence of such notification, the date of manufacturer's despatch note is to be considered as the date of delivery) or the contracted delivery date (including any agreed extension thereto), whichever is earlier.

Notes:

- a) All prices of raw materials are exclusive of GST/CV duty amount and exclusive of any other central, state or local taxes etc.
- b) The details of prices are as under:
  1. The Price of 8 mm CC copper rod (in Rs/MT) is ex-works price as quoted by the primary producer.
  2. Price of Steel is the average retail price of steel HR Coil 3.15 mm thickness as published by Joint Plant Committee (JPC) in Rs./MT
  3. Price of LME average Cash SELLER Settlement price of Primary Aluminium in US\$ per MT as published by London Metal Bulletin (LME) including Premium for Aluminium Ingot in US\$ per MT is converted in Indian Rs./MT using exchange rate and adding appropriate customs duty.
  4. The wholesale price index number for 'Stainless steel coils, strips and sheets' is as published by the Office of Economic Advisor, Ministry of commerce & Industry, Govt. of India, New Delhi with base 2011-12 = 100
  5. The price of Epoxy resin is price quoted by resin manufacturer for their grade CT 5900 or its nearest equivalent.
  6. The exchange rates in Indian Rs. would be for the following currencies only.
    - 1) US Dollars      2) pound Sterling      3) Japanese Yen      4) Euro

Exchange rate is to represent the imported portion of the GIS in terms of value; which is to be declared and mutually agreed between supplier and purchaser along with basket of currencies with appropriate cost weightages; aggregating to not more than 8 as given in above PV formula

**Authorised Signatory**



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**IEEMA/PVC/ST Poles/2023**

**Effective from: 1<sup>st</sup> Apr 2023**

**Cir. No. 16/PVC/T & D Project/05**

**08 May 2023**

To Members of T & D Project Division, SEBs and other listed purchasing bodies.

**Sub: Revision in PV formulae for Steel Tubular Pole (galvanized) and  
 New PV formulae for Steel Tubular Pole - MS painted/Ungalvanized**

IEEMA had circulated draft revised price variation formulae for Steel Tubular Poles and draft PV formula for Steel Tubular Pole - MS painted/Ungalvanized to all stakeholders vide circular no. **12/PVC/T & D Project/05 dated 23 Mar 2023** for review with intention to make these applicable from 1<sup>st</sup> Apr 2023.

Since there are no adverse comments received; we are making it operational from 1<sup>st</sup> April 2023.

We have enclosed revised PV clause applicable for Steel Tubular Poles and new PV formula for Steel Tubular Pole - MS painted/Ungalvanized which are effective from 1<sup>st</sup> April 2023.

We request and recommend all the users & stakeholders including Utilities, PSUs etc. to incorporate these PV formulae in all the new tenders/contracts henceforth.

Kindly note that for the current ongoing/pending contracts for supply of Steel Tubular Poles (Galvanized) where PV formula of Steel Tubular Poles (Galvanized) wef 1<sup>st</sup> April 2022 has been made applicable for settlement of PV claims; the same will only be applicable. There will not be switch over/Two stage method applicable for PV calculation for such contracts. i.e. For such contracts, user will have to consider steel price of 4 months prior to the date of delivery in the PV calculation.

Note: There is no change in PV formulae applicable for Polygonal Poles as published vide circular no. **10/PVC/T & D Project/05 dated 25 May 2022 wef April 2022.**

**Director**



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IEEMA/PVC/ST Poles/2023

Effective from: 1<sup>st</sup> Apr 2023

**PRICE VARIATION CLAUSE FOR STEEL TUBULAR POLES**

The price quoted/confirmed is based on the input cost of raw materials/components and labour cost as on the date of quotation and the same is deemed to be related to prices of raw materials and all India average consumer price index number for industrial workers as specified in the price variation clause given below. In case of any variation in these prices and index numbers, the price payable shall be subject to adjustment, up or down in accordance with the following formula:

**(A) Steel Tubular Poles - Galvanised**

$$P = \frac{P_0}{100} \left( 7 + 70 \frac{IS}{IS_0} + 13 \frac{Zn}{Zn_0} + 10 \frac{W}{W_0} \right)$$

**(B) Steel Tubular Poles – MS painted – Ungalvanised**

$$P = \frac{P_0}{100} \left( 8 + 81 \frac{IS}{IS_0} + 11 \frac{W}{W_0} \right)$$

Wherein,

- P = Price payable as adjusted in accordance with the above formula.
- P<sub>0</sub> = Price quoted/confirmed.
- IS<sub>0</sub> = Price of HR Coil of 3.15 mm thickness (refer notes)  
 This price is as applicable for the month, **ONE** month prior to the date of tendering.
- Zn<sub>0</sub> = Price of Electrolytic high grade zinc (refer notes)  
 This price is as applicable on the 1st working day of the month, **ONE** month prior to the date of tendering.
- W<sub>0</sub> = All India average consumer price index number for industrial workers, as published by the Labour Bureau, Ministry of Labour, Govt. of India (Base: 2016 = 100) (Refer notes)  
 This index number is as applicable for the month, **THREE** months prior to the date of tendering.

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### IEEMA/PVC/ST Poles/2023

**Effective from: 1<sup>st</sup> Apr 2023**

For example, if date of tendering falls in May 2023, the applicable prices of HR Coil (IS<sub>0</sub>) and Zinc (Zn<sub>0</sub>) should be for the month April 2023 and all India average consumer price index number (W<sub>0</sub>) should be for the month of February 2023.

The above prices and indices are as published by IEEMA vide circular reference number IEEMA (PVC)/TLT-2022)/\_/\_ **ONE** month prior to the date of tendering.

- IS = Price of HR Coil of 3.15 mm thickness (refer notes)  
 This price is as applicable for the month, **TWO** month prior to the date of delivery.
- Zn = Price of Electrolytic high grade zinc (refer notes)  
 This price is as applicable on the 1st working day of the month, **ONE** month prior to the date of delivery.
- W = All India average consumer price index number for industrial workers, as published by the Labour Bureau, Ministry of Labour, Govt. of India (Base: 2016 = 100) (Refer notes)  
 This index number is as applicable on the first working day of the month, **THREE** months prior to the date of delivery.

For example, if date of delivery falls in December 2023, the applicable prices of HR Coil (IS) should be for October 2023 and Zinc (Zn) should be for the month November 2023 and all India average consumer price index number (W) should be for the month of September 2023.

The date of delivery is the date on which Poles are notified as being ready for inspection/dispatch (in the absence of such notification, the date of manufacturer's dispatch note is to be considered as the date of delivery) or the contracted delivery date (including any agreed extension thereto), whichever is earlier.

#### Notes:

- (a) All prices of raw materials are exclusive of GST and any other central, state or local taxes etc.
- (b) The details of prices are as under:
1. Price of steel is the average retail price of HR Coil 3.15 mm thickness as published by Joint Plant Committee (JPC) in Rs./MT.
  2. The price of Electrolytic high grade zinc (in Rs/MT) is ex-works price as quoted by a primary producer.

Director

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**Cir. No. 10/PVC/T & D Project/05**

**25 May 2022**

To Members of T & D Project Division, SEBs and other listed purchasing bodies.

**Sub: New PV formulae for Steel Tubular Pole and Polygonal Pole**

Currently Steel poles are increasingly used in distribution network especially in hilly area due to sturdiness and ease of transportation. And in the wake of upcoming scheme of Revamped Distribution network strengthening scheme (RDSS); members of IEEMA T & D project division decided to evolve PV formula for Steel Tubular Poles and Polygonal Poles.

IEEMA has collected costing data, lead time for manufacturing etc. from major manufacturers of poles and in consultation with division arrived at the draft Price Variation Clauses for Steel Tubular Poles and Polygonal Poles and circulated to all stakeholders vide circular no. **14/PVC/T & D Project/05 dated 9 Mar 22** for their comments.

After incorporating changes suggested by the industry stakeholders on the **Steel Tubular Pole and Polygonal Pole** PV formulae; we are making the Price Variation formulae operational from 1<sup>st</sup> April 2022.

We have enclosed PV clauses applicable for **Steel Tubular Pole and Polygonal Pole** which are effective from 1<sup>st</sup> April 2022.

Although, the PV clause is made effective from 1<sup>st</sup> April 2022, practically it can be incorporated in all the current new tenders/contracts starting from 1<sup>st</sup> May 2022.

We request and recommend all the users & stakeholders including Utilities, PSUs etc. to incorporate the above PV formulae in all the new tenders/contracts henceforth.

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IEEMA/PVC/Poles/2022

Effective from: 1<sup>st</sup> Apr 2022

### PRICE VARIATION CLAUSE FOR POLES

The price quoted/confirmed is based on the input cost of raw materials/components and labour cost as on the date of quotation and the same is deemed to be related to prices of raw materials and all India average consumer price index number for industrial workers as specified in the price variation clause given below. In case of any variation in these prices and index numbers, the price payable shall be subject to adjustment, up or down in accordance with the following formula:

#### (A) Steel Tubular Poles

$$P = \frac{P_0}{100} \left( 7 + 70 \frac{IS}{IS_0} + 13 \frac{Zn}{Zn_0} + 10 \frac{W}{W_0} \right)$$

#### (B) Polygonal Poles

$$P = \frac{P_0}{100} \left( 9 + 64 \frac{IS}{IS_0} + 13 \frac{Zn}{Zn_0} + 14 \frac{W}{W_0} \right)$$

Wherein,

- P = Price payable as adjusted in accordance with the above formula.
- P<sub>0</sub> = Price quoted/confirmed.
- IS<sub>0</sub> = Price of HR Coil of 3.15 mm thickness (refer notes)  
This price is as applicable for the month, **ONE** month prior to the date of tendering.
- Zn<sub>0</sub> = Price of Electrolytic high grade zinc (refer notes)  
This price is as applicable on the 1st working day of the month, **ONE** month prior to the date of tendering.
- W<sub>0</sub> = All India average consumer price index number for industrial workers, as published by the Labour Bureau, Ministry of Labour, Govt. of India (Base: 2016 = 100) (Refer notes)  
This index number is as applicable for the month, **THREE** months prior to the date of tendering.

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### IEEMA/PVC/Poles/2022

Effective from: 1<sup>st</sup> Apr 2022

For example, if date of tendering falls in May 2022, the applicable prices of HR Coil (IS<sub>0</sub>) should be for the month March 2022, Zinc (Zn<sub>0</sub>) should be for the month April 2022 and all India average consumer price index number (W<sub>0</sub>) should be for the month of February 2022.

The above prices and indices are as published by IEEMA vide circular reference number IEEMA (PVC)/TLT-2014 (R-1)/\_/ \_ **ONE** month prior to the date of tendering.

- IS = Price of HR Coil of 3.15 mm thickness (refer notes)  
 This price is as applicable for the month, **FOUR** month prior to the date of delivery.
- Zn = Price of Electrolytic high grade zinc (refer notes)  
 This price is as applicable on the 1st working day of the month, **ONE** month prior to the date of delivery.
- W = All India average consumer price index number for industrial workers, as published by the Labour Bureau, Ministry of Labour, Govt. of India (Base: 2016 = 100) (Refer notes)  
 This index number is as applicable on the first working day of the month, **THREE** months prior to the date of delivery.

For example, if date of delivery falls in December 2022, the applicable prices of HR Coil (IS) should be for August 2022 and Zinc (Zn) should be for the month November 2022 and all India average consumer price index number (W) should be for the month of September 2022.

The date of delivery is the date on which Poles are notified as being ready for inspection/dispatch (in the absence of such notification, the date of manufacturer's dispatch note is to be considered as the date of delivery) or the contracted delivery date (including any agreed extension thereto), whichever is earlier.

#### Notes:

- (a) All prices of raw materials are exclusive of GST and any other central, state or local taxes etc.
- (b) The details of prices are as under:
1. Price of steel is the average retail price of HR Coil 3.15 mm thickness as published by Joint Plant Committee (JPC) in Rs./MT.
  2. The price of Electrolytic high grade zinc (in Rs/MT) is ex-works price as quoted by a primary producer.

  
 Director

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**2.4.1 Contracts of Similar Size and Nature**

Criteria	Compliance Requirements				Documents
Requirement	Single Entity	Joint Venture			Submission Requirements
		All Partners Combined	Each Partner	One Partner	
A minimum of Similar Work contracts specified below that have been satisfactorily and *substantial completed for any government agency, PSU or listed in stock exchange as a prime Contractor or as a Joint venture member during last 10 (Ten) years reckoned from last day of the month previous to which the last date of the bid submission falls:					
a) Minimum of Design, Detail Engineering, Supply, Installation, Testing and Commissioning of at least two (2) nos. of 25kV Traction Substation for elevated / at-grade / underground sections of Metro rail or suburban rail or mainline railway.	Must meet requirement	N/A	N/A	Must meet requirement	
b) Minimum of Design, Detail Engineering, Supply, Installation, Testing and Commissioning of at least ten (10) nos. of 11kV and above indoor Auxiliary Sub stations	Must meet requirement	N/A	N/A	Must meet requirement	
c) Minimum of Design, Detail Engineering, Supply, Installation, Testing and Commissioning of at least 1 no. of 110kV and above Substation Systems	Must meet requirement	N/A	N/A	Must meet requirement	
d) Supply, Erection, Testing and Commissioning of SCADA system for Elevated /at grade/ Underground sections of Metro Rail or Monorail or Suburban Rail or Main line Railway System	"Must meet requirement for one contract	N/A	N/A	"Must meet requirement for one contract	

**Note:-**

- 1.\*Substantially completed work means completion of similar works as mentioned in (a) to (d) above fully and have completed at least 80% of the overall contract price. 'Certificate of satisfactory performance of \*\*substantial completion works will also be acceptable'.
2. Client certificate should clearly mention extent of completion. However, minimum technical criteria as mentioned above regarding km & quantity (nos.) should be fulfilled.
3. Maximum number of entities in JV/Consortium should be 3 (three) (Lead Member+ 2 Other Member)
4. Experience as management contractor shall not be applicable

**12.2 110V DC Battery Charger**

SN	Indications	Unit	Expected values	Values submitted
1	Manufacturer			
2	Type of battery charger			
3	Standards		IEC 60146	
4	3 Phases power supply	V AC	415	
5	Frequency	Hz	50	
6	Rated DC voltage	V dc	110	
	Initial Charge			
7	Power conversion		Full wave IGBT based bridge converter for converting 3 phase supply to DC voltage	
8	Cooling		Natural cooling	
9	Average winding Temperature rise over Ambient	° C	90	
10	Internal Cabling/Wiring		FRLS for elevated section	
11	Residual ripple ratio		Less than 2 %	
12	Recharge to 80 % of the battery capacity		8 hrs	
	<b>Meters</b>			
13	Voltmeter on AC side			
14	Voltmeter on DC side			
15	Ammeter on DC side			
	<b>Alarms</b>			
16	AC Main Fail Alarm			
17	DC Overvoltage Alarm			
18	DC Under Voltage Alarm			
19	Charging fail Alarm			
20	Battery low Alarm			
21	One pair of Potential Free Contact grouping all fault to be provided for remote Annunciation at OCC			
	<b>Protections</b>			
22	Current Limit Protection			
23	Soft start feature			
24	Surge suppressor			
25	HRC Fuse at rectifier Output			
26	Battery Reverse Polarity protection			
27	Automatic Changeover feature			
28	Switchgear			
29	Input Side		MCCB/MCB & Fuse	
30	Output Side		MCB & Fuse	

Note:

1. Battery charger shall be capable to give initial charge required for battery bank.

**1.11 Battery Charger**

SN	Description	Type of tests			
		Type	Routine	FAT	On Site
1	Temperature rise*	X			
2	Power frequency withstand voltage test		X	X	
3	Floating operation mode test		X	X	X
4	Equalization operation mode test		X	X	X
5	Direct operation mode test		X	X	X
6	Protection devices operation		X	X	X
7	Setting test		X	X	X
8	Visual inspection		X	X	X
9	Ripple content measurement		X	X	
10	Audiable noise test		X	X	
11	Alarm & function test		X	X	X
12	Current Limit test		X	X	
13	Measurement of THD & THF for voltage & current	X	X	X	
14	Efficiency Test		X	X	
15	Power Factor		X	X	

**1.17 Dynamic Compensator**

SN	Description	Type of tests			
		Type	Routine	FAT	On Site
1	HV/Insulation Test	X	X	X	
2	Heat run Test	X		X	
3	Rated Output	X	X	X	
4	Maximum temperature rise with blower off	X			
5	Loss measurement	X	X	X	
6	Protection devices	X	X	X	X
7	Operation check	X	X	X	X
8	Clearance & Creepage distance	X			
9	Impulse Test	X			
10	A.C or D.C Voltage test	X			
11	Touch Current Measurement test	X			
12	Capacitor Discharge test	X			
13	Protective equipotential bonding tests	X			
14	Abnormal operation & simulated fault tests	X			