

INFRA 1 – LOT 1
DRAWING

1060.0 m Access Road to Dam Top

DESIGN NOTE:

ROAD WORKS

- ALL DIMENSIONS, ELEVATIONS & DETAILS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
- NO DIMENSION SHALL BE MEASURED FROM THE DRAWINGS. ONLY WRITTEN DIMENSIONS TO BE FOLLOWED.
- ALL DIMENSIONS/DETAILS SHALL BE CHECKED ALONG WITH THE RELEVANT DRAWINGS BEFORE STARTING EXECUTION OF WORKS. DISCREPANCY, IF ANY, SHALL BE IMMEDIATELY BROUGHT TO THE NOTICE OF PROJECT AUTHORITY/CONSULTANT FOR REVIEW.
- THE FORMATION CUTTING WIDTH OF THE ROAD SHALL BE 8 METERS.
- THE FORMATION WIDTH IS DIVIDED INTO THREE PARTS; 1 METER DRAIN, 6 METER PAVEMENT WIDTH AND 1 METER SHOULDER AS INDICATED IN TYPICAL SECTION IN THE DRAWING.
- THE GRADIENT OF THE ROAD SHALL NOT EXCEED 10%. IN CASE THE GRADIENT EXCEEDS 10%, SHALL BE IMMEDIATELY BROUGHT TO THE NOTICE OF PROJECT AUTHORITY/CONSULTANT FOR REVIEW.
- IN CASE OF CHANGE IN THE ALIGNMENT, CONTRACTOR AND PROJECT AUTHORITY SHALL IMMEDIATELY BRING TO THE NOTICE OF CONSULTANT FOR THE REVIEW AND POSSIBLE RE-ALIGNMENT.
- FOR THE NEW ALIGNMENT, THE TOPOGRAPHIC SURVEY SHALL BE CARRIED UPTO 20 METERS BOTH SIDE FROM THE CENTERLINE BEFORE EXCAVATION.
- THE CAMBER OF THE ROAD SHELL BE AS PER THE DESIGN AND DRAWINGS.
- THE CONSTRUCTION SHALL BE DONE AS PER THE DESIGN AND THE INSTRUCTION OF THE SITE ENGINEER.

HUME PIPE INSTALATION

- DO NOT MEASURE THE DIMENSIONS FROM THE DRAWING.
- THE PIPES SHALL BE LAID AFTER THE FOUNDATION IS WELL CURED AND APPROVED BY THE ENGINEER-IN-CHARGE.
- IN PLACES WHERE TWO OR MORE PIPES ARE TO BE LAID ADJACENT TO EACH OTHER, THE PIPES SHALL BE SEPARATED BY A DISTANCE OF A MINIMUM 450 MM OR EQUAL TO HALF THE DIAMETER OF THE PIPE.
- PROPER CARE SHALL BE TAKEN WHILE LIFTING, LOADING, UNLOADING, AND LOWERING OF CONCRETE PIPES AT A FACTORY OR SITE SO THAT THE PIPES DO NOT SUFFER ANY UNDUE STRUCTURAL STRAIN, ANY DAMAGE DUE TO FALL OR IMPACT.
- ANY PIPE FOUND DEFECTIVE OR DAMAGED DURING LAYING SHALL BE REMOVED AT THE COST OF THE CONTRACTOR.
- THE BACKFILLING OF THE TRENCHES SHALL BE CARRIED OUT IMMEDIATELY AFTER THE PIPES ARE PLACED, AND THE JOINTING MATERIAL HAS HARDENED.
- THE BACKFILLING UP TO 300 MM ABOVE THE TOP OF THE PIPE SHALL BE CARRIED OUT CAREFULLY, AND THE SOIL SHALL BE RAMMED, TAMPED, OR VIBRATED IN LAYERS NOT EXCEEDING 150 MM, PARTICULAR CARE BEING TAKEN TO CONSOLIDATE THE MATERIALS UNDER THE LAUNCHES OF THE PIPE THOROUGHLY.
- THE FILLING OF THE TRENCH ON BOTH SIDES OF THE PIPE SHALL BE CARRIED OUT SIMULTANEOUSLY SO THAT UNEQUAL PRESSURES DO NOT OCCUR.
- IN CASE OF THE HIGH EMBANKMENT, AFTER FILLING THE TRENCH UP TO THE TOP OF THE PIPE IN THE ABOVE-SAID MANNER, A LOOSE-FILL SHALL BE PLACED OVER THE PIPE TO A DEPTH EQUAL TO THE EXTERNAL DIAMETER OF THE PIPE AND COMPACTED.

CULVERT CONSTRUCTION:


- ALL DIMENSIONS, ELEVATIONS & DETAILS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
- NO DIMENSION SHALL BE MEASURED FROM THE DRAWINGS. ONLY WRITTEN DIMENSIONS TO BE FOLLOWED.
- THE FOUNDATION OF CULVERT TO LAID ON ORIGINAL SOIL MAINTAINING THE SLOPES AS SHOWN IN THE SECTION.
- USE M25 GRADE CONCRETE AND Fe500 STEEL FOR THE CONSTRUCTION OF CULVERT SLAB AND ABUTMENT.
- PROVIDE 30MM CLEAR COVER FOR SLAB AND 40MM FOR THE ABUTMENT.
- PROVIDE 100MM DIAMETER STEEL CHAIR @ 1METER CENTER TO CENTER FOR CULVERT SLAB AND FOOTING.
- THE HEIGHT OF ABUTMENT MAY CHANGE AS PER THE SITE CONDITION, ANY SUCH CHANGE SHALL BE IMMEDIATELY BROUGHT TO THE NOTICE OF PROJECT AUTHORITY/CONSULTANT FOR REVIEW.
- THE DRAINAGE HOLE SHALL BE PROVIDED BOTH IN DECK SLAB AND THE ABUTMENT AS DETAILS SHOWN IN THE SECTIONS.
- THE BACKFILLING OF SHALL BE DONE IN LAYER OF 300MM PROVIDING PROPER FILTER MATERIALS AT DRAINAGE HOLES.
- DEVELOPMENT LENGTH OF REINFORCEMENT SHALL BE PROVIDED 57Ø OF THE REINFORCEMENT.
- ALL DIMENSIONS/DETAILS SHALL BE CHECKED ALONG WITH THE RELEVANT DRAWINGS BEFORE STARTING EXECUTION OF WORKS. DISCREPANCY, IF ANY, SHALL BE IMMEDIATELY BROUGHT TO THE NOTICE OF PROJECT AUTHORITY/CONSULTANT FOR REVIEW.

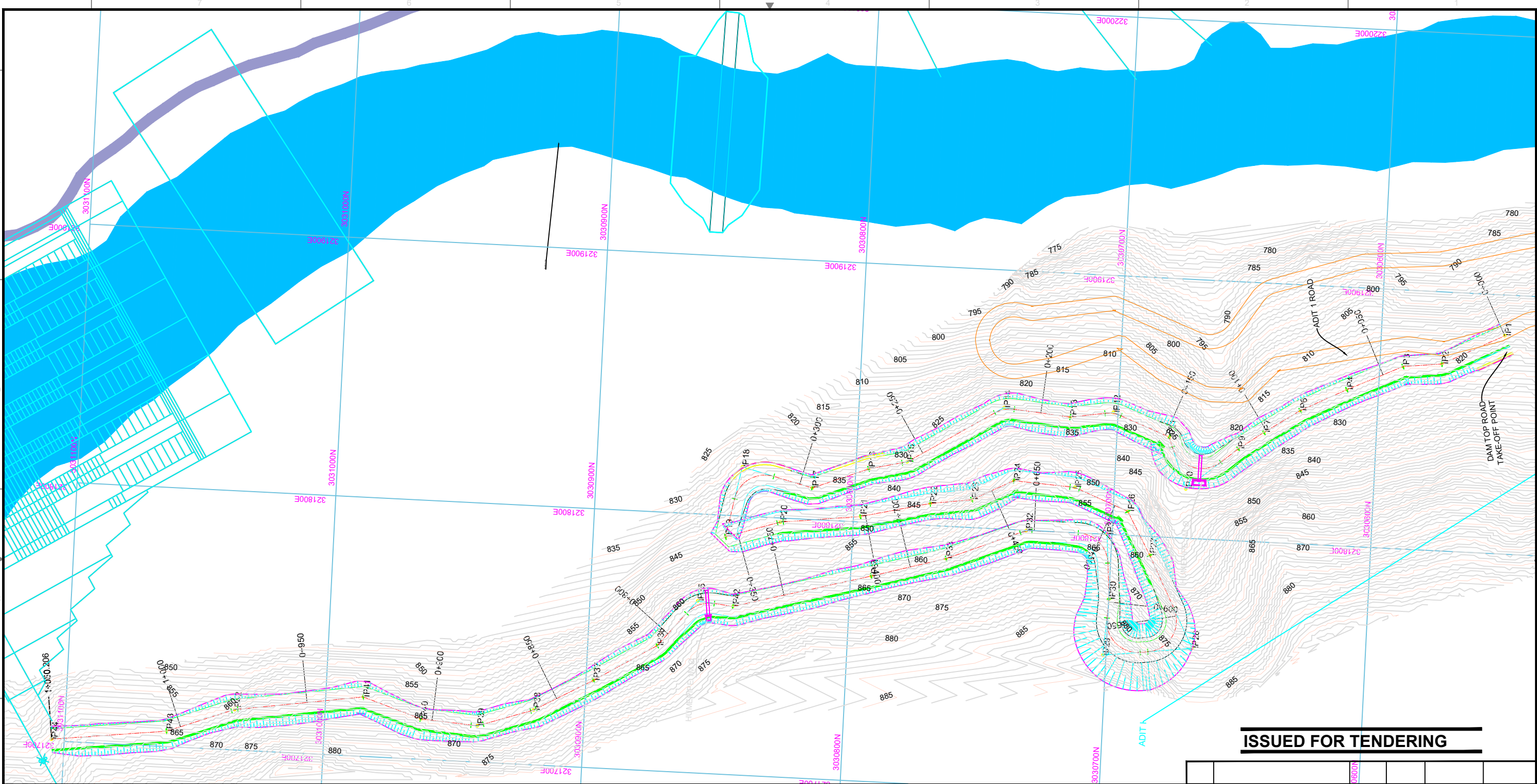
RETAINING WALL CONSTRUCTION:

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- NO DIMENSION SHALL BE MEASURED FROM THE DRAWINGS. ONLY WRITTEN DIMENSIONS TO BE FOLLOWED.
- THE HEIGHT OF THE RETAINING WALL SHALL NOT EXCEED ($H= 0.4B + 0.3$) AND IT IS TO BE DIVIDED INTO PANELS LENGTH NOT EXCEEDING 5M.
- THE FOUNDATION OF WALL TO LAID ON ORIGINAL SOIL MAINTAINING THE SLOPES AS SHOWN IN THE SECTION.
- THE BACKFILLING OF SHALL BE DONE IN LAYER OF 300MM PROVIDING PROPER FILTER MATERIALS AT WEEP HOLES.
- THE WEEP HOLE SHALL BE PROVIDED AT DISTANCE NOT EXCEEDING 1.5 METER C/C IN BOTH THE DIRECTION.
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ISSUED FOR TENDERING

Rev	Modification	Drawn:	Checked:	Recommended:	Approved:
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG DAM TOP ROAD GENERAL PLAN SHEET 1 OF 13					
CONSULTANT: 		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
Original Size A3	Original Scale AS SHOWN	DRAWING NO. DHPP-DAM-TOP-ROAD-2024-01			REV NA




NOTE:

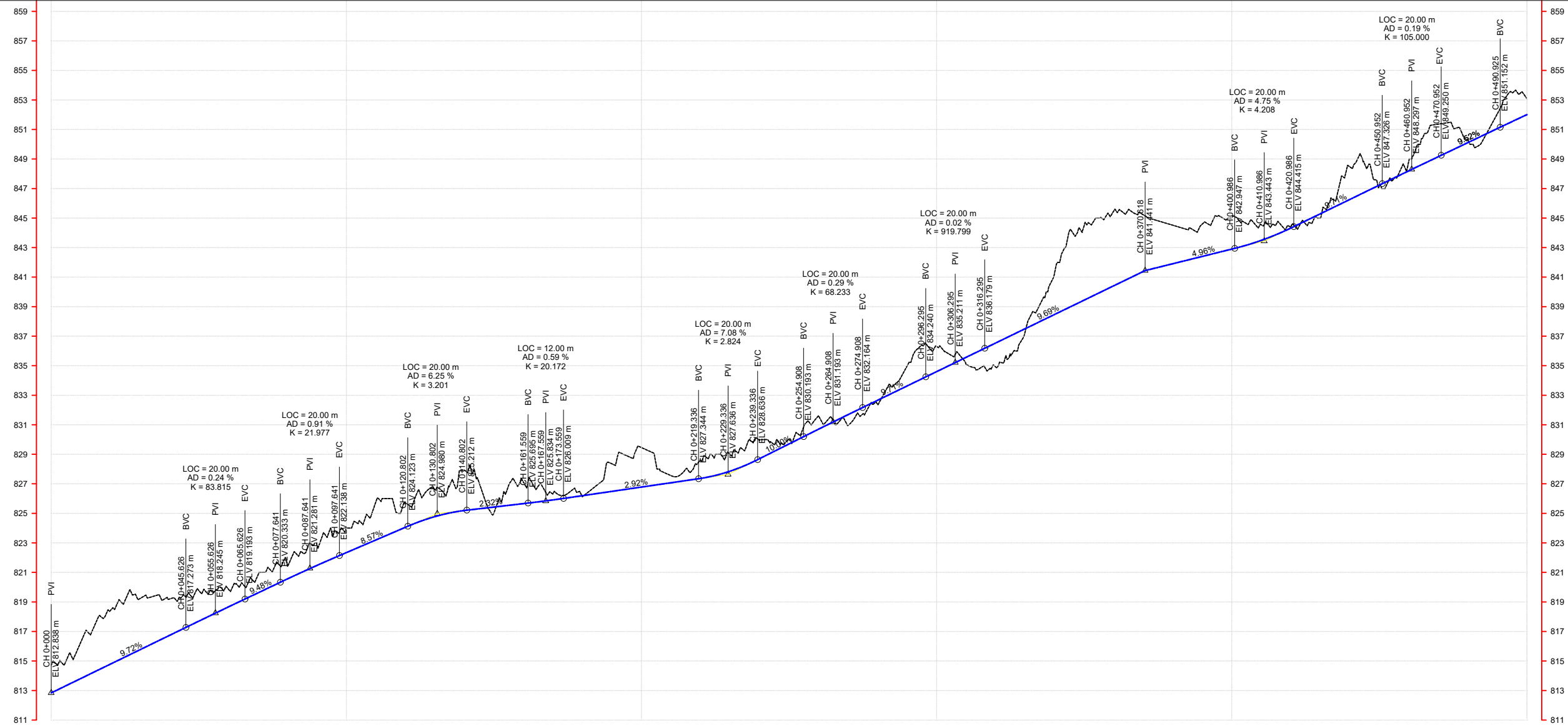
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SCALE 1 : 1500

ISSUED FOR TENDERING


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Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG DAM TOP ROAD GENERAL PLAN SHEET 1 OF 13					
CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
Original Size A3	Original Scale AS SHOWN	DRAWING NO. DHPP-DAM-TOP-ROAD-2024-01		REV NA	



CHAINAGE : 0+000 - 0+500		
IP No.	CO-ORDINATES(m)	
	EASTING	NORTHING
1	321864.284	3030552.403
2	321872.178	3030576.095
3	321870.414	3030591.048
4	321860.432	3030612.255
5	321851.452	3030629.814
7	321842.312	3030643.444
9	321835.497	3030652.985
10	321819.021	3030672.428
11	321838.734	3030679.819
12	321847.163	3030701.853
13	321844.517	3030718.369
14	321846.842	3030744.106
15	321824.105	3030780.356
16	321820.624	3030785.098
17	321812.185	3030816.465
18	321819.001	3030843.826
19	321791.680	3030848.977
20	321798.415	3030828.131
21	321802.123	3030797.343
22	321808.497	3030770.685
23	321810.742	3030754.729
24	321819.920	3030738.854
25	321817.477	3030715.202
26	321809.239	3030694.316

DESIGN LEVEL(m)	EXISTING LEVEL(m)	CHAINAGE(Km)	HORIZONTAL SCHEMATIC	SUPER ELEVATION SCHEMATIC
0+000	-814.716	0+000		
0+010	-816.266	0+010	L=26.606	
0+020	-818.408	0+020		
0+030	-819.220	0+030	L=15.057	
0+040	-819.196	0+040		
0+050	-819.773	0+050	L=23.439	
0+060	-819.878	0+060		
0+070	-820.799	0+070	L=19.722	
0+080	-821.480	0+080		
0+090	-822.887	0+090	L=16.411	
0+100	-824.000	0+100		
0+110	-825.763	0+110	L=11.729	
0+120	-825.699	0+120		
0+130	-826.599	0+130	L=22.981 R = 12	
0+140	-827.916	0+140		
0+150	-825.021	0+150	L=20.372	
0+160	-827.113	0+160		
0+170	-826.319	0+170	L=23.000 R = 12	
0+180	-826.131	0+180		
0+190	-828.352	0+190	L=13.508	
0+200	-829.453	0+200	L=21.796	
0+210	-827.553	0+210		
0+220	-828.595	0+220	L=36.757	
0+230	-829.016	0+230		
0+240	-829.937	0+240		
0+250	-830.000	0+250		
0+260	-831.601	0+260	L=13.160	
0+270	-830.958	0+270		
0+280	-832.389	0+280	L=22.973	
0+290	-834.986	0+290		
0+300	-836.300	0+300	L=15.483	
0+310	-835.092	0+310		
0+320	-834.911	0+320	L = 19.543 R = 12	
0+330	-837.310	0+330		
0+340	-841.318	0+340	L=15.088	
0+350	-844.505	0+350		
0+360	-845.473	0+360	L=20.748	
0+370	-845.225	0+370		
0+380	-844.515	0+380	L=29.851	
0+390	-844.595	0+390		
0+400	-845.007	0+400		
0+410	-844.543	0+410	L=27.410	
0+420	-844.407	0+420		
0+430	-845.000	0+430	L=16.112	
0+440	-848.470	0+440		
0+450	-847.152	0+450	L=17.858	
0+460	-848.892	0+460		
0+470	-851.363	0+470	L=21.792	
0+480	-850.304	0+480		
0+490	-852.075	0+490	L=15.051	
0+500	-853.087	0+500		

ISSUED FOR TENDERING

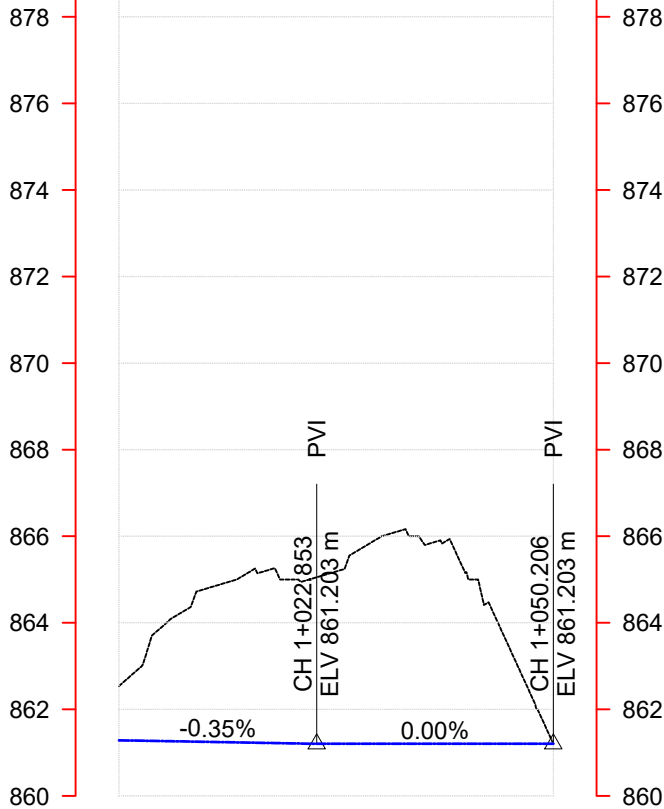
Rev	Modification	Drawn:	Checked:	Recommended:	Approved:	
Client: DORJILUNG HYDROPOWER PROJECT						
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN						
Title: DORJILUNG DAM TOP ROAD PROFILE (0 TO 500 M) SHEET 2 OF 13						
CONSULTANT:		NAME	SIG.			
 འབྲས་རྒྱུ་ཁུངས་ལོ་ནུས། Druk Green Consultancy	Designed					
	Drawn					
	Checked					
	Approved					
	Issued Date	NOV 2024				
Original Size A3	Original Scale AS SHOWN	DRAWING NO. DHPP-DAM-TOP-ROAD-2024-02			REV NA	

NOTE:

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SCALE 1 : 1500



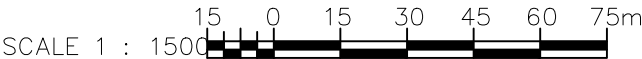
CHAINAGE : 1+000 - 1+050.206

IP No.	CO-ORDINATES(m)	
	EASTING	NORTHING
43	321705.951	3031060.724


DESIGN LEVEL(m)	861.284	861.249	861.213	861.203	861.203	861.203
EXISTING LEVEL(m)	862.537	864.784	865.000	865.954	865.161	861.203
CHAINAGE(Km)	1+000	1+010	1+020	1+030	1+040	1+050.206
HORIZONTAL SCHEMATIC	L=5653	L=44.553				
SUPER ELEVATION SCHEMATIC	1+000	SE: 4%				1+050.206

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ISSUED FOR TENDERING

Rev	Modification	Drawn:	Checked:	Recommended:	Approved:
Client: <div>DORJILUNG HYDROPOWER PROJECT</div>					
Project: <div>DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN</div>					
Title: <div>DORJILUNG DAM TOP ROAD PROFILE (500 TO 1000 M)</div>					
SHEET 4 OF 13					
CONSULTANT:			NAME	SIG.	
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date		NOV 2024	
Original Size A3	Original Scale AS SHOWN	DRAWING NO. DHPP-DAM-TOP-ROAD-2024-03A			REV NA




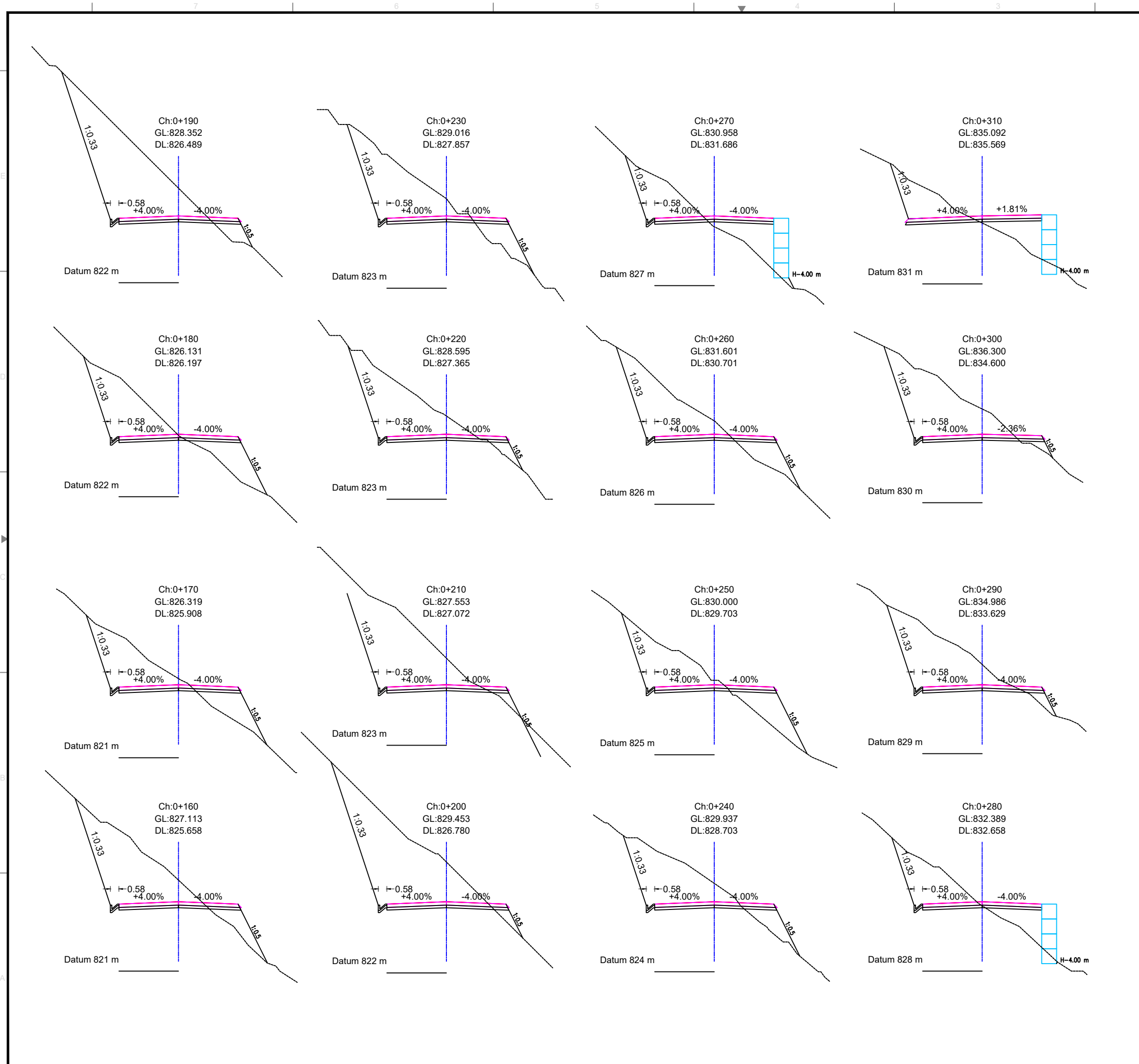
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SCALE 1 : 250

ISSUED FOR TENDERING

Rev	Modification	Drawn	Checked	Recommended	Approved
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG DAM TOP ROAD CROSS SECTION					
SHEET 5 OF 13					
CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
Original Size	Original Scale	DRAWING NO.		REV	
A3	AS SHOWN	DHPP-DAM-TOP-ROAD-2024-04		NA	



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SCALE 1 : 250

ISSUED FOR TENDERING

Rev	Modification	Drawn:	Checked:	Recommended:	Approved:
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG DAM TOP ROAD CROSS SECTION					
SHEET 6 OF 13					
CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
Original Size	Original Scale	DRAWING NO.		REV	
A3	AS SHOWN	DHPP-DAM-TOP-ROAD-2024-05		NA	

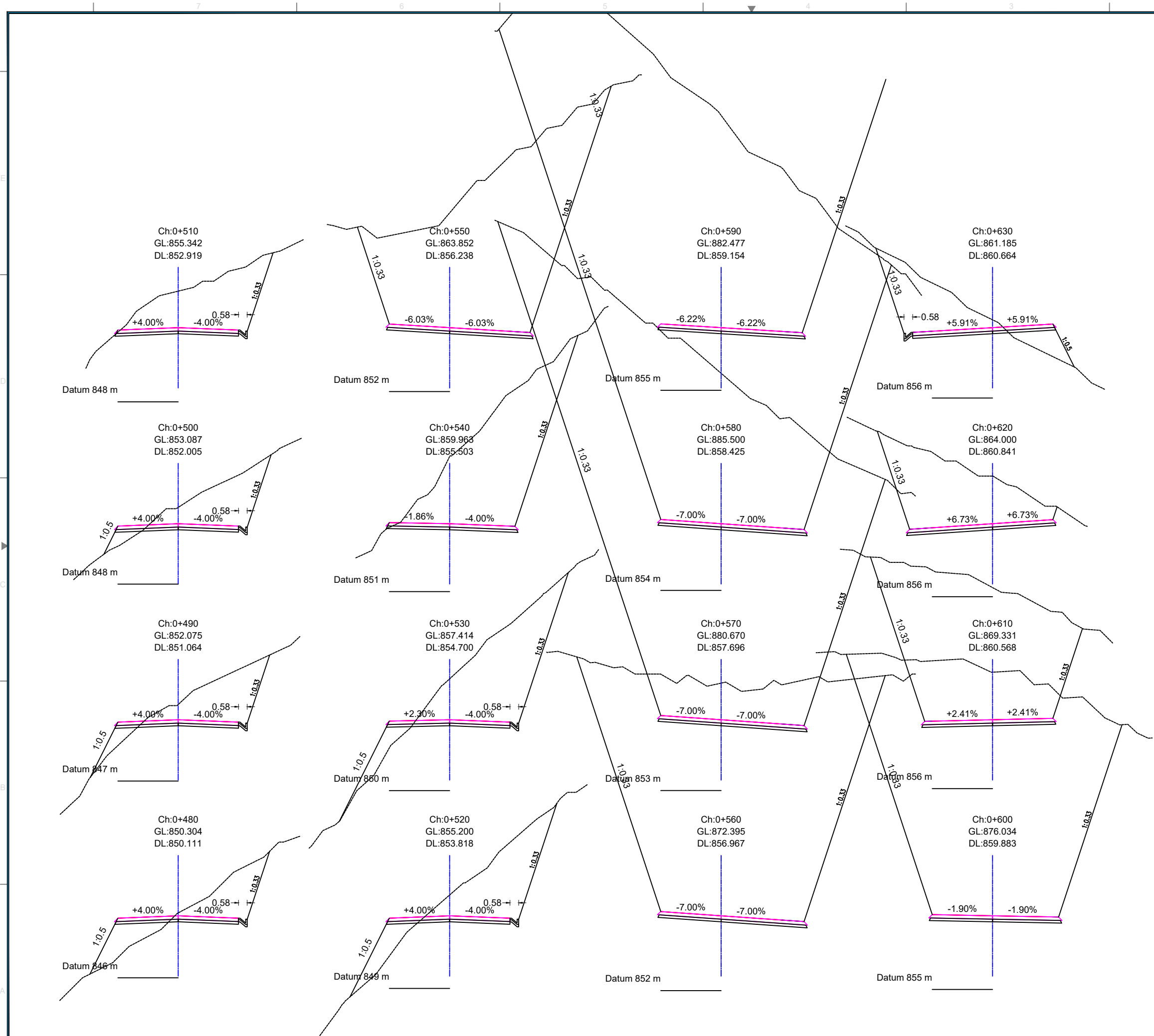
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SCALE 1 : 250

ISSUED FOR TENDERING

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Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG DAM TOP ROAD CROSS SECTION SHEET 7 OF 13					
CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
Original Size A3	Original Scale AS SHOWN	DRAWING NO. DHPP-DAM-TOP-ROAD-2024-06		REV	NA




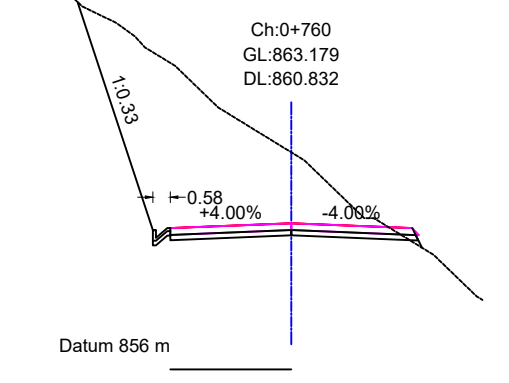
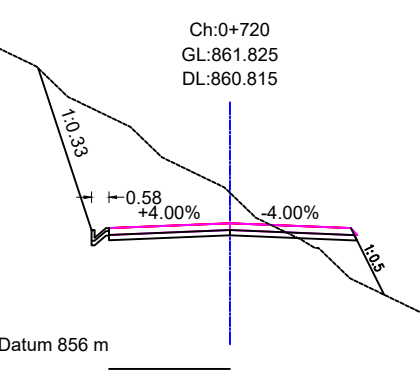
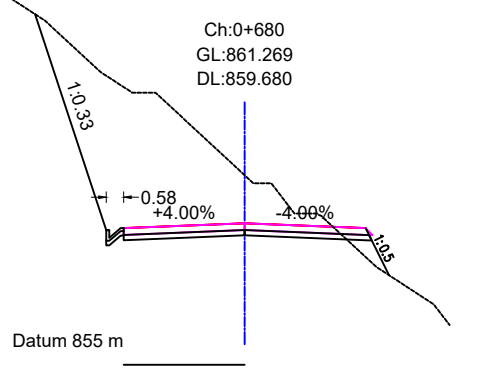
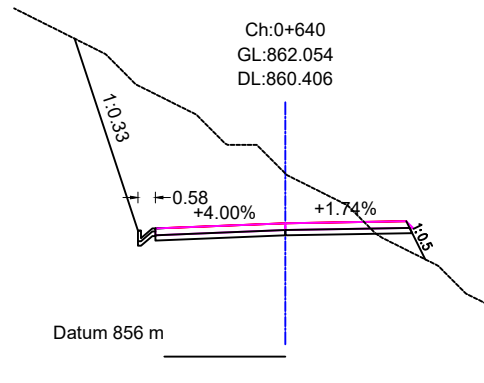
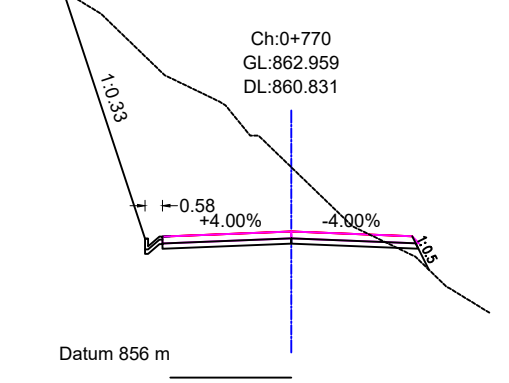
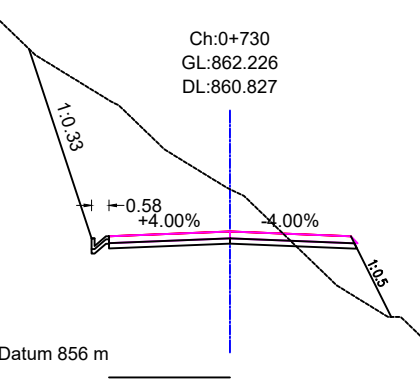
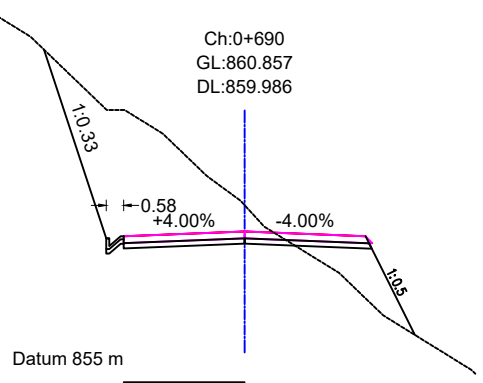
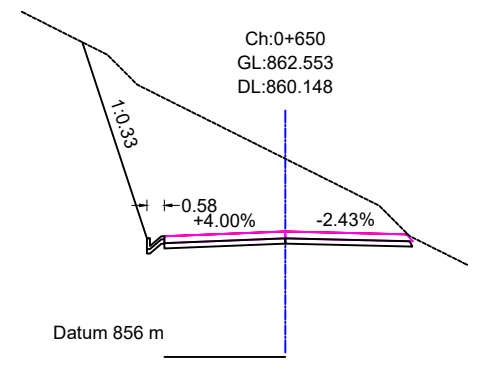
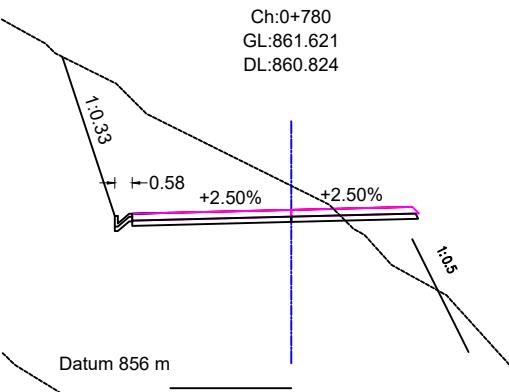
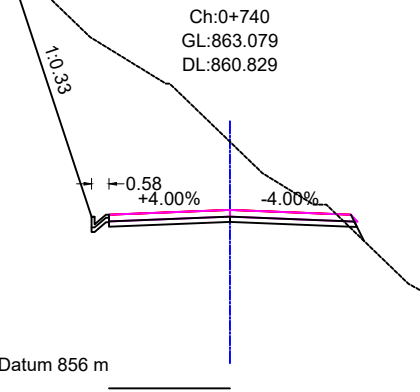
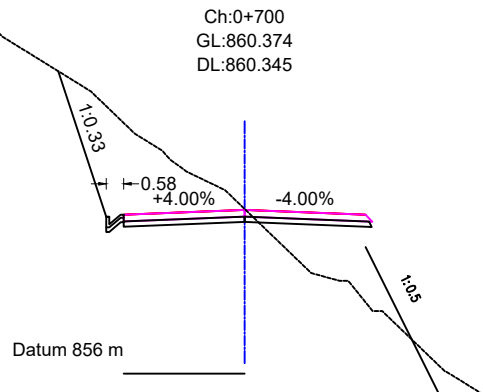
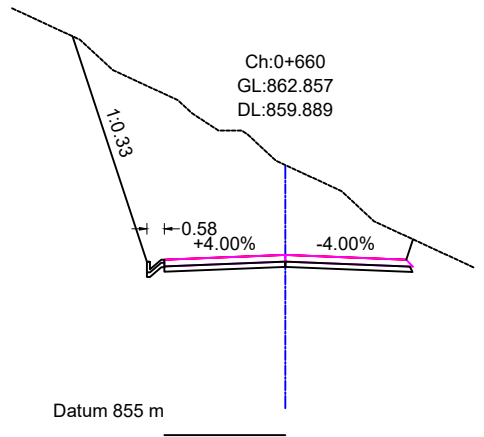
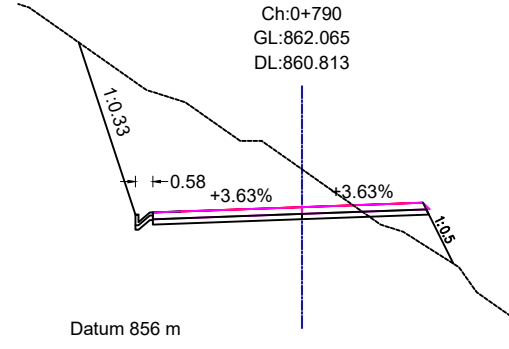
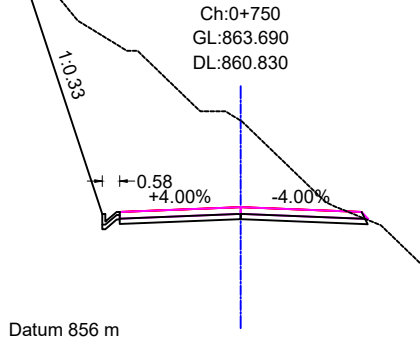
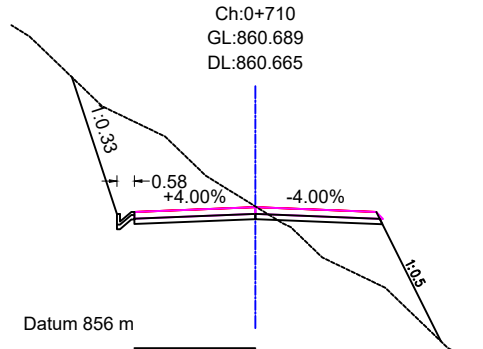
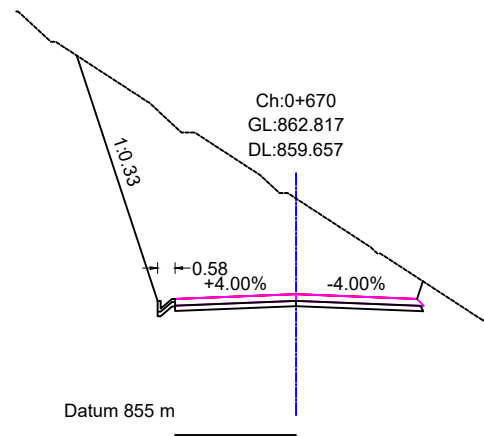
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SCALE 1 : 250

ISSUED FOR TENDERING

Rev	Modification	Drawn	Checked	Recommended	Approved
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG DAM TOP ROAD CROSS SECTION					
SHEET 8 OF 13					
CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
Original Size A3	Original Scale AS SHOWN	DRAWING NO. DHPP-DAM-TOP-ROAD-2024-07		REV	NA



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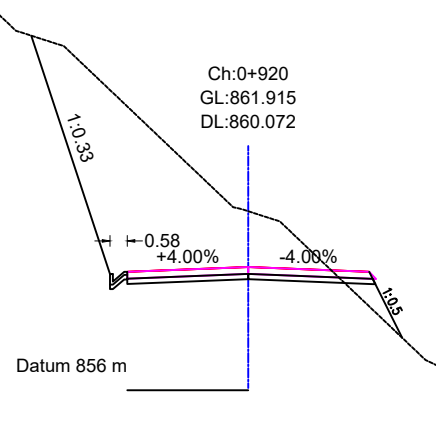
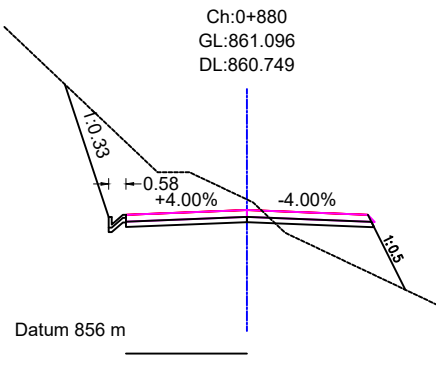
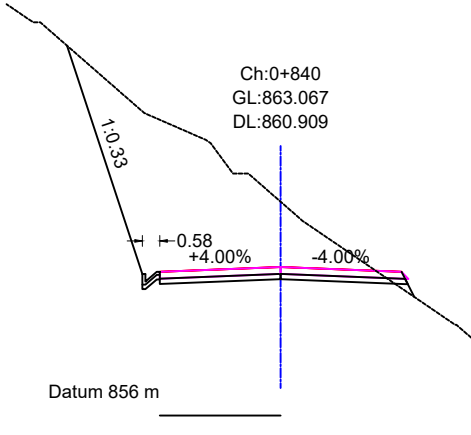
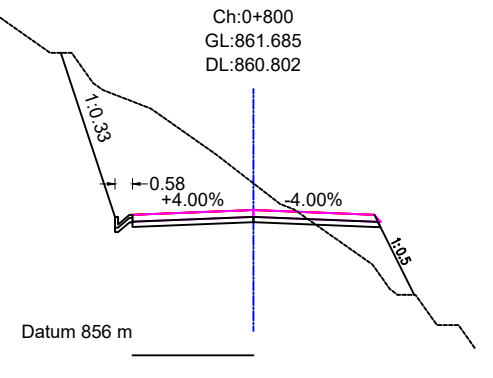
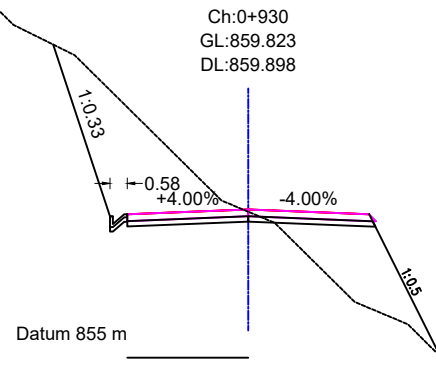
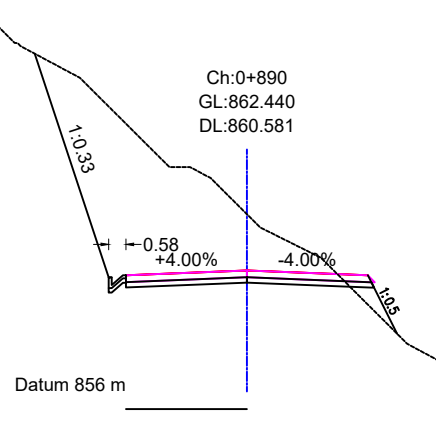
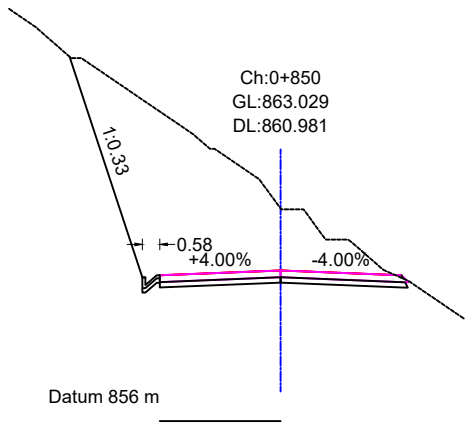
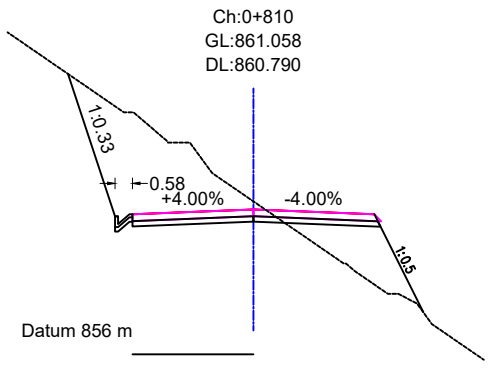
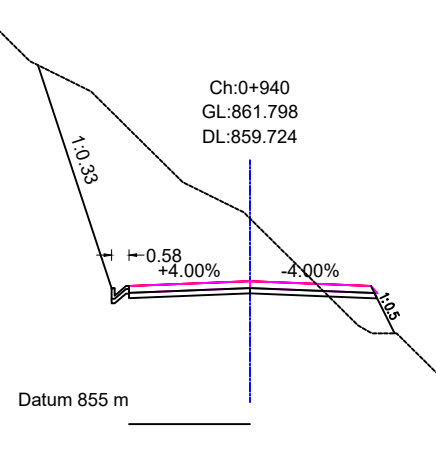
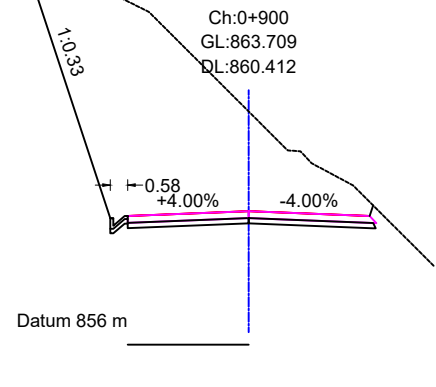
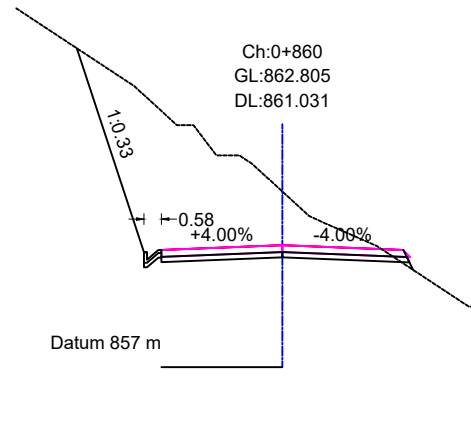
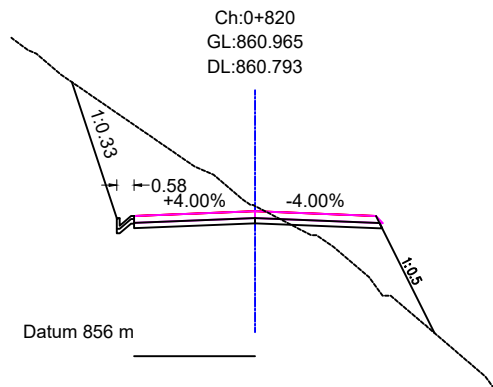
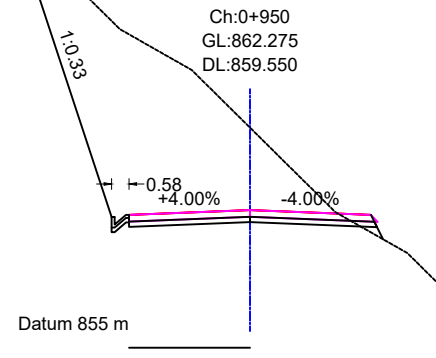
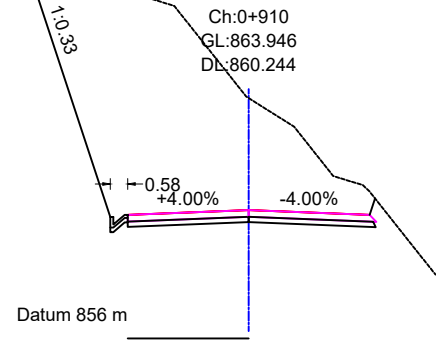
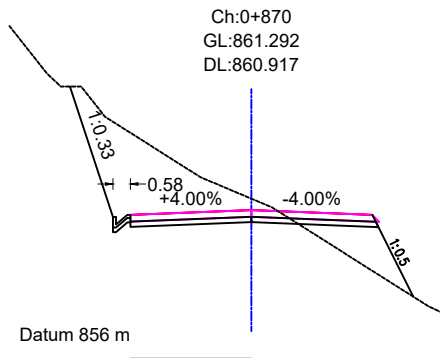
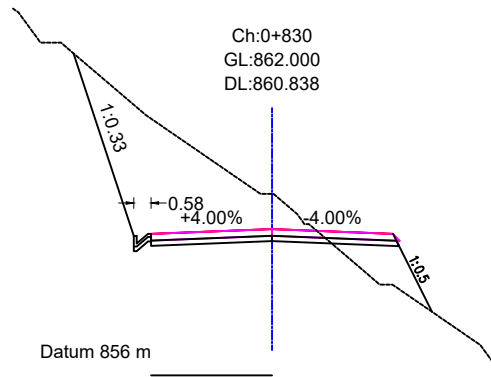


SCALE 1 : 250

2.5 0 2.5 5.0 7.5 10.0 12.5m

ISSUED FOR TENDERING

Rev	Modification	Drawn:	Checked:	Recommended:	Approved:
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG DAM TOP ROAD CROSS SECTION					
SHEET 9 OF 13					
CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
Original Size A3	Original Scale AS SHOWN	DRAWING NO. DHPP-DAM-TOP-ROAD-2024-08		REV	NA



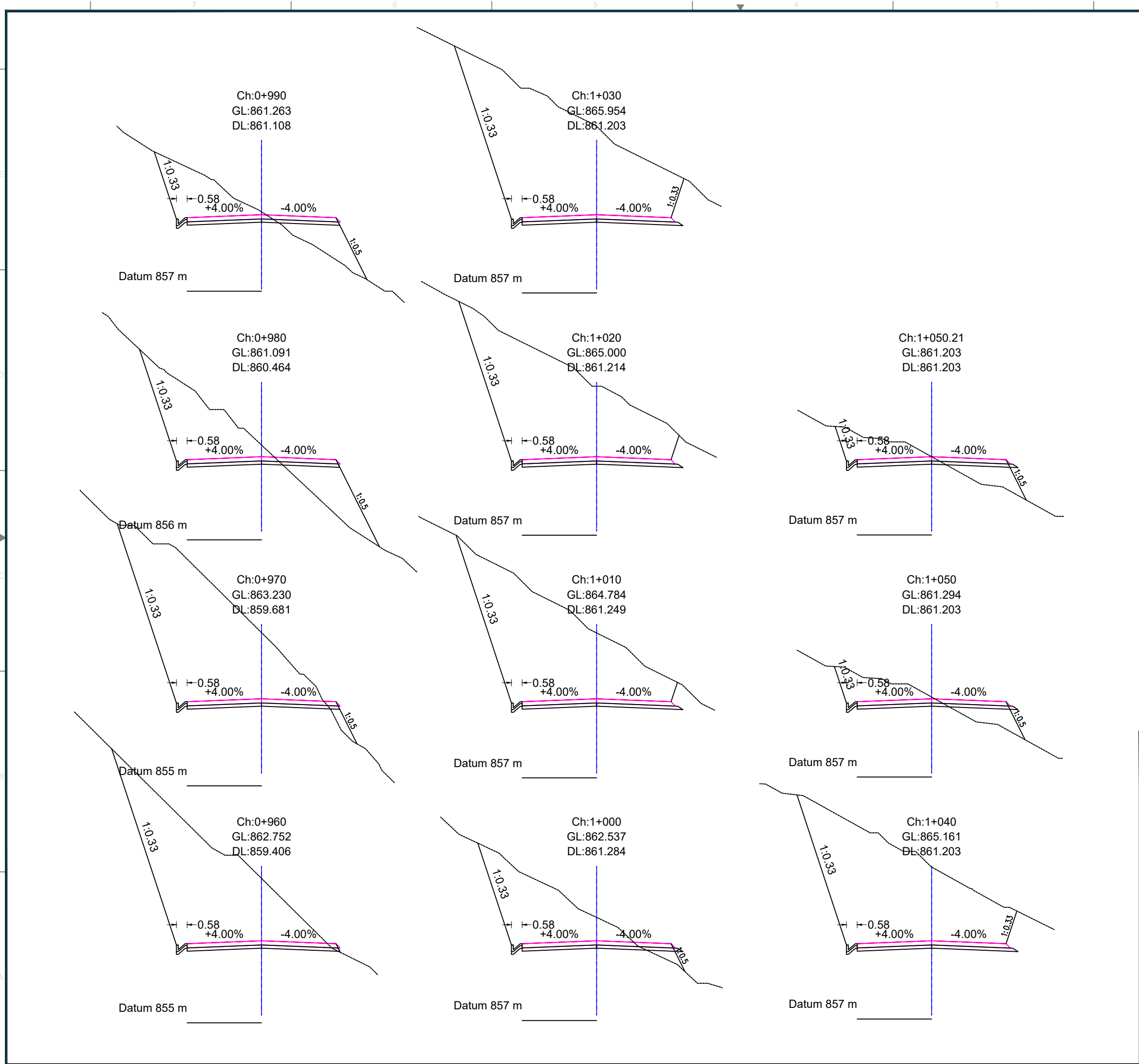
- NOTE:
1. ALL DIMENSIONS, ELEVATIONS & DETAILS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
 2. NO DIMENSION SHALL BE MEASURED FROM THE DRAWINGS. ONLY WRITTEN DIMENSIONS TO BE FOLLOWED.
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SCALE 1 : 250

ISSUED FOR TENDERING

Rev	Modification	Drawn	Checked	Recommended	Approved
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG DAM TOP ROAD CROSS SECTION SHEET 10 OF 13					
CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
Original Size	Original Scale	DRAWING NO.			REV
A3	AS SHOWN	DHPP-DAM-TOP-ROAD-2024-09			NA



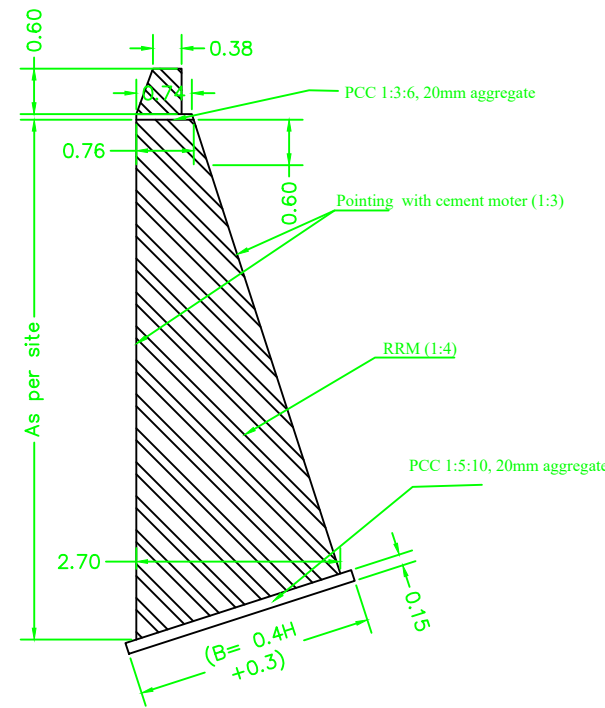
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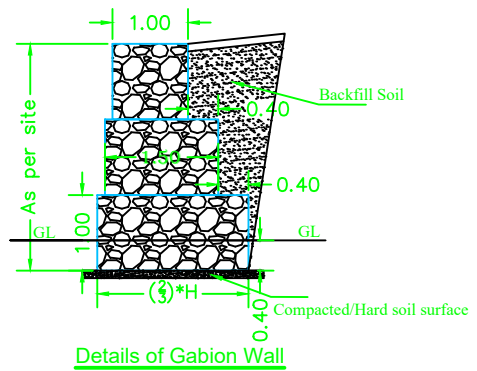
SCALE 1 : 200

ISSUED FOR TENDERING

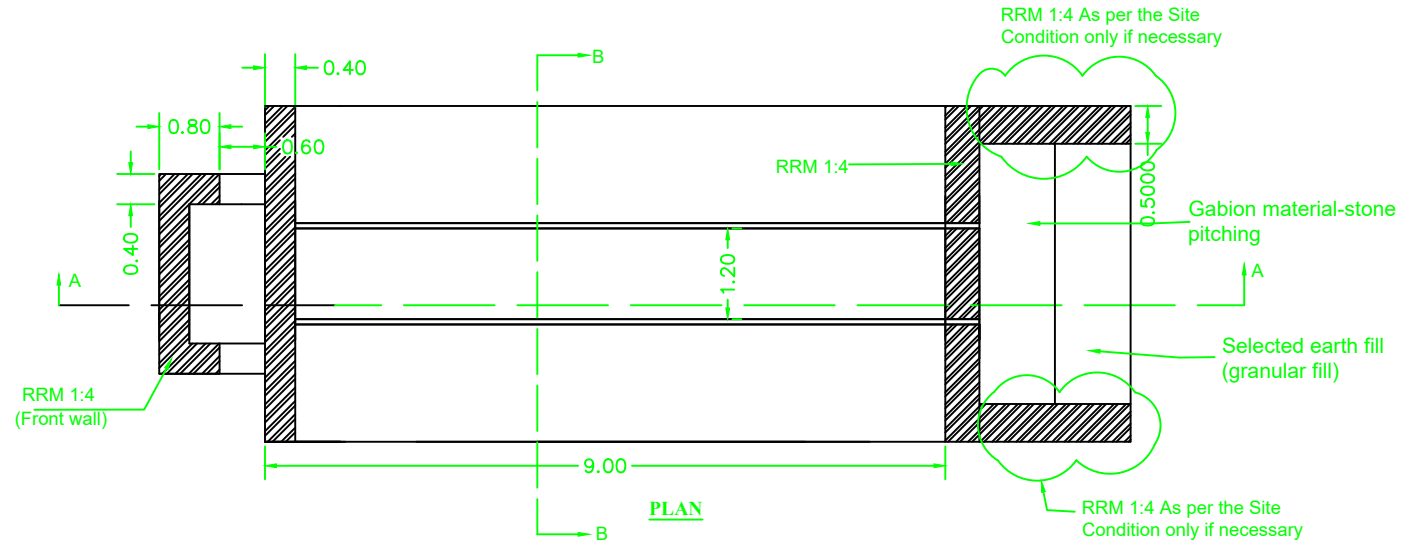
Rev	Modification	Drawn	Checked	Recommended	Approved
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG DAM TOP ROAD CROSS SECTION					
SHEET 11 OF 13					
CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
Original Size	Original Scale	DRAWING NO.		REV	
A3	AS SHOWN	DHPP-DAM-TOP-ROAD-2024-10		NA	



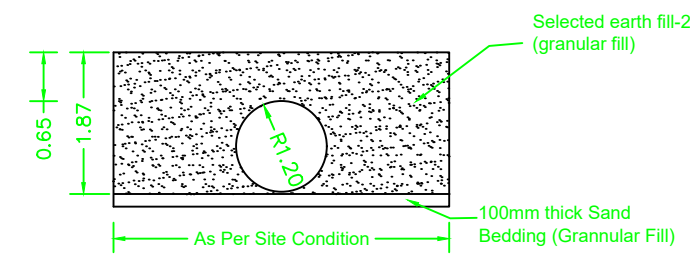
Details of Retaining Wall



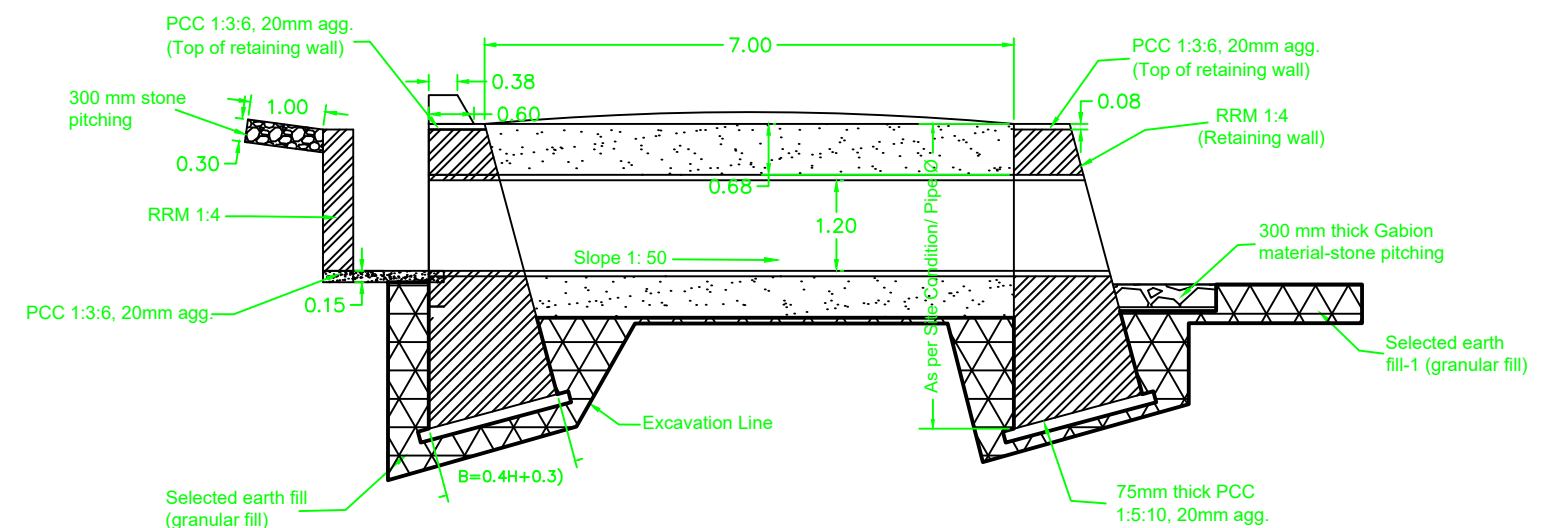
Details of Gabion Wall



PLAN



SECTION BB



SECTION AA

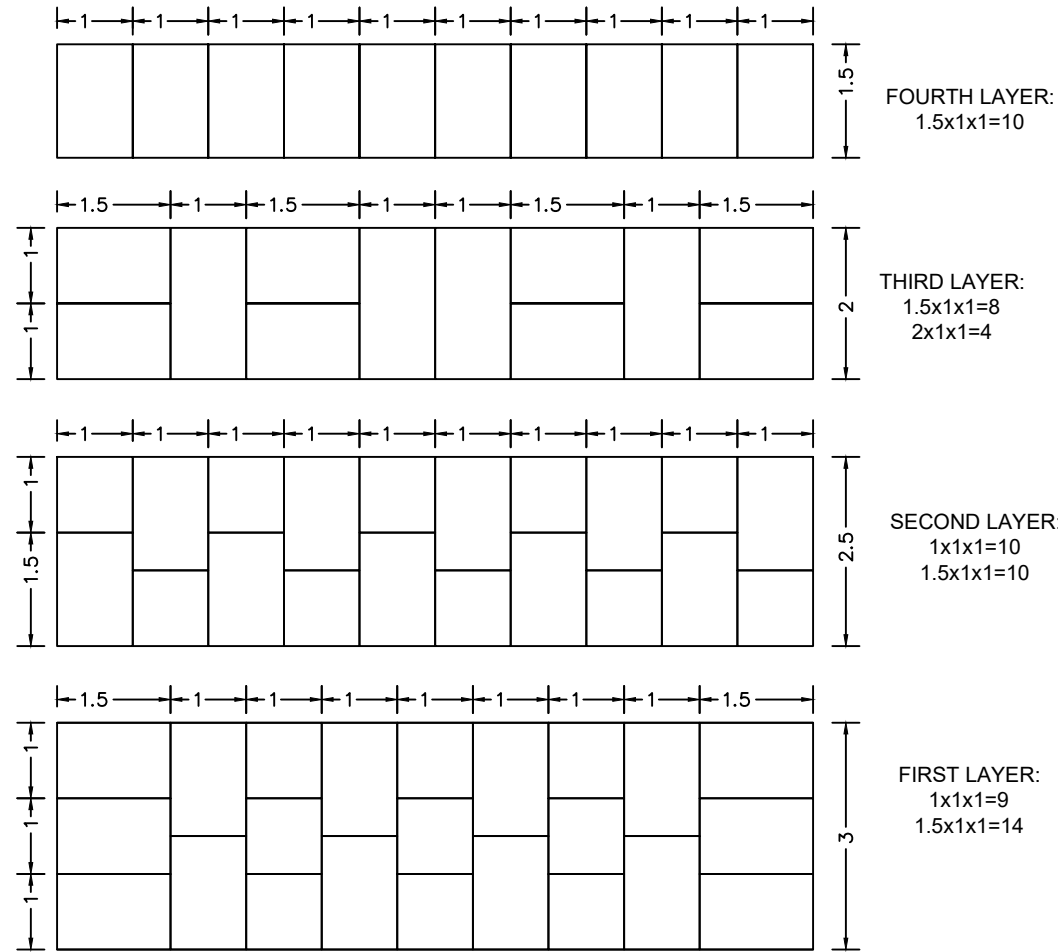
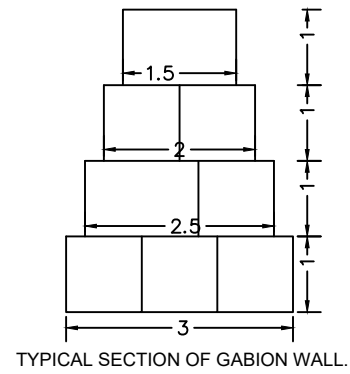
NOTE:

- ALL DIMENSIONS, ELEVATIONS & DETAILS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
- NO DIMENSION SHALL BE MEASURED FROM THE DRAWINGS. ONLY WRITTEN DIMENSIONS TO BE FOLLOWED.
- THE PIPES SHALL BE LAID AFTER THE FOUNDATION IS WELL LEVELED MAINTAINING REQUIRED SLOPE AND APPROVED BY THE ENGINEER-IN-CHARGE.
- IN PLACES WHERE TWO OR MORE PIPES ARE TO BE LAID ADJACENT TO EACH OTHER, THE PIPES SHALL BE SEPARATED BY A DISTANCE OF A MINIMUM 450 MM OR EQUAL TO HALF THE DIAMETER OF THE PIPE.
- PROPER CARE SHALL BE TAKEN WHILE LIFTING, LOADING, UNLOADING, AND LOWERING OF CONCRETE PIPES AT A FACTORY OR SITE SO THAT THE PIPES DO NOT SUFFER ANY UNDUE STRUCTURAL STRAIN, ANY DAMAGE DUE TO FALL OR IMPACT.
- ANY PIPE FOUND DEFECTIVE OR DAMAGED DURING LAYING SHALL BE REMOVED AT THE COST OF THE CONTRACTOR.
- MAINTAIN A MINIMUM BACKFILL COVER OF 600MM FROM THE TOP OF THE PIPE TO THE ROAD LEVEL.
- THE BACKFILLING OF THE TRENCHES SHALL BE CARRIED OUT IMMEDIATELY AFTER THE PIPES ARE PLACED, AND THE JOINTING MATERIAL HAS HARDENED.
- THE BACKFILLING UP TO 300 MM ABOVE THE TOP OF THE PIPE SHALL BE CARRIED OUT CAREFULLY, AND THE SOIL SHALL BE RAMMED, TAMPED, OR VIBRATED IN LAYERS NOT EXCEEDING 150 MM, PARTICULAR CARE BEING TAKEN TO CONSOLIDATE THE MATERIALS UNDER THE LAUNCHES OF THE PIPE THOROUGHLY.
- THE FILLING OF THE TRENCH ON BOTH SIDES OF THE PIPE SHALL BE CARRIED OUT SIMULTANEOUSLY SO THAT UNEQUAL PRESSURES DO NOT OCCUR.
- IN CASE OF THE HIGH EMBANKMENT, AFTER FILLING THE TRENCH UP TO THE TOP OF THE PIPE IN THE ABOVE-SAID MANNER, A LOOSE-FILL SHALL BE PLACED OVER THE PIPE TO A DEPTH EQUAL TO THE EXTERNAL DIAMETER OF THE PIPE AND COMPACTED.

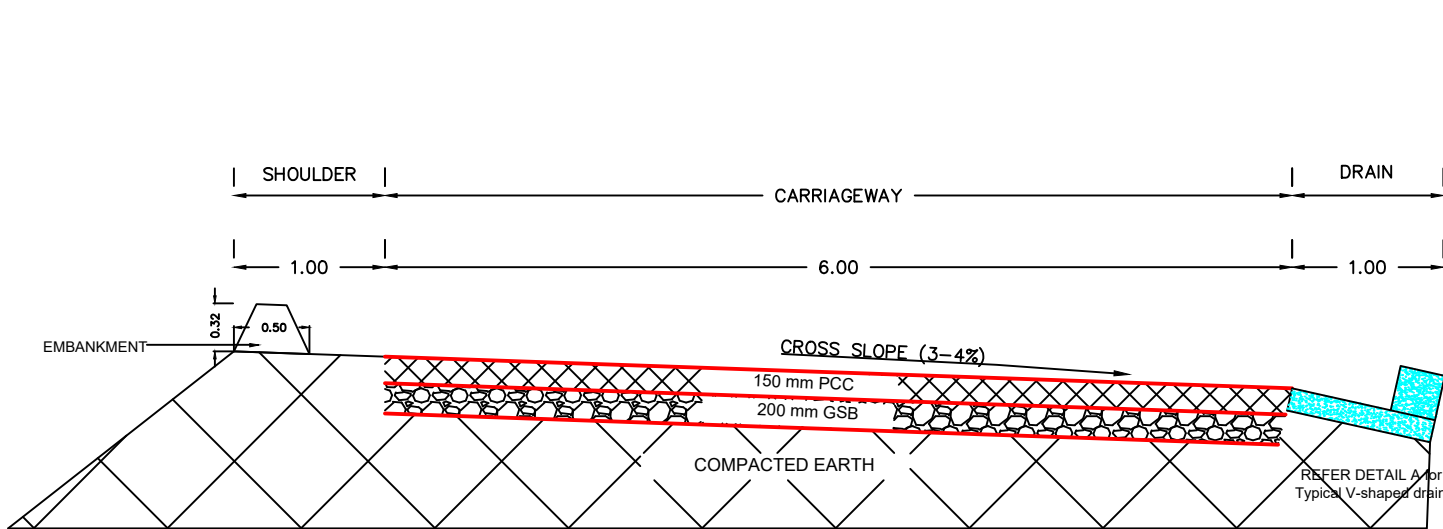


ISSUED FOR TENDERING

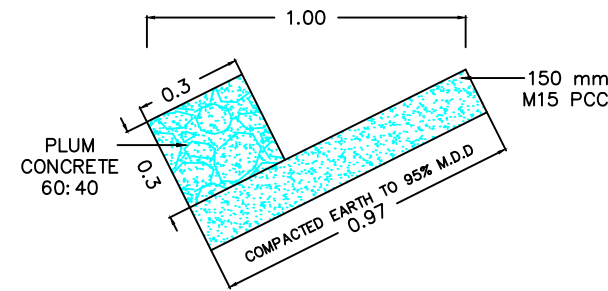
Rev	Modification	Drawn	Checked	Recommended	Approved
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG DAM TOP ROAD TYPICAL SECTION OF RETAINING WALL					
SHEET 12 OF 13					
CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
Original Size	A3	Original Scale	AS SHOWN	DRAWING NO.	DHPP-DAM-TOP-ROAD-2024-12
				REV	NA



GABION WALL PLAN.



Typical One-way Camber Cross Slope in Super Elevated Sections for Double Lane.



DETAIL A: Typical V-shaped drain

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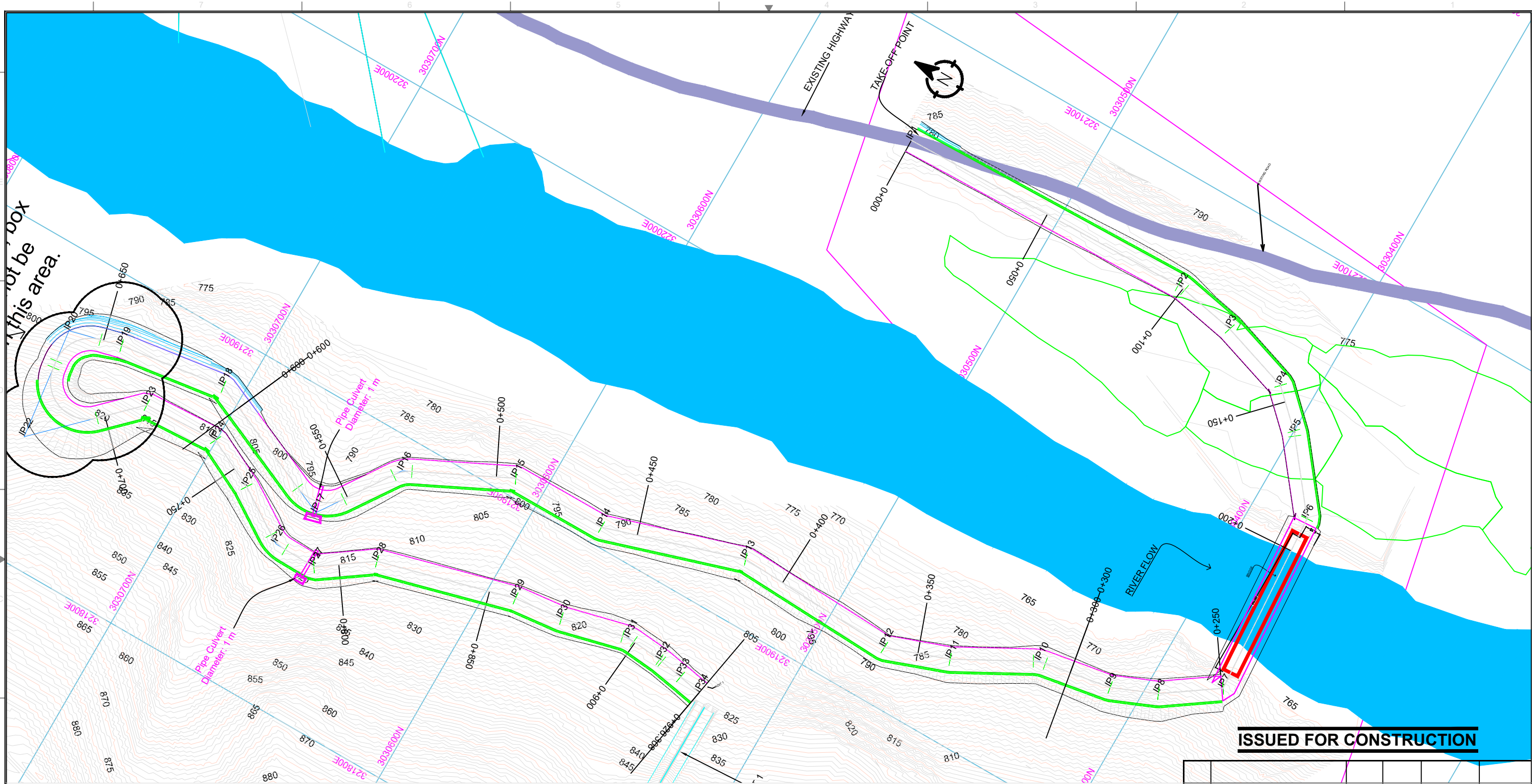


SCALE 1 : 100

ISSUED FOR TENDERING

Rev	Modification	Drawn	Checked	Recommended	Approved
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG DAM TOP ROAD TYPICAL SECTION OF RETAINING WALL					
SHEET 13 OF 13					
CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
Original Size	Original Scale	DRAWING NO.		REV	
A3	AS SHOWN	DHPP-DAM-TOP-ROAD-2024-13		NA	

960.0 m Access Road to Adit 1



ISSUED FOR CONSTRUCTION

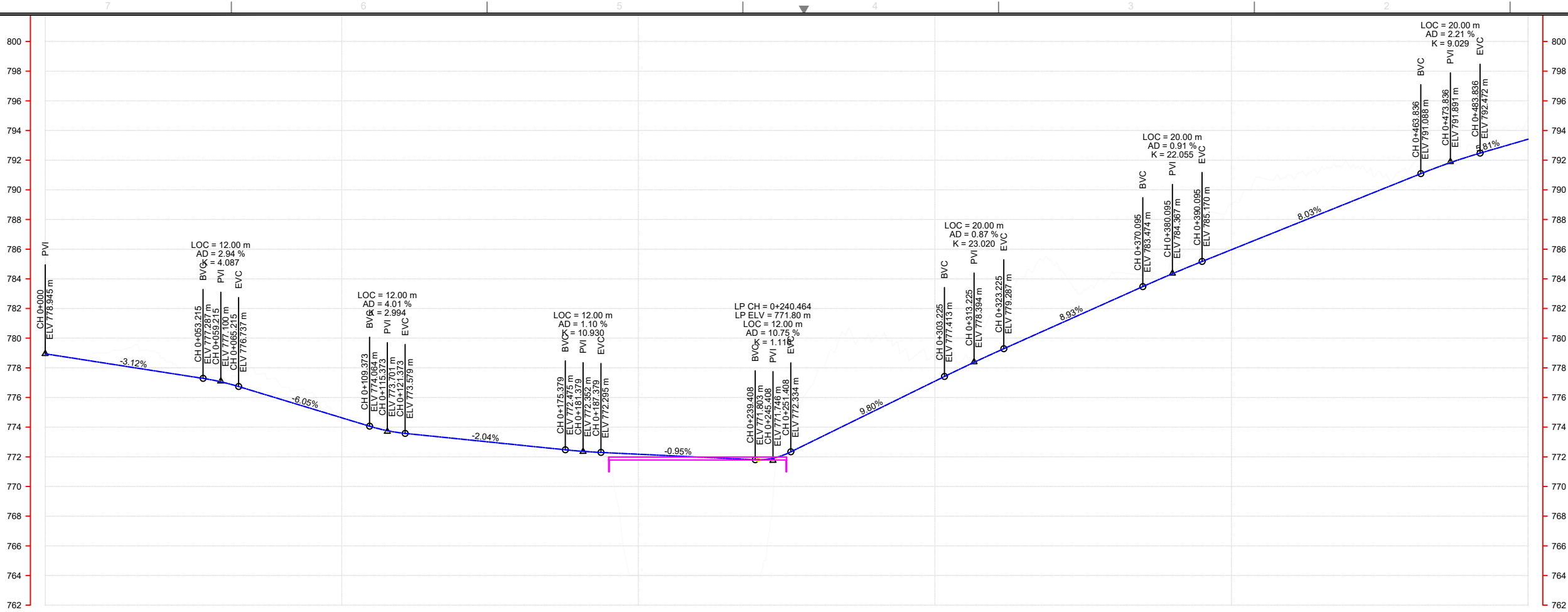
NOTE:

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12.5 0 12.5 25 37.5 50 62.5m
SCALE=1:1250

Rev	Modification	Drawn	Checked	Recommended	Approved
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG ADIT 1 ROAD GENERAL PLAN SHEET 1 OF 11					
CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
Original Size	Original Scale	DRAWING NO.		REV	
A3	AS SHOWN	DHPP-ADIT-1-ROAD-2024-01		NA	



DESIGN LEVEL(m)	778.945	778.633	778.322	778.010	777.699	777.387	777.019	776.647	776.275	775.903	775.531	775.159	774.787	774.415	774.043	773.671	773.299	772.927	772.555	772.183	771.811	771.439	771.067	770.695	770.323	769.951	769.579	769.207	768.835	768.463	768.091	767.719	767.347	766.975	766.603	766.231	765.859	765.487	765.115	764.743	764.371	763.999	763.627	763.255	762.883	762.511	762.139	761.767	761.395	761.023	760.651	760.279	759.907	759.535	759.163	758.791	758.419	758.047	757.675	757.303	756.931	756.559	756.187	755.815	755.443	755.071	754.699	754.327	753.955	753.583	753.211	752.839	752.467	752.095	751.723	751.351	750.979	750.607	750.235	749.863	749.491	749.119	748.747	748.375	747.999	747.623	747.247	746.871	746.495	746.119	745.743	745.367	744.991	744.615	744.239	743.863	743.487	743.111	742.735	742.359	741.983	741.607	741.231	740.855	740.479	740.103	739.727	739.351	738.975	738.599	738.223	737.847	737.471	737.095	736.719	736.343	735.967	735.591	735.215	734.839	734.463	734.087	733.711	733.335	732.959	732.583	732.207	731.831	731.455	731.079	730.703	730.327	729.951	729.575	729.199	728.823	728.447	728.071	727.695	727.319	726.943	726.567	726.191	725.815	725.439	725.063	724.687	724.311	723.935	723.559	723.183	722.807	722.431	722.055	721.679	721.303	720.927	720.551	720.175	719.799	719.423	719.047	718.671	718.295	717.919	717.543	717.167	716.791	716.415	716.039	715.663	715.287	714.911	714.535	714.159	713.783	713.407	713.031	712.655	712.279	711.903	711.527	711.151	710.775	710.399	710.023	709.647	709.271	708.895	708.519	708.143	707.767	707.391	707.015	706.639	706.263	705.887	705.511	705.135	704.759	704.383	704.007	703.631	703.255	702.879	702.503	702.127	701.751	701.375	700.999	700.623	700.247	699.871	699.495	699.119	698.743	698.367	697.991	697.615	697.239	696.863	696.487	696.111	695.735	695.359	694.983	694.607	694.231	693.855	693.479	693.103	692.727	692.351	691.975	691.599	691.223	690.847	690.471	690.095	689.719	689.343	688.967	688.591	688.215	687.839	687.463	687.087	686.711	686.335	685.959	685.583	685.207	684.831	684.455	684.079	683.703	683.327	682.951	682.575	682.199	681.823	681.447	681.071	680.695	680.319	679.943	679.567	679.191	678.815	678.439	678.063	677.687	677.311	676.935	676.559	676.183	675.807	675.431	675.055	674.679	674.303	673.927	673.551	673.175	672.799	672.423	672.047	671.671	671.295	670.919	670.543	670.167	669.791	669.415	669.039	668.663	668.287	667.911	667.535	667.159	666.783	666.407	666.031	665.655	665.279	664.903	664.527	664.151	663.775	663.399	663.023	662.647	662.271	661.895	661.519	661.143	660.767	660.391	660.015	659.639	659.263	658.887	658.511	658.135	657.759	657.383	657.007	656.631	656.255	655.879	655.503	655.127	654.751	654.375	653.999	653.623	653.247	652.871	652.495	652.119	651.743	651.367	650.991	650.615	650.239	649.863	649.487	649.111	648.735	648.359	647.983	647.607	647.231	646.855	646.479	646.103	645.727	645.351	644.975	644.599	644.223	643.847	643.471	643.095	642.719	642.343	641.967	641.591	641.215	640.839	640.463	640.087	639.711	639.335	638.959	638.583	638.207	637.831	637.455	637.079	636.703	636.327	635.951	635.575	635.199	634.823	634.447	634.071	633.695	633.319	632.943	632.567	632.191	631.815	631.439	631.063	630.687	630.311	630.000	629.625	629.250	628.875	628.500	628.125	627.750	627.375	627.000	626.625	626.250	625.875	625.500	625.125	624.750	624.375	624.000	623.625	623.250	622.875	622.500	622.125	621.750	621.375	621.000	620.625	620.250	619.875	619.500	619.125	618.750	618.375	618.000	617.625	617.250	616.875	616.500	616.125	615.750	615.375	615.000	614.625	614.250	613.875	613.500	613.125	612.750	612.375	612.000	611.625	611.250	610.875	610.500	610.125	609.750	609.375	609.000	608.625	608.250	607.875	607.500	607.125	606.750	606.375	606.000	605.625	605.250	604.875	604.500	604.125	603.750	603.375	603.000	602.625	602.250	601.875	601.500	601.125	600.750	600.375	600.000																																															
EXISTING LEVEL(m)	778.890	778.719	779.000	779.529	778.010	778.578	777.699	777.609	777.777	777.387	776.331	777.019	776.058	776.447	776.685	775.842	776.311	775.237	774.864	774.632	773.913	774.027	773.792	773.610	773.550	773.402	773.243	773.198	772.892	772.994	772.636	772.789	772.379	772.595	772.132	772.390	772.000	772.270	771.979	771.916	772.205	771.530	771.716	771.457	771.137	770.892	770.597	770.270	769.996	769.631	769.327	768.985	768.652	768.336	768.000	767.658	767.316	766.965	766.612	766.259	765.903	765.546	765.189	764.832	764.475	764.118	763.761	763.404	763.047	762.690	762.333	761.976	761.619	761.262	760.905	760.548	760.191	759.834	759.477	759.120	758.763	758.406	758.049	757.692	757.335	756.978	756.621	756.264	755.907	755.550	755.193	754.836	754.479	754.122	753.765	753.408	753.051	752.694	752.337	751.980	751.623	751.266	750.909	750.552	750.195	749.838	749.481	749.124	748.767	748.410	748.053	747.696	747.339	746.982	746.625	746.268	745.911	745.554	745.197	744.840	744.483	744.126	743.769	743.412	743.055	742.698	742.341	741.984	741.627	741.270	740.913	740.556	740.199	739.842	739.485	739.128	738.771	738.414	738.057	737.700	737.343	736.986	736.629	736.272	735.915	735.558	735.201	734.844	734.487	734.130	733.773	733.416	733.059	732.702	732.345	731.988	731.631	731.274	730.917	730.560	730.203	729.846	729.489	729.132	728.775	728.418	728.061	727.704	727.347	726.990	726.633	726.276	725.919	725.562	725.205	724.848	724.491	724.134	723.777	723.420	723.063	722.706	722.349	721.992	721.635	721.278	720.921	720.564	720.207	719.850	719.493	719.136	718.779	718.422	718.065	717.708	717.351	716.994	716.637	716.280	715.923	715.566	715.209	714.852	714.495	714.138	713.781	713.424	713.067	712.710	712.353	711.996	711.639	711.282	710.925	710.568	710.211	709.854	709.497	709.140	708.783	708.426	708.069	707.712	707.355	706.998	706.641	706.284	705.927	705.570	705.213	704.856	704.499	704.142	703.785	703.428	703.071	702.714	702.357	702.000	701.643	701.286	700.929	700.572	700.215	699.858	699.501	699.144	698.787	698.430	698.073	697.716	697.359	697.002	696.645	696.288	695.931	695.574	695.217	694.860	694.503	694.146	693.789	693.432	693.075	692.718	692.361	692.004	691.647	691.290	690.933	690.576	690.219	689.862	689.505	689.148	688.791	688.434	688.077	687.720	687.363	687.006	686.649	686.292	685.935	685.578	685.221	684.864	684.507	684.150	683.793	683.436	683.079	682.722	682.365	682.008	681.651	681.294	680.937	680.580	680.223	679.866	679.509	679.152	678.795	678.438	678.081	677.724	677.367	677.010	676.653	676.296	675.939	675.582	675.225	674.868	674.511	674.154	673.797	673.440	673.083	672.726	672.369	672.012	671.655	671.298	670.941	670.584	670.227	669.870	669.513	669.156	668.799	668.442	668.085	667.728	667.371	667.014	666.657	666.300	665.943	665.586	665.229	664.872	664.515	664.158	663.801	663.444	663.087	662.730	662.373	662.016	661.659	661.302	660.945	660.588	660.231	659.874	659.517	659.160	658.803	658.446	658.089	657.732	657.375	657.018	656.661	656.304	655.947	655.590	655.233	654.876	654.519	654.162	653.805	653.448	653.091	652.734	652.377	652.020	651.663	651.306	650.949	650.592	650.235	649.878	649.521	649.164	648.807	648.450	648.093	647.736	647.379	647.022	646.665	646.308	645.951	645.594	645.237	644.880	644.523	644.166	643.809	643.452	643.095	642.738	642.381	642.024	641.667	641.310	640.953	640.596	640.239	639.882	639.525	639.168	638.811	638.454	638.097	637.740	637.383	637.026	636.669	636.312	635.955	635.598	635.241	634.884	634.527	634.170	633.813	633.456	633.099	632.742	632.385	632.028	631.671	631.314	630.957	630.600	630.243	629.886	629.529	629.172	628.815	628.458	628.101	627.744	627.387	627.030	626.673	626.316	625.959	625.602	625.245	624.888	624.531	624.174	623.817	623.460	623.103	622.746	622.389	622.032	621.675	621.318	620.961	620.604	620.247	619.890	619.533	619.176	618.819	618.462	618.105	617.748	617.391	617.034	616.677	616.320	615.963	615.606	615.249	614.892	614.535	614.178	613.821	613.464	613.107	612.750	612.393	612.036	611.679	611.322	610.965	610.608	610.251	609.894	609.537	609.180	608.823	608.466	608.109	607.752	607.395	607.038	606.681	606.324	605.967	605.610	605.253	604.896	604.539	604.182	603.825	603.468	603.111	602.754	602.397	602.040	601.683	601.326	600.969	600.612	600.255	600.000
CHAINAGE(Km)	0+000	0+010	0+020	0+030	0+040	0+050	0+060	0+070	0+080	0+090	0+100	0+110	0+120	0+130	0+140	0+150	0+160	0+170	0+180	0+190	0+200	0+210	0+220	0+230	0+240	0+250	0+260	0+270	0+2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	

CHAINAGE : 0+000 - 0+500

IP No.	CO-ORDINATES(m)	
	EASTING	NORTHING
1	322064.34	3030554.01
2	322066.86	3030454.65
3	322063.00	3030434.47
4	322055.38	3030411.12
5	322044.22	3030399.45
6	322022.39	3030382.19
7	321961.41	3030378.29
8	321949.46	3030395.52
9	321943.37	3030410.03
10	321939.28	3030433.99
11	321925.45	3030459.34
12	321918.09	3030479.64
13	321920.37	3030532.68
14	321906.04	3030578.24
15	321905.91	3030610.09

NOTE:

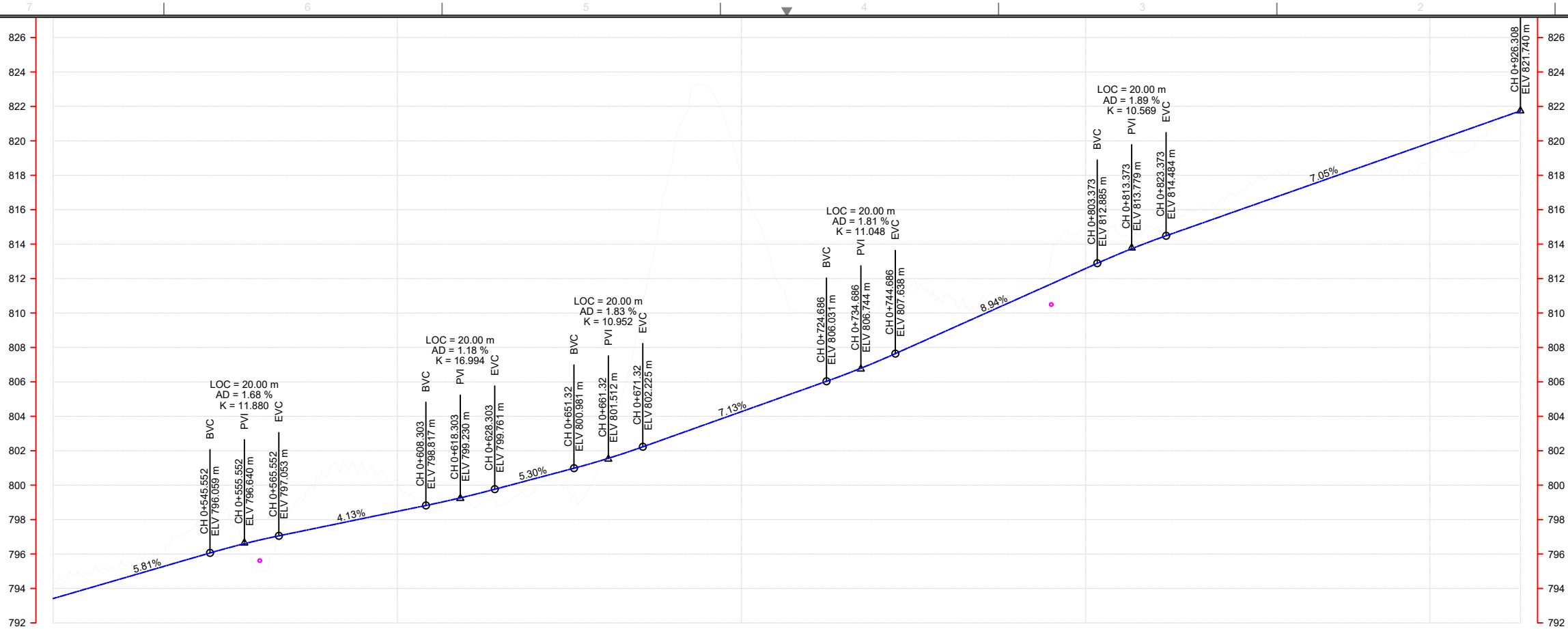
- ALL DIMENSIONS, ELEVATIONS & DETAILS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
- NO DIMENSION SHALL BE MEASURED FROM THE DRAWINGS. ONLY WRITTEN DIMENSIONS TO BE FOLLOWED.
- ALL DIMENSIONS/DETAILS SHALL BE CHECKED ALONG WITH THE RELEVANT DRAWINGS BEFORE STARTING EXECUTION OF WORKS. DISCREPANCY, IF ANY, SHALL BE IMMEDIATELY BROUGHT TO THE NOTICE OF PROJECT AUTHORITY/CONSULTANT FOR REVIEW.



SCALE 1 : 1500

ISSUED FOR CONSTRUCTION

Rev	Modification	Drawn	Checked	Recommended	Approved
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG ADIT 1 ROAD PROFILE (0 TO 500 M)					
SHEET 2 OF 11					
CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
Original Size	A3	Original Scale	AS SHOWN	DRAWING NO.	DHPP-ADIT-1-ROAD-2024-02
				REV	NA



DESIGN LEVEL(m)	793.412	793.993	794.574	795.155	796.736	796.309	796.810	797.236	797.649	798.062	798.475	798.888	799.340	799.851	800.381	800.911	801.476	802.132	802.844	803.557	804.270	804.983	805.696	806.422	807.229	808.113	809.007	809.901	810.795	811.689	812.583	813.457	814.241	814.951	815.656	816.361	817.066	817.771	818.476	819.181	819.885	820.590	821.295	821.740
EXISTING LEVEL(m)	794.566	794.788	795.511	795.939	797.409	798.480	799.000	799.552	800.746	801.118	798.062	798.470	799.167	798.864	799.721	799.459	801.732	809.138	818.847	823.153	818.015	812.006	809.947	809.693	810.414	811.830	811.035	810.966	810.404	813.242	815.084	814.882	816.000	816.585	817.912	818.302	818.262	818.524	818.350	818.785	819.339	821.179	821.740	
CHAINAGE(Km)	0+500	0+510	0+520	0+530	0+540	0+550	0+560	0+570	0+580	0+590	0+600	0+610	0+620	0+630	0+640	0+650	0+660	0+670	0+680	0+690	0+700	0+710	0+720	0+730	0+740	0+750	0+760	0+770	0+780	0+790	0+800	0+810	0+820	0+830	0+840	0+850	0+860	0+870	0+880	0+890	0+900	0+910	0+920	0+926.308
HORIZONTAL SCHEMATIC	L=27.311		L=17.812		L=16.654 R=12		L=40.444		L=35.495		L=7.064		L=17.366 R=12		L=26.692 R=12		L=16.656		L=24.903		L=18.103		L=17.419		L=10.796		L=20.505		L=46.308		L=16.178		L=20.598		L=10.184		L=7.830		L=7.874					
SUPER ELEVATION SCHEMATIC	SE:4%		SE:4%		SE:4%		SE:4%		SE:4%		SE:4%		SE:4%		SE:4%		SE:4%		SE:4%		SE:4%		SE:4%		SE:4%		SE:4%		SE:4%		SE:4%		SE:4%		SE:4%		SE:4%		SE:4%		SE:4%		SE:4%	

CHAINAGE : 0+500 - 0+926.308

IP No.	CO-ORDINATES(m)	
	EASTING	NORTHING
15	321905.914	3030610.091
16	321889.672	3030643.088
17	321864.040	3030660.467
18	321884.279	3030706.654
19	321879.330	3030741.808
20	321875.016	3030758.938
21	321838.091	3030754.365
22	321866.800	3030725.149
23	321868.069	3030700.279
24	321860.075	3030684.036
25	321848.782	3030666.526
26	321848.528	3030652.314
27	321860.265	3030635.501
28	321872.256	3030590.778
29	321874.001	3030574.689
30	321879.457	3030552.737
31	321878.315	3030540.112
32	321876.919	3030531.928
33	321875.520	3030524.179

NOTE:

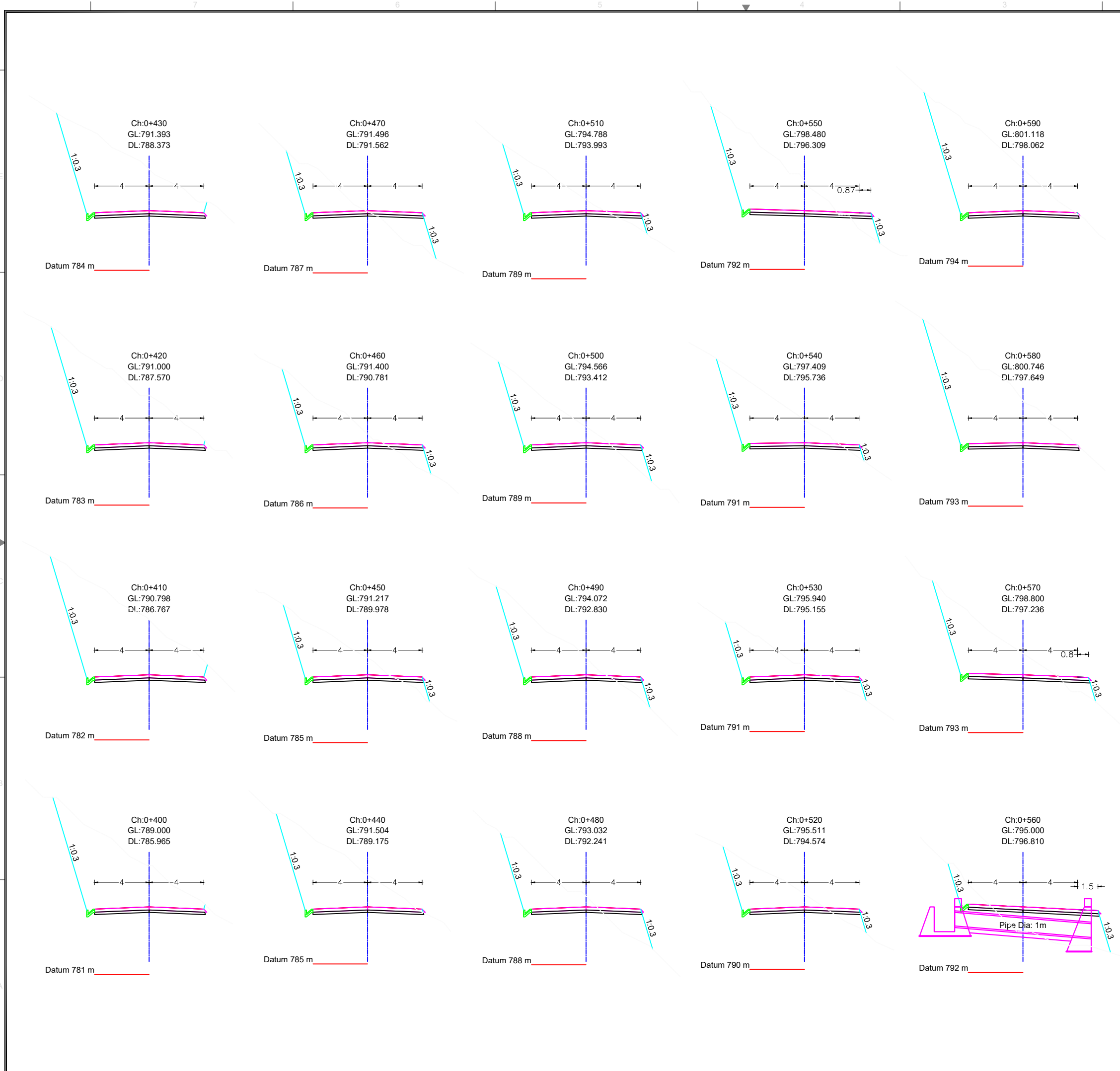
- ALL DIMENSIONS, ELEVATIONS & DETAILS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
- NO DIMENSION SHALL BE MEASURED FROM THE DRAWINGS. ONLY WRITTEN DIMENSIONS TO BE FOLLOWED.
- ALL DIMENSIONS/DETAILS SHALL BE CHECKED ALONG WITH THE RELEVANT DRAWINGS BEFORE STARTING EXECUTION OF WORKS. DISCREPANCY, IF ANY, SHALL BE IMMEDIATELY BROUGHT TO THE NOTICE OF PROJECT AUTHORITY/CONSULTANT FOR REVIEW.



SCALE 1 : 1500

ISSUED FOR CONSTRUCTION

Rev	Modification	Drawn	Checked	Recommended	Approved
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG ADIT 1 ROAD PROFILE (500 TO 939.32)					
SHEET 3 OF 11					
CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
Original Size	A3	Original Scale	AS SHOWN	DRAWING NO.	REV
				DHPP-ADIT-1-ROAD-2024-03	NA

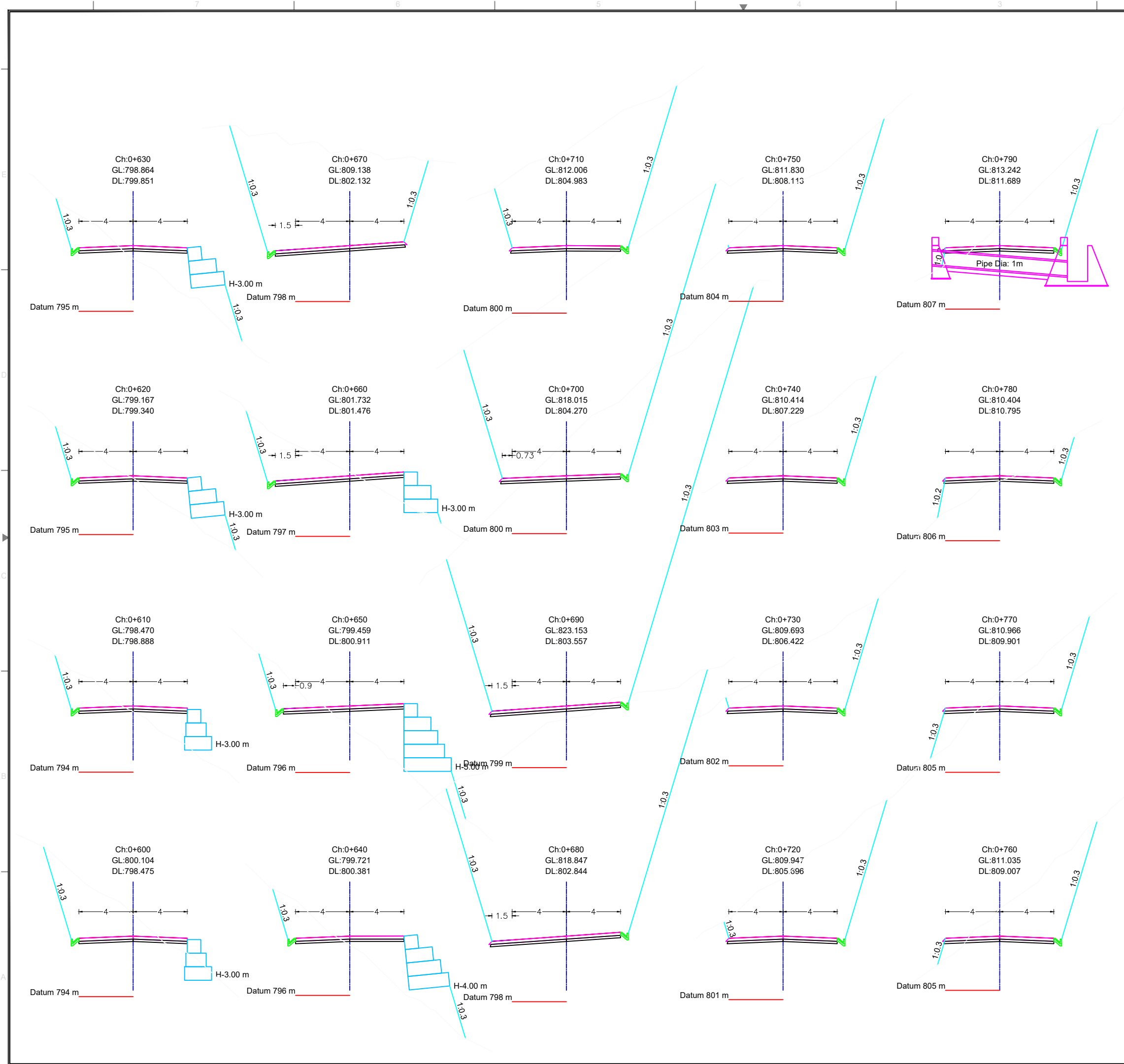


- NOTE:
1. ALL DIMENSIONS, ELEVATIONS & DETAILS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
 2. NO DIMENSION SHALL BE MEASURED FROM THE DRAWINGS. ONLY WRITTEN DIMENSIONS TO BE FOLLOWED.
 3. ALL DIMENSIONS/DETAILS SHALL BE CHECKED ALONG WITH THE RELEVANT DRAWINGS BEFORE STARTING EXECUTION OF WORKS. DISCREPANCY, IF ANY, SHALL BE IMMEDIATELY BROUGHT TO THE NOTICE OF PROJECT AUTHORITY/CONSULTANT FOR REVIEW.



ISSUED FOR CONSTRUCTION


Rev	Modification	Drawn:	Checked:	Recommended:	Approved:
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG ADIT 1 ROAD CROSS SECTION					
SHEET 6 OF 11					
CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
Original Size	Original Scale	DRAWING NO.			REV
A3	AS SHOWN	DHPP-ADIT-1-ROAD-2024-06			NA

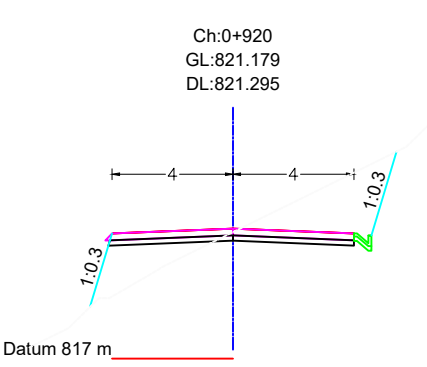
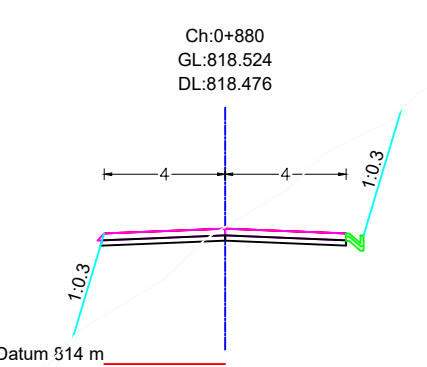
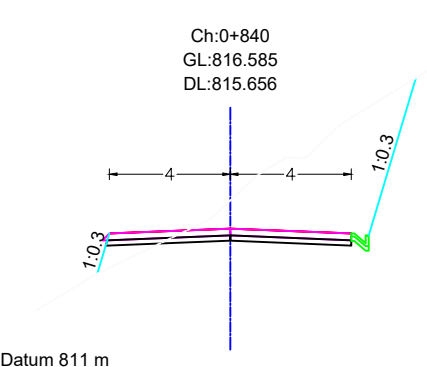
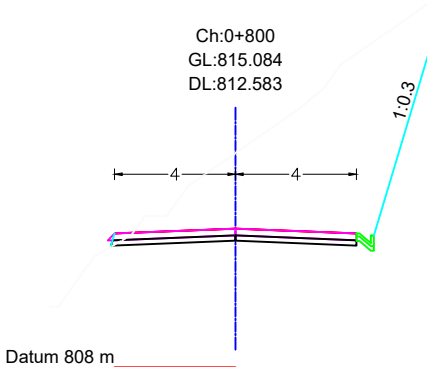
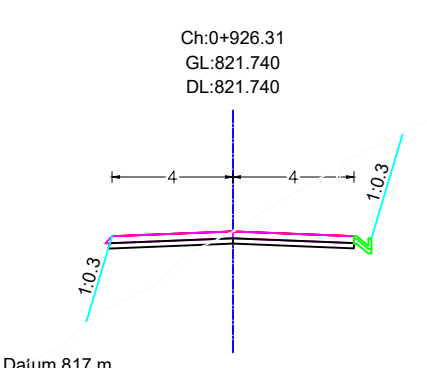
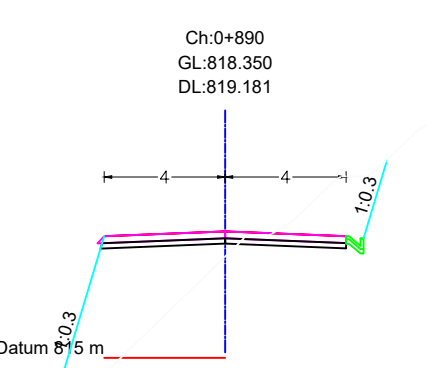
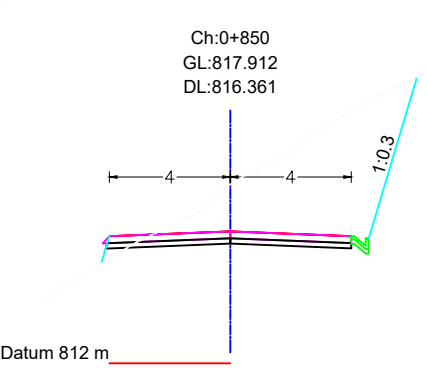
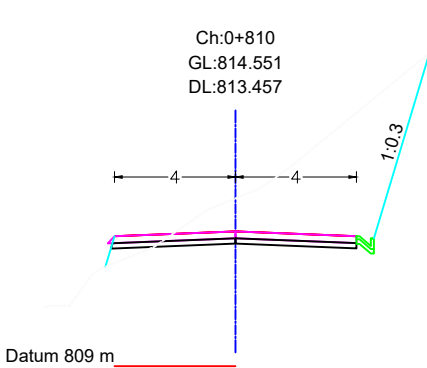
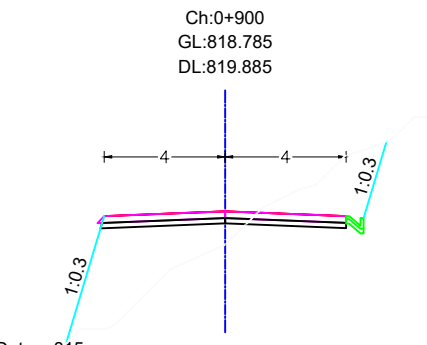
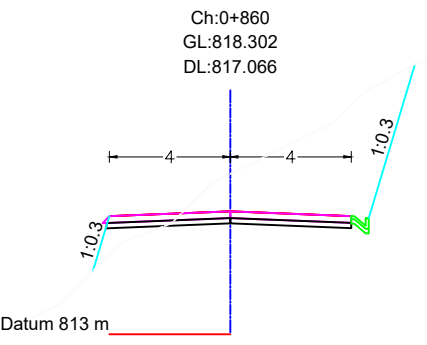
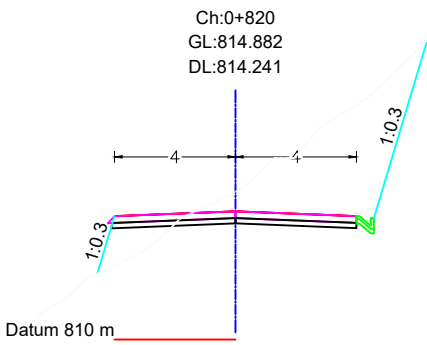
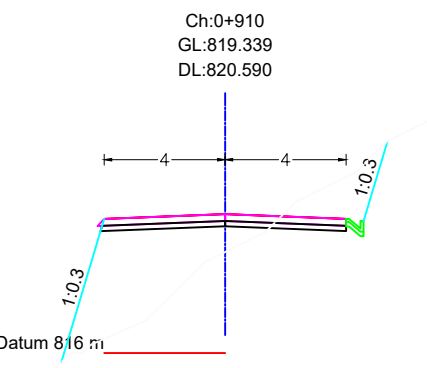
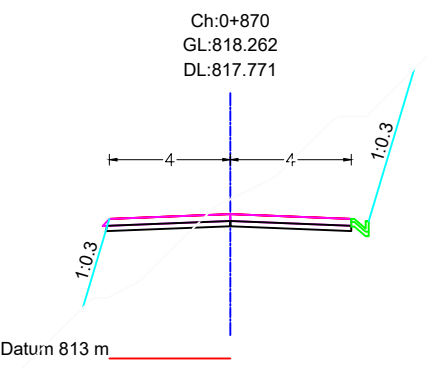
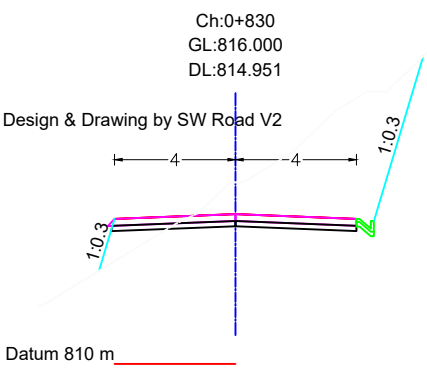


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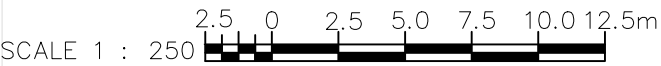


ISSUED FOR CONSTRUCTION


Rev	Modification	Drawn:	Checked:	Recommended:	Approved:
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG ADIT 1 ROAD CROSS SECTION					
SHEET 7 OF 11					
CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
Original Size A3	Original Scale AS SHOWN	DRAWING NO. DHPP-ADIT-1-ROAD-2024-07		REV	NA

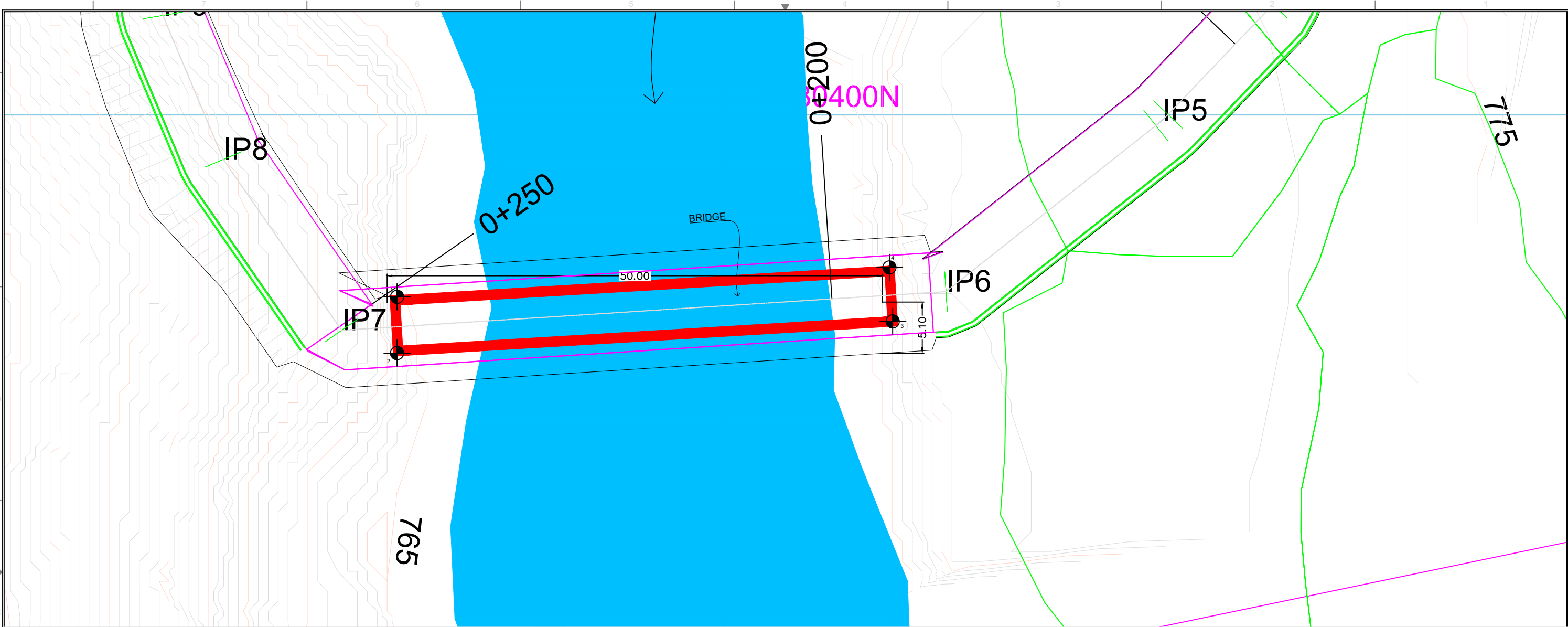


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ISSUED FOR CONSTRUCTION

Rev	Modification	Drawn:	Checked:	Recommended:	Approved:
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG ADIT 1 ROAD CROSS SECTION SHEET 8 OF 11					
CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
Original Size A3	Original Scale AS SHOWN	DRAWING NO. DHPP-ADIT-1-ROAD-2024-08			REV NA



BRIDGE COORDINATES			
ID	EASTING	NORTHING	ELEVATION
1	321965.5005	3030381.7498	772.00
2	321966.0030	3030375.4998	772.00
3	322016.0017	3030375.4830	772.00
4	322016.6229	3030381.7536	772.00

- NOTE:
- DO NOT MEASURE FROM THE DRAWING
 - ALL DIMENSIONS IN METER UNLESS OTHERWISE MENTIONED
 - THE BRIDGE LOCATION AND QUANTITIES ARE TENTATIVE ESTIMATE BASED ON THE AVAILABLE DATA FROM THE TOPOGRAPHICAL SURVEY.
 - NO DETAIL DESIGNS AND SITE VERIFICATION HAD BEEN CARRIED OUT. THEREFORE, CHANGES AND VARIATION IS EXPECTED DURING THE IMPLEMENTATION.
 - DURING THE CONSTRUCTION, THE CONTRACTOR MUST CHECK THE DIMENSIONS, LEVELS AND MEASUREMENTS. DISCREPANCY IF ANY TO BE REPORTED TO THE ENGINEER BEFORE EXECUTION.
 - THE CAPACITY OF BRIDGE REQUIRED IS APPROXIMATELY 35 TONNES.

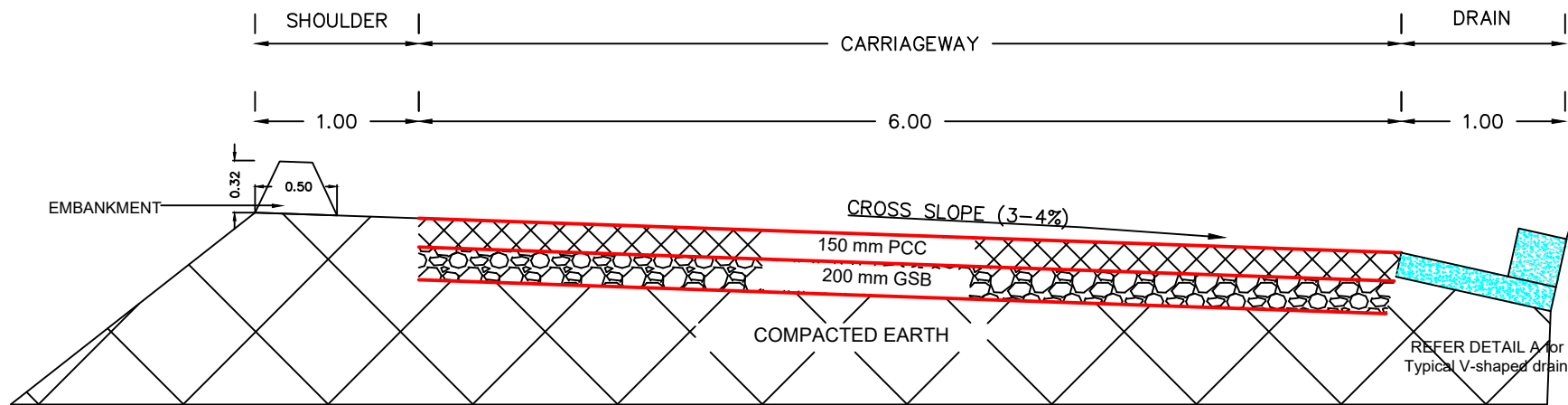


SCALE 1 : 400



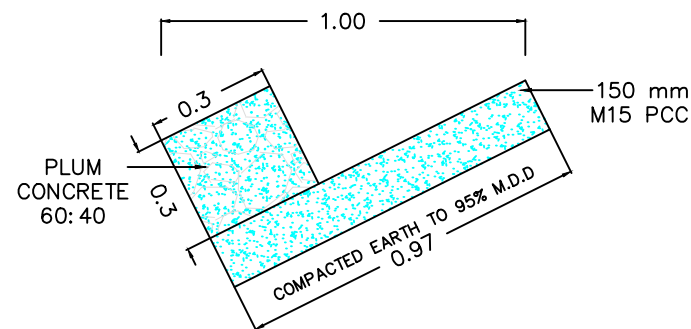
ISSUED FOR CONSTRUCTION

Rev	Modification	Drawn	Checked	Recommended	Approved
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG ADIT 1 ROAD TYPICAL BRIDGE SECTION					
SHEET 9 OF 11					
CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
Original Size	Original Scale	DRAWING NO.			REV
A3	AS SHOWN	DHPP-ADIT-1-ROAD-2024-09			NA

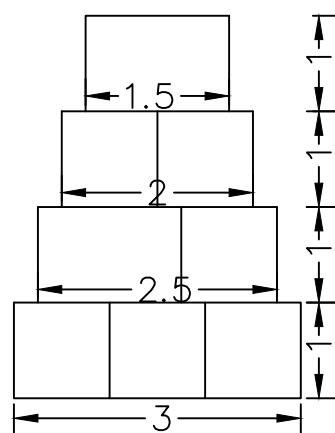


Typical One-way Camber Cross Slope in Super Elevated Sections for Double Lane.

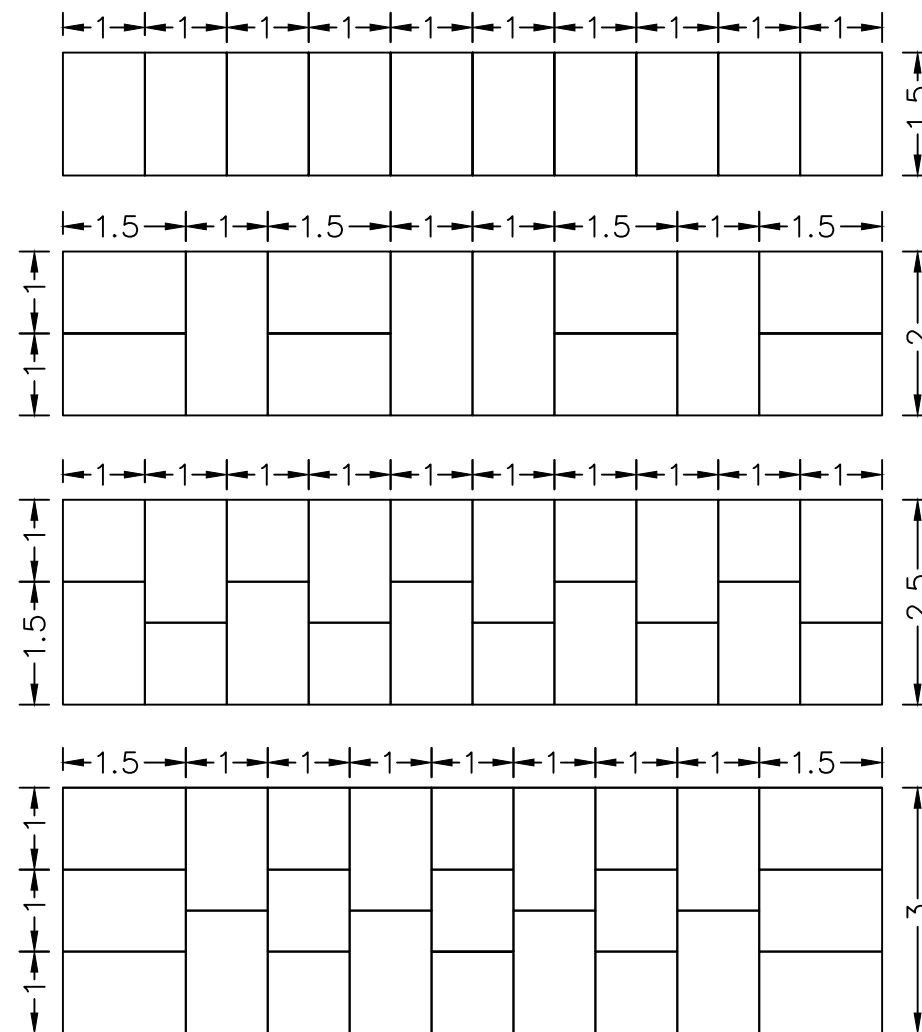
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DETAIL A: Typical V-shaped drain



Section of Gabion Wall.



Gabion Wall Plan.

FOURTH LAYER:
 $1.5 \times 1 \times 1 = 10$

THIRD LAYER:
 $1.5 \times 1 \times 1 = 8$
 $2 \times 1 \times 1 = 4$

SECOND LAYER:
 $1 \times 1 \times 1 = 10$
 $1.5 \times 1 \times 1 = 10$

FIRST LAYER:
 $1 \times 1 \times 1 = 9$
 $1.5 \times 1 \times 1 = 14$

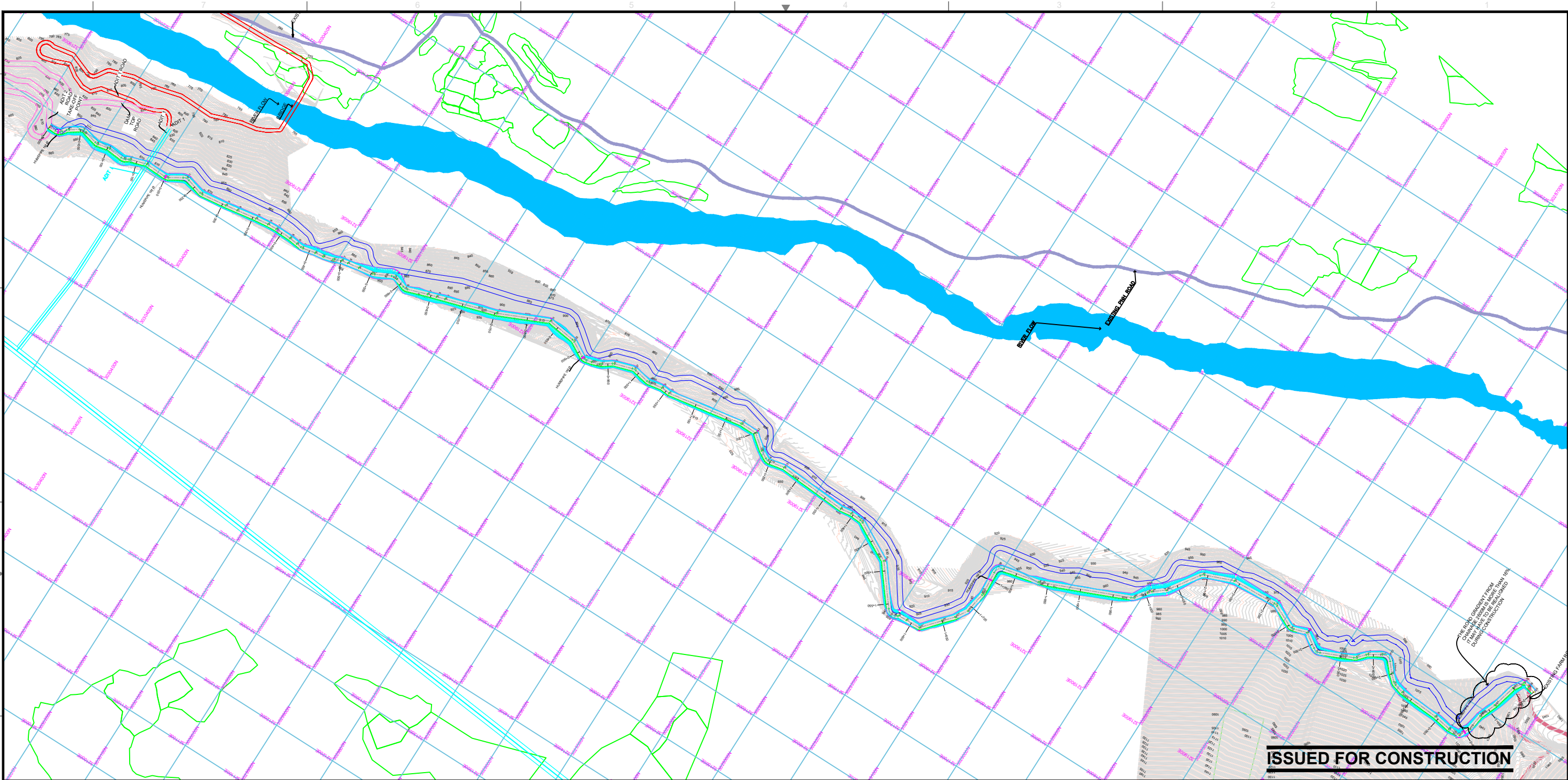


SCALE 1 : 100

ISSUED FOR CONSTRUCTION

Rev	Modification	Drawn	Checked	Recommended	Approved
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG ADIT 1 ROAD TYPICAL GABION WALL, PAVEMENT AND DRAIN CROSS SECTION SHEET 11 OF 11					
CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
Original Size	A3	Original Scale	AS SHOWN	DRAWING NO.	REV
				DHPP-ADIT-1-ROAD-2024-11	NA

2860.0 m Access Road connecting Adit
1 and Adit 2



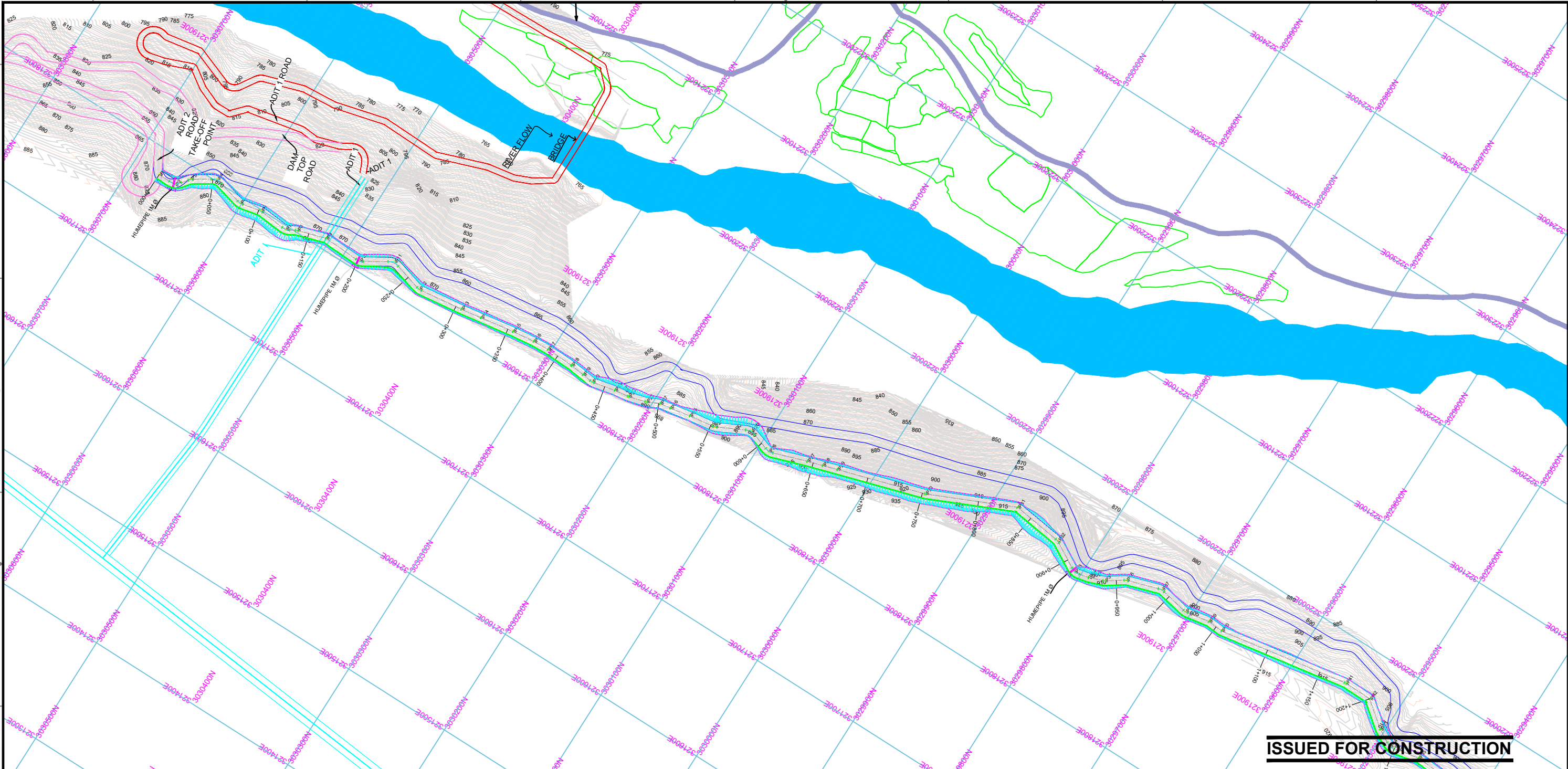
ISSUED FOR CONSTRUCTION

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SCALE 1 : 5000

Rev	Modification	Drawn	Checked	Recommended	Approved
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG BYPASS ROAD ADIT 1 & 2 GENERAL PLAN SHEET 1 OF 33					
CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
Original Size A3	Original Scale AS SHOWN	DRAWING NO. DHPP-BYPASS-ROAD-2024-01		REV	NA



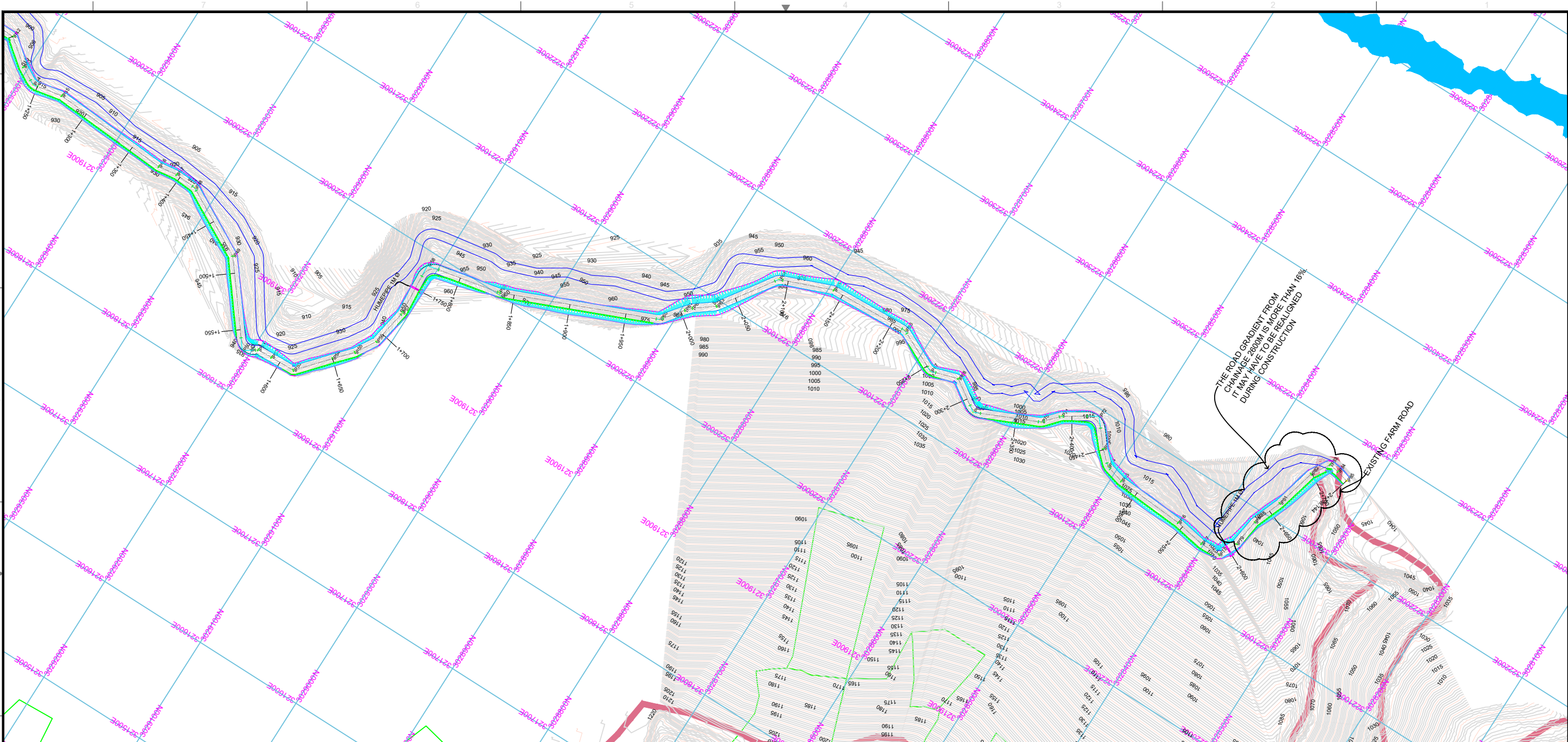
ISSUED FOR CONSTRUCTION

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SCALE 1 : 3,500

Rev	Modification	Drawn:	Checked:	Recommended:	Approved:
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG BYPASS ROAD ADIT 1 & 2 GENERAL PLAN (Chainage 00m to 1300m)					
SHEET 2 OF 33					
CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
Original Size	A3	Original Scale	AS SHOWN	DRAWING NO.	DHPP-BYPASS-ROAD-2024-02
				REV	NA




ISSUED FOR CONSTRUCTION

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SCALE 1 : 3,500

Rev	Modification	Drawn:	Checked:	Recommended:	Approved:
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG BYPASS ROAD ADIT 1 & 2 GENERAL PLAN (Chainage 1300m to 2900m)					
SHEET 3 OF 33					
CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
Original Size A3	Original Scale AS SHOWN	DRAWING NO. DHP-BYPASS-ROAD-2024-03	REV NA		



CHAINAGE : 0+300 - 0+600

IP No.	CO-ORDINATES(m)	
	EASTING	NORTHING
13	321836.820	3030423.779
14	321844.837	3030399.045
15	321849.808	3030366.413
16	321852.002	3030348.001
17	321857.000	3030309.003
18	321856.001	3030284.998
19	321851.002	3030255.001
20	321839.786	3030238.611
21	321860.392	3030219.048
22	321878.672	3030206.140
IP79	321876.267	3030193.792
23	321883.964	3030168.777
24	321872.178	3030158.434
25	321865.202	3030145.486

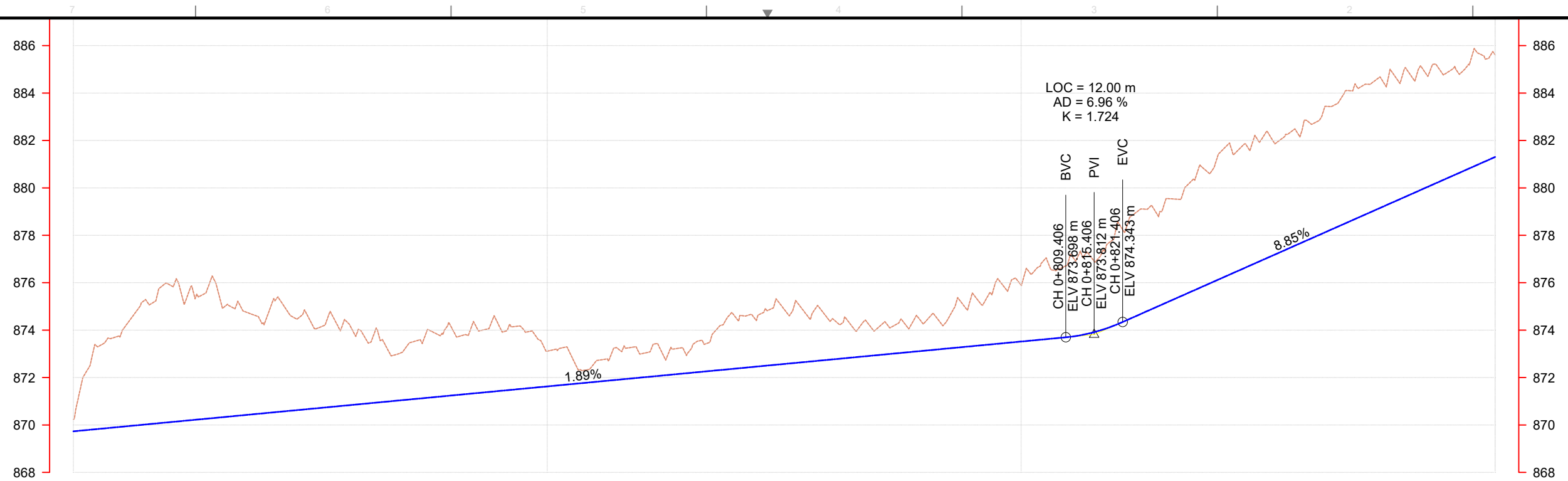
DESIGN LEVEL(m)	855.793	855.906	856.020	856.179	856.629	857.163	857.698	858.232	858.766	859.300	859.834	860.369	860.903	861.437	861.971	862.506	863.040	863.574	864.108	864.642	865.177	865.711	866.245	866.779	867.313	867.848	868.382	868.916	869.339	869.544	869.733
EXISTING LEVEL(m)	856.539	857.770	857.099	857.170	857.624	857.664	858.576	860.337	859.500	859.629	862.198	864.004	865.096	864.607	865.095	865.738	866.116	865.346	867.285	868.053	866.046	867.863	867.241	867.916	873.451	875.062	874.662	872.152	871.044	870.133	870.227
CHAINAGE(Km)	0+300	0+310	0+320	0+330	0+340	0+350	0+360	0+370	0+380	0+390	0+400	0+410	0+420	0+430	0+440	0+450	0+460	0+470	0+480	0+490	0+500	0+510	0+520	0+530	0+540	0+550	0+560	0+570	0+580	0+590	0+600
HORIZONTAL SCHEMATIC	L=7.080 R=12	L=21.390 R=12	L=1.942 R=12	L=31.837 R=12	L=0.391 R=12	L=18.293 R=12	L=0.107 R=12	L=38.247 R=12	L=2.029 R=12	L=22.267 R=12	L=1.482 R=12	L=27.017 R=12	L=5.320 R=12	L=6.983 R=12	L=16.937 R=12	L=17.318 R=12	L=13.747 R=12	L=13.780 R=12	L=4.817 R=12	L=18.404 R=12	L=13.788 R=12	L=5.751 R=12	L=6.858 R=12	L=16.626 R=12	L=13.788 R=12	L=5.751 R=12	L=6.858 R=12	L=16.626 R=12	L=13.788 R=12	L=5.751 R=12	L=6.858 R=12
SUPER ELEVATION SCHEMATIC	SE:4%																														

ISSUED FOR CONSTRUCTION

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Rev	Modification	Drawn:	Checked:	Recommended:	Approved:
Client: <div>DORJILUNG HYDROPOWER PROJECT</div> <div>(1125 MW)</div> <div>MONGAR, BHUTAN</div>					
Title: <div>DORJILUNG BYPASS ROAD ADIT 1 & 2</div> <div>PROFILE (300 TO 600 M)</div>					
SHEET 5 OF 33					
CONSULTANT:		<div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div>འབྲུག་རྒྱུ་རྩིས་ལྟ་སྒྲུབ</div></div></div></div>			



DESIGN LEVEL(m)	EXISTING LEVEL(m)	CHAINAGE(Km)	HORIZONTAL SCHEMATIC	SUPER ELEVATION SCHEMATIC
869.733	870.227	0+600	<div> <div>L=10.623 R=12</div> <div>L=54.515</div> <div>L=0.061 R=12</div> <div>L=23.373</div> <div>L=0.449 R=12</div> <div>L=47.182</div> <div>L=1.029 R=12</div> <div>L=34.673</div> <div>L=29.992</div> <div>L=20.003</div> <div>L=58.020</div> <div>L=0.440 R=12</div> <div>L=21.941</div> </div>	<div> <div>SE:7%</div> <div>SE:4%</div> <div>0+900</div> </div>
869.922	873.802	0+610		
870.112	875.947	0+620		
870.301	876.018	0+630		
870.490	874.298	0+640		
870.680	874.391	0+650		
870.869	873.956	0+660		
871.058	873.220	0+670		
871.248	874.035	0+680		
871.437	874.117	0+690		
871.626	873.115	0+700		
871.816	872.614	0+710		
872.005	873.010	0+720		
872.194	873.120	0+730		
872.384	874.475	0+740		
872.573	874.877	0+750		
872.762	874.441	0+760		
872.952	874.137	0+770		
873.141	874.403	0+780		
873.331	875.487	0+790		
873.520	875.892	0+800		
873.710	876.918	0+810		
874.224	878.264	0+820		
875.104	879.190	0+830		
875.989	880.652	0+840		
876.875	881.998	0+850		
877.760	882.854	0+860		
878.646	884.114	0+870		
879.531	884.445	0+880		
880.417	884.877	0+890		
881.302	885.611	0+900		

CHAINAGE : 0+600 - 0+900

IP No.	CO-ORDINATES(m)	
	EASTING	NORTHING
25	321865.202	3030145.486
26	321888.173	3030089.803
27	321897.073	3030067.915
28	321916.957	3030023.817
IP80	321926.217	3029989.402
IP81	321934.004	3029960.438
IP82	321939.176	3029941.115
29	321958.000	3029886.001
30	321965.353	3029861.580

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SCALE 1 : 1000

ISSUED FOR CONSTRUCTION



Rev	Modification	Drawn:	Checked:	Recommended:	Approved:
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG BYPASS ROAD ADIT 1 & 2 PROFILE (600 TO 900 M) SHEET 6 OF 33					
 CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
Original Size A3	Original Scale AS SHOWN	DRAWING NO. DHPP-BYPASS-ROAD-2024-06			REV NA

CHAINAGE : 0+900 - 1+200

IP No.	CO-ORDINATES(m)	
	EASTING	NORTHING
30	321965.353	3029861.586
31	321963.549	3029849.192
32	321952.084	3029831.794
33	321934.000	3029809.000
34	321928.722	3029801.908
35	321932.501	3029788.501
36	321953.417	3029769.517
37	321962.002	3029743.000
38	321965.501	3029718.499
39	321957.002	3029702.000
40	321963.001	3029685.001
41	321963.199	3029674.748
42	321971.001	3029666.001
43	321979.875	3029652.619
44	321983.724	3029621.029
45	321984.716	3029579.798

DESIGN LEVEL(m)	EXISTING LEVEL(m)	CHAINAGE(Km)	HORIZONTAL SCHEMATIC	SUPER ELEVATION SCHEMATIC
881.302	885.611	0+900	L=0.678 R=12	0+900
882.188	887.618	0+910	L=7.182 R=12	SE:4%
883.073	888.644	0+920	L=5.357 R=12	SE:4%
883.959	886.987	0+930	L=17.637	SE:4%
884.714	887.222	0+940	L=10.56 R=12	SE:4%
885.089	887.239	0+950	L=28.383	SE:4%
885.418	889.415	0+960	L=0.370 R=12	SE:4%
885.747	888.981	0+970	L=10.974 R=12	SE:4%
886.075	886.333	0+980	L=4.581 R=12	SE:4%
886.404	890.621	0+990	L=6.710 R=12	SE:4%
886.733	892.063	1+000	L=21.605	SE:4%
887.061	890.733	1+010	L=6.248 R=12	SE:4%
887.390	889.191	1+020	L=23.645	SE:4%
887.719	889.543	1+030	L=19.892	SE:4%
888.048	890.030	1+040	L=7.410 R=12	SE:4%
888.376	891.029	1+050	L=9.552 R=12	SE:4%
888.705	891.322	1+060	L=9.779 R=12	SE:4%
889.034	890.590	1+070	L=10.91 R=12	SE:4%
889.362	889.761	1+080	L=12.366 R=12	SE:4%
889.675	889.960	1+090	L=8.510 R=12	SE:4%
889.899	891.141	1+100	L=9.420 R=12	SE:4%
890.102	889.875	1+110	L=12.366 R=12	SE:4%
890.304	889.537	1+120	L=28.403	SE:4%
890.506	890.620	1+130	L=3.166 R=12	SE:4%
890.708	890.641	1+140	L=26.218	SE:4%
890.911	890.776	1+150		SE:4%
891.113	890.872	1+160		SE:4%
891.315	890.332	1+170		SE:4%
891.518	892.113	1+180		SE:4%
891.720	892.872	1+190		SE:4%
891.922	892.316	1+200		SE:4%

ISSUED FOR CONSTRUCTION

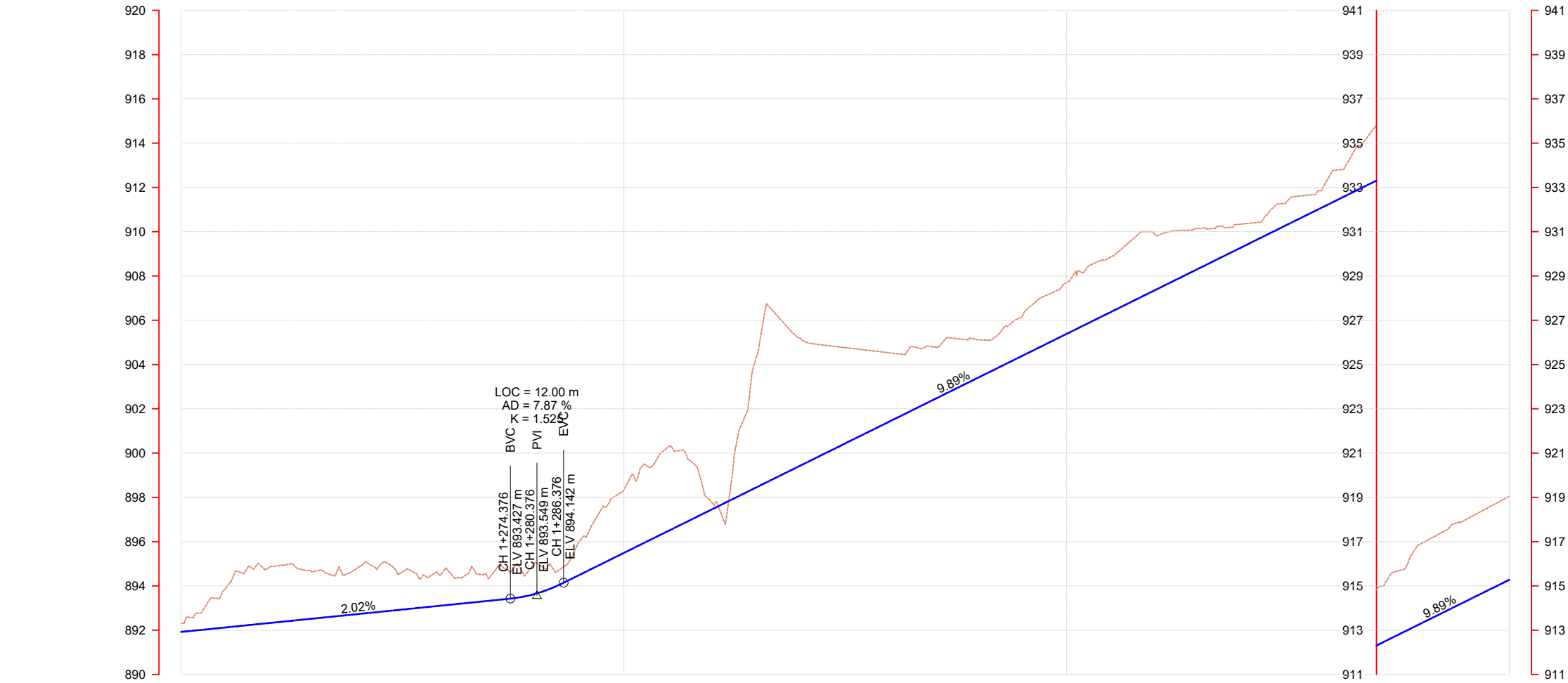
Rev	Modification			Drawn:	Checked:	Recommended:	Approved:		
Client: DORJILUNG HYDROPOWER PROJECT									
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN									
Title: DORJILUNG BYPASS ROAD ADIT 1 & 2 PROFILE (900 TO 1200M)									
SHEET 7 OF 33									
CONSULTANT:  འཕགས་ཀླུ་མཁའ་ལྷོ་སྒྲུབ་སྒྲུབ་པ་ Druk Green Consultancy		NAME Designed Drawn Checked Approved Issued Date	SIG. NOV 2024						
Original Size A3	Original Scale AS SHOWN		DRAWING NO. DHPP-BYPASS-ROAD-2024-07					REV NA	

NOTE:

1. ALL DIMENSIONS, ELEVATIONS & DETAILS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
2. NO DIMENSION SHALL BE MEASURED FROM THE DRAWINGS. ONLY WRITTEN DIMENSIONS TO BE FOLLOWED.
3. ALL DIMENSIONS/DETAILS SHALL BE CHECKED ALONG WITH THE RELEVANT DRAWINGS BEFORE STARTING EXECUTION OF WORKS. DISCREPANCY, IF ANY, SHALL BE IMMEDIATELY BROUGHT TO THE NOTICE OF PROJECT AUTHORITY/CONSULTANT FOR REVIEW.



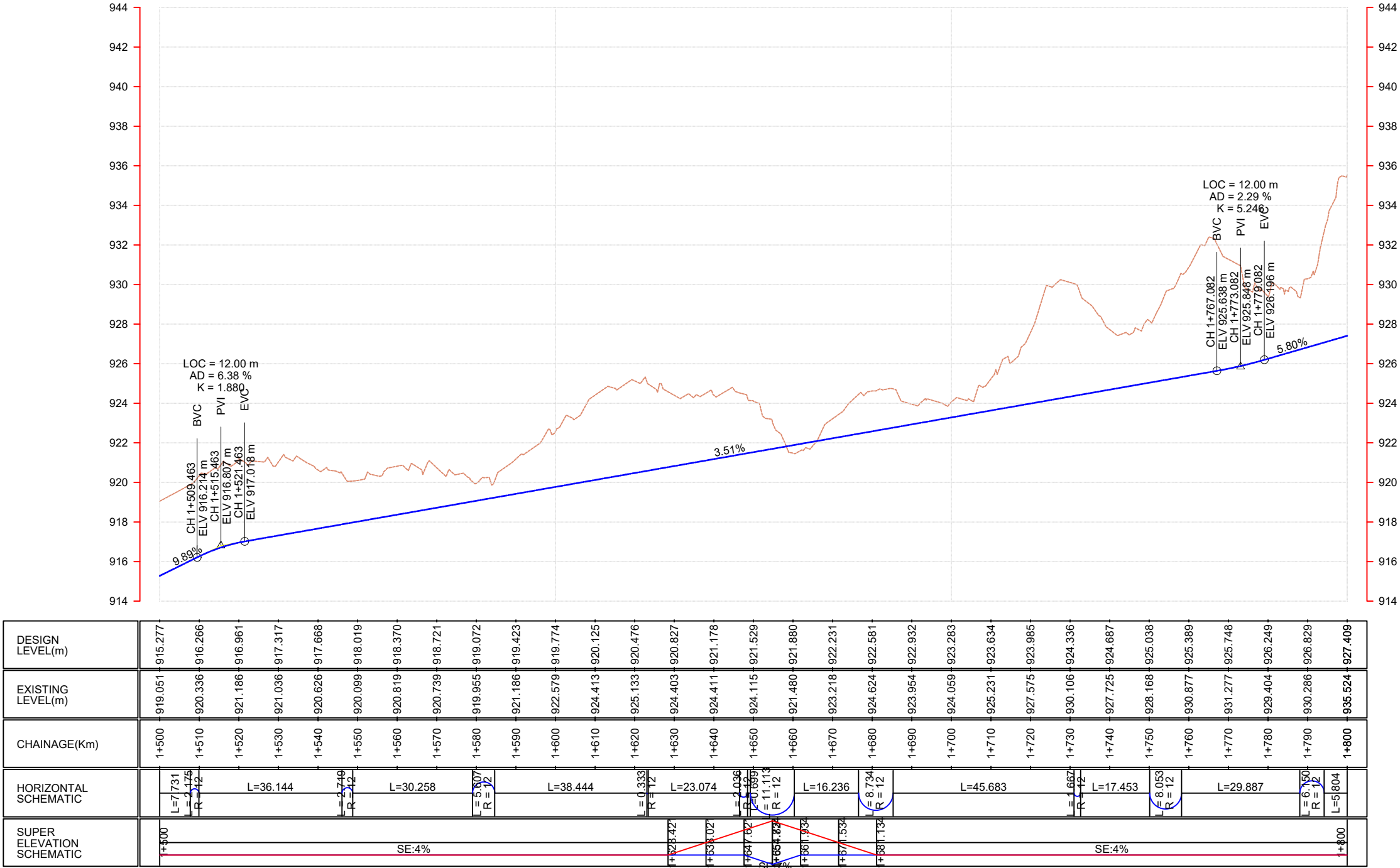
SCALE 1 : 1000



CHAINAGE : 1+200 - 1+500

IP No.	CO-ORDINATES(m)	
	EASTING	NORTHING
45	321984.716	3029579.798
46	321992.814	3029561.197
47	321979.344	3029511.247
48	321965.073	3029501.465
49	321943.826	3029495.292
50	321954.002	3029474.999
51	321956.002	3029432.476
52	321949.002	3029393.000
53	321948.001	3029344.000
54	321944.001	3029306.998

DESIGN LEVEL(m)	891.922		892.125		892.327		892.529		892.732		892.934		893.136		893.339		893.541		893.743		893.945		894.147		894.349		894.551		894.753		894.955		895.157		895.359		895.561		895.763		895.965		896.167		896.369		896.571		896.773		896.975		897.177		897.379		897.581		897.783		897.985		898.187		898.389		898.591		898.793		898.995		899.197		899.399		899.601		899.803		900.005		900.207		900.409		900.611		900.813		901.015		901.217		901.419		901.621		901.823		902.025		902.227		902.429		902.631		902.833		903.035		903.237		903.439		903.641		903.843		904.045		904.247		904.449		904.651		904.853		905.055		905.257		905.459		905.661		905.863		906.065		906.267		906.469		906.671		906.873		907.075		907.277		907.479		907.681		907.883		908.085		908.287		908.489		908.691		908.893		909.095		909.297		909.499		909.701		909.903		910.105		910.307		910.509		910.711		910.913		911.115		911.317		911.519		911.721		911.923		912.125		912.327		912.529		912.731		912.933		913.135		913.337		913.539		913.741		913.943		914.145		914.347		914.549		914.751		914.953		915.155		915.357		915.559		915.761		915.963		916.165		916.367		916.569		916.771		916.973		917.175		917.377		917.579		917.781		917.983		918.185		918.387		918.589		918.791		918.993		919.195		919.397		919.599		919.801		920.003		920.205		920.407		920.609		920.811		921.013		921.215		921.417		921.619		921.821		922.023		922.225		922.427		922.629		922.831		923.033		923.235		923.437		923.639		923.841		924.043		924.245		924.447		924.649		924.851		925.053		925.255		925.457		925.659		925.861		926.063		926.265		926.467		926.669		926.871		927.073		927.275		927.477		927.679		927.881		928.083		928.285		928.487		928.689		928.891		929.093		929.295		929.497		929.699		929.901		930.103		930.305		930.507		930.709		930.911		931.113		931.315		931.517		931.719		931.921		932.123		932.325		932.527		932.729		932.931		933.133		933.335		933.537		933.739		933.941		934.143		934.345		934.547		934.749		934.951		935.153		935.355		935.557		935.759		935.961		936.163		936.365		936.567		936.769		936.971		937.173		937.375		937.577		937.779		937.981		938.183		938.385		938.587		938.789		938.991		939.193		939.395		939.597		939.799		940.001		940.203		940.405		940.607		940.809		941.011		941.213		941.415		941.617		941.819		942.021		942.223		942.425		942.627		942.829		943.031		943.233		943.435		943.637		943.839		944.041		944.243		944.445		944.647		944.849		945.051		945.253		945.455		945.657		945.859		946.061		946.263		946.465		946.667		946.869		947.071		947.273		947.475		947.677		947.879		948.081		948.283		948.485		948.687		948.889		949.091		949.293		949.495		949.697		949.899		950.101		950.303		950.505		950.707		950.909		951.111		951.313		951.515		951.717		951.919		952.121		952.323		952.525		952.727		952.929		953.131		953.333		953.535		953.737		953.939		954.141		954.343		954.545		954.747		954.949		955.151		955.353		955.555		955.757		955.959		956.161		956.363		956.565		956.767		956.969		957.171		957.373		957.575		957.777		957.979		958.181		958.383		958.585		958.787		958.989		960.000		961.000		962.000		963.000		964.000		965.000		966.000		967.000		968.000		969.000		970.000		971.000		972.000		973.000		974.000		975.000		976.000		977.000		978.000		979.000		980.000		981.000		982.000		983.000		984.000		985.000		986.000		987.000		988.000		989.000		990.000		991.000		992.000		993.000		994.000		995.000		996.000		997.000		998.000		999.000		1000.000		1001.000		1002.000		1003.000		1004.000		1005.000		1006.000		1007.000		1008.000		1009.000		1010.000		1011.000		1012.000		1013.000		1014.000		1015.000		1016.000		1017.000		1018.000		1019.000		1020.000		1021.000		1022.000		1023.000		1024.000		1025.000		1026.000		1027.000		1028.000		1029.000		1030.000		1031.000		1032.000		1033.000		1034.000		1035.000		1036.000		1037.000		1038.000		1039.000		1040.000		1041.000		1042.000		1043.000		1044.000		1045.000		1046.000		1047.000		1048.000		1049.000		1050.000		1051.000		1052.000		1053.000		1054.000		1055.000		1056.000		1057.000		1058.000		1059.000		1060.000		1061.000		1062.000		1063.000		1064.000		1065.000		1066.000		1067.000		1068.000		1069.000		1070.000		1071.000		1072.000		1073.000		1074.000		1075.000		1076.000		1077.000		1078.000		1079.000		1080.000		1081.000		1082.000		1083.000		1084.000		1085.000		1086.000		1087.000		1088.000		1089.000		1090.000		1091.000		1092.000		1093.000		1094.000		1095.000		1096.000		1097.000		1098.000		1099.000		1100.000		1101.000		1102.000		1103.000		1104.000		1105.000		1106.000		1107.000		1108.000		1109.000		1110.000		1111.000		1112.000		1113.000		1114.000		1115.000		1116.000		1117.000		1118.000		1119.000		1120.000		1121.000		1122.000		1123.000		1124.000		1125.000		1126.000		1127.000		1128.000		1129.000		1130.000		1131.000		1132.000		1133.000		1134.000		1135.000		1136.000		1137.000		1138.000		1139.000		1140.000		1141.000		1142.000		1143.000		1144.000		1145.000		1146.000		1147.000		1148.000		1149.000		1150.000		1151.000		1152.000		1153.000		1154.000		1155.000		1156.000		1157.000		1158.000		1159.000		1160.000		1161.000		1162.000		1163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CHAINAGE : 1+500 - 1+800

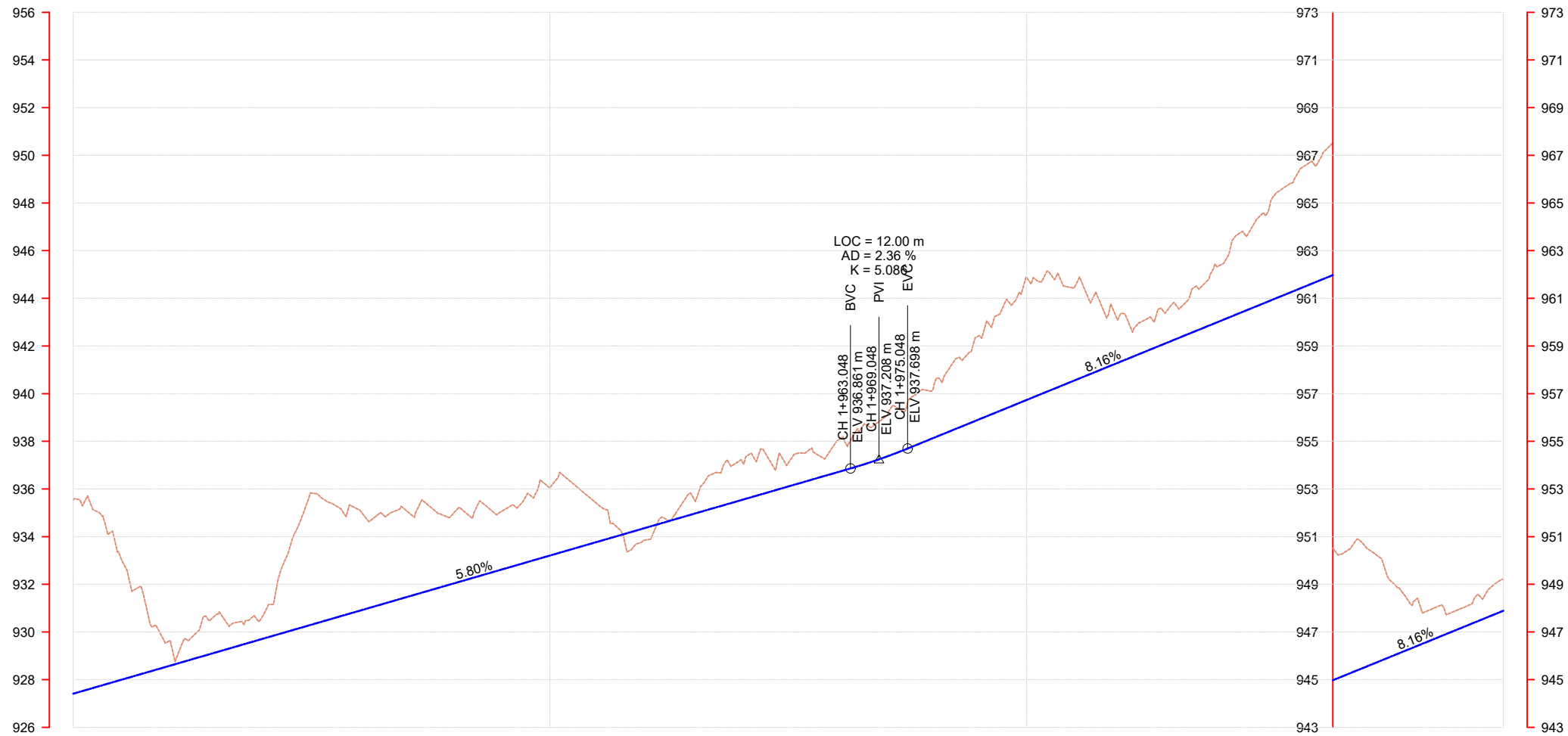
IP No.	CO-ORDINATES(m)	
	EASTING	NORTHING
54	321944.001	3029306.998
55	321933.001	3029269.998
56	321916.002	3029240.001
57	321881.500	3029216.999
58	321861.695	3029202.987
59	321856.243	3029197.535
60	321860.001	3029171.003
61	321899.000	3029138.002
62	321917.999	3029126.001
63	321955.000	3029130.001
64	321969.000	3029124.001

ISSUED FOR CONSTRUCTION

Rev	Modification	Drawn:	Checked:	Recommended:	Approved:
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG BYPASS ROAD ADIT 1 & 2 PROFILE (1500 TO 1800M)					
SHEET 9 OF 33					
CONSULTANT:	NAME	SIG.			
	Designed				
	Drawn				
	Checked				
	Approved				
Issued Date		NOV 2024			
Original Size	Original Scale	DRAWING NO.	REV		
A3	AS SHOWN	DHPP-BYPASS-ROAD-2024-09	NA		

- NOTE:
- ALL DIMENSIONS, ELEVATIONS & DETAILS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
 - NO DIMENSION SHALL BE MEASURED FROM THE DRAWINGS. ONLY WRITTEN DIMENSIONS TO BE FOLLOWED.
 - ALL DIMENSIONS/DETAILS SHALL BE CHECKED ALONG WITH THE RELEVANT DRAWINGS BEFORE STARTING EXECUTION OF WORKS. DISCREPANCY, IF ANY, SHALL BE IMMEDIATELY BROUGHT TO THE NOTICE OF PROJECT AUTHORITY/CONSULTANT FOR REVIEW.





CHAINAGE : 1+800 - 2+100

IP No.	CO-ORDINATES(m)	
	EASTING	NORTHING
64	321969.000	3029124.001
65	321986.000	3029122.001
66	322011.998	3029130.001
67	322017.001	3029111.001
68	322025.001	3029064.001
69	322024.002	3029052.998
70	322034.025	3029025.215
71	322049.001	3029002.001
72	322054.500	3028981.500
73	322065.183	3028961.815
74	322078.042	3028917.618
IP130	322094.318	3028896.852

DESIGN LEVEL(m)	+927.409																															
EXISTING LEVEL(m)	+935.524																															
CHAINAGE(Km)	1+800																															
HORIZONTAL SCHEMATIC	L=4.545 R=12																															
SUPER ELEVATION SCHEMATIC	SE:4%																															
DESIGN LEVEL(m)	+927.988																															
EXISTING LEVEL(m)	+933.105																															
CHAINAGE(Km)	1+810																															
HORIZONTAL SCHEMATIC	L=12.848 R=12																															
SUPER ELEVATION SCHEMATIC	SE:4%																															
DESIGN LEVEL(m)	+928.568																															
EXISTING LEVEL(m)	+929.604																															
CHAINAGE(Km)	1+820																															
HORIZONTAL SCHEMATIC	L=4.968 R=12																															
SUPER ELEVATION SCHEMATIC	SE:4%																															
DESIGN LEVEL(m)	+929.148																															
EXISTING LEVEL(m)	+930.730																															
CHAINAGE(Km)	1+830																															
HORIZONTAL SCHEMATIC	L=12.168 R=12																															
SUPER ELEVATION SCHEMATIC	SE:4%																															
DESIGN LEVEL(m)	+929.727																															
EXISTING LEVEL(m)	+930.749																															
CHAINAGE(Km)	1+840																															
HORIZONTAL SCHEMATIC	L=19.342 R=12																															
SUPER ELEVATION SCHEMATIC	SE:4%																															
DESIGN LEVEL(m)	+930.307																															
EXISTING LEVEL(m)	+935.829																															
CHAINAGE(Km)	1+850																															
HORIZONTAL SCHEMATIC	L=6.611 R=12																															
SUPER ELEVATION SCHEMATIC	SE:4%																															
DESIGN LEVEL(m)	+930.887																															
EXISTING LEVEL(m)	+935.123																															
CHAINAGE(Km)	1+860																															
HORIZONTAL SCHEMATIC	L=3.446 R=12																															
SUPER ELEVATION SCHEMATIC	SE:4%																															
DESIGN LEVEL(m)	+931.467																															
EXISTING LEVEL(m)	+935.074																															
CHAINAGE(Km)	1+870																															
HORIZONTAL SCHEMATIC	L=6.822 R=12																															
SUPER ELEVATION SCHEMATIC	SE:4%																															
DESIGN LEVEL(m)	+932.046																															
EXISTING LEVEL(m)	+935.028																															
CHAINAGE(Km)	1+880																															
HORIZONTAL SCHEMATIC	L=45.579 R=12																															
SUPER ELEVATION SCHEMATIC	SE:4%																															
DESIGN LEVEL(m)	+932.626																															
EXISTING LEVEL(m)	+935.076																															
CHAINAGE(Km)	1+890																															
HORIZONTAL SCHEMATIC	L=5.241 R=12																															
SUPER ELEVATION SCHEMATIC	SE:4%																															
DESIGN LEVEL(m)	+933.206																															
EXISTING LEVEL(m)	+936.040																															
CHAINAGE(Km)	1+900																															
HORIZONTAL SCHEMATIC	L=25.506 R=12																															
SUPER ELEVATION SCHEMATIC	SE:4%																															
DESIGN LEVEL(m)	+933.785																															
EXISTING LEVEL(m)	+935.362																															
CHAINAGE(Km)	1+910																															
HORIZONTAL SCHEMATIC	L=2.726 R=12																															
SUPER ELEVATION SCHEMATIC	SE:4%																															
DESIGN LEVEL(m)	+934.365																															
EXISTING LEVEL(m)	+933.855																															
CHAINAGE(Km)	1+920																															
HORIZONTAL SCHEMATIC	L=24.380 R=12																															
SUPER ELEVATION SCHEMATIC	SE:4%																															
DESIGN LEVEL(m)	+934.945																															
EXISTING LEVEL(m)	+935.660																															
CHAINAGE(Km)	1+930																															
HORIZONTAL SCHEMATIC	L=17.928 R=12																															
SUPER ELEVATION SCHEMATIC	SE:4%																															
DESIGN LEVEL(m)	+935.525																															
EXISTING LEVEL(m)	+937.211																															
CHAINAGE(Km)	1+940																															
HORIZONTAL SCHEMATIC	L=19.690 R=12																															
SUPER ELEVATION SCHEMATIC	SE:4%																															
DESIGN LEVEL(m)	+936.104																															
EXISTING LEVEL(m)	+937.085																															
CHAINAGE(Km)	1+950																															
HORIZONTAL SCHEMATIC	L=42.422 R=12																															
SUPER ELEVATION SCHEMATIC	SE:4%																															
DESIGN LEVEL(m)	+936.684																															
EXISTING LEVEL(m)	+937.957																															
CHAINAGE(Km)	1+960																															
HORIZONTAL SCHEMATIC	L=3.669 R=12																															
SUPER ELEVATION SCHEMATIC	SE:4%																															
DESIGN LEVEL(m)	+937.311																															
EXISTING LEVEL(m)	+938.970																															
CHAINAGE(Km)	1+970																															
HORIZONTAL SCHEMATIC	L=2.580 R=12																															
SUPER ELEVATION SCHEMATIC	SE:4%																															
DESIGN LEVEL(m)	+938.102																															
EXISTING LEVEL(m)	+940.102																															
CHAINAGE(Km)	1+980																															
HORIZONTAL SCHEMATIC	L=24.066 R=12																															
SUPER ELEVATION SCHEMATIC	SE:4%																															
DESIGN LEVEL(m)	+938.917																															
EXISTING LEVEL(m)	+942.420																															
CHAINAGE(Km)	1+990																															
HORIZONTAL SCHEMATIC	L=3.614 R=12																															
SUPER ELEVATION SCHEMATIC	SE:4%																															
DESIGN LEVEL(m)	+939.733																															
EXISTING LEVEL(m)	+944.876																															
CHAINAGE(Km)	2+000																															
HORIZONTAL SCHEMATIC	L=19.690 R=12																															
SUPER ELEVATION SCHEMATIC	SE:4%																															
DESIGN LEVEL(m)	+940.549																															
EXISTING LEVEL(m)	+944.440																															
CHAINAGE(Km)	2+010																															
HORIZONTAL SCHEMATIC	L=42.422 R=12																															
SUPER ELEVATION SCHEMATIC	SE:4%																															
DESIGN LEVEL(m)	+941.364																															
EXISTING LEVEL(m)	+943.369																															
CHAINAGE(Km)	2+020																															
HORIZONTAL SCHEMATIC	L=2.580 R=12																															
SUPER ELEVATION SCHEMATIC	SE:4%																															
DESIGN LEVEL(m)	+942.180																															
EXISTING LEVEL(m)	+943.625																															
CHAINAGE(Km)	2+030																															
HORIZONTAL SCHEMATIC	L=24.066 R=12																															
SUPER ELEVATION SCHEMATIC	SE:4%																															
DESIGN LEVEL(m)	+942.996																															
EXISTING LEVEL(m)	+945.328																															
CHAINAGE(Km)	2+040																															
HORIZONTAL SCHEMATIC	L=3.614 R=12																															
SUPER ELEVATION SCHEMATIC	SE:4%																															
DESIGN LEVEL(m)	+943.811																															
EXISTING LEVEL(m)	+947.505																															
CHAINAGE(Km)	2+050																															
HORIZONTAL SCHEMATIC	L=24.066 R=12																															
SUPER ELEVATION SCHEMATIC	SE:4%																															
DESIGN LEVEL(m)	+944.627																															
EXISTING LEVEL(m)	+949.712																															
CHAINAGE(Km)	2+060																															
HORIZONTAL SCHEMATIC	L=3.614 R=12																															
SUPER ELEVATION SCHEMATIC	SE:4%																															
DESIGN LEVEL(m)	+945.443																															
EXISTING LEVEL(m)	+950.826																															
CHAINAGE(Km)	2+070																															
HORIZONTAL SCHEMATIC	L=24.066 R=12																															
SUPER ELEVATION SCHEMATIC	SE:4%																															
DESIGN LEVEL(m)	+946.258																															
EXISTING LEVEL(m)	+948.333																															
CHAINAGE(Km)	2+080																															
HORIZONTAL SCHEMATIC	L=3.614 R=12																															
SUPER ELEVATION SCHEMATIC	SE:4%																															
DESIGN LEVEL(m)	+947.074																															
EXISTING LEVEL(m)	+947.889																															
CHAINAGE(Km)	2+090																															
HORIZONTAL SCHEMATIC	L=3.614 R=12																															
SUPER ELEVATION SCHEMATIC	SE:4%																															
DESIGN LEVEL(m)	+947.890																															
EXISTING LEVEL(m)	+949.199																															
CHAINAGE(Km)	2+100																															
HORIZONTAL SCHEMATIC	L=3.614 R=12																															
SUPER ELEVATION SCHEMATIC	SE:4%																															

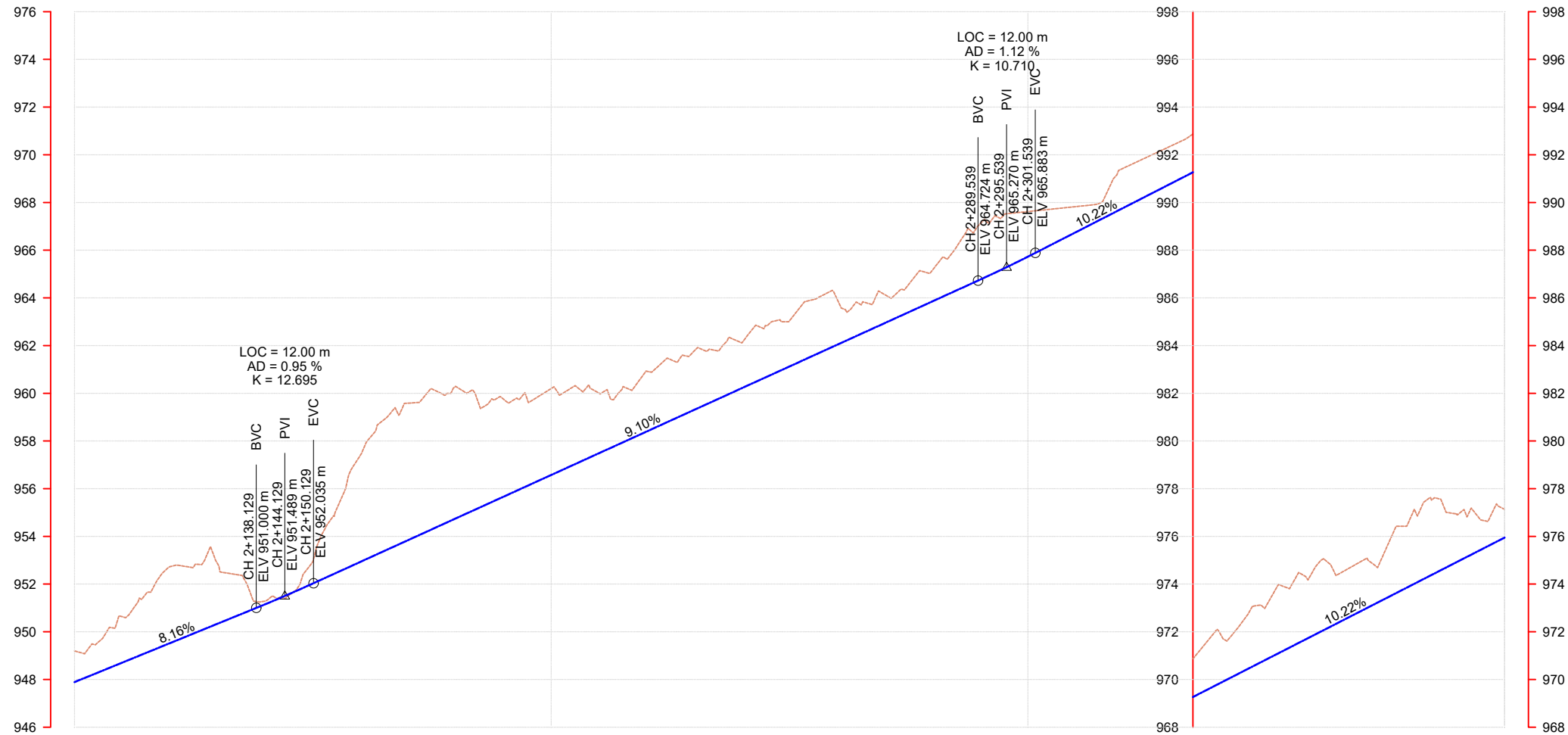
ISSUED FOR CONSTRUCTION

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SCALE 1 : 1000

Rev	Modification	Drawn	Checked	Recommended	Approved
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG BYPASS ROAD ADIT 1 & 2 PROFILE (1800 TO 2100M) SHEET 10 OF 33					
CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
Original Size A3	Original Scale AS SHOWN	DRAWING NO. DHPP-BYPASS-ROAD-2024-10		REV NA	



CHAINAGE : 2+100 - 2+400

IP No.	CO-ORDINATES(m)	
	EASTING	NORTHING
IP130	322094.318	3028896.852
75	322110.513	3028883.062
76	322140.001	3028884.001
77	322156.000	3028850.003
IP83	322173.532	3028824.853
IP84	322176.499	3028790.939
IP85	322183.073	3028776.186
IP86	322185.559	3028754.859
IP87	322187.483	3028744.596
IP88	322187.082	3028725.194
IP89	322185.238	3028705.550
IP90	322182.432	3028694.406
IP91	322177.060	3028680.134
IP92	322175.777	3028668.829
IP93	322170.165	3028657.604
IP94	322163.430	3028642.692

DESIGN LEVEL(m)	947.890		948.705		949.521		950.337		951.154		952.023		952.934		953.844		954.754		955.664		956.574		957.484		958.395		959.305		960.215		961.125		962.035		962.945		963.856		964.766		965.727		966.748		967.770		968.793		969.815		970.837		971.859		972.882		973.904		974.926		975.948																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
EXISTING LEVEL(m)	949.199		950.634		952.728		952.859		951.283		952.945		957.411		959.586		960.284		959.752		960.198		960.012		960.927		961.774		962.111		963.042		963.936		964.133		965.169		967.110		967.619		967.826		969.435		970.370		972.033		973.087		974.610		974.962		976.660		976.936		977.136																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
CHAINAGE(Km)	2+100		2+110		2+120		2+130		2+140		2+150		2+160		2+170		2+180		2+190		2+200		2+210		2+220		2+230		2+240		2+250		2+260		2+270		2+280		2+290		2+300		2+310		2+320		2+330		2+340		2+350		2+360		2+370		2+380		2+390		2+400																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
HORIZONTAL SCHEMATIC	L=12.822		L= 8.846 R= 12		L=16.981		L= 13.954 R= 12		L=29.688		L=30.658		L=34.044		L=16.151		L=21.471		L=10.44		L=19.407		L=19.730		L=11.492		L=15.249		L=11.377		L=12.550		L=15.137																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
SUPER ELEVATION SCHEMATIC	2+100		SE:4%		2+121.85		2+131.45		2+141.05		SE:-4.5%		2+159.802		2+169.402																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		</	

ISSUED FOR CONSTRUCTION

Rev	Modification	Drawn	Checked	Recommended	Approved
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG BYPASS ROAD ADIT 1 & 2 PROFILE (2100 TO 2400 M) SHEET 11 OF 33					
CONSULTANT:	NAME	SIG.			
	Designed				
	Drawn				
	Checked				
	Approved				
	Issued Date	NOV 2024			
Original Size A3	Original Scale AS SHOWN	DRAWING NO. DHPP-BYPASS-ROAD-2024-11	REV NA		

NOTE:

- ALL DIMENSIONS, ELEVATIONS & DETAILS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
- NO DIMENSION SHALL BE MEASURED FROM THE DRAWINGS. ONLY WRITTEN DIMENSIONS TO BE FOLLOWED.
- ALL DIMENSIONS/DETAILS SHALL BE CHECKED ALONG WITH THE RELEVANT DRAWINGS BEFORE STARTING EXECUTION OF WORKS. DISCREPANCY, IF ANY, SHALL BE IMMEDIATELY BROUGHT TO THE NOTICE OF PROJECT AUTHORITY/CONSULTANT FOR REVIEW.



SCALE 1 : 1000




CHAINAGE : 2+400 - 2+700

IP No.	CO-ORDINATES(m)	
	EASTING	NORTHING
IP94	322163.430	3028642.692
IP95	322163.430	3028630.906
IP97	322168.722	3028623.128
IP98	322171.127	3028615.592
IP99	322181.310	3028605.409
IP100	322178.263	3028593.463
IP101	322185.880	3028590.096
IP102	322193.496	3028586.889
IP103	322196.463	3028579.352
IP104	322201.434	3028572.617
IP105	322205.924	3028566.684
IP106	322214.262	3028554.337
IP107	322214.904	3028545.678
IP108	322216.026	3028537.660
IP109	322214.102	3028523.709
IP110	322206.726	3028514.569
IP111	322194.859	3028507.674
IP112	322182.352	3028498.534
IP113	322177.862	3028493.082
IP114	322179.947	3028480.654
IP115	322187.082	3028460.369
IP116	322180.828	3028442.490
IP117	322170.085	3028424.691
IP119	322165.595	3028396.629

DESIGN LEVEL(m)	975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																																975.948																															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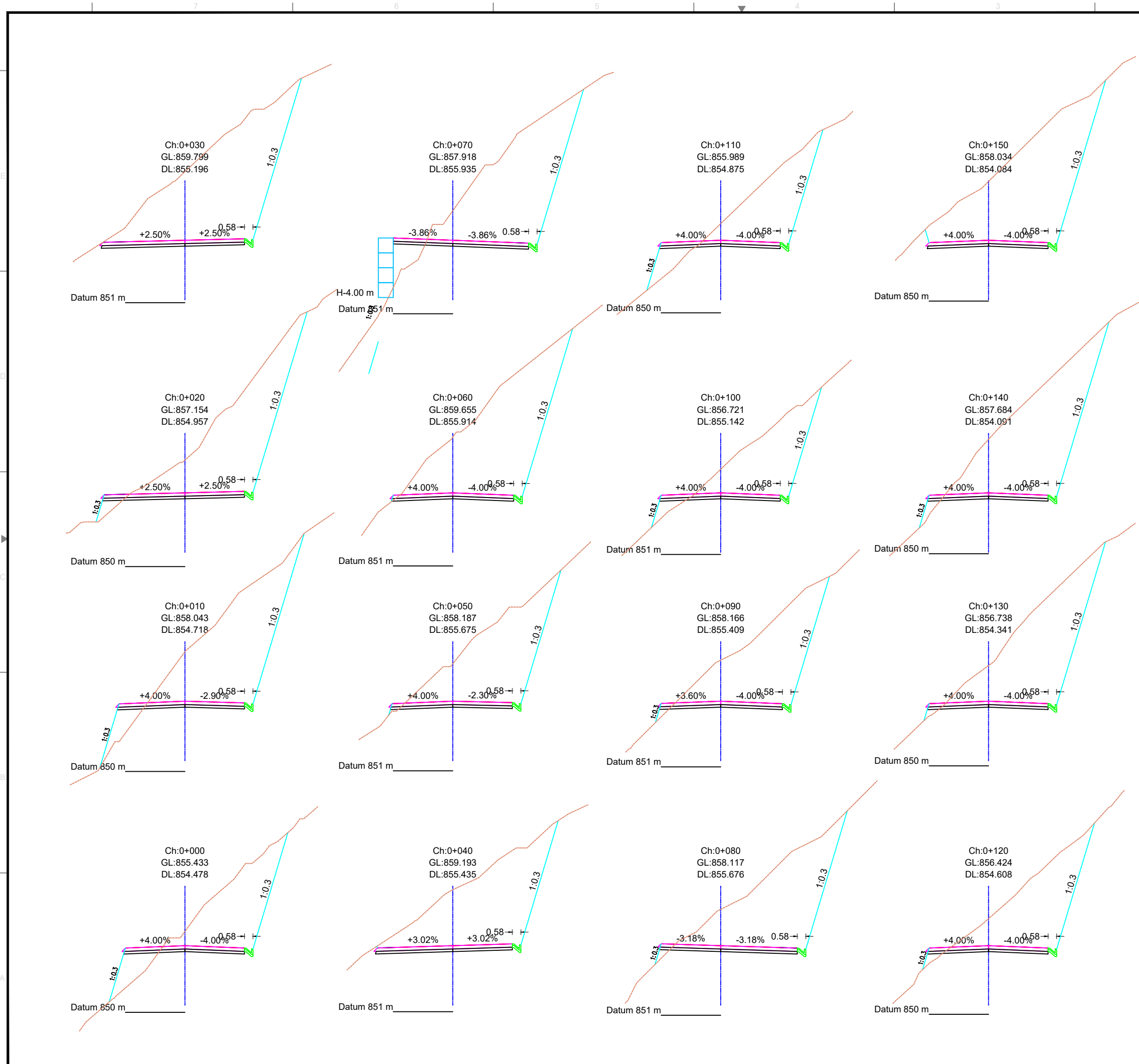
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- ALL DIMENSIONS, ELEVATIONS & DETAILS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
- NO DIMENSION SHALL BE MEASURED FROM THE DRAWINGS. ONLY WRITTEN DIMENSIONS TO BE FOLLOWED.
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SCALE 1 : 1000



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SCALE 1 : 250

ISSUED FOR CONSTRUCTION

Rev	Modification	Drawn	Checked	Recommended	Approved
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG BYPASS ROAD ADIT 1 & 2 CROSS SECTION					
SHEET 14 OF 33					
CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
Original Size	A3	Original Scale	AS SHOWN	DRAWING NO.	DHPP-BYPASS-ROAD-2024-14
				REV	NA



- NOTE:
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SCALE 1 : 250


ISSUED FOR CONSTRUCTION

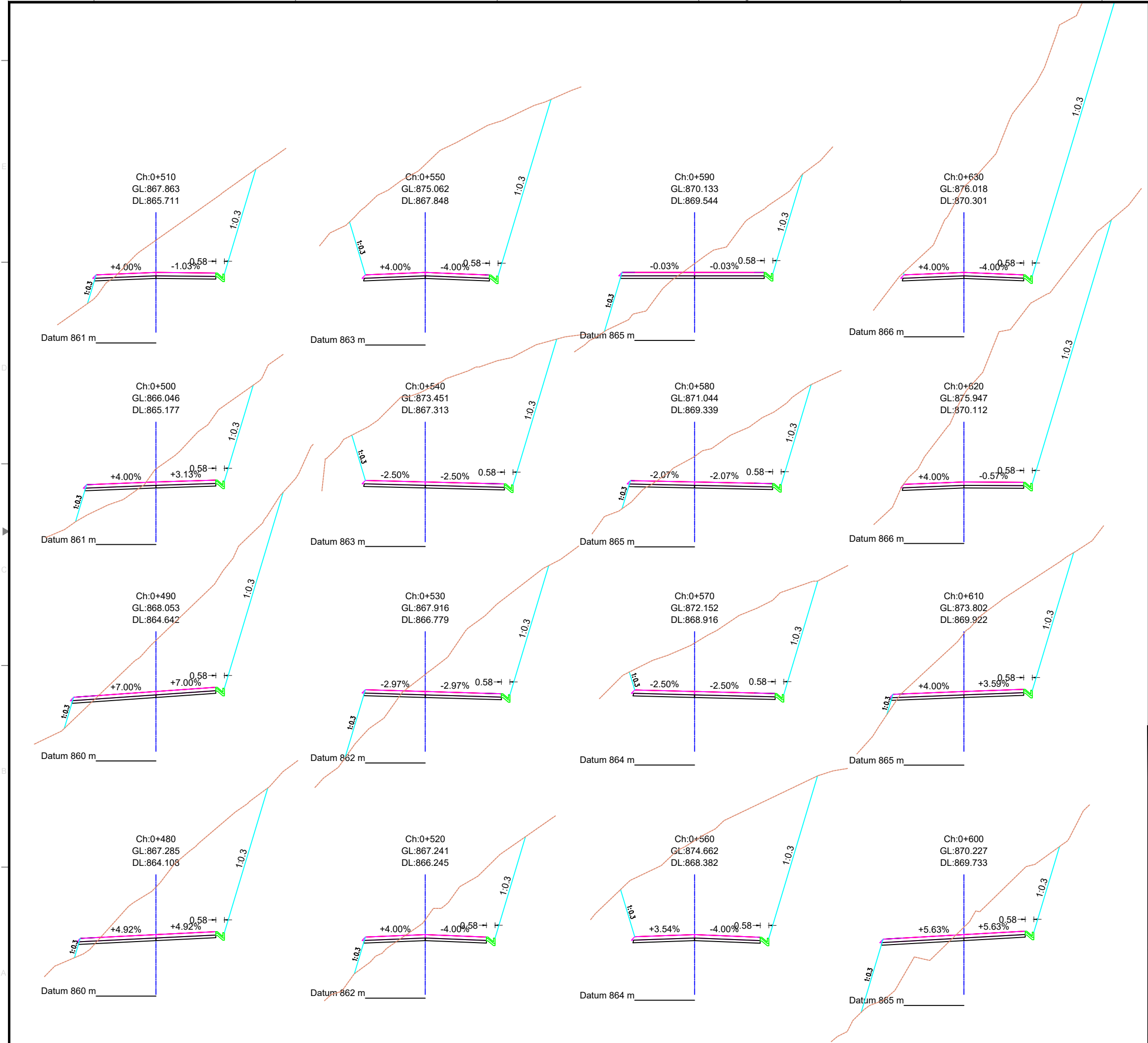
Rev	Modification	Drawn:	Checked:	Recommended:	Approved:
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG BYPASS ROAD ADIT 1 & 2 CROSS SECTION SHEET 15 OF 33					
CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
Original Size	Original Scale	DRAWING NO.			REV
A3	AS SHOWN	DHP-BYPASS-ROAD-2024-15			NA

- NOTE:
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ISSUED FOR CONSTRUCTION

Rev	Modification	Drawn:	Checked:	Recommended:	Approved:
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG BYPASS ROAD ADIT 1 & 2 CROSS SECTION SHEET 16 OF 33					
CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
Original Size A3	Original Scale AS SHOWN	DRAWING NO. DHPP-BYPASS-ROAD-2024-16		REV	NA



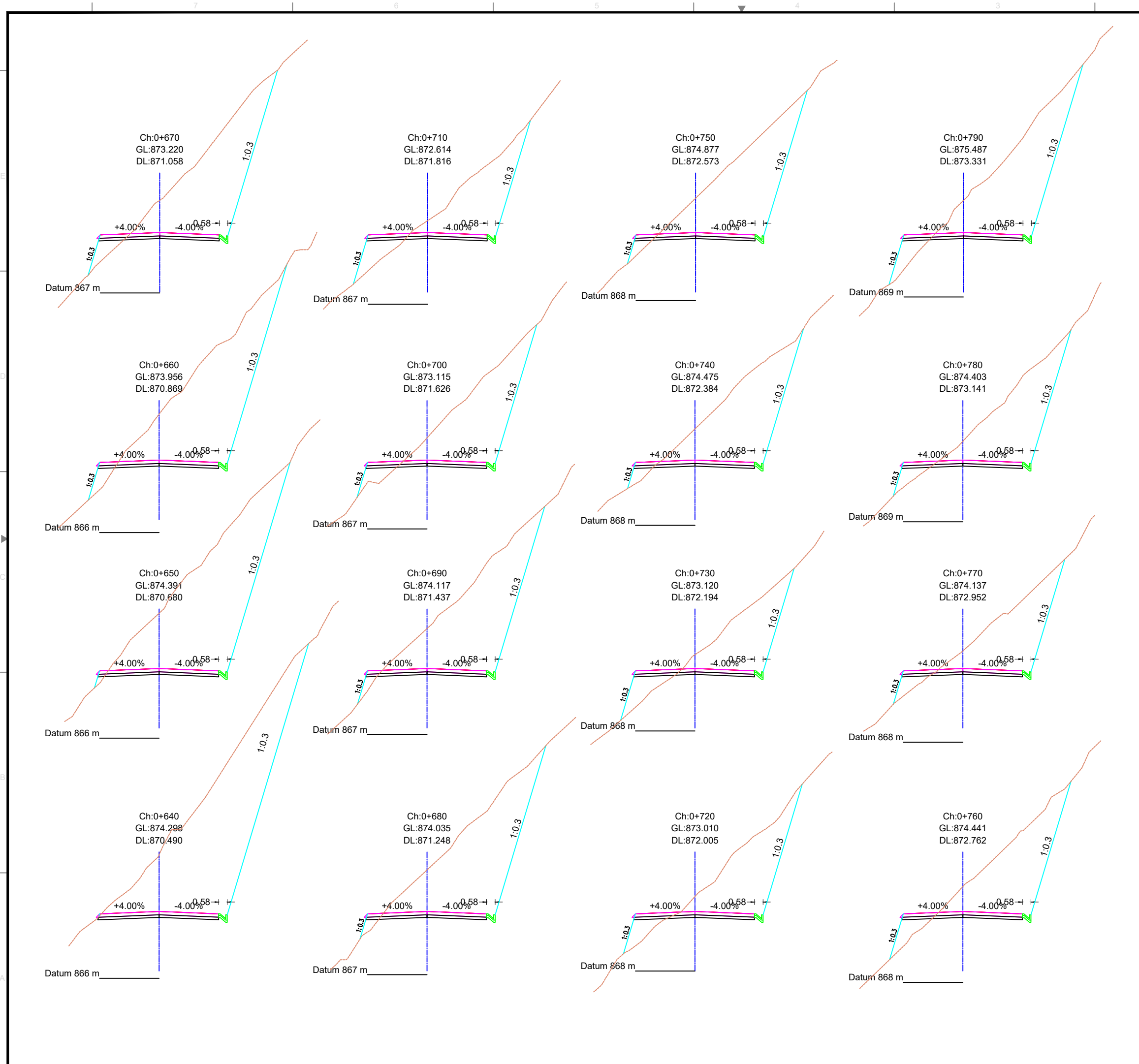
- NOTE:
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SCALE 1 : 250

ISSUED FOR CONSTRUCTION

Rev	Modification	Drawn	Checked	Recommended	Approved
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG BYPASS ROAD ADIT 1 & 2 CROSS SECTION SHEET 17 OF 33					
CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
Original Size	Original Scale	DRAWING NO.		REV	
A3	AS SHOWN	DHPP-BYPASS-ROAD-2024-17		NA	



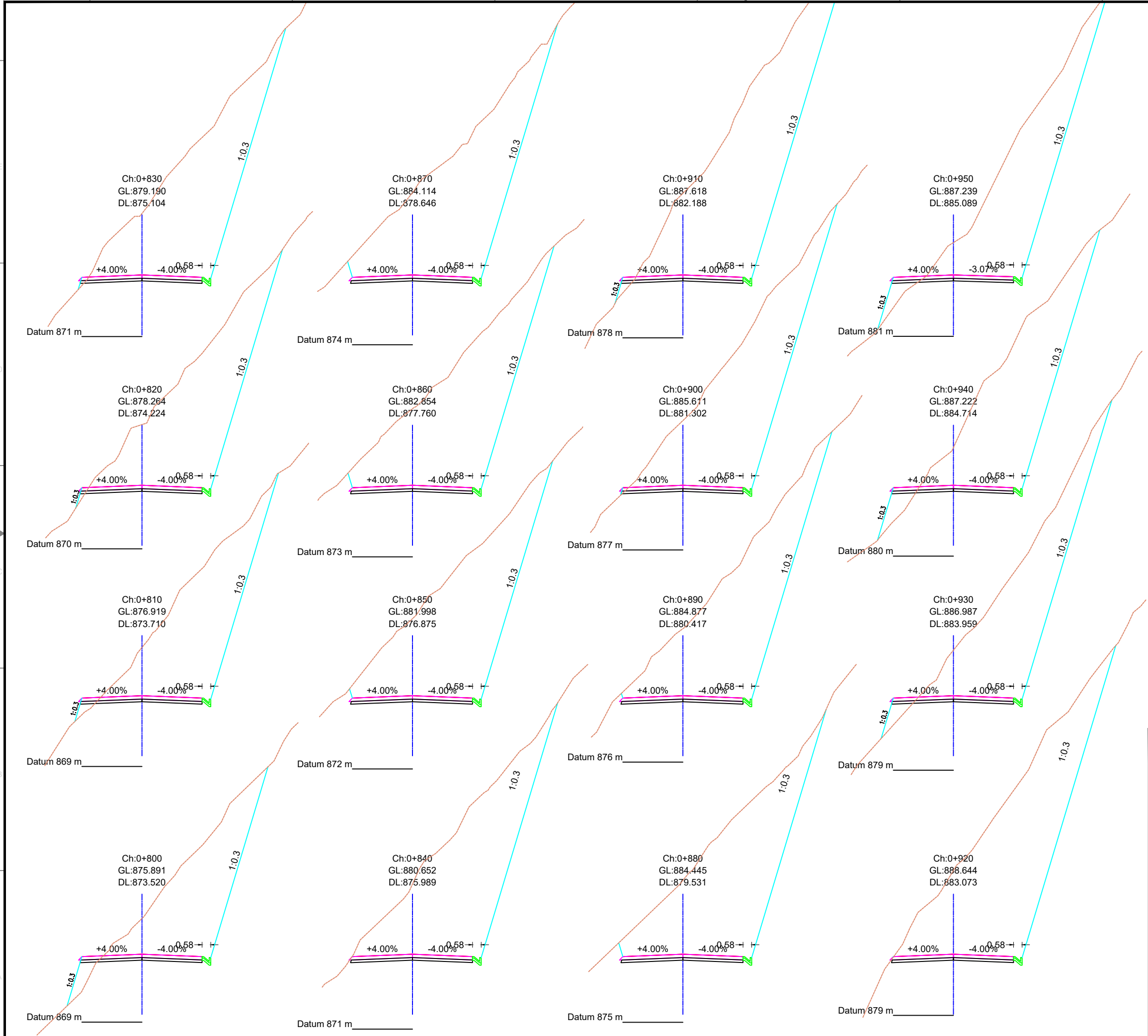
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SCALE 1 : 250

ISSUED FOR CONSTRUCTION

Rev	Modification	Drawn	Checked	Recommended	Approved
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG BYPASS ROAD ADIT 1 & 2 CROSS SECTION SHEET 18 OF 33					
CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
Original Size	Original Scale	DRAWING NO.			REV
A3	AS SHOWN	DHPP-BYPASS-ROAD-2024-18			NA



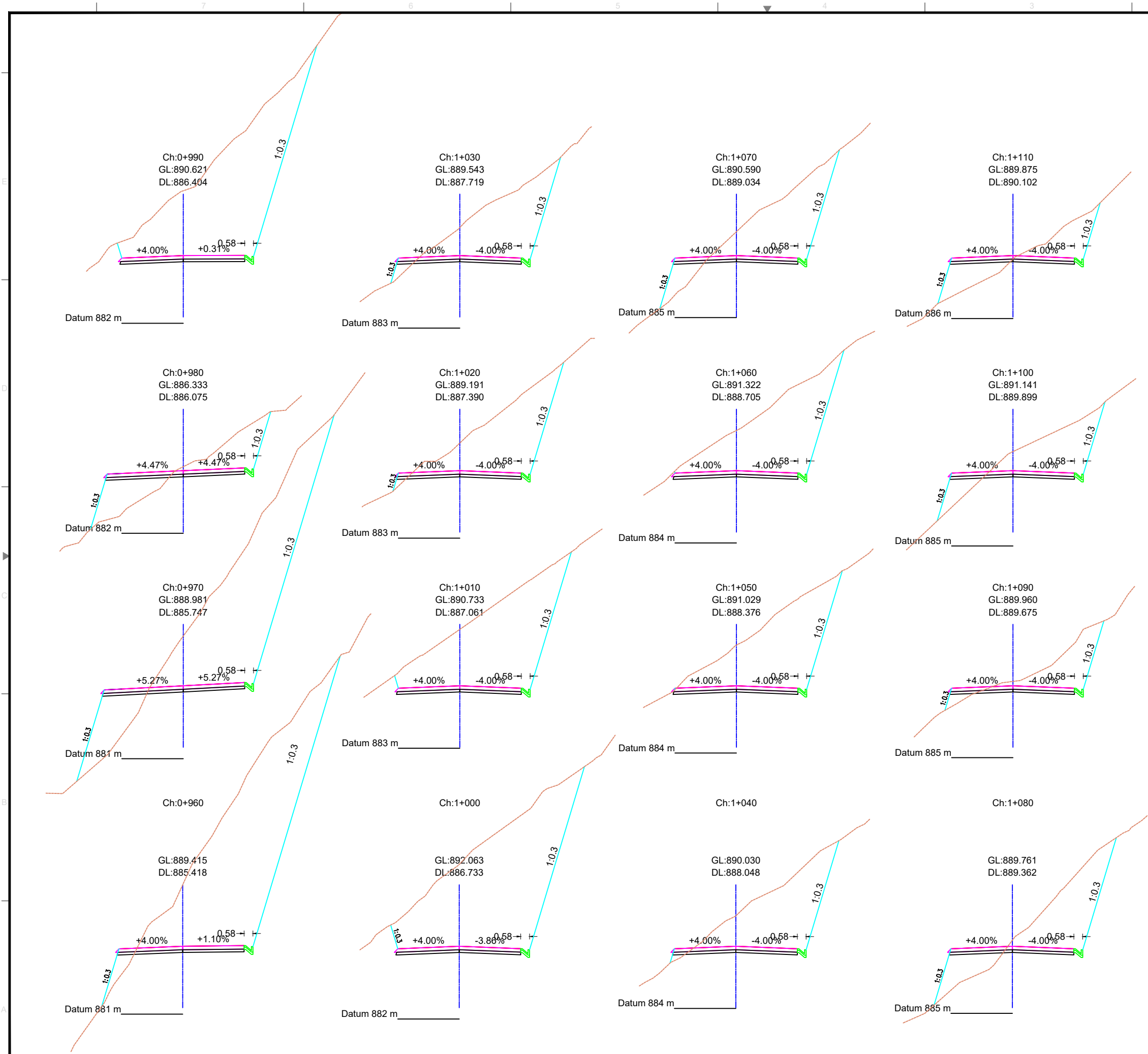
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SCALE 1 : 250

ISSUED FOR CONSTRUCTION

Rev	Modification	Drawn	Checked	Recommended	Approved
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG BYPASS ROAD ADIT 1 & 2 CROSS SECTION					
SHEET 19 OF 33					
CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
Original Size	Original Scale	DRAWING NO.		REV	
A3	AS SHOWN	DHPP-BYPASS-ROAD-2024-19		NA	



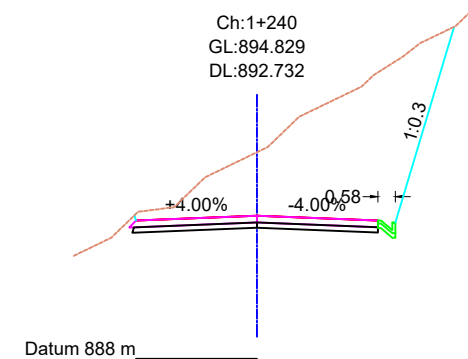
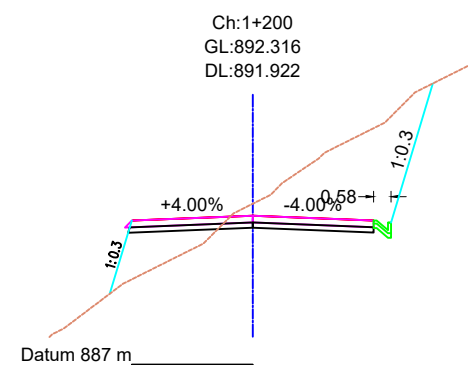
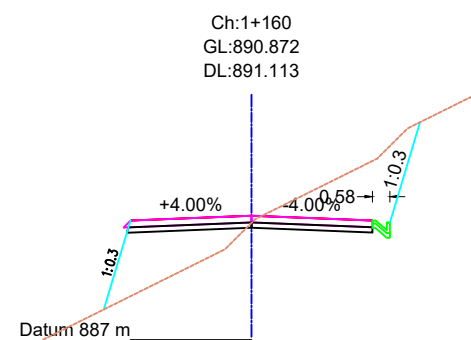
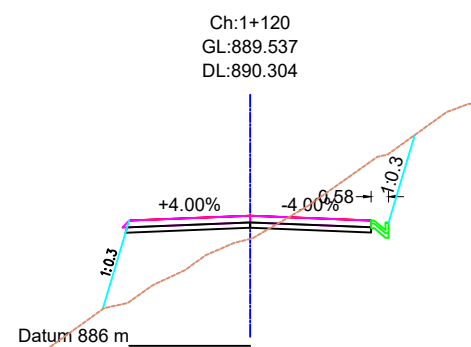
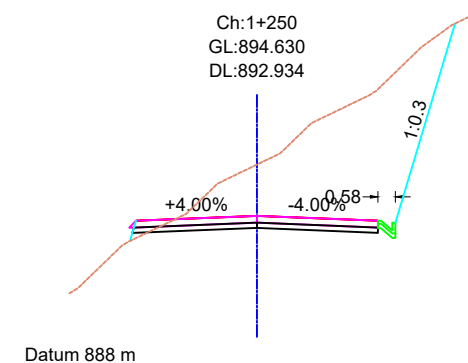
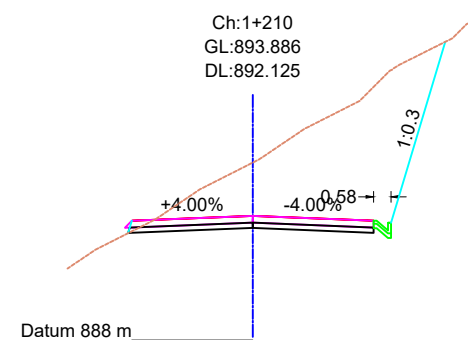
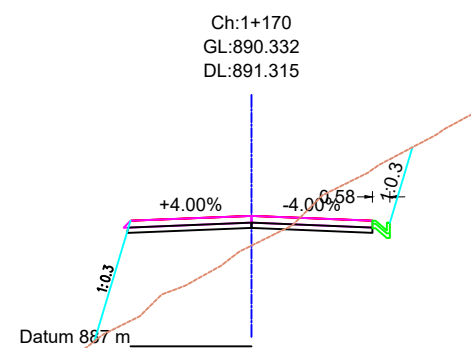
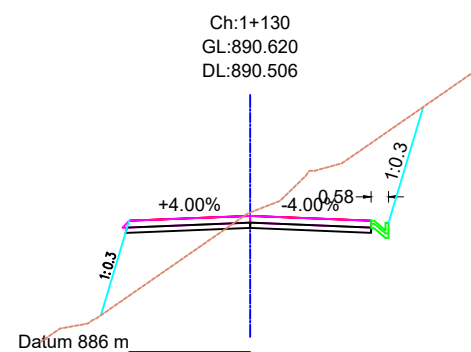
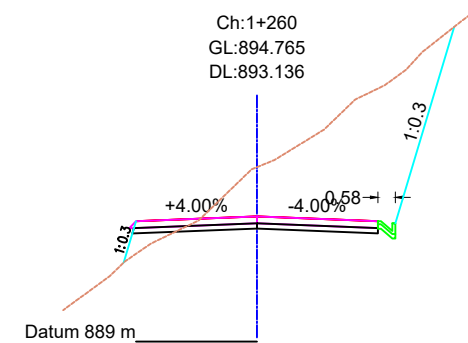
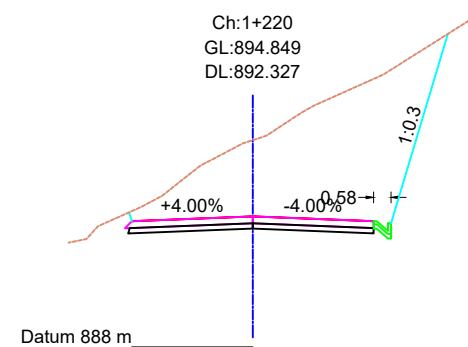
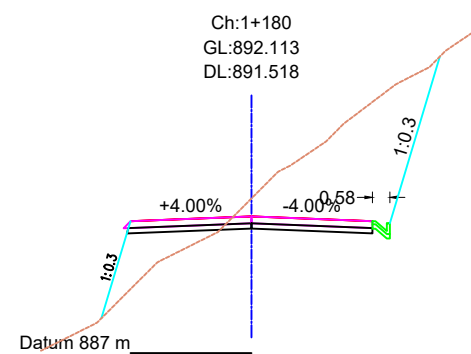
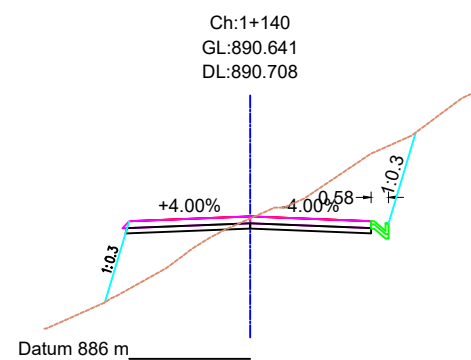
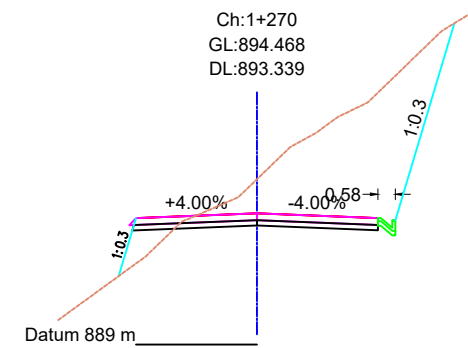
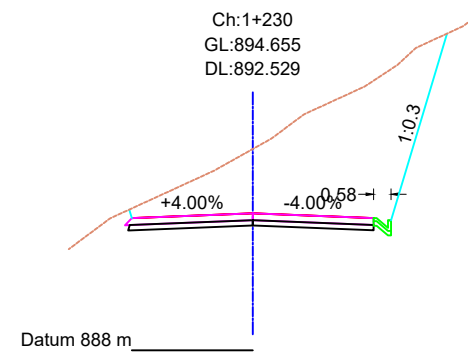
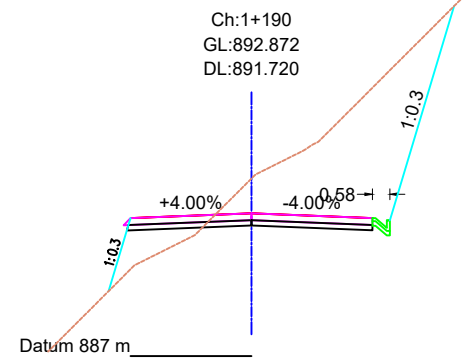
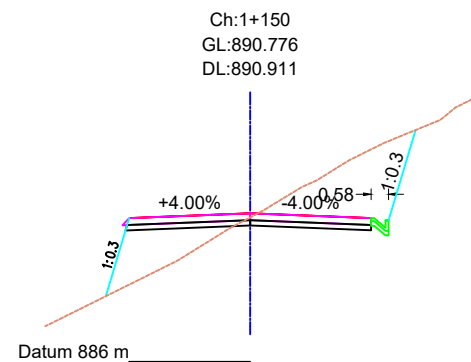
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SCALE 1 : 250

ISSUED FOR CONSTRUCTION

Rev	Modification	Drawn:	Checked:	Recommended:	Approved:
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG BYPASS ROAD ADIT 1 & 2 CROSS SECTION SHEET 20 OF 33					
CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
Original Size A3	Original Scale AS SHOWN	DRAWING NO. DHPP-BYPASS-ROAD-2024-20		REV NA	




NOTE:

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SCALE 1 : 250

ISSUED FOR CONSTRUCTION

Rev	Modification	Drawn:	Checked:	Recommended:	Approved:
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG BYPASS ROAD ADIT 1 & 2 CROSS SECTION SHEET 21 OF 33					
CONSULTANT:  འགྲུལ་རྒྱུ་རྒྱུ་ལྟ་སྒྲུབ་ལྟ་སྒྲུབ་ Druk Green Consultancy		NAME Designed Drawn Checked Approved Issued Date	NOV 2024	SIG.	
Original Size A3	Original Scale AS SHOWN	DRAWING NO. DHPP-BYPASS-ROAD-2024-21			REV NA

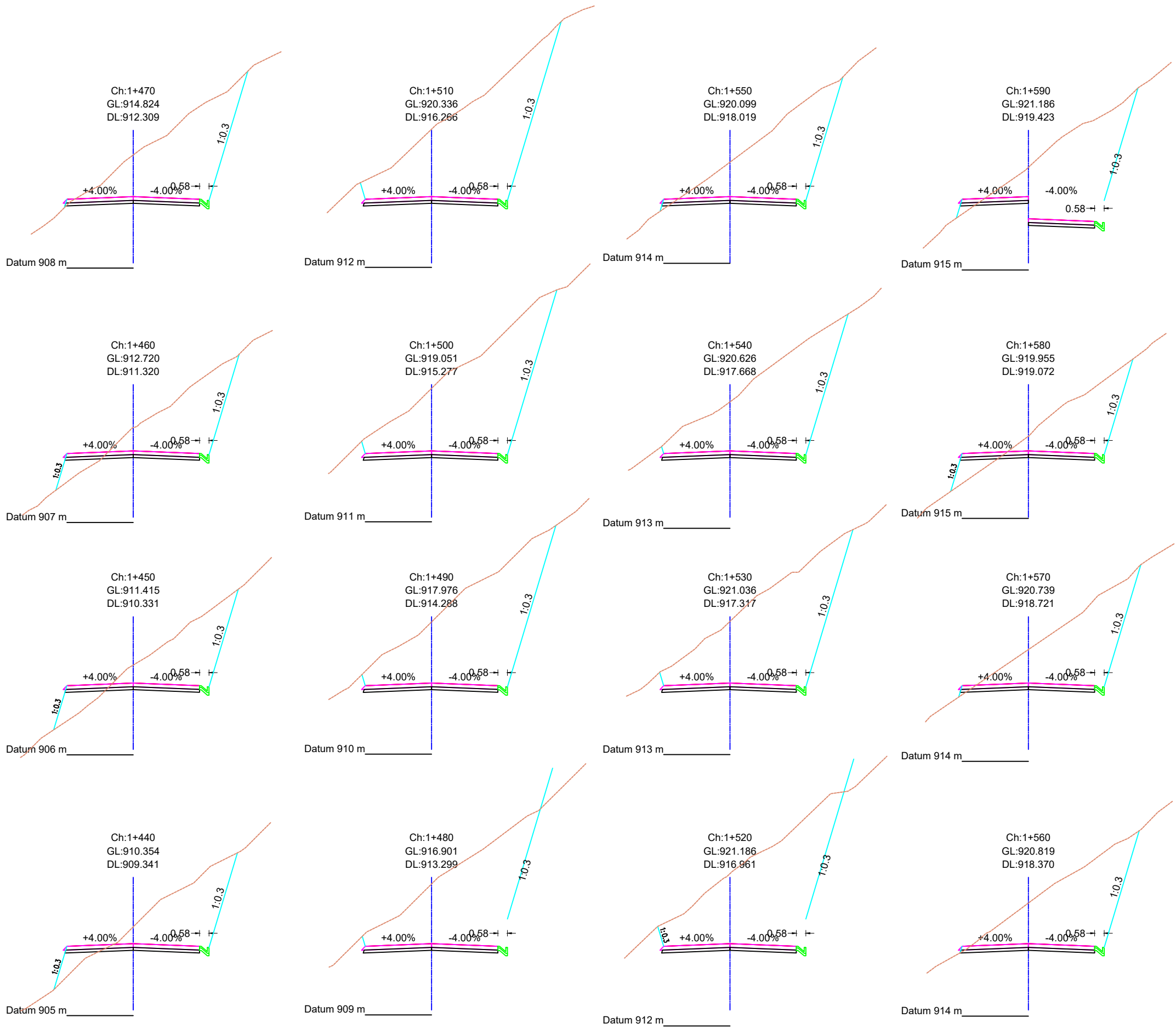
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SCALE 1 : 250

ISSUED FOR CONSTRUCTION

Rev	Modification	Drawn:	Checked:	Recommended:	Approved:
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG BYPASS ROAD ADIT 1 & 2 CROSS SECTION SHEET 22 OF 33					
CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
Original Size A3	Original Scale AS SHOWN	DRAWING NO. DHPP-BYPASS-ROAD-2024-22		REV NA	



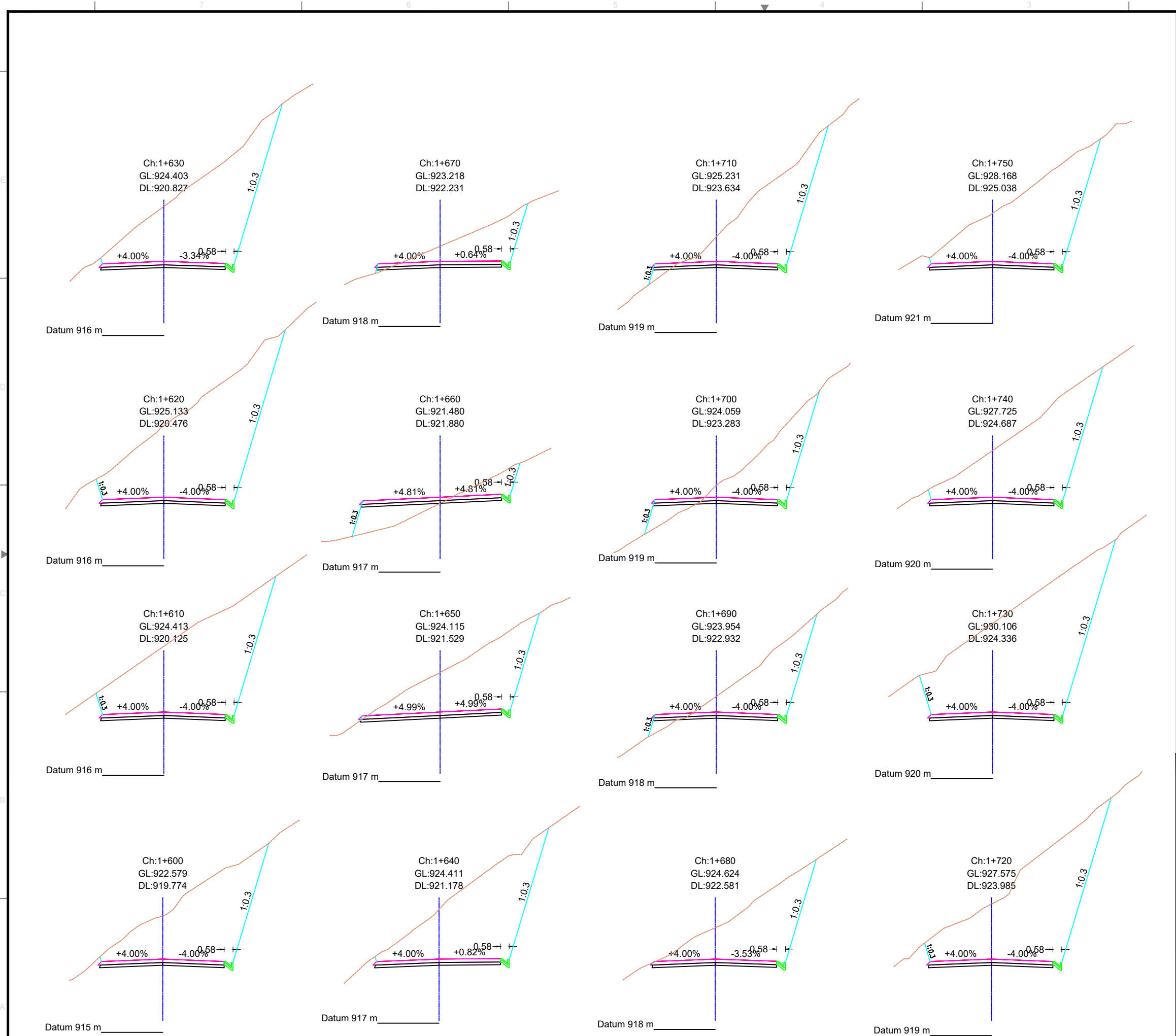
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SCALE 1 : 250

ISSUED FOR CONSTRUCTION

Rev	Modification	Drawn	Checked	Recommended	Approved
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG BYPASS ROAD ADIT 1 & 2 CROSS SECTION SHEET 23 OF 33					
CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
Original Size	Original Scale	DRAWING NO.		REV	
A3	AS SHOWN	DHPP-BYPASS-ROAD-2024-23		NA	



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SCALE 1 : 250

ISSUED FOR CONSTRUCTION

Rev	Modification	Drawn:	Checked:	Recommended:	Approved:
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG BYPASS ROAD ADIT 1 & 2 CROSS SECTION SHEET 24 OF 33					
CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
Original Size	A3	Original Scale	AS SHOWN	DRAWING NO.	DHPP-BYPASS-ROAD-2024-24
				REV	NA

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SCALE 1 : 250

ISSUED FOR CONSTRUCTION

Rev	Modification	Drawn:	Checked:	Recommended:	Approved:
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG BYPASS ROAD ADIT 1 & 2 CROSS SECTION					
SHEET 25 OF 33					
CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
Original Size A3	Original Scale AS SHOWN	DRAWING NO. DHPP-BYPASS-ROAD-2024-25		REV	NA

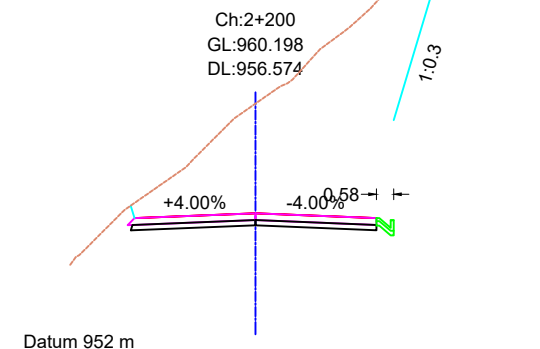
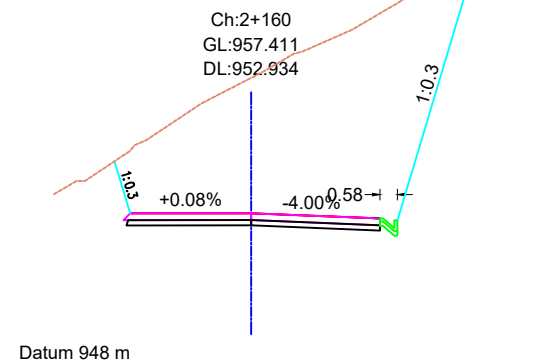
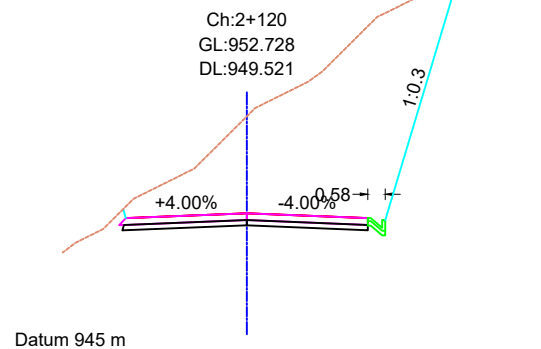
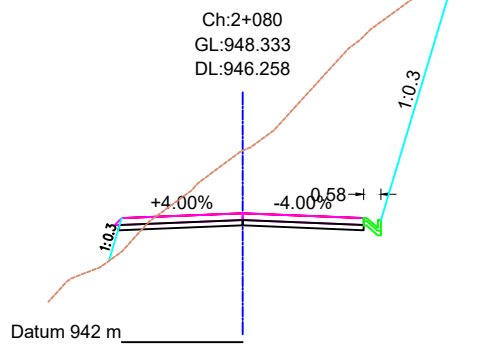
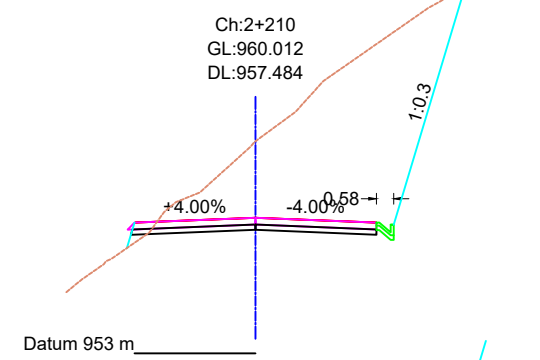
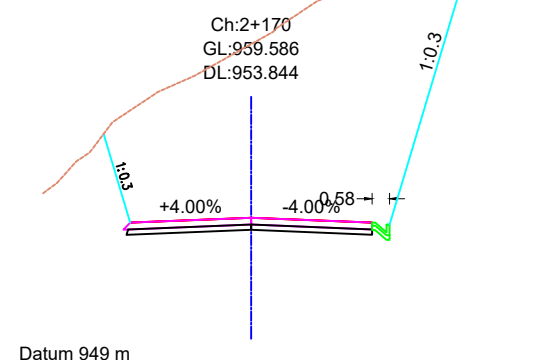
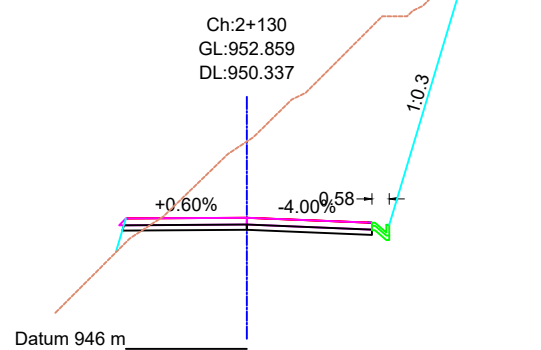
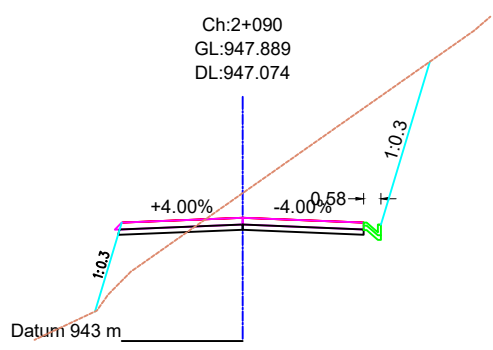
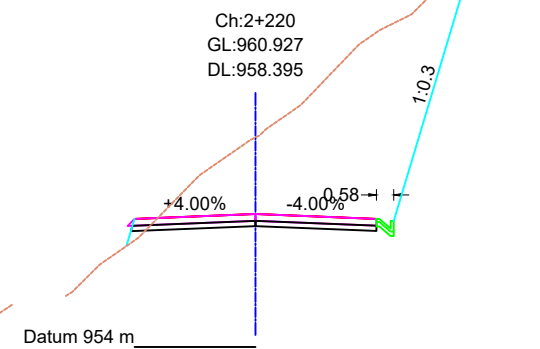
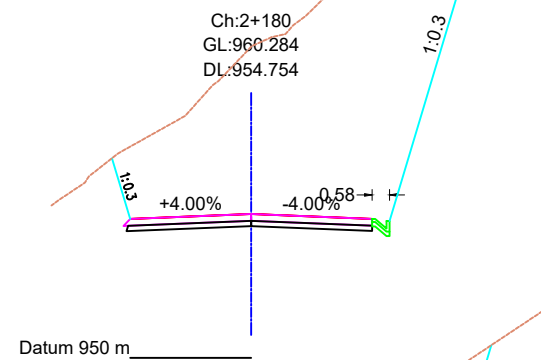
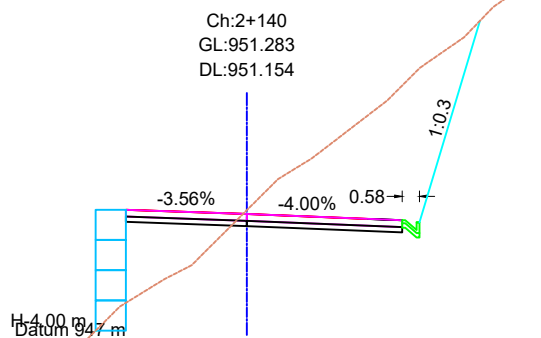
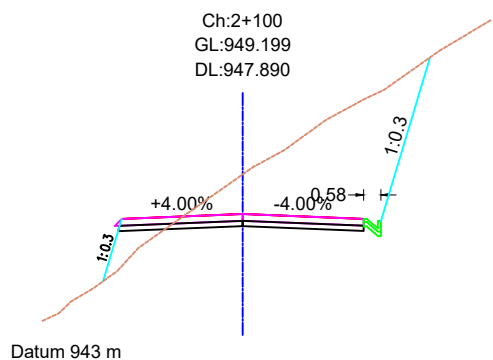
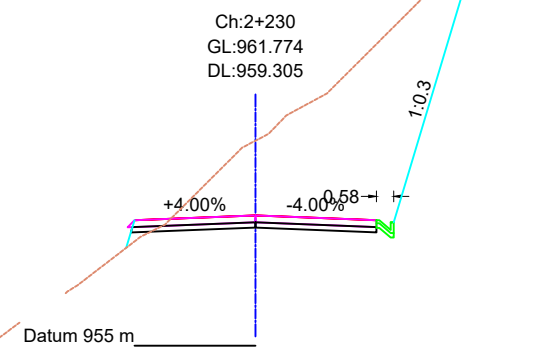
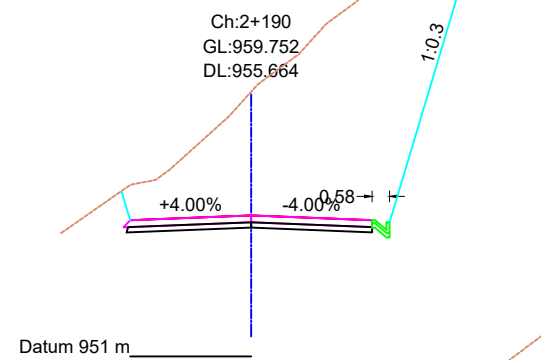
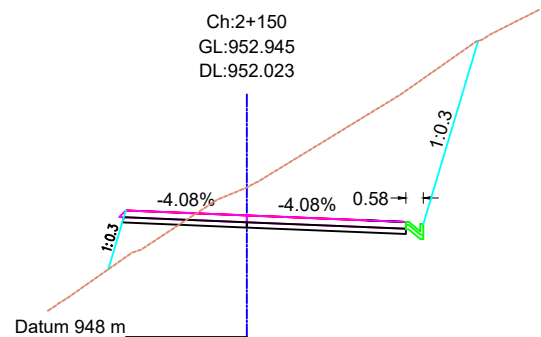
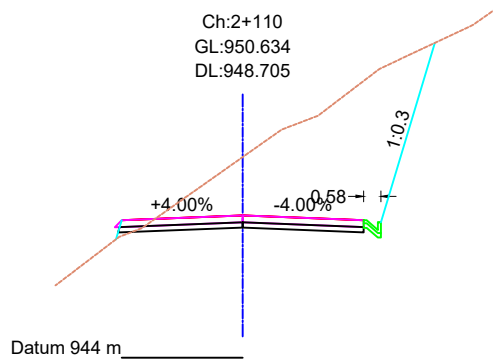
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SCALE 1 : 250

ISSUED FOR CONSTRUCTION

Rev	Modification	Drawn:	Checked:	Recommended:	Approved:
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG BYPASS ROAD ADIT 1 & 2 CROSS SECTION SHEET 26 OF 33					
CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
Original Size A3	Original Scale AS SHOWN	DRAWING NO. DHPP-BYPASS-ROAD-2024-26		REV NA	

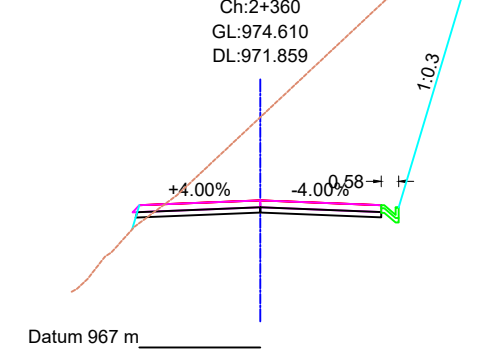
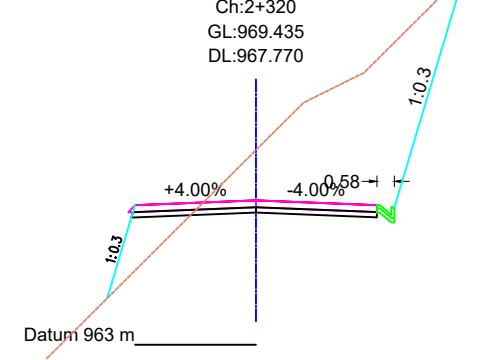
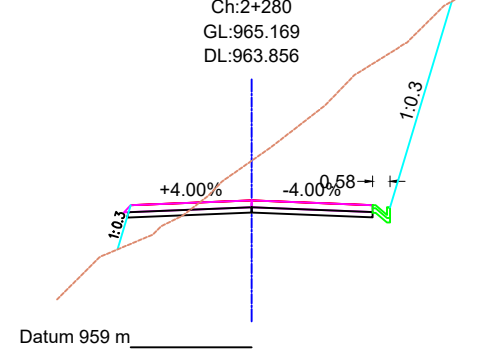
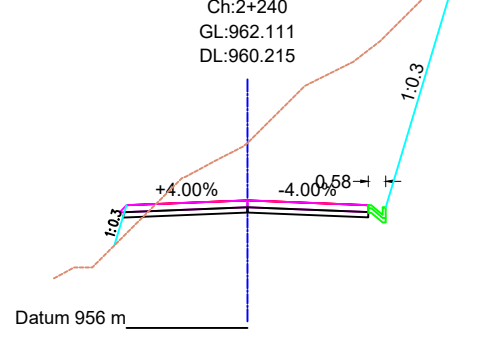
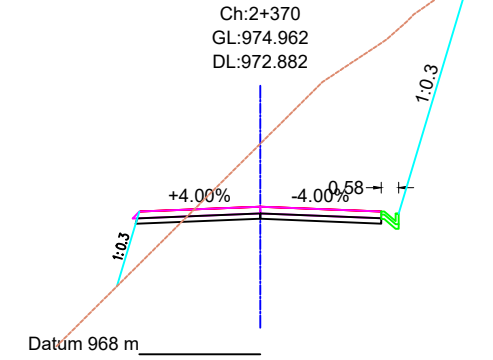
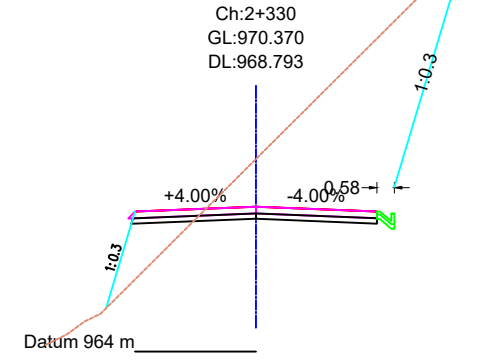
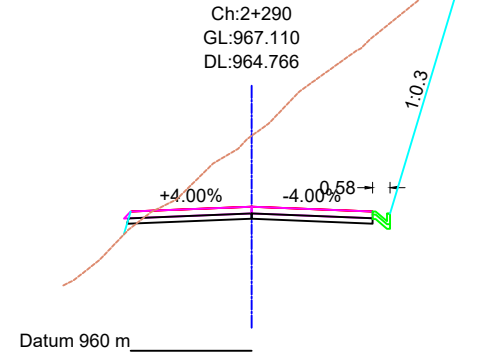
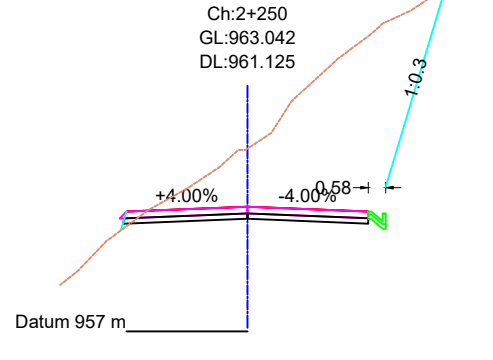
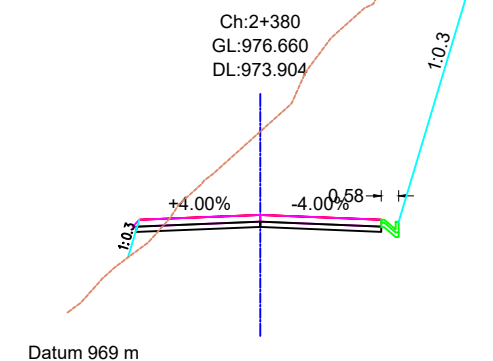
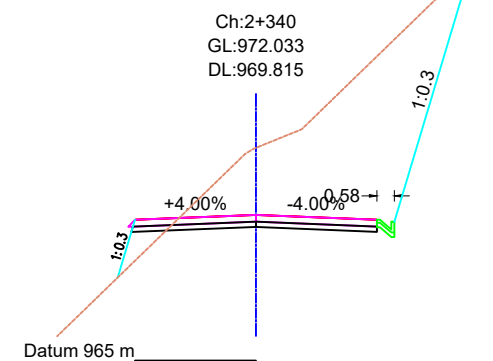
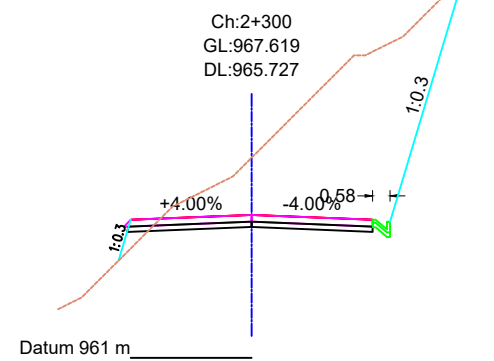
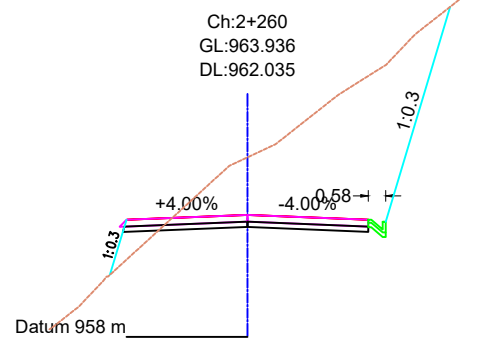
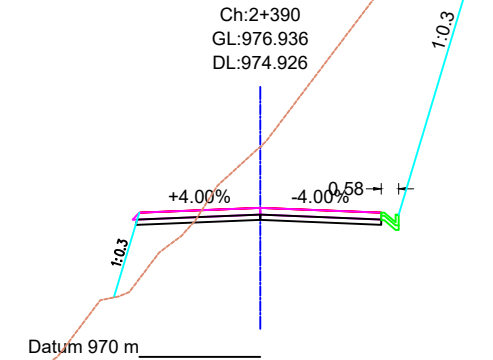
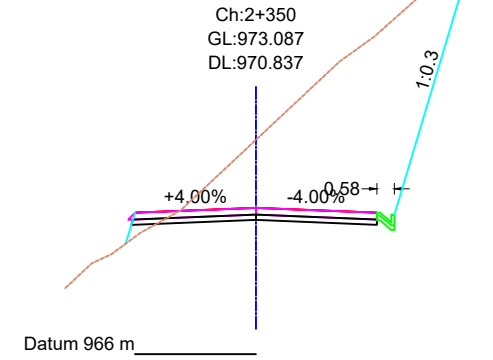
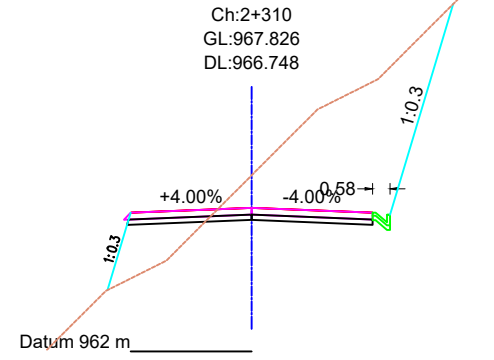
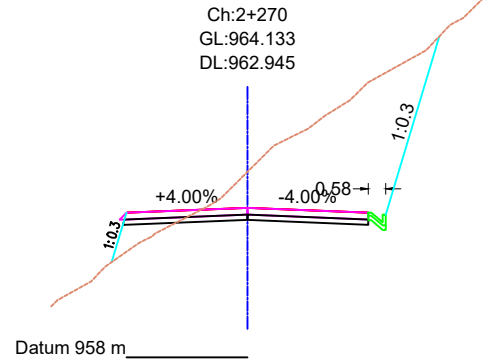


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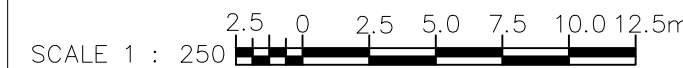


ISSUED FOR CONSTRUCTION

Rev	Modification	Drawn:	Checked:	Recommended:	Approved:
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG BYPASS ROAD ADIT 1 & 2 CROSS SECTION SHEET 27 OF 33					
CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
Original Size	A3	Original Scale	AS SHOWN	DRAWING NO.	DHPP-BYPASS-ROAD-2024-27
				REV	NA

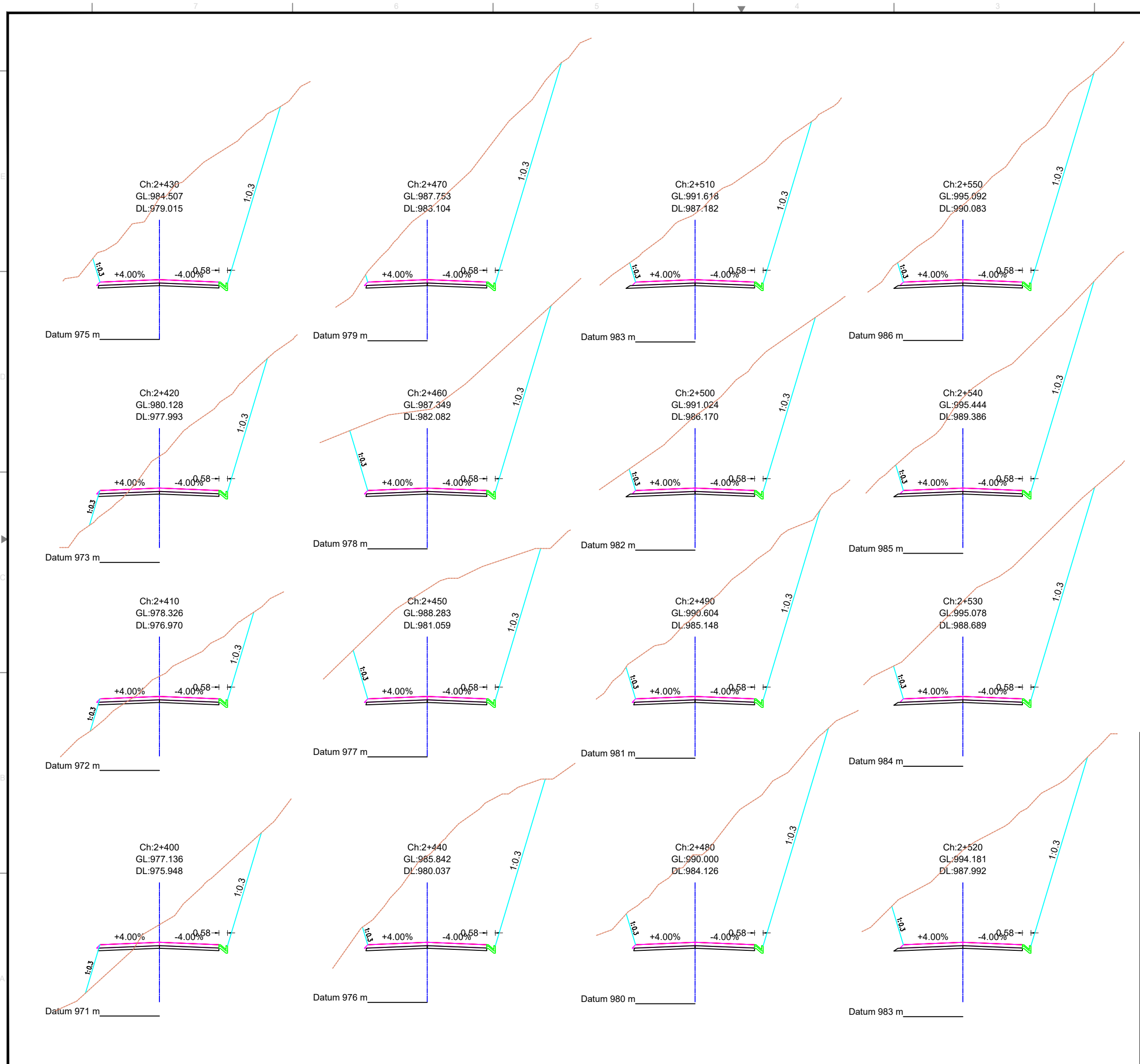


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Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG BYPASS ROAD ADIT 1 & 2 CROSS SECTION					
SHEET 28 OF 33					
CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
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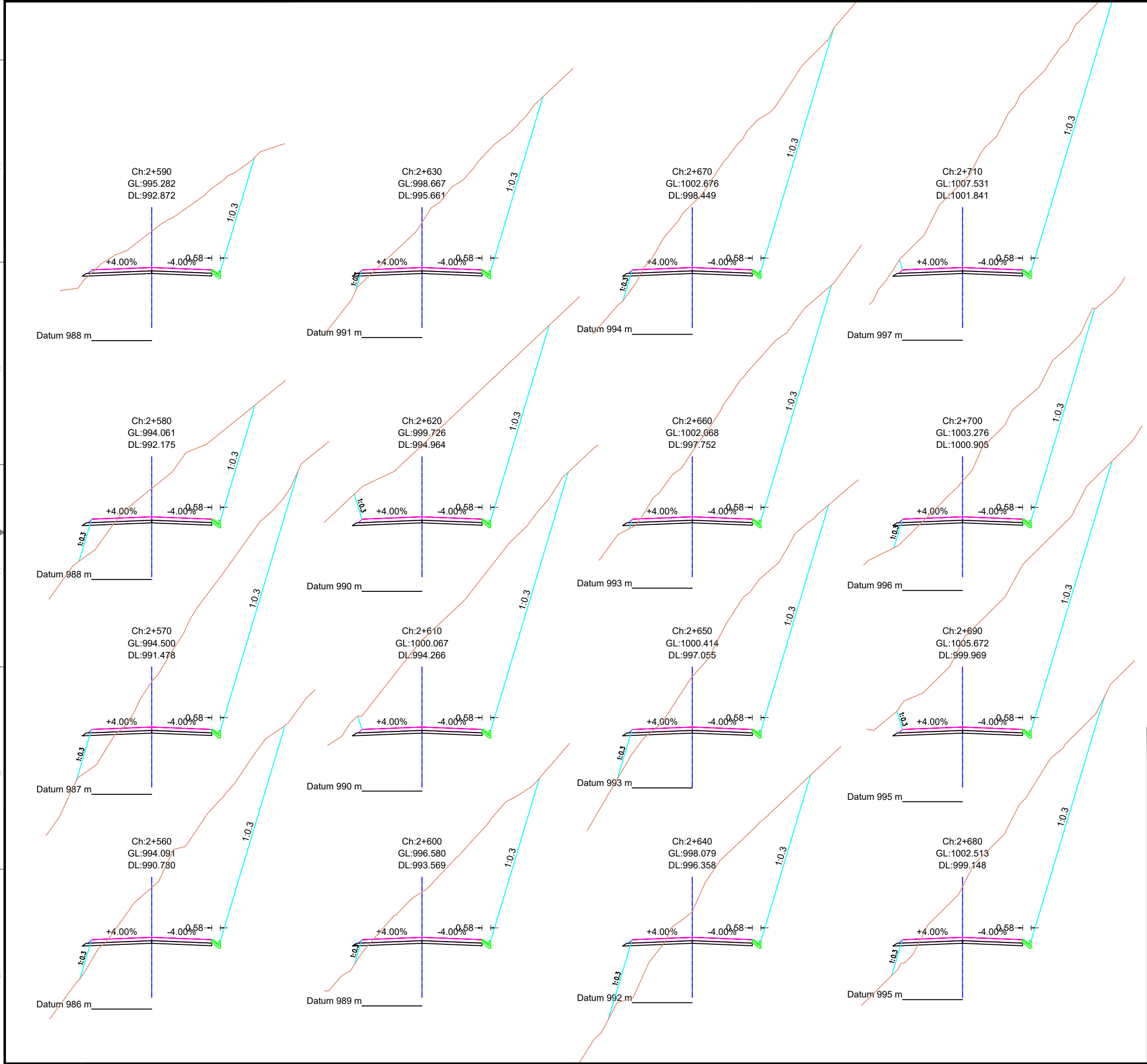
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SCALE 1 : 250

ISSUED FOR CONSTRUCTION

Rev	Modification	Drawn	Checked	Recommended	Approved
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG BYPASS ROAD ADIT 1 & 2 CROSS SECTION					
SHEET 29 OF 33					
CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
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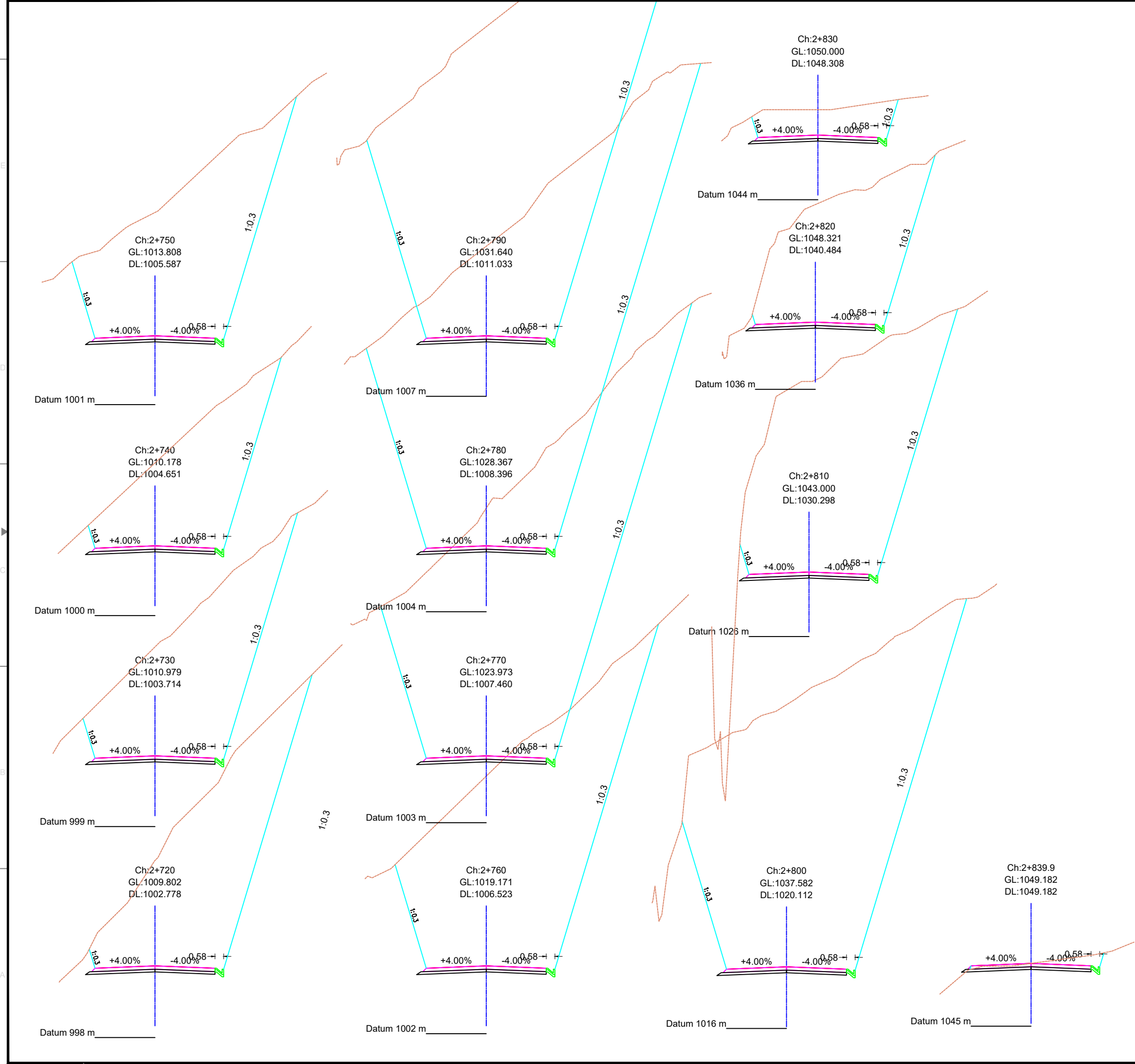
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SCALE 1 : 250

ISSUED FOR CONSTRUCTION

Rev	Modification	Drawn	Checked	Recommended	Approved
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG BYPASS ROAD ADIT 1 & 2 CROSS SECTION SHEET 30 OF 33					
CONSULTANT:		NAME	SIG.		
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		Drawn			
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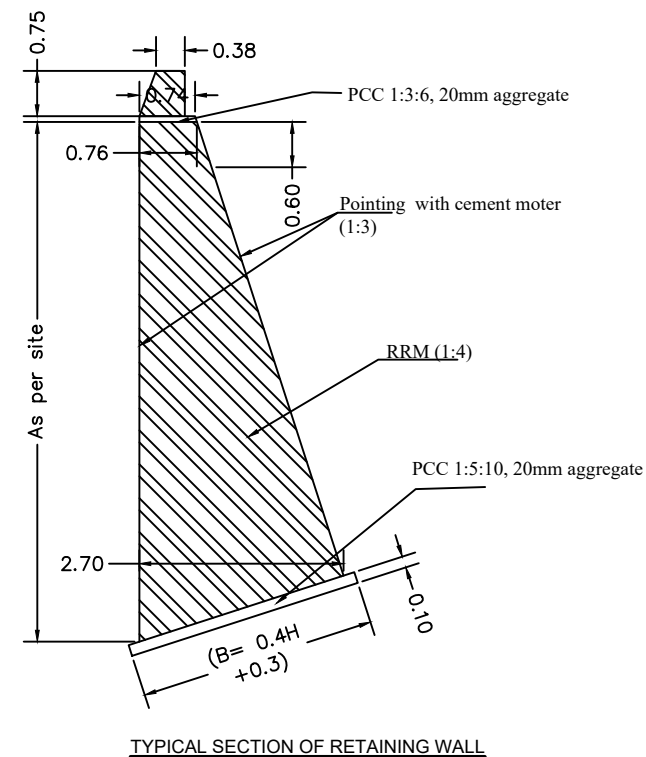
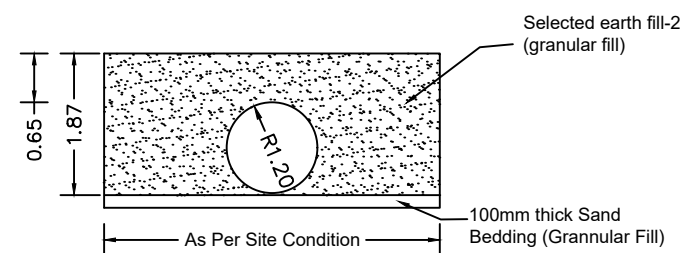
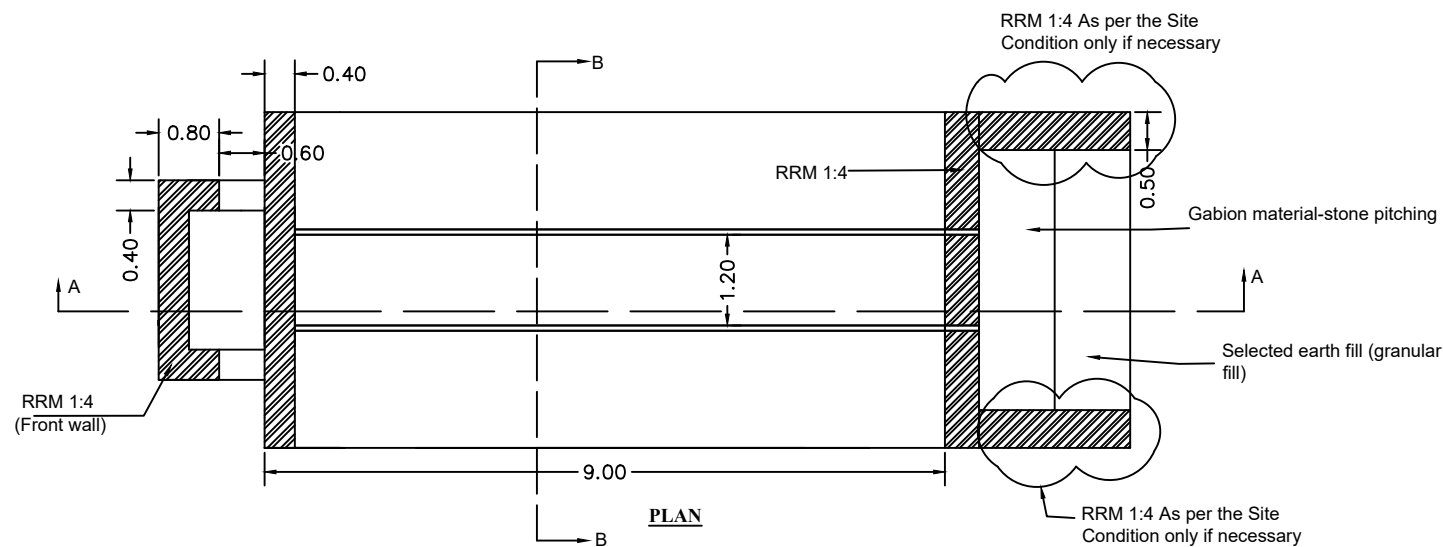
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SCALE 1 : 250

ISSUED FOR CONSTRUCTION

Rev	Modification	Drawn:	Checked:	Recommended:	Approved:
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG BYPASS ROAD ADIT 1 & 2 CROSS SECTION					
SHEET 31 OF 33					
CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
Original Size	Original Scale	DRAWING NO.		REV	
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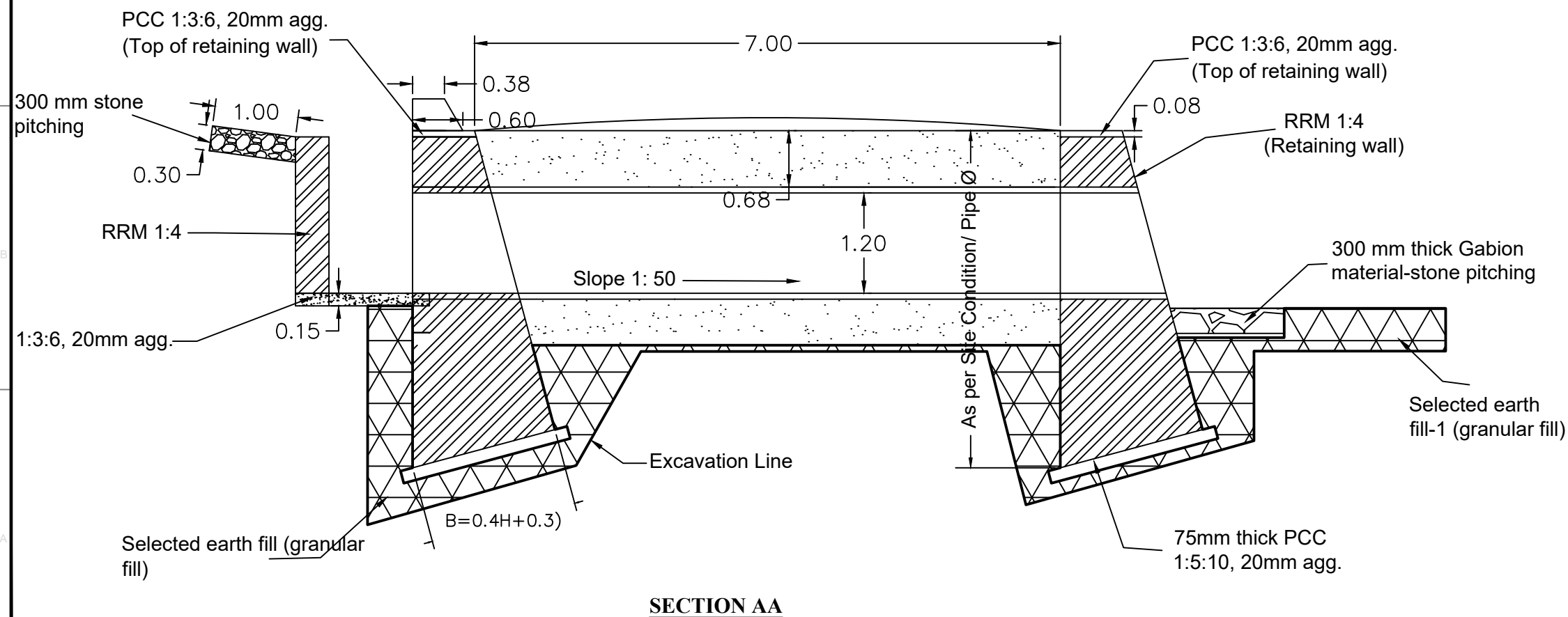


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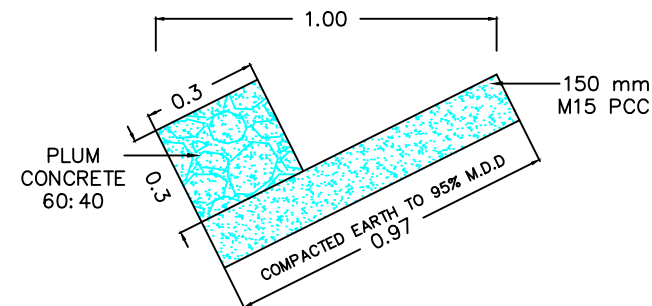
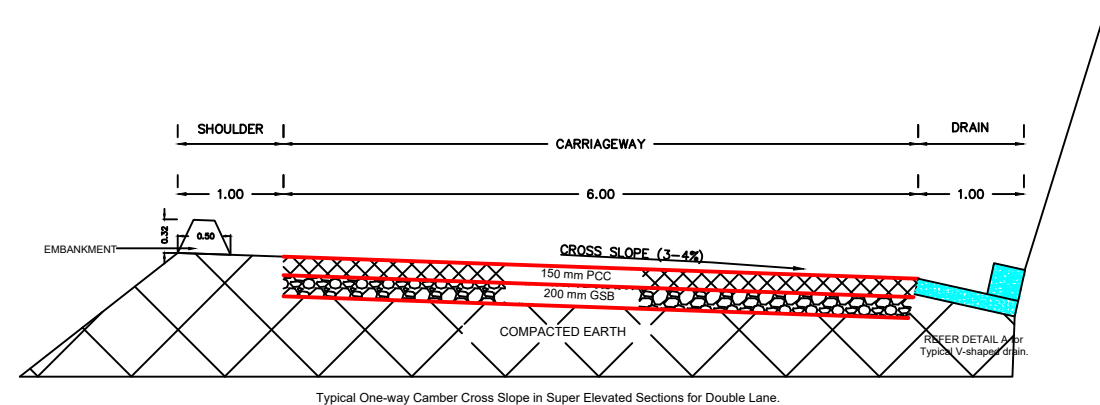
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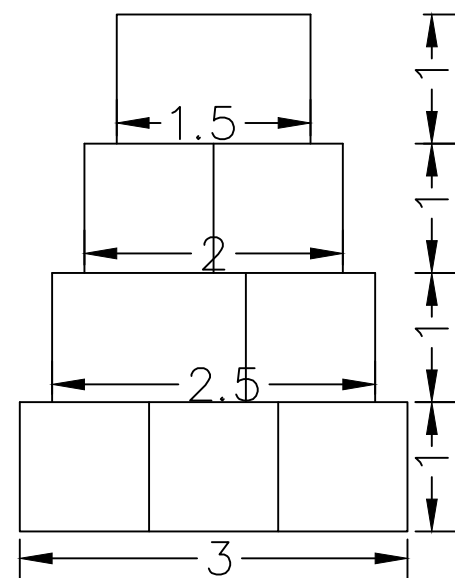
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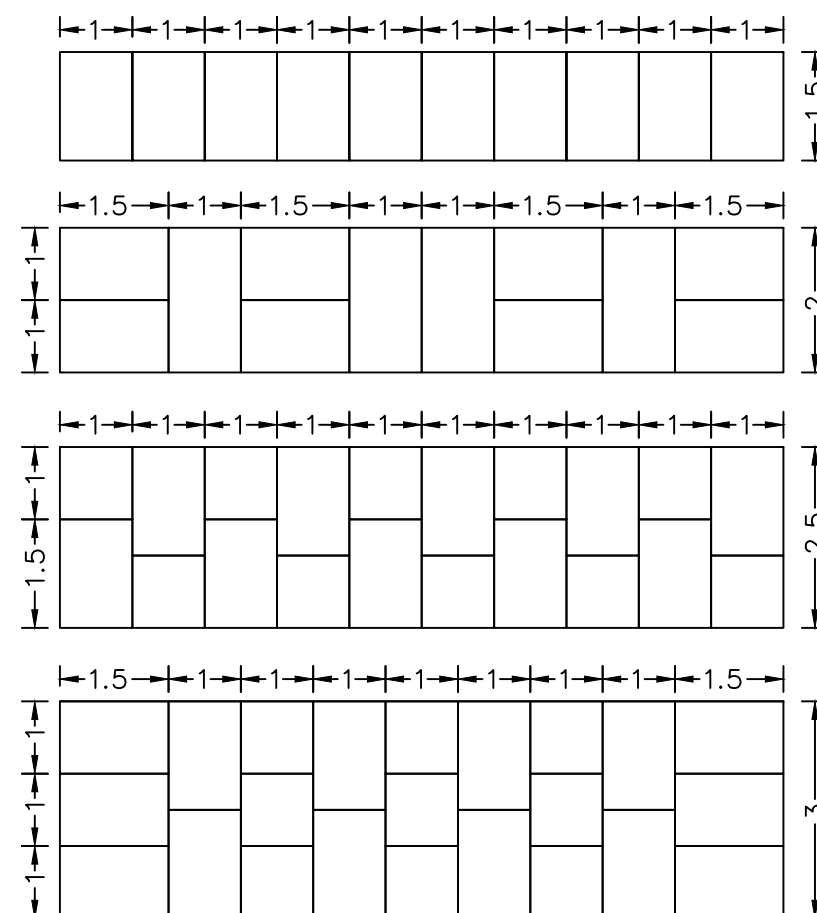
Rev	Modification	Drawn:	Checked:	Recommended:	Approved:
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Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG BYPASS ROAD ADIT 1 & 2 HUME PIPE AND RETAINING WALL CROSS SECTION					
SHEET 32 OF 33					
CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
Original Size	Original Scale	DRAWING NO.		REV	
A3	AS SHOWN	DHPP-BYPASS-ROAD-2024-32		NA	



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Section of Gabion Wall.



Gabion Wall Plan.

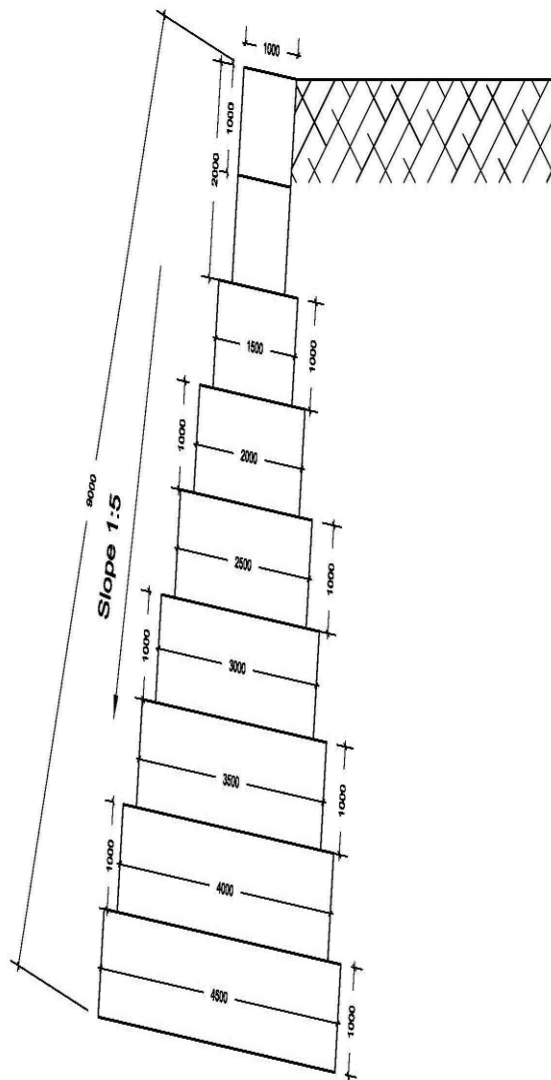


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2.5 0 2.5 5.0 7.5 10.0 12.5m

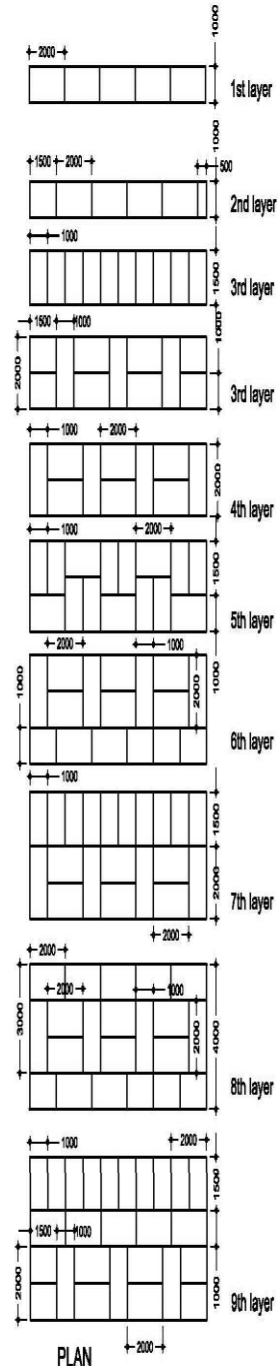
ISSUED FOR CONSTRUCTION

Rev	Modification	Drawn:	Checked:	Recommended:	Approved:
Client: DORJILUNG HYDROPOWER PROJECT					
Project: DORJILUNG HYDROPOWER PROJECT (1125 MW) MONGAR, BHUTAN					
Title: DORJILUNG BYPASS ROAD ADIT 1 & 2 TYPICAL ROAD, DRAIN AND GABION WALL DETAILS					
SHEET 33 OF 33					
CONSULTANT:		NAME	SIG.		
		Designed			
		Drawn			
		Checked			
		Approved			
		Issued Date	NOV 2024		
Original Size	Original Scale	DRAWING NO.		REV	
A3	AS SHOWN	DHPP-BYPASS-ROAD-2024-33		NA	



SECTION

Note :
Provide foundation drains @ 1500c/c



PLAN

GABION WALL

54.86 m Bailey Bridge 1

DRAWING LIST		
SL/NO.	DRAWING NO.	CONTENT
1	GN-01	General Notes
A.GENERAL ARRANGEMENT DRAWINGS		
2	BB-A-01	General Plan
3	BB-A-02	Longitudinal Section
4	BB-A-03	Details of Anchor Hook
B.SUB-STRUCTURE		
5	BB-B-01	Abutment A1 Plan Dimensions
6	BB-B-02	Abutment A1 Elevation Dimensions
7	BB-B-03	Abutment A1 Rebar Details-1
8	BB-B-04	Abutment A1 Rebar Details-2
9	BB-B-05	Abutment A1 Return Wall Rebar and Footing Rebar Plan
10	BB-B-06	Abutment A1 BBS-1
11	BB-B-07	Abutment A1 BBS-2
12	BB-B-08	Abutment A1 BBS-3
13	BB-B-09	Abutment A1 BBS-4
14	BB-B-10	Abutment A2 Dimensions
15	BB-B-11	Abutment A2 Rebar Details-1
16	BB-B-12	Abutment A2 Rebar Details-2 and Footing Rebar Plan
17	BB-B-13	Abutment A2 BBS-1
18	BB-B-14	Abutment A2 BBS-2
19	BB-B-15	Abutment A2 BBS-3

CLIENT: Dorjilung Hydro Power Project Project Ref. No.: -	CONSULTANT: JY Engineering Consultants (JYEC) Babesa, Thimphu Ph. +975 17634390 (M) email: jyengconsult2017@gmail.com	PROJECT TITLE: Construction of bridge No.1 (Near the proposed Dam Site)	SHEET CONTENT: DRAWING LIST	Revisions:			Name	Signature	Drawing No.	
				Issue	Date	Amendments/Issue descriptions	Design	J.Yeshi	DL-00	
				01	-	-	Drawing	NB Chhetri	Scale:	NTS
							Check	-	Date:	Jan 2025
							Approved	(as sheet A3 size)	

GENERAL NOTES

1.0 GENERAL

- 1.1 Design and detailing conforming to IS–456, IS–13920, IS–800.
- 1.2 All notes and typical details apply to all drawings unless otherwise shown or specified
- 1.3 Unless otherwise shown, all dimensions are in millimeters and all levels in metres.

2.0 FOUNDATION

- 2.1 On A2 side, the abutment footing mat shall be supported on solid rock strata.
- 2.2 On A1 side, the foundation shall rest on dense sandy gravel soil strata.
- 2.3 Over excavated areas under footings, if that happens, must be backfilled with blinding concrete of minimum M10 grade.
- 2.4 The backfill material type, gradation and compaction shall be as per Specifications

3.0 CONCRETE

- 3.1 The concrete shall conform to IS–456 and grade shall be as follows:

• M30 for abutments.

• M10 for blinding concrete – leveling concrete for foundation mat.
- 3.2 The aggregate used shall be:

• 20 mm and down – grading shall be as per IS:383

• The grading of sand shall conform to Zone I, II or III as per IS:383

• The sand falling under Zone IV shall not used for structural concrete
- 3.3 The manufacture, placing, compaction, curing and finishing of the concrete shall be as per IS–456
- 3.4 The water used for concrete curing shall be same quality as the water fit for drinking
- 3.5 The concrete sections shown are the minimum required for structural strength and doesn't include finishes
- 3.6 The sectional capacities of the structural members shall not be altered by way of leaving holes for conduits etc. without the engineer's approval.
- 3.7 The placement and removal of form work shall be as per IS–456
- 3.8 The reinforcing steel dowels, anchor bolts and other inserts shall be secured in position prior to pouring concrete.

4.0 REINFORCEMENT

- 4.1 The reinforcement shall be grade Fe500 (thermo–mechanically treated) as per IS–1786 for all reinforced concrete components.
- 4.2 Only the reinforcement brands approved by Bhutan Standards Bureau (BSB) shall be used.
- 4.3 Following clear cover shall be provided to the reinforcement unless specified otherwise:–

• Foundation Slab and abutment stem – 75 mm

• Return Wall – 50 mm
- 4.4 The concrete cover blocks and steel chairs shall be used where ever required to maintain proper position of the rebars. The cover blocks shall be of the same grade and strength as the structural member.
- 4.5 The bar bending shall comply with the requirements of IS–456
- 4.6 The minimum anchor length and splice length shall be maintained as specified.

5.0 MASONRY

- 5.1 The Mortar for masonry shall be CM 1:4 or richer
- 5.2 The thickness of the mortar bed shall not exceed 10 mm or as specified in the drawing.

6.0 BAILEY BRIDGE - SUPERSTRUCTURE

- 6.1 The Bailey bridge shall be Compact200 type (minimum panel height 2.2m) of equivalent
- 6.2 The bridge shall have clear carriage width of 4.25 m and the deck shall be in steel with anti–skid checkered surface.
- 6.3 The truss configuration for the Bailey bridge shall be recommended by manufacturer based on the bridge span, width and the loading condition specified.

7.0 LOADS

- 7.1 DEAD LOAD (as per IS 875 Part I):

• Plain Cement Concrete – 23.50 KN/m³

• Reinforced Cement Concrete – 24.50 KN/m³

• Stone Masonry – 22.50 KN/m³

• Cement Mortar – 20.50 KN/m³

• Steel – 77.00 KN/m³
- 7.2 IMPOSED/LIVE LOADS

• Live Load – Class 40R as per IRC:6
- 7.3 LATERAL LOADS:

7.3.1 SEISMIC LOAD (as per IS 1893):

• Seismic Zone – IV

• Zone Factor, Z – 0.36

• Importance Factor – 1.2

• Response Reduction Factor– 1.0

• % of imposed load to be considered for seismic wt. – 25%

7.3.2 WIND LOAD (as per IS 875 Part III)

• Basic Wind Speed, V_b – 47 m/s

• Terrain Category – II

8.0 DEVELOPMENT/SPLICE LENGTH FOR REBAR

Development Length (L _d) in Flexural Tension				
Bar Ø	M20	M25	M30	M35
8	450	390	360	320
10	570	490	450	400
12	680	590	550	480
16	910	780	730	640
20	1140	970	910	800
25	1420	1220	1140	1000

Development Length (L _d) in Compression				
Bar Ø	M20	M25	M30	M35
10	450	390	360	320
12	540	470	430	380
16	720	630	580	510
20	900	780	720	640
25	1125	980	900	800

NOTE:

- For bars in flexural tension, the Lap Length is equal to L_d
- For bars in direct tension, Lap length is 2*L_d.
- Where hooks/bends are provided, the straight length of the bar shall not be less than 20Ø or 200.
- For tension bars located at top of section as cast and the minimum cover is less than 2*Ø of bars, the lap length shall be increase by a factor of 1.4.
- The L_d of bundled bars shall be that for individual bar increased by 10%, 20% and 33% for bundles of two bars, three bars and four bars respectively.
- The anchorage value of bends shall be 4 times the bar Ø for each 45° bend subject to maximum of 16*Ø. The anchorage value of standard U–type hook shall be 16*Ø
- The above values of splice and development length shall be used unless specified otherwise in the drawings.

9.0 LOAD COMBINATIONS

As per Annexure B, IRC 6:2016

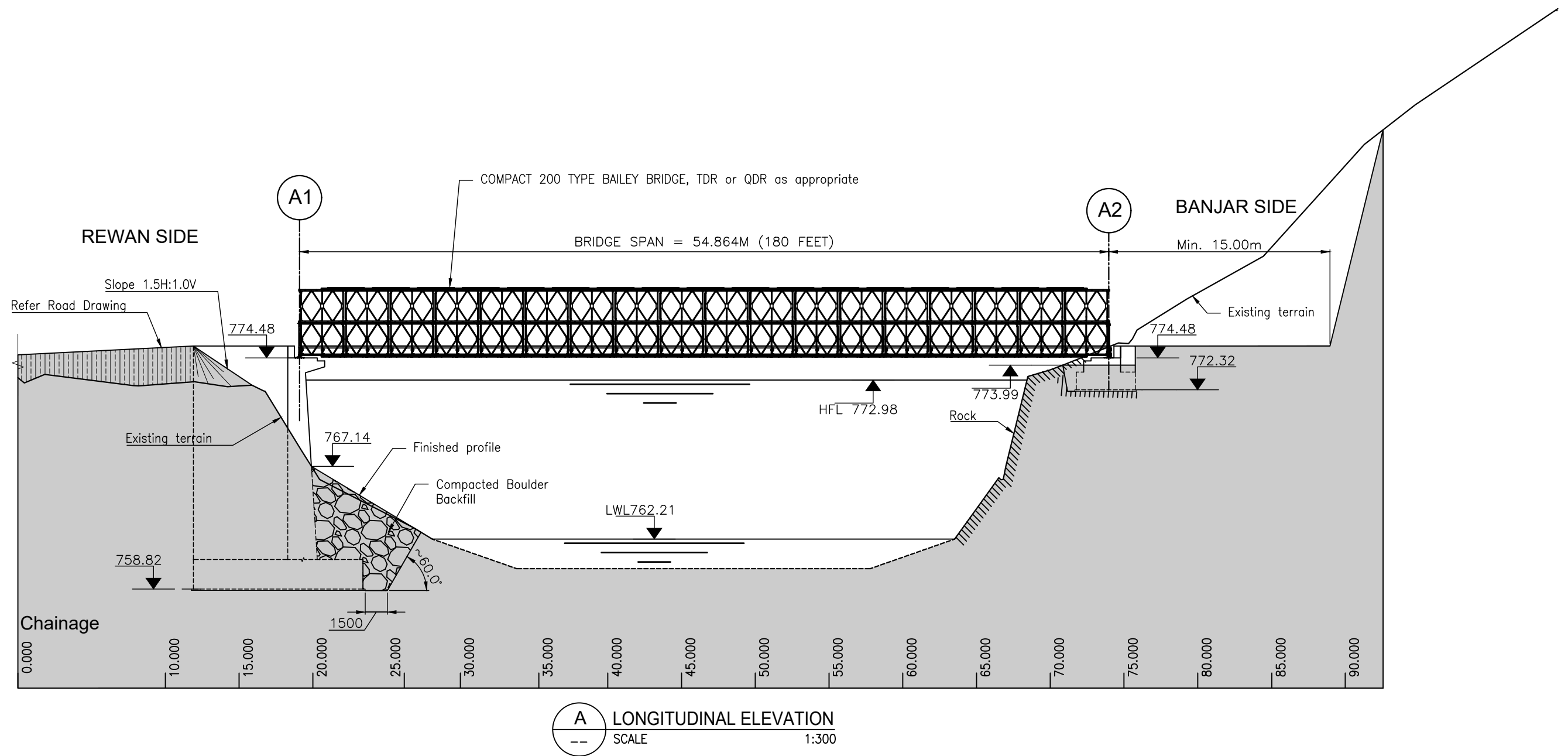
10.0 ABBREVIATIONS/ SYMBOLS

@	At
CL	Centreline
Ø OR DIA.	Diameter
#, NO	Number
B	Beam
BLDG	Building
CJ	Construction Joint
C, COL	Column
DIM	Dimension
DN	Down
DWG	Drawing
EF	Each face
EL	Elevation
EQ	Equal
EXP. JT.	Expansion Joint
EXT	Exterior
F, FTG	Footing
FDN	Foundation
FFL	Finish Floor Level
FGL	Finish Grade Level
GB	Grade Beam
HT	Height
HOR	Horizontal
INT	Interior
JT	Joint
L	Length
MJ	Mastic Joint
NTS	Not To Scale
PC	Precast
PL, R	Plate
R	Radius
RC	Reinforced Concrete
REF	Reference
SEC	Section
SHT	Sheet
STD	Standard
STIFF	Stiffener
STIRR	Stirrups
SYM	Symmetry
t	Slab Thickness
TYP	Typical

CLIENT: Bridge Division, Department of Surface Transport, MoIT Project Ref. No.: -	CONSULTANT: JY Engineering Consultants (JYEC) Babesa, Thimphu Ph. +975 17634390 (M) email: jyengconsult2017@gmail.com	PROJECT TITLE: Construction of bridge No.1 (Near the proposed Dam Site)	SHEET CONTENT: GENERAL NOTES	Revisions:				Name	Signature	Drawing No.	
				Issue	Date	Amendments/Issue descriptions	Design	J.Yeshi		GN-01	
				01	-	-	Drawing	NB Chhetri		Scale:	NTS
							Check	-		Date:	Jan 2025
							Approved	---		(as sheet A3 size)	

A.GENERAL ARRANGEMENT DRAWING

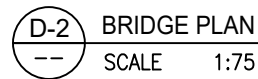
CLIENT: Dorjilung Hydro Power Project Project Ref. No.: -	CONSULTANT: JY Engineering Consultants (JYEC) Babesa, Thimphu Ph. +975 17634390 (M) email: jyengconsult2017@gmail.com	PROJECT TITLE: Construction of bridge No.1 (Near the proposed Dam Site)	SHEET CONTENT: COVER PAGE	Revisions:				Name	Signature	Drawing No.	
				Issue	Date	Amendments/Issue descriptions	Design	J.Yeshi		BB-A-00	
				01	-	-	Drawing	NB Chhetri		Scale:	-
							Check	-		Date:	Jan 2025
							Approved		(as sheet A3 size)	



IMPORTANT NOTES:

- A. BAILEY SUPERSTRUCTURE
- A.1 The Bailey bridge shall be Compact 200 type (Panel height = 2.2m plus) or equivalent
- A.2 The clear carriage width shall be 4.25 m
- A.3 The bridge shall be designed for Class 40R vehicle load as per IRC-6: 2016.
- A.4 The bridge span, width and the loading capacity given, the truss configuration for the Bailey bridge (TDR, QDR etc.) shall be recommended by the manufacturer/supplier. However, the manufacturer/supplier shall submit the design calculation sheet for the Bailey bridge superstructure that shows the bridge to safe under all applied loads.
- B. SUBSTRUCTURE
- B.1 The geometry of the abutment top including that of the back wall shall be treated as tentative. The geometry may change depending on the manufacture from where the bridge parts are sourced. The relevant drawings shall be updated once the manufacturer of the bridge parts is confirmed based on the manufacturer's recommendations.
- B.2 The foundation strata for the abutments were assumed based on the surface geology of the area.
- Abutment A2:
Solid rock formation was observed at the location where the Abutment A2 is proposed. Hence it is assumed that the full foundation mat of A2 is resting on solid rock.
- Abutment A1:
Dense sandy gravel type soil strata was assumed for the foundation of abutment A1.
If the soil strata for the foundation(s) deviate considerably from the conditions assumed above, matter shall be referred to the design engineer for reassessment of the design conditions and revise the design, if necessary.

CLIENT: Dorjilung Hydro Power Project Project Ref. No.: -	CONSULTANT: JY Engineering Consultants (JYEC) Babesa, Thimphu Ph. +975 17634390 (M) email: jyengconsult2017@gmail.com	PROJECT TITLE: Construction of bridge No.1 (Near the proposed Dam Site)	SHEET CONTENT: LONGITUDINAL ELEVATION	Revisions:			Name	Signature	Drawing No.	
				Issue	Date	Amendments/Issue descriptions	Design	J.Yeshi	BB-A-02	
				01	-	-	Drawing	NB Chhetri	Scale:	1:300
							Check	-	Date:	Jan 2025
							Approved	(as sheet A3 size)	



DETAIL A

SCALE 1:37.5 --

CLIENT: Dorjilung Hydro Power Project Project Ref. No.: -	CONSULTANT: JY Engineering Consultants (JYEC) Babesa, Thimphu Ph. +975 17634390 (M) email: jyengconsult2017@gmail.com	PROJECT TITLE: Construction of bridge No.1 (Near the proposed Dam Site)	SHEET CONTENT: DETAILS OF ANCHOR HOOK	Revisions:				Name	Signature	Drawing No.	
				Issue	Date	Amendments/Issue descriptions	Design	J.Yeshi		BB-A-03	
				01	-	-	Drawing	NB Chhetri		Scale:	1:75
							Check	-		Date:	Jan 2025
							Approved	----		(as sheet A3 size)	

B.SUBSTRUCTURE

CLIENT: Dorjilung Hydro Power Project Project Ref. No.: -	CONSULTANT: JY Engineering Consultants (JYEC) Babesa, Thimphu Ph. +975 17634390 (M) email: jyengconsult2017@gmail.com	PROJECT TITLE: Construction of bridge No.1 (Near the proposed Dam Site)	SHEET CONTENT: COVER PAGE	Revisions:				Name	Signature	Drawing No.	
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							Check	-		Date:	Jan 2025
							Approved		(as sheet A3 size)	

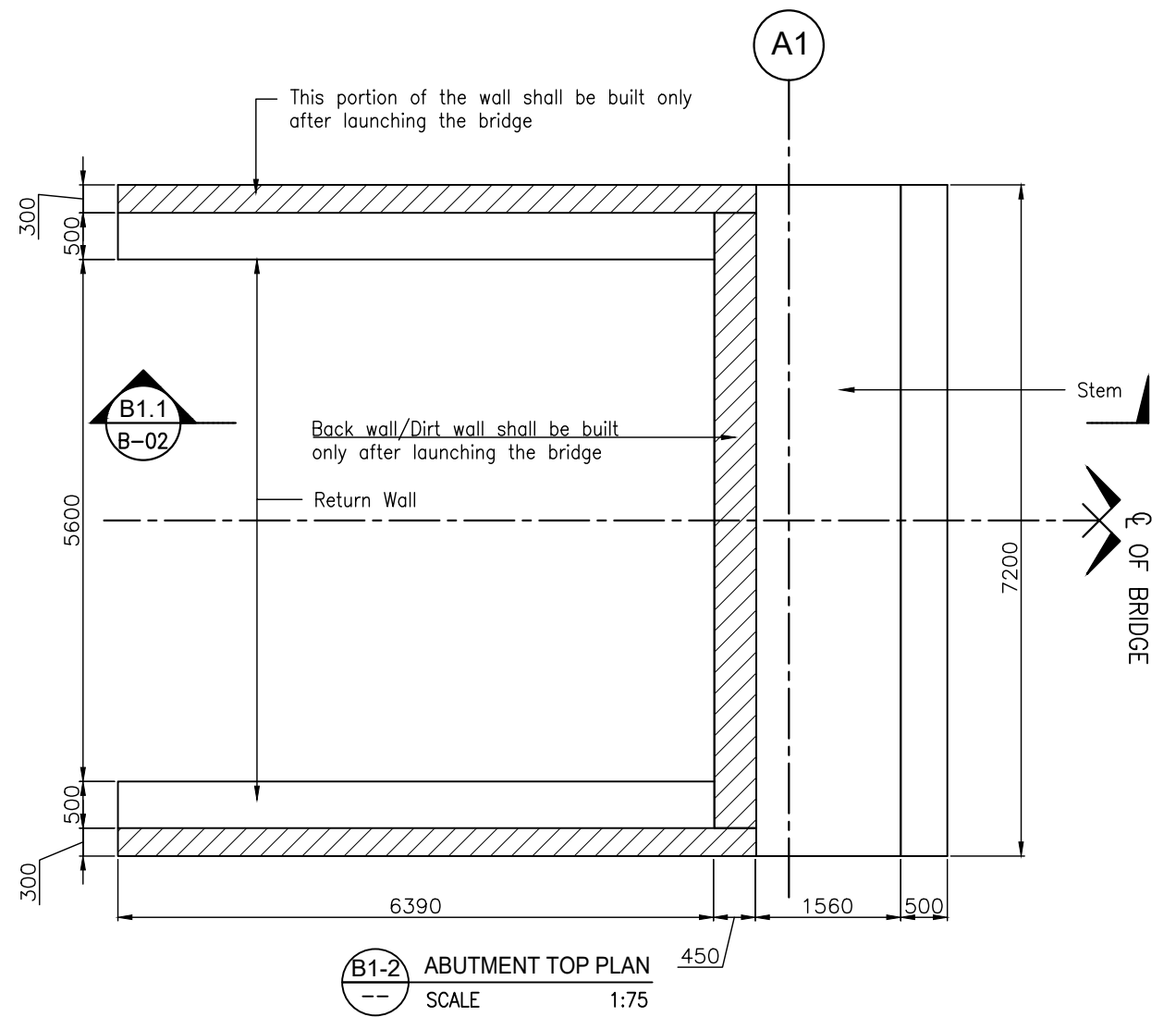
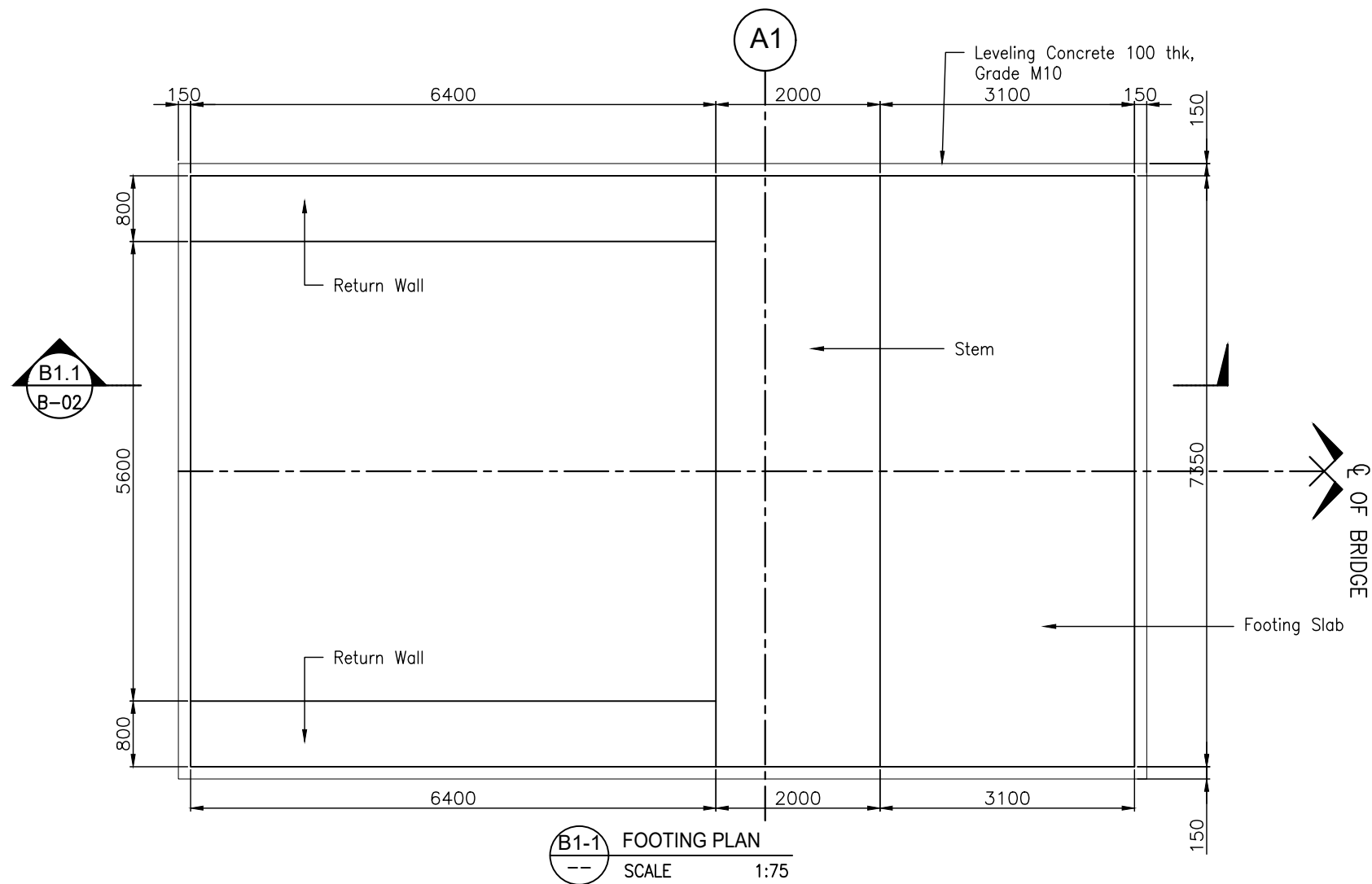
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ABUTMENT A1 PLAN (FORM)

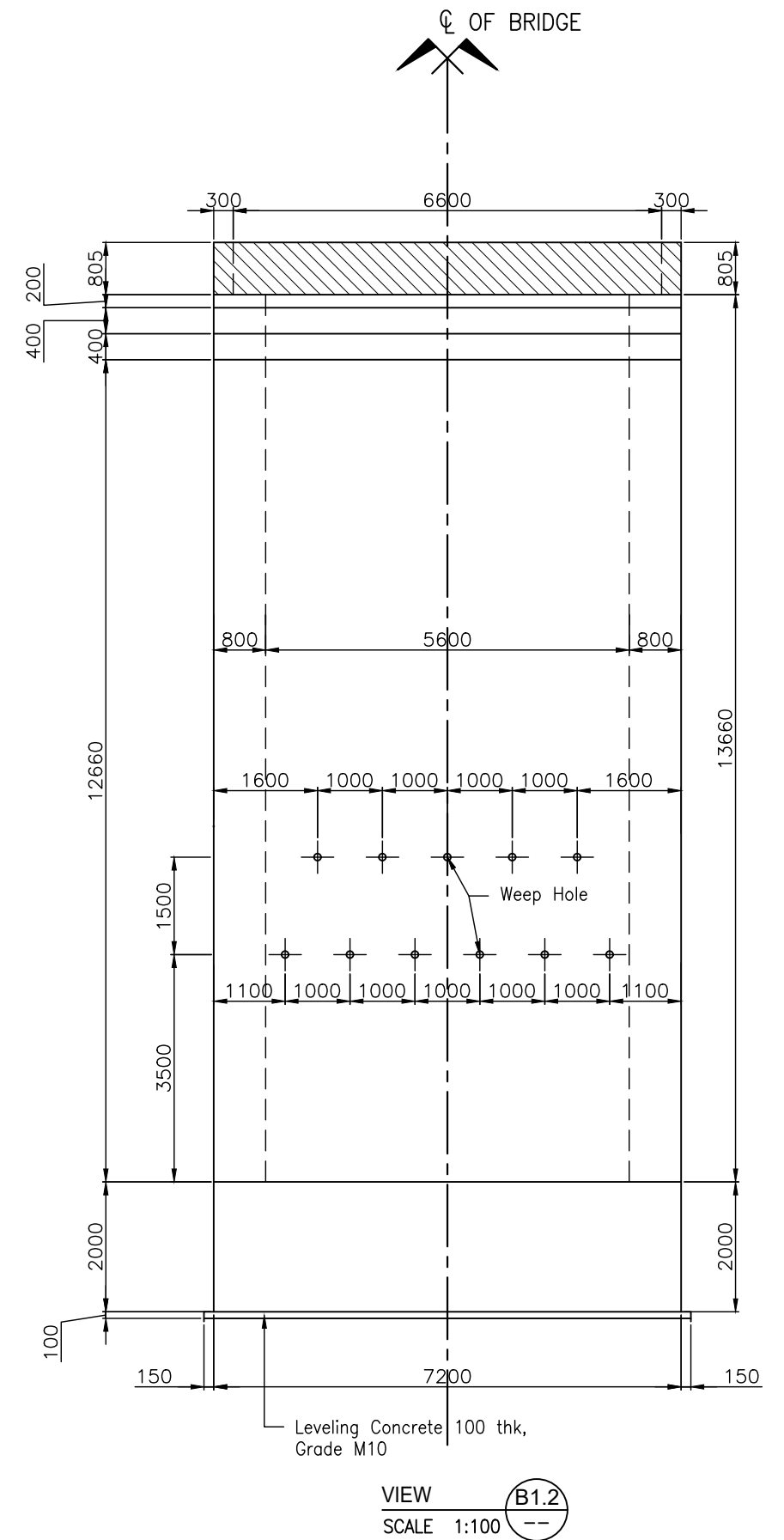
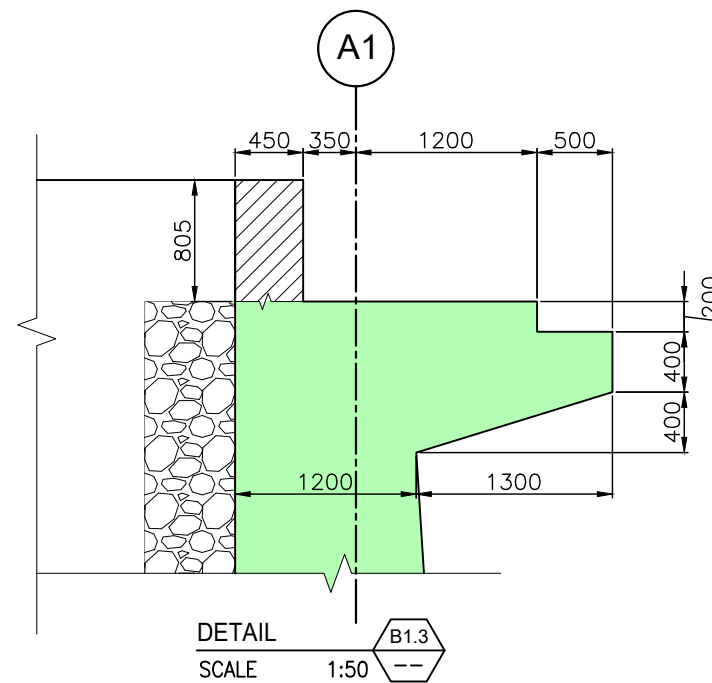
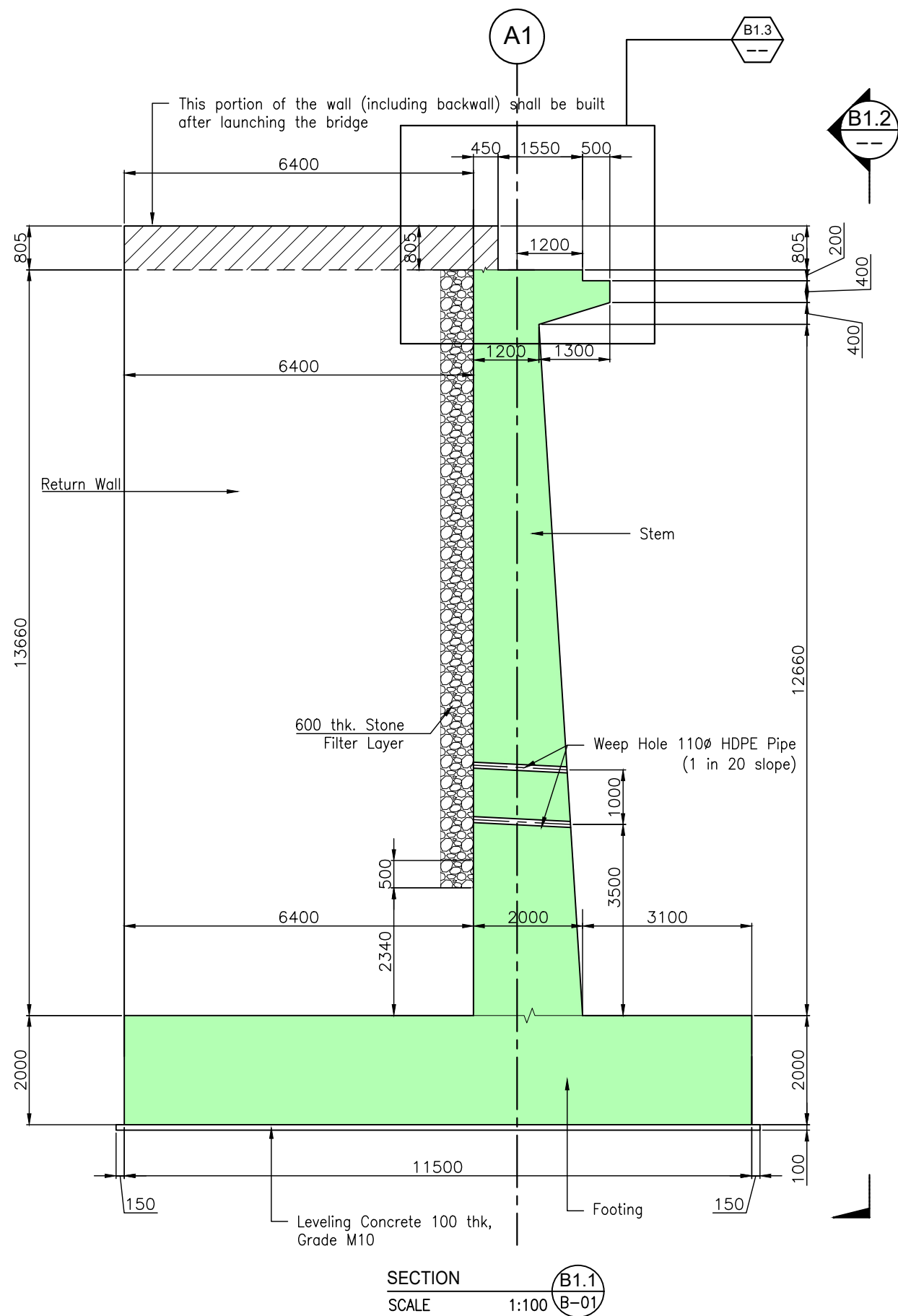
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SCALE

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CLIENT: Dorjilung Hydro Power Project Project Ref. No.: -	CONSULTANT: JY Engineering Consultants (JYEC) Babesa, Thimphu Ph. +975 17634390 (M) email: jyengconsult2017@gmail.com	PROJECT TITLE: Construction of bridge No.1 (Near the proposed Dam Site)	SHEET CONTENT: ABUTMENT A1 PLAN DIMENSION	Revisions:				Name	Signature	Drawing No.	
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				01	-			Drawing	NB Chhetri	Scale:	1:75
								Check	-	Date:	Jan 2025
								Approved	(as sheet A3 size)	



CLIENT:
Dorjilung Hydro Power Project

Project Ref. No.:

CONSULTANT:
JY Engineering Consultants (JYEC)
Babesa, Thimphu
Ph. +975 17634390 (M)
email: jyengconsult2017@gmail.com

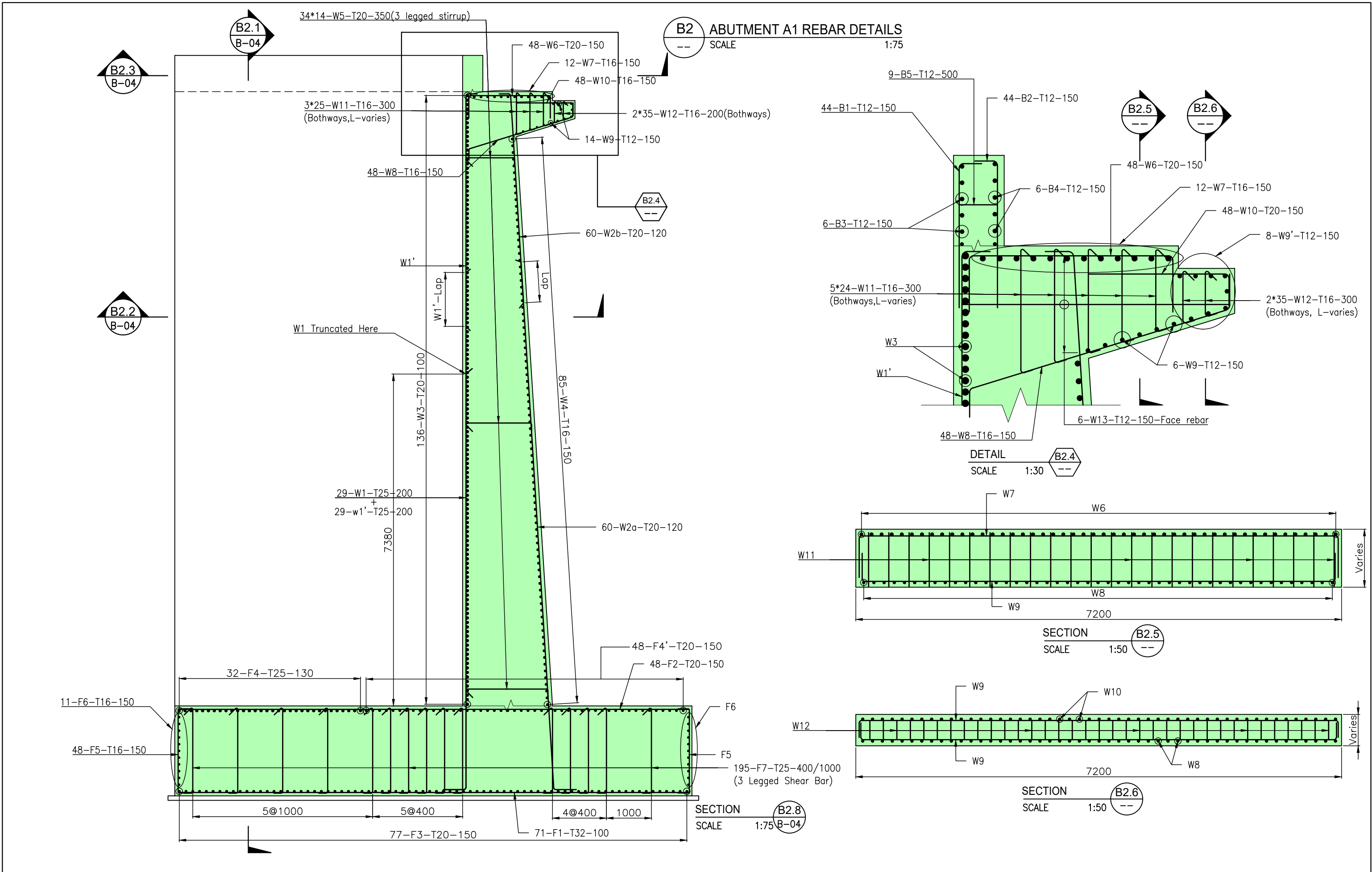
PROJECT TITLE:
Construction of bridge No.1 (Near the proposed Dam Site)

SHEET CONTENT:
ABUTMENT A1 ELEVATION
DIMENSION

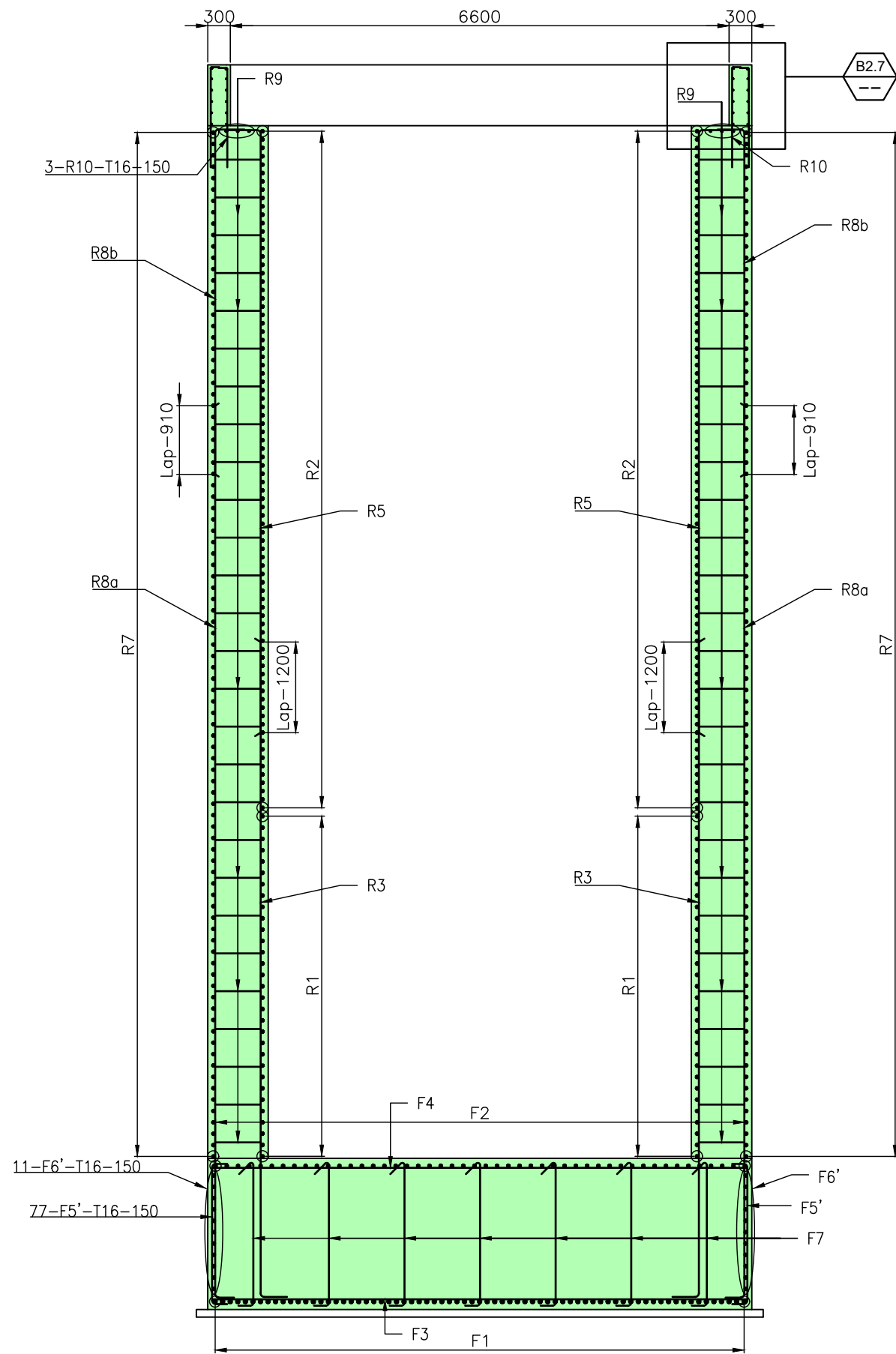
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01	-	-

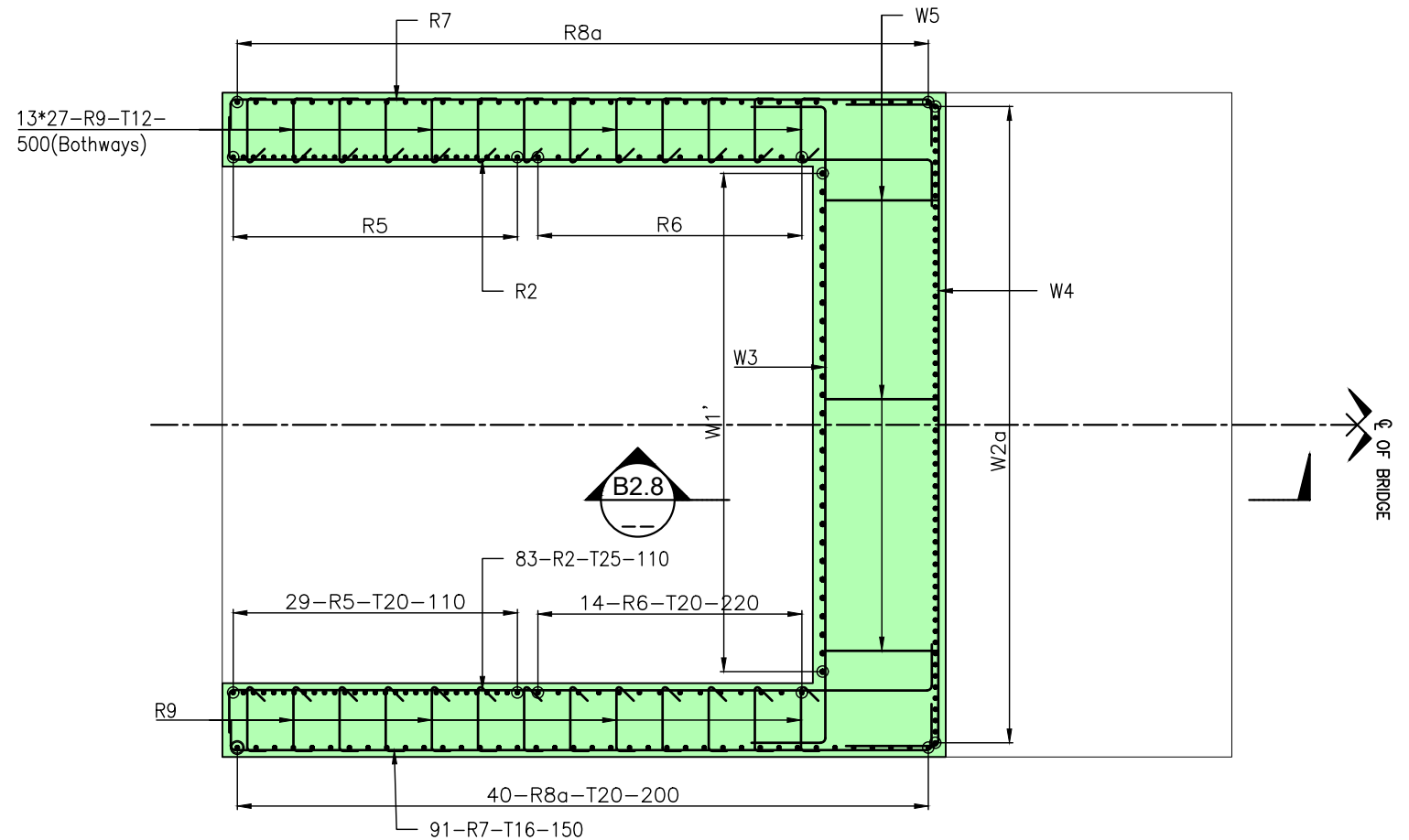
Name	Signature	Drawing No.
J.Yeshi		BB-B-02
NB Chhetri		Scale: As Shown
-		Date: Jan 2025
Approved	(as sheet A3 size)



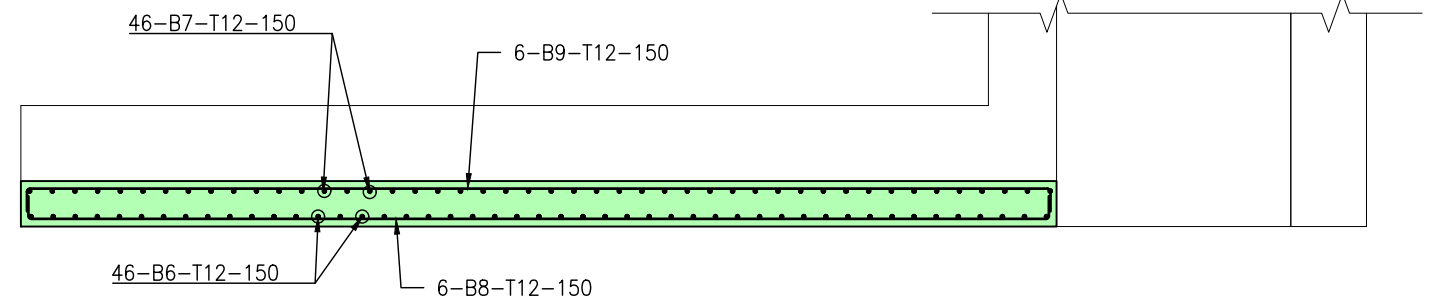
CLIENT: Dorjilung Hydro Power Project Project Ref. No.: -	CONSULTANT: JY Engineering Consultants (JYEC) Babesa, Thimphu Ph. +975 17634390 (M) email: jyengconsult2017@gmail.com	PROJECT TITLE: Construction of bridge No.1 (Near the proposed Dam Site)	SHEET CONTENT: ABUTMENT A1 REBAR DETAILS-1	Revisions:				Name	Signature	Drawing No.	
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								Check	-	Date:	Jan 2025
								Approved	(as sheet A3 size)	



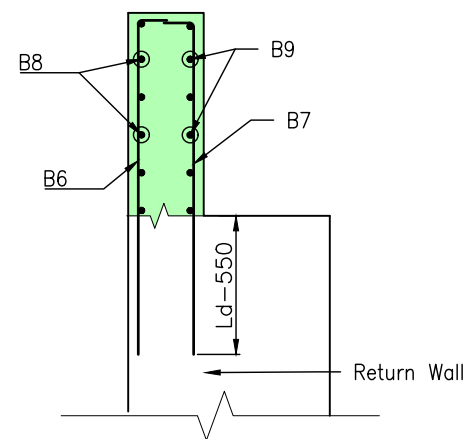
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SECTION B2.2
SCALE 1:75 B-03



SECTION B2.3
SCALE 1:50 B-03



DETAIL B2.7
SCALE 1:30 B-03

CLIENT:
Dorjilung Hydro Power Project

Project Ref. No.:

CONSULTANT:
JY Engineering Consultants (JYEC)
Babesa, Thimphu
Ph. +975 17634390 (M)
email: jyengconsult2017@gmail.com

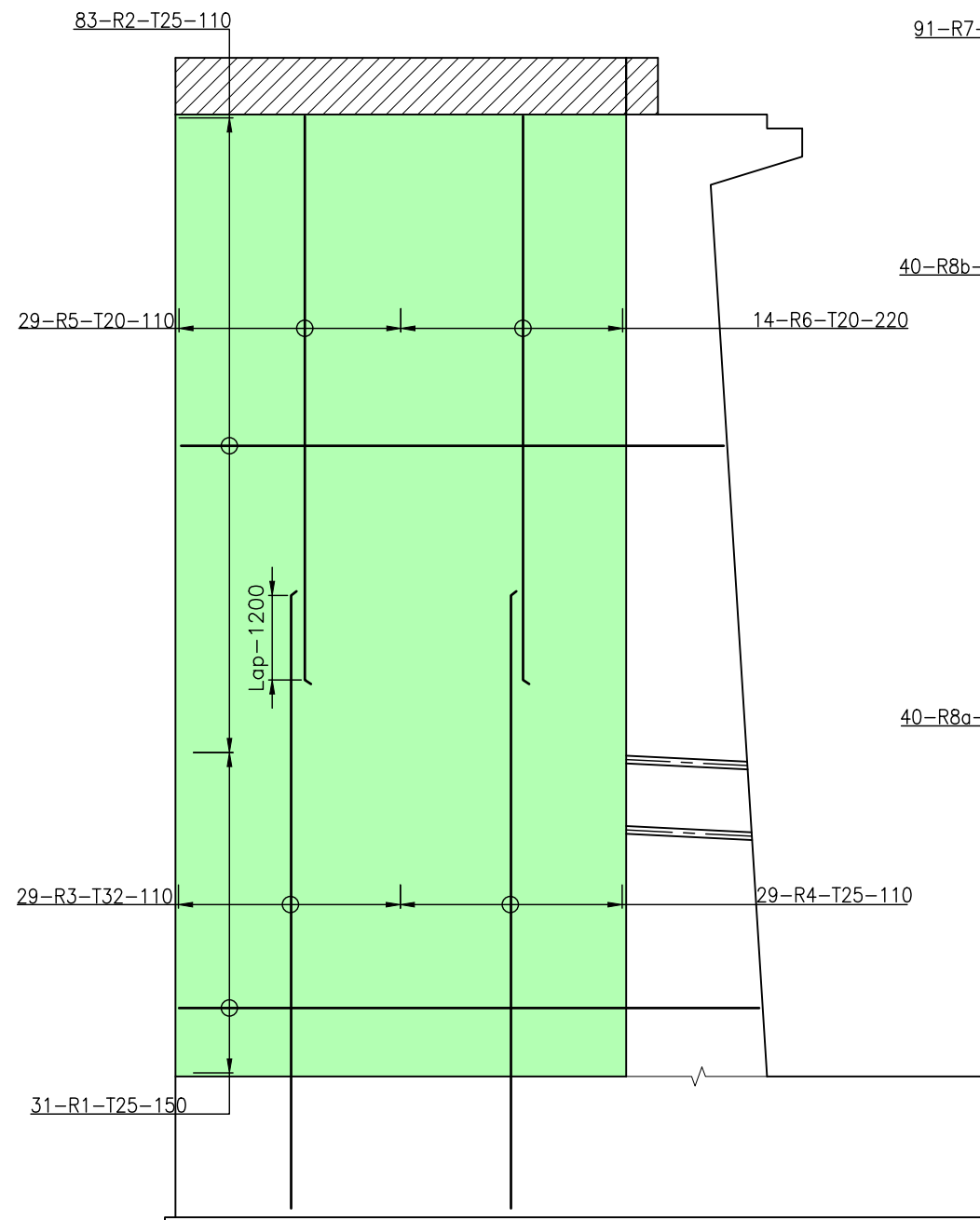
PROJECT TITLE:
Construction of bridge No.1 (Near the proposed
Dam Site)

SHEET CONTENT:
ABUTMENT A1 REBAR
DETAILS-2

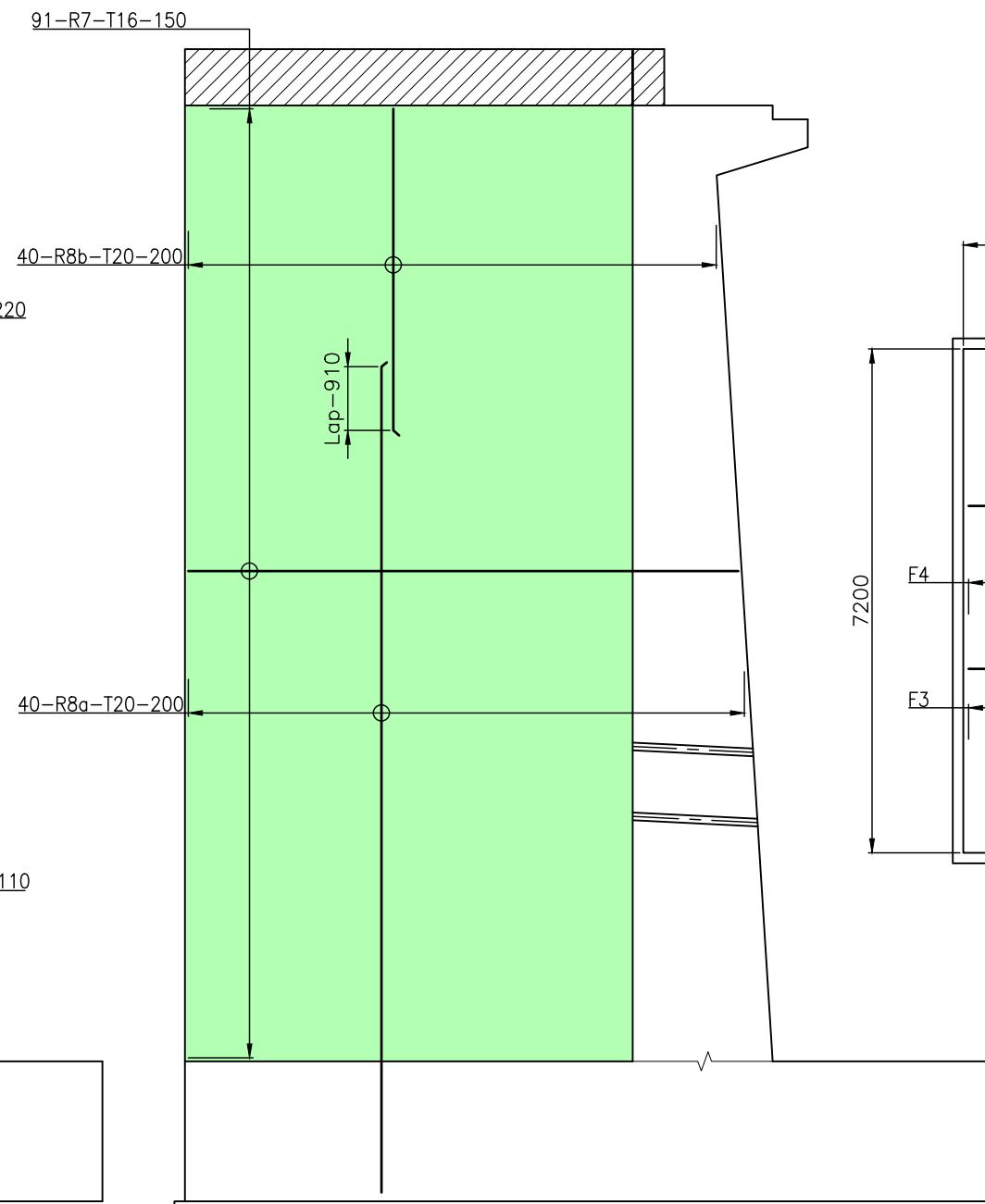
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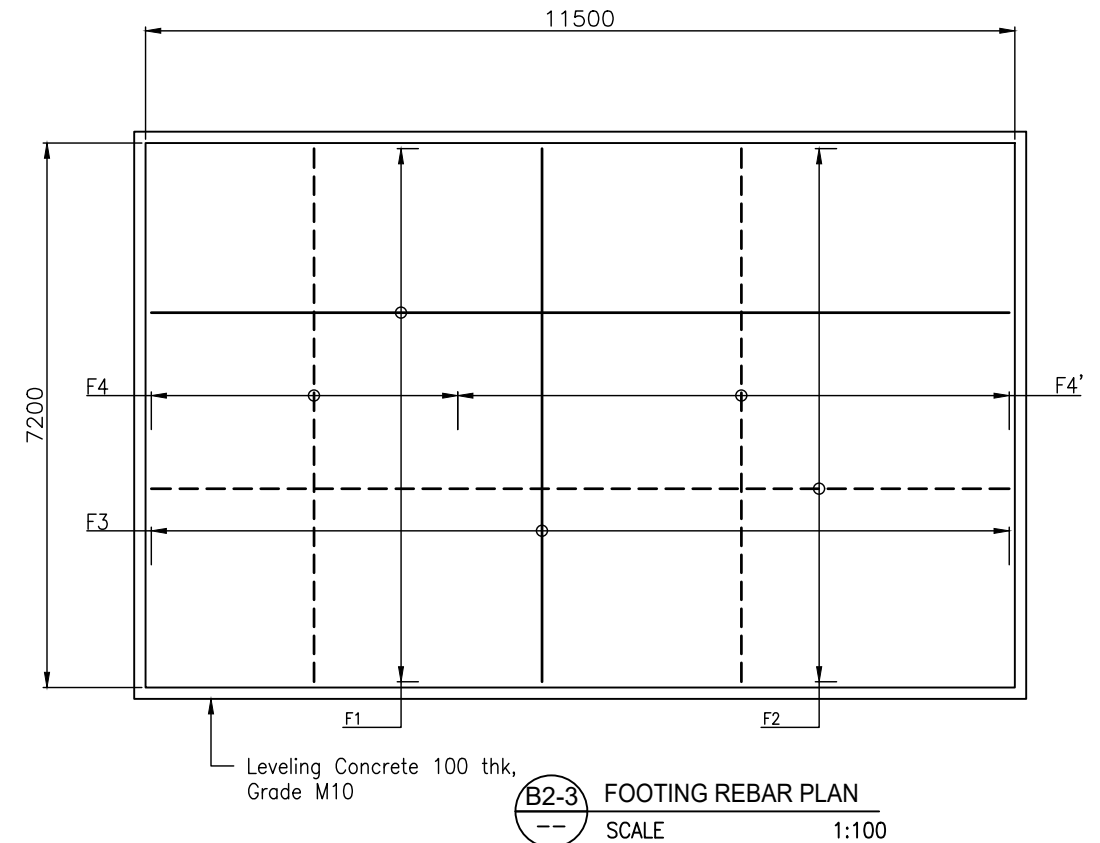
Name	Signature	Drawing No.
J.Yeshi		BB-B-04
NB Chhetri		Scale: As Shown
-		Date: Jan 2025
Approved	(as sheet A3 size)



B2-1 RETURN WALL- INNER FACE(BACK FILL SIDE) REBAR DETAILS
-- SCALE 1:100



B2-2 RETURN WALL- OUTER FACE REBAR DETAILS
-- SCALE 1:100



B2-3 FOOTING REBAR PLAN
-- SCALE 1:100

CLIENT:
Dorjilung Hydro Power Project

Project Ref. No.:

-

CONSULTANT:
JY Engineering Consultants (JYEC)
Babesa, Thimphu
Ph. +975 17634390 (M)
email: jyengconsult2017@gmail.com

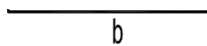
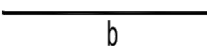
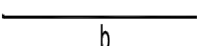
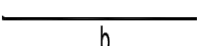
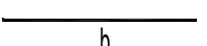
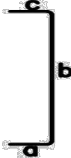

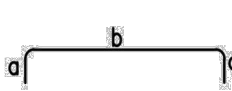
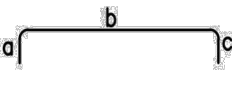
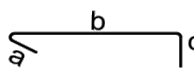


PROJECT TITLE:
Construction of bridge No.1 (Near the proposed
Dam Site)

SHEET CONTENT:
ABUTMENT A1 RETURN WALL
REBAR AND FOOTING REBAR
PLAN




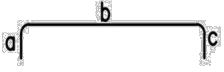
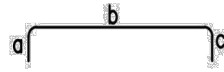
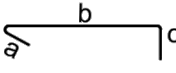
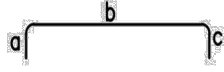

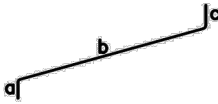
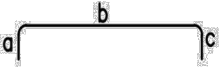
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Issue	Date	Amendments/Issue descriptions
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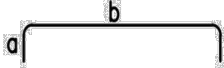
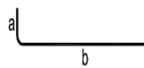
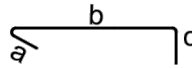
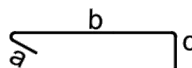
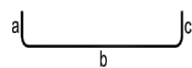
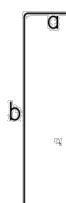
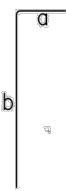
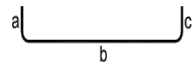
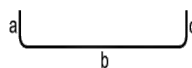
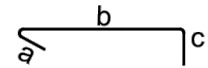
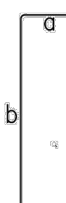
Name	Signature	Drawing No.
J.Yeshi		BB-B-05
NB Chhetri		Scale: 1:75
-		Date: Jan 2025
Approved	(as sheet A3 size)

REBAR SCHEDULE FOR ABUTMENT A1 -BRIDGE 1(NEAR THE PROPOSED DAM SITE)																
Member	Bar Mark	Bar dia	Length of each bar (L)	Number of member	Number of bar in each member	Total number	Total length (m)	BENDING DIMENSION					ADDITIONAL INFROMATION			
								a	b	c	d	e	HOOK		TOTAL WEIGHT (Kg)	REMARKS
													START	END		
Footing slab	F1	32	11350	1	71	71	805.85		11350					5087.33	L=b	
Footing slab	F2	20	11350	1	48	48	544.8		11350					1343.48	L=b	
Footing slab	F3	20	7050	1	77	77	542.85		7050					1338.67	L=b	
Footing slab	F4	25	7050	1	32	32	225.6		7050					808.32	L=b	
Footing slab	F4'	20	7050	1	48	48	338.4		7050					834.49	L=b	
Footing slab	F5	16	2238	1	96	96	214.848	200	1902	200				339.03	L=a+b+c-r-2φ	
Footing slab	F5'	16	2238	1	154	154	344.652	200	1902	200				543.86	L=a+b+c-r-2φ	
Footing slab	F6	16	7386	1	22	22	162.492	200	7050	200				256.41	L=a+b+c-r-2φ	
Footing slab	F6'	16	11996	1	22	22	263.912	355	11350	355				416.45	L=a+b+c-r-2φ	
Footing slab	F7	25	2221.5	1	195	195	433.193	250	1902	250				1552.13	[L=a+b+c-1.5*r-2φ]	
Stem	W1	25	9434.5	1	29	29	273.601	250	9253					980.31	L=a+b-0.5*r-φ	
Stem	W1'A	25	11931.5	1	29	29	346.014	250	11750					1239.77	L=a+b-0.5*r-φ	


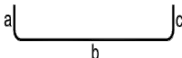
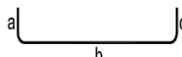
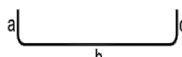
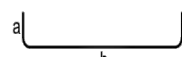
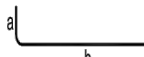
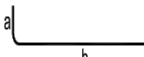
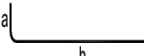
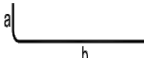
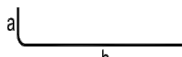
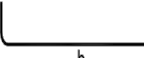
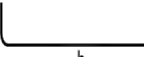
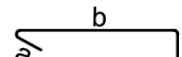
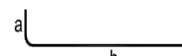

<div>CLIENT:</div> <div>Dorjilung Hydro Power Project</div> <div>Project Ref. No.:</div> <div>-</div>	<div>CONSULTANT:</div> <div>JY Engineering Consultants (JYEC)</div> <div>Babesa, Thimphu</div> <div>Ph. +975 17634390 (M)</div> <div>email: jyengconsult2017@gmail.com</div>	<div>PROJECT TITLE:</div> <div>Construction of bridge No.1 (Near the proposed Dam Site)</div>	<div>SHEET CONTENT:</div> <div>ABUTMENT A1 BBS-1</div>	Revisions:			Name	Signature	Drawing No.	
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				01	-	-	NB Chhetri		Scale:	NTS
							-		Date:	Jan 2025
							Approved	----	(as sheet A3 size)	

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								a	b	c	d	e	HOOK		TOTAL WEIGHT (Kg)	REMARKS
													START	END		
Stem	W1'B	25	5351.5	1	29	29	155.194	250	5170						556.06	W1'A AND W1'B ARE IN LAP
Stem	W2A	20	11940	1	60	60	716.4	250	11750						1766.64	L=a+b-0.5*r-φ
Stem	W2B	20	4850	1	60	60	291	250	4655						717.61	W2A AND W2B ARE IN LAP
Stem	W3	20	7318	1	136	136	995.248	200	7028	200					2454.28	L=a+b+c-r-2φ
Stem	W4	16	7364	1	85	85	625.94	200	7028	200					987.73	L=a+b+c-r-2φ
Stem	W5	20	1748	1	476	476	832.048	200	1493	200					2051.83	tie [L=a+b+c-1.5*r-2φ](Varies)
Stem	W6	20	2770	1	48	48	132.96	500	1880	500					327.88	L=a+b+c-r-2φ
Stem	W7	16	8086	1	12	12	97.032	550	7050	550					153.12	L=a+b+c-r-2φ
Stem	W8	16	2753	1	48	48	132.144	200	2417	200					208.52	L=a+b+c-r-2φ
Stem	W9	12	8102	1	6	6	48.612	550	7050	550					43.17	L=a+b+c-r-2φ

CLIENT: Dorjilung Hydro Power Project Project Ref. No.: -	CONSULTANT: JY Engineering Consultants (JYEC) Babesa, Thimphu Ph. +975 17634390 (M) email: jyengconsult2017@gmail.com	PROJECT TITLE: Construction of bridge No.1 (Near the proposed Dam Site)	SHEET CONTENT: ABUTMENT A1 BBS-2	Revisions:			Name	Signature	Drawing No.	
				Issue	Date	Amendments/Issue descriptions			Design	BB-B-07
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							-		Date:	Jan 2025
							Approved	----	(as sheet A3 size)	

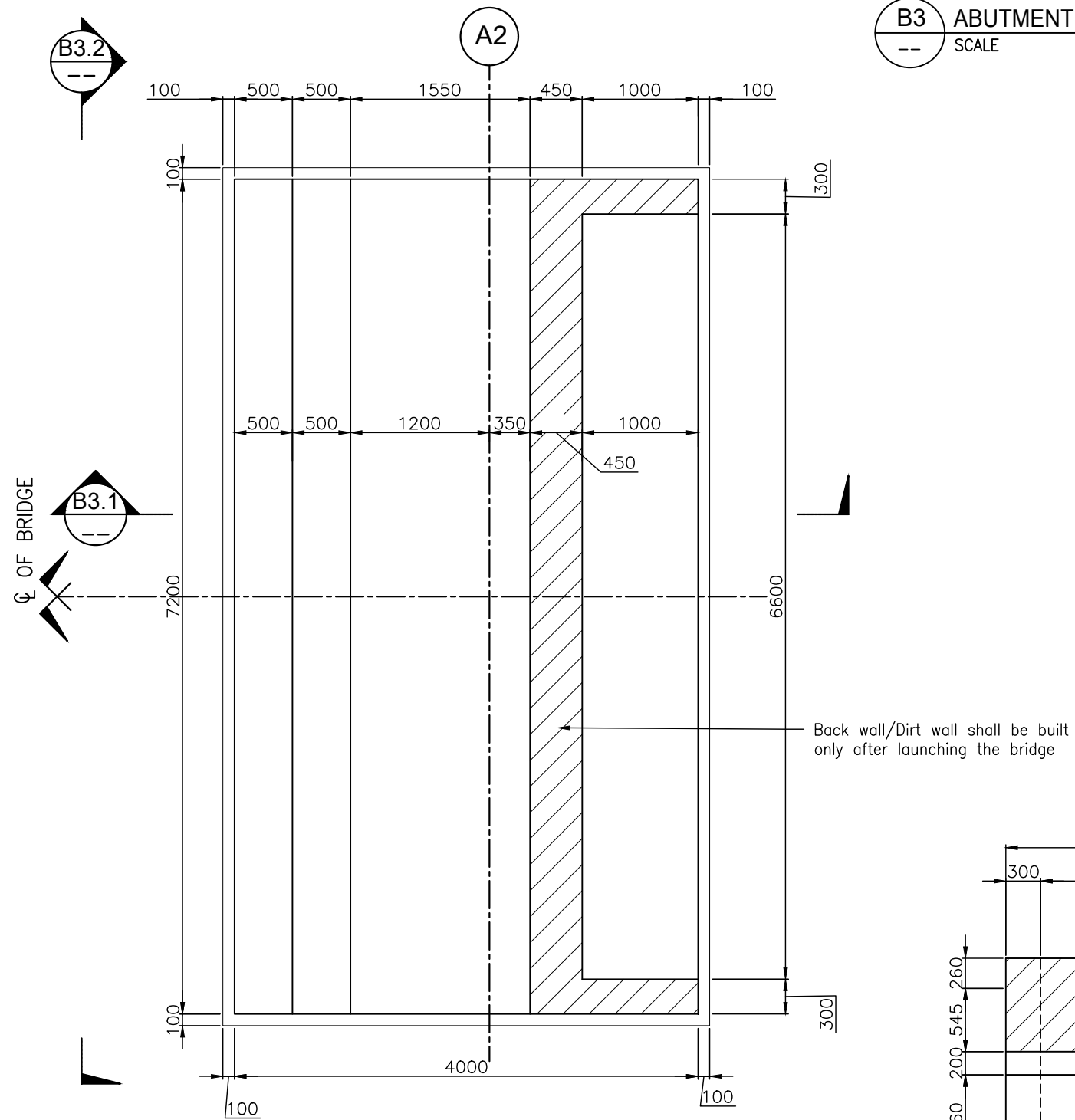
Member	Bar Mark	Bar dia	Length of each bar (L)	Number of member	Number of bar in each member	Total number	Total length (m)	BENDING DIMENSION					ADDITIONAL INFROMATION			
								a	b	c	d	e	HOOK		TOTAL WEIGHT (Kg)	REMARKS
													START	END		
Stem	W9'	12	7402	1	8	8	59.216	200	7050	200					52.58	$L=a+b+c-r-2\phi$
Stem	W10	20	1595	1	48	48	76.56	250	1400						188.80	$L=a+b-0.5*r-\phi$
Stem	W11	16	1215	1	125	125	151.875	160	975	160					239.66	tie [$L=a+b+c-1.5*r-2\phi$](Varies)
Stem	W12	16	675	1	70	70	47.25	160	435	160					74.56	tie [$L=a+b+c-1.5*r-2\phi$](Varies)
Stem	W13	12	2732	1	12	12	32.784	200	2380	200					29.11	$L=a+b+c-r-2\phi$ (Varies)
Back Wall	B1	12	1481	1	44	44	65.164	200	1305						57.87	
Back Wall	B2	12	1481	1	44	44	65.164	200	1305						57.87	
Back Wall	B3	12	7402	1	6	6	44.412	200	7050	200					39.44	$L=a+b+c-r-2\phi$
Back Wall	B4	12	7402	1	6	6	44.412	200	7050	200					39.44	$L=a+b+c-r-2\phi$
Back Wall	B5	12	635	1	9	9	5.715	160	375	160					5.07	tie [$L=a+b+c-1.5*r-2\phi$]
Back Wall	B6	12	1481	1	46	46	68.126	200	1305						60.50	

CLIENT: Dorjilung Hydro Power Project Project Ref. No.: -	CONSULTANT: JY Engineering Consultants (JYEC) Babesa, Thimphu Ph. +975 17634390 (M) email: jyengconsult2017@gmail.com	PROJECT TITLE: Construction of bridge No.1 (Near the proposed Dam Site)	SHEET CONTENT: ABUTMENT A1 BBS-3	Revisions:			Name	Signature	Drawing No.	
				Issue	Date	Amendments/Issue descriptions			Design	BB-B-08
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							Check	-	Date:	Jan 2025
							Approved	----	(as sheet A3 size)	

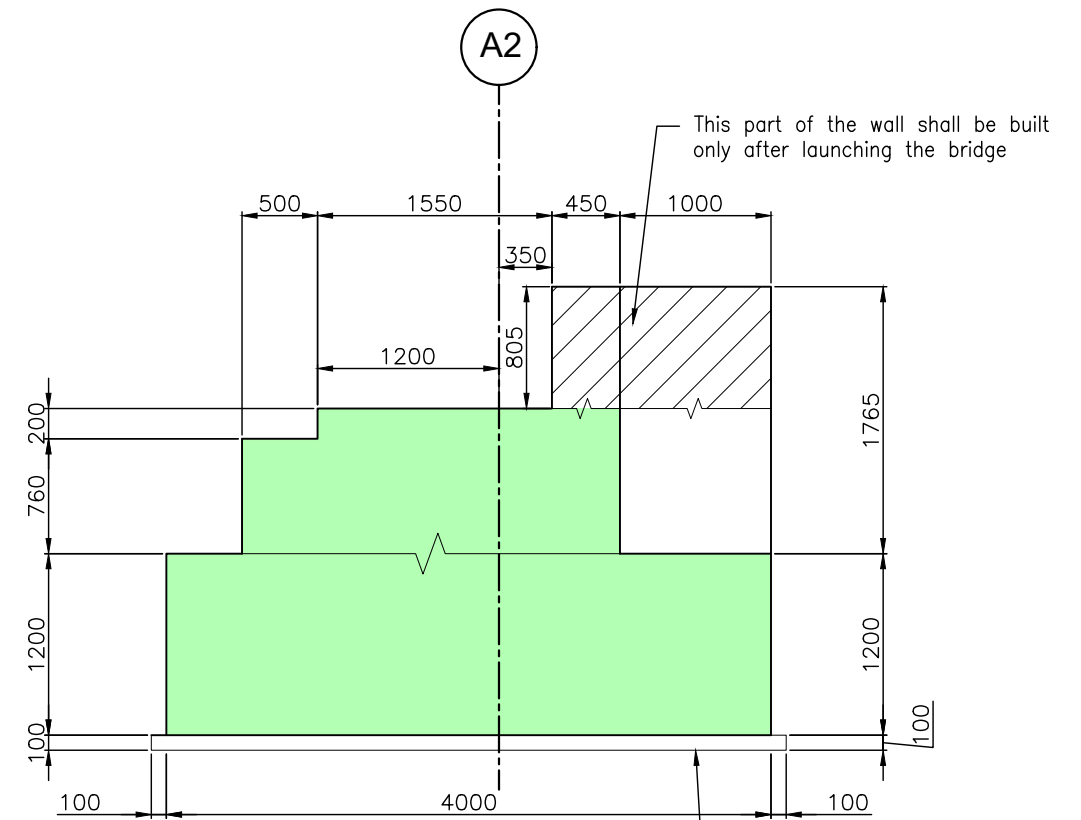
Member	Bar Mark	Bar dia	Length of each bar (L)	Number of member	Number of bar in each member	Total number	Total length (m)	BENDING DIMENSION					ADDITIONAL INFOMATION			
								a	b	c	d	e	HOOK		TOTAL WEIGHT (Kg)	REMARKS
													START	END		
Back Wall	B7	12	1481	1	46	46	68.126	200	1305					60.50		
Back Wall	B8	12	7102	1	6	6	42.612	200	6750	200				37.84	L=a+b+c-r-2φ	
Back Wall	B9	12	7102	1	6	6	42.612	200	6750	200				37.84	L=a+b+c-r-2φ	
Return Wall	R1	25	8886	2	31	62	550.932	450	8123	450				1973.99	L=a+b+c-r-2φ(Varies)	
Return Wall	R2	25	8888	2	83	166	1475.41	450	8125	450				5286.39	L=a+b+c-r-2φ(Varies)	
Return Wall	R3	32	8967	2	29	58	520.086	350	8705					3283.30	L=a+b-0.5*r-φ	
Return Wall	R4	25	8886.5	2	29	58	515.417	250	8705					1846.74	L=a+b-0.5*r-φ	
Return Wall	R5	20	8350	2	29	58	484.3	400	8005					1194.28	L=a+b-0.5*r-φ	
Return Wall	R6	20	8350	2	14	28	233.8	400	8005					576.55	L=a+b-0.5*r-φ	
Return Wall	R7	16	8635	2	91	182	1571.57	200	8299	200				2479.94	L=a+b+c-r-2φ(Varies)	
Return Wall	R8a	20	11945	2	40	80	955.6	200	11800					2356.51	L=a+b-0.5*r-φ	
Return Wall	R8b	20	4938	2	40	80	395.04	400	4593					974.17	do	
Return Wall	R9	12	905	2	351	702	635.31	120	725	120				564.16	tie [L=a+b+c-1.5*r-2φ]	
Return Wall	R10	16	7268	2	3	6	43.608	200	7100					68.81		
Anchor Hook	H	32	1834.3	1	2	2	3.6686	900	150	900				23.16	L=a+0.57b+c-1.6d	
QUANTITY FOR ABUTMENT A1=														45,616	Kgs	

CLIENT: Dorjilung Hydro Power Project Project Ref. No.: -	CONSULTANT: JY Engineering Consultants (JYEC) Babesa, Thimphu Ph. +975 17634390 (M) email: jyengconsult2017@gmail.com	PROJECT TITLE: Construction of bridge No.1 (Near the proposed Dam Site)	SHEET CONTENT: ABUTMENT A1 BBS-4	Revisions:			Name	Signature	Drawing No.	
				Issue	Date	Amendments/Issue descriptions			Design	BB-B-09
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									Check	Date: Jan 2025
									Approved	(as sheet A3 size)

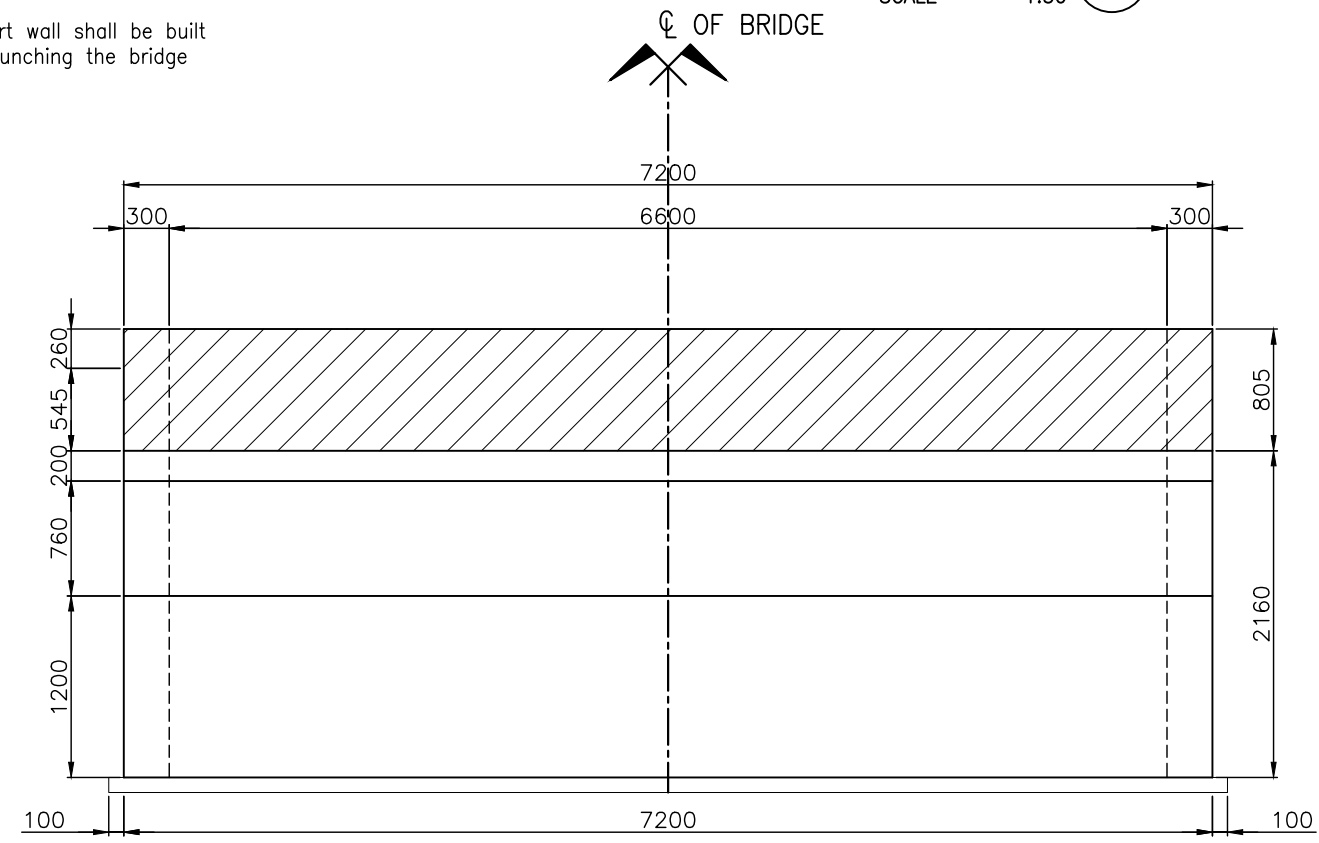
B3 ABUTMENT A2-FORM
-- SCALE 1:50



B3-1 PLAN
-- SCALE 1:50



B3.1 SECTION
-- SCALE 1:50



B3.2 VIEW
-- SCALE 1:50

CLIENT: Dorjilung Hydro Power Project Project Ref. No.: -	CONSULTANT: JY Engineering Consultants (JYEC) Babesa, Thimphu Ph. +975 17634390 (M) email: jyengconsult2017@gmail.com	PROJECT TITLE: Construction of bridge No.1 (Near the proposed Dam Site)	SHEET CONTENT: ABUTMENT A2 DIMENISONS	Revisions:				Name	Signature	Drawing No.	
				Issue	Date	Amendments/Issue descriptions	Design	J.Yeshi		BB-B-10	
				01	-	-	Drawing	NB Chhetri		Scale:	1:50
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							Approved		(as sheet A3 size)	

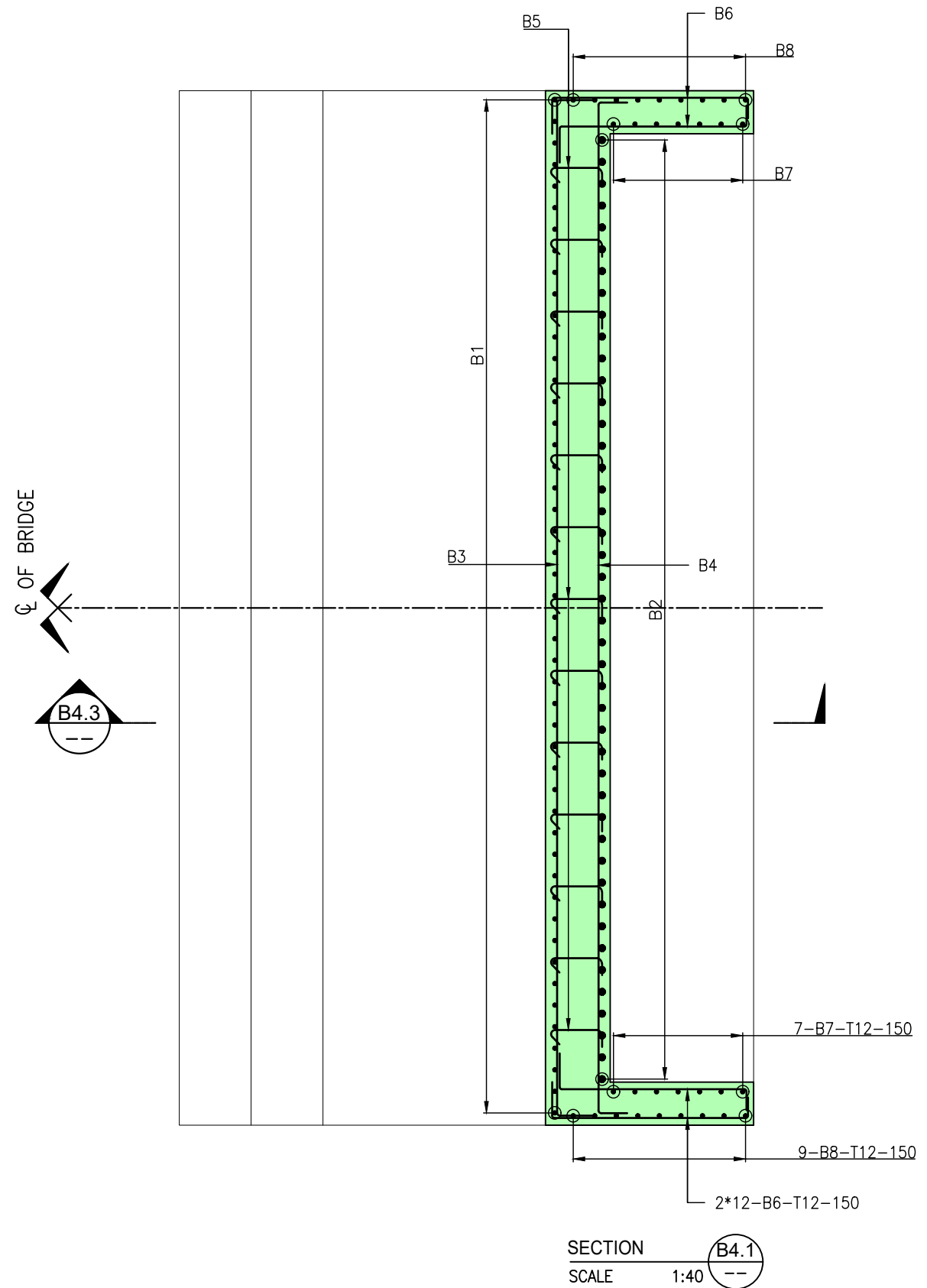
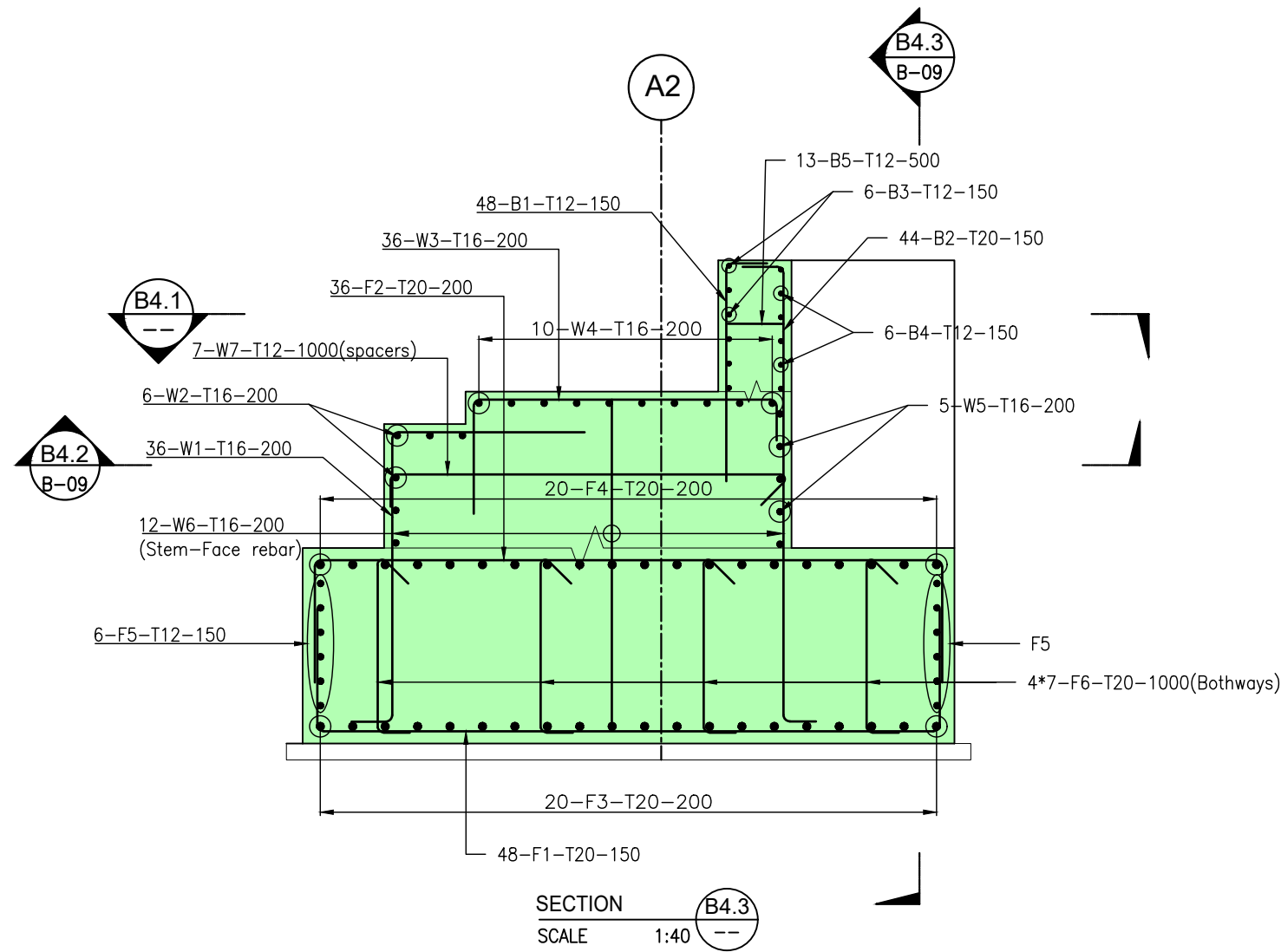
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ABUTMENT A2 REBAR DETAILS

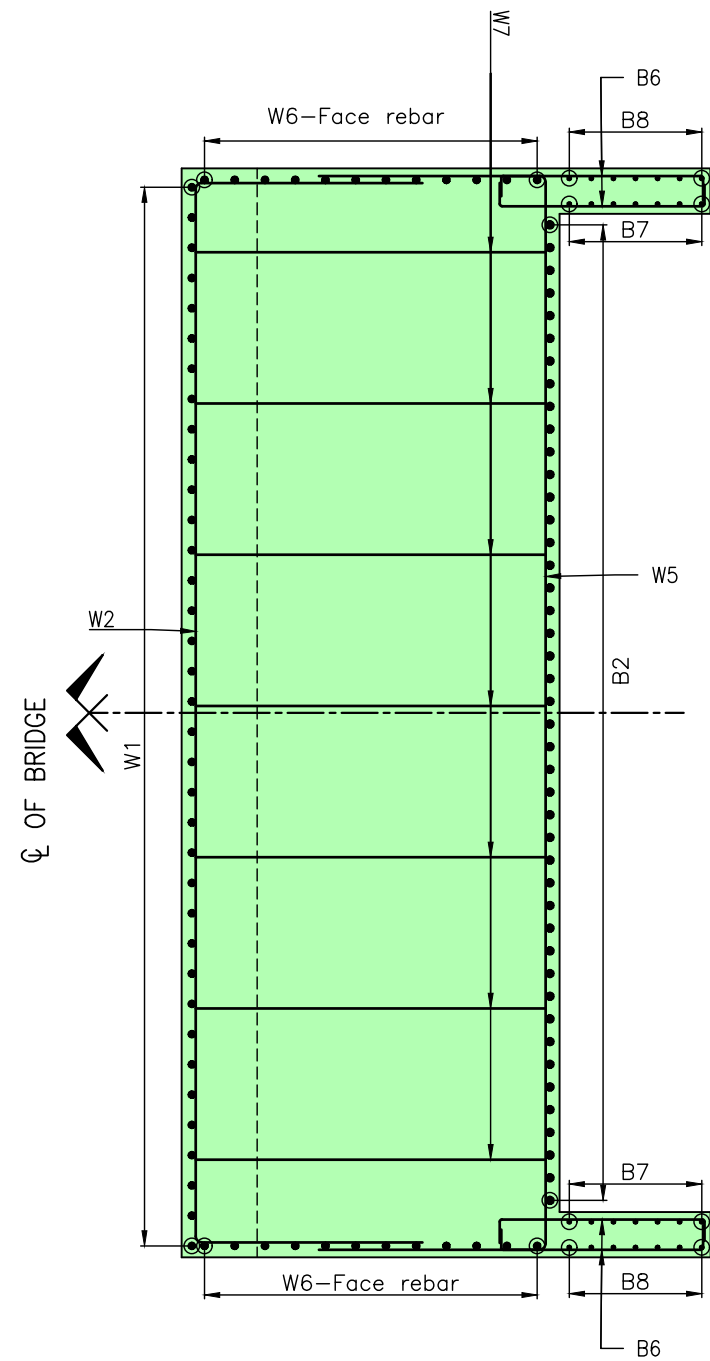
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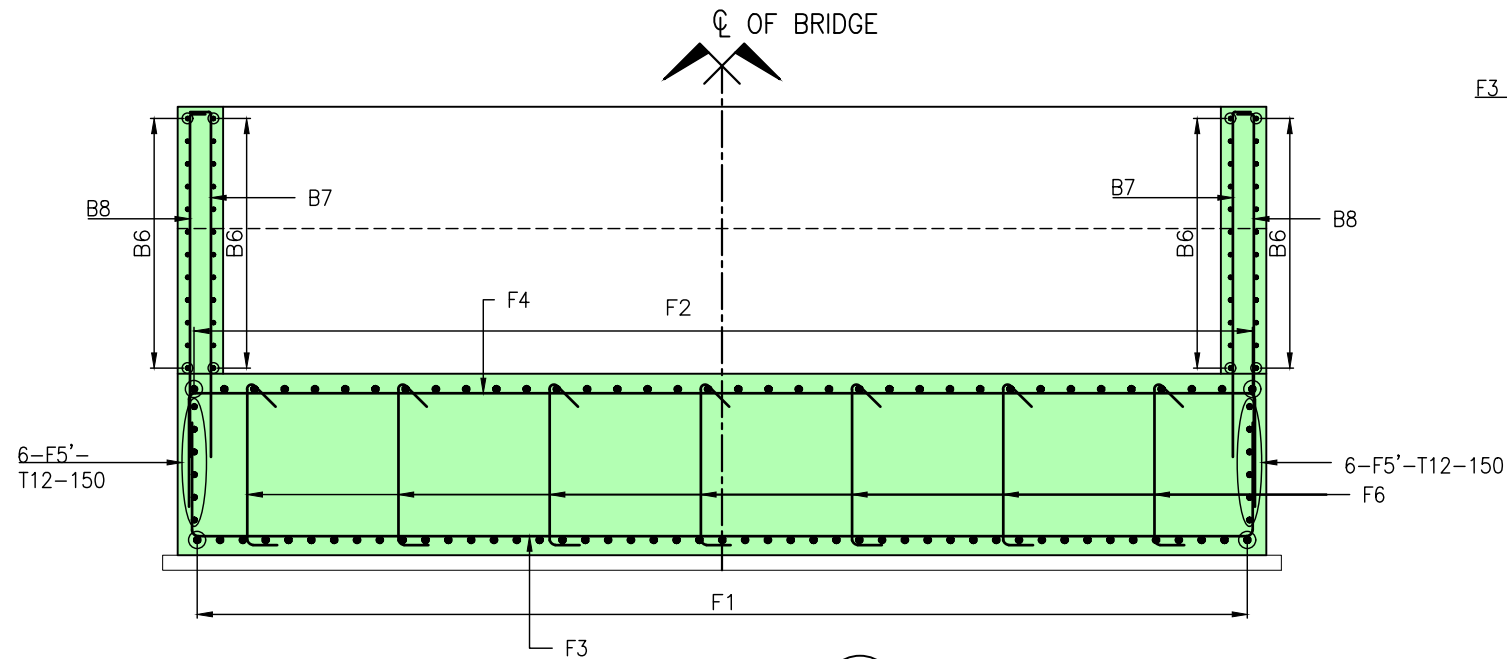
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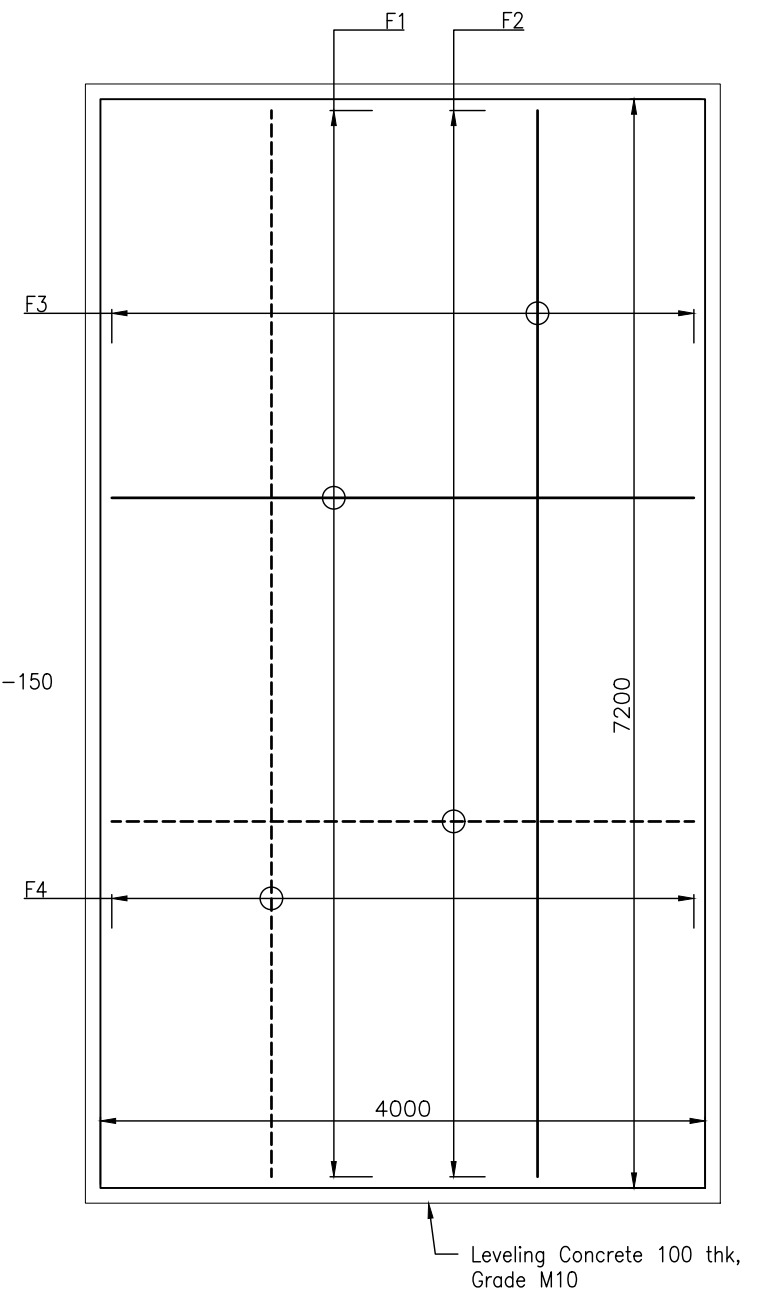
CLIENT: Dorjilung Hydro Power Project Project Ref. No.: -	CONSULTANT: JY Engineering Consultants (JYEC) Babesa, Thimphu Ph. +975 17634390 (M) email: jyengconsult2017@gmail.com	PROJECT TITLE: Construction of bridge No.1 (Near the proposed Dam Site)	SHEET CONTENT: ABUTMENT A2 REBAR DETAILS-1	Revisions:			Name	Signature	Drawing No.		
				Issue	Date	Amendments/Issue descriptions	Design	J.Yeshi		BB-B-11	
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SECTION B4.2
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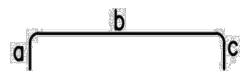
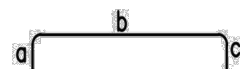
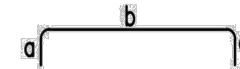
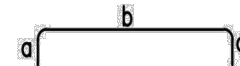
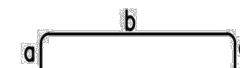
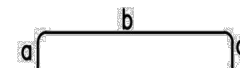
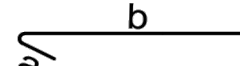
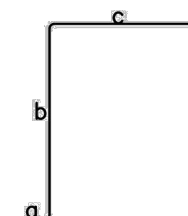
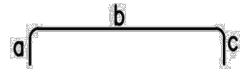


SECTION B4.3
SCALE 1:50



B4-1 FOOTING REBAR PLAN
SCALE 1:50

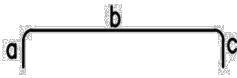
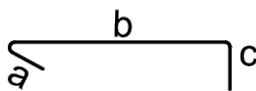
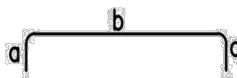
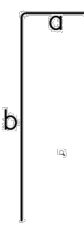


CLIENT: Dorjilung Hydro Power Project Project Ref. No.:	CONSULTANT: JY Engineering Consultants (JYEC) Babesa, Thimphu Ph. +975 17634390 (M) email: jyengconsult2017@gmail.com	PROJECT TITLE: Construction of bridge No.1 (Near the proposed Dam Site)	SHEET CONTENT: ABUTMENT A2 REBAR DETAILS-2 AND FOOTING REBAR PLAN	Revisions:				Name	Signature	Drawing No.	
				Issue	Date	Amendments/Issue descriptions	Design	J.Yeshi		BB-B-12	
				01	-	-	Drawing	NB Chhetri		Scale:	1:50
							Check	-		Date:	Jan 2025
							Approved	----		(as sheet A3 size)	

REBAR SCHEDULE FOR ABUTMENT A1-BRIDGE 1(NEAR THE PROPOSED DAM SITE)																
Member	Bar Mark	Bar dia	Length of each bar (L)	Number of member	Number of bar in each member	Total number	Total length (m)	BENDING DIMENSION					ADDITIONAL INFROMATION			
								a	b	c	d	e	HOOK		TOTAL WEIGHT (Kg)	REMARKS
													START	END		
Footing slab	F1	20	5140	1	48	48	246.72	700	3850	700				608.41	L=a+b+c-r-2ϕ	
Footing slab	F2	20	5140	1	36	36	185.04	700	3850	700				456.31	L=a+b+c-r-2ϕ	
Footing slab	F3	20	7340	1	20	20	146.8	200	7050	200				362.01	L=a+b+c-r-2ϕ	
Footing slab	F4	20	7340	1	20	20	146.8	200	7050	200				362.01	L=a+b+c-r-2ϕ	
Footing slab	F5	12	7402	1	12	12	88.824	200	7050	200				78.88	L=a+b+c-r-2ϕ	
Footing slab	F5'	12	4202	1	12	12	50.424	200	3850	200				44.78	L=a+b+c-r-2ϕ	
Footing slab	F6	20	1345	1	28	28	37.66	200	1090	200				92.87	[L=a+b+c-1.5*r-2ϕ]	
Stem	W1	16	3111	1	36	36	111.996	200	1795	1180				176.73	L=a+b+c-r-2ϕ	
Stem	W2	16	10036	1	6	6	60.216	1500	7100	1500				95.02	L=a+b+c-r-2ϕ	

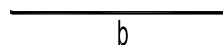
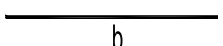
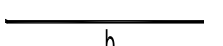
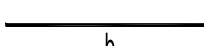
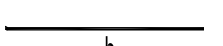
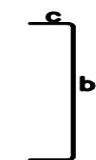
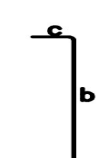
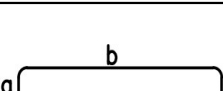
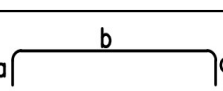
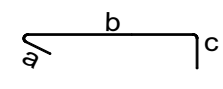
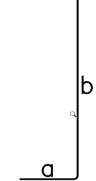
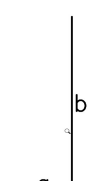
CLIENT: Dorjilung Hydro Power Project Project Ref. No.:		CONSULTANT: JY Engineering Consultants (JYEC) Babesa, Thimphu Ph. +975 17634390 (M) email: jyengconsult2017@gmail.com		PROJECT TITLE: Construction of bridge No.1 (Near the proposed Dam Site)		SHEET CONTENT: ABUTMENT A2 BBS-1		Revisions:				Name	Signature	Drawing No.		
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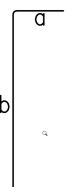
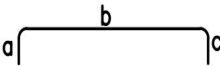
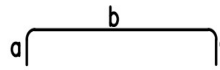
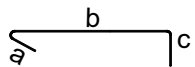
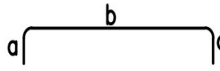
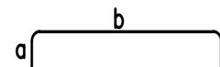
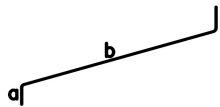
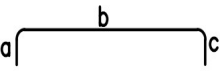
Member	Bar Mark	Bar dia	Length of each bar (L)	Number of member	Number of bar in each member	Total number	Total length (m)	BENDING DIMENSION					ADDITIONAL INFROMATION			
								a	b	c	d	e	HOOK		TOTAL WEIGHT (Kg)	REMARKS
													START	END		
Stem	W3	16	2750	1	36	36	99	700	1864	250				156.22	$L=a+b+c-r-2\phi$	
Stem	W4	16	7436	1	10	10	74.36	200	7100	200				117.34	$L=a+b+c-r-2\phi$	
Stem	W5	16	10004	1	5	5	50.02	1500	7068	1500				78.93	$L=a+b+c-r-2\phi$	
Stem	W6	16	2431	1	24	24	58.344	250	1995	250				92.07	$L=a+b+c-r-2\phi$	
Stem	W7	12	2555	1	7	7	17.885	120	2375	120				15.88	$[L=a+b+c-1.5*r-2\phi]$	
Back Wall	B1	12	1531	1	48	48	73.488	250	1305					65.26	$L=a+b-0.5*r-\phi$	
Back Wall	B2	20	3190	1	44	44	140.36	250	2800	250				346.13	$L=a+b+c-r-2\phi$	
Back Wall	B3	12	7528	1	6	6	45.168	250	7076	250				40.11	$L=a+b+c-r-2\phi$	

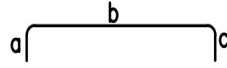
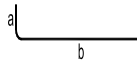
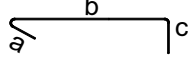
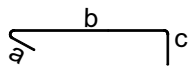
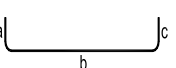
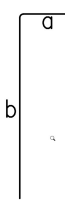
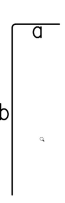
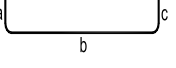
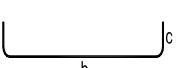
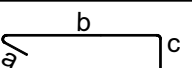
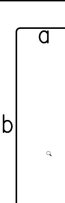
CLIENT: Dorjilung Hydro Power Project Project Ref. No.:		CONSULTANT: JY Engineering Consultants (JYEC) Babesa, Thimphu Ph. +975 17634390 (M) email: jyengconsult2017@gmail.com		PROJECT TITLE: Construction of bridge No.1 (Near the proposed Dam Site)		SHEET CONTENT: ABUTMENT A2 BBS-2		Revisions:			Name	Signature	Drawing No. BB-B-14 Scale: NTS Date: Jan 2025 (as sheet A3 size)	
								Issue	Date	Amendments/Issue descriptions				
								01	-	-				

Member	Bar Mark	Bar dia	Length of each bar (L)	Number of member	Number of bar in each member	Total number	Total length (m)	BENDING DIMENSION					ADDITIONAL INFROMATION			
								a	b	c	d	e	HOOK		TOTAL WEIGHT (Kg)	REMARKS
													START	END		
Back Wall	B4	12	7528	1	6	6	45.168	250	7076	250				40.11	L=a+b+c-r-2φ	
Back Wall	B5	12	555	1	13	13	7.215	120	375	120				6.41	[L=a+b+c-1.5*r-2φ]	
Return Wall	B6	12	1802	1	48	48	86.496	250	1350	250				76.81	L=a+b+c-r-2φ	
Return Wall	B7	12	2478	1	14	14	34.692	250	2265					30.81	L=a+b-0.5*r-φ	
Return Wall	B8	12	2491	1	14	14	34.874	250	2265					30.97	L=a+b-0.5*r-φ	
Anchor Hook	H	32	1834.3	1	2	2	3.6686	900	150	900				23.16	L=a+0.57b+c-1.6d	
QUANTITY FOR ABUTMENT A2=															3,397	Kgs

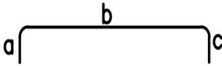
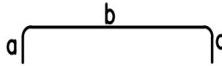
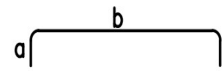
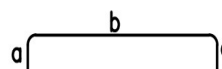
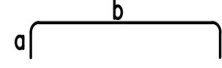
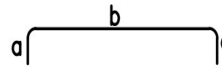
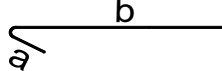
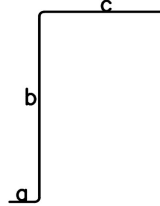
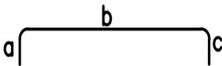
CLIENT: Dorjilung Hydro Power Project Project Ref. No.:	CONSULTANT: JY Engineering Consultants (JYEC) Babesa, Thimphu Ph. +975 17634390 (M) email: jyengconsult2017@gmail.com	PROJECT TITLE: Construction of bridge No.1 (Near the proposed Dam Site)	SHEET CONTENT: ABUTMENT A2 BBS-3	Revisions:				Name	Signature	Drawing No.	
				Issue	Date	Amendments/Issue descriptions	Design	J.Yeshi		BB-B-15	
				01	-	-	Drawing	NB Chhetri		Scale:	NTS
							Check	-		Date:	Jan 2025
							Approved		(as sheet A3 size)	

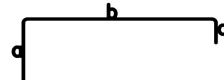
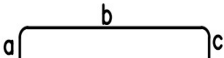
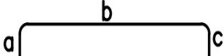
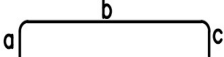
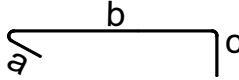
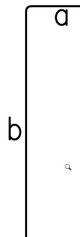

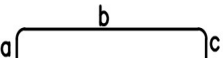
REBAR SCHEDULE FOR ABUTMENT A1 -BRIDGE 1(NEAR THE PROPOSED DAM SITE)																
Member	Bar Mark	Bar dia	Length of each bar (L)	Number of member	Number of bar in each member	Total number	Total length (m)	BENDING DIMENSION					ADDITIONAL INFROMATION			
								a	b	c	d	e	HOOK		TOTAL WEIGHT (Kg)	REMARKS
													START	END		
Footing slab	F1	32	11350	1	71	71	805.85		11350					5087.33	L=b	
Footing slab	F2	20	11350	1	48	48	544.8		11350					1343.48	L=b	
Footing slab	F3	20	7050	1	77	77	542.85		7050					1338.67	L=b	
Footing slab	F4	25	7050	1	32	32	225.6		7050					808.32	L=b	
Footing slab	F4'	20	7050	1	48	48	338.4		7050					834.49	L=b	
Footing slab	F5	16	2238	1	96	96	214.848	200	1902	200				339.03	L=a+b+c-r-2φ	
Footing slab	F5'	16	2238	1	154	154	344.652	200	1902	200				543.86	L=a+b+c-r-2φ	
Footing slab	F6	16	7386	1	22	22	162.492	200	7050	200				256.41	L=a+b+c-r-2φ	
Footing slab	F6'	16	11996	1	22	22	263.912	355	11350	355				416.45	L=a+b+c-r-2φ	
Footing slab	F7	25	2221.5	1	195	195	433.193	250	1902	250				1552.13	[L=a+b+c-1.5*r-2φ]	
Stem	W1	25	9434.5	1	29	29	273.601	250	9253					980.31	L=a+b-0.5*r-φ	
Stem	W1'A	25	11931.5	1	29	29	346.014	250	11750					1239.77	L=a+b-0.5*r-φ	

Member	Bar Mark	Bar dia	Length of each bar (L)	Number of member	Number of bar in each member	Total number	Total length (m)	BENDING DIMENSION					ADDITIONAL INFROMATION			
								a	b	c	d	e	HOOK		TOTAL WEIGHT (Kg)	REMARKS
													START	END		
Stem	W1'B	25	5351.5	1	29	29	155.194	250	5170					556.06	W1'A AND W1'B ARE IN LAP	
Stem	W2A	20	11940	1	60	60	716.4	250	11750					1766.64	L=a+b-0.5*r-φ	
Stem	W2B	20	4850	1	60	60	291	250	4655					717.61	W2A AND W2B ARE IN LAP	
Stem	W3	20	7318	1	136	136	995.248	200	7028	200				2454.28	L=a+b+c-r-2φ	
Stem	W4	16	7364	1	85	85	625.94	200	7028	200				987.73	L=a+b+c-r-2φ	
Stem	W5	20	1748	1	476	476	832.048	200	1493	200				2051.83	tie [L=a+b+c-1.5*r-2φ](Varies)	
Stem	W6	20	2770	1	48	48	132.96	500	1880	500				327.88	L=a+b+c-r-2φ	
Stem	W7	16	8086	1	12	12	97.032	550	7050	550				153.12	L=a+b+c-r-2φ	
Stem	W8	16	2753	1	48	48	132.144	200	2417	200				208.52	L=a+b+c-r-2φ	
Stem	W9	12	8102	1	6	6	48.612	550	7050	550				43.17	L=a+b+c-r-2φ	

Member	Bar Mark	Bar dia	Length of each bar (L)	Number of member	Number of bar in each member	Total number	Total length (m)	BENDING DIMENSION					ADDITIONAL INFROMATION			
								a	b	c	d	e	HOOK		TOTAL WEIGHT (Kg)	REMARKS
													START	END		
Stem	W9'	12	7402	1	8	8	59.216	200	7050	200				52.58	L=a+b+c-r-2φ	
Stem	W10	20	1595	1	48	48	76.56	250	1400					188.80	L=a+b-0.5*r-φ	
Stem	W11	16	1215	1	125	125	151.875	160	975	160				239.66	tie [L=a+b+c-1.5*r-2φ](Varies)	
Stem	W12	16	675	1	70	70	47.25	160	435	160				74.56	tie [L=a+b+c-1.5*r-2φ](Varies)	
Stem	W13	12	2732	1	12	12	32.784	200	2380	200				29.11	L=a+b+c-r-2φ(Varies)	
Back Wall	B1	12	1481	1	44	44	65.164	200	1305					57.87		
Back Wall	B2	12	1481	1	44	44	65.164	200	1305					57.87		
Back Wall	B3	12	7402	1	6	6	44.412	200	7050	200				39.44	L=a+b+c-r-2φ	
Back Wall	B4	12	7402	1	6	6	44.412	200	7050	200				39.44	L=a+b+c-r-2φ	
Back Wall	B5	12	635	1	9	9	5.715	160	375	160				5.07	tie [L=a+b+c-1.5*r-2φ]	
Back Wall	B6	12	1481	1	46	46	68.126	200	1305					60.50		

Member	Bar Mark	Bar dia	Length of each bar (L)	Number of member	Number of bar in each member	Total number	Total length (m)	BENDING DIMENSION					ADDITIONAL INFROMATION			
								a	b	c	d	e	HOOK		TOTAL WEIGHT (Kg)	REMARKS
													START	END		
Back Wall	B7	12	1481	1	46	46	68.126	200	1305					60.50		
Back Wall	B8	12	7102	1	6	6	42.612	200	6750	200				37.84	L=a+b+c-r-2φ	
Back Wall	B9	12	7102	1	6	6	42.612	200	6750	200				37.84	L=a+b+c-r-2φ	
Return Wall	R1	25	8886	2	31	62	550.932	450	8123	450				1973.99	L=a+b+c-r-2φ(Varies)	
Return Wall	R2	25	8888	2	83	166	1475.41	450	8125	450				5286.39	L=a+b+c-r-2φ(Varies)	
Return Wall	R3	32	8967	2	29	58	520.086	350	8705					3283.30	L=a+b-0.5*r-φ	
Return Wall	R4	25	8886.5	2	29	58	515.417	250	8705					1846.74	L=a+b-0.5*r-φ	
Return Wall	R5	20	8350	2	29	58	484.3	400	8005					1194.28	L=a+b-0.5*r-φ	
Return Wall	R6	20	8350	2	14	28	233.8	400	8005					576.55	L=a+b-0.5*r-φ	
Return Wall	R7	16	8635	2	91	182	1571.57	200	8299	200				2479.94	L=a+b+c-r-2φ(Varies)	
Return Wall	R8a	20	11945	2	40	80	955.6	200	11800					2356.51	L=a+b-0.5*r-φ	
Return Wall	R8b	20	4938	2	40	80	395.04	400	4593					974.17	do	
Return Wall	R9	12	905	2	351	702	635.31	120	725	120				564.16	tie [L=a+b+c-1.5*r-2φ]	
Return Wall	R10	16	7268	2	3	6	43.608	200	7100					68.81		
Anchor Hook	H	32	1834.3	1	2	2	3.6686	900	150	900				23.16	L=a+0.57b+c-1.6d	
QUANTITY FOR ABUTMENT A1=													45,616	Kgs		

REBAR SCHEDULE FOR ABUTMENT A1-BRIDGE 1(NEAR THE PROPOSED DAM SITE)																
Member	Bar Mark	Bar dia	Length of each bar (L)	Number of member	Number of bar in each member	Total number	Total length (m)	BENDING DIMENSION					ADDITIONAL INFROMATION			
								a	b	c	d	e	HOOK		TOTAL WEIGHT (Kg)	REMARKS
													START	END		
Footing slab	F1	20	5140	1	48	48	246.72	700	3850	700				608.41	L=a+b+c-r-2φ	
Footing slab	F2	20	5140	1	36	36	185.04	700	3850	700				456.31	L=a+b+c-r-2φ	
Footing slab	F3	20	7340	1	20	20	146.8	200	7050	200				362.01	L=a+b+c-r-2φ	
Footing slab	F4	20	7340	1	20	20	146.8	200	7050	200				362.01	L=a+b+c-r-2φ	
Footing slab	F5	12	7402	1	12	12	88.824	200	7050	200				78.88	L=a+b+c-r-2φ	
Footing slab	F5'	12	4202	1	12	12	50.424	200	3850	200				44.78	L=a+b+c-r-2φ	
Footing slab	F6	20	1345	1	28	28	37.66	200	1090	200				92.87	[L=a+b+c-1.5*r-2φ]	
Stem	W1	16	3111	1	36	36	111.996	200	1795	1180				176.73	L=a+b+c-r-2φ	
Stem	W2	16	10036	1	6	6	60.216	1500	7100	1500				95.02	L=a+b+c-r-2φ	

Member	Bar Mark	Bar dia	Length of each bar (L)	Number of member	Number of bar in each member	Total number	Total length (m)	BENDING DIMENSION					ADDITIONAL INFROMATION			
								a	b	c	d	e	HOOK		TOTAL WEIGHT (Kg)	REMARKS
													START	END		
Stem	W3	16	2750	1	36	36	99	700	1864	250				156.22	L=a+b+c-r-2φ	
Stem	W4	16	7436	1	10	10	74.36	200	7100	200				117.34	L=a+b+c-r-2φ	
Stem	W5	16	10004	1	5	5	50.02	1500	7068	1500				78.93	L=a+b+c-r-2φ	
Stem	W6	16	2431	1	24	24	58.344	250	1995	250				92.07	L=a+b+c-r-2φ	
Stem	W7	12	2555	1	7	7	17.885	120	2375	120				15.88	[L=a+b+c-1.5*r-2φ]	
Back Wall	B1	12	1531	1	48	48	73.488	250	1305					65.26	L=a+b-0.5*r-φ	
Back Wall	B2	20	3190	1	44	44	140.36	250	2800	250				346.13	L=a+b+c-r-2φ	
Back Wall	B3	12	7528	1	6	6	45.168	250	7076	250				40.11	L=a+b+c-r-2φ	

