

【添付資料－9】排水設計計算書

道路排水施設の流出量の算出(1/3)

流域 番号	設計降雨強度 γ (mm/h)	集水面積		流出 係数 (C)	流出量 Q (m ³ /s)	備考
		路面・法面 (m ²)				
◇ 1	127.0	987		0.90	0.031	
◇ 2	127.0	660		0.90	0.021	
◇ 3	127.0	987		0.90	0.031	
◇ 4	127.0	6,869		0.90	0.218	
◇ 5	127.0	5,107		0.90	0.162	
◇ 6	127.0	6,734		0.90	0.214	
◇ 7	127.0	2,785		0.90	0.088	
◇ 8	127.0	5,658		0.90	0.180	
○ 1	127.0	2,524		0.90	0.080	
○ 2	127.0	5,855		0.90	0.186	
○ 3	127.0	2,122		0.90	0.067	
○ 4	127.0	3,188		0.90	0.101	
○ 6	127.0	3,873		0.90	0.123	
○ 7	127.0	1,227		0.90	0.039	
○ 8	127.0	7,041		0.90	0.224	
○ 9	127.0	6,019		0.90	0.191	
○ 10	127.0	3,468		0.90	0.110	
○ 11	127.0	519		0.90	0.016	
○ 12	127.0	5,052		0.90	0.160	
○ 13	127.0	522		0.90	0.017	
○ 14	127.0	4,444		0.90	0.141	
○ 15	127.0	2,069		0.90	0.066	
○ 16	127.0	6,210		0.90	0.197	
○ 17	127.0	6,253		0.90	0.199	

道路排水施設の流出量の算出(2/3)

流域 番号	設計降雨強度 γ (mm/h)	集水面積		流出 係数 (C)	流出量 Q (m ³ /s)	備考
		路面・法面 (m ²)				
○ 18	127.0	1,962		0.90	0.062	
○ 19	127.0	5,094		0.90	0.162	
○ 20	127.0	335		0.90	0.011	
○ 21	127.0	6,103		0.90	0.194	
○ 22	127.0	2,403		0.90	0.076	
○ 23	127.0	1,333		0.90	0.042	
○ 24	127.0	1,633		0.90	0.052	
○ 25	127.0	2,784		0.90	0.088	
○ 26	127.0	1,995		0.90	0.063	
○ 27	127.0	740		0.90	0.023	
○ 28	127.0	866		0.90	0.027	
○ 29	127.0	3,158		0.90	0.100	
○ 30	127.0	477		0.90	0.015	
○ 31	127.0	197		0.90	0.006	
○ 32	127.0	749		0.90	0.024	
○ 33	127.0	1,782		0.90	0.057	
□ 1	127.0	1,719		0.90	0.055	
□ 2	127.0	1,839		0.90	0.058	
□ 3	127.0	1,028		0.90	0.033	
□ 4-1	127.0	4,478		0.90	0.142	
□ 4-2	127.0	5,276		0.90	0.168	
□ 5	127.0	4,966		0.90	0.158	
□ 6	127.0	3,732		0.90	0.118	
□ 7	127.0	4,761		0.90	0.151	

道路排水施設の通水断面の照査(1/4)

流末	水路 番号	流域番号	集水面積 (㎡)	累加 流出量 (m3/s)	コ ー ド	通 水 断 面			許 容 通 水 量 (m3/s)					摘 要		
						断面形状	断 面 諸 元			勾配 (%)	流速 (m/s)	80%水深 流 量	Q/Q80 *100		判定	
							n	R2/3	A							
Motorway	▼ 1	◇ 1	987	0.031	128	U-300×300	0.015	0.204	0.072	0.400	0.860	0.062	50.00	○K		
	▼ 2	◇ 2	660	0.021	128	U-300×300	0.015	0.204	0.072	0.400	0.860	0.062	33.87	○K		
	▼ 3	◇ 5	5,107	0.162	138	U-500×500	0.015	0.287	0.200	0.400	1.210	0.242	66.94	○K		
	▼ 4	▼ 2	▼ 3	5,767	0.183	196	Bx-500×300	0.015	0.244	0.118	1.000	1.620	0.192	95.31	○K	
	▼ 5	◇ 4	6,869	0.218	142	U-600×500	0.015	0.309	0.240	0.400	1.300	0.312	69.87	○K		
	▼ 6	▼ 1	▼ 4	▼ 5	13,623	0.432	142	U-600×500	0.015	0.309	0.240	2.000	2.910	0.699	61.80	○K
	▼ 7	◇ 3	987	0.031	128	U-300×300	0.015	0.204	0.072	0.400	0.860	0.062	50.00	○K		
	▼ 8	◇ 6	6,734	0.214	142	U-600×500	0.015	0.309	0.240	0.400	1.300	0.312	68.59	○K		
	▼ 9	◇ 7	2,785	0.088	132	U-400×300	0.015	0.228	0.096	2.000	2.140	0.206	42.72	○K		
	▼ 10	◇ 8	5,658	0.180	128	U-300×300	0.015	0.204	0.072	3.933	2.690	0.194	92.78	○K		
	▼ 11	▼ 9	▼ 10	8,443	0.268	217	V型側溝-2000×1000	0.015	0.431	0.640	0.400	1.810	1.159	23.12	○K	
Aflao	▼ 1	○ 1	2,524	0.080	132	U-400×300	0.015	0.228	0.096	0.400	0.960	0.093	86.02	○K		
	▼ 2	○ 2	5,855	0.186	132	U-400×300	0.015	0.228	0.096	2.658	2.470	0.238	78.15	○K		
	▼ 3	▼ 1	▼ 2	8,379	0.266	195	Bx-400×300	0.015	0.225	0.094	5.700	3.580	0.337	78.93	○K	
	▼ 4	▼ 3	○ 4	11,567	0.367	146	U-700×500	0.015	0.327	0.280	0.400	1.370	0.384	95.57	○K	
	▼ 5	▼ 4	○ 7	12,794	0.406	147	U-700×600	0.015	0.345	0.336	0.400	1.450	0.488	83.20	○K	
	▼ 6	○ 3	2,122	0.067	142	U-600×500	0.015	0.309	0.240	0.400	1.300	0.312	21.47	○K		
	▼ 9	○ 6	3,873	0.123	147	U-700×600	0.015	0.345	0.336	0.400	1.450	0.488	25.20	○K		
	▼ 10	▼ 5	○ 10	16,262	0.516	147	U-700×600	0.015	0.345	0.336	0.500	1.620	0.545	94.68	○K	
	▼ 11	▼ 9	○ 11	4,392	0.139	147	U-700×600	0.015	0.345	0.336	0.400	1.450	0.488	28.48	○K	
	▼ 12	○ 13	522	0.017	128	U-300×300	0.015	0.204	0.072	4.653	2.930	0.211	8.06	○K		
	▼ 13	○ 12	5,052	0.160	128	U-300×300	0.015	0.204	0.072	4.653	2.930	0.211	75.83	○K		
	▼ 14	▼ 11	▼ 13	9,444	0.299	199	Bx-700×500	0.015	0.325	0.278	0.400	1.370	0.381	78.48	○K	
	▼ 15	▼ 12	▼ 14	9,966	0.316	199	Bx-700×500	0.015	0.325	0.278	0.400	1.370	0.381	82.94	○K	
	▼ 16	▼ 10	16,262	0.516	200	Bx-800×600	0.015	0.361	0.382	0.400	1.520	0.581	88.81	○K		

道路排水施設の通水断面の照査(2/4)

流末	水路 番号	流域番号			集水面積 (㎡)	累加 流出量 (m3/s)	コ ー ド	通 水 断 面			許 容 通 水 量 (m3/s)					摘 要	
								断面形状	断 面 諸 元			勾配 (%)	流速 (m/s)	80%水深 流 量	Q/Q80 *100		判定
									n	R2/3	A						
Aflao	▼ 17	▼ 15	▼ 16	○ 14	30.672	0.973	156	U-1000×900	0.015	0.443	0.720	0.400	1.860	1.340	72.61	○K	
	▼ 18	○			7.041	0.224	132	U-400×300	0.015	0.228	0.096	3.531	2.850	0.274	81.75	○K	
	▼ 19	▼ 5	○ 9		8.141	0.258	142	U-600×500	0.015	0.309	0.240	0.400	1.300	0.312	82.69	○K	
	▼ 20	▼ 19			8.141	0.258	196	Bx-500×300	0.015	0.244	0.118	2.500	2.570	0.304	84.87	○K	
	▼ 21	▼ 18	▼ 20	○ 15	17.251	0.548	151	U-800×600	0.015	0.362	0.384	0.400	1.520	0.584	93.84	○K	
	▼ 22	○			6.210	0.197	138	U-500×500	0.015	0.287	0.200	0.400	1.210	0.242	81.40	○K	
	▼ 23	○			6.253	0.199	138	U-500×500	0.015	0.287	0.200	0.400	1.210	0.242	82.23	○K	
	▼ 24	○			1.962	0.062	133	U-400×400	0.015	0.247	0.128	0.564	1.230	0.158	39.24	○K	
	▼ 25	▼ 24			1.962	0.062	196	Bx-500×300	0.015	0.244	0.118	0.400	1.020	0.121	51.24	○K	
	▼ 26	○			5.094	0.162	218	V型側溝-1000×500	0.015	0.272	0.160	0.564	1.360	0.218	74.31	○K	
	▼ 27	▼ 26			5.094	0.162	218	V型側溝-1000×500	0.015	0.272	0.160	0.400	1.140	0.183	88.52	○K	
	▼ 28	▼ 27			5.094	0.162	196	Bx-500×300	0.015	0.244	0.118	1.000	1.620	0.192	84.38	○K	
	▼ 29	○			335	0.011	128	U-300×300	0.015	0.204	0.072	0.400	0.860	0.062	17.74	○K	
	▼ 30	▼ 28	▼ 29	○ 23	6.762	0.215	139	U-500×600	0.015	0.300	0.240	0.400	1.260	0.303	70.96	○K	
	▼ 31	▼ 30	○ 24		8.395	0.267	143	U-600×600	0.015	0.324	0.288	0.400	1.360	0.392	68.11	○K	
	▼ 32	○			6.103	0.194	218	V型側溝-1000×500	0.015	0.272	0.160	0.500	1.280	0.205	94.63	○K	
	▼ 33	○			1.782	0.057	194	Bx-300×300	0.015	0.200	0.070	1.000	1.330	0.094	60.64	○K	
	▼ 34	○			749	0.024	128	U-300×300	0.015	0.204	0.072	0.437	0.890	0.065	36.92	○K	
	▼ 35	▼ 33	▼ 34	○ 31	2.728	0.087	130	U-300×500	0.015	0.228	0.120	0.400	0.960	0.116	75.00	○K	
	▼ 36	▼ 35			2.728	0.087	194	Bx-300×300	0.015	0.200	0.070	2.500	2.100	0.147	59.18	○K	
	▼ 37	○			2.784	0.088	130	U-300×500	0.015	0.228	0.120	0.400	0.960	0.116	75.86	○K	
▼ 38	○			2.403	0.076	130	U-300×500	0.015	0.228	0.120	0.400	0.960	0.116	65.52	○K		
▼ 39	▼ 36	▼ 37	▼ 38	7.915	0.251	130	U-300×500	0.015	0.228	0.120	5.000	3.390	0.407	61.67	○K		
▼ 40	○			1.995	0.063	218	V型側溝-1000×500	0.015	0.272	0.160	0.400	1.140	0.183	34.43	○K		
▼ 41	▼ 32	▼ 39	▼ 40	16.013	0.508	199	Bx-700×500	0.015	0.325	0.278	0.750	1.870	0.520	97.69	○K		

道路排水施設の通水断面の照査(3/4)

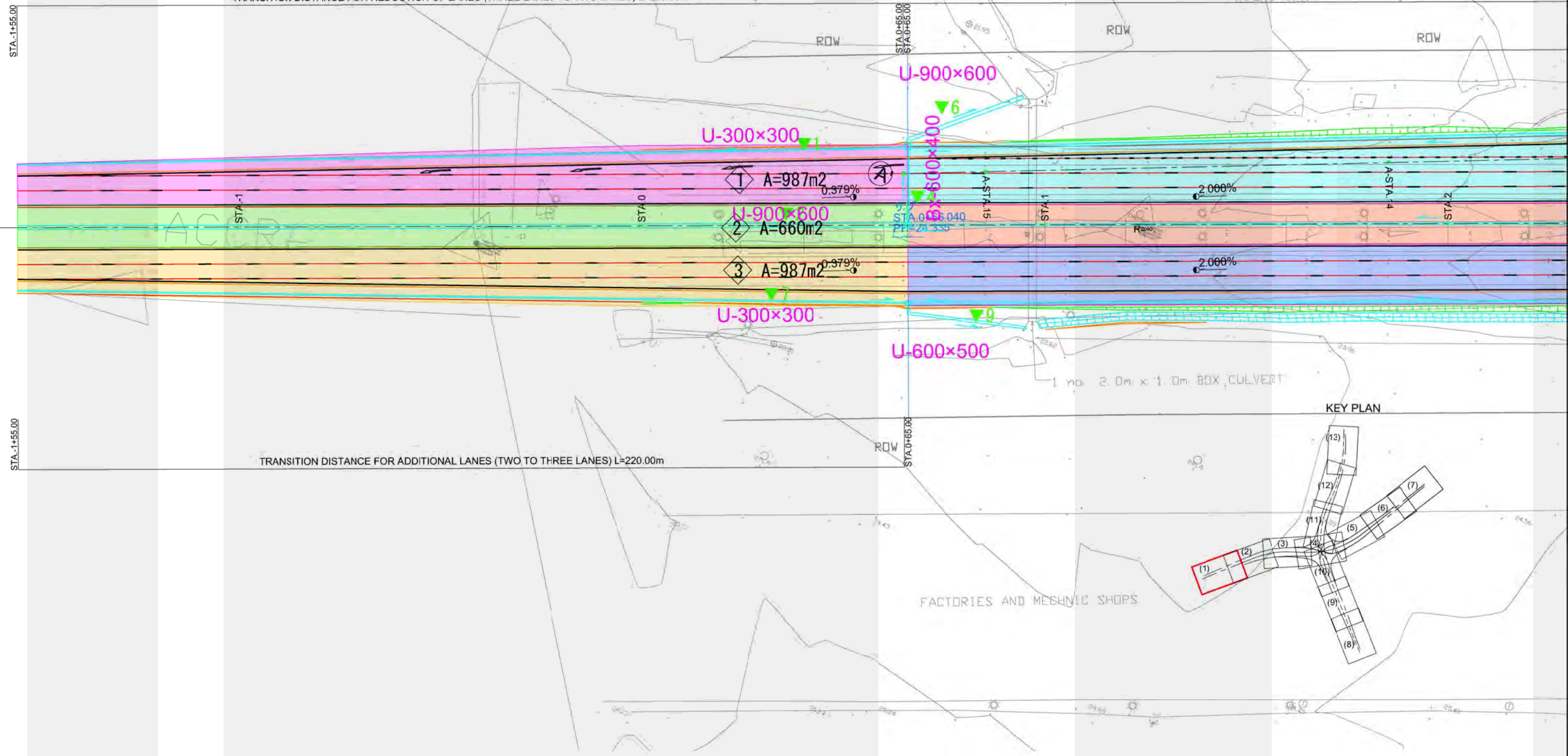
流末	水路 番号	流域番号	集水面積 (㎡)	累加 流出量 (m3/s)	コ ー ド	通 水 断 面			許 容 通 水 量 (m3/s)					摘 要	
						断面形状	断 面 諸 元			勾配 (%)	流速 (m/s)	80%水深 流 量	Q/Q80 *100		判定
							n	R2/3	A						
Aflao	42	○	866	0.027	128	U-300×300	0.015	0.204	0.072	0.937	1.310	0.095	28.42	○K	
	43	▼	866	0.027	194	Bx-300×300	0.015	0.200	0.070	0.400	0.840	0.059	45.76	○K	
	44	▼	○	1,606	0.050	134	U-400×500	0.015	0.261	0.160	0.400	1.100	0.176	28.41	○K
	45	▼	○	4,764	0.150	134	U-400×500	0.015	0.261	0.160	2.000	2.460	0.394	38.07	○K
	46	▼		4,764	0.150	196	Bx-500×300	0.015	0.244	0.118	2.000	2.300	0.272	55.15	○K
	47	○		477	0.015	128	U-300×300	0.015	0.204	0.072	0.400	0.860	0.062	24.19	○K
	48	▼	▼	29,649	0.940	147	U-700×600	0.015	0.345	0.336	2.000	3.250	1.092	86.08	○K
	harbour	1	□	1,719	0.055	128	U-300×300	0.015	0.204	0.072	1.000	1.360	0.098	56.12	○K
2		▼	1,719	0.055	195	Bx-400×300	0.015	0.225	0.094	0.400	0.940	0.089	61.80	○K	
3		▼	1,719	0.055	130	U-300×500	0.015	0.228	0.120	0.400	0.960	0.116	47.41	○K	
4		▼	□	3,558	0.113	130	U-300×500	0.015	0.228	0.120	1.000	1.520	0.183	61.75	○K
5		▼		3,558	0.113	194	Bx-300×300	0.015	0.200	0.070	2.600	2.140	0.150	75.33	○K
6		□	1,028	0.033	128	U-300×300	0.015	0.204	0.072	0.547	1.000	0.072	45.83	○K	
7		▼	▼	9,552	0.304	139	U-500×600	0.015	0.300	0.240	0.492	1.400	0.336	90.48	○K
8		□	3,732	0.118	128	U-300×300	0.015	0.204	0.072	3.900	2.680	0.193	61.14	○K	
9-1		4-1	4,478	0.142	218	V型側溝-1000×500	0.015	0.272	0.160	1.090	1.890	0.303	46.86	○K	
9-2		9-1	4,478	0.142	197	Bx-600×400	0.015	0.286	0.190	0.400	1.200	0.228	62.28	○K	
10-1		4-2	5,276	0.168	218	V型側溝-1000×500	0.015	0.272	0.160	0.567	1.360	0.218	77.06	○K	
10-2		10-1	5,276	0.168	218	V型側溝-1000×500	0.015	0.272	0.160	0.400	1.140	0.183	91.80	○K	
11		10	5,276	0.168	195	Bx-400×300	0.015	0.225	0.094	2.500	2.370	0.223	75.34	○K	
12		□	3,732	0.038	128	U-300×300	0.015	0.204	0.072	1.035	1.380	0.100	38.00	○K	
13		12	3,732	0.038	195	Bx-400×300	0.015	0.225	0.094	0.400	0.940	0.089	42.70	○K	
14	13	3,732	0.038	130	U-300×500	0.015	0.228	0.120	1.000	1.520	0.183	20.77	○K		
15	14	□	5,566	0.096	130	U-300×500	0.015	0.228	0.120	1.000	1.520	0.183	52.46	○K	

STA -1+55.00

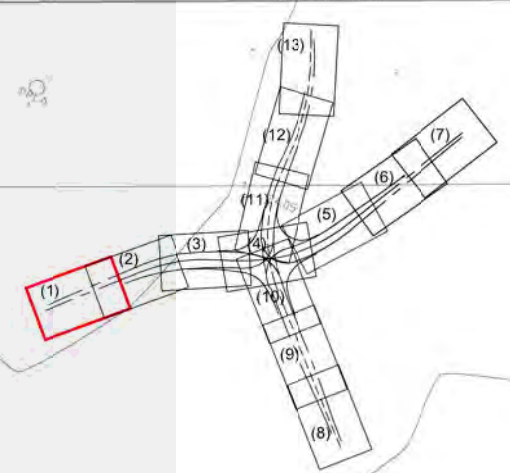
STA -1+55.00

TRANSITION DISTANCE FOR REDUCTION OF LANES (THREE LANES TO TWO LANES) L=220.00m

TAPER L=185.00m



KEY PLAN



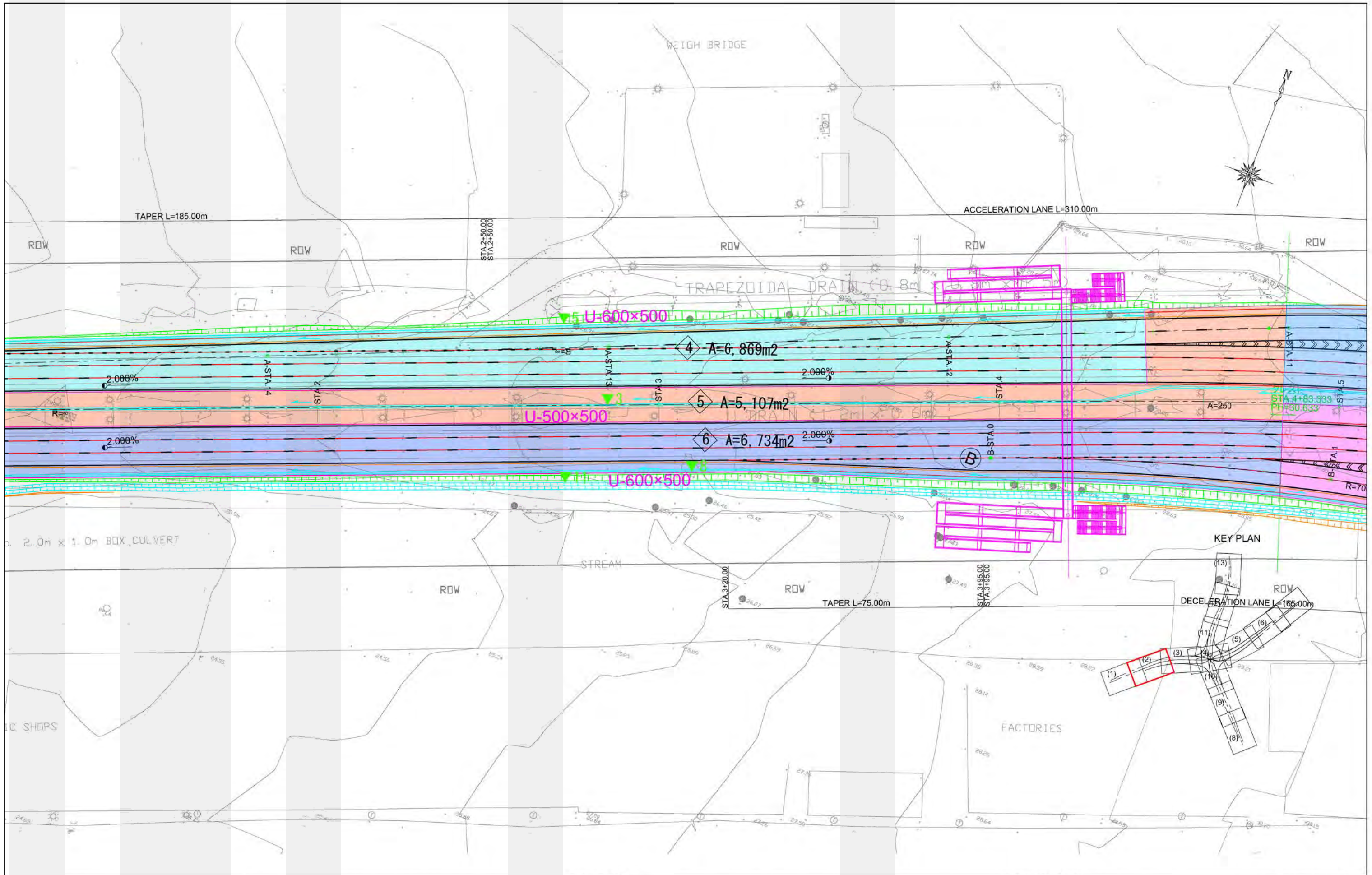
GHANA HIGHWAY AUTHORITY
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 REPUBLIC OF GHANA

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 JAPAN INTERNATIONAL COOPERATION AGENCY

PROJECT TITLE:
 PREPARATORY SURVEY ON THE PROJECT FOR THE IMPROVEMENT
 OF THE TEMA MOTORWAY ROUNDABOUT IN THE REPUBLIC OF GHANA

DRAWING TITLE:
BASIN PLAN (1)

SCALE	DRAWING NO.
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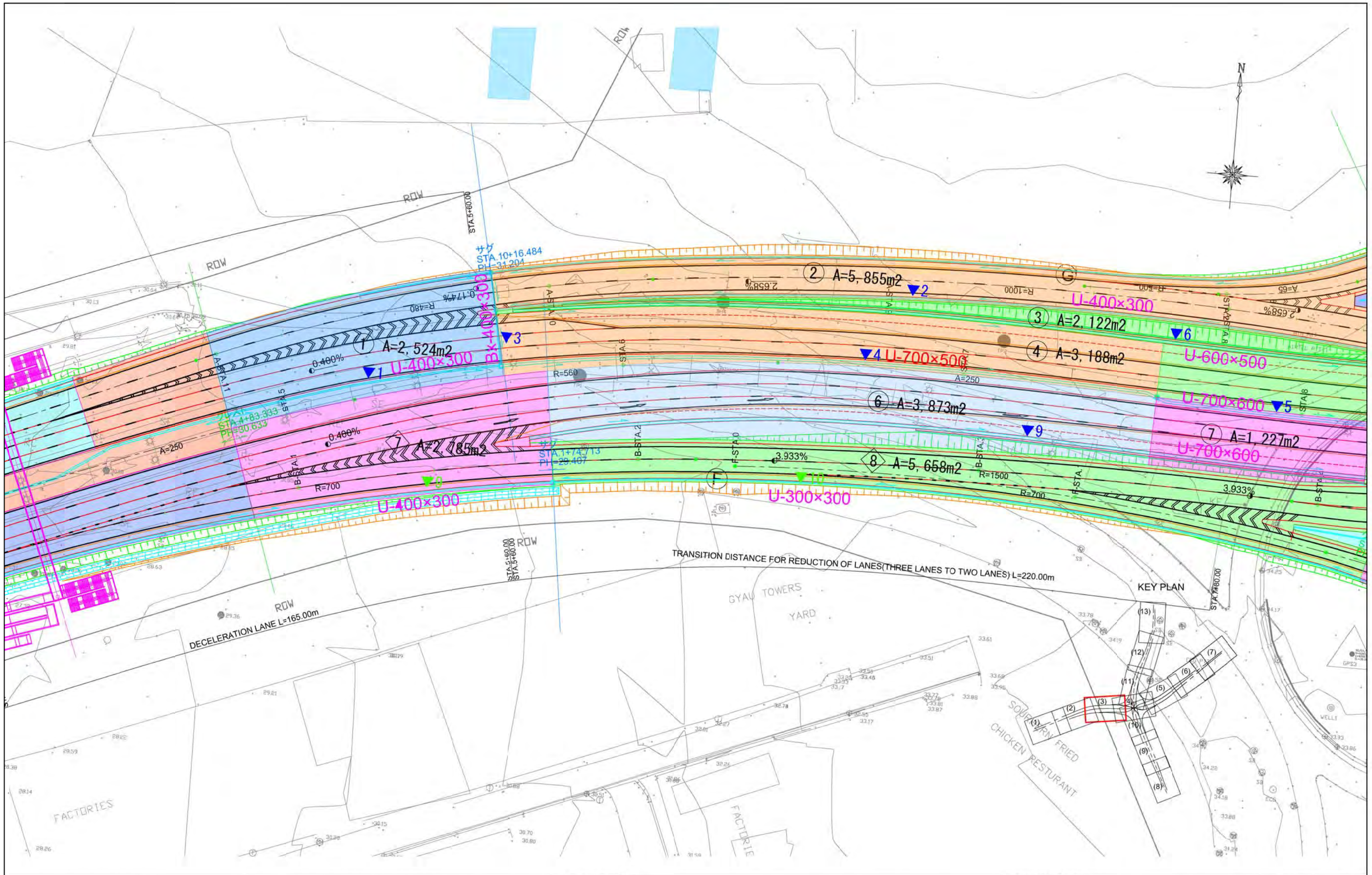
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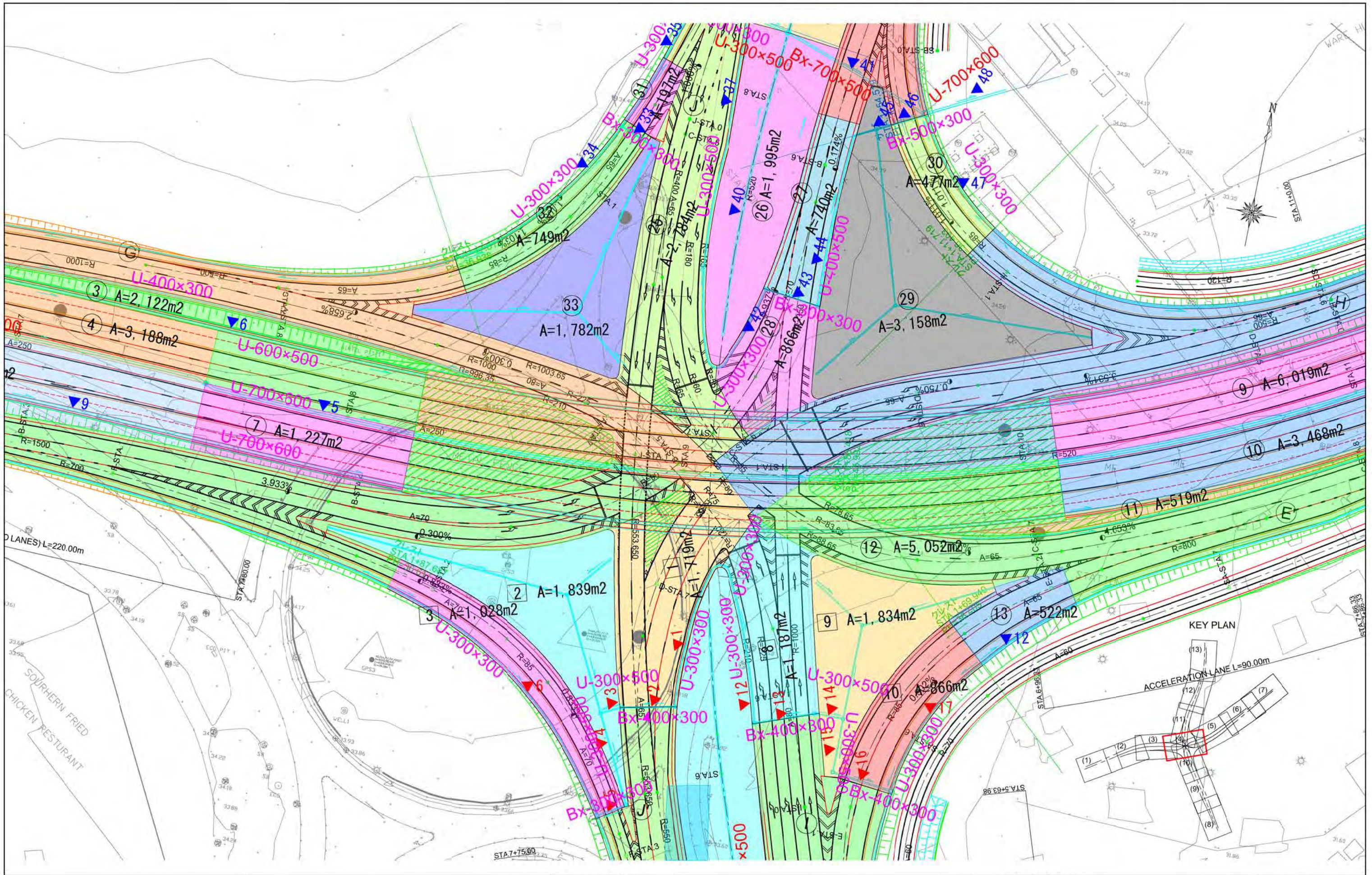
PROJECT TITLE:
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DRAWING TITLE:
BASIN PLAN (2)

SCALE	DRAWING NO.
S=1:500	BP-02



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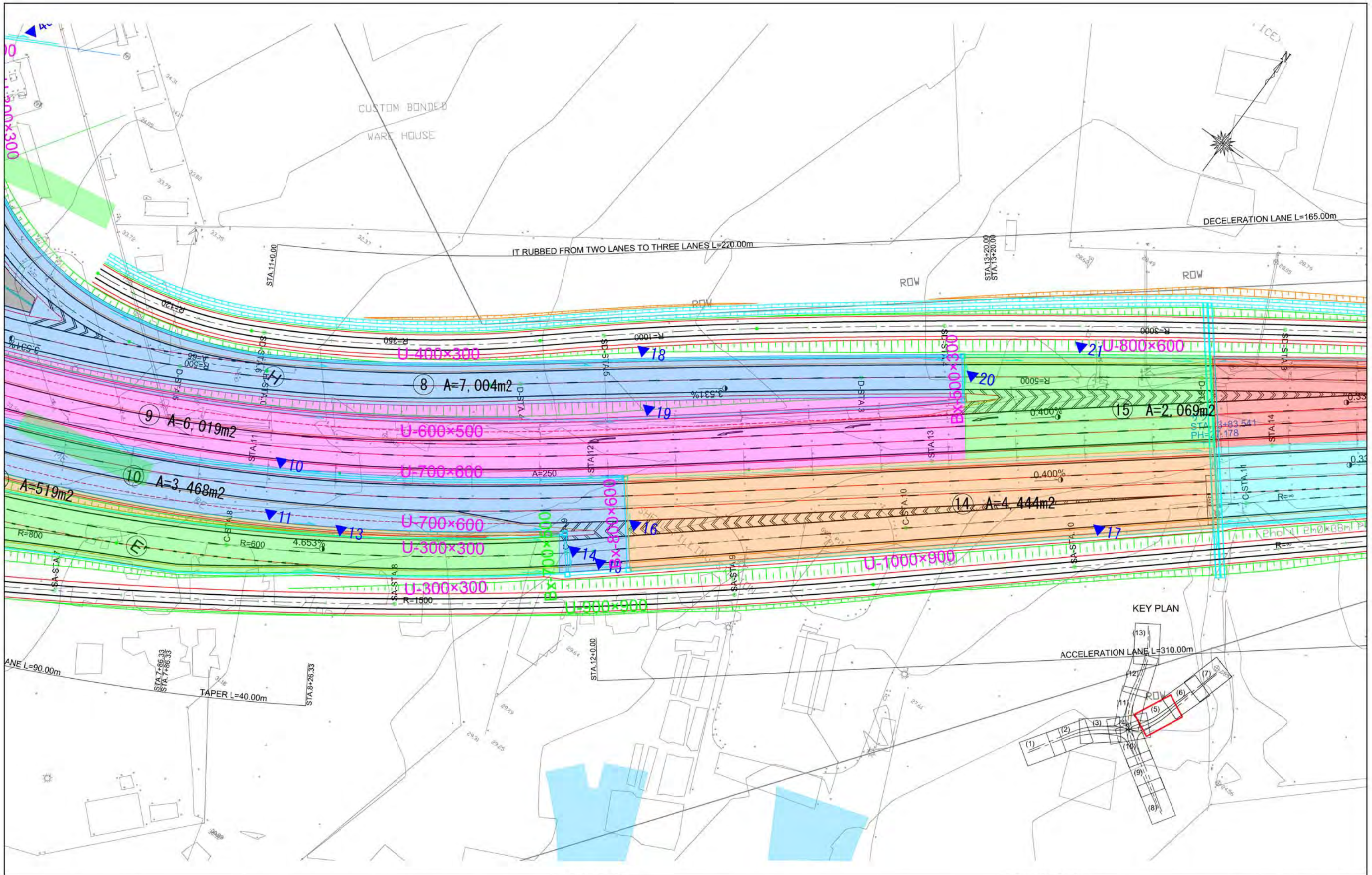
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PROJECT TITLE:
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DRAWING TITLE:
BASIN PLAN (4)

SCALE	DRAWING NO.
S=1:500	BP-04



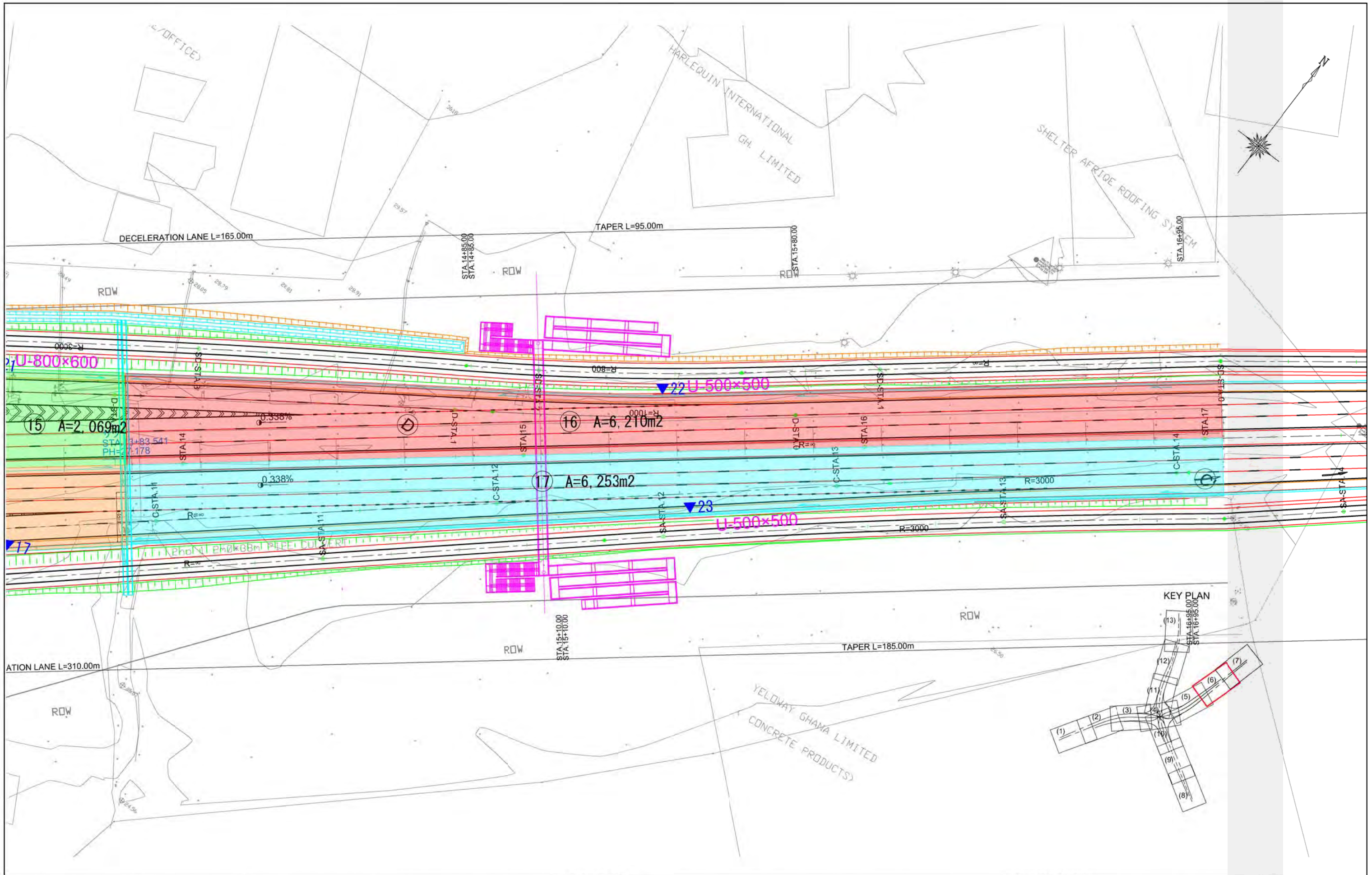
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PROJECT TITLE:
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DRAWING TITLE:
BASIN PLAN (5)

SCALE	DRAWING NO.
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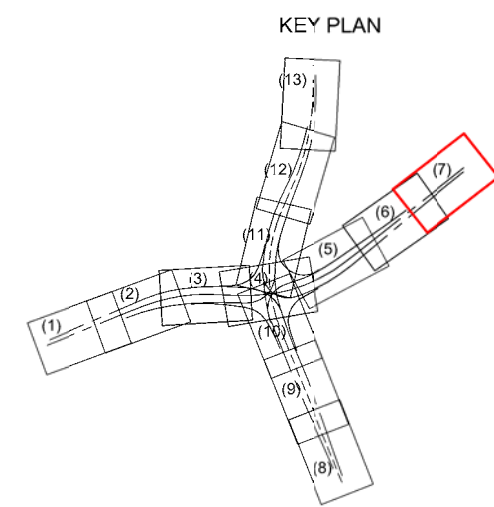
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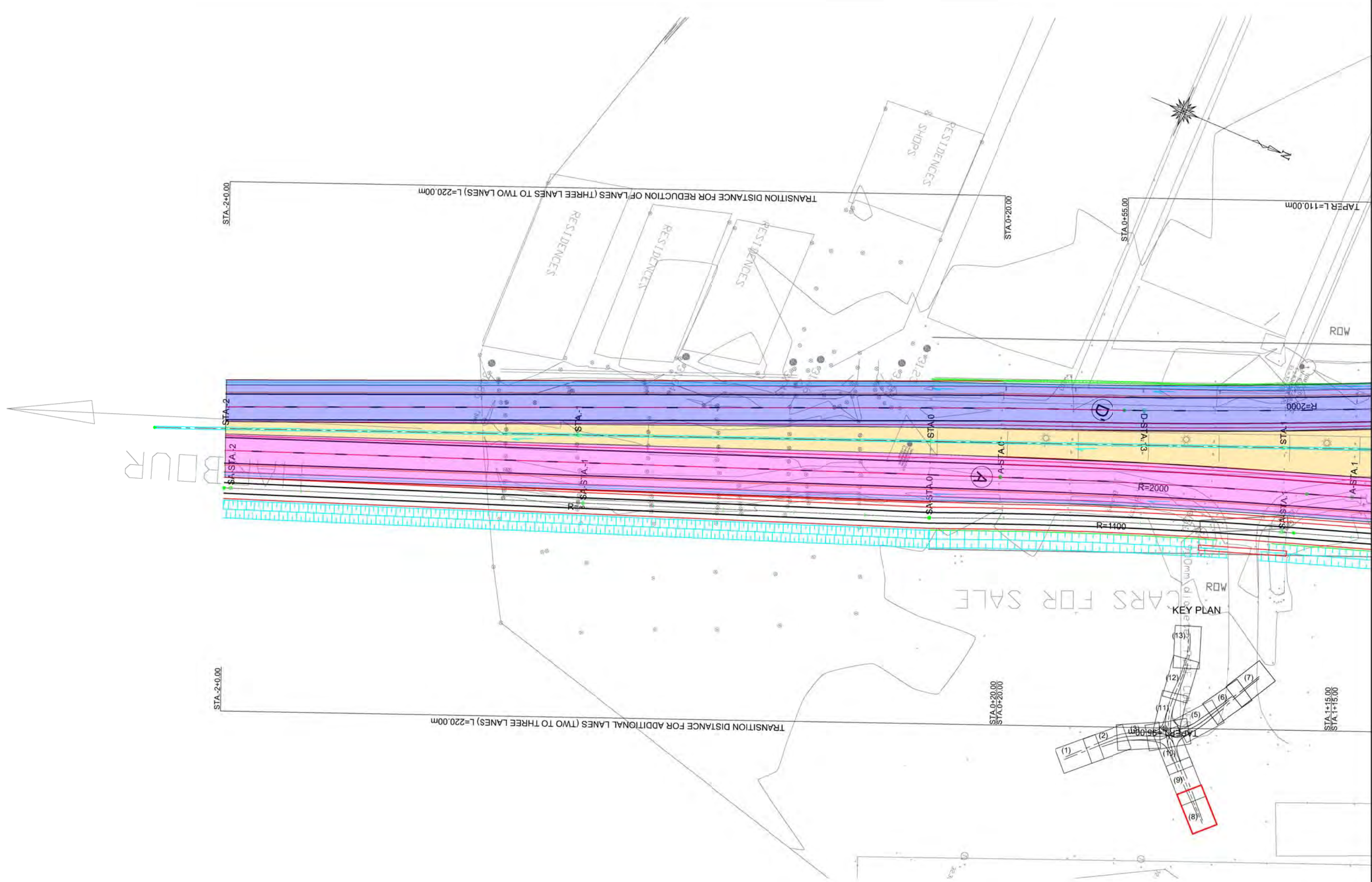
PROJECT TITLE:
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 OF THE TEMA MOTORWAY ROUNDABOUT IN THE REPUBLIC OF GHANA

DRAWING TITLE:
BASIN PLAN (6)

SCALE	DRAWING NO.
S=1:500	BP-06



GHANA HIGHWAY AUTHORITY MINISTRY OF ROADS AND HIGHWAYS REPUBLIC OF GHANA	CTI ENGINEERING INTERNATIONAL CO., LTD. JAPAN INTERNATIONAL COOPERATION AGENCY	PROJECT TITLE: PREPARATORY SURVEY ON THE PROJECT FOR THE IMPROVEMENT OF THE TEMA MOTORWAY ROUNDABOUT IN THE REPUBLIC OF GHANA	DRAWING TITLE:	
			BASIN PLAN (7)	
			SCALE	DRAWING NO.
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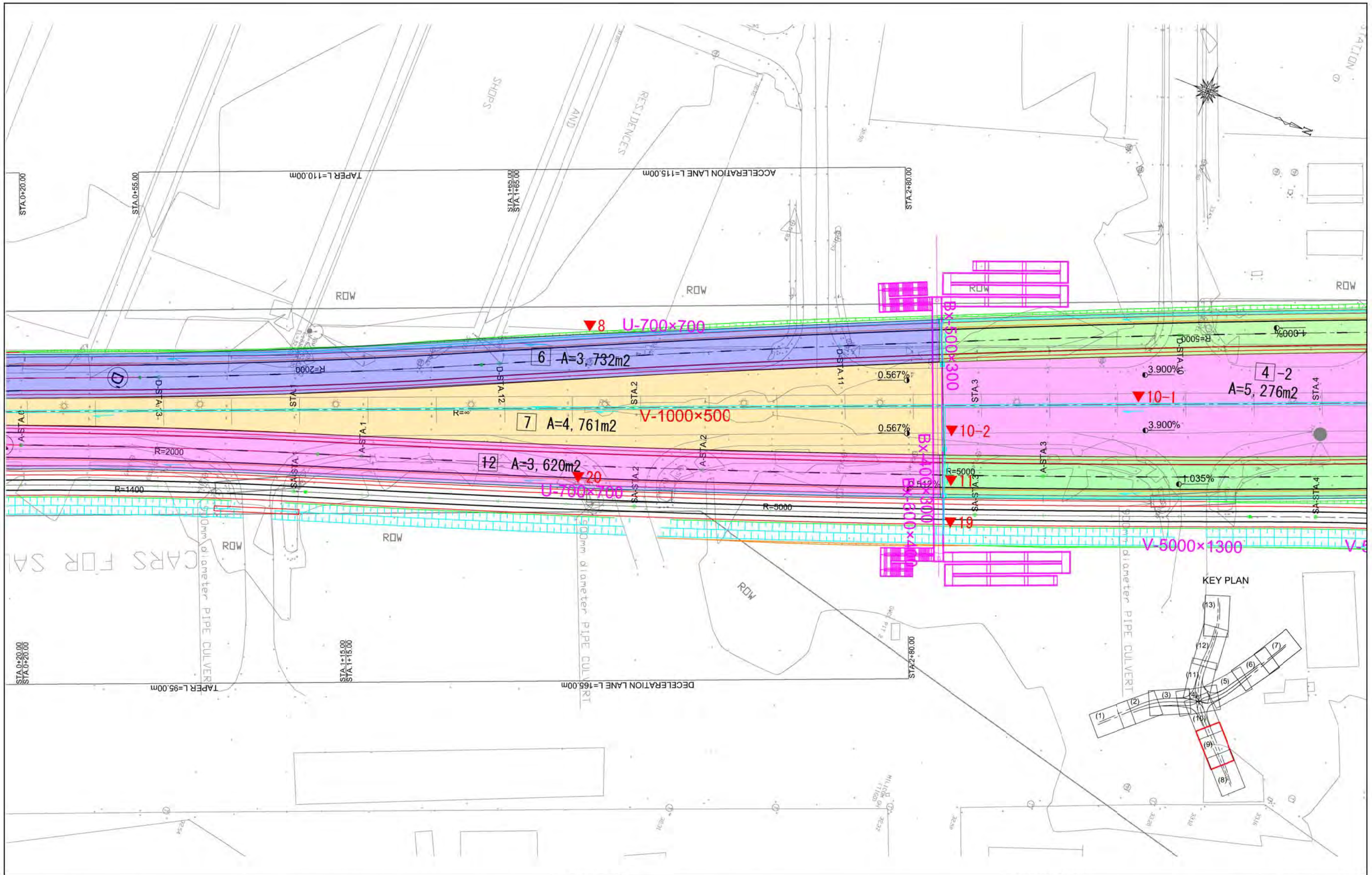
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 REPUBLIC OF GHANA

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PROJECT TITLE:
 PREPARATORY SURVEY ON THE PROJECT FOR THE IMPROVEMENT
 OF THE TEMA MOTORWAY ROUNDABOUT IN THE REPUBLIC OF GHANA

DRAWING TITLE:
BASIN PLAN (8)

SCALE	DRAWING NO.
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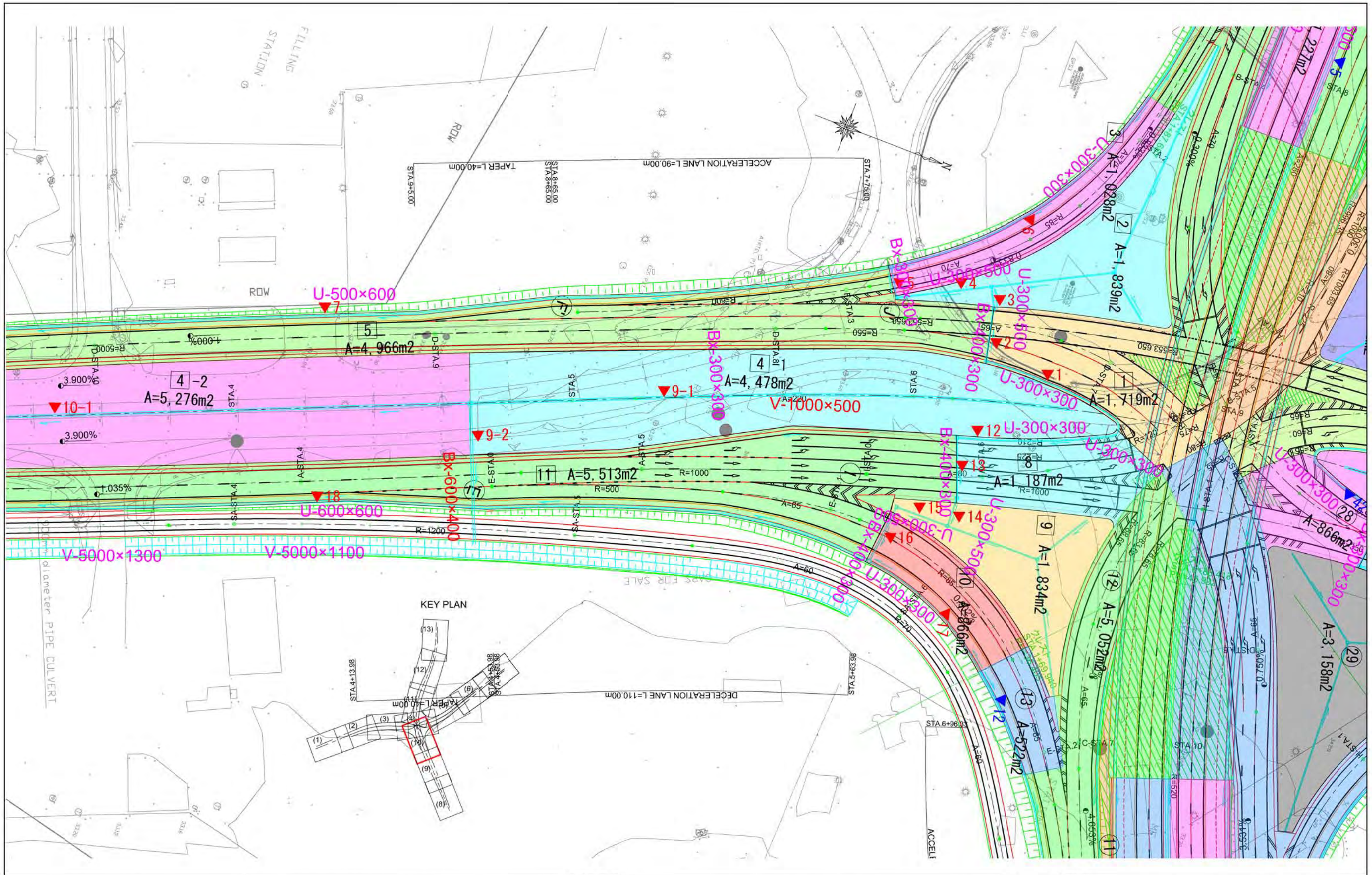
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PROJECT TITLE:
 PREPARATORY SURVEY ON THE PROJECT FOR THE IMPROVEMENT
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DRAWING TITLE:
BASIN PLAN (9)

SCALE	DRAWING NO.
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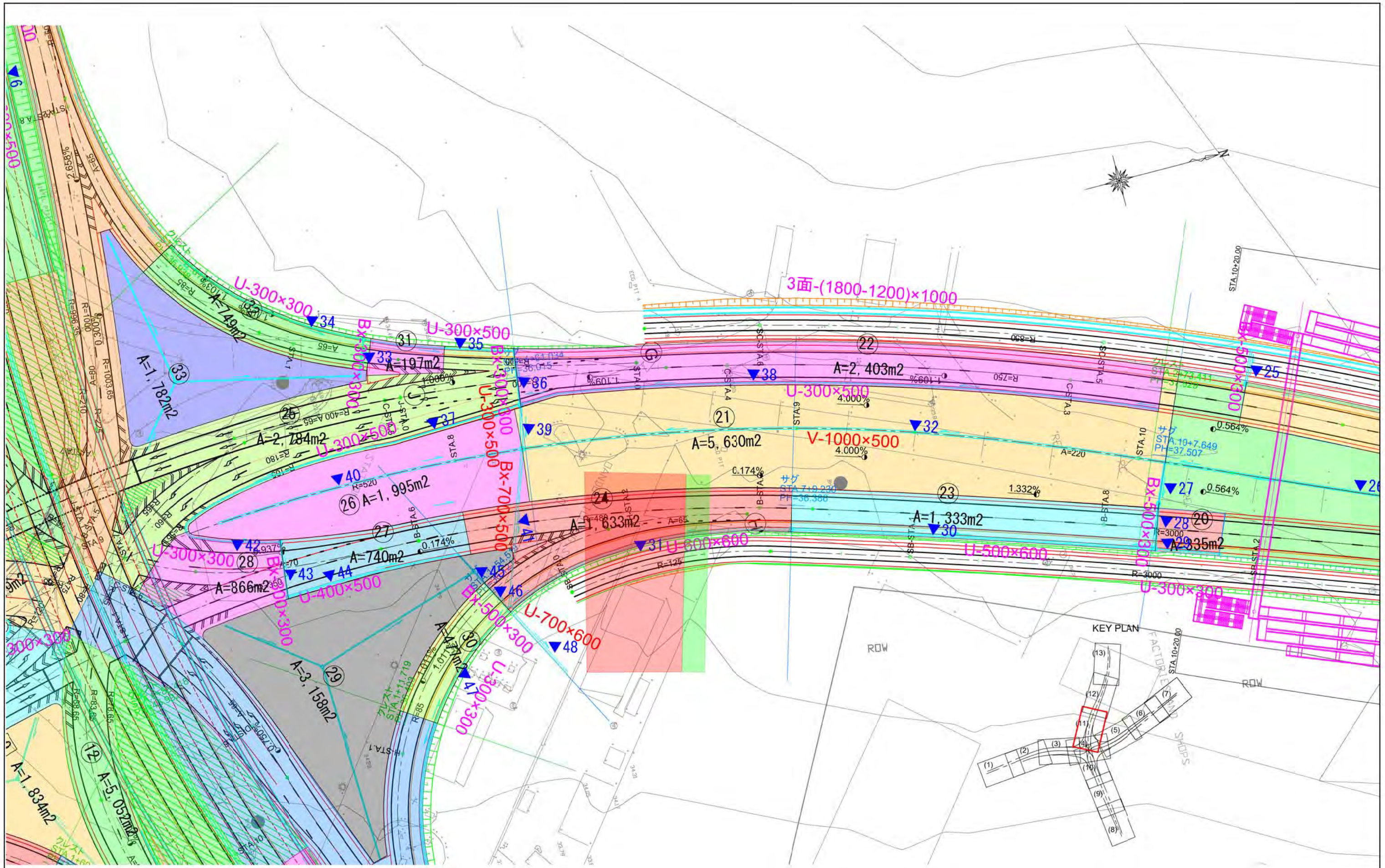
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PROJECT TITLE:
 PREPARATORY SURVEY ON THE PROJECT FOR THE IMPROVEMENT
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DRAWING TITLE:
BASIN PLAN (10)

SCALE	DRAWING NO.
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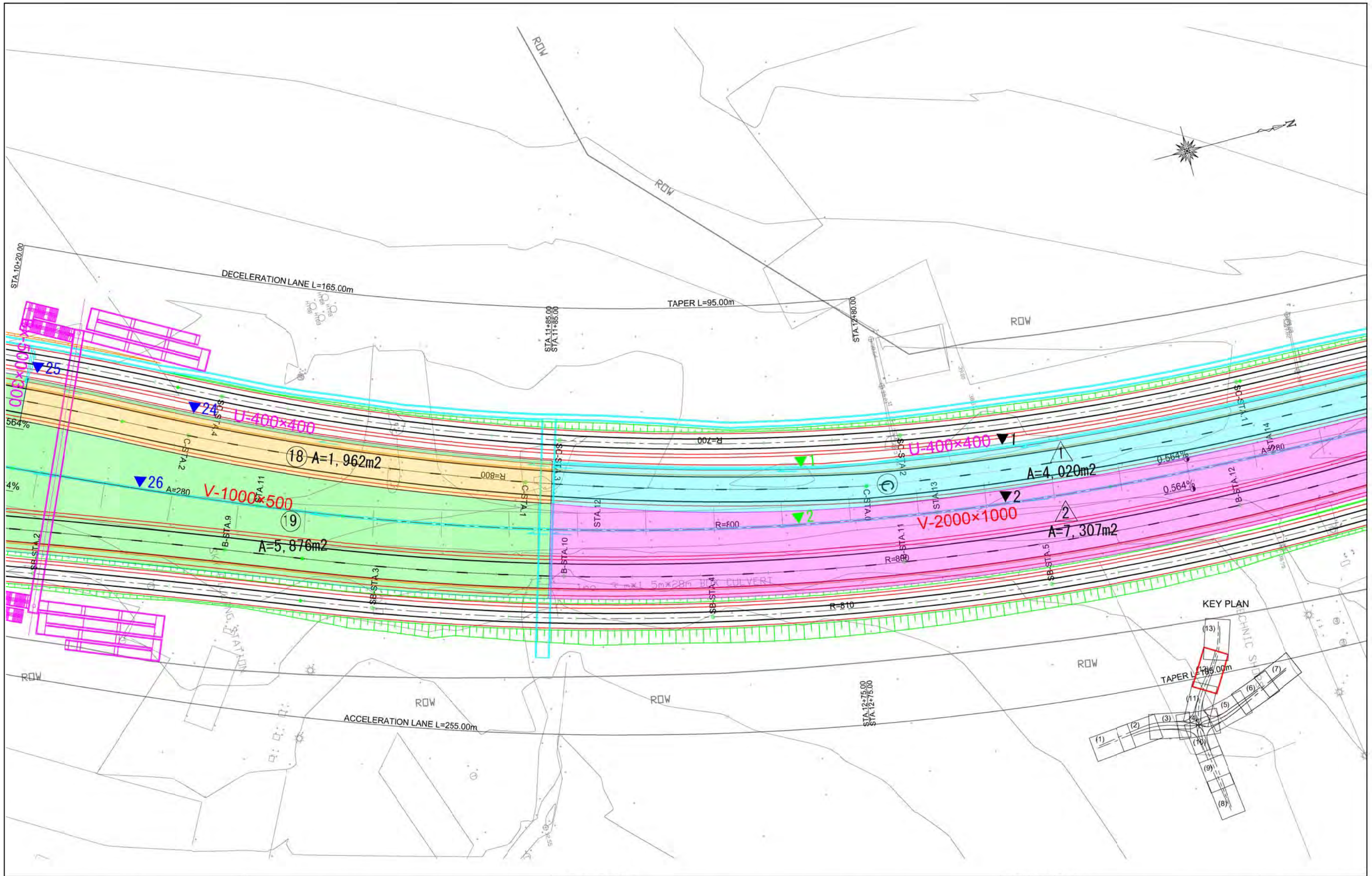
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PROJECT TITLE:
 PREPARATORY SURVEY ON THE PROJECT FOR THE IMPROVEMENT
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DRAWING TITLE:
BASIN PLAN(11)

SCALE	DRAWING NO.
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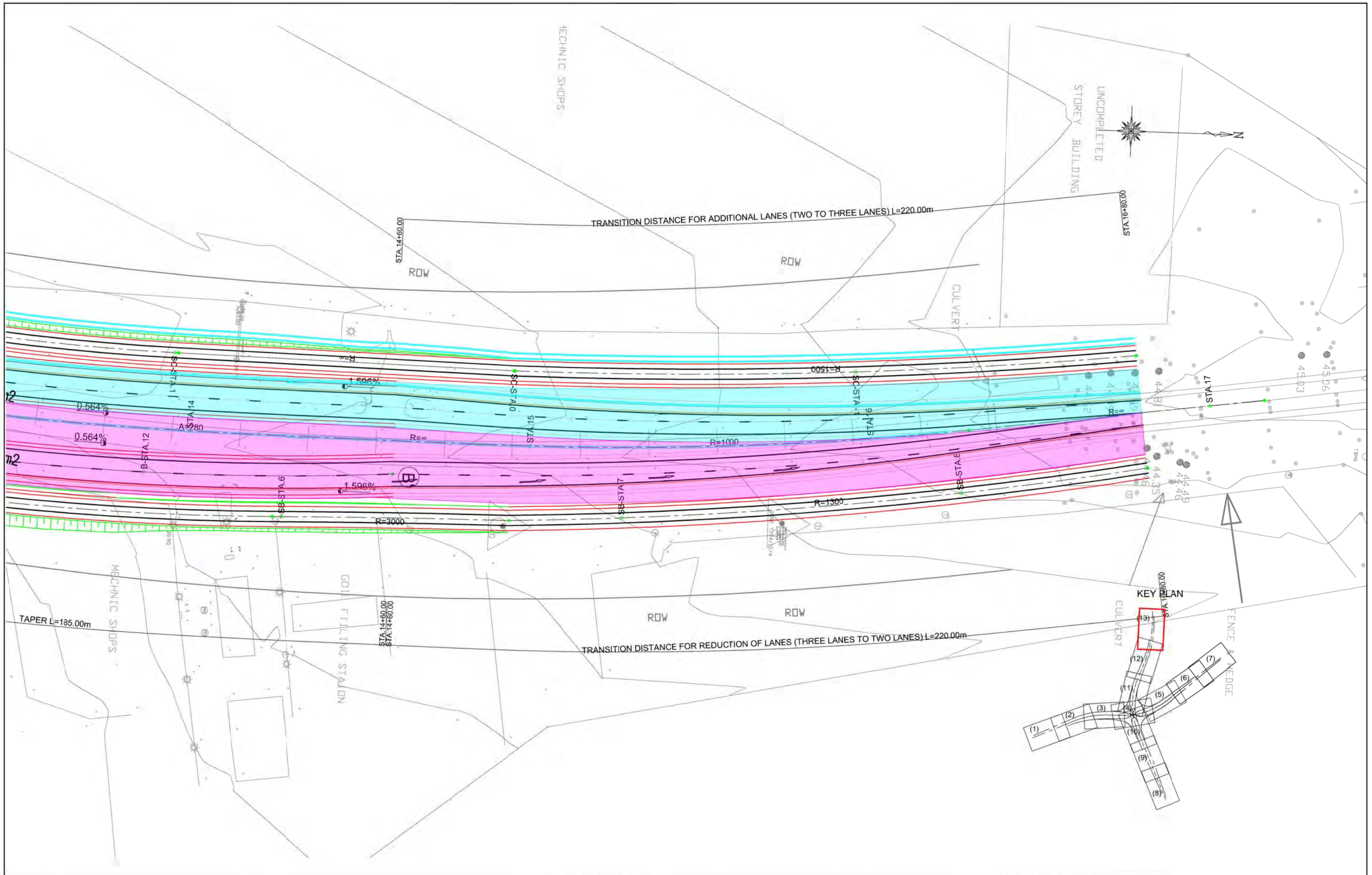
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PROJECT TITLE:
PREPARATORY SURVEY ON THE PROJECT FOR THE IMPROVEMENT
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DRAWING TITLE:
BASIN PLAN (12)

SCALE	DRAWING NO.
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PROJECT TITLE:
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DRAWING TITLE:
BASIN PLAN (13)

SCALE	DRAWING NO.
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